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July 11, 2025

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ACTING DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Milwaukee Electric Tool Corporation

Title: Tape Measure with Tape Blade Profile Increasing Tape Standout

Prior Appl. No.: 16/927,693
Prior Appl. Filing Date: July 13, 2020

Examiner: To be determined

Art Unit: To be determined

CONTINUING PATENT APPLICATION TRANSMITTAL LETTER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Transmitted herewith for filing under 37 C.F.R. § 1.53(b) is a:

[X] Continuation [ ] Division [ ] Continuation-In-Part (CIP)

of the above-identified copending prior application in which no patenting, abandonment, or termination of proceedings has occurred. Priority to the above-identified prior application is hereby claimed under 35 U.S.C. § 120 for this continuing application. The entire disclosure of the above-identified prior application is considered as being part of the disclosure of the accompanying continuing application and is hereby incorporated by reference therein in its entirety.

Enclosed are:

[**X**] Application Data Sheet (37 CFR 1.76)

[**X**] Cover Page, Description, Claims and Abstract

[**X**] Formal drawings

[**X**] Copy of Inventor Declaration and Power of Attorney for parent Application No. 16/927,693, filed July 13, 2020

[**X**] Power of Attorney from Assignee/Applicant

[**X**] Information Disclosure Statement

[**X**] Form PTO/SB/08

The requisite fees are being charged to Deposit Account No. 18-0882.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 18-0882.

Please direct all correspondence to the undersigned attorney or agent at the address indicated below.

Respectfully submitted,

Date May 24, 2021

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Application Data Sheet

Application Information

Application Number:	To Be Determined
Application Type:	Nonprovisional
Subject Matter:	Utility
CD-ROM or CD-R:	None
Computer Readable Form (CRF):	No
Title:	Tape Measure with Tape Blade Profile Increasing Tape Standout
Attorney Docket Number:	066749-2558
Request for Early Publication:	No
Request for Non-Publication:	No
Suggested Drawing Figure:	1
Total Drawing Sheets:	16
Small Entity:	No
Petition included:	No
Secrecy Order in Parent Appl.:	No

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Representative Information

Representative Customer Number:	142078	

Domestic Priority Information

Application:	Continuity Type:	Prior Application No.:	Parent Filing Date:	Prior Application Status:	Patent No.:
This Application	Is a continuation of	16/927,693	July 13, 2020	Pending	N/A
16/927,693	Is a continuation of	16/113,695	August 27, 2018	Patented	10,712,142
16/113,695	Is a continuation of	PCT/US2018/047759	August 23, 2018	Expired	N/A
PCT/US2018/047759	Claims the benefit under 35 U.S.C. 119(e)	62/702,575	July 24, 2018	Expired	N/A
PCT/US2018/047759	Claims the benefit under 35 U.S.C. 119(e)	62/549,511	August 24, 2017	Expired	N/A

Foreign Priority Information

Country:	Application number:	Filing Date:	Priority Claimed:

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ **This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.**

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant

application without delay in a European patent application that claims priority to the instant application.
2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s) **[ ]** A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above. **[ ]** B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application. **NOTE:** Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Applicant Information

Applicant 1:

[X] Assignee	**[ ] Legal Representative under 35 U.S.C. 117**	**[ ] Person to whom the inventor is obligated to assign**	**[ ] Person who shows sufficient proprietary interest**
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor:			
If the Assignee is an Organization check here [X]			

Organization Name:	**Milwaukee Electric Tool Corporation**
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Signature:	**/James D. Borchardt/**		**Date:**	**May 24, 2021**
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Atty. Dkt. No.: 066749-2558

US PATENT APPLICATION

for

TAPE MEASURE WITH TAPE BLADE PROFILE INCREASING TAPE STANDOUT

Inventors: Jonathan F. Vitas
Abhijeet A. Khangar

TAPE MEASURE WITH TAPE BLADE PROFILE INCREASING TAPE STANDOUT

CROSS-REFERENCE TO RELATED PATENT APPLICATIONS

[0001] The present application is a continuation of U.S. Application No. 16/927,693, filed July 13, 2020, which is a continuation U.S. Application No. 16/113,695, filed August 27, 2018, now U.S. Patent No. 10,712,142, which is a continuation of International Application No. PCT/US2018/047759, filed August 23, 2018, which claims the benefit of and priority to U.S. Provisional Application No. 62/702,575, filed on July 24, 2018, and U.S. Provisional Application No. 62/549,511, filed on August 24, 2017, all of which are incorporated herein by reference in their entireties.

BACKGROUND OF THE INVENTION

[0002] The present invention relates generally to the field of tools. The present invention relates specifically to a tape measure, measuring tape, retractable rule, etc., that includes a tape measure blade with a profile shape that increases tape standout.

[0003] Tape measures are measurement tools used for a variety of measurement applications, including in the building and construction trades. Some tape measures include a graduated, marked blade wound on a reel and also include a retraction system for automatically retracting the blade onto the reel. In some such tape measure designs, the retraction system is driven by a coil or spiral spring that is tensioned, storing energy as the tape is extended, and that releases energy to spin the reel, winding the blade back onto the reel such that automatic or non-manual tape retraction is provided. In some other tape measure designs, retraction of the tape is controlled via a manual crank, and such tape measure blades tend to have a long length.

SUMMARY OF THE INVENTION

[0004] One embodiment of the invention relates to a tape measure including a tape blade having a profiled cross-sectional shape to increase standout. In a specific embodiment, the tape blade has a flat width less than 27.94 mm and has standout of greater than 115 inches, specifically greater than 120 inches, more specifically greater 125 inches and more specifically greater than 130 inches. In a specific embodiment, the tape blade has a flat width less than 27.94 mm and a curved height greater than 6.3 mm. In a specific embodiment, the tape blade has a flat width less than 27.94 mm and a curved width less than 22.5 mm. In some such embodiments, the tape blade has an angle A (defined below) less than 90 degrees.

[0005] Another embodiment relates to a tape measure including a tape blade having a profiled cross-sectional shape to increase standout along with a low tape blade steel thickness. In a specific embodiment, the tape blade has a metal thickness of less than 0.13 mm, specifically between 0.09 mm and 0.13 mm, and has standout of greater than 115 inches, specifically greater than 120 inches, more specifically greater 125 inches and more specifically greater than 130 inches. In a specific embodiment, the tape blade has a metal thickness of less than 0.13 mm, specifically between 0.09 mm and 0.13 mm, and a curved height greater than 6.3 mm. In a specific embodiment, the tape blade has a metal thickness of less than 0.13 mm, specifically between 0.09 mm and 0.13 mm, and a curved width less than 22.5 mm. In some such embodiments, the tape blade has an angle A (defined below) less than 90 degrees.

[0006] Another embodiment of the invention relates to a tape measure. The tape measure includes a housing, a reel rotatably mounted within the housing and an elongate blade wound around the reel. The elongate blade includes an elongate metal core having an upper surface, a lower surface and a first thickness, T1, measured between the upper surface and the lower surface. The elongate blade includes an upper polymer coating coupled to the upper surface of the elongate metal core, the upper polymer coating having a second thickness, T2, and an upper surface defining the uppermost surface of the elongate blade. The elongate blade includes a lower polymer coating coupled to the lower surface of the elongate metal core, the lower polymer coating having a third thickness, T3, and a lower surface defining the lowermost surface

of the elongate blade. The elongate blade includes a curved profile such that the uppermost surface of the elongate blade defines a concave surface, the lowermost surface defines a convex surface, a curved width and a curved height. A flat width of the elongate metal core is less than 32 mm. A ratio of the curved width to a flat width of the elongate metal core is less than 0.74. A ratio of the curved height to the flat width of the elongate metal core is greater than 0.29. A standout distance of the elongate blade from the housing is greater than 150 inches. The tape measure includes a retraction system coupled to the tape reel, and the retraction system drives rewinding of the elongate tape blade on to the tape reel.

[0007] Another embodiment of the invention relates to a tape measure. The tape measure includes a housing, a reel rotatably mounted within the housing and an elongate blade wound around the reel. The elongate blade includes an elongate metal core having an upper surface, a lower surface and a first thickness, T1, measured between the upper surface and the lower surface. The elongate blade includes an upper polymer coating coupled to the upper surface of the elongate metal core, the upper polymer coating having a second thickness, T2, and an upper surface defining the uppermost surface of the elongate blade. The elongate blade includes a lower polymer coating coupled to the lower surface of the elongate metal core, the lower polymer coating having a third thickness, T3, and a lower surface defining the lowermost surface of the elongate blade. The elongate blade includes a curved profile such that the uppermost surface of the elongate blade defines a concave surface, the lowermost surface defines a convex surface, a curved width and a curved height. A flat width of the elongate metal core is 32 mm or greater. A ratio of the curved width to a flat width of the elongate metal core is less than 0.70. A ratio of the curved height to the flat width of the elongate metal core is greater than 0.31. A standout distance of the elongate blade from the housing is greater than 150 inches. The tape measure includes a retraction system coupled to the tape reel, and the retraction system drives rewinding of the elongate tape blade on to the tape reel.

[0008] Another embodiment of the invention relates to a tape measure. The tape measure includes a housing, a reel rotatably mounted within the housing and an elongate blade wound around the reel. The elongate blade includes an upper surface, a lower surface, a curved profile such that the upper surface of the elongate blade defines a concave surface and the lower surface

defines a convex surface. The elongate blade includes a flat width of 30 mm or less, a curved width, wherein the curved width is less than the flat width and a standout distance of the elongate blade from the housing of at least 132 inches. The tape measure includes a retraction system coupled to the tape reel, and the retraction system drives rewinding of the elongate tape blade on to the tape reel.

[0009] Another embodiment of the invention relates to a tape measure. The tape measure includes a housing, a reel rotatably mounted within the housing and an elongate blade wound around the reel. The elongate blade includes an upper surface, a lower surface and a curved profile such that the upper surface of the elongate blade defines a concave surface and the lower surface defines a convex surface. The elongate blade includes a flat width greater than or equal to 29 mm and less than 32 mm, a curved width, wherein the curved width is less than the flat width and a standout distance of the elongate blade from the housing of at least 156 inches. The tape measure includes a retraction system coupled to the tape reel, and the retraction system drives rewinding of the elongate tape blade on to the tape reel.

[0010] Another embodiment of the invention relates to a tape measure. The tape measure includes a housing, a reel rotatably mounted within the housing and an elongate blade wound around the reel. The elongate blade includes an upper surface, a lower surface and a curved profile such that the upper surface of the elongate blade defines a concave surface and the lower surface defines a convex surface. The elongate blade includes a flat width greater than 32 mm, a curved width, wherein the curved width is less than the flat width and a standout distance of the elongate blade from the housing of at least 168 inches. The tape measure includes a retraction system coupled to the tape reel, wherein the retraction system drives rewinding of the elongate tape blade on to the tape reel.

[0011] Additional features and advantages will be set forth in the detailed description which follows, and, in part, will be readily apparent to those skilled in the art from the description or recognized by practicing the embodiments as described in the written description and claims hereof, as well as the appended drawings. It is to be understood that both the foregoing general description and the following detailed description are exemplary.

[0012] The accompanying drawings are included to provide further understanding and are incorporated in and constitute a part of this specification. The drawings illustrate one or more embodiments and, together with the description, serve to explain principles and operation of the various embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is a left side perspective view of a tape measure, according to an exemplary embodiment.

[0014] FIG. 2 is a left side perspective view of the tape measure of FIG. 1 with a portion of the tape measure housing removed, according to an exemplary embodiment.

[0015] FIG. 3 is a cross-sectional view of a polymer coated tape blade of the tape measure of FIG. 1, according to an exemplary embodiment.

[0016] FIG. 4 is a schematic side view of the tape measure of FIG. 1 with a portion of the tape blade extended from the tape housing, according to another exemplary embodiment.

[0017] FIG. 5 is a cross-sectional view showing the profile of a tape blade, according to an exemplary embodiment.

[0018] FIG. 6 is a cross-sectional view showing the profile of a tape blade, according to an exemplary embodiment.

[0019] FIG. 7 is a plot of four tape blade profiles of the present disclosure plotted relative to the profiles of three prior art tape measures.

[0020] FIG. 8 is a plot of one of the tape blade profiles of the present disclosure plotted relative to the profiles of two prior art tape measures.

[0021] FIG. 9 is a plot of four tape blade profiles of the present disclosure plotted relative to the profile of one prior art tape measures.

[0022] FIG. 10 is a plot of two tape blade profiles of the present disclosure plotted relative to each other.

[0023] FIG. 11 is a plot of four tape blade profiles of the present disclosure plotted relative to the profiles of six prior art tape measures.

[0024] FIG. 12 is a plot of one of the tape blade profiles of the present disclosure plotted relative to the profiles of three prior art tape measures.

[0025] FIG. 13 is a plot of two tape blade profiles of the present disclosure plotted relative to the profiles of two prior art tape measures.

[0026] FIGS. 14-16 show an exemplary tape blade profile labeling the various dimensions listed in Table 3.

[0027] FIG. 17 shows a plot of curved width vs. standout for tape blades having a 33 mm flat width and a 35 mm flat width.

[0028] FIG. 18 is a plot of the tape blade profiles for a 33 mm flat width tape blade and a 35 mm flat width tape blade, according to an exemplary embodiment.

[0029] FIGS. 19 and 20 are photographs showing a droop measurement test, according to an exemplary embodiment.

DETAILED DESCRIPTION

[0030] Referring generally to the figures, various embodiments of a tape measure are shown. Various embodiments of the tape measure discussed herein include an innovative tape blade profile that Applicant believes greatly improves tape standout. In general, Applicant has determined that by shaping the tape blade to a relatively aggressive or steep curved profile shape (as discussed and quantified below), tape standout can be increased and tape droop can be decreased greatly even when utilizing relatively thin and/or relatively narrow pieces of steel for the tape blade. In some embodiments, the steep curved profile shape is formed only along a relatively short lengthwise section of the tape blade that is positioned within a lengthwise zone in which a standard tape tends to buckle during standout. Without being bound by a particular theory, Applicant understands that the steep curved profile shape increases rigidity and buckle resistance, and in particular, tape standout is greatly increased by locating this curved profile shape within the zone where buckling tends to occur.

[0031] Further, Applicant has found that some steep or tight curved shapes may impact readability of markings and numbers on the tape blade due to the relatively steep vertical positioning of the outer widthwise segments of the tape blade. Accordingly, in some

embodiments, the tape blade profiles discussed herein may include outer widthwise segments of the tape blade that are somewhat flattened toward horizontal to provide improved readability of markings positioned thereon. In such embodiments, the central widthwise portion of the tape blade includes a highly curved, rigidity increasing profile shape, while outer widthwise segments of the tape blade are slightly flattened back toward horizontal to improve readability of numbers positioned thereon. As discussed below, this readability improving shape is defined by angle A, shown in FIG. 5.

[0032] Surprisingly, Applicant has further determined that standout can be increased by utilizing a compound curved shape, without increasing retraction torque requirements. In such embodiments, the center region of the tape blade profile has a more curved (e.g., smaller radius of curvature) shape than the edge regions. Applicant has found that such a shape may increase standout and improve readability of markings on the tape measure without increasing retraction torque requirement. In contrast to Applicant's understanding of conventional wisdom in the tape measure, the tape blade profiles discussed herein provide a combination of increased standout, lower retraction torque and/or increased readability, while maintaining a relatively low thickness tape blade.

[0033] In some embodiments, the tape blade profile may has a continuous curved shape, such as a parabolic or catenary curved shape. In such embodiments, Applicant has found that continuous curved tape blades may improve durability or tear resistance. For example, Applicant has determined, that at least for some designs, when a tape blade buckles, regions having a sharp change of shape within a compound cross-sectional curve profile are more likely to crack or break when compared to a tape blade with a continuous curve profile.

[0034] Referring to FIG. 1 and FIG. 2, a length measurement device, such as tape measure 10, is shown according to an exemplary embodiment. Tape measure 10 includes a coilable tape blade 14 and a housing 18. In general, tape blade 14 is an elongate strip of material including a plurality of graduated measurement markings, and in specific embodiments, tape blade 14 is an elongate strip of metal material (e.g., steel material) that includes an outer most end coupled to a hook assembly, shown as hook assembly 26. As discussed in more detail below, tape blade 14

may include various coatings (e.g., polymer coating layers) to help protect tape blade 14 from cracking during whip or pinch.

[0035] Further, tape blade 14 may include any combination of tape blade features of the various embodiments discussed herein. Specifically, in various embodiments, tape blade 14 includes a steep curved profile shape as discussed below that improves tape standout performance. As shown in FIG. 1, a variable-length extended segment 22 of the tape blade 14 is retractable and extendable from the housing 18. A hook assembly 26 is fixedly coupled to an outer end portion 30 of tape blade 14.

[0036] As shown in FIG. 2, the non-extended portion of tape blade 14 is wound onto a reel 34, which is surrounded by housing 18. Reel 34 is rotatably disposed about an axis 38 of tape measure 10, and a retraction mechanism 42 is coupled to reel 34 and configured to drive reel 34 about rotation axis 38 which in turn provides powered retraction of tape blade 14. Retraction mechanism 42 may include one or more elongated spiral springs that provide the retraction energy to retraction mechanism 42. A tape lock 46 is provided to selectively engage tape blade 14, which acts to restrain retraction mechanism 42 such that extended segment 22 of tape blade 14 remains at a desired length.

[0037] Referring to FIG. 1, housing 18 includes a first side wall 50, a second side wall 54, and a peripheral wall 58 connecting first side wall 50 and second side wall 54. First side wall 50, second side wall 54, and peripheral wall 58 define an internal cavity 62, shown in FIG. 2, in which reel 34 and retraction mechanism 42 are housed. Referring to FIG. 1, first side wall 50 and second side wall 54 have a substantially circular profile 66. In other embodiments, the side walls may be rectangular, polygonal, or any other desired shape. Portions of the housing 18 may be co-molded or separately formed of a resilient material, such as a natural or synthetic rubber. In the illustrated construction, housing 18 is formed with housing bumpers 70 and a support leg 74 which extends from a lower portion 78 of the peripheral wall 58.

[0038] A slot 82 is defined along a forward portion 86 of peripheral wall 58. Slot 82 provides an opening in the tape measure housing which allows tape lock 46 to extend into housing 18. In addition, slot 82 provides a length sufficient to allow tape lock 46 to be moved relative to housing 18 between locked and unlocked positions.

[0039] Below the slot 82, a tape port 90 is provided in peripheral wall 58. Tape port 90 has an arcuate shape 94, corresponding to an arcuate cross-sectional profile of tape blade 14. The tape port 90 allows for the retraction and extension of tape blade 14 to and from the internal cavity 62 defined within housing 18.

[0040] As shown in FIGS. 1 and 2, tape measure 10 includes a finger guard assembly 98. Finger guard assembly 98 includes a guard 102 and a guard support member 106. As shown in FIG. 1, the portions of guard 102 external to housing 18 are substantially U-shaped and extend downward from housing 18. As shown in FIG. 2, when tape 14 is in the retracted position, a rear surface of hook assembly 26 abuts guard 102.

[0041] Referring to FIG. 3, a cross-sectional view of tape blade 14 is shown. Tape blade 14 includes a core or inner layer 110 formed from a thin, elongate strip of metal material. In a specific embodiment, inner layer 110 is formed from a strip of steel material. In a specific embodiment, inner layer 110 has a thickness, T1, of less than 0.13 mm (with up to a 25% thickness variation), specifically 0.09 mm to less than 0.13 mm (with up to a 25% thickness variation), and more specifically of 0.09 mm to 0.12 mm (with up to a 25% thickness variation). In another specific embodiment, T1 is between 0.12 mm and 0.14 mm and more specifically is between 0.125 mm and 0.135 mm. Inner layer 110 may be formed in a concavo-convex configuration (as shown in FIG. 3), which provides for improved tape standout as discussed herein. Inner layer 110 may be an alloyed spring steel, alloyed high strength steel, etc. In one embodiment, the steel is of a hardness between 50-54 RHC. In another embodiment, the steel is of a hardness between 45-60 RHC.

[0042] In various embodiments, tape blade 14 includes an upper coating layer 112 coupled to (e.g., attached, bonded, glued, etc.) the concave upper surface of inner metal layer 110 and a lower coating layer 114 coupled to (e.g., attached, bonded, glued, etc.) the convex lower surface of inner metal layer 110. In general, coating layers 112 and 114 are formed from a polymer material, and in a specific embodiment, are formed from a nylon material. In specific embodiments, coating layers 112 and 114 are formed from a material that has a modulus of elasticity less than the modulus of elasticity of the metal material of inner layer 110. In specific embodiments, coating layers 112 and 114 are formed from a material that has a hardness less

than the hardness of the metal material of inner layer 110. In specific embodiments, the coating layers discussed herein are formed from a nylon 12 material and/or a nylon 6/6 material.

[0043] As shown in FIG. 3, coating layer 112 has a thickness, T2, and coating layer 114 has a thickness, T3. In specific embodiments, the total thickness of the tape blade coating (i.e., the combined thickness of layers 112 and 114, T2+T3) is greater than or less than T1. In other embodiments, the total thickness of the tape blade coating is equal to T1.

[0044] In specific embodiments, the total tape blade thickness (inclusive of all of the coating and the core layer, i.e., T1+T2+T3) is between 0.15 mm and 0.5 mm. In various embodiments, T1+T2+T3 is between 0.15 mm and 0.2 mm, and specifically is 0.18 mm. In various embodiments, T1+T2+T3 is between 0.3 mm and 0.4 mm, and specifically is 0.36 mm.

[0045] In one embodiment, coating layers 112 and 114 may be applied over the entire length of inner layer 110. In one embodiment, coating layers 112 and 114 are applied over at least 6 feet of the length of inner layer 110, specifically over at least 8 feet of the length of inner layer 110, and more specifically over at least 10 feet of the length of inner layer 110. In specific embodiments, these coating lengths are contiguous coating lengths. This may provide increased tear resistance in areas of the tape blade 14 prone to increased wear, while maintaining compactness of the tape relative to a tape blade that has the coating over the entire length. In one embodiment, coating layers 112 and 114 begin at the end of the tape blade 14 proximate the hook. In another embodiment, the coating starts at a location of the blade spaced apart from the end proximate hook assembly 26.

[0046] In some embodiments, coating layers 112 and/or 114 do not have uniform thicknesses along the width and/or length of tape blade 14. In some such embodiments, coating layers 112 and/or 114 may be applied in a pattern (e.g., a honeycomb pattern, a checkered pattern, etc.) where there are portions of thicker and thinner coating distribution across both the length and width of the tape blade 14. In such embodiments, T2 and T3 shown in FIG. 3 represent the thickness measured through the thickest portion of the coating pattern. In some such embodiments, the ranges of T2 and T3 discussed herein represent the maximum thickness of coating layers 112 and 114 at any portion along the length of tape blade 14. In some such embodiments, the combined maximum coating and blade thickness may be .4 mm, but in other

areas along the length and width of the tape blade, the coating and blade thickness will be less (e.g., as measured at the thinner coating portions of the coating pattern). In other embodiments, the ranges of T2 and T3 discussed herein represent the average thickness of coating layers 112 and 114 measured at all of the thickest portions of the coating pattern along the length and width of tape blade 14.

[0047] Coating layers 112 and 114 may be applied as a laminate, nylon extrusion, film attached with adhesive, power/spray on coating. In one embodiment, the coating layer(s) are configured such that even if the steel core were to fracture, the coating layer is configured to contain the steel core and to maintain the integrity of the blade (e.g., the coating will tend not to tear).

[0048] In various embodiments, tape blade 14 and the profile shapes discussed herein can be utilized to improve tape standout in tapes having a variety of lengths. In specific embodiments, the length of the tape blade is less than 50 feet or more specifically less than 40 feet. In various embodiments, the length of tape blade 14 is between 15 ft. and 40 ft., and in specific embodiments, the length of the tape blade is 35 ft., 30 ft., 25 ft., or 16 ft.

[0049] Referring to FIG. 4 and FIG. 5, tape blade 14 standout, droop and the cross-sectional profile shape parameters of the tape blade profile of the present disclosure are shown and described. In general, tape standout distance is the maximum length, L1, of tape blade 14 that can be extended from tape housing 18 when the tape housing 18 is positioned such that the tape blade exits the housing in a direction perpendicular to gravity while self-supporting its own weight without buckling and without additional support being provided other than what the tape measure housing itself provides (e.g., without the tape blade being supported by the user's hand). It should be noted that while tape blade standout can be measured using a variety other methods for other purposes (such field testing, marketing, etc.), tape standout distance, as used herein, is determined via preceding test procedure. In one embodiment, droop is measured as shown in FIGS. 19 and 20. Droop distance, shown as DD1, is the vertical distance that the hook end 26 of tape blade 14 moves downward from the opening in tape housing, when a certain length of tape L1 is extended from tape housing 18 and while tape blade 14 is self-supporting. In the test shown in FIGS. 19 and 20, droop is measured with tape blade 14 supported on the support

portion of the associated tape measure housing, such as guard assembly 98 of tape measure 10 discussed above. As shown in FIG. 4, L1 is the tape length extending from housing 18.

[0050] Referring to FIG. 5, the curvature profile 120 of tape blade 14 is shown according to an exemplary embodiment. In general the curvature profiles, such as profile 120, discussed herein are measured via a laser profilometer along the upper surface of coating layer 112. However, because in at least some embodiments, coating layer 112 is of a consistent thickness the profile of coating layer 112 discussed herein also generally reflects the shape of the steel core 110 of tape blade 14.

[0051] As discussed in detail herein, Applicant has found that a curvature profile 120 having one or more of the curvature shape features discussed and quantified below is effective at increasing standout and/or decreasing droop. This is particularly true given a tape blade 14 having a relatively low flat tape width and relatively low steel thickness, but is also true for wider tape blades having conventional thicknesses. While curvature profile 120 can be described and classified in a wide variety of ways, Applicant has determined that curved profile height, H1, curved profile width, W1, and a cross-sectional angle A, can be used to classify and quantify the profile shape parameters that improve standout performance. In addition, Applicant has determined that H1, W1 and angle A when evaluated in relation to flat tape blade width and steel thickness define relative parameters that quantify the standout improving profile shapes discussed herein. Various embodiments of curvature profile 120 and tape blade 14 are shown in Table 1, Table 2, Table 3 and Table 4 and FIGS. 7-13 and 18 below.

[0052] In various embodiments, the flat width of tape blade 14 is between 20 mm and 40 mm. In specific embodiments, the flat width of tape blade 14 is 25 mm to 32 mm. In specific embodiments, the flat width of tape blade 14 is 25 mm, 27 mm, 30 mm, 32 mm, 33 mm or 35 mm. The thickness of the metal inner core 110 (T1 discussed above) and of the coated tape blade 14 are as discussed above regarding FIG. 3.

[0053] W1, particularly when compared to the flat width of tape blade 14, provides an indication of the extent to which tape blade 14 is formed into a curved shape. In various embodiments, W1 is less than 23.5 mm, specifically is between 15 mm and 23.5 mm, and more

specifically is between 20 mm and 23 mm. In even more specific embodiments, W1 is between 21 mm and 22 mm.

[0054] In various embodiments, because profile 120 is substantially more curved than the typical tape blade, the ratio of W1 to flat tape width is substantially less than is typical, and this is particularly true for tape blades of a relatively low steel thickness. In specific embodiments, the ratio of W1 to flat tape width is less than 0.8, specifically is less than 0.745 and more specifically is less than 0.73. In specific embodiments, the ratio of W1 to flat tape width is between 0.6 and 0.8 and more specifically is between 0.7 and 0.73.

[0055] In addition, H1 particularly when compared to the flat width of tape blade 14, provides an indication of the extent to which tape blade 14 is formed into a curved shape. In various embodiments, H1 is greater than 7 mm, specifically is between 7 mm and 10 mm, and more specifically is between 8.5 mm and 9.5 mm. In even more specific embodiments, H1 is between 8.8 mm and 9.4 mm.

[0056] In various embodiments, because profile 120 is substantially more curved than the typical tape blade, the ratio of H1 to flat tape width is substantially larger than is typical, and this is particularly true for tape blades of a relatively low steel thickness. In specific embodiments, the ratio of H1 to flat tape width is greater than 0.285, specifically is greater than 0.29 and more specifically is greater than 0.295. In specific embodiments, the ratio of H1 to flat tape width is between 0.29 and 0.32 and more specifically is between 0.295 and 0.317.

[0057] Applicant has determined that as steel thickness T1 of tape blade 14 decreases, the degree of curvature of tape blade 14 increases to achieve a certain level of standout to account for the lower rigidity of the thin steel. Accordingly, Applicant has determined that in order to both decrease tape blade steel thickness while improving standout, a suitable ratio of height to steel thickness, T1 should be selected. Accordingly, given the steep curvature of profile 120, the ratio of H1 to steel thickness is substantially larger than is typical. In specific embodiments, the ratio of H1 to T1 is greater than 65, specifically is greater than 75 and more specifically is greater than 80. In specific embodiments, the ratio of H1 to T1 is between 75 and 85 and more specifically is between 80 and 85.

[0058] In various embodiments, angle A also provides an indication of the extent to which tape blade 14 is formed into a curved shape. As shown in FIG. 5, angle A is the angle measured between lines tangential to the laterally outermost sections of tape blade 14 when viewed in longitudinal cross-section, and a smaller angle A represents a steeper curve formed in tape blade 14. In other embodiments, angle A is the interior angle measured between the widthwise midpoint of tape blade 14 and any two points along the tape blade within 5 mm of the left and right widthwise ends of the tape blade. In various embodiments, angle A is less than 90 degrees. In various embodiments, angle A is less than 75 degrees, specifically is less than 65 degrees and more specifically is less than 58 degrees. In a specific embodiment, angle A is between 45 and 58 degrees. In any of these embodiments, angle A may also be greater than 45 degrees. Additional embodiments of tape blades with different angles A and the relation to readability are shown in Appendix B.

[0059] In various embodiments, because profile 120 is substantially more curved than the typical tape blade, the ratio of angle A to flat tape width is substantially less than is typical, and this is particularly true for tape blades of a relatively low steel thickness. In specific embodiments, the ratio of angle A to flat tape width is less than 3 degrees/mm, specifically is less than 2.7 degrees/mm, and more specifically is less than 2.1 degrees/mm. In specific embodiments, the ratio of angle A to flat tape width is between 1.85 degrees/mm and 3 degrees/mm, specifically is between 1.85 degrees/mm and 2.7 degrees/mm and more specifically is between 1.85 degrees/mm and 2.1 degrees/mm.

[0060] In various embodiments, tape blade 14 may have one or more of the profile dimensions or relative dimensions discussed above, and in specific embodiments, tape blade 14 may have one or more of the profile dimensions or relative dimensions discussed above in combination with any of the other tape blade features or dimensions discussed herein. In particular, in various embodiments, any of the profile dimensions discussed above are provided with a tape blade 14 having a thickness T1 that is less than 0.13 mm, specifically between 0.09 mm and 0.13 mm, specifically less than 0.125 mm, more specifically between 0.09 mm and 0.12 mm, and even more specifically between 0.105 mm and 0.115 mm. In such embodiments, tape thickness is decreased while providing high levels of standout via the profile shapes discussed

herein. Applicant believes that conventional tape blades in these thickness ranges do not have the profile shape parameters as discussed herein and therefore do not achieve the high levels of standout and low levels of droop discussed herein. However, in other embodiments, tape blade 14 may have a steel thickness typically in conventional tape blades (e.g., 0.13 mm), and by utilizing the various tape blade profiles discussed herein, very high levels of standout can be achieved compared to tape blades having a conventional profile.

[0061] In a specific embodiment, tape blade 14 has a flat width less than 27.94 mm and has standout of greater than 115 inches, specifically greater than 120 inches, more specifically greater 125 inches and more specifically greater than 130 inches. In a specific embodiment, tape blade 14 has a flat width less than 27.94 mm and a curved height, H1, greater than 6.3 mm. In a specific embodiment, tape blade 14 has a flat width less than 27.94 mm and a curved width, W1, less than 22.5 mm. In a specific embodiment, tape blade 14 has a flat width less than 27.94 mm, a curved width, W1, less than 22.5 mm and a curved height, H1, greater than 6.3 mm. In some such embodiments, tape blade 14 has an angle A (defined below) less than 90 degrees. Applicant believes that a tape blade having a flat width less than 27.94 mm has not been achieved previously with this high level of standout, and that Applicant's curved profile having H1 and/or W1 described above are the shape parameters that allow such standout despite the relatively narrow tape blade.

[0062] In other specific embodiments, tape blade 14 has a tape blade 14 that has a metal thickness, T1, of less 0.13 mm, specifically between 0.09 mm and 0.13 mm, and has standout of greater than 115 inches, specifically greater than 120 inches, more specifically greater 125 inches and more specifically greater than 130 inches. In some embodiments, the tape blade 14 has standout of greater than 144 inches, greater than 156 inches, greater than 159 inches, greater than 162 inches, greater than 165 inches, or greater than 168 inches. In a specific embodiment, tape blade 14 has a metal thickness, T1, as discussed herein and a curved height, H1, and H1 is greater than 6.3 mm. In a specific embodiment, tape blade 14 has a metal thickness, T1, of less 0.13 mm and W1, less than 22.5 mm. In a specific embodiment, tape blade 14 has a metal thickness, T1, of less 0.13 mm, and a curved width, W1, less than 22.5 mm and a curved height, H1, greater than 6.3 mm. In some such embodiments, the flat width of the tape blade is between

22 mm and 33 mm, and specifically is between 29 mm and 32 mm. In alternative embodiments, the flat width of the tape blade 14 is greater than 33 mm. For example, the flat width of the tape blade 14 is between 35 mm and 38 mm. In yet other embodiments, the flat width of tape blade 14 may be greater than 38 mm. In some such embodiments, the tape blade has an angle A (defined below) less than 90 degrees. Applicant believes that a tape blade having a thickness of less than 0.13 mm has not been achieved previously with this high level of standout, and that Applicant's curved profile having H1 and/or W1 described above are the shape parameters that allow such standout despite the relatively thin tape blade.

[0063] Referring to FIG. 6, profile 120 is shown according to an exemplary embodiment. In FIG. 6 the relative position between the central section 122 of profile 120 and the widthwise outer sections 124 of profile 120 is exaggerated to better demonstrate the shape of profile 120. As shown in the embodiment of FIG. 6, profile 120 is not a continuous curve. In this embodiment, the upper surfaces of outer sections 124 have a greater radius of curvature than central section 122. This results in outer sections 124 being less curved which improves visibility of markings and numbers located along tape blade 14 within profile 120. In addition, outer sections 124 are more horizontally positioned than they would be in a profile in which the curvature of central section 122 continues outward to both lateral edges of tape blade 14.

[0064] Referring back to FIG. 4, in various embodiments, profile 120 is formed in a lengthwise subsection 130 of the total length of tape blade 14. In a specific embodiment, profile 120 is formed in the portion of tape blade 14 that tends to buckle during standout, and thus the increased rigidity provided by profile 120 in this region increases standout distance and/or decreases droop. Specifically, profile 120 is formed in a lengthwise sub-section 130 of tape blade 14 that is located adjacent to housing 18 when the amount of tape extended is approaching the maximum standout. Thus, while the positioning of profile 120 will vary somewhat depending on the standout length of a particular tape blade design, in general, lengthwise sub-section 130 extends from 5 feet to 15 feet from the hook end of tape blade 14. In a specific embodiment, lengthwise sub-section 130 extends from 6.5 feet to 13 feet from the hook end of tape blade 14. In an even more specific embodiment, when tape blade 14 is at its maximum

standout length, subsection 130 extends 5 feet from housing 18 along the length of tape blade 14 toward hook end 26.

[0065] In various embodiments, by forming tape blade 14 having profile 120 characterized via one or more of the profile dimensions discussed above, Applicant believes that significantly improved standout and droop decrease are achieved. In various embodiments, standout of tape blade 14 provided at least in part by profile 120 is greater than 115 inches, specifically greater than 120 inches, more specifically greater than 125 inches and more specifically greater than 130 inches. In various embodiments, standout of tape blade 14 provided at least in part by profile 120 is greater than 144 inches, specifically is greater than 150 inches, and more specifically is greater than 155 inches. In various embodiments, droop of a 10 foot section of tape blade 14 is less than 33 inches, specifically is less than 30 inches, and more specifically is less than 28 inches. In a specific embodiment, standout of tape blade 14 provided at least in part by profile 120 is 156-160 inches and droop of a 10 foot section of tape blade 14 is between 22-25 inches.

[0066] In various embodiments, tape blade 14 has a curved profile 120 defined by the following parameters: a flat width of the elongate metal core of less than 32 mm, a ratio of the curved width to a flat width of the elongate metal core of less than 0.74 and a ratio of the curved height to the flat width of the elongate metal core of greater than 0.29, and in such embodiments, tape blade 14 has a standout distance of the elongate blade from the housing that is greater than 150 inches. In other embodiments, tape blade 14 has a curved profile 120 defined by the following parameters: wherein a flat width of the elongate metal core of 32 mm or greater, a ratio of the curved width to a flat width of the elongate metal core of less than 0.70, a ratio of the curved height to the flat width of the elongate metal core of greater than 0.31, and in such embodiments, tape blade 14 has a standout distance of the elongate blade from the housing of greater than 150 inches.

[0067] In various embodiments, tape blade 14 has a curved profile 120 that provides for improved standout for a given tape blade flat width. In various embodiments, tape blade 14 has a flat width of 30 mm or less, a curved width that is less than the flat width and a standout distance of at least 132 inches, specifically greater than 138 inches, and more specifically greater than 144 inches. In various embodiments, tape blade 14 has a flat width greater than or equal to

29 mm and less than 32 mm, a curved width that is less than the flat width and a standout distance of at least 156 inches and more specifically greater than 160 inches. In various embodiments, tape blade 14 has a flat width greater than 32 mm, a curved width less than the flat width and a standout distance of the elongate blade from the housing of at least 168 inches. In various embodiments, the tape blade standout distance is greater than the various lengths disclosed herein and is also less than 400 inches, specifically less than 300 inches, more specifically is less than 250 inches or even less than 200 inches.

[0068] In addition to the tape blade profile geometry, Applicant believes that other properties of the tape blade may influence or improve standout. For example, Applicant's investigation into tape blade standout has shown that the standout performance of a tape blade is also related to the tape blade material (e.g., steel in the tape blades investigated by Applicant) having sufficient elasticity so that it does not experience plastic deformation during its typical stress states (standout buckling, winding onto spool, etc.). In some instances, the standout performance of a tape blade depends, at least in part, on the steel of the blade having sufficient elasticity such that the blade does not experience plastic deformation during typical stress states (e.g., standout buckling, winding onto a spool, etc.). The elasticity can be increased, decreased, controlled, adjusted, etc. via any suitable method. In some instances, increasing the elasticity of the steel may also decrease the standout of the blade but allow for the blade to have less degradation in standout over time (e.g., after being extended and retracted from the housing, after being stored on the spool, etc.). Similarly, decreasing elasticity of the blade may allow greater initial standout of the blade, but may decrease the standout over time. In some instances, residual stresses may be added to increase the elastic range of the steel in bending. Further, in some instances, increasing the hardness of the steel may increase the standout of the blade. For example, the blade steel may have a hardness of up to 70 HRC.

Test Examples

[0069] The droop and standout ranges for four specific inventive tape profiles with different tape widths, blade thicknesses and coating thickness are shown below along with the profile dimensions (e.g., curve height, angle) for each profile design. The standout and droop data shown in Table 1 was determined via testing of the identified tape measures, and the profile

measurements were measured using a laser profilometer measurement along the upper most surface of the tape blade of each tape measure. For this testing, droop was measured as shown in FIGS. 19 and 20. These are compared against three conventional tape measure designs. As shown below, the profile designs discussed herein provide for significantly decreased droop and increased standout as compared to the conventional tape measures. In Table 1 below, tape designs A-D represent specific designs having the rigidity increasing curvature as discussed herein, and the next three rows show corresponding data for three tape blade designs of three tape measures available from Milwaukee Electric Tool Corporation currently on the market. The last three rows show corresponding data from three prior art competitor tape measures. As can be seen from Table 1, the designs having the rigidity increasing profile discussed herein greatly increase standout and decrease droop, particularly for a given flat width and/or steel thickness.

Table 1

Tape Design	Flat Width (mm)	Steel Thickness (mm)	Total Thickness (mm)	Angle - Laser (deg)	Curved Height - Laser (mm)	Curved Width - Laser (mm)	Droop @ 10ft (in)	Standout (in)
A	30	0.11	0.18	57.39	8.8515	21.85	22-25	156-160
B	30	0.11	0.18	62.71	9.074	21.5	20-23	160-162
C	30	0.11	0.36	49.68	9.348	21.15	23-25	159-164
D	27	0.11	0.36	72.42	7.5385	21.151	25-27	133-135
Milwaukee Electric Tool Prod. No. 48-22-7116	27	0.13	0.19	96.26	5.904	23.4	N/A	108-112
Milwaukee Electric Tool Prod. No. 48-22-7135	27	0.12	0.19	91.12	6.281	22.8	N/A	110-114
Milwaukee Electric Tool Prod. No. 48-22-7526	32	0.13	0.18	58.48	8.986	23.9	34-36	142-146
Prior Art Tape No. 1	31.75	0.13	0.18	62	9.1835	23.651	31-32	145 avg

Prior Art Tape No. 2	31.75	0.13	0.22	64	9.166	23.601	28-29	149 avg
Prior Art Tape No. 3	31.75	0.13	0.18	88	7.9675	26.05	32-33	138 avg

[0070] Table 2 below calculates various ratios related to the tape profiles dimensions shown in Table 1 that Applicant believes further quantifies the high level of rigidity provided by the tape blade curvature profiles as discussed herein.

Table 2

Tape Design	Ratio - Height/Flat Width	Ratio - Height/Steel Thickness	Ratio - Curved Width/Flat Width	Ratio - Angle/Flat Width
A	0.29505	80.46818182	0.728333333	1.913
B	0.302466667	82.49090909	0.716666667	2.0903333
C	0.3116	84.98181818	0.705	1.656
D	0.279203704	68.53181818	0.78337037	2.6822222
Milwaukee Electric Tool Prod. No. 48-22-7116	0.218666667	45.41538462	0.866666667	3.5651852
Milwaukee Electric Tool Prod. No. 48-22-7135	0.23262963	52.34166667	0.844444444	3.3748148
Milwaukee Electric Tool Prod. No. 48-22-7526	0.2808125	69.12307692	0.746875	1.8275
Prior Art Tape No. 1 @ 12 ft.	0.289244094	70.64230769	0.744913386	1.9625197

Prior Art Tape No. 2 @ 12 ft.	0.288692913	70.50769231	0.743338583	2.0179528
Prior Art Tape No. 3 @ 12 ft.	0.250944882	61.28846154	0.820472441	2.7672441

[0071] As shown in Table 1 and Table 2, in various embodiments, tape standout of greater than 130 inches, specifically greater than 150 inches, and more specifically greater than 155 inches is achieved utilizing the various tape profiles as discussed herein.

[0072] FIG. 7 shows cross-sectional profiles of tapes A-D from Table 1 and Table 2 plotted relative to the three Milwaukee Tool prior art tape measures. FIG. 8 shows the profile of tape D plotted relative to the profile of the Milwaukee Electric Tool Prod. No. 48-22-7116 and of Milwaukee Electric Tool Prod. No. 48-22-7135. FIG. 8 shows the more steep profile of tape D relative to the two other currently available tape measures that also have a 27 mm flat width tape blade.

[0073] FIG. 9 shows the profile of tapes A, B and C plotted relative to the 32 mm flat width 8m CAWB tape that is currently available. This figure shows the more steep profiles of tapes A, B and C relative to the profile of the Milwaukee Electric Tool Prod. No. 48-22-7526 tape.

[0074] FIG. 10 shows the profile of tape B compared to tape C. As shown in Table 1, tape B and tape C both have the same flat tape width and the same steel thickness. However, tape C has a thicker polymer coating layer as shown in the total tape thickness column. Thus, FIG. 10 demonstrates that a more steep curved profile of tape C is needed to maintain standout as coating layer thickness (and hence weight of tape blade) increases. FIG. 11 shows the plotted profile of all tapes in Table 1, and FIG. 12 shows tape B of the present disclosure plotted relative to three prior art tape blades.

Additional Tape Blade Profile Designs

[0075] Referring to FIGS. 13-16 and Table 3 below, Applicant has developed a variety of additional new tape blade profile designs that, based on Applicant's modeling, allow for a variety of tape measure design/performance parameters to be strategically selected or optimized to

achieve a combination of performance parameters not believed achievable with previous designs. In particular, Applicant has determined that by selecting the tape blade width and the tape blade profile shape, the amount of tape blade standout and the amount of torque needed to retract the tape blade can be selected to achieve blade standout and retraction torque requirements not previously achievable.

[0076] For example, Applicant has determined that, for a given tape blade thickness, standout can be increased by making the profile of the tape blade more curved and/or making the tape blade wider. Further, Applicant understands conventional tape blade design wisdom indicates that both methods of increasing standout (e.g., increasing width or increasing curved shape) also requires an increase in retraction torque (e.g., a stronger retraction spring) in order to fully retract the wider and/or more curved tape blade. However, in contrast to this conventional wisdom, Applicant's tape blade design and modeling work has unexpectedly discovered a variety of tape blade widths and curvatures that provide for increased standout (for a tape blade of a given thickness) without substantially altering the increasing torque that needs to be delivered by the retraction system to rewind the spring.

Table 3

Design Parameter	**Prior Art 1 (CAWB 78deg)**	**Prior Art 2 (CAWB 55deg)**	**Prototype 1 (35 FW Deep)**	**Prototype 2 (38 FW Deep)**	**Prototype 3 (35 FW)**	**Prototype 4 (38 FW)**	**Prototype 5 (35 Super Deep)**	**Prototype 6 (38 Super Deep)**
Thickness (mm)	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Flat Width (mm)	32	32	35	38	35	38	35	38
arc angle center (deg)	102.23	108.916	110	112.5	102	104	108.916	108.916
Radius at center	11.57	10.37	10.8	11.4	13	16.1	10.37	10.37
Radius at edges	76.33	22.77	23.35	23.35	30	50	22.77	22.77
Center arc length	20.644	19.713	20.735	22.384	23.143	29.224	19.713	19.713
Leg arc length	5.68	6.14	7.13	7.81	5.93	4.39	7.64	9.14
Curved Height Total	8.86	*9.76*	*10.98*	*12.16*	*9.76*	*9.76*	11.18	12.64
Curved Width Total	24.81	*22.59*	*23.98*	*25.32*	*26.71*	*30.47*	23.53	24.28

Ratio Curved Width to Flat Width	0.7753125	0.7059375	0.685142857	0.666315789	0.763142857	0.801842105	0.672285714	0.638947368
Ratio Height Width to Flat Width	0.276875	0.305	0.313714286	0.32	0.278857143	0.256842105	0.319428571	0.332631579
Total Energy per 1mm Length (N*mm) @ r31 (approx 10ft mark)	**3.7112**	**4.7072**	**4.7080**	**4.7094**	**3.6539**	**3.0517**	**4.8817**	**5.0562**

[0077] Table 3 shows modeling data for two conventional tape measure blade designs and for six potential new tape blade designs. In Table 3, thickness is the thickness of the metal (e.g., steel) material of the tape blade, and flat width is the width of the tape blade prior to forming to a curved shape. The other blade curvature profile parameters listed in the Design Parameter column of Table 3 are labeled in FIGS. 14-16. The energy amounts shown in Table 3 are calculated for one half of the tape blade (e.g., the left or right side of the tape blade). The total energy for the entire width of the tape blade is actually double the amounts shown in Table 3.

[0078] Referring to FIG. 13, the profiles of Prototype 1 and Prototype 2 are overlaid relative to Prior Art 1 and Prior Art 2 shown in Table 3. Further FIG. 13 identifies the calculated standout distance for Prior Art 2 and Prototypes 1 and 2. As shown in FIG. 13, the standout distance of both Prototypes 1 and 2 are calculated to be greater than the standout of Prior Art 2. This increase in standout has been achieved even though Prototypes 1 and 2 are less curved than Prior Art 2 which is contrary to conventional wisdom in the field of tape blade design. Further, as can be seen by comparing the values in the "Total Energy" row in Table 3, Prototypes 1 and 2 utilize approximately the same spring energy for retraction as Prior Art 2 despite having significantly greater standout.

[0079] Thus, surprisingly, Applicant determined that by designing the tape blade to have a width and profile shape as shown in Table 3 and FIG. 13, standout can be increased without requiring more torque/retraction energy to be provided by the retractions system. Thus, this allows a tape measure with a tape blade such as that of Prototype 1 and 2 to have increased standout without the need to greatly increase tape measure housing size to accommodate a larger

spring (or other retraction system). Further, Applicant has further found that the greater width and/or less steep curve of the blades of Prototypes 1 and 2 also provide for increased readability of the measurement markings located on the tape blade as compared to tape blades with a lower width and/or more steeply curved blade profiles. Thus, Applicant believes that the tape blade profiles discussed herein provide a unique combination of readability, high level of standout and low retraction torque requirements not achieved with prior tape blade designs or previously understood to be achievable based on conventional understanding in the field of tape measure design.

[0080] Further, referring to Table 3, Prototypes 3 and 4 utilize less torque for retraction than either Prior Art 2 or Prototypes 1 and 2, but Applicant's modeling also indicates that Prototypes 3 and 4 will have lower standout than Prior Art 2 or Prototypes 1 and 2. Prototypes 5 and 6 utilize more torque for retraction than either Prior Art 2 or Prototypes 1 and 2, but Applicant's modeling also indicates that Prototypes 5 and 6 will have greater standout than Prior Art 2 or Prototypes 1 and 2. In at least some embodiments, Applicant has determined that some such tape blade profiles (e.g., Prototypes 5 and 6) have greater than 15 feet of standout. For at least some of the tape profiles discussed herein, Applicant believes that a cold-forming process may be a particularly suitable manufacturing technique to reliably form the profiles discussed herein.

[0081] Referring to FIGS. 13-16, Applicant believes that the balance between a high level of tape blade standout, width/readability and retraction torque is achieved at least in part by utilizing a tape blade profile with a compound curvature. In particular, as shown in FIG. 15, the tape blade profile includes a first curved shape having a first radius of curvature, shown as radius (center), that defines the curved shape of the widthwise central region of the tape blade. In addition, as shown in FIG. 16, the tape blade profile includes a second curved shape having a second radius of curvature, shown as radius (edge), that defines the curved shape of the edge regions of the tape blade. As shown in FIG. 16, the edge regions are the regions of the tape blade on either widthwise side of the central region that extend to the outer lateral edges of the tape blade.

[0082] In various designs, radius (edge) is greater than radius (center). In specific embodiments, radius (edge) is at least 1.5 times radius (center) and more specifically is at least 2 times radius (center).

[0083] Referring to FIG. 17 and FIG. 18, details of various 33 mm flat width and 35 mm flat width curved tape blades are provided. FIG. 17 shows the curved width plotted against standout for both 33 mm flat width and 35 mm flat width tape blades. Table 4 below shows the flat width, curved width, curved height and ratio of curved width to curved height for a variety of 33 mm flat width and 35 mm flat width tape blades.

[0084] Table 4

Flat Width (mm)	Curved Width (mm)	Curved Height (mm)	Ratio of Curved Width to Flat Width	Ratio of Curved Height to Flat Width
33	21.50	10.70	0.651522	0.324179
	22.00	10.53	0.666684	0.319026
	22.50	10.35	0.681826	0.313604
	23.00	10.16	0.696969	0.307893
	23.50	9.96	0.712134	0.301867
	24.00	9.75	0.727247	0.295538
	24.50	9.53	0.742424	0.288838
	25.00	9.30	0.757569	0.281781
	25.50	9.05	0.772727	0.274321
35	22.00	11.66	0.6286	0.353465
	22.50	11.51	0.642814	0.348661
	23.00	11.34	0.657071	0.323967
	23.50	11.16	0.671544	0.318882
	24.00	10.98	0.685603	0.313697
	24.50	10.79	0.699919	0.308157

[0085] As shown in FIG. 17, Applicant has determined that a highly linear relationship exists between curved width and standout for 33 mm and 35 mm flat width tape blades. As shown in

FIG. 17, as curved width decreases (representing a more highly curved profile) standout increases. For the 33 mm flat width tape blade, even at a curved width of 25.5 mm, standout was still greater than 150 inches, and standout increases as the curved width decreases. For the 35 mm flat width tape blade with a curved width of 23.5 mm, standout was greater than 150 inches, and standout increases as the curved width decreases. FIG. 18 shows the profile plots of exemplary profiles of a curved 33 mm flat width tape blade and a 35 mm flat width tape.

[0086] It should be understood that the figures illustrate the exemplary embodiments in detail, and it should be understood that the present application is not limited to the details or methodology set forth in the description or illustrated in the figures. It should also be understood that the terminology is for description purposes only and should not be regarded as limiting.

[0087] Further modifications and alternative embodiments of various aspects of the invention will be apparent to those skilled in the art in view of this description. Accordingly, this description is to be construed as illustrative only. The construction and arrangements, shown in the various exemplary embodiments, are illustrative only. Some elements shown as integrally formed may be constructed of multiple parts or elements, the position of elements may be reversed or otherwise varied, and the nature or number of discrete elements or positions may be altered or varied. The order or sequence of any process, logical algorithm, or method steps may be varied or re-sequenced according to alternative embodiments. Other substitutions, modifications, changes and omissions may also be made in the design, operating conditions and arrangement of the various exemplary embodiments without departing from the scope of the present invention.

[0088] Unless otherwise expressly stated, it is in no way intended that any method set forth herein be construed as requiring that its steps be performed in a specific order. Accordingly, where a method claim does not actually recite an order to be followed by its steps or it is not otherwise specifically stated in the claims or descriptions that the steps are to be limited to a specific order, it is in no way intended that any particular order be inferred. In addition, as used herein, the article "a" is intended to include one or more component or element, and is not intended to be construed as meaning only one.

[0089] Various embodiments of the invention relate to any combination of any of the features, and any such combination of features may be claimed in this or future applications. Any of the features, elements or components of any of the exemplary embodiments discussed above may be utilized alone or in combination with any of the features, elements or components of any of the other embodiments discussed above.

What is claimed is:

1. A tape measure comprising:

a housing;

a tape reel rotatably mounted within the housing;

an elongate blade wound around the reel, the elongate blade comprising:

an upper surface;

a lower surface;

an elongate metal core having a first thickness, T1, between 0.12 mm and 0.14 mm;

a length between 15 feet and 40 feet;

a flat width of 20 mm to 40 mm;

a curved profile such that the upper surface of the elongate blade defines a concave surface and the lower surface defines a convex surface;

a curved width, wherein the curved width is less than the flat width; and

a curved height between 8.5 mm and 9.5 mm;

wherein a ratio of the curved width to the flat width is between 0.6 and 0.8;

wherein a ratio of curved height to flat width is greater than 0.285;

wherein a standout distance of the elongate blade from the housing is greater than 150 inches; and

a retraction system coupled to the tape reel, wherein the retraction system drives rewinding of the elongate blade on to the tape reel.

2. The tape measure of claim 1, wherein the curved profile is located at a location along at least the first 132 inches of a length of the elongate blade.

3. The tape measure of claim 1, wherein the curved profile is located at a location between 5 feet and 15 feet along a length of the elongate blade measured from a hook located at an end of the tape blade.

4. The tape measure of claim 1, wherein the curved profile is located at a location between 6.5 feet and 13 feet along a length of the elongate blade measured from a hook located at an end of the tape blade.

5. The tape measure of claim 4, wherein the flat width is 25 mm to 32 mm.

6. The tape measure of claim 5, wherein the flat width is 32 mm.

7. The tape measure of claim 6, wherein the curved width is less than 26 mm.

8. The tape measure of claim 1, wherein the standout distance of the elongate blade from the housing is at least 156 inches.

9. The tape measure of claim 1, wherein, when the elongate blade is at a maximum standout length, the curved profile is located in a section of tape blade that extends 5 feet from the housing toward a hook located at the end of the tape blade.

10. The tape measure of claim 1, further comprising:

an upper polymer coating coupled to an upper surface of the elongate metal core, the upper polymer coating having a second thickness, T2; and

a lower polymer coating coupled to a lower surface of the elongate metal core, the lower polymer coating having a third thickness, T3;

wherein T1+T2+T3 is between 0.15 mm and 0.5.

11. The tape measure of claim 1, wherein the ratio of the curved height to T1 is greater than 65.

12. The tape measure of claim 1, wherein the retraction system is a spring-based retraction system comprising a spring coupled to the tape reel, wherein, as the elongate blade is unwound from the tape reel to extend from the housing, the spring stores energy and the spring releases energy driving rewinding of the elongate blade on to the tape reel.

ABSTRACT

A tape measure, including a tape measure blade having a cross-sectional profile to increase standout is provided. The profile has a curved shape that increases standout. The tape blade may have a flat width greater than or equal to 29 mm and less than 32 mm.

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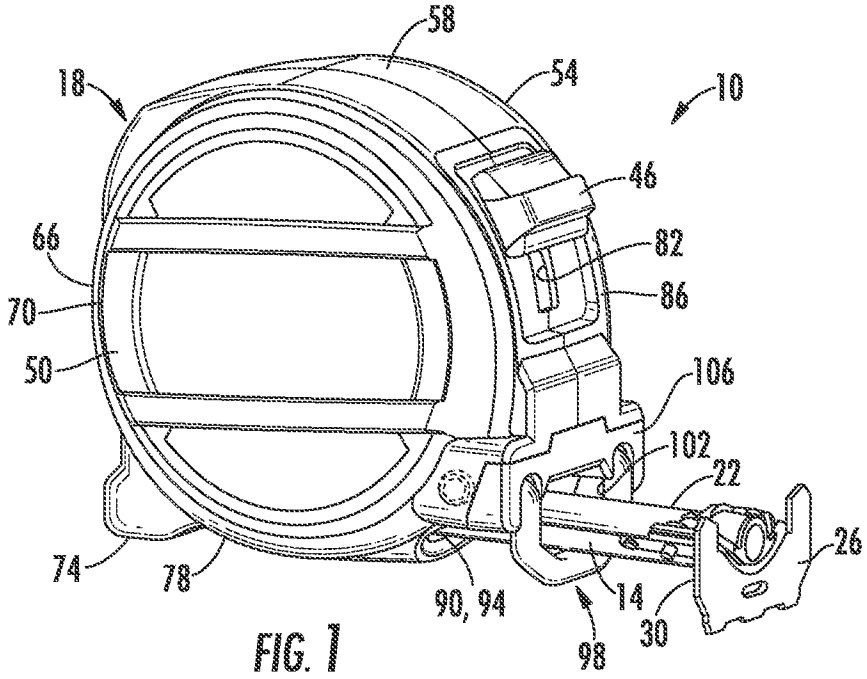

58
54
18
10
46
66
82
70
86
50
106
102
22
26
74
78
90, 94
14
30
98

FIG. 1

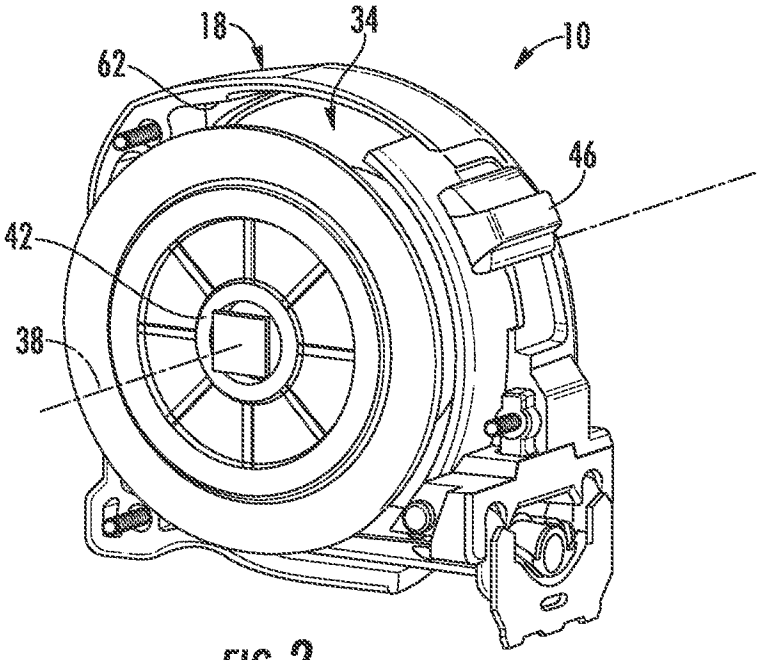

18
34
10
62
46
42
38

FIG. 2

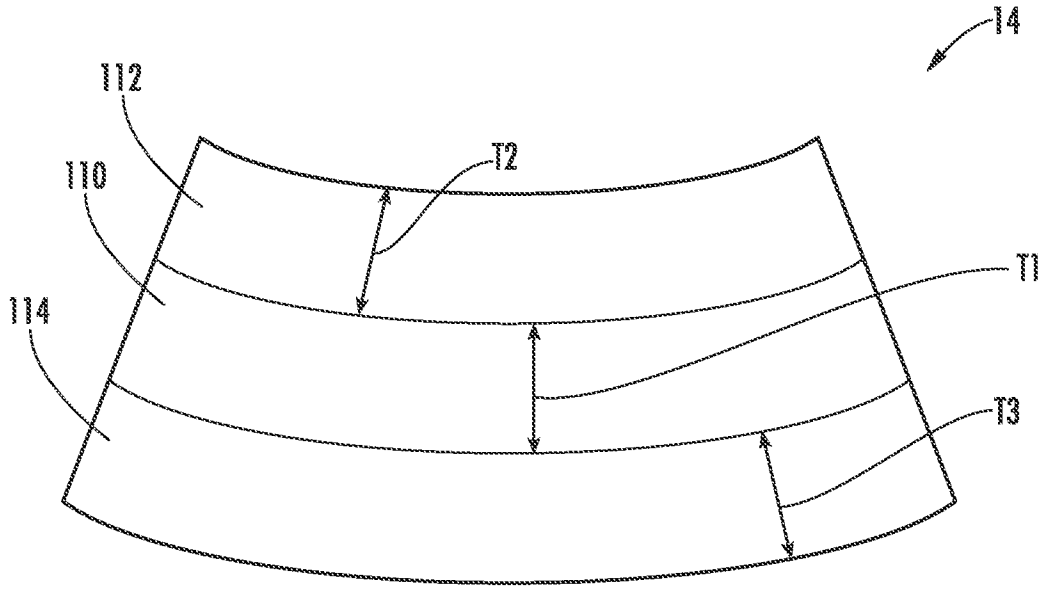


FIG. 3

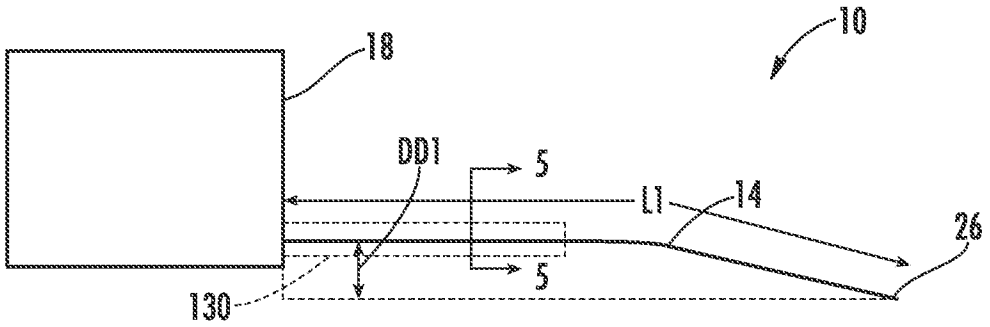


FIG. 4

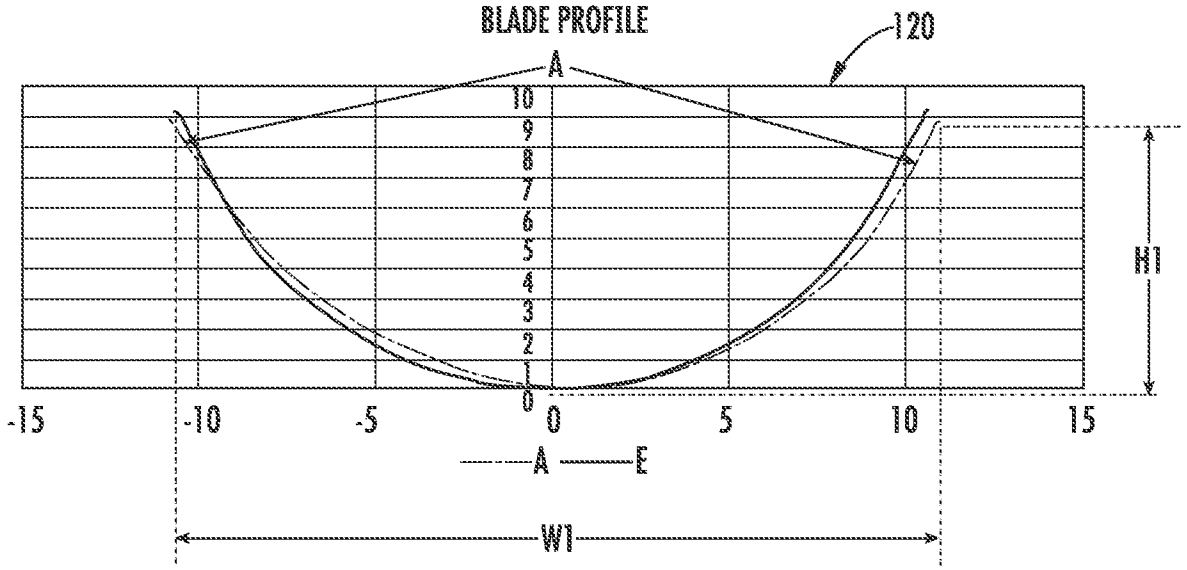


FIG. 5

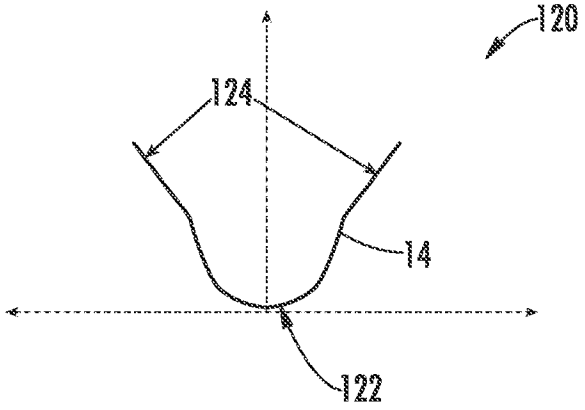


FIG. 6

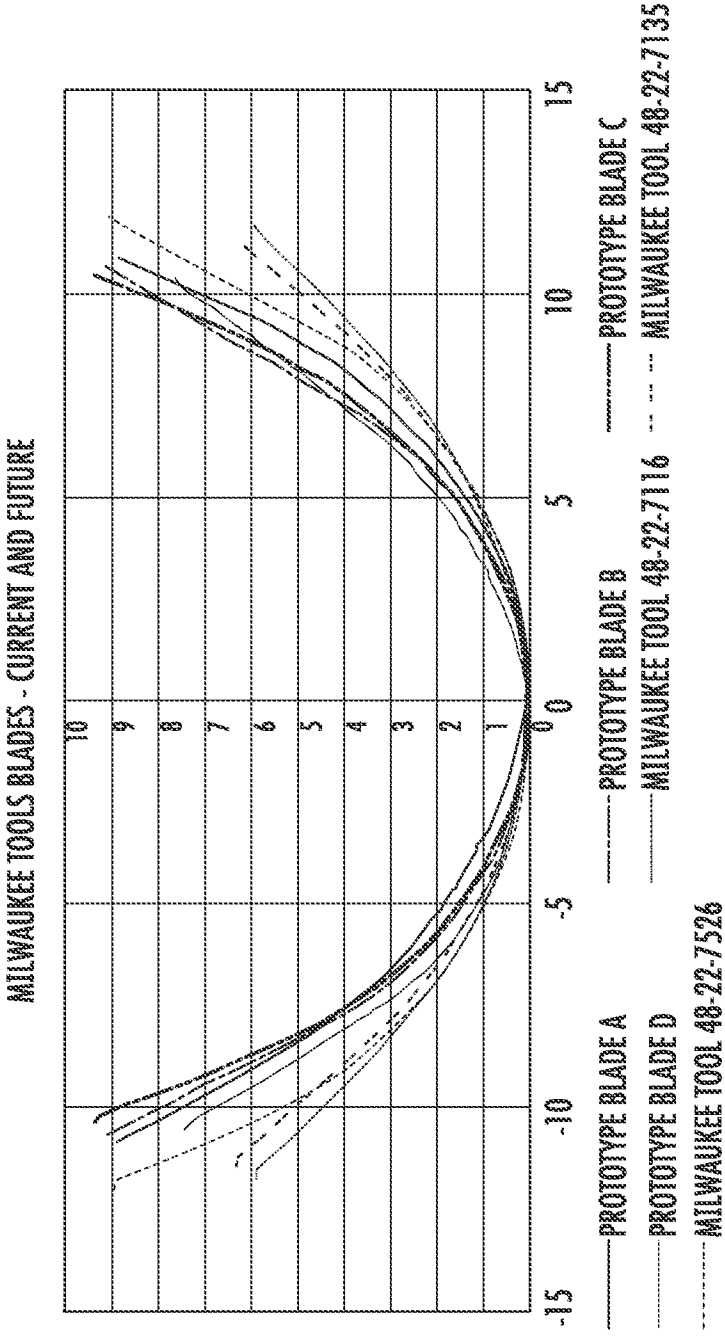

MILWAUKEE TOOLS BLADES - CURRENT AND FUTURE
10
9
8
7
6
5
4
3
2
1
0
-15
-10
-5
0
5
10
15
PROTOTYPE BLADE A
PROTOTYPE BLADE B
PROTOTYPE BLADE C
PROTOTYPE BLADE D
MILWAUKEE TOOL 48-22-7116
MILWAUKEE TOOL 48-22-7135
MILWAUKEE TOOL 48-22-7526

FIG. 7

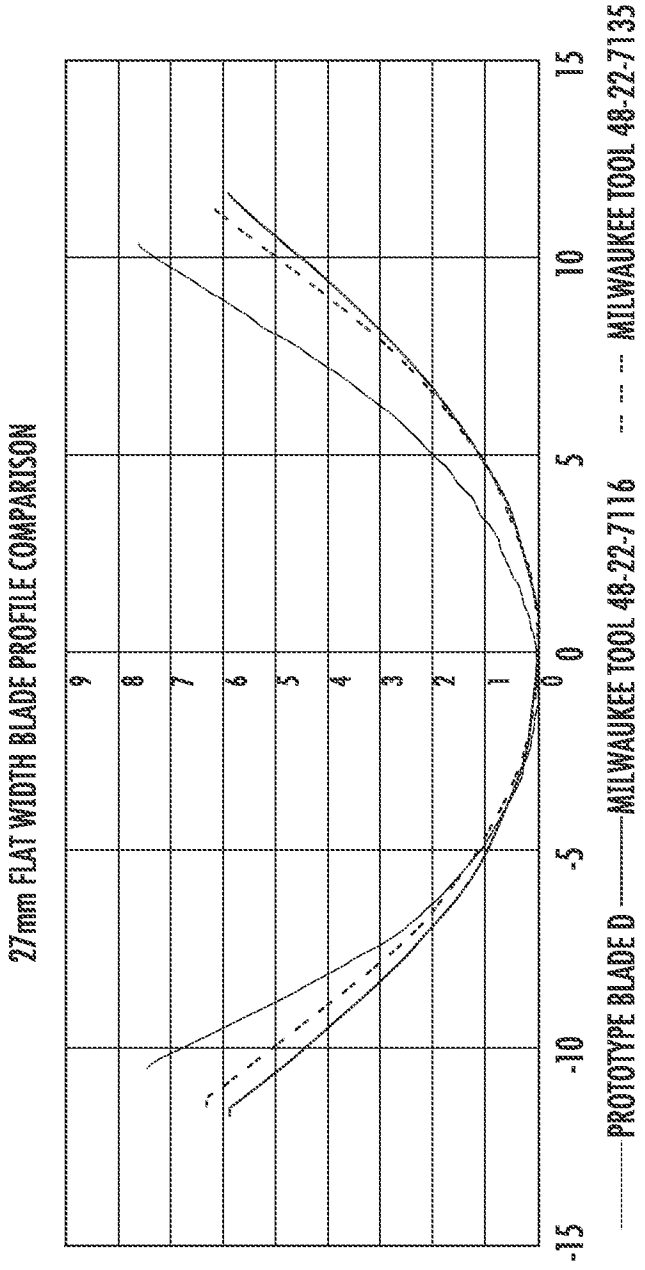

27mm FLAT WIDTH BLADE PROFILE COMPARISON
9
8
7
6
5
4
3
2
1
-15
-10
-5
0
5
10
15
PROTOTYPE BLADE D
MILWAUKEE TOOL 48-22-7116
MILWAUKEE TOOL 48-22-7135

FIG. 8

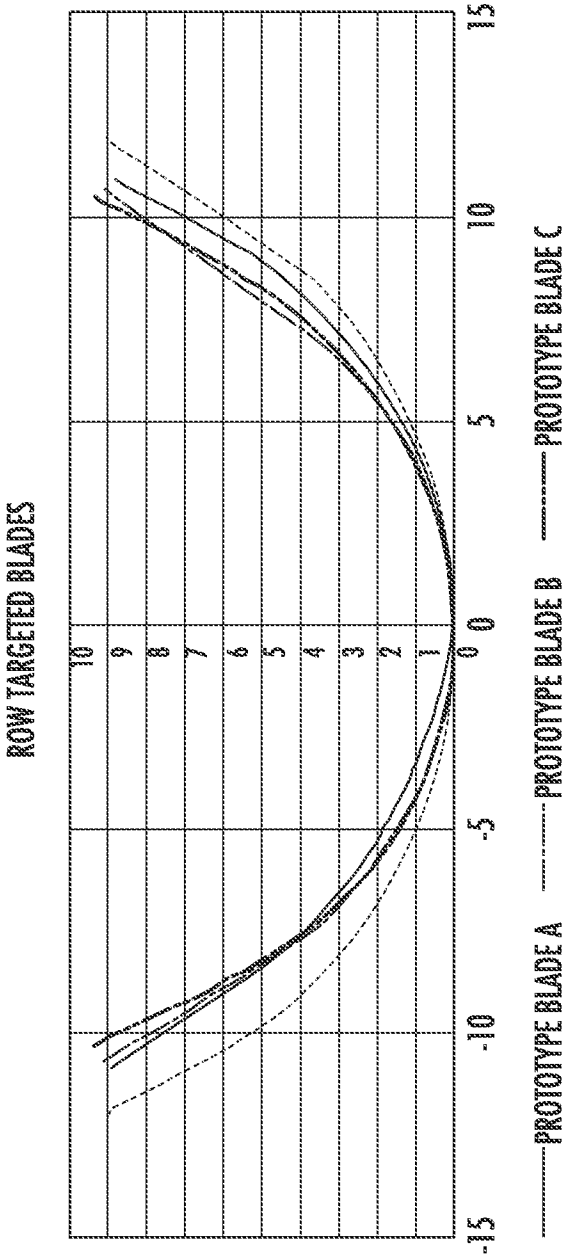

ROW TARGETED BLADES
10
9
8
7
6
5
4
3
2
1
-15
-10
-5
0
5
10
15
PROTOTYPE BLADE A
PROTOTYPE BLADE B
PROTOTYPE BLADE C
MILWAUKEE TOOL 48-22-7526

FIG. 9

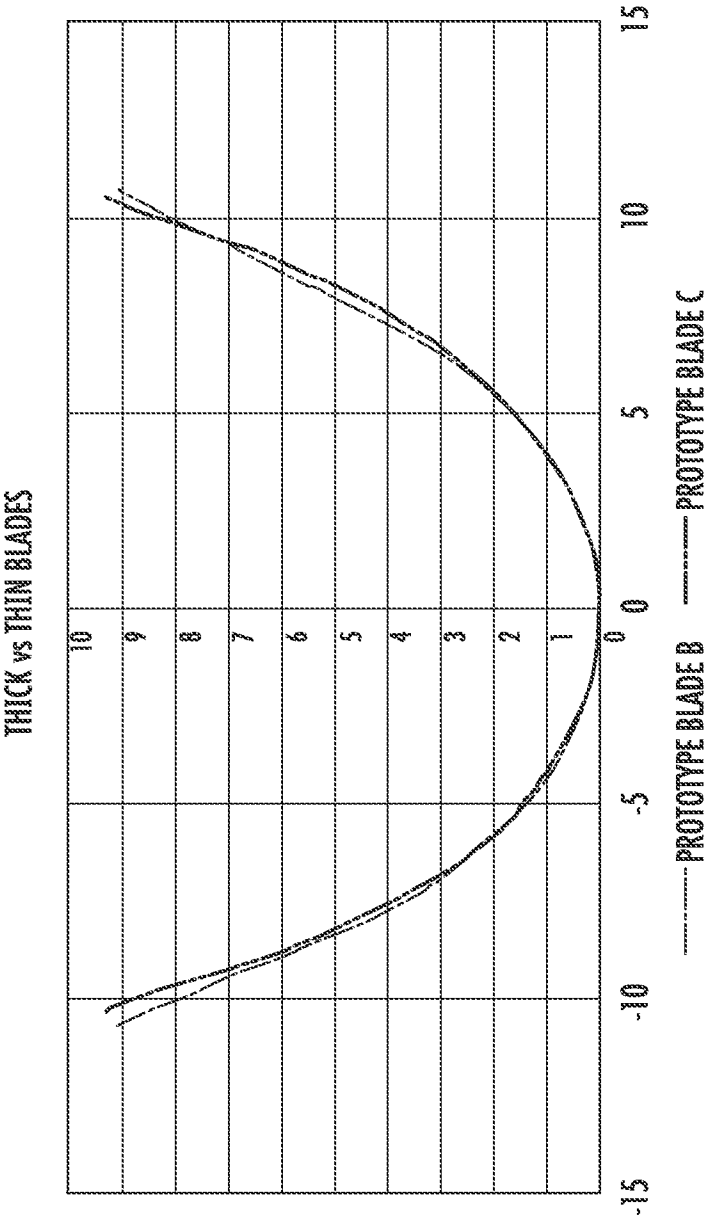

THICK vs THIN BLADES
10
9
8
7
6
5
4
3
2
1
0
-15
-10
-5
0
5
10
15
PROTOTYPE BLADE B
PROTOTYPE BLADE C

FIG. 10

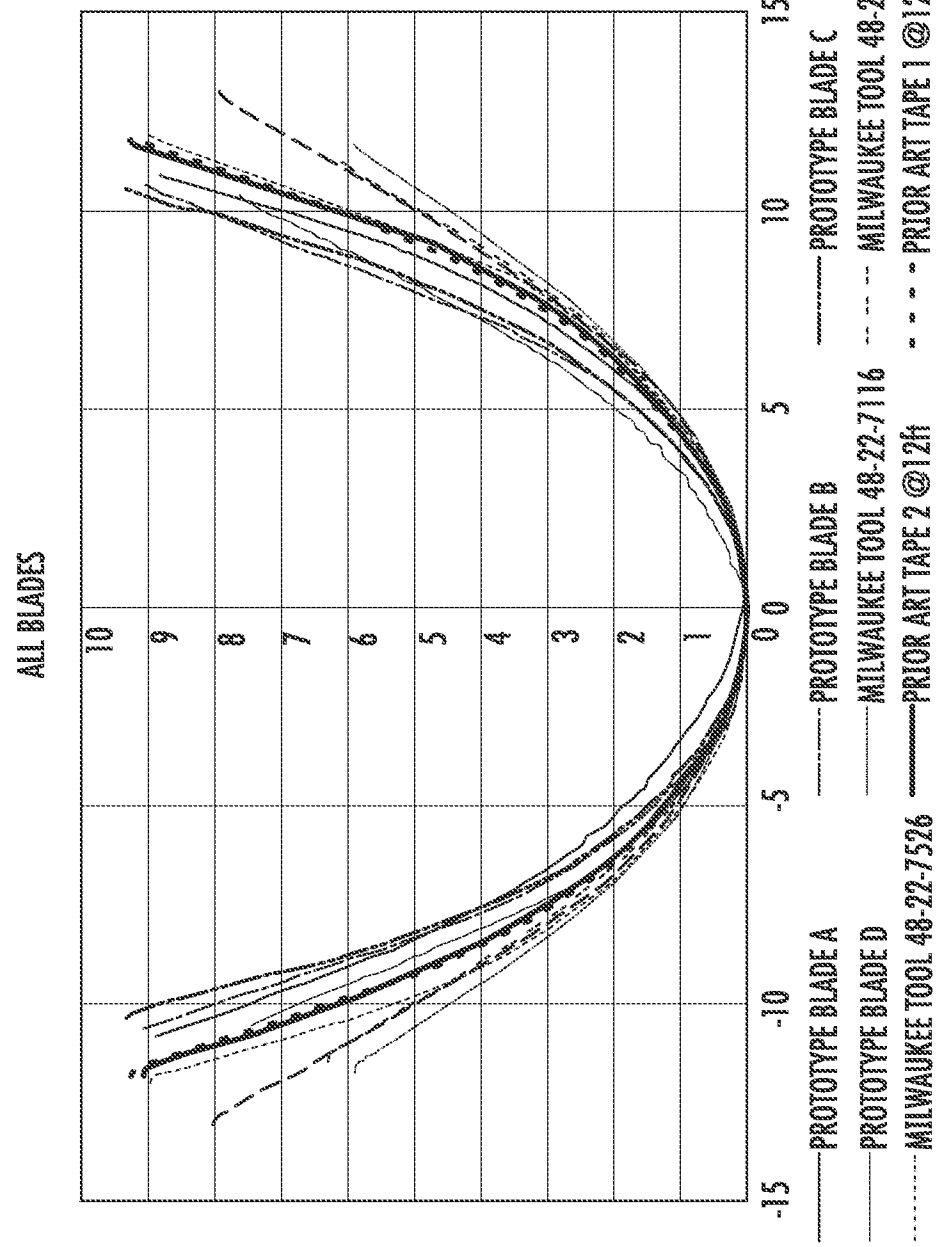

ALL BLADES
10
9
8
7
6
5
4
3
2
1
-15
-10
-5
0
0
5
10
15
PROTOTYPE BLADE A
PROTOTYPE BLADE B
PROTOTYPE BLADE C
PROTOTYPE BLADE D
MILWAUKEE TOOL 48-22-7116
MILWAUKEE TOOL 48-22-7135
MILWAUKEE TOOL 48-22-7526
PRIOR ART TAPE 2 @12ft
PRIOR ART TAPE 1 @12ft
PRIOR ART TAPE 3 @12ft

FIG. 11

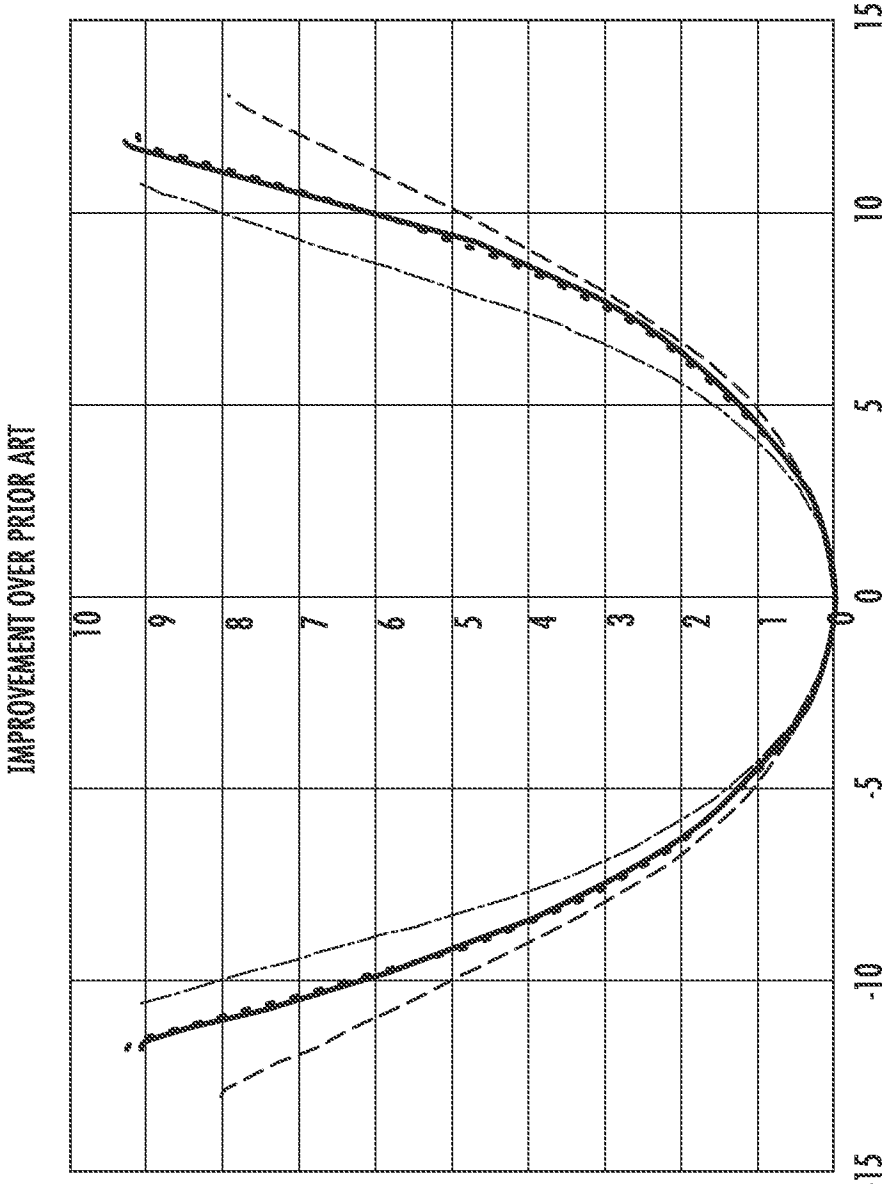

IMPROVEMENT OVER PRIOR ART
10
9
8
7
6
5
4
3
2
1
0
-5
-10
-15
15
10
5
0
PROTOTYPE BLADE B
PRIOR ART TAPE 2 @12h
PRIOR ART TAPE 1 @12h
PRIOR ART TAPE 3 @12h

FIG. 12

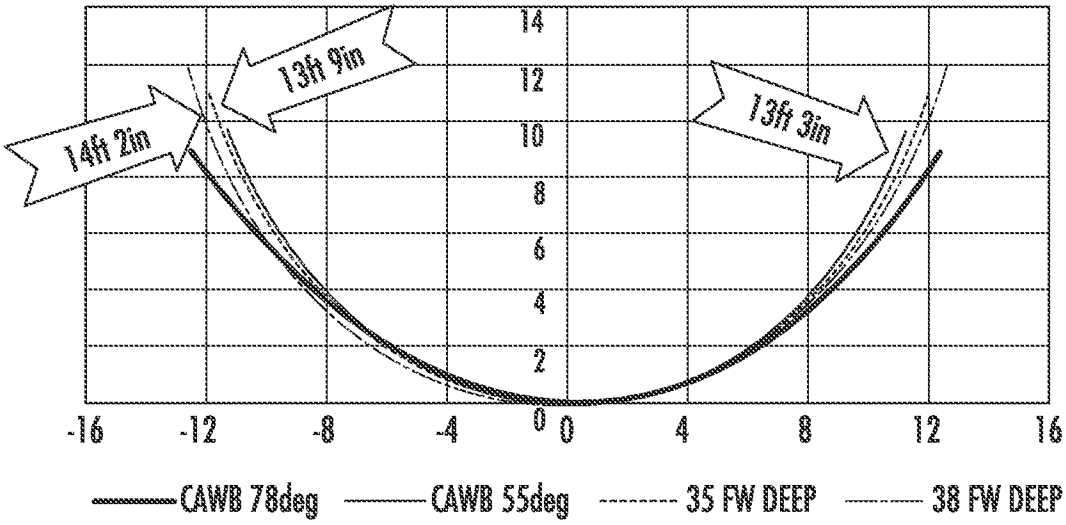

14ft 2in
13ft 9in
13ft 3in
14
12
10
8
6
4
2
0
-16
-12
-8
-4
0
4
8
12
16
CAWB 78deg
CAWB 55deg
35 FW DEEP
38 FW DEEP

FIG. 13

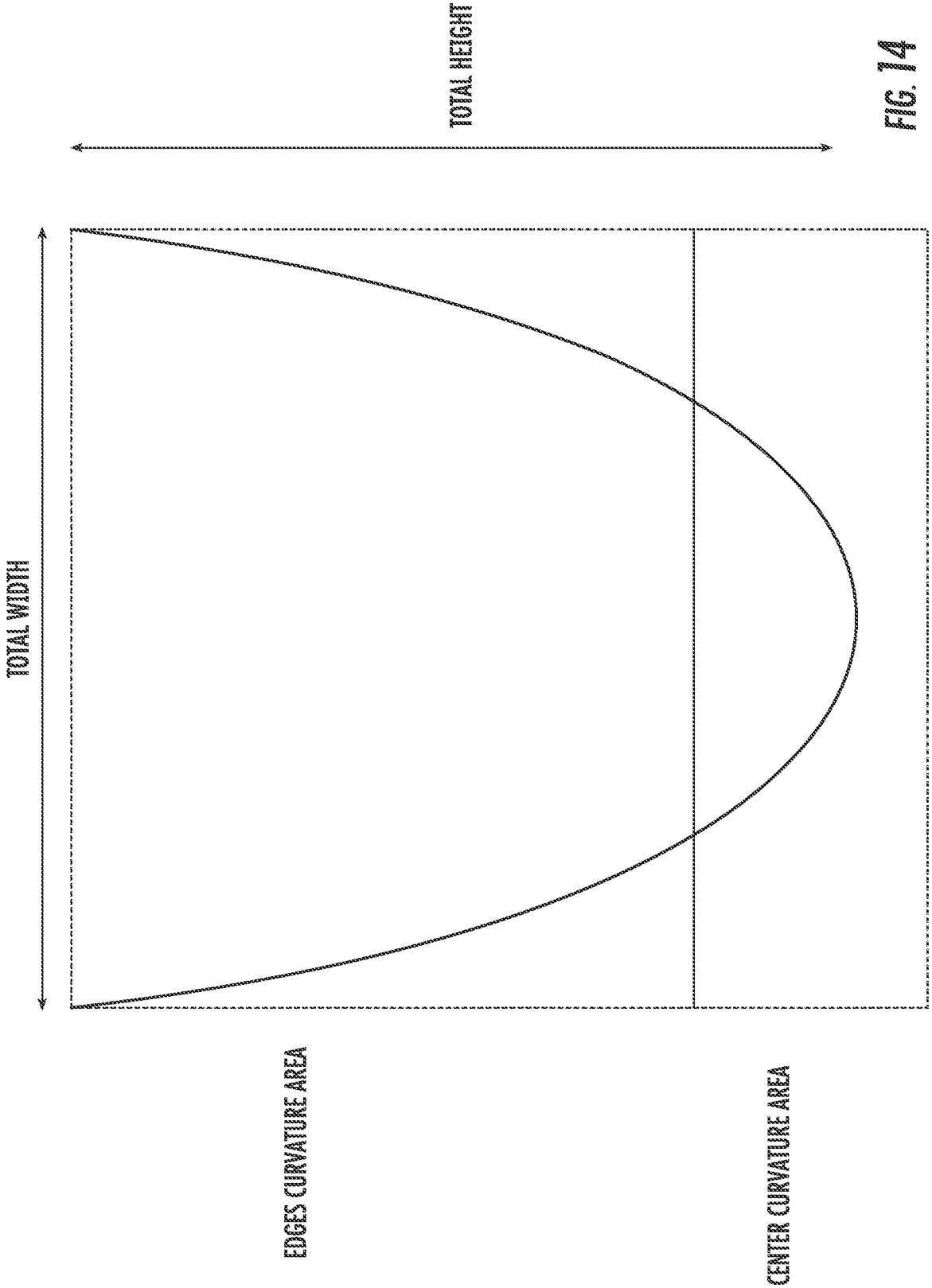

TOTAL HEIGHT
TOTAL WIDTH
EDGES CURVATURE AREA
CENTER CURVATURE AREA

FIG. 14

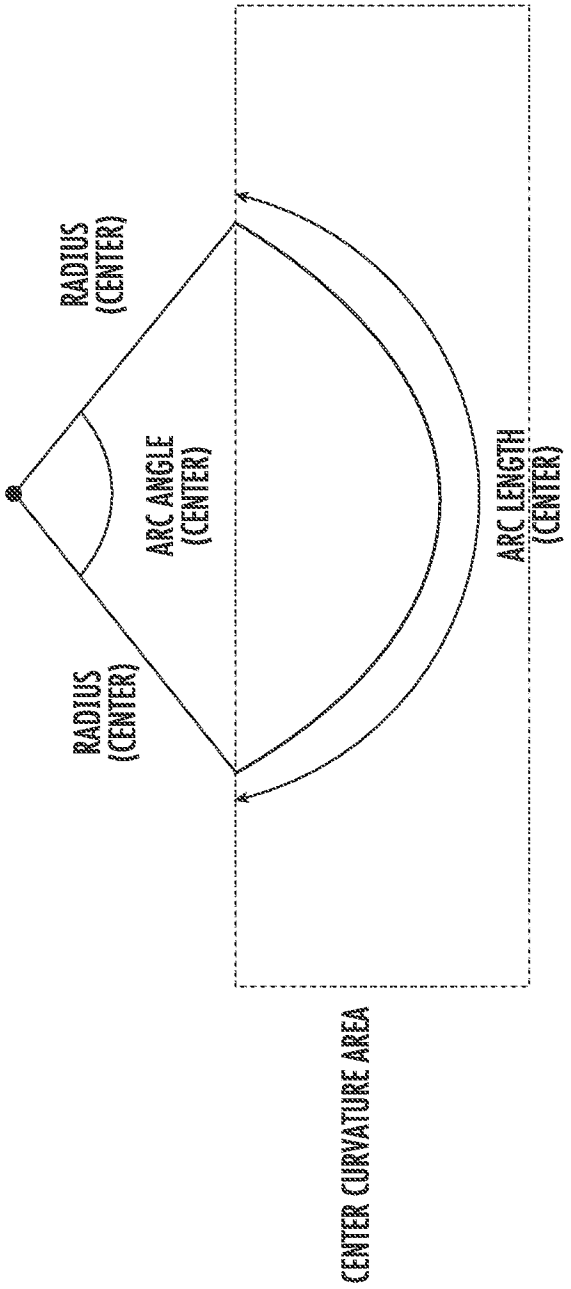

RADIUS (CENTER)
ARC ANGLE (CENTER)
RADIUS (CENTER)
ARC LENGTH (CENTER)
CENTER CURVATURE AREA

FIG. 15

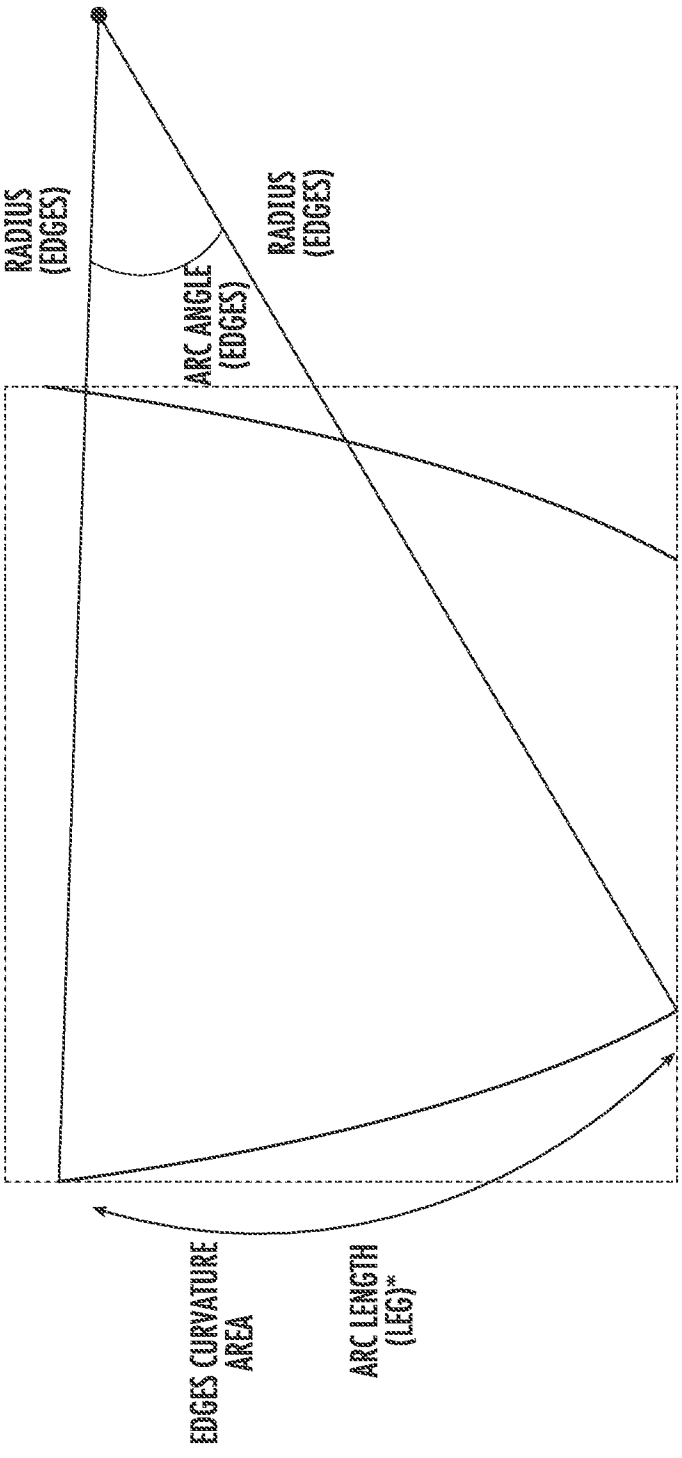

RADIUS (EDGES)
ARC ANGLE (EDGES)
RADIUS (EDGES)
EDGES CURVATURE AREA
ARC LENGTH (LEG)*
*A "LEG" IS ONE SIDE OF THE EDGES PORTION

FIG. 16

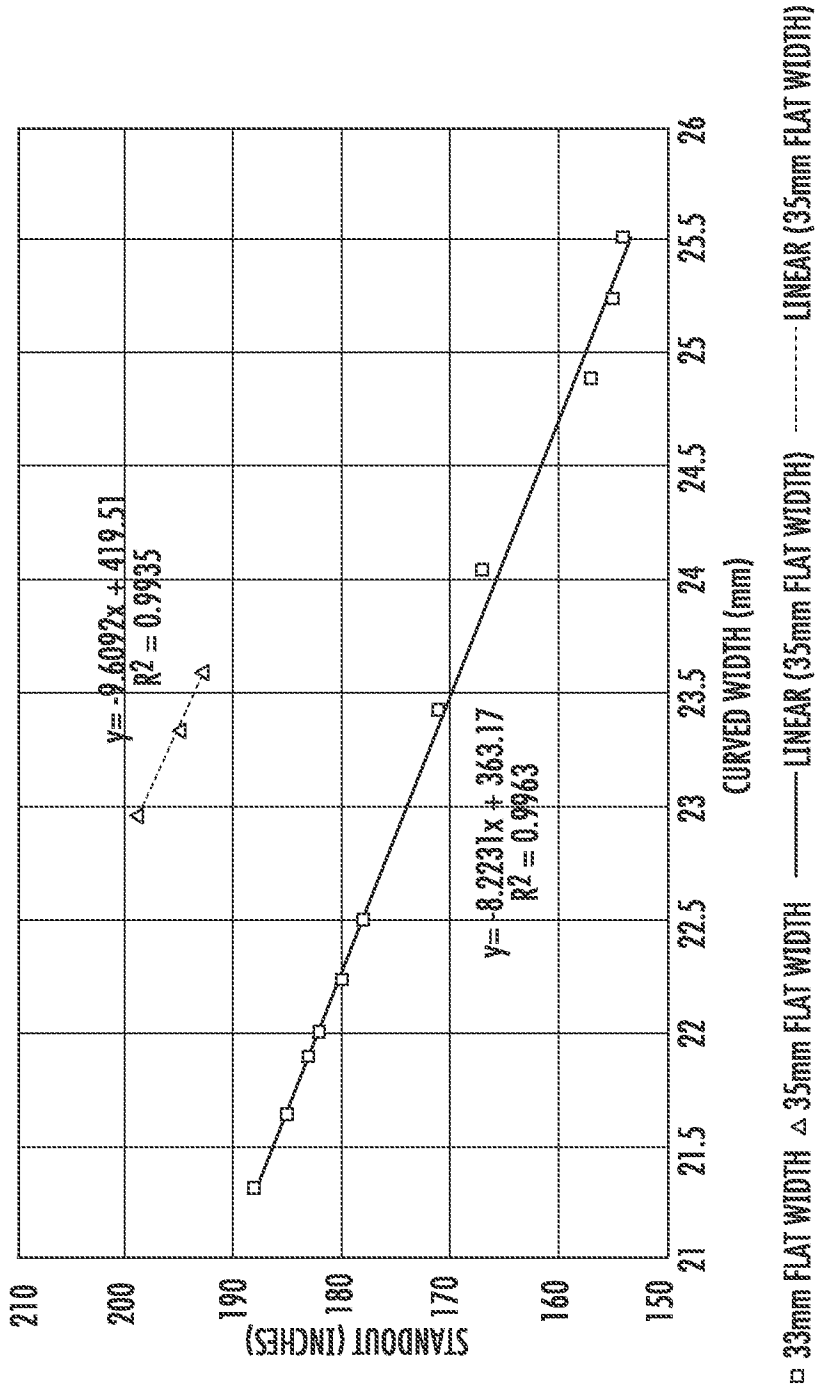

210
200
190
180
170
160
150
STANDOUT (INCHES)
21
21.5
22
22.5
23
23.5
24
24.5
25
25.5
26
CURVED WIDTH (mm)
y = -9.4092x + 419.51
R2 = 0.9935
y = -8.2231x + 363.17
R2 = 0.9963
33mm FLAT WIDTH
35mm FLAT WIDTH
LINEAR (33mm FLAT WIDTH)
LINEAR (35mm FLAT WIDTH)

FIG. 17

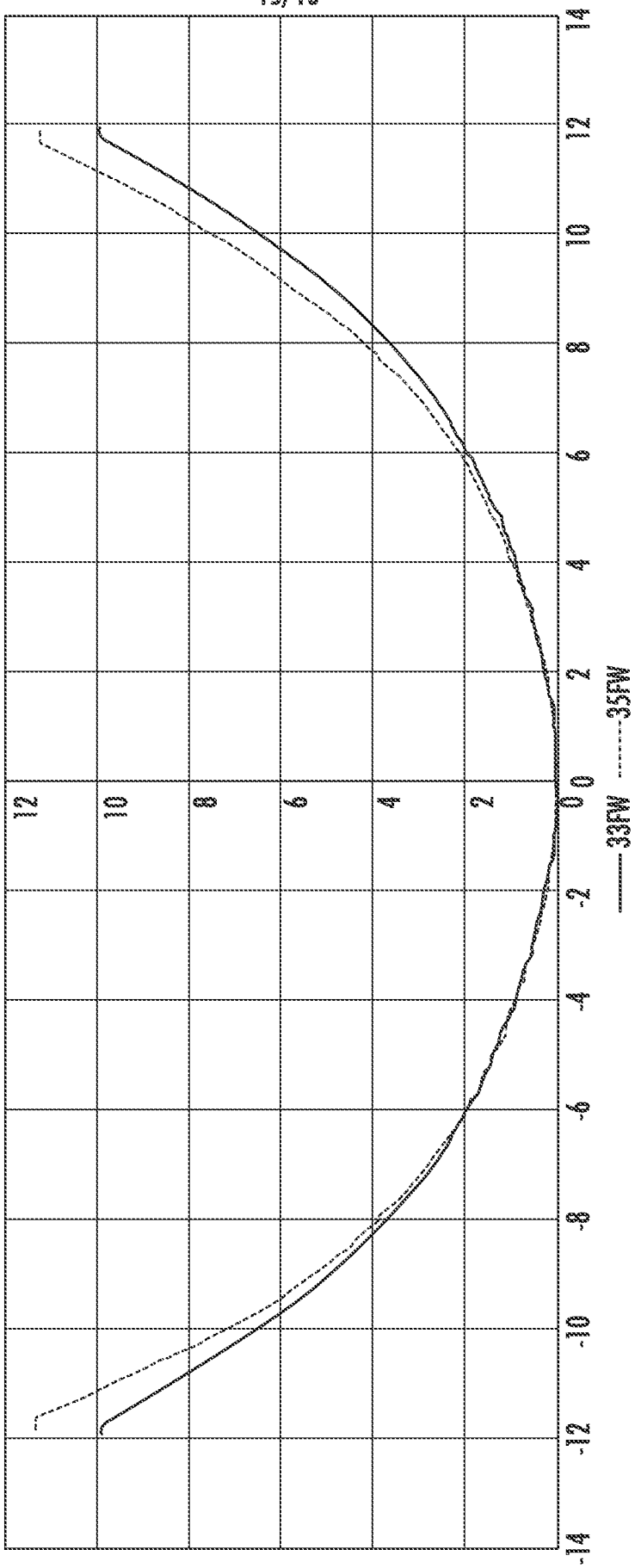


FIG. 18

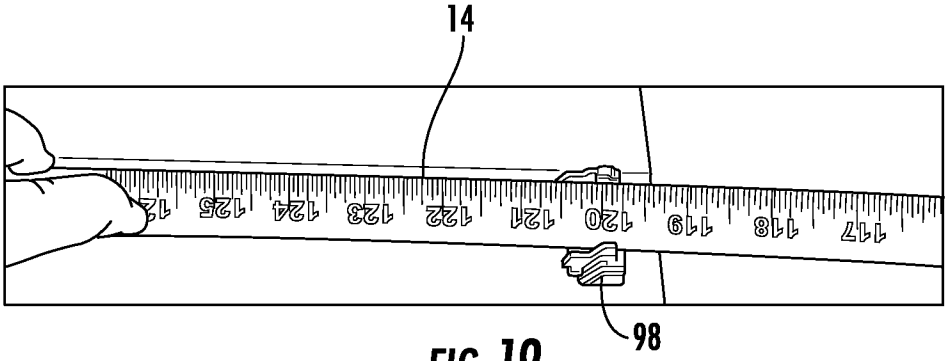


FIG. 19

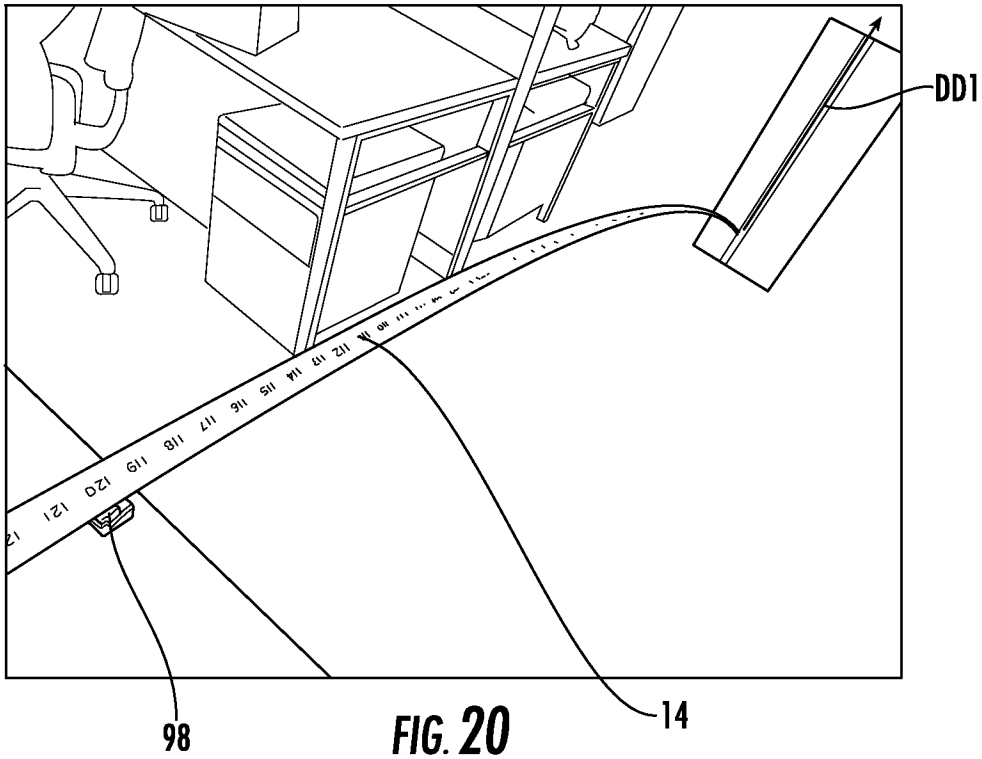


FIG. 20

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I HEREBY DECLARE:

THAT my residence, post office address, and citizenship are as stated below next to my name;

THAT I believe I am the original inventor or an original joint inventor of a claimed invention in the application identified below

TAPE MEASURE WITH TAPE BLADE PROFILE INCREASING TAPE STANDOUT

(Attorney Docket No. 066749-1484)

the specification of which (check one)

___ is attached hereto.

_X_ was filed on August 27, 2018 as United States Application Number 16/113,695.

THAT the above-identified application was made or authorized by me;

THAT I do not know and do not believe that the same invention was invented by another and was patented, described in any printed publication, in public use, on sale or otherwise available to the public in any country, prior to the effective filing date of this United States application or before I (we) had publicly disclosed the invention (if applicable);

THAT I do not know and do not believe that the same invention was patented, described in any printed publication, in public use, on sale or otherwise available to the public in any country, for more than one year prior to the effective filing date of this United States application;

THAT I have reviewed and understand the contents of the above-identified specification, including the claim(s), as amended by any amendment specifically referred to above;

THAT I believe that the above-identified specification contains a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention, and sets forth the best mode contemplated by me of carrying out the invention; and

THAT I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I HEREBY CLAIM foreign priority benefits under Title 35, United States Code §119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below any foreign application for patent or inventor's certificate or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number	Country	Foreign Filing Date	Priority Claimed?	Certified Copy Attached?

I HEREBY CLAIM the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

U.S. Provisional Application Number	Filing Date
62/702,575	July 24, 2018
62/549,511	August 24, 2017

I HEREBY CLAIM the benefit under Title 35, United States Code, §120 of any United States application(s), or § 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application Number	PCT Parent Application Number	Parent Filing Date	Parent Patent Number
N/A	PCT/US2018/047759	August 23, 2018	N/A

I HEREBY APPOINT the registered attorneys and agents at Customer Number

142078

to have full power to prosecute this application and any continuations, divisions, reissues, and reexaminations thereof, to receive the patent, and to transact all business in the United States Patent and Trademark Office connected therewith.

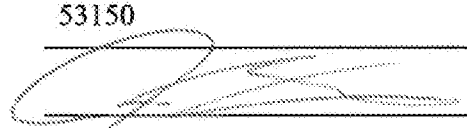
I request that all correspondence be directed to:

James D. Borchardt
Reinhart Boerner Van Deuren s.c.
Customer Number: 142078

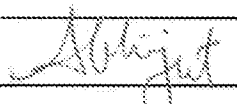
Telephone: (414) 298-8160
Facsimile: (414) 298-8097

I UNDERSTAND AND AGREE THAT the foregoing attorneys and agents appointed by me to prosecute this application do not personally represent me or my legal interests, but instead represent the interests of the legal owner(s) of the invention described in this application.

I HEREBY ACKNOWLEDGE THAT any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Name of first inventor	Jonathan F. Vitas
Residence	Muskego, Wisconsin
Citizenship Country	U.S.
Post Office Address	S96W12969 Claude Harmon Circle, Muskego, Wisconsin 53150
Inventor's signature	
Date	9-17-18

Klein Tools
Ex-1002, Page 58

Name of second inventor	Abhijeet A. Khangar
Residence	Pewaukee, Wisconsin
Citizenship Country	U.S.
Post Office Address	N43 W22755 Victoria Street, Pewaukee, Wisconsin 53072
Inventor's signature	
Date	09/19/2018

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	To be determined
Filing Date	May 24, 2021
First Named Inventor	Jonathan F. Vitas
Title	Tape Measure with Tape Blade Profile Increasing Tape Standout
Art Unit	To be determined
Examiner Name	To be determined
Attorney Docket Number	066749-2558

SIGNATURE of Applicant or Patent Practitioner

Signature	/James D. Borchardt/	Date (Optional)	May 24, 2021
Name	James D. Borchardt	Registration Number	62,025
Title (if Applicant is a juristic entity)	Attorney for Applicant		
Applicant Name (if Applicant is a juristic entity)	Milwaukee Electric Tool Corporation		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

■ Practitioners associated with Customer Number: 142078

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

■ The address associated with Customer Number: 142078

OR

☐	Firm or Individual Name		
	Address		
	City	State	Zip
	Country		
	Telephone	Email	

Assignee Name and Address: Milwaukee Electric Tool Corporation
13135 West Lisbon Road
Brookfield, Wisconsin 53002

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be Filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	TY	Date	9-6-16
Name	Ty Staviski	Telephone	262-781-3600
Title	Vice President, Secretary and Treasurere		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Milwaukee Electric Tool Corporation
Title:	Tape Measure with Tape Blade Profile Increasing Tape Standout
Appl. No.:	To Be Determined
Filing Date:	May 24, 2021
Examiner:	To Be Determined
Art Unit:	To Be Determined
Confirmation Number:	To Be Determined

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Submitted herewith on Form PTO/SB/08 is a listing of the documents cited by or submitted to the United States Patent & Trademark Office ("USPTO") in parent application Serial No. 16/927,693, filed July 13, 2020. As provided in 37 CFR §1.98(d), copies of documents previously cited in the above-identified patent application are not being provided since they were previously submitted to the USPTO in the above-identified patent application. Otherwise, copies of each newly cited non-U.S. patent document (if any) and each newly cited non-patent document (if any) are being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR

§1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(b)(1), within three (3) months of the filing date of the application.

RELEVANCE OF EACH DOCUMENT

All of the documents are in English.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

Although Applicant believes that no fee is required for this Request, the Commissioner is hereby authorized to charge any additional fees which may be required for this Request to Deposit Account No. 18-0882.

Respectfully submitted,

Date May 24, 2021

By /James D. Borchardt/

Reinhart Boerner Van Deuren s.c.
Customer Number: 142078
Telephone: (414) 298-8160
Facsimile: (414) 298-8097

James D. Borchardt
Attorney for Applicant
Registration No. 62,025

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	To be determined
				Filing Date	May 24, 2021
Date Submitted: May 24, 2021				**First Named Inventor**	Jonathan F. Vitas
				Art Unit	To be determined
(use as many sheets as necessary)				Examiner Name	To be determined
Sheet	1	of	2	Attorney Docket Number	066749-2558

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A1	4,429,462	02-07-1984	Rutty et al.	
	A2	6,324,769	12-04-2001	Murray	
	A3	7,159,331	01-09-2007	Critelli et al.	
	A4	10,422,617	09-24-2019	Vitas et al.	
	A5	10,697,747	06-30-2020	Vitas et al.	
	A6	2015/0247716	09-03-2015	Craig et al.	

UNPUBLISHED U.S. PATENT APPLICATION DOCUMENTS

Examiner Initials*	Cite No.[1]	U.S. Patent Application Document Serial Number-Kind Code[2] (*if known*)	Filing Date of Cited Document MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]
	A7	Petition for Post Grant Review of United States Patent No. 10,422,617, dated April 10, 2020, 103 pages.	
	A8	Patent Owner's Preliminary Response to Petition for Post Grant Review of United States Patent No. 10,422,617, dated July 15, 2020, 60 pages.	
	A9	Exhibit 2001, "Expert Declaration of Dr. Kimberly Cameron" in PGR 2020-00056, 34 pages.	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**.

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Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	To be determined
				Filing Date	May 24, 2021
Date Submitted: May 24, 2021				**First Named Inventor**	Jonathan F. Vitas
				Art Unit	To be determined
(use as many sheets as necessary)				Examiner Name	To be determined
Sheet	2	of	2	Attorney Docket Number	066749-2558

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]
	A10	Exhibit 2002, "Declaration of Inventor A. Khangar" in PGR 2020-00056, 16 pages.	
	A11	Exhibit 2003, "Milwaukee Wide Blade Tape Measure" in PGR 2020-00056, 4 pages.	
	A12	Exhibit 2004, "CDCA-03-03-cv-00655-60" in PGR 2020-00056, 8 pages.	
	A13	Exhibit 2005, "DMN-0-13-cv-01287-155" in PGR 2020-00056, 44 pages.	
	A14	Exhibit 2006, "Dictionary Definition of Profile" in PGR 2020-00056, 3 pages.	
	A15	Exhibit 2007, "Dictionary Definition of Such That" in PGR 2020-00056, 3 pages.	
	A16	Exhibit 2008, "Patent Office Assignment Record for Gilliam Ex. 1013" in PGR 2020-00056, 2 pages.	
	A17	Exhibit 2009, "Milwaukee Tool Internal Stand Out Issue Analysis May 8, 2017" in PGR 2020-00056, 3 pages.	
	A18	Exhibit 2010, "Dr. Kimberly Cameron CV" in PGR 2020-00056, 5 pages.	
	A19	Exhibit 2011, "Dr. Kimberly Cameron Testifying Experience" in PGR 2020-00056, 2 pages.	
	A20	Exhibit 2012, "Dictionary Definition of Define" in PGR 2020-00056, 3 pages.	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

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If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	Tape Measure with Tape Blade Profile Increasing Tape Standout
First Named Inventor/Applicant Name:	Jonathan F. Vitas
Filer:	James D. Borchardt/Andrea Dietzel
Attorney Docket Number:	066749-2558

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	320	320
UTILITY SEARCH FEE	1111	1	700	700
UTILITY EXAMINATION FEE	1311	1	800	800
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1820**

Electronic Acknowledgement Receipt

EFS ID:	42797471
Application Number:	17328388
International Application Number:	
Confirmation Number:	6253
Title of Invention:	Tape Measure with Tape Blade Profile Increasing Tape Standout
First Named Inventor/Applicant Name:	Jonathan F. Vitas
Customer Number:	142078
Filer:	James D. Borchardt/Andrea Dietzel
Filer Authorized By:	James D. Borchardt
Attorney Docket Number:	066749-2558
Receipt Date:	24-MAY-2021
Filing Date:	
Time Stamp:	15:38:28
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$1820
RAM confirmation Number	E20215NF38572901
Deposit Account	180882
Authorized User	Andrea Dietzel

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	066749-2558_App_Transmittal.pdf	64411 49894aa6b5a7dfae7430343adb937813bdebd365	no	2
Warnings:					
Information:					
2	Application Data Sheet	066749-2558_ADS.pdf	81092 040786cc17665f83d286985defe458af24b4c54d	no	5
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
3		066749-2558_Application.pdf	241264 78a9e155ab5aaaa7ef24ddda67ada435e3b7e1a0	yes	31

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	28
Claims	29	30
Abstract	31	31

Warnings:					
Information:					
4	Drawings-only black and white line drawings	066749-2558_Drawings.pdf	321509 86016463c9b572c9e327fbea30d8148bed9aaf26	no	16
Warnings:					
Information:					

5	Oath or Declaration filed	066749-2558_Declaration.pdf	356110 eefa9705d39675eafdf01886a5a5b18cb50728e3	no	4
Warnings:					
Information:					
6	Power of Attorney	066749-2558_PoA.pdf	201650 81be3bc13c76734df3401c0ff6abdd33cea962d4	no	2
Warnings:					
Information:					
7	Transmittal Letter	066749-2558_IDS_Transmittal.pdf	80360 58be5d2863e981458f2d48d67da2818eb4fef308	no	2
Warnings:					
Information:					
8	Information Disclosure Statement (IDS) Form (SB08)	066749-2558_SB08.pdf	106033 51dbb1caa73f8e02e516b918a39cccc3cdbb3533	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
9	Fee Worksheet (SB06)	fee-info.pdf	35665 80f7df8ae7a958743c4d42f98b9af5f4b0a500c5	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1488094		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/328,388	05/24/2021	1745	1820	066749-2558	12	1

CONFIRMATION NO. 6253

FILING RECEIPT

142078
Reinhart (Milwaukee Tool)
ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE, WI 53202

OC000000125957370

Date Mailed: 06/01/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Jonathan F. Vitas, Muskego, WI;
Abhijeet A. Khangar, Pewaukee, WI;

Applicant(s)

Milwaukee Electric Tool Corporation, Brookfield, WI;

Power of Attorney: The patent practitioners associated with Customer Number 142078

Domestic Priority data as claimed by applicant

This application is a CON of 16/927,693 07/13/2020 PAT 11022416
which is a CON of 16/113,695 08/27/2018 PAT 10712142
which is a CON of PCT/US2018/047759 08/23/2018
which claims benefit of 62/702,575 07/24/2018
and claims benefit of 62/549,511 08/24/2017

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 05/28/2021

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/328,388**

Projected Publication Date: 09/09/2021

Non-Publication Request: No

Early Publication Request: No

Title

Tape Measure with Tape Blade Profile Increasing Tape Standout

Preliminary Class

156

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

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technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/328,388

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	320
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	700
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	800
TOTAL CLAIMS (37 CFR 1.16(i))	12 minus 20 =	*			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*				x 480 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1820

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

To: IPAdmin@reinhartlaw.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 142078

Jun 01, 2021 04:10:33 AM

Dear PAIR Customer:

Reinhart (Milwaukee Tool)
ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE, WI 53202
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 142078 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:
The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
17328388	APP.FILE.REC	06/01/2021	066749-2558

To view your correspondence online or update your email addresses, please visit us anytime at https://sportal.uspto.gov/secure/myportal/privatepair.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	17/328,388
Date Submitted: June 28, 2021				**Filing Date**	May 24, 2021
				First Named Inventor	Jonathan F. Vitas
				Art Unit	2861
(use as many sheets as necessary)				Examiner Name	To be determined
Sheet	1	of	1	Attorney Docket Number	066749-2558

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A1	2007/0079520	04-12-2007	Levine et al.	
	A2	2008/0010847	01-17-2008	Liao	

UNPUBLISHED U.S. PATENT APPLICATION DOCUMENTS

Examiner Initials*	Cite No.[1]	U.S. Patent Application Document Serial Number-Kind Code[2] (*if known*)	Filing Date of Cited Document MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	43109551
Application Number:	17328388
International Application Number:	
Confirmation Number:	6253
Title of Invention:	Tape Measure with Tape Blade Profile Increasing Tape Standout
First Named Inventor/Applicant Name:	Jonathan F. Vitas
Customer Number:	142078
Filer:	James D. Borchardt/Andrea Dietzel
Filer Authorized By:	James D. Borchardt
Attorney Docket Number:	066749-2558
Receipt Date:	28-JUN-2021
Filing Date:	24-MAY-2021
Time Stamp:	17:16:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	066749-2558_Transmittal.pdf	79048 79f9c42aec2f1da74ca88983d3bde5a8c5b8ba91	no	2

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	066749-2558_SB08.pdf	92168 9cabd1e4246aeea9ffebf4e1ea669236efc64d90	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
			Total Files Size (in bytes):	171216	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Milwaukee Electric Tool Corporation
Title:	Tape Measure with Tape Blade Profile Increasing Tape Standout
Appl. No.:	17/328,388
Filing Date:	May 24, 2021
Examiner:	To Be Determined
Art Unit:	2861
Confirmation Number:	6253

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Submitted herewith on Form PTO/SB/08 is a listing of the documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR § 1.56.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(b)(1), within three (3) months of the filing date of the application.

RELEVANCE OF EACH DOCUMENT

All of the documents are in English.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

Although Applicant believes that no fee is required for this Request, the Commissioner is hereby authorized to charge any additional fees which may be required for this Request to Deposit Account No. 18-0882.

Respectfully submitted,

Date June 28, 2021

By /James D. Borchardt/

Reinhart Boerner Van Deuren s.c.
Customer Number: 142078
Telephone: (414) 298-8160
Facsimile: (414) 298-8097

James D. Borchardt
Attorney for Applicant
Registration No. 62,025

Klein Tools
Ex-1002, Page 82

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/328,388	05/24/2021	Jonathan F. Vitas	066749-2558

CONFIRMATION NO. 6253

PUBLICATION NOTICE

142078
Reinhart (Milwaukee Tool)
ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE, WI 53202

OC00000128291316

Title: Tape Measure with Tape Blade Profile Increasing Tape Standout

Publication No.US-2021-0278188-A1
Publication Date:09/09/2021

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently https://portal.uspto.gov/pair/PublicPair. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

To: IPAdmin@reinhartlaw.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 142078

Sep 10, 2021 03:59:46 AM

Dear PAIR Customer:

Reinhart (Milwaukee Tool)
ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE, WI 53202
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 142078 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:
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Application	Document	Mailroom Date	Attorney Docket No.
17328388	NTC.PUB	09/09/2021	066749-2558

To view your correspondence online or update your email addresses, please visit us anytime at https://sportal.uspto.gov/secure/myportal/privatepair.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	17/328,388
				Filing Date	May 24, 2021
Date Submitted: November 11, 2021				**First Named Inventor**	Jonathan F. Vitas
				Art Unit	To be determined
(use as many sheets as necessary)				Examiner Name	To be determined
Sheet	1	of	1	Attorney Docket Number	066749-2558

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A1	10,712,142	07-14-2020	Vitas et al.	
	A2	11,022,416	06-01-2021	Vitas et al.	

UNPUBLISHED U.S. PATENT APPLICATION DOCUMENTS					
Examiner Initials*	Cite No.[1]	U.S. Patent Application Document Serial Number-Kind Code[2] (*if known*)	Filing Date of Cited Document MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	44261691
Application Number:	17328388
International Application Number:	
Confirmation Number:	6253
Title of Invention:	Tape Measure with Tape Blade Profile Increasing Tape Standout
First Named Inventor/Applicant Name:	Jonathan F. Vitas
Customer Number:	142078
Filer:	James D. Borchardt/Andrea Dietzel
Filer Authorized By:	James D. Borchardt
Attorney Docket Number:	066749-2558
Receipt Date:	11-NOV-2021
Filing Date:	24-MAY-2021
Time Stamp:	17:02:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	066749-2558_IDS_Transmittal.pdf	79457 4d9a3472f72e9526732cc97e64f9b1a42a2ce12d	no	2

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	066749-2558_SB08.pdf	93608 6232c64171a42be82e9ab8b33bd01abb897fa610	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
			Total Files Size (in bytes):	173065	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Milwaukee Electric Tool Corporation
Title:	Tape Measure with Tape Blade Profile Increasing Tape Standout
Appl. No.:	17/328,388
Filing Date:	May 24, 2021
Examiner:	To Be Determined
Art Unit:	To Be Determined
Confirmation Number:	6253

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Submitted herewith on Form PTO/SB/08 is a listing of the documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR § 1.56.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(b)(3), before the mailing date of the first Office action on the merits.

RELEVANCE OF EACH DOCUMENT

All of the documents are in English.

Although Applicant believes that no fee is required for this Request, the Commissioner is hereby authorized to charge any additional fees which may be required for this Request to Deposit Account No. 18-0882.

Respectfully submitted,

Date November 11, 2021

By /James D. Borchardt/

Reinhart Boerner Van Deuren s.c.
Customer Number: 142078
Telephone: (414) 298-8160
Facsimile: (414) 298-8097

James D. Borchardt
Attorney for Applicant
Registration No. 62,025

Klein Tools
Ex-1002, Page 89

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
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Substitute for form 1449/PTO				*Complete if Known*	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	17/328,388
Date Submitted: February 18, 2022				**Filing Date**	May 24, 2021
				First Named Inventor	Jonathan F. Vitas
(use as many sheets as necessary)				Art Unit	To be determined
				Examiner Name	To be determined
Sheet	1	of	1	Attorney Docket Number	066749-2558

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A1	10,126,107	11-13-2018	Khangar; Abhijeet A.	
	A2	10,697,747	06-30-2020	Vitas; Jonathan F.	
	A3	2002/0129509	09-19-2002	Evans, John Joseph III	
	A4	2019/0063893	02-28-2019	Vitas; Jonathan F.	
	A5	2019/0316892	10-17-2019	Vitas; Jonathan F.	
	A6	2020/0340792	10-29-2020	Vitas; Jonathan F.	
	A7	2021/0278188	09-09-2021	Vitas; Jonathan F.	

UNPUBLISHED U.S. PATENT APPLICATION DOCUMENTS

Examiner Initials*	Cite No.[1]	U.S. Patent Application Document Serial Number-Kind Code[2] (*if known*)	Filing Date of Cited Document MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	45037485
Application Number:	17328388
International Application Number:	
Confirmation Number:	6253
Title of Invention:	Tape Measure with Tape Blade Profile Increasing Tape Standout
First Named Inventor/Applicant Name:	Jonathan F. Vitas
Customer Number:	142078
Filer:	James D. Borchardt/Andrea Dietzel
Filer Authorized By:	James D. Borchardt
Attorney Docket Number:	066749-2558
Receipt Date:	18-FEB-2022
Filing Date:	24-MAY-2021
Time Stamp:	17:09:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	066749-2558_IDS_Transmittal.pdf	79843 7efc1a53fef598851af72242910ac2c1dee0d7a6	no	2

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	066749-2558_SB08.pdf	102811 506f7615ead648a365db5f24092eb2fb5366e55b	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
			Total Files Size (in bytes):	182654	

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New Applications Under 35 U.S.C. 111

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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Milwaukee Electric Tool Corporation
Title:	Tape Measure with Tape Blade Profile Increasing Tape Standout
Appl. No.:	17/328,388
Filing Date:	May 24, 2021
Examiner:	To Be Determined
Art Unit:	To Be Determined
Confirmation Number:	6253

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Submitted herewith on Form PTO/SB/08 is a listing of the documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR § 1.56.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(b)(3), before the mailing date of the first Office action on the merits.

RELEVANCE OF EACH DOCUMENT

All of the documents are in English.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

Although Applicant believes that no fee is required for this Request, the Commissioner is hereby authorized to charge any additional fees which may be required for this Request to Deposit Account No. 18-0882.

Respectfully submitted,

Date February 18, 2022

By /James D. Borchardt/

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Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	17/328,388
Date Submitted: April 12, 2022				**Filing Date**	May 24, 2021
				First Named Inventor	Jonathan F. Vitas
(use as many sheets as necessary)				Art Unit	To be determined
				Examiner Name	To be determined
Sheet	1	of	1	Attorney Docket Number	066749-2558

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

UNPUBLISHED U.S. PATENT APPLICATION DOCUMENTS					
Examiner Initials*	Cite No.[1]	U.S. Patent Application Document Serial Number-Kind Code[2] (*if known*)	Filing Date of Cited Document MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS						
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	A1	CN106537080A	03-22-2017	BROOKS TODD		
	A2	CN1922462A	02-28-2007	COOPER BRANDS INC		

NON PATENT LITERATURE DOCUMENTS			
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**.

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Bibliographic data: CN106537080 (A) — 2017-03-22

Self-supporting collapsable and retractable elongate member and method of retracting

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Applicant(s): BROOKS TODD D ± (托德·D·布鲁克斯)

Classification: - international: *G01B3/08; G01B3/10*
- cooperative: **B32B1/08 (EP, KR, US)**; **B32B27/08 (EP, US)**; **B32B3/02 (EP, US)**; **B32B3/266 (EP, KR, US)**; **B32B3/28 (KR, US)**; **B32B5/024 (EP, US)**; **B32B5/04 (KR)**; **B32B5/12 (EP, US)**; **B32B5/26 (EP, KR, US)**; **B32B7/04 (EP, US)**; **B32B7/05 (EP, US)**; **B65H75/4436 (EP, US)**; **B65H75/48 (US)**; **G01B1/00 (EP, US)**; **G01B3/1003 (EP, US)**; **G01B3/1005 (EP, KR, US)**; **G01B3/102 (EP)**; B32B2260/023 (EP, US); B32B2260/046 (EP, US); B32B2262/02 (EP, US); B32B2262/0269 (EP, US); B32B2262/101 (EP, US); B32B2262/106 (EP, US); B32B2307/54 (EP, US); B65H2701/371 (EP, US); G01B3/102 (US)

Application number: CN20158025332 20150402 Global Dossier

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Also published as: AU2015240694 (A1) BR112016023050 (A2) CA2944746 (A1) EP3126777 (A1) EP3126777 (A4) more

Abstract of CN106537080 (A)

The invention discloses an apparatus including a housing having a housing aperture, a spring biased retracting reel located within the housing, and an elongated member that includes a first end attached to the spring biased retracting reel and having a second distal end outside of the housing. The elongated member is capable of winding upon the spring biased retracting reel while translating through the housing aperture, where the elongate member further includes an interior chamber defined by an uncoupled region between a first and a second arcuate elongate members and a venting mechanism capable of regulating air flowing in and out of the interior chamber. Each of the first and second arcuate elongate members further include at least a first layer of fiber material and a second layer of fiber material, where a majority of fibers in the first

layer of fiber material are oriented substantially perpendicular to a majority of fibers in the second layer of fiber material.

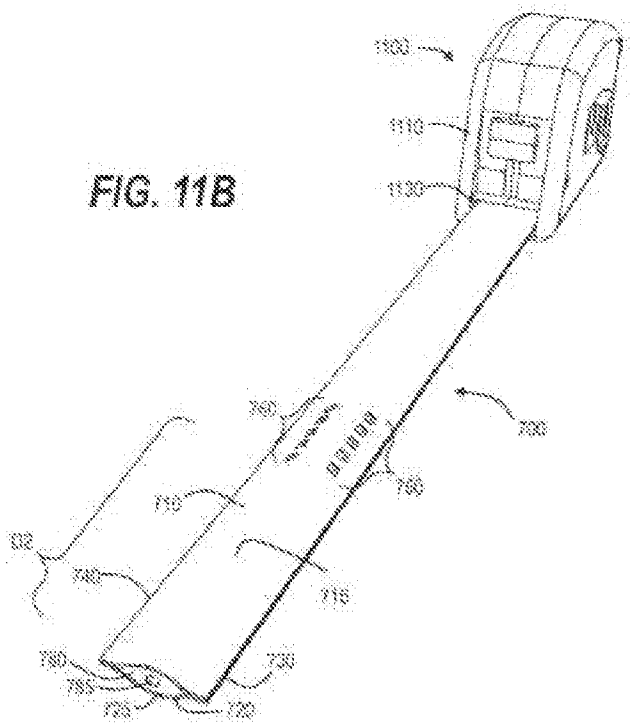


FIG. 11B

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DESCRIPTION CN106537080A

10 Collapsible and retractable self-supporting elongated member and retraction method

[0001]

14 technical field

[0002]

18 The technology disclosed herein relates generally to a self-supporting elongated member, and more particularly, to a self-supporting elongated member that collapses when the elongated member is retracted into a coiled or coiled configuration.

[0003]

24 Background technique

[0004]

28 Collapsible self-supporting elongated members are commonly used in a variety of technical fields and in various devices such as tape measures.

30 When extended, the elongated member will generally be self-supporting in a horizontal direction from one end to a certain maximum protruding length, at which point the elongated member will generally collapse.

32 When flattened, the elongated member can be folded or rolled up for storage.

33 The technical limitations associated with such elongated members generally relate to the protruding length of the elongated member, the weight of the elongated member, the dimensions of the collapsed elongated member, the minimum bend radius of the elongated member and the extent to which the elongated member collapses and extends durability over the lifespan.

[0005]

Some known types of self-supporting collapsible elongated members are constructed from two relatively thin elongated strips of one material joined at their longitudinal edges to form A flange with a closed tubular structure region therebetween.

Typically, each of the elongated strips may be constructed of one metallic material, and the elongated strips are joined by welding. Typically, the elongated strips have complementary curved profiles to increase the protruding length of the elongated member. When these types of elongated members are collapsed, they are usually flattened and wound on a spool. Applying a force on the joints between the elongated strips may damage the elongated members, especially when welding of the edges of the elongated strips can cause the joints of the elongated members to be relatively brittle. Rolling up of the elongated members can cause buckling of at least one of the elongated strips, which buckling can reduce the compactness of the collapsed elongated members. Furthermore, the stress on the elongated member from its rolling up can compound with the stress on the elongated member from its flattening, which can degrade the performance of the elongated member.

[0006]

The disclosure herein is given based on these and other considerations.

[0007]

SUMMARY OF THE INVENTION

[0008]

It should be understood that this summary is intended to introduce some concepts in a simplified form that are further described below in the Detailed Description.

This summary is not intended to limit the scope of the claimed subject matter.

[0009]

In one embodiment disclosed herein, an apparatus includes an elongated member including a first arcuate elongated member having a first member longitudinal edge and a second arcuate elongated member having a second member longitudinal edge, The second member longitudinal edge engages the first member longitudinal edge to define a lumen defined by a non-coupling area between the first arcuate elongated member and the second arcuate elongated member.

Each of the first arcuate elongated member and the second arcuate elongated member also includes at least a first layer of fibrous material and a second layer of fibrous material, wherein a majority of the fibers in the first layer of fibrous material are oriented substantially perpendicular to the Most of the fibers in the second layer of fiber material.

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[0010]

In another embodiment disclosed herein, a device includes a housing having a housing aperture, a spring-biased retraction spool located within the housing, and having a first end attached to the spring-biased retraction spool and having a spring-biased retraction reel located in the housing The elongated member of the outer second distal portion.

The elongated member is also capable of being wound on a spring biased retraction spool when translated through the housing bore, the elongated member also has an inner cavity and a vent mechanism capable of regulating the flow of air into and out of the inner cavity.

[0011]

In another embodiment disclosed herein, a method for retracting an elongated member provides an elongated member attached to a retraction spool at a first end.

The elongated member includes a sealed interior cavity and an exhaust mechanism that regulates air flow into and out of the interior cavity.

The retraction reel may be rotated in a direction such that the elongated member is wound on the retraction reel.

The lumen of the elongated member can be collapsed as the elongated member is wound on the retraction spool. The inner cavity of the elongated member is vented through the exhaust mechanism of the elongated member to adjust the retraction speed of the retraction spool when the elongated member is wound on the retraction reel based on the exhaust mechanism of the elongated member.

[0012]

The features, functions, and advantages discussed may be achieved independently in various embodiments of the present disclosure or may be combined in additional embodiments, further details of which can be seen in conjunction with the following description and accompanying drawings.

[0013]

Description of drawings

[0014]

The embodiments presented herein will be more fully understood from the detailed description and accompanying drawings, in which:

[0015]

Figure 1 shows a perspective view of a portion of one configuration of an elongated member;

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[0016]

Figure 2 shows a perspective view of representative portions of elements of the elongated member constructed in Figure 1;

[0017]

Figure 3 shows a perspective view of representative portions of elements of the elongated member of the Figure 2 configuration;

[0018]

Figure 4 shows a perspective view of representative portions of elements of the elongated member constructed in Figure 2;

[0019]

Figure 5 shows a perspective view of a representative portion of the elongated member of the configuration of Figure 1;

[0020]

Figure 6 shows a perspective view of a representative portion of another configuration of the elongated member similar to Figure 1;

[0021]

Figure 7 shows a perspective view of a representative portion of the configuration of the elongated member of Figure 6;

[0022]

Figure 8 shows a perspective view of a representative portion of the configuration of the elongated member of Figure 7;

[0023]

9 shows perspective views of two representative cross-sectional A-A and B-B configurations of the elongated member of FIG. 8;

[0024]

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164 Figure 10 shows perspective views of three representative cross-sectional A-A and B-B configurations of the elongated member of Figure 8;

[0025]

169 11A shows a schematic side view of a representative configuration of the elongated member within the housing spool;

[0026]

174 Figure 11B shows a perspective view of a representative configuration of the elongated member within the housing spool of Figure 11A;

[0027]

179 Figure 12A shows a lateral cross-sectional view of the configuration shown in Figure 1 in a flattened state;

[0028]

183 Figure 12B shows a side transverse cross-sectional view of the first elongated strip from Figure 12A showing the force produced by flattening the elongated strip;

[0029]

188 Figure 13A shows a longitudinal cross-sectional view of a portion of a rolled up elongate member consistent with the configuration shown in Figure 1;

[0030]

193 Figure 13B shows a perspective view of a portion of a rolled up elongated member consistent with the configuration shown in Figure 1;

[0031]

198 Figure 14 shows a logic flow diagram illustrating a method of retracting an elongated member consistent with Figures 13A and 13B.

[0032]

203 A more complete understanding and appreciation of the constructions presented herein may be obtained by considering the following detailed description in conjunction with the accompanying drawings.

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[0033]

208 detailed description

[0034]

212 Figure 1 shows a perspective view of a portion of one configuration of an elongated member 100 generally having a first elongated strip 110 and a second elongated strip 120, the first and second elongated strips The first elongate member edge 130, the second elongate member edge 140 and the elongate member non-coupling region 150 of the elongate member 100 cooperatively define.

216 The elongated member 100 generally extends a distance along the longitudinal direction D1 such that the length is significantly greater than the width, but in the drawings, for simplicity, shown in FIG. 1 as shortened segments.

219 For the present disclosure, the longitudinal direction D1 may be substantially parallel to the 0° axis, the transverse direction may be substantially parallel to the 90° axis, and the Z axis may be perpendicular to the 0° -90° plane, as shown in FIG. 1 .

[0035]

225 The first elongated strip 110 generally has a first elongated strip inner surface 111, a first elongated strip outer surface 112 that may be opposed to the first elongated strip inner surface 111, a first elongated strip first edge region 113, and a first elongated strip. An elongated second edge region 114 .

228 The second elongated strip 120 generally has a second inner surface 121, a second elongated strip outer surface 122 opposite the second inner surface 121, a second elongated strip first edge region 123, and a second elongated strip second edge area 124.

[0036]

234 The first elongated strip first edge region 113 may be rigidly coupled to the second elongated strip first edge region 123 forming the first elongated member edge 130 of the elongated member 100.

236 The first elongated strip second edge region 114 may be rigidly coupled to the second elongated strip second edge region 124 , forming the second elongated member edge 140 of the elongated member 100.

[0037]

241 The first elongated strip inner surface 111 of the first elongated strip 110 may be adjacent to the second elongated strip inner surface 121 of the second elongated strip 120.

243 The elongated member non-coupling region 150 may be defined between the first elongated strip inner surface 111 , the second inner surface 121 , the first elongated member edge 130 and the second elongated member edge 140.

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[0038]

249 The first elongate member edge 130 and the second elongate member edge 140 of the elongate member 100 are generally parallel and coplanar.

251 The respective elongated edge regions 113, 114, 123 and 124 of the first elongated strip 110 and the second elongated strip 120 are generally parallel to the first elongated edge 130 and the second elongated edge 140.

253 In various configurations, including the one shown, the cross-sectional profile of the first elongated strip 110 may be substantially similar to the cross-sectional profile of the second elongated strip 120.

255 In such a configuration, the first elongated member edge 130 and the second elongated member edge 140 of the elongated member 100 define a plane of symmetry between the first elongated strip 110 and the second elongated strip 120.

[0039]

261 The first elongated strip 110 generally defines a first elongated strip peak 115 between the first elongated member edge 130 and the second elongated edge 140.

263 The first elongated strip 110 also defines a first elongated strip first transition region 116 between the first elongated member edge 130 and the first peak 115 and between the first elongated strip peak 115 and the second elongated edge 140 The first elongated strip second transition region 117.

[0040]

269 Similarly, the second elongated strip 120 generally defines a second elongated strip peak 125 between the first elongated member edge 130 and the second elongated edge 140.

271 The second elongated strip 120 also defines a second elongated strip first transition region 116 between the first elongated member edge 130 and the second elongated strip peak 125 and the second elongated strip peak 125 and the second elongated edge The second elongated strip second transition region 127 between 140.

[0041]

277 In various configurations, the radius R1 of the first peak 115, the first elongated strip first transition region 116 and the first elongated strip second transition region 117 are substantially the same.

279 In various configurations, the radius R2 of the second peak 125, the second elongated strip first transition region 126, and the second elongated strip second transition region 127 are substantially the same.

281 In at least one configuration, the radii Rl and R2 of the first elongated peak 115 and the second elongated peak 125 are substantially the same.

[0042]

286 The elongated member 100 may be constructed from a variety of materials, as will be described herein.

287 Typically, the first elongated strip 110 and the second elongated strip 120 are configured such that the elongated member 100 is self-supporting a protruding distance along the 0° axis and allows for the first and second peaks 115 and 125 and corresponding transitions Regions 116, 117, 126 and 127 flatten in response to

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sufficient external force, as will be described below in conjunction with Figure 12A.

[0043]

The first elongated strip first edge region 113 and the first elongated strip second edge region 114 of the first elongated strip 110 may correspond to the second elongated strip first edge region 123 and the second elongated strip 120. The two elongated second edge regions 124 are rigidly coupled in various ways.

In at least one configuration, the elongated edge regions 113, 114, 123 and 124 are joined through the use of an adhesive substance, such as a matrix material.

The matrix material may be a resin such as epoxy or thermoplastic.

Other binders known in the art can be used.

In various configurations, the first elongated member edge 130 and the second elongated member edge 140 may be reinforced through the use of carbon fiber ribbons and/or carbon fiber nanotubes.

[0044]

In various other constructions, the first elongated strip 110 and the second elongated strip 120 may each be constructed from a fabric material.

Many types of fabrics are envisioned, and, in certain configurations, the fabric may be a woven fiber material.

In such constructions, the fabric may be a biaxial braid having two strand directions, such as machine direction and cross direction.

Other types of braids can also be used.

In various configurations, the woven fibers may be composites of fibers and matrix material.

In various other configurations, the fibers may be composites constructed from layers of substantially unidirectional fibers in a matrix material, as described below in conjunction with FIGS. 2-5.

In one configuration, the fabric may be a combination of woven fibers and layers of substantially unidirectional fibers.

[0045]

FIG. 2 shows a perspective view of a representative portion of the first elongated strip 110 of the elongated member 100 of the FIG. 1 configuration.

The enlarged view 200 of the edge portion of the elongated member 100 shows one configuration of the structure of the first elongated strip 110 and the second elongated strip 120 having a first layer of fibers Two interlayers of material 210 and a second layer of fibrous material 220.

The first layer of fibrous material 210 is oriented in a direction generally parallel to the 90° axis or transverse to the major longitudinal axis of the first elongate strip 110 of the elongate member 100.

The first layer of fibrous material 210 may comprise multiple layers of fibers arranged in a continuous layer as shown in FIG. 2 or in a substantially amorphous configuration in which the fibers do not contain any discrete layers.

However, in either configuration, the fibers are oriented substantially in line with each other, and in this example, the fibers are oriented generally parallel to the 90° axis of the first elongate strip 110 of the elongate

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member 100.

[0046]

336 The second layer of fibrous material 220 is oriented in a direction generally parallel to the 0° axis or continuous with the major longitudinal axis of the first elongate strip 110 of the elongate member 100.

338 The second layer of fibrous material 220 may comprise multiple layers of fibers arranged in a continuous layer as shown in FIG. 2 or in a substantially amorphous configuration in which the fibers do not contain any discrete layers.

341 In either configuration, however, the fibers are oriented substantially in line with each other, and in this example, the fibers are oriented generally parallel to the 0° axis of the first elongate strip 110 of the elongate member 100.

[0047]

347 One feature of the first elongated strip 110 shown in FIG. 2 (also representing the second elongated strip 120 of FIG. 1) is that the elongated strip 110 has at least two layers of fibrous material oriented substantially perpendicular to each other.

350 That is, where one layer is substantially parallel to the major longitudinal axis of the elongated member 100, the other corresponding layer is substantially perpendicular to the major longitudinal axis of the elongated member 100.

353 More than two fibrous layers may be used for each of elongated strips 110 and 120, and other layers may be oriented in directions other than substantially perpendicular and parallel to the major longitudinal axis of elongated member 100.

[0048]

359 Figure 3 shows an exemplary longitudinal fibrous layer 300 corresponding to the second layer of fibrous material 220 of Figure 2, shown in a simplified manner, showing along an axis generally parallel to 0° or with an elongated Only a single layer of fibrous material extending in a direction in which the major longitudinal axis of the first elongated strip 110 of the member 100 is continuous.

[0049]

366 FIG. 4 shows a representative first elongated strip 110 having an exemplary transverse fibrous layer 400 corresponding to the first layer of fibrous material 210 of FIG. 2 and the longitudinal fibrous layer 300 of FIG. 3.

369 The transverse fibrous layer 400 is shown in a simplified manner, showing only a single layer of fibrous material extending in a direction generally parallel to the 90° axis or perpendicular to the major longitudinal axis of the first elongate strip 110 of the elongate member 100.

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[0050]

FIG. 5 shows an elongated member 500 similar to the elongated member 100 shown in FIG. 1, which is a combination of a first elongated strip 510 and a second elongated strip 520, the first elongated strip comprising the longitudinal direction of FIG. 3 Fiber layer 300 and transverse fiber layer 400 of FIG. 4, the second elongated strip comprising a second longitudinal fiber layer 310 similar to longitudinal fiber layer 300 of FIG. 3 and a second transverse fiber layer similar to transverse fiber layer 400 of FIG. 4 Fiber layer 410.

The first elongated strip 510 may represent the first elongated strip 110 of FIG. 1, and the second elongated strip 520 may represent the second elongated strip 120 of FIG. 1.

The first elongated strip 510 may be constructed from two layers of substantially unidirectional fibers.

The longitudinal fiber layer 300 (which may be an inner layer) of substantially unidirectional fibers has a plurality of fibers oriented to extend in the longitudinal direction.

The transverse fiber layer 400 (which may be the outer layer) of substantially unidirectional fibers has a plurality of fibers oriented to extend in the transverse direction.

Similarly, the second elongated strip 520 may be constructed from two layers of substantially unidirectional fibers, with the second longitudinal fiber layer 310 oriented in the machine direction and the second transverse fiber layer 410 oriented in the transverse direction.

In various configurations, the fibers can be carbon fibers, and in at least one configuration, the fibers can be carbon fibers supplemented with carbon nanotubes.

In some constructions, each layer may be a composite of fibers in a resin such as an epoxy or thermoplastic polymer resin, such as a nylon-6 construction.

[0051]

Whether the elongated fabric has a woven fiber structure or can be constructed from multiple layers of substantially unidirectional fibers, or both, the fibers can be of a variety of materials.

In various configurations, the fibers may be carbon fibers or aramid fibers. In some configurations, the fibrous material may be a spun liquid crystal polymer. In some constructions, the fibrous material may be glass fibers or natural fibers. Other types of fibers and combinations of fibers can be used to construct the first elongated strip and the second elongated strip.

[0052]

The fabric of the first elongated strip and the second elongated strip may be woven fibers or a composite of substantially unidirectional fibers and a matrix material, which may be a variety of materials.

In various configurations, the matrix material may be a metallic or resinous material. In configurations where the matrix material may be a resin, the resin may be an epoxy resin or a thermoplastic resin. Other types of matrix materials are also contemplated, as will be recognized by those skilled in the art.

[0053]

FIG. 6 shows a perspective view of a representative portion of another configuration of elongate member 600 similar to elongate member 100 shown in FIG. 1.

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416 The elongated member 600 includes a first elongated strip 610 similar to the first elongated strip 110 of FIG. 1, and a second elongated strip 620 similar to the second elongated strip 120 of FIG. 1. Elongated member end member 680 may be disposed between first elongated strip 610 and elongated member distal end 660 of elongated member 600 proximate to non-coupling region 650 (similar to elongate member non-coupling region 150 of FIG. 1). between the second elongated strips 620. An end member aperture 685 can be provided within the elongate member end member 680 at the elongate member distal end 660 of the elongate member 600 and can be configured to limit passage from the first elongate member as the elongate member 600 collapses. The rate at which air is expelled from the non-coupling area between the strip 610 and the second elongated strip 620. Thus, the maximum speed at which the elongate member 600 may collapse, eg, by wrapping on itself (as shown in FIG. 11A below), may be limited by such end member apertures 685.

[0054]

429 FIG. 7 shows a perspective view of a representative portion of the construction of an elongated member 700 similar to the elongated member shown in FIG. 6.

431 The elongated member 700 includes a first elongated strip 710 similar to the first elongated strip 110 of FIG. 1, and a second elongated strip 720 similar to the second elongated strip 120 of FIG. 1. Elongated member end member 780 may be disposed between first elongated strip 710 and elongated member distal end 760 of elongated member 700 proximate to non-coupling region 750 (similar to elongate member non-coupling region 150 of FIG. 1). between the second elongated strips 720. An end member aperture 785 may be provided within the elongate member end member 780 at the elongate member distal end 760 of the elongate member 700 and may be configured to limit passage from the first elongate member as the elongate member 700 collapses. The rate at which air is expelled from the non-coupling area 750 between the strip 710 and the second elongated strip 720 is similar to FIG. 6. In addition to end member holes 785 for limiting the rate at which air is expelled from non-coupling regions 750 of elongated member 700, a series of holes 790 of elongated member may be incorporated into elongated members 710 (shown) and 720 (not shown), and may be a single row of holes (not shown) or multiple rows of holes (shown). Additionally, the elongated member series of holes 790 may be located anywhere between the first elongated strip 710 and the second elongated strip 720 near a non-coupling region 750 (similar to the elongated member non-coupling region 150 of FIG. 1). In FIG. 7, for example, a series of holes 790 of two elongated members are located on either side of the first elongated peak 715 of the first elongated member 710.

[0055]

450 The elongated member series of holes 790 may be located at a distance D2 from the elongated member distal end 760 such that air in the non-coupling area 750 between the first elongated strip 710 and the second elongated strip 720 can circulate. The air valve 750 is opened and exhausted from the non-coupling area 750 through a series of holes 790 in the elongate member.

454 When the elongated member series of holes 790 are located at a distance D2 from the elongated member distal end 760, the increased cross-sectional area of the elongated member series of holes 790 allows the first elongated strip and the second elongated The two elongated strips are collapsed together, for example in the non-coupling region 750 between the first elongated strip 710 and the second elongated strip 720 during the

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winding process of the elongated member 700 being rotationally wound on itself More air is expelled from the elongated member. As the collapse of the first elongated strip 710 and the second elongated strip 720 continues through the elongated member series of holes 790 in the direction toward the elongated member distal end 760, the elongated member series of holes 790 do not The air between the first elongated strip 710 and the second elongated strip 720 is then allowed to exhaust therethrough, and all air between the first elongated strip 710 and the second elongated strip 720 must pass through the smaller cross-sectional end The component hole 785 is discharged. The reduction in airflow creates greater resistance to collapse based on the reduced airflow expelled from the non-coupling region 750 between the first elongated strip 710 and the second elongated strip 720 through the end member apertures 785. This increased resistance feature allows the elongated member 700 to increase the size of the first elongated strip 710 and the first elongated strip 710 as it travels through the series of holes 790 of the elongated member in the direction of the elongated member distal end 760 during the collapse (or coiling) process. Collapse resistance between the second elongated strips 720. Such a configuration may be desirable when the elongated member 700 can generally extend from the reel housing (shown in FIGS. 11A-11B) to allow the elongated member 700 to wind the elongated member around the reel relatively quickly A predetermined length of 700 and during the winding process as the collapse of the first elongated strip 710 and the second elongated strip 720 travels past the elongated member on the elongated member 700 in a direction towards the distal end 760 of the elongated member. The braking process is achieved by a series of holes 790 in the elongated member.

[0056]

479 In various configurations, the elongate member series of apertures 790 are defined at locations that are offset from the center to the width of the elongate member 700.

481 In some configurations, the elongated member series of apertures 790 may be laterally and longitudinally symmetrical across the elongated member 700.

[0057]

486 FIG. 8 shows a perspective view of a representative portion of the configuration of the elongated member of FIG. 7, including a series of holes 790 of the elongated member and an end member hole 785 on the distal end 760 of the elongated member.

489 Cross-section AA near the distal end 760 of the elongated member and cross-section BB near the opposite distal end 770 of the elongated member are shown in FIG. 8 to represent the elongated member between the distal ends 760 and 770 of the elongated member 700 s different configurations on thickness transition and geometry transition. These transitions are illustrated in Figures 9-10 and discussed below.

[0058]

496 9 shows a first configuration of perspective views of elongate member 900, representative cross-section 901 at section line (AA) of FIG. 8, and representative cross-section 902 at section line (BB) of FIG. 8, showing The elongated member (of FIG. 8) near the section line (BB) relative to the greater thickness T1 of the material in the first and second elongated members 910 and 920 at the distal end 770 toward the section line (AA) The

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smaller thickness T2 of the material in the first elongated member 910 and the second elongated member 920 at the elongated member distal end 760 (of FIG. 8) transitions.

502 This configuration allows for enhanced bending resistance of the elongated member 900 with a thicker material in the direction of the elongated member (of FIG. 8) relative to the distal end 770, when passing along the (of FIG. 8) The direction of end 760 gradually reduces the weight of elongated member 900 such that elongated member 900 has increased protruding strength when elongated member 900 is fully extended and supported only at opposite distal end 770 of elongated member (of FIG. 8).

[0059]

510 10 illustrates a perspective view of another configuration of elongate member 1000, representative cross-section 1001 at section line (AA) of FIG. 8, and perspective view of representative cross-section 1002 at section line (BB) of FIG. 8, showing the smaller geometric radius R3 of the material in the first elongated member 1010 and the second elongated member 1020 at the opposite distal end 770 of the elongated member (of FIG. 8) near section line (BB) toward the section The larger geometric radius R4 in elongated members 1010 and 1020 at elongated member distal end 760 (of Figure 8) of line (AA) transitions.

516 Where a larger geometric radius R4 allows a smaller distance between the opposing peaks of each elongated strip member, a smaller geometric radius R3 allows a greater distance between the opposing peaks of each elongated strip member. This configuration allows the elongated member 1000 to be fully extended and supported only on the elongated member 1000 by increasing the bending or torsional resistance of the elongated member 1000 in the direction of the elongated member (of FIG. 8) relative to the distal end 770. The protruding strength of the elongated member 900 increases relative to the distal end 770 of the elongated member on which the elongated member 1000 is supported relative to each of the elongated strips 1010 and 1020 near the distal end 770. The radius between the peaks is smaller and the distance is larger.

[0060]

527 FIG. 10 shows a perspective view of an additional alternative representative cross-section 1003 at section line (BB) of FIG. 8 showing the increased thickness of representative cross-section 902 at section line (BB) of FIG. 9 and the cross-section of FIG. 8 The cross-section 1002 at line (BB) shows a combination of increasing geometric radii.

531 Thus, in the direction towards the elongate member distal end 760 (of FIG. 8) of the elongate member 1000, the elongate member of FIG. 8 opposes the first elongate member 1013 and the second elongate member at the distal end 770 The first geometrical radius R3 of 1023 increases and the material thickness T1 decreases, ie the geometrical radius R3 of the first elongated member 1013 and the second elongated member 1023 will increase to the geometrical radius R4 shown in the cross-section 1001 of FIG. 10, and the material thickness T1 of the first elongated member 1013 and the second elongated member 1023 is reduced to the reduced thickness T2 shown in the cross section 1001 of FIG. 10. The combination of the reduced distance between the opposing peaks of the first elongated strip and the second elongated strip and the reduced thickness of the first elongated strip and the second elongated strip results in the elongated member at the opposite distal end 770 of FIG. 8. higher bending or torsional resistance, and also increases the protruding length of the elongated member 1000 supported by the relatively distal end of the elongated member.

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[0061]

545 The decreasing radius or increasing distance between opposing elongated strips toward the opposite distal end 770 of the elongated member may be responsive to the elongated strip 1000 increasing as the elongated member distal end 660 may extend further out , which increases the protruding distance of the elongated member 1000 by providing additional strength.

549 Such reduced radii or larger distances may not be desirable toward the elongated member 1000 where increased strength may not be required for the relatively short protrusion distance and reduced collapse rate associated with increased curvature The distal end portion 660 of the elongated member. In addition, the increased radius or smaller distance between opposing elongated strips on the elongated member distal end 660 of the elongated member 1000 results in less fabric material being required, which would reduce the length of the elongated member Weight of end 660. The increased radius or smaller distance also reduces the stress on the elongate member distal end 660 of the elongate member 1000 from the flattening, which can extend the longevity of the elongated strip during repeated use.

[0062]

560 11A shows a schematic side view of a representative configuration of an elongated member within a housing spool.

562 Exemplary implementations may be substantially consistent with a tape measure assembly 1100 having a housing 1110 within which a reel 1120 is disposed and defining a tape measure passage opening 1130 for the elongate member 700. The spool 1120 may be generally configured as an elongated member 700 (of FIGS. 7-8) releasably wound on itself within the housing 1110 based on a torsion spring or equivalent mechanism. The elongated strips 710, 720 of the elongated member 700 are rigidly coupled along the first elongated member edge 730 and the second elongated member edge 740 of the elongated member 700, and a non-coupling area 750 may be defined at the first elongated strip 710, between the second elongated strip 720, the elongated member distal end 760, the first elongated member edge 730 and the second elongated member edge 740.

[0063]

574 Each of the first elongated strip 710 and the second elongated strip 720 define a first elongated strip peak 715 and a second elongated strip peak 725 that are Constructed to flatten in response to sufficient external force.

576 In the current configuration, when the elongated member 700 can be wrapped around the spool 1120 of the tape measure assembly 1100, sufficient external force is applied to flatten the peaks 715, 725, and/or as the elongated member 700 passes through the tape measure channel opening 1130, Sufficient external force to flatten the peaks is provided by the housing 1110. In this way, the elongated member 700 can be stored in a volume that can be a fraction of the size of the volume that would be required if the peaks 715, 725 were not flattened, which allows for a relatively small tape measure housing 1110, as follows This is further described herein in conjunction with FIGS. 12A-12B.

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[0064]

586 In use, the elongate member distal end 760 can generally be extended manually, and such extension unwinds a corresponding length of collapsed elongate member 700 from the spool 1120.

588 The term "distal end" 760 may be used to describe the end of the elongated member 700 that extends from the tape measure housing 1110 and may be opposite an elongated member opposite distal end 770 (shown in FIG. 8) of the elongated member 700, so The relatively distal end portion of the elongated member may be coupled to the spool 1120. As the portion of elongated member 700 exits tape measure housing 1110 and is no longer subject to the compressive force wrapped within tape measure housing 1110, elongated member 700 expands to its original unflattened shape, which in the current configuration may Consistent with Figures 1 and 6 to 8.

[0065]

598 FIG. 11B shows a perspective view of a representative configuration of the elongated member within the housing reel of FIG. 11A , wherein distance D2 in a similar manner to FIG. 8 shows the elongated member at a distance D2 from the distal end 760 of the elongated member A series of holes 790 are formed.

601 As the first elongated strip 710 and the second elongated strip 720 collapse together, such as during winding, the increased cross-sectional area of the series of holes 790 in the elongated member allows the passage from the first elongated member 700 to More air is expelled between the non-coupling regions 750 of the elongated strip 710 and the second elongated strip 720 during which the elongated member 700 is only rotationally wound on itself until the elongated member 700 The segment having the elongated member with a series of holes 790 is received and collapsed within the tape measure housing 1110, as described above.

[0066]

610 FIG. 12A shows a transverse cross-sectional view of the configuration shown in FIG. 1 when flattened.

611 Referring back to FIG. 7, in various configurations, the first elongated strip 710 and the second elongated strip 720 are each substantially configured to bend the first neutral bending plane 719 and the second neutral bending plane, respectively, of each elongated strip The plane 729 (see FIGS. 13A-13B) is offset toward the first elongated strip inner surface 711 and the second elongated strip inner surface 721 of the elongated member 100 and also the first elongated strip inner surface 711 Neutral flattening plane 707 and second neutral flattening plane 709 of second elongated strip inner surface 712 are offset toward first outer surface 712 and second outer surface 722 of elongated member 700, respectively.

[0067]

621 12A shows a transverse cross-sectional view of the flattened portion of the elongated member 700 of FIG. 11A consistent with a portion of the elongated member 700 that may be disposed about the spool 1120 in FIG. 11A.

624 In the flattened portion of elongated member 700, elongated second transition regions 716, 717, 726 and 727 and each of first elongated peak 715 and second elongated peak 725 are relative to their original The shape

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(shown in FIG. 7) is flattened, which creates compressive forces in the peak regions 715, 725 and tensile forces in the transition regions 716, 717, 726 and 727. In configurations where the peaks 715, 725 and transition radii 716, 717, 726, and 727 may have substantially the same radius, the compressive and tensile forces within the flattened elongated strips 710, 720 may be in the direction of the transverse 90° axis over the entire length of the strip approximately equal in width.

[0068]

634 Figure 12B shows a transverse cross-sectional view of the first elongated strip from Figure 12A showing the force resulting from the flattening of the elongated strip.

636 FIG. 12B shows the first elongated strip 710 from FIG. 12A to demonstrate the forces generated by the flattening of the strip and acting within each of the elongated strips. Each of the compressive force c and the tensile force t is located within the thickness of the elongated strip 700 and is in the direction of the transverse, 90° axis. The flattening of the first elongated strip peak 715 results in a compressive force c1 on the first elongated strip outer surface 712 of the first elongated strip 710 and a tensile force t1 on the first elongated strip inner surface 711. The flattening of each of the first elongated strip first transition region 716 and the first elongated strip second transition region 717 results in a tensile force t2 on the first elongated strip outer surface 712 of the first elongated strip 710, and A compressive force c2 is generated on the inner surface 711 of the first elongated strip. The first elongated strip neutral flat surface 718 may be defined between the first elongated strip outer surface 712 and the first elongated strip inner surface 711, wherein the first elongated strip 710 is subjected to neither tensile nor compressive forces. The second elongated strip 720 (see FIG. 12A) will experience similar tensile and compressive forces as the first elongated strip 710. In various configurations, the materials and structures of the first elongated strip 710 and the second elongated strip 720 are selected and combined in such a way that the first elongated strip 710, 720 has the A neutral flattening plane 718 and a second neutral flattening plane 728 (see FIG. 12A) are positioned closer to the outer surfaces 712, 722.

[0069]

655 Regarding material selection for the first elongated strip 710 and the second elongated strip 720, each strip may be constructed of fabric.

657 In many configurations, fabrics and fabric combinations bias the neutral plane of curvature of each elongated strip toward the inner surface of elongated member 700 and the neutral flattened plane of each elongated strip toward the outer surface of elongated member 700 Surface offset. In addition, the first elongated strip 710 and the second elongated strip 720 may comprise multiple layers of woven material or substantially unidirectional fibers that will offset the neutral plane of curvature of each elongated strip 710, 720 relative to the thin The outer surface of the strips 710, 720 is closer to the inner surface and further offsets the neutral flat plane of each elongated strip 710, 720 closer to the outer surface than the inner surface of the elongated strips 710, 720.

[0070]

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668 13A shows a longitudinal cross-sectional view of a portion of the coiled elongated member 700 consistent with the configuration shown in FIG. 1 through a non-coupling area 750 (see FIG. 11A), which may be consistent with a portion of the elongated member 700 disposed about the spool 1120 (See Figure 11A).

671 In the coiled position, for example, the first elongated strip 710 becomes the inner strip and is subjected to a compressive force c3 as a result of the coiling. The second elongated strip 720 then becomes, for example, an outer strip and is subjected to a tensile force t3 due to the winding.

[0071]

677 The unjoined segments in the first elongated strip 710 and the second elongated strip 720 define neutral bending planes 719, 729, respectively, which may be defined herein as being related to the winding of the elongated member 700 about the 90° axis. The longitudinal length is associated with the neutral plane.

680 The neutral bending plane 719, 729 of the non-coupling region 750 of each elongate strip 710, 720 represents a plane within the corresponding elongate strip 710, 720 on which neither axial tension nor axial compressive forces may exist when coiled. Each of the neutral curved planes 719, 729 extends along the length of its corresponding elongated strip 710, 720 (see Figure 12A).

[0072]

687 The elongated member 700 may be generally constructed of a material that defines the neutral curved plane of the non-coupling region 750 of each elongated strip in a position as compared to the outer surfaces 712, 722 of the various elongated strips 710, 720 The inner surfaces 711, 721 may be closer.

690 In other words, the first elongated strip 710 has a thickness T3 extending from the first elongated strip inner surface 711 to the first elongated strip outer surface 712, and the first elongated strip defines a first neutral through the thickness T3 The curved plane 719, the first neutral curved plane may be closer to the first elongated strip inner surface 711 than the first elongated strip outer surface 712. Similarly, the second elongated strip 720 has a thickness T4 extending from the second elongated strip inner surface 721 to the second elongated strip outer surface 722, and the second elongated strip defines a second neutral curved plane 729, compared to At the second elongated strip outer surface 722, the second neutral curved plane may be closer to the first elongated strip inner surface 711.

[0073]

701 In various configurations, it is desirable to configure the elongated member 700 at the neutral bending plane location of the non-coupling regions 750 of each of the elongated strips 710, 720 in relatively close proximity to minimize the possibility of collapsing and compressing over time. A wear force differential is created on the expanded elongate member 700.

705 Similarly, it is desirable to configure the elongated member 700 such that the position of the neutral bending plane remains the same regardless of the direction of winding (clockwise or counterclockwise). The choice of material for the first elongated strip and the second elongated strip can affect the location of the neutral bending plane and the arrangement of materials and material combinations. Generally speaking, the configuration of the elongated strips 710, 720 biases the neutral plane of curvature of the non-coupling

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regions 750 of the elongated strips 710, 720 toward the interior of the elongated member 700.

[0074]

714 Figure 13B shows a perspective view of a portion of the rolled elongated member consistent with the configuration shown in Figure 1 in a collapsed position; Figure 13B also shows the compressive and tensile forces reflected in Figures 12A and 12B for reference .

717 In the current construction, and in many constructions consistent with the techniques disclosed herein, the first elongated strip 710, the second elongated strip 720, and the overall elongated member 700 are constructed such that the first elongated strip 710, 720 each A neutral flat plane 718 and a second neutral flat plane 728 may be spaced apart from the neutral curved planes 719, 729 of each elongated strip 710, 720. The term "isolated" may be used to mean that the neutral flat plane may be constructed so as not to intersect the neutral curved plane. Such a configuration can limit the compounding of tensile and compressive forces in both directions due to flattening and coiling.

[0075]

727 Figure 14 shows a logic flow diagram illustrating a method of retracting an elongated member consistent with Figures 13A and 13B.

729 The method includes retracting the elongated member 700 including the step of providing 1400 the elongated member 700 attached to the retraction spool 1120 at a first end 770, the elongated member 700 including a sealed lumen 704 And exhaust mechanisms 785, 790 that regulate the flow of air into and out of the inner cavity 704. The retraction spool 1120 is retracted 1402 in a direction such that the elongated member 700 is wound on the retraction spool 1120, thereby causing the lumen 704 of the elongated member 700 as the elongated member is wound on the retraction spool 1120 Collapse 1404. Air is exhausted 1406 from the inner cavity 704 of the elongated member 700 through the exhaust mechanisms 785, 790 of the elongated member 700 and adjusted based on the exhaust mechanisms 785, 790 of the elongated member 700 when winding the elongated member 700 on the retraction spool 1120 The retraction speed 1408 of the retraction spool.

[0076]

741 The above subject matter is provided by way of illustration only and should not be construed as limiting.

742 Various modifications and changes may be made to the subject matter described herein without following the exemplary embodiments and applications illustrated and described and without departing from the true spirit and scope of the present disclosure as set forth in the following claims.

[0078]

748 Claims (as amended by Article 19 of the Treaty)

[0079]

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752 1.A device comprising:

[0080]

756 An elongated member having a first end portion and a second distal end portion, the elongated member further comprising:

[0081]

761 a first arcuate elongated member having a first member longitudinal edge, and

[0082]

765 A second arcuate elongated member having a second member longitudinal edge that engages the first member longitudinal edge so as to define a second arcuate elongated member defined by the first arcuate elongated member and a lumen defined by a non-coupling region between the second arcuate elongated member,

[0083]

771 wherein each of the first arcuate elongated member and the second arcuate elongated member further comprises at least a first layer of fibrous material and a second layer of fibrous material, wherein a majority of the first layer of fibrous material The fibers are oriented substantially perpendicular to the majority of the fibers in the second layer of fibrous material.

[0084]

778 2.4. The device of claim 1 wherein a majority of fibers in the first layer of fibrous material are oriented in a direction parallel to a longitudinal axis of the elongated member, and a majority of the fibers in the second layer of fibrous material are oriented in a direction parallel to the longitudinal axis of the elongated member Fibers are oriented in a direction perpendicular to the longitudinal axis of the elongated member.

[0085]

785 3.The device of claim 2, wherein the first arcuate member and the second arcuate member further comprise a composite of a matrix material and a fibrous material, the fibrous material comprising one of the following:

[0086]

790 Spun liquid crystal polymer;

[0087]

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carbon fiber;

[0088]
Aramid fibers;

[0089]
fiberglass; or

[0090]
carbon nanotubes.

[0091]
4. The device of claim 3, the matrix material comprising one of the following materials:

[0092]
epoxy resin; or

[0093]
thermoplastic resin.

[0094]
5. 5. The device of claim 4, further comprising an exhaust mechanism capable of regulating air flow into and out of the interior cavity.

[0095]
6. 6. The device of claim 5, wherein the vent mechanism further comprises at least one hole in the second distal end of the elongated member, the at least one hole capable of collapsing the elongated member Air is exhausted from the lumen through the holes when retracted into the lumen.

[0096]
7. 6. The device of claim 5, wherein the exhaust mechanism further comprises a series of holes adjacent the second distal end of the elongated member, the series of holes capable of being inserted into the elongated member Air is exhausted from the lumen through the series of holes when collapsed into the lumen.

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[0097]

8398.8. The device of claim 7, wherein the series of holes adjacent the second distal end of the elongated member are located at a distance from the second distal end sufficient to The collapse resistance of the elongate member is increased by collapsing the lumen of the elongate member to close the series of holes.

[0098]

8459.4. The device of claim 1, wherein the elongate member and the corresponding first and second arcuate elongate members have thicknesses from the first end of the elongate member decrease to the second distal end.

[0099]

851 10.4. The device of claim 1 wherein the radii of the first and second arcuate elongated members are at the first and second distal ends of the elongated members change between.

[0100]

856 11.A device comprising:

[0101]

860 a casing, the casing has a casing hole;

[0102]

864 a spring-biased retraction spool located within the housing; and

[0103]

868 an elongated member having a first end attached to the spring-biased retraction spool and having a second distal end external to the housing, wherein when translated through the housing bore , the elongated member can be wound on the spring-biased retraction spool,

[0104]

874 A first arcuate elongated member having a first member longitudinal edge and a second arcuate elongated member having a second member longitudinal edge that engages the first member longitudinal edge to define the a lumen defined by a non-coupling region between the first arcuate elongated member and the second arcuate elongated member, each of the first arcuate elongated member and the second arcuate elongated

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member further comprising at least a first layer of fibrous material and a second layer of fibrous material, wherein the majority of the fibers in the first layer of fibrous material are oriented substantially perpendicular to the majority of the fibers in the second layer of fibrous material, and

[0105]

884 The elongated member also has an interior cavity and an exhaust mechanism capable of regulating air flow into and out of the interior cavity.

[0106]

889 12. 11. The device of claim 11, further comprising at least one aperture in the second distal end of the elongated member, the at least one aperture capable of wrapping the elongated member around the spring bias Air is expelled from the lumen through the holes when retracting onto the spool.

[0107]

895 13. 12. The device of claim 11, further comprising a series of holes adjacent the second distal end of the elongated member, the series of holes capable of wrapping the elongated member around the elongated member Air is expelled from the lumen via the series of holes when the spring is biased back onto the spool.

[0108]

901 14. 15. The device of claim 14, wherein the series of holes adjacent the second distal end of the elongated member are located at a distance from the second distal end sufficient to allow When the series of holes are retracted into the housing and wound on the spring-biased retraction reel, the spring-biased retraction reel is lowered to wind up on the spring-biased retraction reel the velocity of the elongated member.

[0109]

908 15. A method of retracting an elongated member, comprising:

[0110]

912 An elongated member is provided attached to the retraction spool at a first end, the elongated member comprising a first arcuate elongated member having a first member longitudinal edge and a second arcuate elongated member having a second member longitudinal edge a member, the second member longitudinal edge engages the first member longitudinal edge to define a lumen defined by a non-coupling region between the first arcuate elongated member and the second arcuate elongated member, Each of the first arcuate elongated member and the second arcuate elongated member also includes at least a first layer of fibrous material and a second layer of fibrous material, wherein a majority of the fibers in the first layer of fibrous material are oriented substantially perpendicular to a majority of the fibers in the second layer of fibrous

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material, and including a sealed lumen and a vent mechanism to regulate air flow into and out of the lumen;

[0111]

924 rotating the retraction reel in a direction such that the elongated member is wound on the retraction reel;

[0112]

928 collapsing the lumen of the elongated member as the elongated member is wound on the retraction spool;

[0113]

932 Expel air from the interior cavity of the elongated member through the exhaust mechanism of the elongated member; and

[0114]

937 The retraction speed of the retraction reel when the elongated member is wound on the retraction reel is adjusted based on the exhaust mechanism of the elongated member.

[0115]

942 16. 16. A method of retracting the elongated member according to claim 15, wherein adjustment of the length of time when winding the elongated member on the retraction spool is based on the exhaust mechanism of the elongated member The retraction speed of the retraction spool includes providing the vent mechanism to include at least one aperture on the second distal end of the elongated member, the at least one aperture capable of rolling over the elongated member Air is expelled from the lumen through the hole while being wound on the retraction spool.

[0116]

951 17. 16. A method of retracting the elongated member according to claim 15, wherein adjustment of the length of time when winding the elongated member on the retraction spool is based on the exhaust mechanism of the elongated member The retraction speed of the retraction spool further includes providing a series of holes adjacent the second distal end of the elongated member, the series of holes enabling the elongated member to be wound around the elongated member. Air is expelled from the lumen through the series of holes when retracting onto the spool.

[0117]

960 18. 16. The method of retracting the elongated member of claim 15, further comprising, when the elongated member is wound on the retraction reel, based on the one wound on the retraction reel A series of holes to

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reduce the retraction speed of the rotating retraction reel.

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CLAIMS CN106537080A

1.

13 A device comprising:

14 An elongated member having a first end portion and a second distal end portion, the elongated member further comprising:

16 a first arcuate elongated member having a first member longitudinal edge, and

17 A second arcuate elongated member having a second member longitudinal edge that engages the first member longitudinal edge so as to define a second arcuate elongated member defined by the first arcuate elongated member and a lumen defined by a non-coupling region between the second arcuate elongated member,

20 wherein each of the first arcuate elongated member and the second arcuate elongated member further comprises at least a first layer of fibrous material and a second layer of fibrous material, wherein a majority of the first layer of fibrous material The fibers are oriented substantially perpendicular to the majority of the fibers in the second layer of fibrous material.

2

27 4. The device of claim 1 wherein a majority of fibers in the first layer of fibrous material are oriented in a direction parallel to a longitudinal axis of the elongated member, and a majority of the fibers in the second layer of fibrous material are oriented in a direction parallel to the longitudinal axis of the elongated member Fibers are oriented in a direction perpendicular to the longitudinal axis of the elongated member.

3

34 The device of claim 2, wherein the first arcuate member and the second arcuate member further comprise a composite of a matrix material and a fibrous material, the fibrous material comprising one of the following:

36 Spun liquid crystal polymer;

37 carbon fiber;

Aramid fibers;
fiberglass; or
carbon nanotubes.

4.

The device of claim 3, the matrix material comprising one of the following materials:
epoxy resin; or
thermoplastic resin.

5.

5. The device of claim 4, further comprising an exhaust mechanism capable of regulating air flow into and out of the interior cavity.

6.

6. The device of claim 5, wherein the vent mechanism further comprises at least one hole in the second distal end of the elongated member, the at least one hole capable of collapsing the elongated member Air is exhausted from the lumen through the holes when retracted into the lumen.

7.

6. The device of claim 5, wherein the exhaust mechanism further comprises a series of holes adjacent the second distal end of the elongated member, the series of holes capable of being inserted into the elongated member Air is exhausted from the lumen through the series of holes when collapsed into the lumen.

8.

8. The device of claim 7, wherein the series of holes adjacent the second distal end of the elongated member are located at a distance from the second distal end sufficient to The collapse resistance of the elongate member is increased by collapsing the lumen of the elongate member to close the series of holes.

9.

4. The device of claim 1, wherein the elongate member and the corresponding first and second arcuate elongate members have thicknesses from the first end of the elongate member decrease to the second distal end.

10.

4. The device of claim 1 wherein the radii of the first and second arcuate elongated members are at the first and

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second distal ends of the elongated members change between.

11.

84 A device comprising:

85 a casing, the casing has a casing hole;

86 a spring-biased retraction spool located within the housing; and

87 elongated member,

88 The elongated member has a first end attached to the spring-biased retraction spool and has a second distal end external to the housing, wherein the elongated member when translated through the housing bore The elongated member can be wound on the spring-biased retraction reel,

91 The elongated member also has an interior cavity and an exhaust mechanism capable of regulating air flow into and out of the interior cavity.

12.

96 12. The device of claim 11, wherein the elongated member further comprises a first arcuate elongated member having a first member longitudinal edge and a second arcuate elongated member having a second member longitudinal edge, the second member a longitudinal edge engages the first member longitudinal edge to define a lumen defined by a non-coupling region between the first arcuate elongated member and the second arcuate elongated member, the first arcuate elongated member Each of the member and the second arcuate elongated member further includes at least a first layer of fibrous material and a second layer of fibrous material, wherein a majority of the fibers in the first layer of fibrous material are oriented substantially perpendicular to the most of the fibers in the second layer of fiber material.

13.

107 11. The device of claim 11, further comprising at least one aperture in the second distal end of the elongated member, the at least one aperture capable of wrapping the elongated member around the spring bias Air is expelled from the lumen through the holes when retracting onto the spool.

14.

113 12. The device of claim 11, further comprising a series of holes adjacent the second distal end of the elongated member, the series of holes capable of wrapping the elongated member around the elongated member Air is expelled from the lumen via the series of holes when the spring is biased back onto the spool.

15.

119 15. The device of claim 14, wherein the series of holes adjacent the second distal end of the elongated member are located at a distance from the second distal end sufficient to allow When the series of holes are retracted into the housing and wound on the spring-biased retraction reel, the spring-biased retraction reel is lowered

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to wind up on the spring-biased retraction reel the velocity of the elongated member.

16.

126 A method of retracting an elongated member, comprising:

127 providing an elongated member attached at a first end to the retraction spool, the elongated member including a sealed lumen and a vent mechanism that regulates air flow into and out of the lumen;

129 rotating the retraction reel in a direction such that the elongated member is wound on the retraction reel;

130 collapsing the lumen of the elongated member as the elongated member is wound on the retraction spool;

131 Expel air from the interior cavity of the elongated member through the exhaust mechanism of the elongated member; and

133 The retraction speed of the retraction reel when the elongated member is wound on the retraction reel is adjusted based on the exhaust mechanism of the elongated member.

17.

138 17. The method of retracting the elongated member of claim 16, wherein providing the elongated member further comprises providing a first arcuate elongated member having a first member longitudinal edge and a second arcuate elongated member having a second member longitudinal edge an arcuate elongated member, the second member longitudinal edge engages the first member longitudinal edge to define an area defined by a non-coupling area between the first arcuate elongated member and the second arcuate elongated member The lumen, each of the first arcuate elongated member and the second arcuate elongated member further includes at least a first layer of fibrous material and a second layer of fibrous material, wherein a large portion of the first layer of fibrous material A portion of the fibers are oriented substantially perpendicular to the majority of the fibers in the second layer of fibrous material.

18.

150 17. A method of retracting the elongated member according to claim 16, wherein adjustment of the length of time when winding the elongated member on the retraction spool is based on the exhaust mechanism of the elongated member The retraction speed of the retraction spool includes providing the vent mechanism to include at least one aperture on the second distal end of the elongated member, the at least one aperture capable of rolling over the elongated member Air is expelled from the lumen through the hole while being wound on the retraction spool.

19.

159 17. A method of retracting the elongated member according to claim 16, wherein adjustment of the length of time when winding the elongated member on the retraction spool is based on the exhaust mechanism of the elongated member The retraction speed of the retraction spool further includes providing a series of holes adjacent the second distal end of the elongated member, the series of holes enabling the elongated member to be wound around the elongated member. Air is expelled from the lumen through the series of holes when

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retracting onto the spool.

20.

168 20. The method of retracting the elongated member of claim 19, further comprising, when the elongated member is wound on the retraction reel, based on the one wound on the retraction reel A series of holes to reduce the retraction speed of the rotating retraction reel.

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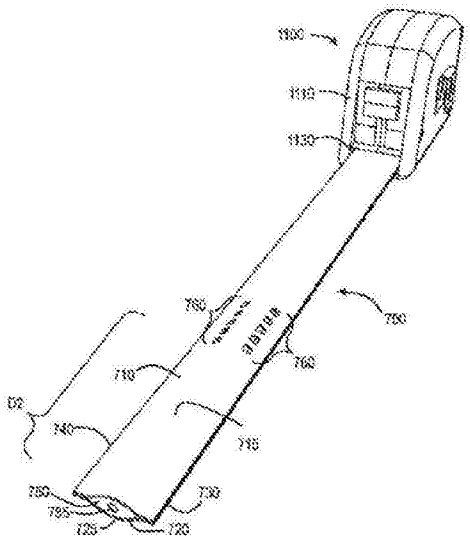
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(54)发明名称

可塌缩且可回缩的自支承细长构件和回缩方法

(57)摘要

本发明公开了一种装置，所述装置包括具有外壳孔的外壳、位于所述外壳内的弹簧偏置回缩卷轴以及包括附接到所述弹簧偏置回缩卷轴的第一端部并且具有位于所述外壳外部的第二远端部的细长构件。当平移穿过所述外壳孔时，所述细长构件能够卷绕在所述弹簧偏置回缩卷轴上，其中所述细长构件还包括由第一弓形细长构件和第二弓形细长构件之间的非联接区域限定的内腔以及能够调节流入和流出所述内腔的空气的排气机构。所述第一弓形细长构件和所述第二弓形细长构件中的每一个还包括至少第一层纤维材料和第二层纤维材料，其中所述第一层纤维材料中的大部分纤维被取向成基本上垂直于所述第二层纤维材料中的大部分纤维。



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1.一种装置,包括:

细长构件,所述细长构件具有第一端部和第二远端部,所述细长构件还包括:

第一弓形细长构件,所述第一弓形细长构件具有第一构件纵向边缘,以及

第二弓形细长构件,所述第二弓形细长构件具有第二构件纵向边缘,所述第二构件纵向边缘与所述第一构件纵向边缘接合,从而限定由所述第一弓形细长构件和所述第二弓形细长构件之间的非联接区域限定的内腔,

其中,所述第一弓形细长构件和所述第二弓形细长构件中的每一个还包括至少第一层纤维材料和第二层纤维材料,其中所述第一层纤维材料中的大部分纤维被取向成基本上垂直于所述第二层纤维材料中的大部分纤维。

2.根据权利要求1所述的装置,其中所述第一层纤维材料中的大部分纤维被取向成平行于所述细长构件的纵轴的方向,并且所述第二层纤维材料中的大部分纤维被取向成垂直于所述细长构件的所述纵轴的方向。

3.根据权利要求2所述的装置,其中所述第一弓形构件和所述第二弓形构件还包括基质材料和纤维材料的复合材料,所述纤维材料包括以下材料中的一种:

纺出液晶聚合物;

碳纤维;

芳族聚酰胺纤维;

玻璃纤维;或

碳纳米管。

4.根据权利要求3所述的装置,所述基质材料包括以下材料中的一种:

环氧树脂;或

热塑性树脂。

5.根据权利要求4所述的装置,还包括能够调节流入和流出所述内腔的空气的排气机构。

6.根据权利要求5所述的装置,其中所述排气机构还包括在所述细长构件的所述第二远端部上的至少一个孔,所述至少一个孔能够在所述细长构件塌缩到所述内腔中时从所述内腔经由所述孔排放空气。

7.根据权利要求5所述的装置,其中所述排气机构还包括邻近所述细长构件的所述第二远端部的一系列的孔,所述一系列的孔能够在所述细长构件塌缩到所述内腔中时从所述内腔经由所述一系列的孔排放空气。

8.根据权利要求7所述的装置,其中邻近所述细长构件的所述第二远端部的所述一系列的孔位于与所述第二远端部相距一段距离处,所述距离足以在通过使所述细长构件的所述内腔塌缩以闭合所述一系列的孔时增加所述细长构件的塌缩阻力。

9.根据权利要求1所述的装置,其中所述细长构件以及对应的所述第一弓形细长构件和所述第二弓形细长构件的厚度从所述细长构件的所述第一端部到所述第二远端部减少。

10.根据权利要求1所述的装置,其中所述第一弓形细长构件和所述第二弓形细长构件的半径在所述细长构件的所述第一端部和所述第二远端部之间变化。

11.一种装置,包括:

外壳,所述外壳具有外壳孔;

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弹簧偏置回缩卷轴，所述弹簧偏置回缩卷轴位于所述外壳内；以及

细长构件，

所述细长构件具有附接到所述弹簧偏置回缩卷轴的第一端部并且具有位于所述外壳外部的第二远端部，其中当穿过所述外壳孔平移时，所述细长构件能够卷绕在所述弹簧偏置回缩卷轴上，

所述细长构件还具有内腔以及能够调节流入和流出所述内腔的空气的排气机构。

12.根据权利要求11所述的装置，其中所述细长构件还包括具有第一构件纵向边缘的第一弓形细长构件和具有第二构件纵向边缘的第二弓形细长构件，所述第二构件纵向边缘与所述第一构件纵向边缘接合，从而限定由所述第一弓形细长构件和所述第二弓形细长构件之间的非联接区域限定的内腔，所述第一弓形细长构件和所述第二弓形细长构件中的每一个还包括至少第一层纤维材料和第二层纤维材料，其中所述第一层纤维材料中的大部分纤维被取向成基本上垂直于所述第二层纤维材料中的大部分纤维。

13.根据权利要求11所述的装置，还包括所述细长构件的所述第二远端部上的至少一个孔，所述至少一个孔能够在所述细长构件卷绕在所述弹簧偏置回缩卷轴上时从所述内腔经由所述孔排出空气。

14.根据权利要求11所述的装置，还包括邻近所述细长构件的所述第二远端部上的一系列的孔，所述一系列的孔能够在所述细长构件卷绕在所述弹簧偏置回缩卷轴上时从所述内腔经由所述一系列的孔排放空气。

15.根据权利要求14所述的装置，其中邻近所述细长构件的所述第二远端部的所述一系列的孔位于与所述第二远端部相距一段距离处，所述距离足以使得当所述一系列的孔回缩到所述外壳内并卷绕在所述弹簧偏置回缩卷轴上时，所述弹簧偏置回缩卷轴降低在所述弹簧偏置回缩卷轴上卷绕所述细长构件的速度。

16.一种回缩细长构件的方法，包括：

提供在第一端部处附接到回缩卷轴的细长构件，所述细长构件包括密封的内腔以及调节流入和流出所述内腔的空气的排气机构；

以一定方向旋转所述回缩卷轴以使得所述细长构件卷绕在所述回缩卷轴上；

随着所述细长构件卷绕在所述回缩卷轴上，使所述细长构件的所述内腔塌缩；

通过所述细长构件的所述排气机构从所述细长构件的所述内腔排出空气；以及

基于所述细长构件的所述排气机构来调节当将所述细长构件卷绕在所述回缩卷轴上时的所述回缩卷轴的回缩速度。

17.根据权利要求16所述的回缩所述细长构件的方法，其中提供所述细长构件还包括提供具有第一构件纵向边缘的第一弓形细长构件和具有第二构件纵向边缘的第二弓形细长构件，所述第二构件纵向边缘与所述第一构件纵向边缘接合，从而限定由所述第一弓形细长构件和所述第二弓形细长构件之间的非联接区域限定的内腔，所述第一弓形细长构件和所述第二弓形细长构件中的每一个还包括至少第一层纤维材料和第二层纤维材料，其中所述第一层纤维材料中的大部分纤维被取向成基本上垂直于所述第二层纤维材料中的大部分纤维。

18.根据权利要求16所述的回缩所述细长构件的方法，其中基于所述细长构件的所述排气机构来调节当将所述细长构件卷绕在所述回缩卷轴上时的所述回缩卷轴的所述回缩

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速度包括提供所述排气机构以在所述细长构件的第二远端部上包括至少一个孔，所述至少一个孔能够在所述细长构件卷绕在所述回缩卷轴上时从所述内腔经由所述孔排出空气。

19.根据权利要求16所述的回缩所述细长构件的方法，其中基于所述细长构件的所述排气机构来调节当将所述细长构件卷绕在所述回缩卷轴上时的所述回缩卷轴的所述回缩速度还包括提供邻近所述细长构件的第二远端部的一系列的孔，所述一系列的孔能够在所述细长构件卷绕在所述回缩卷轴上时从所述内腔经由所述一系列的孔排出空气。

20.根据权利要求19所述的回缩所述细长构件的方法，还包括当所述细长构件卷绕在所述回缩卷轴上时，基于卷绕在所述回缩卷轴上的所述一系列的孔来降低所述旋转的回缩卷轴的回缩速度。

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可塌缩且可回缩的自支承细长构件和回缩方法

技术领域

[0001] 本文所公开的技术整体涉及一种自支承细长构件，更具体地讲，涉及一种在细长构件回缩为卷绕构造或盘绕构造时塌缩的自支承细长构件。

背景技术

[0002] 可塌缩的自支承细长构件通常可用于多种技术领域，并且可用于诸如皮尺的各种设备。在延伸时，细长构件一般可以沿着水平方向从一端进行自支承达到特定最大突出长度，细长构件通常将在此点塌缩。在展平时，细长构件可折起或卷起以便储存。与此类细长构件相关的技术限制一般涉及细长构件的突出长度、细长构件的重量、塌缩细长构件的尺寸、细长构件的最小弯曲半径和细长构件在其塌缩和延伸的寿命内的耐久性。

[0003] 一些已知类型的自支承可塌缩细长构件由一种材料的两个相对较薄的细长条构造而成，所述两个相对较薄的细长条在它们的纵向边缘接合以形成在其间具有封闭的管状结构区域的凸缘。通常，细长条中的每一个可由一种金属材料构造而成，并且细长条通过焊接接合。通常，细长条具有互补的弯曲外形以增加细长构件的突出长度。当这些类型的细长构件塌缩时，它们通常会展平并且卷绕在线轴上。在细长条之间的接合部上施加力可能会损坏细长构件，尤其是当细长条边缘的焊接可导致细长构件的接合部相对较脆时。细长构件的卷起可使得细长条中的至少一个屈曲，所述屈曲可降低塌缩的细长构件的密实度。此外，细长构件上的来自其卷起的应力可与细长构件上的来自其展平的应力复合，这可使得细长构件性能降低。

[0004] 本文的公开内容正是基于以上和其他考虑而给出的。

发明内容

[0005] 应当理解，该发明内容用于以简化的形式介绍一些概念，这些概念将在下文的具体实施方式中进一步描述。该发明内容并非旨在限制所要求保护的主题的范围。

[0006] 在本文公开的一个实施例中，一种装置包括细长构件，该细长构件包括具有第一构件纵向边缘的第一弓形细长构件和具有第二构件纵向边缘的第二弓形细长构件，所述第二构件纵向边缘与第一构件纵向边缘接合以限定内腔，所述内腔由第一弓形细长构件和第二弓形细长构件之间的非联接区域限定。第一弓形细长构件和第二弓形细长构件中的每一个还包括至少第一层纤维材料和第二层纤维材料，其中第一层纤维材料中的大部分纤维被取向成基本上垂直于第二层纤维材料中的大部分纤维。

[0007] 在本文公开的另一个实施例中，一种装置包括具有外壳孔的外壳、位于外壳内的弹簧偏置回缩卷轴以及具有附接到弹簧偏置回缩卷轴的第一端部并且具有位于外壳外部的第二远端部的细长构件。当平移穿过外壳孔时，细长构件还能够卷绕在弹簧偏置回缩卷轴上，细长构件还具有内腔和能够调节流入和流出内腔的空气的排气机构。

[0008] 在本文公开的另一个实施例中，一种用于回缩细长构件的方法提供了在第一端部处附接到回缩卷轴的细长构件。细长构件包括密封的内腔以及调节流入和流出内腔的空气

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的排气机构。回缩卷轴可能以一定方向旋转以使得细长构件卷绕在回缩卷轴上。随着细长构件卷绕在回缩卷轴上，细长构件的内腔可塌缩。细长构件的内腔通过细长构件的排气机构排出空气，从而基于细长构件的排气机构来调节当将细长构件卷绕在回缩卷轴上时的回缩卷轴的回缩速度。

[0009] 所讨论的特征、功能和优点可在本公开的各种实施例中独立实现，或者可在另外的实施例中进行组合，结合下面的描述和附图可了解其进一步的细节。

附图说明

[0010] 通过详细描述和附图将更加充分地理解本文所呈现的实施例，其中：

[0011] 图1示出细长构件的一个构造的一部分的透视图；

[0012] 图2示出图1构造的细长构件的元件的代表性部分的透视图；

[0013] 图3示出图2构造的细长构件的元件的代表性部分的透视图；

[0014] 图4示出图2构造的细长构件的元件的代表性部分的透视图；

[0015] 图5示出图1构造的细长构件的代表性部分的透视图；

[0016] 图6示出类似于图1的细长构件的另一个构造的代表性部分的透视图；

[0017] 图7示出图6的细长构件的构造的代表性部分的透视图；

[0018] 图8示出图7的细长构件的构造的代表性部分的透视图；

[0019] 图9示出图8的细长构件的两个代表性横截面A-A和B-B构造的透视图；

[0020] 图10示出图8的细长构件的三个代表性横截面A-A和B-B构造的透视图；

[0021] 图11A示出外壳卷轴内的细长构件的代表性构造的侧视示意图；

[0022] 图11B示出图11A的外壳卷轴内的细长构件的代表性构造的透视图；

[0023] 图12A示出图1所示构造在展平时的侧边横向剖面图；

[0024] 图12B示出来自图12A的示出展平细长条所产生的力的第一细长条的侧边横向剖面图；

[0025] 图13A示出与图1所示构造一致的卷起的细长构件的一部分的纵向剖面图；

[0026] 图13B示出与图1所示构造一致的卷起的细长构件的一部分的透视图；

[0027] 图14示出逻辑流程图，其中展示了回缩与图13A和图13B一致的细长构件的方法。

[0028] 结合附图考虑以下详细说明可更完整地理解和体会本文提出的构造。

具体实施方式

[0029] 图1示出细长构件100的一个构造的一部分的透视图，该细长构件通常具有第一细长条110和第二细长条120，所述第一细长条和第二细长条协同限定细长构件100的第一细长构件边缘130、第二细长构件边缘140和细长构件非联接区域150。细长构件100通常沿着纵向D1延伸一定距离以便长度显著大于宽度，但是在附图中，出于简化目的，在图1中示出为缩短的段。对于本公开而言，纵向D1可大致平行于0°轴，并且横向可大致平行于90°轴，并且Z轴可垂直于0°-90°平面，如图1所示。

[0030] 第一细长条110通常具有第一细长条内表面111、可与第一细长条内表面111相对的第一细长条外表面112、第一细长条第一边缘区域113和第一细长条第二边缘区域114。第二细长条120通常具有第二内表面121、与第二内表面121相对的第二细长条外表面122、第

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二细长条第一边缘区域123和第二细长条第二边缘区域124。

[0031] 第一细长条第一边缘区域113可以刚性联接到第二细长条第一边缘区域123，形成细长构件100的第一细长构件边缘130。第一细长条第二边缘区域114可以刚性联接到第二细长条第二边缘区域124，形成细长构件100的第二细长构件边缘140。

[0032] 第一细长条110的第一细长条内表面111可以邻近第二细长条120的第二细长条内表面121。细长构件非联接区域150可以限定在第一细长条内表面111、第二内表面121、第一细长构件边缘130和第二细长构件边缘140之间。

[0033] 细长构件100的第一细长构件边缘130和第二细长构件边缘140是大致平行且共面的。第一细长条110和第二细长条120的相应细长边缘区域113、114、123和124大致平行于第一细长边缘130和第二细长边缘140。在多种构造中，包括示出的一个构造，第一细长条110的横截面轮廓可基本上类似于第二细长条120的横截面轮廓。在此类构造中，细长构件100的第一细长构件边缘130和第二细长构件边缘140限定第一细长条110与第二细长条120之间的对称平面。

[0034] 第一细长条110大致限定第一细长构件边缘130与第二细长边缘140之间的第一细长条峰115。第一细长条110也限定第一细长构件边缘130与第一峰115之间的第一细长条第一过渡区域116以及第一细长条峰115与第二细长边缘140之间的第一细长条第二过渡区域117。

[0035] 相似地，第二细长条120大致限定第一细长构件边缘130与第二细长边缘140之间的第二细长条峰125。第二细长条120也限定第一细长构件边缘130与第二细长条峰125之间的第二细长条第一过渡区域116以及第二细长条峰125与第二细长边缘140之间的第二细长条第二过渡区域127。

[0036] 在多种构造中，第一峰115、第一细长条第一过渡区域116和第一细长条第二过渡区域117的半径R1基本上相同。在多种构造中，第二峰125、第二细长条第一过渡区域126和第二细长条第二过渡区域127的半径R2基本上相同。在至少一个构造中，第一细长条峰115和第二细长条峰125的半径R1和R2基本上相同。

[0037] 细长构件100可由多种材料构造而成，如本文中将会描述的。通常，第一细长条110和第二细长条120被构造成使得细长构件100沿着0°轴方向自支承一定突出距离，并且允许第一峰115和第二峰125以及相应的过渡区域116、117、126和127响应于足够的外力而平展，将在下文中结合图12A进行描述。

[0038] 第一细长条110的第一细长条第一边缘区域113和第一细长条第二边缘区域114可对应于第二细长条120的第二细长条第一边缘区域123和第二细长条第二边缘区域124通过多种方式进行刚性联接。在至少一个构造中，通过使用粘合物质诸如基质材料联接细长边缘区域113、114、123和124。基质材料可以是树脂，例如环氧树脂或热塑性树脂。可使用本领域中已知的其他粘合剂。在多种构造中，可通过使用碳纤维带和/或碳纤维纳米管增强第一细长构件边缘130和第二细长构件边缘140。

[0039] 在多种其他构造中，第一细长条110和第二细长条120可各自由织物材料构造而成。设想了很多类型的织物，并且，在某些构造中，所述织物可以是织造纤维材料。在此类构造中，织物可以是具有两股方向(诸如纵向和横向)的双轴向编织物。也可以使用其他类型的编织物。在多种构造中，织造纤维可以是纤维和基质材料的复合材料。在多种其他构造

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中，纤维可以是基质材料中的基本上单向的纤维的层构造而成的复合材料，将在下文中结合图2至图5进行描述。在一个构造中，织物可以是织造纤维和基本上单向的纤维层的组合。

[0040] 图2示出图1构造的细长构件100的第一细长条110的代表性部分的透视图。细长构件100的边缘部分的放大图200示出第一细长条110和第二细长条120的结构的一个构造，所述第一细长条和第二细长条具有第一层纤维材料210和第二层纤维材料220的两个夹层。第一层纤维材料210沿着大致平行于90°轴的方向或横向于细长构件100的第一细长条110的主纵轴的方向取向。第一层纤维材料210可包括被布置成如图2所示的连续层或其中纤维不含任何离散分层的基本上无定形构造的多层纤维。然而，在任一构造中，纤维的方向相对于彼此基本上一致，并且在此示例中，纤维的方向大致平行于细长构件100的第一细长条110的90°轴。

[0041] 第二层纤维材料220沿着大致平行于0°轴或与细长构件100的第一细长条110的主纵轴连续的方向取向。第二层纤维材料220可包括被布置成如图2所示的连续层或其中纤维不含任何离散分层的基本上无定形构造的多层纤维。然而，在任一构造中，纤维的方向相对于彼此基本上一致，并且在此示例中，纤维的方向大致平行于细长构件100的第一细长条110的0°轴。

[0042] 如图2所示的第一细长条110(同样表示图1的第二细长条120)的一个特征是，细长条110具有被取向成基本上彼此垂直的至少两层纤维材料。也就是说，在一个层基本上平行于细长构件100的主纵轴的情况下，另一个对应的层基本上垂直于细长构件100的主纵轴。两个以上纤维层可用于细长条110和120中的每一个，并且其他层可被取向成不同于基本上垂直于和平行于细长构件100的主纵轴的方向。

[0043] 图3示出对应于图2的第二层纤维材料220的示例性纵向纤维层300，该示例性纵向纤维层以简化的方式示出，展示了沿着大致平行于0°轴或与细长构件100的第一细长条110的主纵轴连续的方向延伸的仅单层纤维材料。

[0044] 图4示出具有对应于图2的第一层纤维材料210以及图3的纵向纤维层300的示例性横向纤维层400的代表性第一细长条110。横向纤维层400以简化的方式示出，展示了沿着大致平行于90°轴或垂直于细长构件100的第一细长条110的主纵轴的方向延伸的仅单层纤维材料。

[0045] 图5示出类似于图1所示细长构件100的细长构件500，其是第一细长条510和第二细长条520的组合，所述第一细长条包括图3的纵向纤维层300和图4的横向纤维层400，所述第二细长条包括类似于图3的纵向纤维层300的第二纵向纤维层310和类似于图4的横向纤维层400的第二横向纤维层410。第一细长条510可表示图1的第一细长条110，并且第二细长条520可表示图1的第二细长条120。第一细长条510可由两层基本上单向的纤维构造而成。基本上单向的纤维的纵向纤维层300(可以是内层)具有被取向成沿着纵向延伸的多根纤维。基本上单向的纤维的横向纤维层400(可以是外层)具有被取向成沿着横向延伸的多根纤维。相似地，第二细长条520可由两层基本上单向的纤维构造而成，其中第二纵向纤维层310沿着纵向取向并且第二横向纤维层410沿着横向取向。在多种构造中，纤维可以是碳纤维，并且在至少一个构造中，纤维可以是用碳纳米管补充的碳纤维。在一些构造中，每个层可以是树脂(诸如环氧树脂或热塑性聚合物树脂)中的纤维的复合材料，诸如尼龙-6构造。

[0046] 无论细长条的织物具有织造纤维结构或是可由多层基本上单向的纤维构造而成，

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还是同时具有这两种结构，纤维可以是多种材料。在多种构造中，纤维可以是碳纤维或芳族聚酰胺纤维。在一些构造中，纤维材料可以是纺出液晶聚合物。在一些构造中，纤维材料可以是玻璃纤维或天然纤维。其他类型的纤维和纤维的组合可用于构造第一细长条和第二细长条。

[0047] 第一细长条和第二细长条的织物可以是织造纤维或基本上单向的纤维和基质材料复合材料，所述基质可以是多种材料。在多种构造中，基质材料可以是金属或树脂材料。在基质材料可以是树脂的构造中，树脂可以是环氧树脂或热塑性树脂。也可以设想其他类型的基质材料，这将被本领域的技术人员认识到。

[0048] 图6示出类似于图1所示细长构件100的细长构件600的另一个构造的代表性部分的透视图。细长构件600包括类似于图1的第一细长条110的第一细长条610，以及类似于图1的第二细长条120的第二细长条620。细长构件端部构件680可朝向靠近非联接区域650(类似于图1的细长构件非联接区域150)的细长构件600的细长构件远端部660设置在第一细长条610与第二细长条620之间。端部构件孔685可设置在细长构件端部构件680内细长构件600的细长构件远端部660处，并且可被构造成随着细长构件600塌缩，限制从第一细长条610与第二细长条620之间的非联接区域排出空气的速率。因此，细长构件600可例如通过卷绕在其自身上(如下图11A所示)而塌缩的最大速度可由此类端部构件孔685限制。

[0049] 图7示出类似于图6所示细长构件的细长构件700的构造的代表性部分的透视图。细长构件700包括类似于图1的第一细长条110的第一细长条710，以及类似于图1的第二细长条120的第二细长条720。细长构件端部构件780可朝向靠近非联接区域750(类似于图1的细长构件非联接区域150)的细长构件700的细长构件远端部760设置在第一细长条710与第二细长条720之间。端部构件孔785可设置在细长构件端部构件780内细长构件700的细长构件远端部760处，并且可被构造成随着细长构件700塌缩，限制从第一细长条710与第二细长条720之间的非联接区域750排出空气的速率，类似于图6。除了用于限制从细长构件700的非联接区域750排出空气的速率的端部构件孔785之外，细长构件一系列的孔790可并入到细长条710(示出)和720(未示出)中的任一者或两者，并且可以是单排孔(未示出)或多排孔(示出)。另外，细长构件一系列的孔790可位于第一细长条710与第二细长条720之间靠近非联接区域750(类似于图1的细长构件非联接区域150)的任何位置。在图7中，例如，两个细长构件一系列的孔790位于第一细长构件710的第一细长条峰715的任一侧。

[0050] 细长构件一系列的孔790可以位于与细长构件远端部760相距距离D2的位置处，使得第一细长条710与第二细长条720之间的非联接区域750内的空气绕开气阀750并且通过细长构件一系列的孔790从非联接区域750排出。当细长构件一系列的孔790位于与细长构件远端部760相距距离D2的位置时，细长构件一系列的孔790的增大的横截面积允许随着第一细长条和第二细长条一起塌缩，例如在细长构件700旋转地卷绕在其自身上的卷绕过程中，第一细长条710与第二细长条720之间的非联接区域750中的更多空气从细长构件排出。当第一细长条710和第二细长条720的塌缩沿着朝向细长构件远端部760的方向继续经过细长构件一系列的孔790时，细长构件一系列的孔790不再允许第一细长条710与第二细长条720之间的空气经由其排出，并且第一细长条710与第二细长条720之间的所有空气必须通过较小的横截面端部构件孔785排出。基于通过端部构件孔785从第一细长条710与第二细长条720之间的非联接区域750排出的减少的气流量，所述气流的减少产生了更大的塌缩阻

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力。阻力增大这一特征允许细长构件700在塌缩(或卷绕)过程朝向细长构件远端部760的方向行进经过细长构件一系列的孔790时增大第一细长条710与第二细长条720之间的塌缩阻力。当细长构件700可大致从卷轴外壳延伸出时(在图11A至图11B中示出),此类构造可以是期望的,以允许细长构件700相对较快地围绕卷轴卷绕细长构件700的一段预定长度,并且在卷绕过程中当第一细长条710和第二细长条720的塌缩沿着朝向细长构件远端部760的方向行进经过细长构件700上的细长构件一系列的孔790时实现制动过程。

[0051] 在多种构造中,细长构件一系列的孔790被限定在可从中心偏移至细长构件700的宽度的位置。在一些构造中,细长构件一系列的孔790可跨越细长构件700在横向和纵向上对称。

[0052] 图8示出图7的细长构件的构造的代表性部分的透视图,包括细长构件一系列的孔790和细长构件远端部760上的端部构件孔785。靠近细长构件远端部760的横截面A-A和靠近细长构件相对远端部770的横截面B-B在图8中示出,以表示细长构件远端部760和770之间的细长构件700的厚度转变和几何结构转变上的不同构造。这些转变在图9至图10中示出,并在下文中讨论。

[0053] 图9示出细长构件900、图8的剖面线(A-A)处的代表性横截面901和图8的剖面线(B-B)处的代表性横截面902的透视图的第一构造,展示了靠近剖面线(B-B)的(图8的)细长构件相对远端部770处的第一细长构件910和第二细长构件920中的材料的较大厚度T1向靠近剖面线(A-A)处的(图8的)细长构件远端部760的第一细长构件910和第二细长构件920中的材料的较小厚度T2转变。此构造允许在沿着(图8的)细长构件相对远端部770的方向用较厚材料增强细长构件900的弯曲阻力的情况下,当通过沿着(图8的)细长构件远端部760的方向逐渐减少细长构件900的重量使得细长构件900完全延伸并且仅支承在(图8的)细长构件相对远端部770处时,细长构件900的突出强度增大。

[0054] 图10示出细长构件1000、图8的剖面线(A-A)处的代表性横截面1001和图8的剖面线(B-B)处的代表性横截面1002的透视图的另一个构造的透视图,展示了靠近剖面线(B-B)的(图8的)细长构件相对远端部770处的第一细长构件1010和第二细长构件1020中的材料的较小几何半径R3向靠近剖面线(A-A)的(图8的)细长构件远端部760处的细长构件1010和1020中的较大几何半径R4转变。在较大几何半径R4允许每个细长条构件的相对峰之间的距离更小的情况下,较小几何半径R3允许每个细长条构件的相对峰之间的距离更大。此构造允许当通过沿着(图8的)细长构件相对远端部770的方向增强细长构件1000的弯曲阻力或扭转阻力使得细长构件1000完全延伸并仅支承在(图8的)细长构件相对远端部770处时,细长构件900的突出强度增大,其中细长构件1000支承其上的细长构件相对远端部770附近的细长条1010和1020中的每一个的峰之间的半径更小、距离更大。

[0055] 图10示出图8的剖面线(B-B)处的附加另选的代表性横截面1003的透视图,展示了图9剖面线(B-B)处的代表性横截面902的厚度增加和图8剖面线(B-B)处的横截面1002示出的几何半径增加的组合。因此,沿着朝向细长构件1000的(图8的)细长构件远端部760的方向,图8的细长构件相对远端部770处的第一细长构件1013和第二细长构件1023的第一几何半径R3增大且材料厚度T1减小,即第一细长构件1013和第二细长构件1023的几何半径R3会增大至图10的横截面1001示出的几何半径R4,并且第一细长构件1013和第二细长构件1023的材料厚度T1会减小至图10的横截面1001示出的减小的厚度T2。第一细长条和第二细长条

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的相对峰之间的距离减小以及第一细长条和第二细长条的厚度减小的组合产生图8的细长构件相对远端部770处的更高的弯曲阻力或扭转阻力，并且还会增加细长构件1000的突出长度，细长构件1000由所述细长构件相对远端部支承。

[0056] 朝向细长构件相对远端部770的相对的细长条之间的减小的半径或增大的距离可响应于随着细长构件远端部660可进一步延伸出来而增加的细长条1000的力矩，通过提供附加强度来增加细长构件1000的突出距离。在增加强度对于相对较短的突出距离以及与增加的曲率相关联的减少的塌缩率可能不需要的情况下，此类减小的半径或更大的距离可能不会期望朝向细长构件1000的细长构件远端部660。此外，细长构件1000的细长构件远端部660上相对细长条之间增大的半径或更小的距离使得需要的织物材料更少，而更少的织物材料会减轻细长构件远端部660的重量。增大的半径或更小的距离也减小了细长构件1000的细长构件远端部660上来自展平的应力，展平可延长重复使用过程中细长条的使用寿命。

[0057] 图11A示出外壳卷轴内的细长构件的代表性构造的侧视示意图。示例性具体实施可与具有外壳1110的卷尺组件1100基本一致，卷轴1120设置在外壳1110内，并且限定用于细长构件700的卷尺通道开口1130。卷轴1120可大致被构造成基于扭簧或等效机构在外壳1110内可释放地卷绕在其自身上的(图7至图8的)细长构件700。细长构件700的细长条710、720沿着细长构件700的第一细长构件边缘730和第二细长构件边缘740刚性联接，并且非联接区域750可限定在第一细长条710、第二细长条720、细长构件远端部760、第一细长构件边缘730和第二细长构件边缘740之间。

[0058] 第一细长条710和第二细长条720中的每一个限定第一细长条峰715和第二细长条峰725，所述第一细长条峰和第二细长条峰被构造成响应于足够的外力而展平。在当前构造中，当细长构件700可围绕卷尺组件1100的卷轴1120卷绕时，施加使峰715、725展平的足够外力，并且/或者随着细长构件700穿过卷尺通道开口1130，由外壳1110提供使所述峰展平的足够外力。这样，细长构件700可储存在一定容积内，所述容积可以是在峰715、725不展平的情况下将会需要的容积大小的一部分，这样可实现相对较小的卷尺外壳1110，如下文中结合图12A至图12B进一步描述。

[0059] 在使用中，细长构件远端部760通常可以手动延伸，并且此类延伸从卷轴1120上退绕对应长度的塌缩细长构件700。术语“远端部”760可用于描述从卷尺外壳1110延伸出来并且可与细长构件700的细长构件相对远端部770(如图8所示)相对的细长构件700的端部，所述细长构件相对远端部可联接到卷轴1120。随着细长构件700的部分退出卷尺外壳1110，并且不再经受卷绕在卷尺外壳1110内的压缩力，细长构件700扩展至其初始未展平形状，在当前构造中，所述形状可与图1和图6至图8一致。

[0060] 图11B示出图11A的外壳卷轴内的细长构件的代表性构造的透视图，其中与图8类似方式的距离D2示出了位于与细长构件远端部760相距距离D2处的细长构件一系列的孔790。随着第一细长条710和第二细长条720一起塌缩，例如在卷绕过程中，细长构件一系列的孔790的增大的横截面积允许从细长构件700的第一细长条710和第二细长条720的非联接区域750之间排出更多空气，在所述卷绕过程中，细长构件700仅旋转地卷绕在其自身上，直至细长构件700中具有细长构件一系列的孔790的段容纳并塌缩在卷尺外壳1110内，如上所述。

[0061] 图12A示出图1所示构造在展平时的横向剖面图。重新参见图7，在多种构造中，第

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一细长条710和第二细长条720各自大致被构造成分别将每个细长条的第一中性弯曲平面719和第二中性弯曲平面729(参见图13A至图13B)朝向细长构件100的第一细长条内表面711和第二细长条内表面721偏置,并且还将第一细长条内表面711的第一中性平展平面707和第二细长条内表面712的第二中性平展平面709分别朝向细长构件700的第一外表面712和第二外表面722偏置。

[0062] 图12A示出与细长构件700的一部分一致的图11A细长构件700的展平部分的横向剖面图,所述细长构件的一部分可围绕图11A中的卷轴1120设置。在细长构件700的展平部分中,细长条第二过渡区域716、717、726和727以及第一细长条峰715和第二细长条峰725中的每一个相对于它们的初始形状(如图7所示)平展,这样可在峰区域715,725内产生压缩力,并在过渡区域716、717、726和727内产生拉力。在峰715,725和过渡半径716、717、726和727可具有基本上相同的半径的构造中,展平时的细长条710,720内的压缩力和拉力可沿着横向90°轴的方向在条的整个宽度上大致相等。

[0063] 图12B示出来自图12A的示出细长条平展所产生的力的第一细长条的横向剖面图。图12B示出来自图12A的第一细长条710,以展示条平展所产生的并作用于细长条中的每一个内的力。压缩力c和拉力t中的每一个位于细长条700的厚度内,并且沿着横向、90°轴的方向。第一细长条峰715的平展使得在第一细长条710的第一细长条外表面712上产生压缩力c1,并且在第一细长条内表面711上产生拉力t1。第一细长条第一过渡区域716和第一细长条第二过渡区域717中的每一个的平展使得在第一细长条710的第一细长条外表面712上产生拉力t2,并且在第一细长条内表面711上产生压缩力c2。第一细长条中性平展表面718可限定在第一细长条外表面712与第一细长条内表面711之间,其中第一细长条710既不承受拉力也不承受压缩力。第二细长条720(参见图12A)将经受与第一细长条710类似的拉力和压缩力。在多种构造中,以这样一种方式选择并组合第一细长条710和第二细长条720的材料和结构,使得与内表面711,721相比,细长条710,720中的每一个的第一中性平展平面718和第二中性平展平面728(参见图12A)被定位成更靠近外表面712,722。

[0064] 关于第一细长条710和第二细长条720的材料选择,每一个条可由织物构造而成。在许多构造中,织物和织物组合将每个细长条的中性弯曲平面朝向细长构件700的内表面偏置,并且将每个细长条的中性平展平面朝向细长构件700的外表面偏置。此外,第一细长条710和第二细长条720可包括多层织造材料或基本上单向的纤维,将会偏置每个细长条710,720的中性弯曲平面使其相比于细长条710,720的外表面更加靠近内表面,并且会进一步偏置每个细长条710,720的中性平展平面使其相比于细长条710,720的内表面更加靠近外表面。

[0065] 图13A示出通过非联接区域750(参见图11A)与图1所示构造一致的卷绕细长构件700的一部分的纵向剖面图,可与围绕卷轴1120设置的细长构件700的一部分一致(参见图11A)。在卷绕位置中,例如,第一细长条710成为内条,并且由于卷绕而经受压缩力c3。然后,第二细长条720例如成为外条,并且由于卷绕而经受拉力t3。

[0066] 第一细长条710和第二细长条720中未接合的段分别限定中性弯曲平面719,729,所述中性弯曲平面可在本文中定义为与围绕90°轴卷绕细长构件700的纵向长度相关联的中性平面。每个细长条710,720的非联接区域750的中性弯曲平面719,729表示当卷绕时相应的细长条710,720内其上可能既不存在轴向拉力也不存在轴向压缩力的平面。中性弯曲

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平面719,729中的每一个沿着其相应的细长条710,720的长度延伸(参见图12A)。

[0067] 细长构件700可大体由将每个细长条的非联接区域750的中性弯曲平面限定在适当位置的材料构造而成,所述位置与各种的细长条710,720的外表面712,722相比可更加靠近内表面711,721。换句话讲,第一细长条710具有从第一细长条内表面711延伸至第一细长条外表面712的厚度T3,并且第一细长条限定贯穿厚度T3的第一中性弯曲平面719,相比于第一细长条外表面712,该第一中性弯曲平面可更加靠近第一细长条内表面711。相似地,第二细长条720具有从第二细长条内表面721延伸至第二细长条外表面722的厚度T4,并且第二细长条限定第二中性弯曲平面729,相比于第二细长条外表面722,该第二中性弯曲平面可更加靠近第一细长条内表面711。

[0068] 在多种构造中,期望将细长构件700构造在相对比较靠近的细长条710,720中每一个的非联接区域750的中性弯曲平面位置处,以最小化可在随时间推移可塌缩并扩展的细长构件700上产生磨损的力差。相似地,期望构造细长构件700,使得中性弯曲平面的位置保持不变,而无需考虑卷绕的方向(顺时针或逆时针)。针对第一细长条和第二细长条的材料选择可影响中性弯曲平面的位置以及材料和材料组合的布置。一般来讲,细长条710,720的结构将细长条710,720的非联接区域750的中性弯曲平面朝向细长构件700的内部偏置。

[0069] 图13B示出处于塌缩位置的与图1所示构造一致的卷起的细长构件的一部分的透视图;图13B还示出图12A和图12B中反映的压缩力和拉力,以供参考。在当前构造中,以及在与本文所公开的技术一致的许多构造中,第一细长条710、第二细长条720和整体细长构件700被构造成使得每个细长条710,720的第一中性平展平面718和第二中性平展平面728可与每个细长条710,720的中性弯曲平面719,729隔离开。术语"隔离"可用于意指中性平展平面可被构造成不与中性弯曲平面相交。此类构造可限制由于平展和卷绕而产生的沿着两个方向的拉力和压缩力的复合。

[0070] 图14示出逻辑流程图,其中展示了回缩与图13A和图13B一致的细长构件的方法。所述方法包括:回缩细长构件700,包括以下步骤:提供1400在第一端部770处附接到回缩卷轴1120的细长构件700,所述细长构件700包括密封的内腔704以及调节流入和流出内腔704的空气的排气机构785、790。回缩卷轴1120沿着一定方向回缩1402以使得细长构件700卷绕在回缩卷轴1120上,从而随着细长构件卷绕在回缩卷轴1120上而使细长构件700的内腔704塌缩1404。空气从细长构件700的内腔704通过细长构件700的排气机构785,790排出1406,并且基于细长构件700的排气机构785,790调节当将细长构件700卷绕在回缩卷轴1120上时回缩卷轴的回缩速度1408。

[0071] 上述主题仅以举例说明的方式提供,并且不应被解释为限制性的。在不遵循图示和描述的示例性实施例和应用且不脱离以下权利要求书所阐述的本公开的真实实质和范围的情况下,可以对本文所述的主题进行各种修改和变化。

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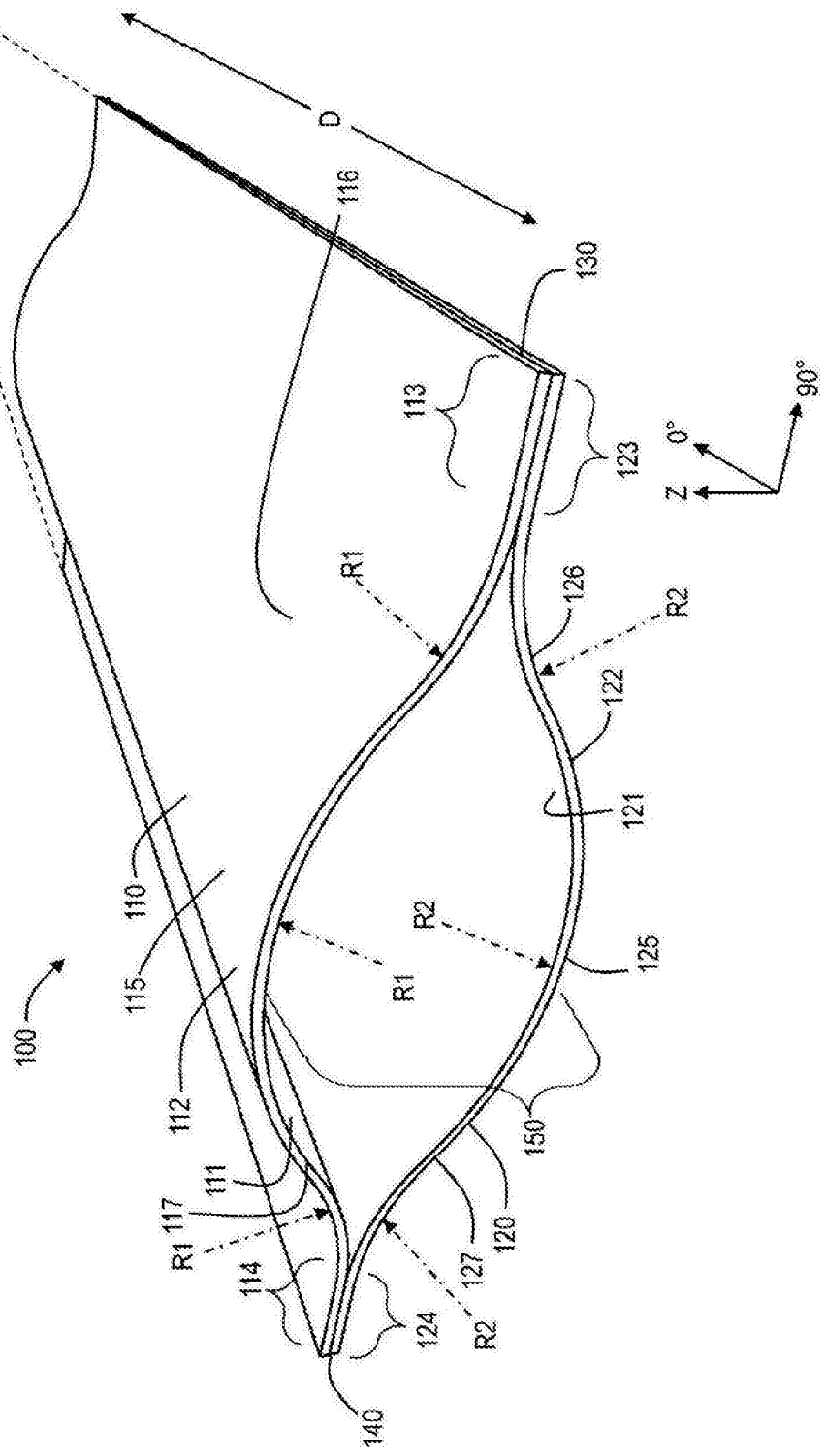


图1

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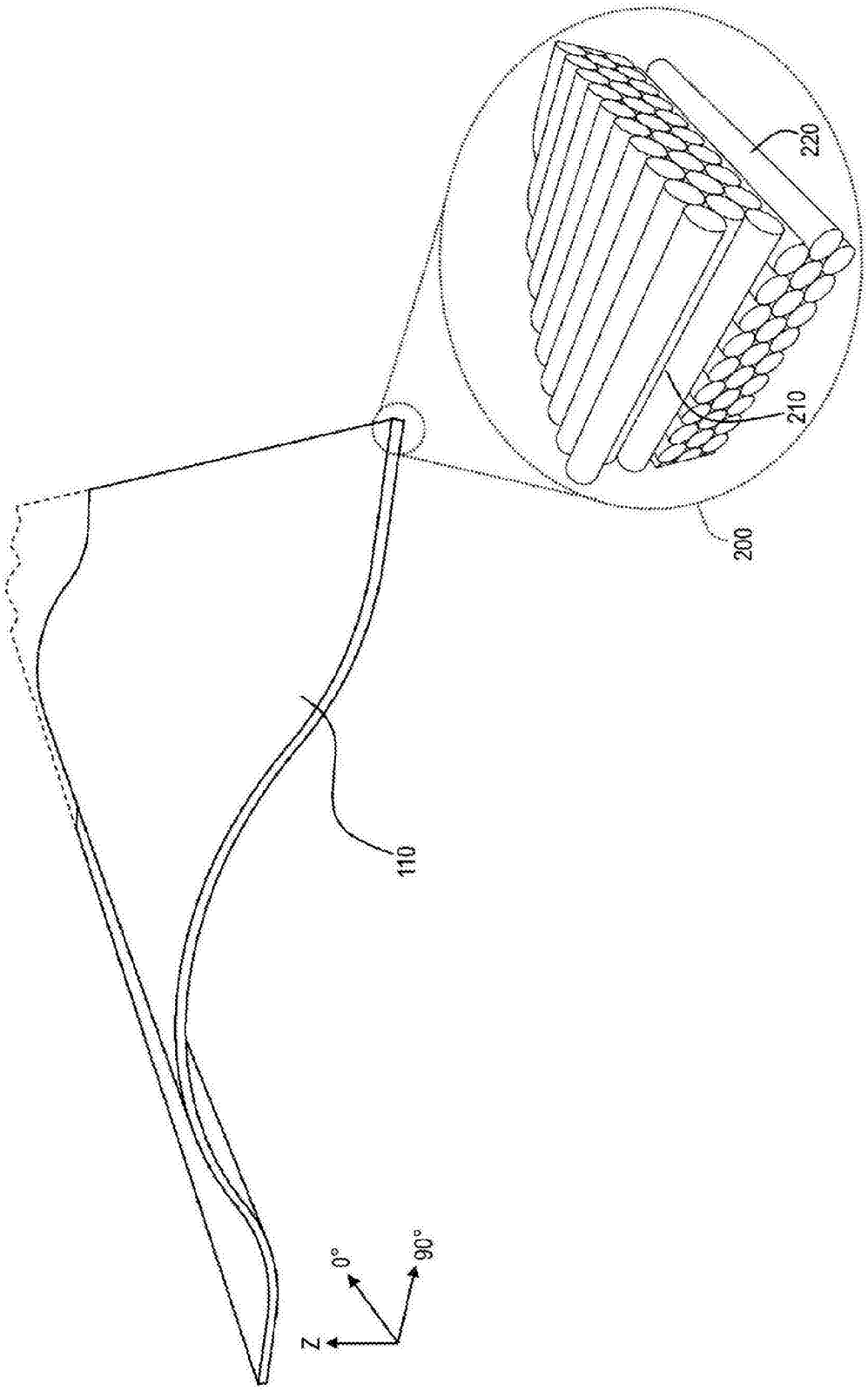


图2

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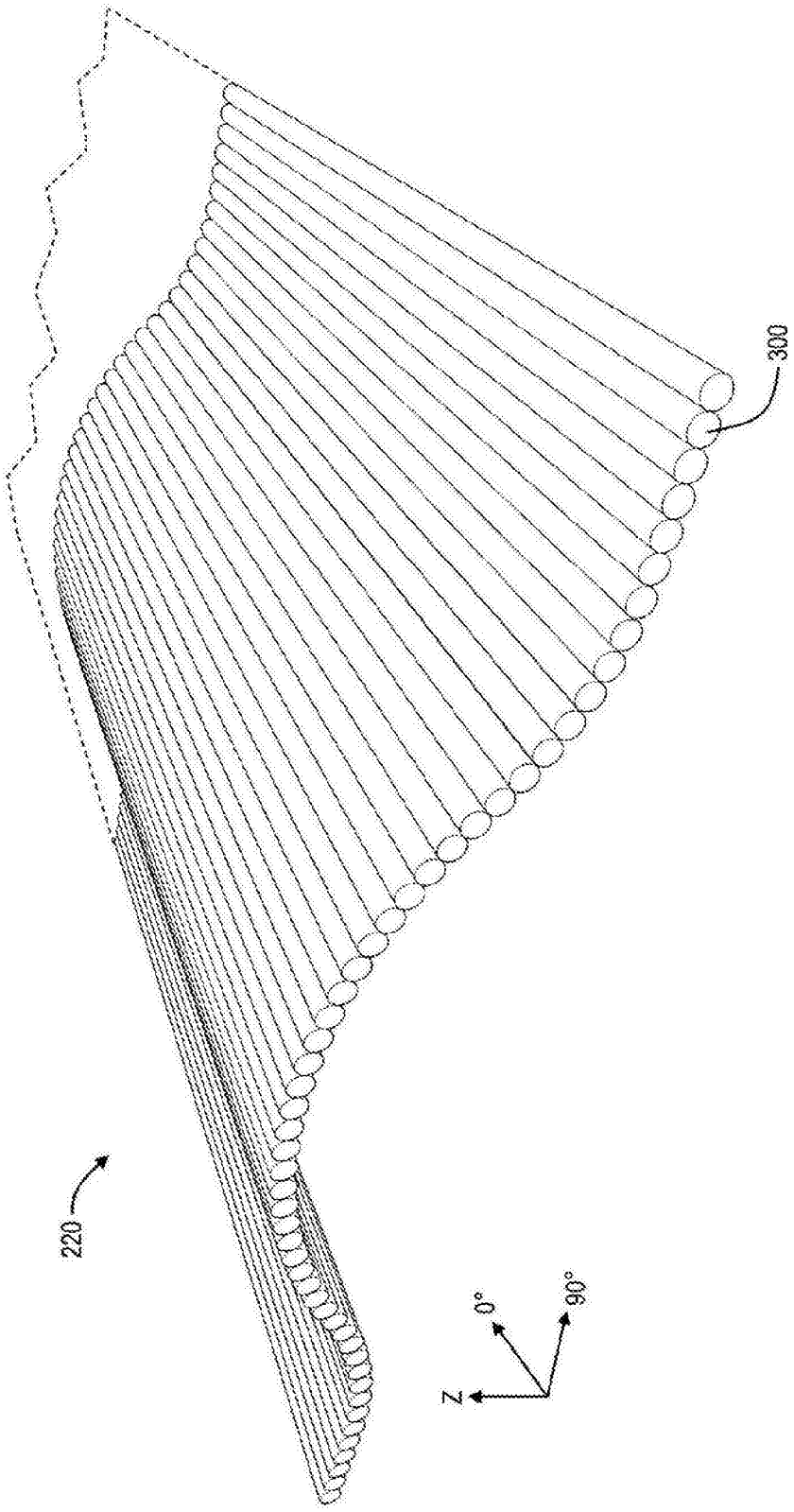


图3

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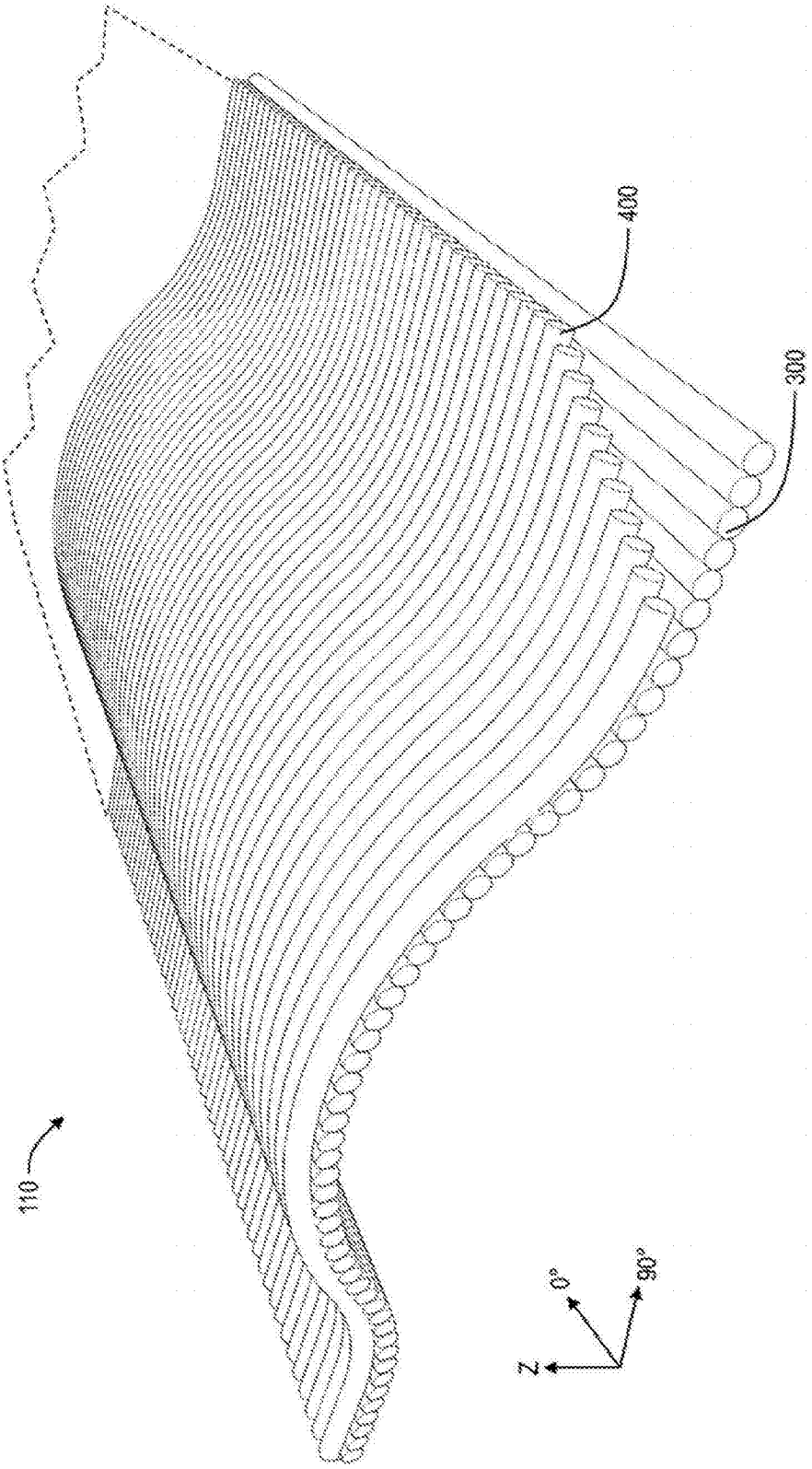


图4

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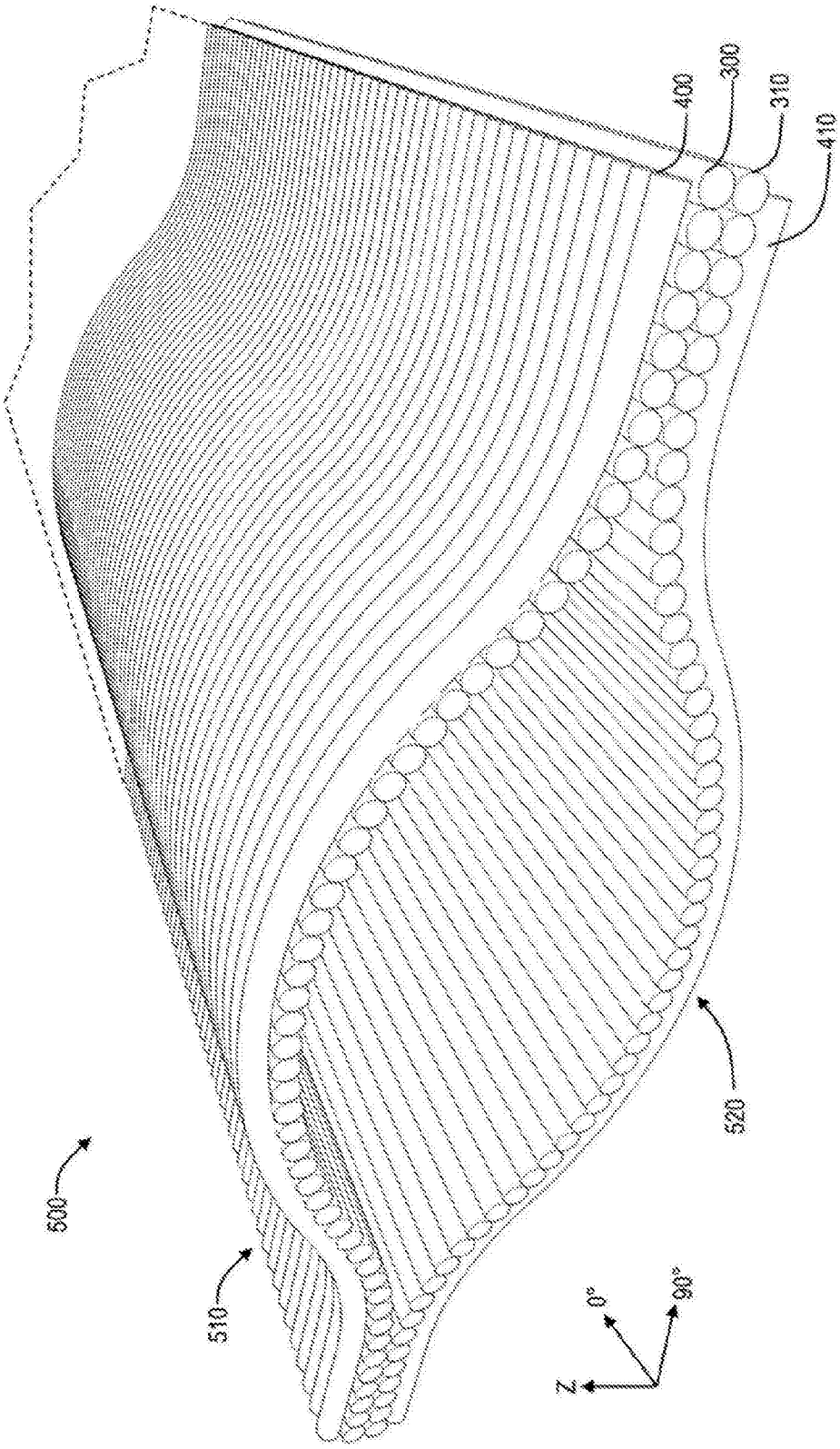


图5

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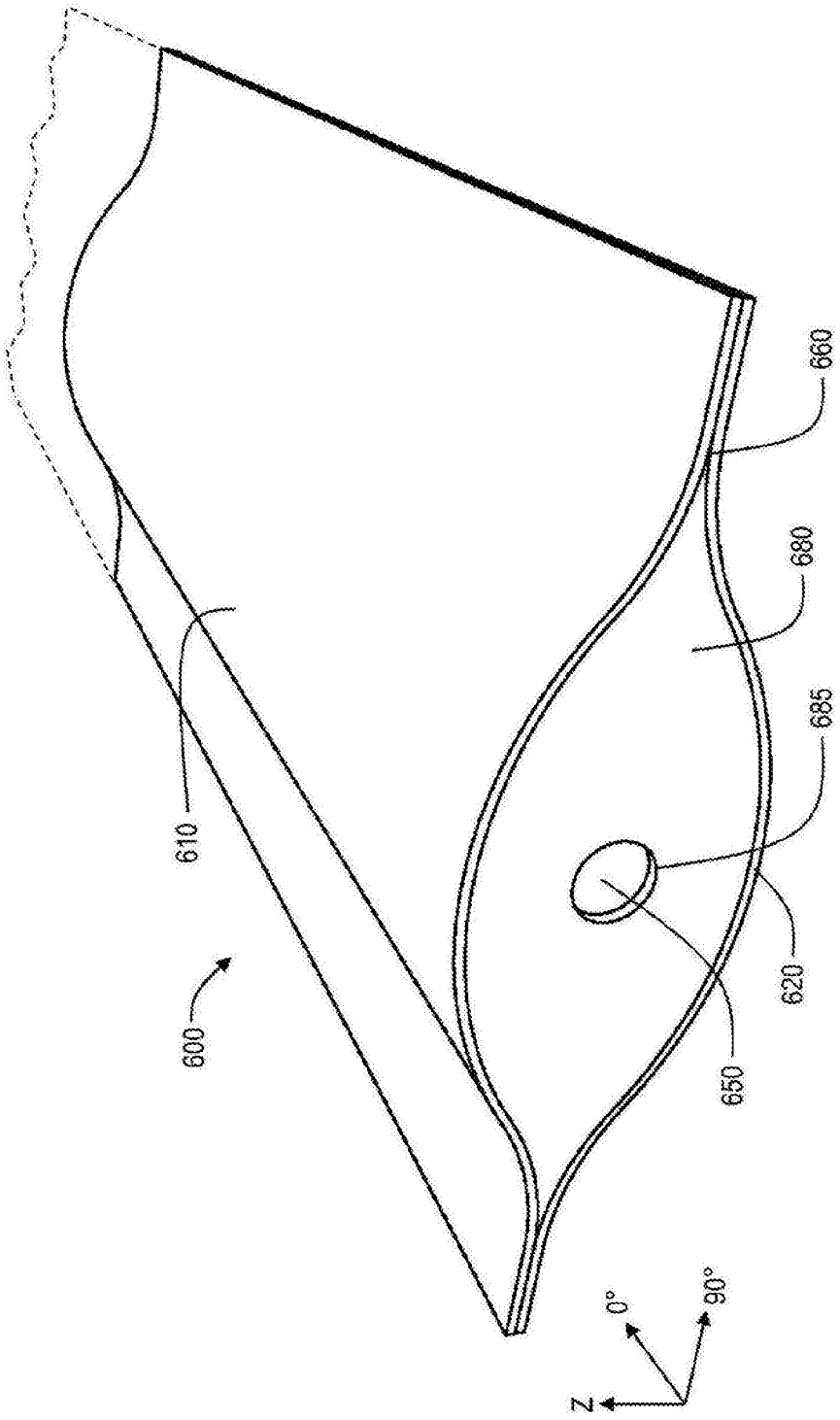


图6

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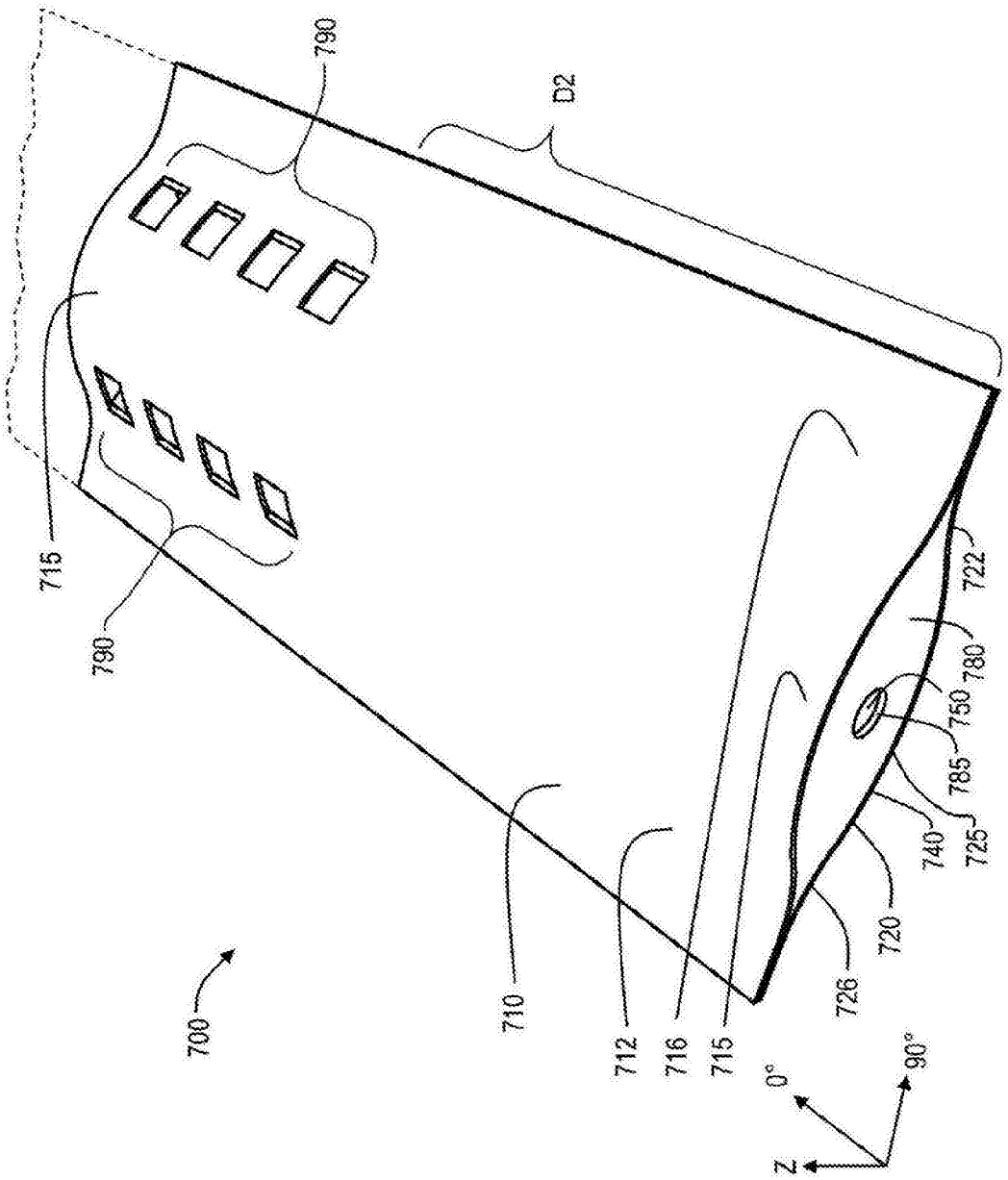


图7

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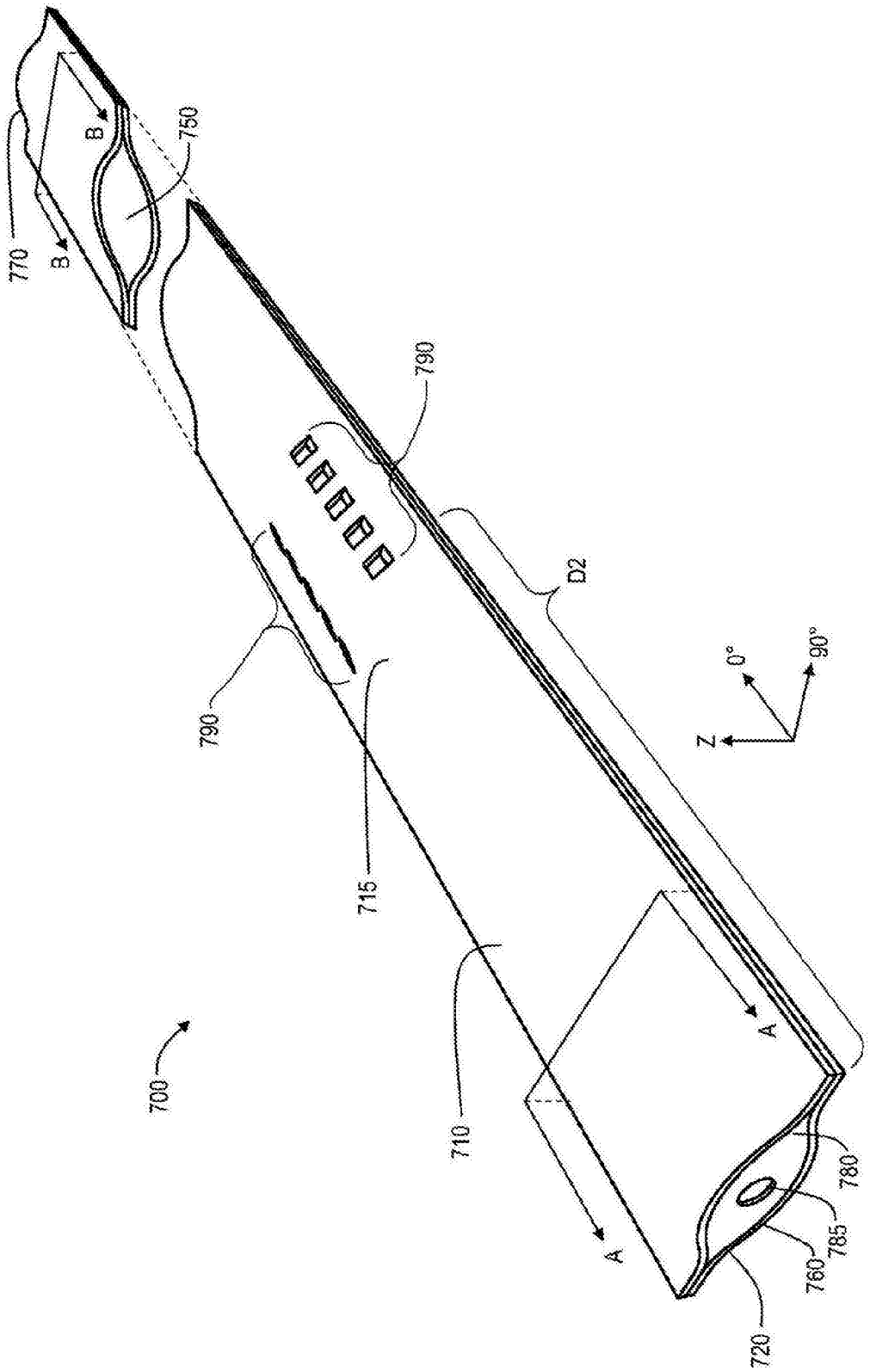


图8

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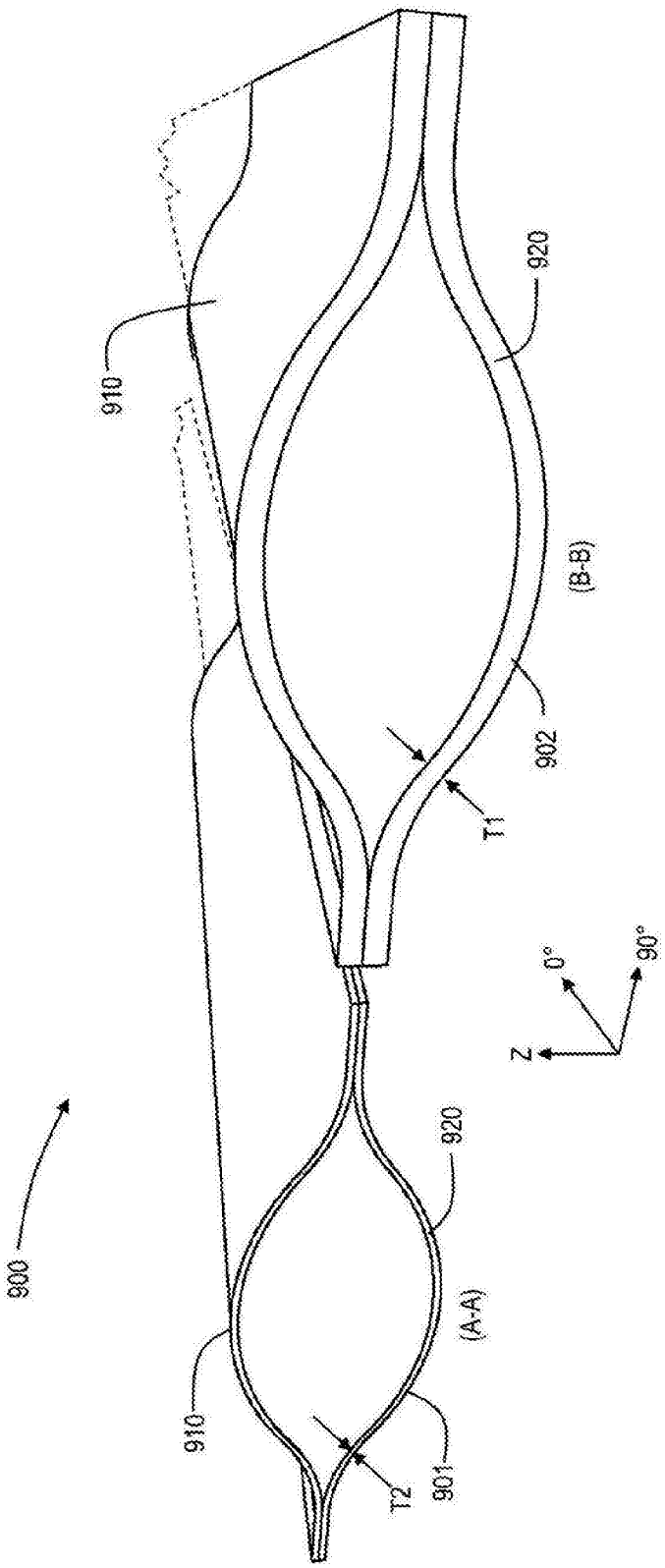


图9

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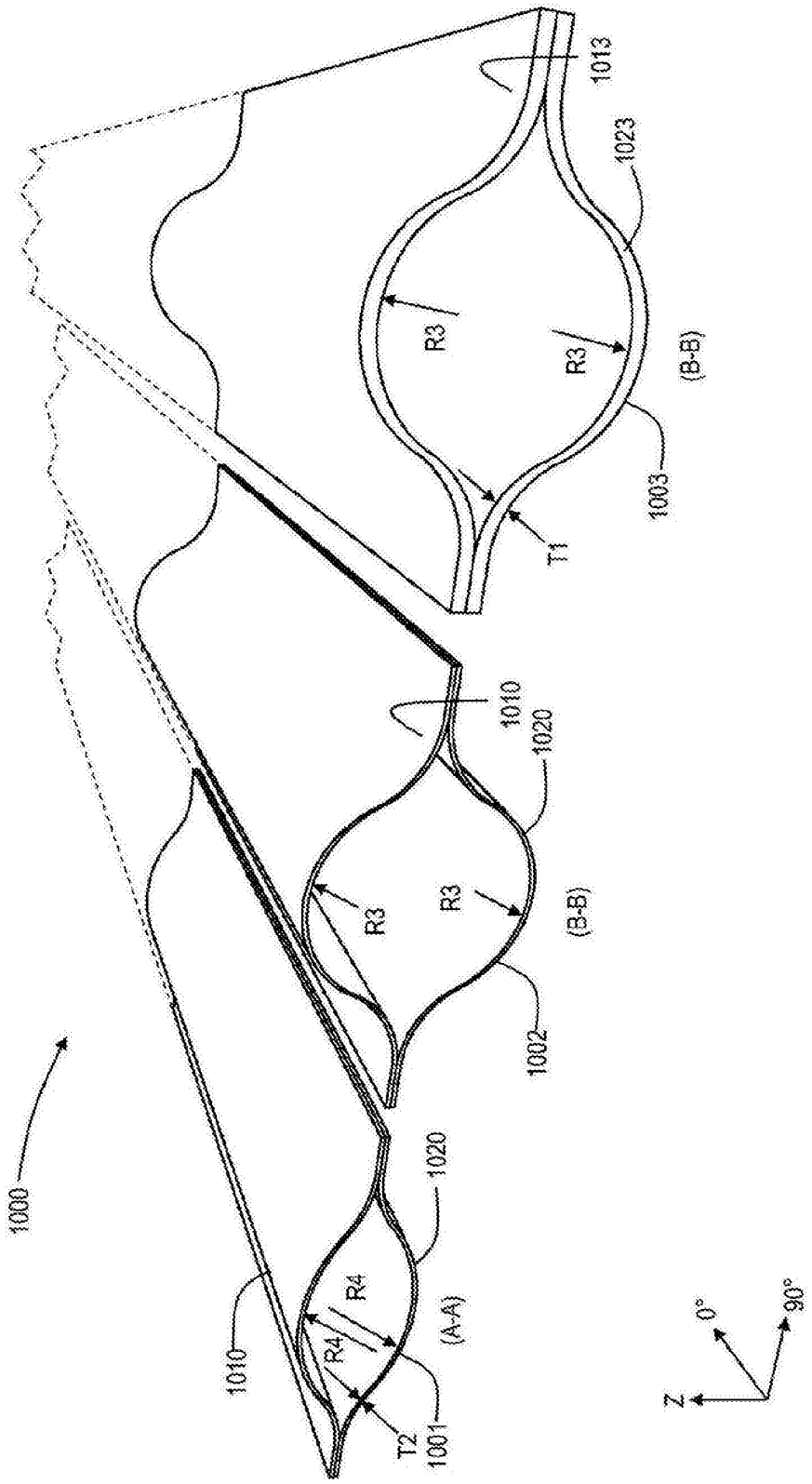


图10

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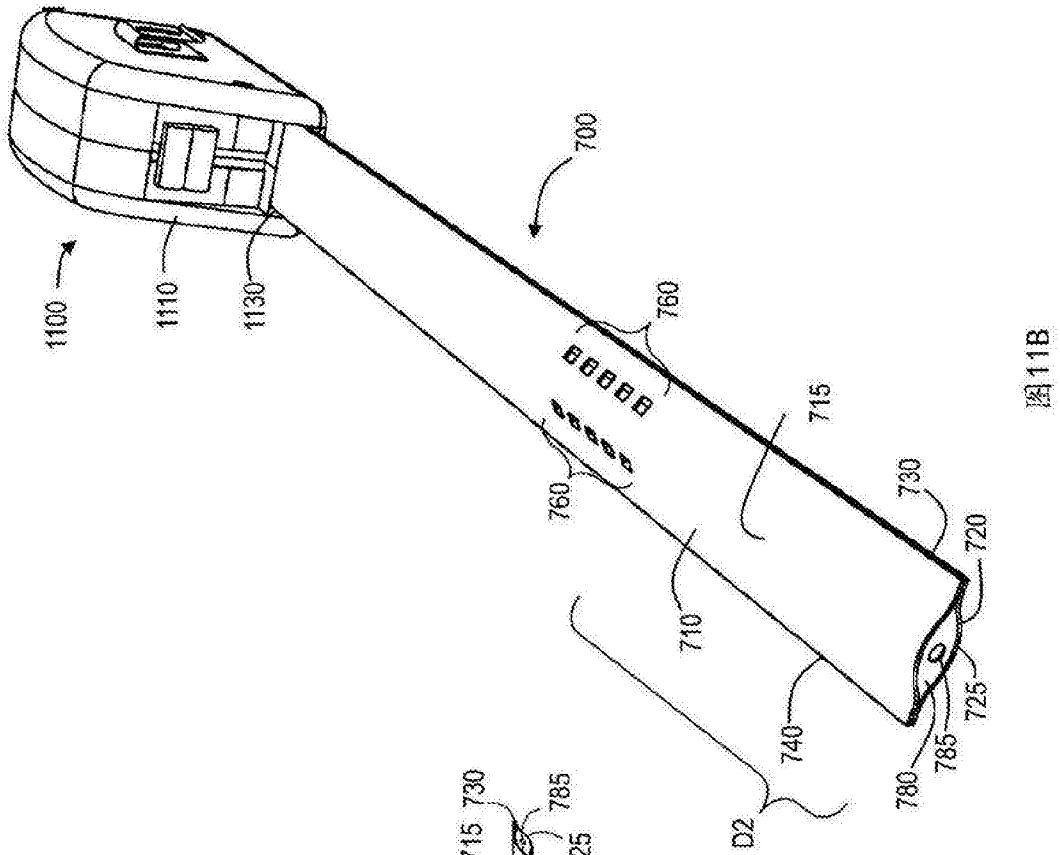


图11B

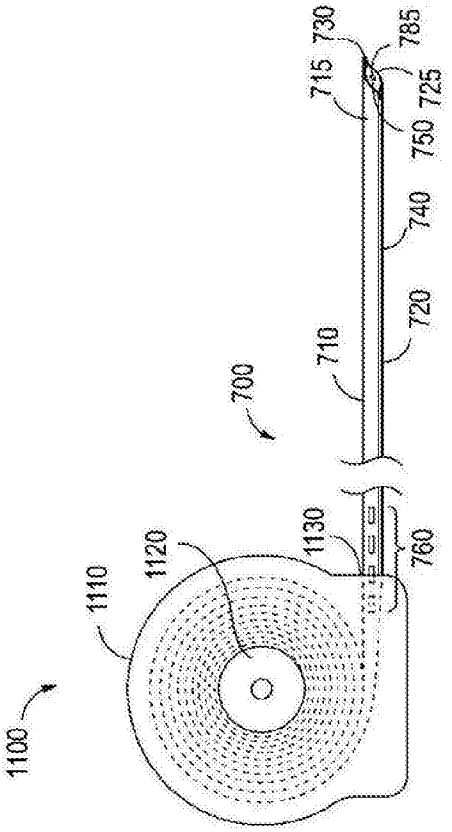


图11A

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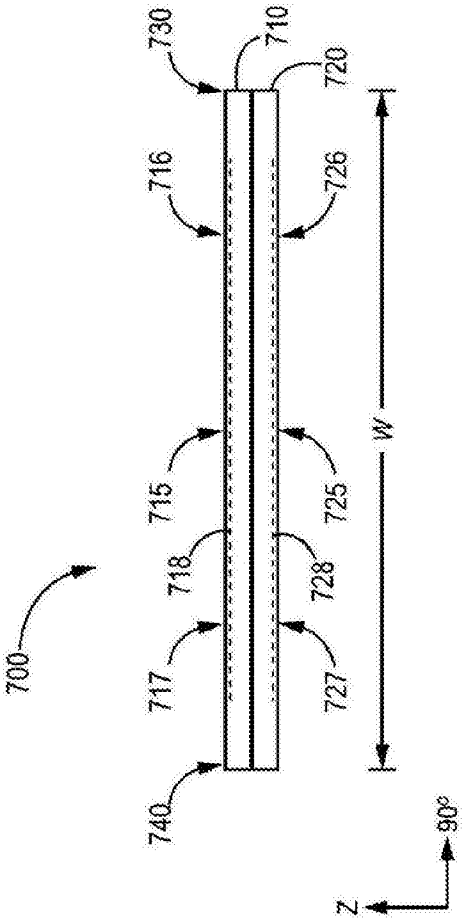


图12A

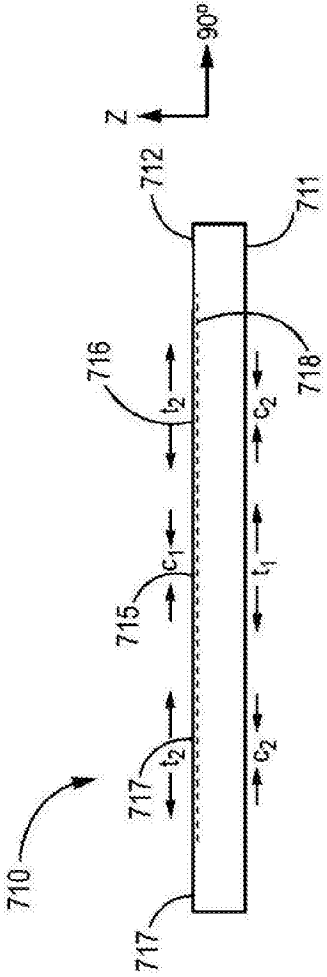


图12B

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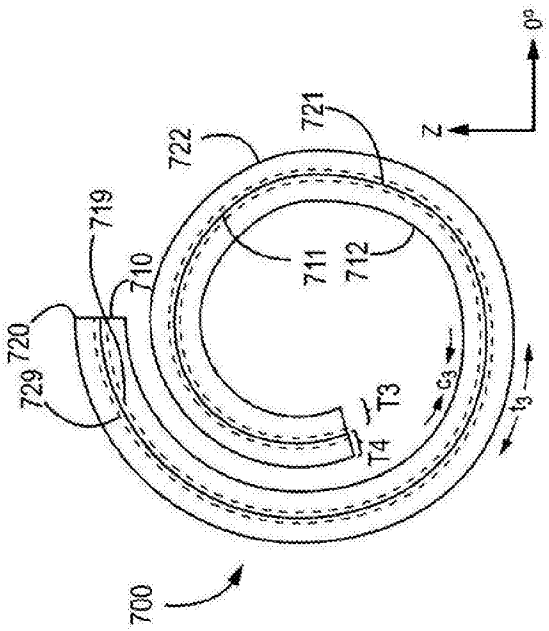


图13A

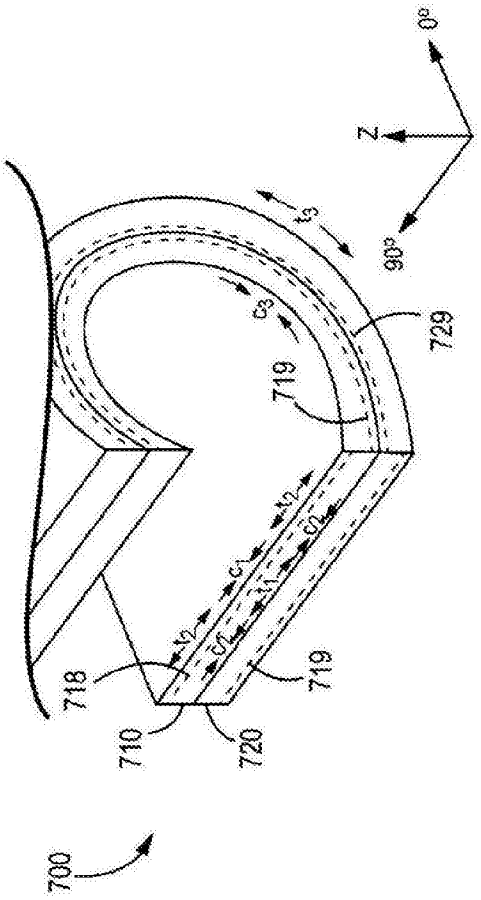


图13B

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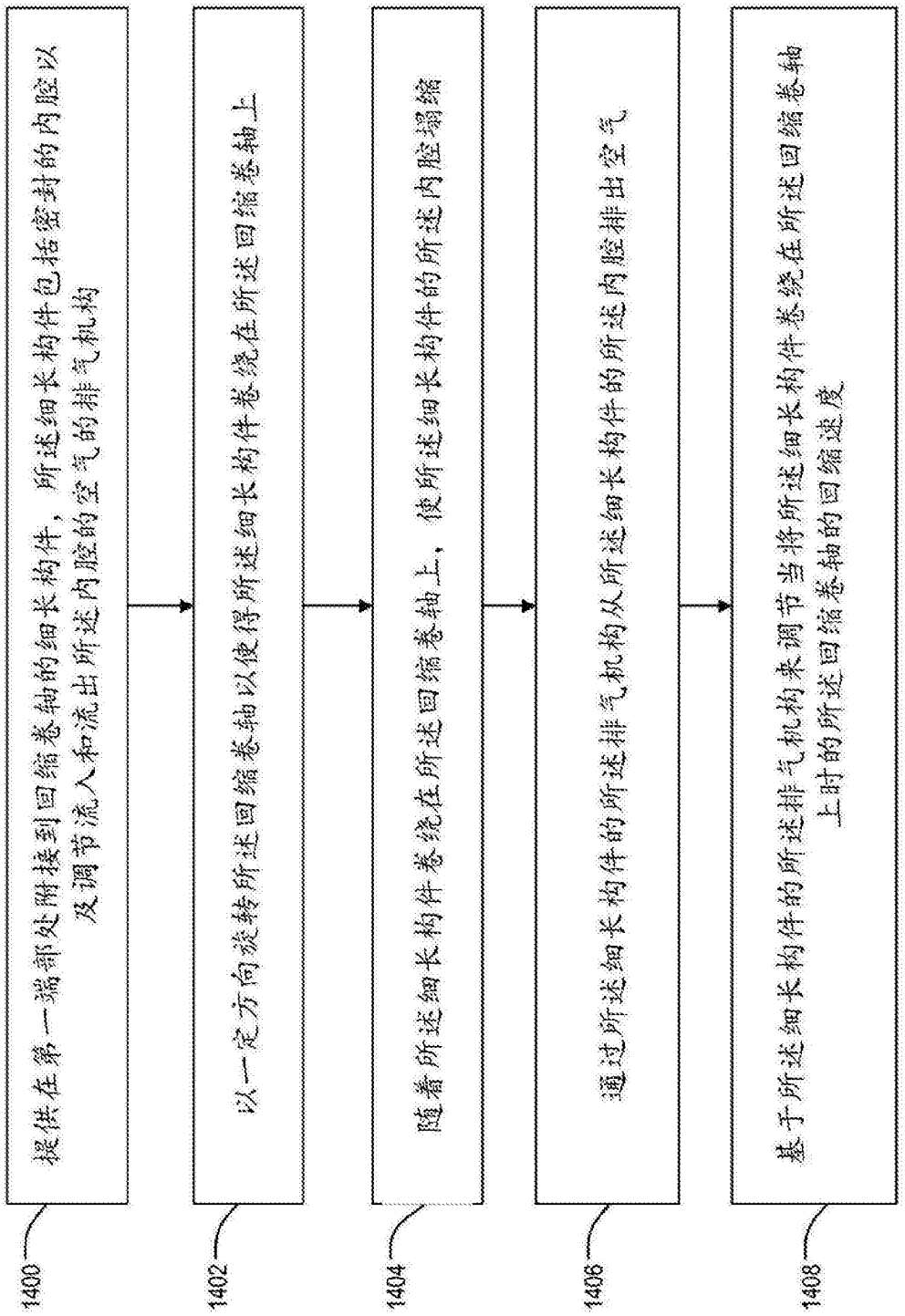


图14

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1.一种装置,包括:

细长构件,所述细长构件具有第一端部和第二远端部,所述细长构件还包括:

第一弓形细长构件,所述第一弓形细长构件具有第一构件纵向边缘,以及

第二弓形细长构件,所述第二弓形细长构件具有第二构件纵向边缘,所述第二构件纵向边缘与所述第一构件纵向边缘接合,从而限定由所述第一弓形细长构件和所述第二弓形细长构件之间的非联接区域限定的内腔,

其中,所述第一弓形细长构件和所述第二弓形细长构件中的每一个还包括至少第一层纤维材料和第二层纤维材料,其中所述第一层纤维材料中的大部分纤维被取向成基本上垂直于所述第二层纤维材料中的大部分纤维。

2.根据权利要求1所述的装置,其中所述第一层纤维材料中的大部分纤维被取向成平行于所述细长构件的纵轴的方向,并且所述第二层纤维材料中的大部分纤维被取向成垂直于所述细长构件的所述纵轴的方向。

3.根据权利要求2所述的装置,其中所述第一弓形构件和所述第二弓形构件还包括基质材料和纤维材料的复合材料,所述纤维材料包括以下材料中的一种:

纺出液晶聚合物;

碳纤维;

芳族聚酰胺纤维;

玻璃纤维;或

碳纳米管。

4.根据权利要求3所述的装置,所述基质材料包括以下材料中的一种:

环氧树脂;或

热塑性树脂。

5.根据权利要求4所述的装置,还包括能够调节流入和流出所述内腔的空气的排气机构。

6.根据权利要求5所述的装置,其中所述排气机构还包括在所述细长构件的所述第二远端部上的至少一个孔,所述至少一个孔能够在所述细长构件塌缩到所述内腔中时从所述内腔经由所述孔排放空气。

7.根据权利要求5所述的装置,其中所述排气机构还包括邻近所述细长构件的所述第二远端部的一系列的孔,所述一系列的孔能够在所述细长构件塌缩到所述内腔中时从所述内腔经由所述一系列的孔排放空气。

8.根据权利要求7所述的装置,其中邻近所述细长构件的所述第二远端部的所述一系列的孔位于与所述第二远端部相距一段距离处,所述距离足以在通过使所述细长构件的所述内腔塌缩以闭合所述一系列的孔时增加所述细长构件的塌缩阻力。

9.根据权利要求1所述的装置,其中所述细长构件以及对应的所述第一弓形细长构件和所述第二弓形细长构件的厚度从所述细长构件的所述第一端部到所述第二远端部减少。

10.根据权利要求1所述的装置,其中所述第一弓形细长构件和所述第二弓形细长构件的半径在所述细长构件的所述第一端部和所述第二远端部之间变化。

11.一种装置,包括:

外壳,所述外壳具有外壳孔;

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弹簧偏置回缩卷轴，所述弹簧偏置回缩卷轴位于所述外壳内；以及

细长构件，所述细长构件具有附接到所述弹簧偏置回缩卷轴的第一端部并且具有位于所述外壳外部的第二远端部，其中当穿过所述外壳孔平移时，所述细长构件能够卷绕在所述弹簧偏置回缩卷轴上，

具有第一构件纵向边缘的第一弓形细长构件和具有第二构件纵向边缘的第二弓形细长构件，所述第二构件纵向边缘与所述第一构件纵向边缘接合，从而限定由所述第一弓形细长构件和所述第二弓形细长构件之间的非联接区域限定的内腔，所述第一弓形细长构件和所述第二弓形细长构件中的每一个还包括至少第一层纤维材料和第二层纤维材料，其中所述第一层纤维材料中的大部分纤维被取向成基本上垂直于所述第二层纤维材料中的大部分纤维，并且

所述细长构件还具有内腔以及能够调节流入和流出所述内腔的空气的排气机构。

12.根据权利要求11所述的装置，还包括所述细长构件的所述第二远端部上的至少一个孔，所述至少一个孔能够在所述细长构件卷绕在所述弹簧偏置回缩卷轴上时从所述内腔经由所述孔排出空气。

13.根据权利要求11所述的装置，还包括邻近所述细长构件的所述第二远端部上的一系列的孔，所述一系列的孔能够在所述细长构件卷绕在所述弹簧偏置回缩卷轴上时从所述内腔经由所述一系列的孔排放空气。

14.根据权利要求14所述的装置，其中邻近所述细长构件的所述第二远端部的所述一系列的孔位于与所述第二远端部相距一段距离处，所述距离足以使得当所述一系列的孔回缩到所述外壳内并卷绕在所述弹簧偏置回缩卷轴上时，所述弹簧偏置回缩卷轴降低在所述弹簧偏置回缩卷轴上卷绕所述细长构件的速度。

15.一种回缩细长构件的方法，包括：

提供在第一端部处附接到回缩卷轴的细长构件，所述细长构件包括具有第一构件纵向边缘的第一弓形细长构件和具有第二构件纵向边缘的第二弓形细长构件，所述第二构件纵向边缘与所述第一构件纵向边缘接合，从而限定由所述第一弓形细长构件和所述第二弓形细长构件之间的非联接区域限定的内腔，所述第一弓形细长构件和所述第二弓形细长构件中的每一个还包括至少第一层纤维材料和第二层纤维材料，其中所述第一层纤维材料中的大部分纤维被取向成基本上垂直于所述第二层纤维材料中的大部分纤维，并且包括密封的内腔以及调节流入和流出所述内腔的空气的排气机构；

以一定方向旋转所述回缩卷轴以使得所述细长构件卷绕在所述回缩卷轴上；

随着所述细长构件卷绕在所述回缩卷轴上，使所述细长构件的所述内腔塌缩；

通过所述细长构件的所述排气机构从所述细长构件的所述内腔排出空气；以及

基于所述细长构件的所述排气机构来调节当将所述细长构件卷绕在所述回缩卷轴上时的所述回缩卷轴的回缩速度。

16.根据权利要求15所述的回缩所述细长构件的方法，其中基于所述细长构件的所述排气机构来调节当将所述细长构件卷绕在所述回缩卷轴上时的所述回缩卷轴的所述回缩速度包括提供所述排气机构以在所述细长构件的第二远端部上包括至少一个孔，所述至少一个孔能够在所述细长构件卷绕在所述回缩卷轴上时从所述内腔经由所述孔排出空气。

17.根据权利要求15所述的回缩所述细长构件的方法，其中基于所述细长构件的所述

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排气机构来调节当将所述细长构件卷绕在所述回缩卷轴上时的所述回缩卷轴的所述回缩速度还包括提供邻近所述细长构件的第二远端部的一系列的孔，所述一系列的孔能够在所述细长构件卷绕在所述回缩卷轴上时从所述内腔经由所述一系列的孔排出空气。

18.根据权利要求15所述的回缩所述细长构件的方法，还包括当所述细长构件卷绕在所述回缩卷轴上时，基于卷绕在所述回缩卷轴上的所述一系列的孔来降低所述旋转的回缩卷轴的回缩速度。

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Espacenet

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Tape measure with extended standout

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Abstract of corresponding document: CN101358822 (A)

The invention relates to a tape measure with extended standout, comprising: a main case having first and second sidewalls and a peripheral wall extending between the sidewalls; a flexible tape blade selectively deployable from the case, the said blade comprising a longitudinal axis, a distal end portion, an inner end portion, and an expected buckling region therebetween; when the blade is expanded in the main case, the distal end portion is expanded in the expected buckling region and before the inner end portion; the tape measure also includes a hook attached to the distal end portion of the tape blade, and the hook can move a certain distance along the longitudinal axis of the tape blade; the said hook has a first section disposed generally parallel to the longitudinal axis and a second section connected thereto and disposed generally normal to the longitudinal axis; the tape measure also includes a reinforcement member which is different from the said blade but connected with the expected buckling region of the blade.

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DESCRIPTION CN1922462A

10 Tape measure with extended reach

[0001]

14 This application claims the benefit of US Provisional Application No. 60/533,093, filed December 30, 2003.

[0002]

18 technical field

[0003]

22 The present invention generally relates to tape measures, and more particularly, the present invention relates to a self-retracting tape measure.

[0004]

27 Background technique

[0005]

31 Modern tape measures (or tape scales) typically include a coiled tape that is biased toward a retracted position by a spring.

33 The housing generally surrounds and protects the tape and retraction spring, and the housing includes an opening through which the distal end of the tape extends. Typically, a tape measure housing consists of two half-housing parts that are joined together by one or more screws. In addition, one of the half-shells typically includes an inwardly projecting integral strut that provides a resting point for one end of the retraction spring. During assembly, place the spool on the strut with the strut attached to the retraction spring, then attach the

other half of the housing to the first half, keeping the spool wrapped around the blade between them. During use, the distal end of the blade is pulled out of the housing; when the blade is released, the spring pulls the blade back into the housing, thereby returning the tape to the retracted position. The retracted blade is usually wound on a reel, which itself is rotatably supported on the housing.

[0006]

One characteristic of a tape measure of interest to consumers is "blade extension," which is a measure of the length that a blade can extend out of the housing before it is bent (folded).

The general concept in the market is that the longer the protrusion, the better, because the longer the protrusion, the longer the distance spanned by the ruler, such as the distance between the rafters of the house during the construction process.

[0007]

Although many methods have been used to increase reach, none of them have proven to be completely satisfactory.

Accordingly, there remains a need for improved tape measure designs, especially those that provide longer reach than standard designs.

[0008]

SUMMARY OF THE INVENTION

[0009]

The present invention relates to a tape measure.

In one embodiment there is provided a tape measure comprising: a main housing having first and second side walls and a peripheral wall extending between the side walls; selectively deployable from the housing elastic blade; when the blade is unfolded from the main housing, it has a generally curvilinear cross-section, and when the blade is retracted into the main housing, it has a generally flat profile; fixed on the ruler a hook at the first end of the blade so that the hook can move a distance along the longitudinal axis of the blade; the hook has a first portion disposed generally parallel to the longitudinal axis, and a second portion attached to the longitudinal axis and generally perpendicular to the longitudinal axis In part, the hook has a weight factor of not greater than about 0.60.

The hook may contain titanium, for example it may consist essentially of titanium, or the hook may optionally contain aluminum.

The blade may have a width of no greater than about 1.10inches with an extension of at least 91/2feet, for example, an extension may be between 91/2feet and about 101/2feet, which is very beneficial.

A retraction bias can be applied to the blade, which is very beneficial.

The blade may include a distal end, an inner end, and an intended hook region between the distal end and inner end; when the blade is deployed from within the main housing, the distal end is in the intended hook

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region and inner end and the tape measure assembly may also include reinforcements attached to the blade in the intended hooking area, without reinforcements at the distal and inner ends, the intended hooking area being included in the extension test without reinforcements The position where the ruler is usually hooked in the middle.

[0010]

87 In yet another embodiment, the present invention provides a tape measure comprising: a main housing having first and second side walls and a peripheral wall extending between the side walls; optionally from The elastic blade is deployed in the housing; when the blade is deployed from the main housing, it has a generally curvilinear cross-section.

91 And when the blade is retracted into the main housing, it has a generally flat profile; the blade includes a distal end, an inner end, and an intended hooking area between the distal and inner ends; When deployed in the housing, the distal end portion is deployed before the intended hooking area and the inner end portion; the hook is fixed to the distal end portion of the blade so that the hook can move a distance along the longitudinal axis of the blade; the hook has a longitudinal A first portion disposed parallel to the axis, and a second portion attached to the longitudinal axis and generally perpendicular to the longitudinal axis; a reinforcement member attached to the blade other than the inner blade in the intended hook area, distal and inner ends without reinforcement; the expected hook area includes the location where the blade would normally hook in a reach test without reinforcement.

100 The reinforcements may comprise metal sheets.

101 The reinforcement may comprise longitudinally arranged fibre reinforcement, advantageously comprising a material selected from the group consisting of carbon and aramid.

103 Advantageously, the stiffener can be secured in the intended hooking area of the blade by means of adhesive, and/or the stiffener can be secured on the upper side of the blade.

105 The intended hooking area may be located between about 9 to 10.5 feet from the hook.

106 It is very beneficial for the hooks to have a weight factor of no greater than about 0.60.

[0011]

110 In yet another embodiment, the present invention provides a tape measure comprising: a main housing having first and second side walls and a peripheral wall extending between the side walls; optionally from An elastic blade deployed in the housing; when the blade is deployed from the main housing, it has a generally curvilinear cross-section.

114 and when the blade is retracted into the main housing, it has a generally flat profile; the blade includes a longitudinal axis, a distal end, an inner end, and an intended hooking area between the distal and inner ends; when When the blade is deployed from the main housing, the distal end is deployed before the intended hooking area and the inner end; a hook fixed to the distal end of the blade so that the hook can move a distance along the longitudinal axis of the blade; said the hook has a first portion disposed generally parallel to the longitudinal axis, and a second portion connected to the longitudinal axis and generally perpendicular to the longitudinal axis; the blade has a generally equal cross-sectional thickness on the inner and distal ends; An unequal cross-sectional thickness across the hook area is expected, with a greater thickness away from the

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longitudinal axis of the blade than near the longitudinal axis; if the entire blade is of uniform cross-sectional thickness, then expected The hook area includes the location where the blade is usually hooked in the extension test.

Beneficially, the intended hooking area may be located between about 8 and 10.5 feet from the hook.

It is very beneficial for the hooks to have a weight factor of no greater than about 0.60.

[0012]

Description of drawings

[0013]

Figure 1 is a side view of an embodiment of a tape measure constructed in accordance with the teachings of the present invention.

[0014]

Figure 2 is a perspective view of one embodiment of a tape measure housing in accordance with the present invention with some components (eg, screws, clips, etc.) removed for clarity.

[0015]

Figure 3 shows a cross-sectional view of one embodiment of the end hook of the present invention taken along the longitudinal axis of the blade.

[0016]

FIG. 4 is a side view of the tape measure shown in FIG. 1 in a state where the blade is extended.

[0017]

5A-5D are cross-sectional views of various embodiments of blades suitable for use in the present invention.

[0018]

Figure 6 shows the jig for the blade extension test.

[0019]

detailed description

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[0020]

FIG. 1 shows a tape measure, generally designated 10, constructed in accordance with the present invention.

The tape measure 10 includes a rollable measuring blade 40 and a housing 20 attached thereto.

An end hook 70 is secured to the distal end of the blade 40.

A blade biasing member, such as a retraction spring (not shown), is operably connected to the blade 40 to bias the blade in the retracted direction.

A locking mechanism is provided that includes a toggle switch 16 or similar detent to assist in controlling movement of the blade 40 into and out of the housing 20.

One or both sides of the housing 20 may include clips 18 if desired.

[0021]

The housing 20 generally includes a main housing or shell 30 and a gripping member 36 mounted on the shell 30.

As shown in Figures 1 and 2, the housing 20 preferably has an approximately square profile with rounded upper rear corners, and it may have a slightly protruding nose.

The housing 20 includes a pair of opposing side walls 32, an interconnected peripheral wall 34 that helps to form an inner chamber for receiving the wrapped portion of the blade 40, suitable blade biasing members and a partial locking mechanism .

As shown in the figures, the peripheral wall 34, and thus the shell 30, can be considered to have an upper portion 22, a lower portion 24, a front portion 26, and a rear portion 28.

The housing 20 includes an opening 27 generally located at the lower front corner of the housing where the housing 20 is connected to the inner chamber.

The distal end of the blade 40 extends through this opening 27.

The housing 20 is preferably sized to fit in the user's hand, and can also be conveniently stored in a work belt or tool box.

[0022]

As shown in FIG. 2, the housing 30 may be constructed in two parts: a right-hand portion 30a and a left-hand portion 30b, which are joined together using suitable screws 38, as is known in the art.

If desired, the outer structure of the housing parts 30a, 30b and the gripping member part 36 may advantageously be symmetrical, but this is not required.

In fact, the two parts 30a, 30b may have different internal and external configurations, depending on the inner workings of the tape measure 10, as is known in the art.

However, since the present invention is primarily concerned with blade 40 and hook 70, the details of the external structure of housing 30 are not critical to understanding the present invention.

Information regarding possible external configurations of housing 20 can be found in US Patent Application Publication No. 2003/0,233,762, the contents of which are incorporated herein by reference.

Note also US Patent Nos. 4,527,334, 4,976,048, 6,349,482, and 6,718,649, the contents of all of which are incorporated herein by reference, for further discussion of the general structural design and operation of the self-retracting tape measure 10.

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[0023]

209 The blade 40 is designed to be selectively deployable from the housing 20 and locked against the retraction force by the locking member 16.

211 The blade 40 is generally made of steel; when deployed from the housing 20, the blade has a generally curvilinear cross-section; and when the blade is retracted into the housing 20, it has a generally flat profile.

213 The upper side 42 of the blade usually has printing or other length markings, but the lower side 44 is usually unmarked.

215 The blade 40 is typically also coated with a protective coating, which may be, for example, the coating discussed in US Patent Application No. 10/268,432 entitled "Coated Tape Measure Blade," which is referred to herein as By way of reference, the content of the above application is included.

218 The blade 40 may be considered to have a distal end portion 52, a desired hook region 54 and an inner end portion 56 disposed along the longitudinal axis 46.

220 When the blade 40 is deployed from the housing 20, the distal end portion 52 (and the hook 70 secured thereto) extends first, followed by the intended hooking area 54, and then the inner end portion 56.

222 Typically the blade 40 has an equal cross-sectional thickness Tu at least at the distal end 52 and the inner end 56.

224 If applicable, the entire blade has a uniform cross-sectional thickness, however, the blade may have different thicknesses within the intended hooking area 54.

226 Anticipated hook area 54 includes location B, which corresponds to the point of hook expected when the blade is subjected to extension testing, assuming a uniform cross-sectional thickness throughout the blade.

228 The location of point B can be deduced from theory or experience.

229 The desired hook point B and the distal end of the blade 40 are separated by L, a length of L between 8 and 10.5 feet being beneficial.

[0024]

234 The blade 40 may have a uniform thickness Tu in its cross-section and along its entire length, and the entire cross-section of the blade may be constructed of the same material composition.

236 As shown in FIG. 5A, the blade 40 may alternatively have different thicknesses throughout its cross-section (at least at the area where hooking is intended), and/or the blade 40 may have different thicknesses along its length, and/or by Composed of different material compositions.

239 For example, the blade 40 may have a smaller thickness at its distal end 52, with a larger and uniform thickness TR in the longitudinal region where it is intended to hook.

241 In other embodiments, the blade 40 may have longitudinally integral reinforcing members 60 distributed across its cross-section.

243 For example, the thickness of the outer portion in the width direction of the blade cross section may be TR, which is greater than the thickness Tu in the middle of the blade side cross section (see FIG. 5B).

245 Alternatively, the outside of the cross-sectional width of the blade may have built-in longitudinal reinforcements 60, such as longitudinally disposed carbon or aramid fibers 64 or the like (see Figure 5C).

247 Additionally, the longitudinal reinforcement 60 may take the form of a carbon or aramid fiber mesh material

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embedded within the blade main material.

249 It should be pointed out that the above-mentioned changes in the geometry and composition of the blade are used to increase the hooking resistance of the blade to increase the extension of the blade.

251 Such reinforcement should be present at least within the intended hook region 54 of the blade 40, however, the reinforcement may optionally extend from the intended hook region 54 through the inner end 56 of the blade 40 (eg, the blade is attached to the back). position on the retracting spring).

254 In other embodiments, a thicker coating is provided in the intended hooking region 54 of the blade 40, and/or reinforcement on the blade 40 is secured (eg, riveted, bonded, or otherwise secured). Plate 62 (see Figure 5D).

257 Although the stiffener 62 is shown adjacent to the upper side 42 in FIG. 5D , the stiffener may alternatively be adjacent to the lower side 44 or, if desired, a stiffener may be provided on each side 42, 44 of the blade 40 62.

[0025]

262 An end hook 70 is secured to the distal end 52 of the blade 40.

263 The end hooks 70 generally serve the dual purpose of providing hooking or securing of the blade 40 to a remote point and also preventing the blade 40 from being retracted back into the housing.

265 The hook 70 includes a first portion 72 disposed generally parallel to the longitudinal axis 46 of the blade 40 and a second portion 76 having a suitable curved joint 78 therebetween. The portion 76 is disposed generally perpendicular to the longitudinal axis 46 of the blade 40.

268 The first portion 72 is sometimes referred to in the art as the tongue portion and the second portion 76 is referred to as the hook tip.

270 Advantageously, the hook first portion 72 may have a curved shape corresponding to the concave curve of the blade cross-section when the blade is unfolded.

272 Advantageously, the first portion 72 may also include one or more (eg, four) holes 74 for securing the hooks 70 to the upper side 42 of the blade 40 with the holes 74 by means of suitable attachment means, such as rivets or the like superior.

275 The dimensions of these holes 74 can be slightly larger than the dimensions of the corresponding connecting members so that the hook 70 can be moved relative to the blade 40 by an amount of movement X, so that it is beneficial that the amount of movement X can be the thickness of the second part 76 of the hook , so that the tape measure can be used for external or internal measurements.

279 Additionally, as described in US Pat. No. 5,659,970, the location of the holes 74 may be determined so that the retraction stop load is properly distributed.

281 The contents of the aforementioned US patent applications are incorporated herein by reference.

282 The second portion 76 of the hook may include a suitable central hole (not shown), generally an oval hole, to accommodate the exposed head of the nail so that the tape measure 10 can be rotated around the nail.

284 Additionally, if desired, the second portion 76 may include one or more magnets (not shown) to magnetically secure the hook 70 to the surface measurement or test point.

[0026]

289 For reasons of required strength and durability, in the prior art, steel is used for the hook of the tape measure.

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For example, a good-quality tape measure needs to have hooks that can withstand repeated retracting motions of the blade (eg, retracting times ⩾ 2,000 times).

Although mild steel (ie, Type 1050) is suitable for this application, steel is a relatively heavy material, and the inventors of the present invention have found that the added weight of the steel end hook at the end of the tape measure has a negative effect on the extension of the blade 40. Negative Effects.

In particular, if the weight of the hook 70 is reduced, the extension of the blade can be increased.

However, simply reducing the size of the hook 70 can adversely affect the strength, durability, and utility of the hook 70, especially after repeated retraction of the blade 40.

Accordingly, preferred embodiments of the present invention utilize hooks 70 having a weight factor of no more than about 0.60, the term "weight factor" as used herein to refer to the weight ratio of a hook 70 to a steel hook of the same size.

For example, to maintain the desired durability, some embodiments of the present invention having a blade 40 approximately one inch wide have hooks 70 made of titanium or titanium alloys having a weight of 2.27 grams force, A steel hook of the same size has a weight of 4.08 grams force, resulting in a weight factor of 0.556.

This reduces the weight of the hook 70 at one end of the blade 40 by approximately half while maintaining the desired size and durability.

Examples of alternative materials for the hook 70 include aluminum and aluminum alloys machined using a stamping or casting process.

[0027]

The tape measure 10 of the present invention is constructed to have improved reach.

One way to measure extension is to extend the blade 40 from the housing 20 until the blade hangs under its own gravity (this is generally referred to in the present invention as "bending" or "bending"). .

Using a standard jig makes it easy to compare the construction of different tape measures.

Figure 6 shows an example of a clamp 90 that may be used.

The clamp 90 includes a 4 inch high support bracket 92 having an upper edge with a radius of 1/2 inch.

The support bracket 92 may include two pivot pins 94 (eg, 1/8 inch pivot pins) or other components that prevent the blade 40 from sliding sideways.

A 1 inch diameter horizontal pin 96 is positioned 6 inches back from the center of the bracket 92 to allow a 7/32 inch clearance between the horizontal pin 96 and the bottom flange 98.

The tape measure 10 is placed behind the horizontal pin 96 and the blade 40 is drawn out from above the support bracket 92.

The blade 40 is slowly stretched until a bend occurs.

In the presence of the hook 70, the distance from the centerline of the support bracket 92 to the hook 70 (more precisely the distal face of the second portion 76) is the value of the extension.

In most embodiments, the tape measure 10 according to the present invention with a blade 40 having a width of about 1 inch has an extension of at least 9 1/2 feet.

[0028]

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To show that the extension can be increased by using hooks 70 with a weight factor of 0.60 or less, we conducted experiments.

Two existing products with steel end hooks were measured using the test method outlined above.

In the test, the rivets holding the steel hook 70 to the blade 40 were removed to loosen the steel hook.

Steel hooks and rivets were then fastened to one end of the blade 40 using scotch tape, and each of the above-described samples of this configuration was measured three times using the jig 90 described above.

The steel hooks 70 are removed, and titanium hooks 70 of the same form factor are attached to one end of the same blade 40 (along with the rivets) using scotch tape.

The protrusion of each sample was then measured three times using the jig 90 described above.

The steel hook weighs 0.0084 pounds and the titanium hook 70 weighs 0.0046 pounds.

Thus, with all other variables being equal, this test compares the results of extension using hooks of different weight coefficients, and the results of these tests are shown in Table 1 below.

[0029]

Table 1 - Extension Results (Inches)

[0030]

These test results show that the use of hooks with a weight factor of less than 0.60 increases reach.

For the Lufkin(R) 2125 blade, the extension increased by about 3.6 inches on average.

For the Lufkin(R) PS3425 blade, the extension increased by about 2.9 inches on average.

[0031]

We did another set of experiments with a Max Steel(R) tape measure available from Stanley Works of New Britain, Connecticut.

This tape measure uses a 1-inch wide blade and can measure up to 25 feet in length.

This set of tests was tested in a manner similar to the tests given above, with a steel hook weighing 0.0086 lbs and a titanium hook 70 weighing 0.0051 lbs.

Thus, with all other variables being equal, the experiment compared the results of extension using hooks of different weight coefficients.

The test results are shown in Table 2.

[0032]

Table 2 - Projection Results (Inches)

[0033]

These test results show that the use of hooks with a weight factor of less than 0.60 increases reach.

For the Max Steel(R) blade, the extension increased by about 8.7 inches on average.

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[0034]

377 Although the test results given above have a reach of less than 9 1/2 feet, those skilled in the art should be able to adjust the thickness of the blade, the profile of the blade, and/or other characteristics to increase the degree of projection to the desired level length.

380 For additional information in this regard, attention is drawn to US Patent No. 6,324,769, the contents of which are incorporated herein by reference.

[0035]

385 It should be understood that the tape measure 10 of the present invention may also include other features, for example, it may include a shock absorbing bumper adjacent the opening 27, a specially coated blade, various locking mechanisms, hook reinforcement plates, and the like.

388 These are known in the art.

[0036]

392 The present invention may, of course, be carried out in other ways than those set forth herein without departing from essential characteristics of the invention.

394 Therefore, the present embodiments are to be regarded in all respects as illustrative rather than restrictive.

395 All modifications within the meaning and equivalency of the following claims are intended to be embraced therein.

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CLAIMS CN1922462A

1.

13A tape measure comprising:

14a main housing having first and second side walls and a perimeter wall extending between the side walls;

15an elastic blade selectively deployable from the housing; having a generally curvilinear cross-section when the blade is deployed from the main housing, and having a generally curvilinear cross-section when the blade is retracted When inside the main housing, it has a generally flat profile;

18a hook fixed to the first end of the blade so that the hook can move a distance along the longitudinal axis of the blade; the hook has a first portion disposed generally parallel to the longitudinal axis, and is attached to the A second portion on and substantially perpendicular to the longitudinal axis, the hook has a weight factor of not greater than about 0.60.

2.

25The tape measure of claim 1, wherein the hook comprises titanium.

3.

293. The tape measure of claim 2, wherein the hook is constructed primarily of titanium.

4.

33The tape measure of claim 1, wherein the hook comprises aluminum.

5.

37The tape measure of claim 1, wherein the blade has a width of no greater than about 1.10inches and has an

extension of at least 9 feet.

6.

42 6. The tape measure of claim 5, wherein the tape measure has an extension of between 9 feet and about 10 feet.

7.

47 The tape measure of claim 1, wherein

48 applying a retraction bias on the blade;

49 the hook contains titanium;

50 The blade has a width of no greater than about 1.10 inches and has an extension of at least 9 .

8.

54 The tape measure of claim 1, wherein

55 The blade includes a distal end, an inner end, and a desired hooking area between the distal end and inner end; when the blade is deployed from the main housing, the distal end is said intended hooking area and said inner end are deployed before;

58 The tape measure further includes a stiffener attached to the blade in the intended hooking area, the distal portion and the inner end being free of stiffeners; and

60 Wherein, the expected hook area includes the position where the blade is usually hooked in the extension test without the reinforcement.

9.

65 9. The tape measure of claim 8, wherein the hook comprises titanium.

10.

69 8. The tape measure of claim 8, wherein the blade has a width of no greater than about 1.10 inches and has an extension of at least 9 feet.

11.

74 A tape measure comprising:

75 a main housing having first and second side walls and a perimeter wall extending between the side walls;

76 an elastic blade selectively deployable from the housing; having a generally curvilinear cross-section when the blade is deployed from the main housing, and having a generally curvilinear cross-section when the blade is retracted When inside the main housing, it has a generally flat profile; the blade includes a distal end, an inner end, and an intended hooking area between the distal and inner ends; when the blade is removed from the

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When deployed in the main housing, the distal end portion is deployed before the intended hooking region and the inner end portion;

a hook fixed to the distal end of the blade so that the hook can move a distance along the longitudinal axis of the blade; the hook has a first portion disposed generally parallel to the longitudinal axis, and is attached to the a second portion on and substantially perpendicular to the longitudinal axis;

a reinforcement member different from the blade but attached to the blade in the intended hooking area, the distal end portion and the inner end portion are free of the reinforcement member;

The expected catch area includes the location where the blade would normally catch in a reach test without the stiffener.

12.

12. The tape measure of claim 11, wherein the reinforcement member comprises a metal plate.

13.

12. The tape measure of claim 11, wherein the reinforcement comprises a longitudinally disposed fiber reinforcement.

14.

14. The tape measure of claim 13, wherein the fiber reinforcement comprises a material selected from the group consisting of carbon and aramid.

15.

12. The tape measure of claim 11, wherein the reinforcement is secured within the intended hooking region of the blade by means of adhesive.

16.

12. The tape measure of claim 11, wherein the intended hooking area is located between about 9 to 10.5 feet from the hook.

17.

The tape measure of claim 11, wherein the hook has a weight factor of not greater than about 0.60

18.

12. The tape measure of claim 11, wherein the reinforcement member is secured to the upper side of the blade.

19.

The tape measure of claim 11, wherein

the intended hooking area is located between about 9 to 10.5 feet from the hook;

the hook has a weight factor of not greater than about 0.60; and

The reinforcement includes a metal plate.

20.

The tape measure of claim 11, wherein

the intended hooking area is located between about 9 and 10 feet from the hook;

the reinforcement includes a longitudinally disposed fiber reinforcement comprising a material selected from the group consisting of carbon and aramid; and

The hook has a weight factor of not greater than about 0.60.

21.

A tape measure comprising:

a main housing having first and second side walls and a perimeter wall extending between the side walls;

an elastic blade selectively deployable from the housing; having a generally curvilinear cross-section when the blade is deployed from the main housing, and having a generally curvilinear cross-section when the blade is retracted When placed into the main housing, it has a generally flat profile; the blade includes a longitudinal axis, a distal end, an inner end, and a desired hook area between the distal and inner ends; When the blade is deployed from the housing, the distal end portion is deployed before the intended hooking area and the inner end portion;

a hook fixed to the distal end of the blade so that the hook can move a distance along the longitudinal axis of the blade; the hook has a first portion disposed generally parallel to the longitudinal axis, and is attached to the a second portion on and substantially perpendicular to the longitudinal axis;

the blade has a substantially equal cross-sectional thickness at the inner end and the distal end;

the blade has a non-uniform cross-sectional thickness over the intended hook region, the blade having a thickness away from the longitudinal axis of the blade greater than its thickness adjacent the longitudinal axis;

If the entire blade has a uniform cross-sectional thickness, the expected hook area includes the location where the blade would normally hook in the reach test.

22.

21. The tape measure of claim 21, wherein the intended hooking area is located between about 8 and 10.5 feet from the hook.

23.

The tape measure of claim 21, wherein the hook has a weight factor of not greater than about 0.60.

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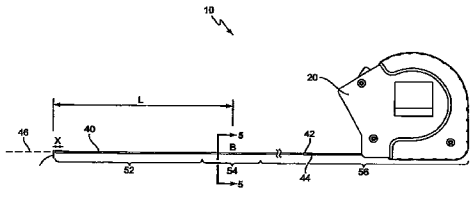
权利要求书 4 页 说明书 11 页 附图 6 页

[54] 发明名称

具有加长伸出度的卷尺

[57] 摘要

本发明涉及一种具有加长伸出度的卷尺，其包括：主壳体，该主壳体具有第一、第二侧壁和在所述侧壁之间延伸的周边壁；可以有选择地从壳体中展开的弹性尺片；当将该尺片从所述主壳体中展开时，其具有大致呈曲线状的横断面，并且当尺片缩回到主壳体内时，其具有大致扁平的外形；所述钩子具有大致与纵向轴平行设置的第一部分，和连接在纵向轴上并大致垂直于纵向轴的第二部分。该钩子具有不大于约 0.60 的重量系数。有益的是尺片的宽度可以不大于约 1.10 英寸，并具有至少为 $9^1/_2$ 英尺的伸出度。



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1.一种卷尺，其包括：

主壳体，该主壳体具有第一、第二侧壁和在所述侧壁之间延伸的周边壁；

可以有选择地从所述壳体中展开的弹性尺片；当将所述尺片从所述主壳体中展开时，其具有大致呈曲线形的横断面，并且当所述尺片缩回到所述主壳体内时，其具有大致扁平的外形；

固定在所述尺片第一端部的钩子，以便所述钩子可以沿所述尺片的纵向轴移动一段距离；所述钩子具有大致与所述纵向轴平行设置的第一部分，和连接在所述纵向轴上并大致垂直于该纵向轴的第二部分，所述钩子具有不大于约 0.60 的重量系数。

2.如权利要求 1 所述的卷尺，其中所述钩子含有钛。

3.如权利要求 2 所述的卷尺，其中所述钩子主要由钛构成。

4.如权利要求 1 所述的卷尺，其中所述钩子含有铝。

5.如权利要求 1 所述的卷尺，其中所述尺片的宽度不大于约 1.10 英寸，并具有至少为 $9^1/_2$ 英尺的伸出度。

6.如权利要求 5 所述的卷尺，其中所述卷尺具有在 $9^1/_2$ 英尺和约 $10^1/_2$ 英尺之间的伸出度。

7.如权利要求 1 所述的卷尺，其中

在所述尺片上施加有回缩偏压；

所述钩子含有钛；

所述尺片的宽度不大于约 1.10 英寸，并具有至少为 $9^1/_2$ 英尺的伸出度。

8.如权利要求 1 所述的卷尺，其中

所述尺片包括远端部、内端部和位于远端部和内端部之间的

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预期勾挂区域；当将所述尺片从所述主壳体内展开时，所述远端部在所述预期勾挂区域和所述内端部之前展开；

该卷尺还包括连接到所述预期勾挂区域内的所述尺片上的加强件，所述远端部和所述内端部没有加强件；并且

其中，所述预期勾挂区域包括在没有所述加强件的伸出度试验中通常勾挂所述尺片的位置。

9.如权利要求 8 所述的卷尺，其中所述钩子含有钛。

10.如权利要求 8 所述的卷尺，其中所述尺片的宽度不大于约 1.10 英寸，并具有至少为 $9^{1}/_{2}$ 英尺的伸出度。

11.一种卷尺，其包括：

主壳体，该主壳体具有第一、第二侧壁和在所述侧壁之间延伸的周边壁；

可以有选择地从所述壳体中展开的弹性尺片；当将所述尺片从所述主壳体中展开时，其具有大致呈曲线状的横断面，并且当所述尺片缩回到所述主壳体内时，其具有大致扁平的外形；所述尺片包括远端部、内端部和位于远端部与内端部之间的预期勾挂区域；当所述尺片从所述主壳体内展开时，所述远端部在所述预期勾挂区域和所述内端部之前展开；

固定在所述尺片远端部的钩子，以便所述钩子可以沿所述尺片的纵向轴移动一段距离；所述钩子具有大致与所述纵向轴平行设置的第一部分，和连接在所述纵向轴上并大致垂直于该纵向轴的第二部分；

不同于所述尺片但却连接到该尺片所述预期勾挂区域内的加强件，所述远端部和所述内端部没有所述加强件；

所述预期勾挂区域包括在没有所述加强件的伸出度试验中通常勾挂所述尺片的位置。

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12.如权利要求 11 所述的卷尺，其中所述加强件包括金属板。

13.如权利要求 11 所述的卷尺，其中所述加强件包括沿纵向设置的纤维加强件。

14.如权利要求 13 所述的卷尺，其中所述纤维加强件包括从碳和芳族聚酸胺构成的一组物质中选出的材料。

15.如权利要求 11 所述的卷尺，其中所述加强件借助粘合剂固定在所述尺片的所述预期勾挂区域内。

16.如权利要求 11 所述的卷尺，其中所述预期勾挂区域位于距离所述钩子约 9 至 10.5 英尺之间的位置。

17.如权利要求 11 所述的卷尺，其中所述钩子具有不大于约 0.60 的重量系数。

18.如权利要求 11 所述的卷尺，其中所述加强件固定在所述尺片的上侧面上。

19.如权利要求 11 所述的卷尺，其中

所述预期勾挂区域位于距离所述钩子约 9 至 10.5 英尺之间的位置；

所述钩子具有不大于约 0.60 的重量系数；并且

所述加强件包括金属板。

20.如权利要求 11 所述的卷尺，其中

所述预期勾挂区域位于距离所述钩子约 9 至 10 英尺之间的位置；

所述加强件包括沿纵向设置的纤维加强件，所述纤维加强件包含从碳和芳族聚酸胺构成的一组物质中选出的材料；并且

所述钩子具有不大于约 0.60 的重量系数。

21.一种卷尺，其包括：

主壳体，该主壳体具有第一、第二侧壁和在所述侧壁之间延

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伸的周边壁；

可以有选择地从所述壳体中展开的弹性尺片；当将所述尺片从所述主壳体中展开时，其具有大致呈曲线状的横断面，并且当所述尺片缩回到所述主壳体内时，其具有大致扁平的外形；所述尺片包括纵向轴、远端部、内端部和位于远端部与内端部之间的预期勾挂区域；当将所述尺片从所述壳体内展开时，远端部在所述预期勾挂区域和所述内端部之前展开；

固定在所述尺片远端部的钩子，以便所述钩子可以沿所述尺片的纵向轴移动一段距离；所述钩子具有大致与所述纵向轴平行设置的第一部分，和连接在所述纵向轴上并大致垂直于该纵向轴的第二部分；

所述尺片在所述内端部和所述远端部具有大体上均等的横截面厚度；

所述尺片在所述预期勾挂区域上具有不均等的横截面厚度，该尺片在远离所述尺片纵向轴之处的厚度大于其临近所述纵向轴之处的厚度；

如果整个所述尺片都具有均等的横截面厚度，则所述预期勾挂区域包括通常在伸出度试验中勾挂所述尺片的位置。

22.根据权利要求 21 所述的卷尺，其中所述预期勾挂区域位于距离所述钩子约 8 至 10.5 英尺之间的位置。

23.根据权利要求 21 所述的卷尺，其中所述钩子具有不大于约 0.60 的重量系数。

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具有加长伸出度的卷尺

本申请要求于2003年12月30日提出的第60/533,093号美国临时申请的权益。

技术领域

总的来说，本发明涉及卷尺，更具体地讲本发明涉及一种自动回缩卷尺。

背景技术

现代的卷尺(或带状刻度尺)通常包括卷绕的尺带，该尺带由弹簧施加朝向回缩位置的偏压。外壳通常包围并保护尺带和回缩弹簧，并且外壳包括一个开口，尺带的远端通过该开口伸展开去。通常，卷尺外壳包括两个半外壳部分，这两部分由一个或多个螺钉连接在一起。另外，其中一个半外壳通常包括向内突出的整体式支柱，该整体支柱为回缩弹簧的一端提供了支靠点。在装配过程中，将卷轴放置在支柱上，使支柱连接回缩弹簧，然后将外壳的另一个半外壳连接到第一个半外壳上，使缠绕着尺片的卷轴保持在他们之间。在使用过程中，从外壳内将尺片的远端拉出；当放开尺片时，弹簧将尺片拉回到外壳内，从而使尺带返回到回缩位置。缩回的尺片通常缠绕在卷轴上，卷轴本身可转动地支撑在外壳上。

消费者关注的卷尺的一个特性是“尺片伸出度”，尺片伸出度是测量的尺片在弯曲(折叠)之前其可以从外壳中伸出的长度。市场

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上的一般概念是伸出度越长越理想，因为伸出度越长使得尺片跨越的距离就越长，例如可以是建设过程中房屋椽子之间的距离。

虽然人们已经采用过许多种方法来提高伸出度，但是没有一种方法证明是完全令人满意的。因此，仍然需要改进卷尺的设计，尤其需要那些比标准设计提供更长伸出度的卷尺。

发明内容

本发明涉及一种卷尺。在一个实施例中提供一种卷尺，该卷尺包括：主壳体，该主壳体具有第一、第二侧壁和在侧壁之间延伸的周边壁；可以有选择地从壳体中展开的弹性尺片；当将该尺片从主壳体中展开时，其具有大致呈曲线状的横断面，并且当尺片缩回到主壳体内时，其具有大致扁平的外形；固定在尺片第一端部的钩子，以便钩子可以沿尺片的纵向轴移动一段距离；所述钩子具有大致与纵向轴平行设置的第一部分，和连接在纵向轴上并大致垂直于纵向轴的第二部分，钩子具有不大于约 0.60 的重量系数。该钩子可以含有钛，例如其可以主要由钛构成，或者可以选择使该钩子含有铝。尺片的宽度可以不大于约 1.10 英寸，其伸出度至少为 $9^1/_2$ 英尺，例如伸出度可以在 $9^1/_2$ 英尺和约 $10^1/_2$ 英尺之间，这是非常有益的。可以往尺片上施加缩回偏压，这是非常有益的。尺片可以包括远端部、内端部和位于远端部和内端部之间的预期勾挂区域；当将尺片从主壳体内展开时，远端部在预期勾挂区域和内端部之前展开；并且该卷尺组件还可以包括连接到预期勾挂区域内的尺片上的加强件，远端部和内端部没有加强件，预期勾挂区域包括在没有加强件的伸出度试验中通常勾挂尺片的位置。

在另外一个实施例中，本发明提供一种卷尺，该卷尺包括：

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主壳体，该主壳体具有第一、第二侧壁和在侧壁之间延伸的周边壁；可以有选择地从所述壳体中展开的弹性尺片；当将尺片从主壳体中展开时，其具有大致呈曲线状的横断面。并且当尺片缩回到主壳体内时，其具有大致扁平的外形；尺片包括远端部、内端部和位于远端部与内端部之间的预期勾挂区域；当尺片从壳体内展开时，远端部在预期勾挂区域和内端部之前展开；固定在尺片远端部的钩子，以便钩子可以沿尺片的纵向轴移动一段距离；所述钩子具有大致与纵向轴平行设置的第一部分，和连接在纵向轴上并大致垂直于纵向轴的第二部分；不同于预期勾挂区域内尺片但却连接到该尺片的加强件，远端部和内端部没有加强件；预期勾挂区域包括在没有加强件的伸出度试验中通常勾挂尺片的位置。加强件可以包括金属板。加强件可以包括沿纵向设置的纤维加强件，有益的是，纤维加强件包含从碳和芳族聚酸胺构成的一组物质中选出的材料。有益的是，可以借助粘合剂将该加强件固定在尺片的预期勾挂区域内，和/或可以将该加强件固定在尺片的上侧。所述预期勾挂区域可以位于距离钩子约 9 至 10.5 英尺之间的位置。钩子具有不大于约 0.60 的重量系数是非常有益的。

在另外一个实施例中，本发明提供一种卷尺，该卷尺包括：主壳体，该主壳体具有第一、第二侧壁和在侧壁之间延伸的周边壁；可以有选择地从壳体中展开的弹性尺片；当将该尺片从主壳体中展开时，其具有大致呈曲线状的横断面。并且当尺片缩回到主壳体内时，其具有大致扁平的外形；尺片包括纵向轴、远端部、内端部和位于远端部与内端部之间的预期勾挂区域；当将尺片从主壳体内展开时，远端部在预期勾挂区域和内端部之前展开；固定在尺片远端部的钩子，以便钩子可以沿尺片的纵向轴移动一段距离；所述钩子具有大致与纵向轴平行设置的第一部分，和连接

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在纵向轴上并大致垂直于纵向轴的第二部分；尺片在内端部和远端部上具有大体上均等的横截面厚度；在预期勾挂区域上具有不均等的横截面厚度，其在远离尺片纵向轴之处的厚度大于其在临近纵向轴之处的厚度；如果整个尺片都具有均等的横截面厚度的话，则预期勾挂区域包括通常在伸出度试验中勾挂尺片的位置。有益的是，所述预期勾挂区域可以位于距离钩子约 8 至 10.5 英尺之间的位置。钩子具有不大于约 0.60 的重量系数是非常有益的。

附图说明

图 1 为根据本发明所述构制的一个卷尺的实施例的侧视图。

图 2 为根据本发明所述的卷尺外壳的一个实施例的立体图，为清楚起见，在该立体图中去除了一些部件(例如螺钉、夹子等)。

图 3 示出的是本发明所述端钩的一个实施例沿尺片纵向轴的截面图。

图 4 为图 1 示出的卷尺在尺片伸出状态下的侧视图。

图 5A~5D 为适用于本发明的尺片的多个实施例的截面图。

图 6 示出了尺片伸出度试验的夹具。

具体实施方式

图 1 示出了根据本发明构制的一种卷尺，该卷尺总体用 10 表示。卷尺 10 包括可卷绕的测量尺片 40 和与之相连的外壳 20。端钩 70 固定在尺片 40 的远端。诸如回缩弹簧(未示出)这样的尺片偏压部件可操作地连接在尺片 40 上，以使尺片偏向回缩方向。锁定机构，该锁定机构设有包括拨动开关 16 或类似制动部件，以辅助控制尺片 40 进入和离开外壳 20 的运动。如果需要，外壳 20 的一侧或两侧可以包括夹子 18。

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外壳 20 通常包括主壳体或壳 30 和安装在壳 30 上的抓握部件 36。如图 1 和图 2 所示，外壳 20 优选地具有近似方形的外形，带有圆形的上后角部，并且其可以有略微突出的鼻形部。外壳 20 包括：一对相对的侧壁 32，互相连接的周边壁 34，所述周边壁 34 有助于形成容纳尺片 40 缠绕部分的内腔室，适当的尺片偏压部件和部分锁定机构。如附图所示，可以认为周边壁 34，进而壳 30 具有上部 22、下部 24、前部 26 和后部 28。外壳 20 包括开口 27，该开口 27 通常位于外壳 20 与内腔室连接的外壳的下前角部。尺片 40 的远端穿过这个开口 27 伸展开去。优选地将外壳 20 的尺寸制成使其适合使用者的手，并且也可以方便地储存在工作腰带或工具箱内。

如图 2 所示，可以将壳 30 构造成两部分：右手侧部分 30a 和左手侧部分 30b，如同本领域已知的那样，采用合适的螺钉 38 将这两部分连接在一起。如果需要，壳体两部分 30a、30b 和抓握部件部分 36 的外部结构有益地可以是对称的，但这不是必需的。实际上，如同本领域已知的那样，上述两部分 30a、30b 可以具有不同的内部和外部结构，这取决于卷尺 10 的内部工作。但是，由于本发明主要涉及尺片 40 和钩子 70，所以壳 30 外部结构的细节对理解本发明而言并不重要。可以在公开号为 2003/0,233,762 的美国专利申请中找到关于壳体 20 可能的外部结构的信息，这里以引用的方式包括上述申请的内容。还要注意第 4,527,334 号、第 4,976,048 号、第 6,349,482 号和第 6,718,649 号美国专利，这里以引用的方式包括上述所有申请的内容，以用于进一步论述自动回缩卷尺 10 的总体结构设计和操作。

将尺片 40 设计成可以有选择地将其从外壳 20 中展开，并可以利用锁定部件 16 克服回缩力将其锁定。尺片 40 通常由钢材制

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成；当从外壳 20 中展开时，尺片具有大致呈曲线的横断面；并且当尺片缩回到外壳 20 内时，其具有大致呈扁平状的外形。尺片的上侧面 42 上通常有印字或者其它长度标记，但是其下侧面 44 通常是没有标记的。通常尺片 40 上通常还涂敷有保护涂层，该保护涂层例如可以是名称为“涂有涂层的卷尺尺片”的第 10/268,432 号美国专利申请中论述的涂层，这里以引用的方式包括上述申请的内容。可以认为尺片 40 具有沿纵向轴 46 设置的远端部 52、预期勾挂区域 54 和内端部 56。当尺片 40 从外壳 20 中展开时，远端部 52(和固定在其上的钩子 70)首先伸出，接着是预期勾挂区域 54，然后是内端部 56。通常尺片 40 至少在远端部 52 和内端部 56 上具有均等的横截面厚度 T_u。如果可以的话，整个尺片都具有均等的横截面厚度，但是，尺片在预期勾挂区域 54 内可以具有不同的厚度。预期勾挂区域 54 包括位置 B，在假定整个尺片具有均等的横截面厚度的基础上，该位置 B 对应于在对尺片进行伸出度试验时预期的勾挂点。可以根据理论或经验推出点 B 的位置。该预期勾挂点 B 和尺片 40 的远端相距 L，L 的长度在 8 至 10.5 英尺之间非常有益。

尺片 40 可以在其横截面和沿整个长度都具有均等的厚度 T_u，并且尺片的整个横截面可以由相同的材料成分构成。如图 5A 所示，作为替代方式，尺片 40 的整个横截面可以具有不同的厚度(至少在预期勾挂区域处)，和/或尺片 40 沿其长度具有不同的厚度，和/或由不同的材料成分构成。例如，尺片 40 在其远端部 52 上的厚度可以较小，在预定勾挂的纵向区域具有较大而均等的厚度 T_R。在其它的实施例中，尺片 40 可以具有分布在其横截面上的纵向一体加强部件 60。例如，尺片横截面宽度方向的外部的厚度可以为 T_R，该厚度大于尺片侧横截面中部的厚度 T_u(见图 5B)。作为替代

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方式，尺片横截面宽度方向的外部可以有内置式纵向加强件 60，例如可以为沿纵向设置的碳或芳族聚酸胺纤维 64 或类似这样的部件(见图 5C)。此外，纵向加强件 60 可以采取嵌入尺片主材料内的碳或芳族聚酸胺纤维网状材料的形式。应当指出：上述尺片几何形状和成分的变化是用来增大尺片的勾挂阻力，以增加尺片的伸出度。至少尺片 40 的预期勾挂区域 54 内应当有这样的加强部件，但是，可以选择地使加强部件从预期勾挂区域 54 延伸穿过尺片 40 的内端部 56(例如尺片连接到回缩弹簧上的位置)。在另外的实施例中，在尺片 40 的预期勾挂区域 54 内设有一层较厚的涂层，和/或固定(例如铆接、粘接、或其它的固着方式)尺片 40 上的加强板 62(见图 5D)。虽然在图 5D 中示出的加强板 62 临近上侧 42，但是作为替代方式，加强板可以临近下侧 44，或者如果需要，可以在尺片 40 的每一侧 42、44 上都设置加强板 62。

端钩 70 固定在尺片 40 的远端部 52 上。端钩 70 通常起到下述双重作用：即提供将尺片 40 勾挂或固定到远方的一个点上的作用，还有防止尺片 40 再缩回到外壳内的作用。钩子 70 包括第一部分 72 和第二部分 76，第一部分 72 和第二部分 76 之间有合适的弯曲接头 78，所述第一部分 72 大致与尺片 40 的纵向轴 46 平行设置，所述第二部分 76 大致垂直于尺片 40 的纵向轴 46 设置。在本领域有时候把第一部分 72 称为钩舌部，而把第二部分 76 称为钩梢部。钩子第一部分 72 可以具有当与尺片分展开时尺片横截面的内凹曲线相应的曲线形状，这是非常有益的。有益的是，第一部分 72 还可以包括一个或多个(例如四个)孔 74，以借助适当的连接部件，例如铆钉或者类似部件，利用孔 74 将钩子 70 固定在尺片 40 的上侧 42 上。上述这些孔 74 的尺寸可以略大于相应连接部件的尺寸，以便可以使钩子 70 相对于尺片 40 移动长为 X 的移动量，

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以便有益于所述移动量 X 可以为钩子第二部分 76 的厚度，从而使该卷尺可供外部测量或内部测量之用。另外，如美国第 5,659,970 号专利所述，可以确定孔 74 的位置，以便使缩回停止荷载适当分布。这里以引用的方式包括上述美国专利申请的内容。钩子的第二部分 76 可以包括合适的中心孔(未示出)，该中心孔通常为椭圆形的孔，以容纳钉子外露的头部以使得卷尺 10 可以绕钉子转动。另外，如果需要，第二部分 76 可以包括一个或者多个磁体(未示出)，以借助磁力将钩子 70 固定在表面测量点或测试点上。

出于所需强度和耐用性的原因，在现有技术中，采用钢材做卷尺的钩子。例如质量好的卷尺需要有能够经得起尺片反复回缩运动的钩子(例如回缩次数≥2,000 次)。虽然低碳钢(即 1050 型)适于这种应用场合，但是钢材是相当重的材料，本发明的发明人发现：卷尺端部的钢制端钩增加重量对尺片 40 的伸出产生了不利影响。特别地，如果减轻钩子 70 的重量，则能够增大尺片的伸出度。但是，仅仅减小钩子 70 的尺寸会对钩子 70 的强度、耐用性和实用性产生不利影响，特别是在尺片 40 反复多次回缩之后。因此，本发明的优选实施例利用重量系数不超过约 0.60 的钩子 70，这里使用的术语“重量系数”指钩子 70 与尺寸相同的钢制钩子的重量比。例如，为保持所需的耐用性，具有约 1 英寸宽尺片 40 的本发明的一些实施例具有由钛或钛合金制成的钩子 70，该钛制的钩子 70 具有 2.27 克力的重量，而大小相同的钢制钩子具有 4.08 克力的重量，结果产生 0.556 的重量系数。这样就在保持理想尺寸和耐用性的同时，使尺片 40 一端的钩子 70 重量的减少近一半。钩子 70 的替代材料的例子包括采用冲压或浇铸工艺加工的铝和铝合金。

本发明卷尺 10 的结构使其具有改进的伸出度。测量伸出度的

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一种方法是：使尺片 40 从外壳 20 中伸展开来，直至尺片在其自身的重力作用下垂下(本发明一般将此称为“弯曲”或“弯折”)。使用标准的夹具便于比较不同卷尺的结构。图 6 示出了可以使用的一种夹具 90 的一个样例。夹具 90 包括 4 英寸高的支撑支架 92，该支撑支架具有半径为 $^{1}/_{2}$ 英寸的上边缘。支撑支架 92 可以包括两个防止尺片 40 向侧面滑动的转动销 94(例如 $^{1}/_{8}$ 英寸的转动销)或其它部件。直径为 1 英寸的水平销 96 设置在距离支架 92 的中心向后 6 英寸的地方，以便在水平销 96 和底面凸缘 98 之间留有 7/32 英寸的间隙。卷尺 10 放置在水平销 96 的后面，从支撑支架 92 上方放出尺片 40。尺片 40 缓慢地伸展直至产生弯折。在出现了钩子 70 的情况下，从支撑支架 92 的中心线到钩子 70(更准确地说是第二部分 76 的远端面)的距离，就是伸出度的数值。在大多数实施例中，根据本发明所述的卷尺 10 在具有宽度约为 1 英寸的尺片 40 的情况下，其伸出度至少为 $9^{1}/_{2}$ 英尺。

为表明采用重量系数为 0.60 或更小的钩子 70 可以增大伸出度，我们进行了试验。利用上面略述的试验方式测量了两种带有钢制端钩的已有产品。在试验中，去除了将钢制钩子 70 固定在尺片 40 上的铆钉，以松开钢制钩子。然后利用透明胶带将钢制钩子和铆钉固定在尺片 40 的一端，并利用上述夹具 90 测量三次每个上述这种结构的样品的伸出度。去掉钢制钩子 70，然后利用透明胶带将相同形状系数的钛制钩子 70 固定在同一尺片 40 的一端上(和铆钉一起)。然后利用上述夹具 90 测量三次每个样品的伸出度。钢制钩子的重量为 0.0084 磅，钛制钩子 70 的重量为 0.0046 磅。从而，在其它所有变量都相同的情况下，该试验利用不同重量系数的钩子比较了伸出度的结果，下面的表 1 示出了这些试验结果。

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表 1—伸出度结果(英寸)

	Lufkin® 2125 卷尺			Lufkin® PS3425 卷尺		
样品	钢制钩子	钛制钩子		样品	钢制钩子	钛制钩子
1A	82.0	84.0		6A	82.5	87.5
1B	81.5	84.0		6B	82.0	86.5
1C	81.5	84.5		6C	82.5	87.0
2A	76.0	82.0		7A	85.0	87.5
2B	76.0	82.0		7B	84.5	87.5
2C	76.0	82.0		7C	87.0	87.0
3A	75.5	80.5		8A	85.0	85.0
3B	75.0	81.0		8B	85.0	87.0
3C	75.5	81.0		8C	85.0	86.5
4A	82.0	83.5		9A	84.5	87.0
4B	82.0	85.0		9B	84.5	86.0
4C	82.0	83.0		9C	84.5	86.5
5A	83.0	84.0		10A	82.5	85.5
5B	82.0	85.0		10B	82.5	87.0
5C	83.0	85.0		10C	82.5	87.0
平均值	79.5	83.1		平均值	83.8	86.7

这些试验结果表明使用重量系数小于 0.60 的钩子增大了伸出度。对于 Lufkin® 2125 的尺片而言，其伸出度平均增大了约 3.6 英寸。对于 Lufkin® PS3425 的尺片而言，其伸出度平均增大了约 2.9 英寸。

我们用 Max Steel®卷尺做了另外一组试验，可以从康涅狄格州的 Stanley Works of New Britain 厂获取 Max Steel®卷尺。这种卷尺采用了宽度为 1 英寸的尺片，其测量长度可达到 25 英尺。这组试验的试验方式类似于上面给出的试验的方式，钢制钩子的重量为 0.0086 磅，钛制钩子 70 的重量为 0.0051 磅。这样，在所有其

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它变量都相同的情况下，所述试验利用不同重量系数的钩子比较了伸出度的结果。该试验结果在表 2 中示出。

表 2—伸出度结果(英寸)

	Max Steel®卷尺	
样品	钢制钩子	钛制钩子
1A	90.0	102.0
1B	90.5	104.0
1C	90.5	104.5
2A	99.0	103.0
2B	99.0	103.0
2C	99.0	104.0
平均值	94.7	103.4

这些试验结果表明使用重量系数小于 0.60 的钩子增大了伸出度。对于 Max Steel®尺片而言，伸出度平均增大了约 8.7 英寸。

虽然上面给出的试验结果具有小于 $9^1/_2$ 英尺的伸出度，但是本领域技术人员应该能够调整尺片的厚度、尺片的外形、和/或其它特性来将伸出度增大到理想的长度。关于这方面的其它信息，可以注意第 6,324,769 号美国专利，这里以引用的方式包括上述申请的内容。

应当理解本发明的卷尺 10 还可以包括其它的特征，例如其可以包括临近开口 27 的减震缓冲器、专门涂敷的尺片、各种锁定机构、钩子加强板和类似部件。这些在本领域都是已知的。

当然，在不脱离本发明实质特点的情况下，可以采用除这里阐述的那些方式之外的其它方式来实施本发明。因此，从各个方面来说，都应当把目前的这些实施例看作是说明性的，而非限制性的。在其后权利要求意义范围和等同范围内的所有变换形式都包含于此范围内。

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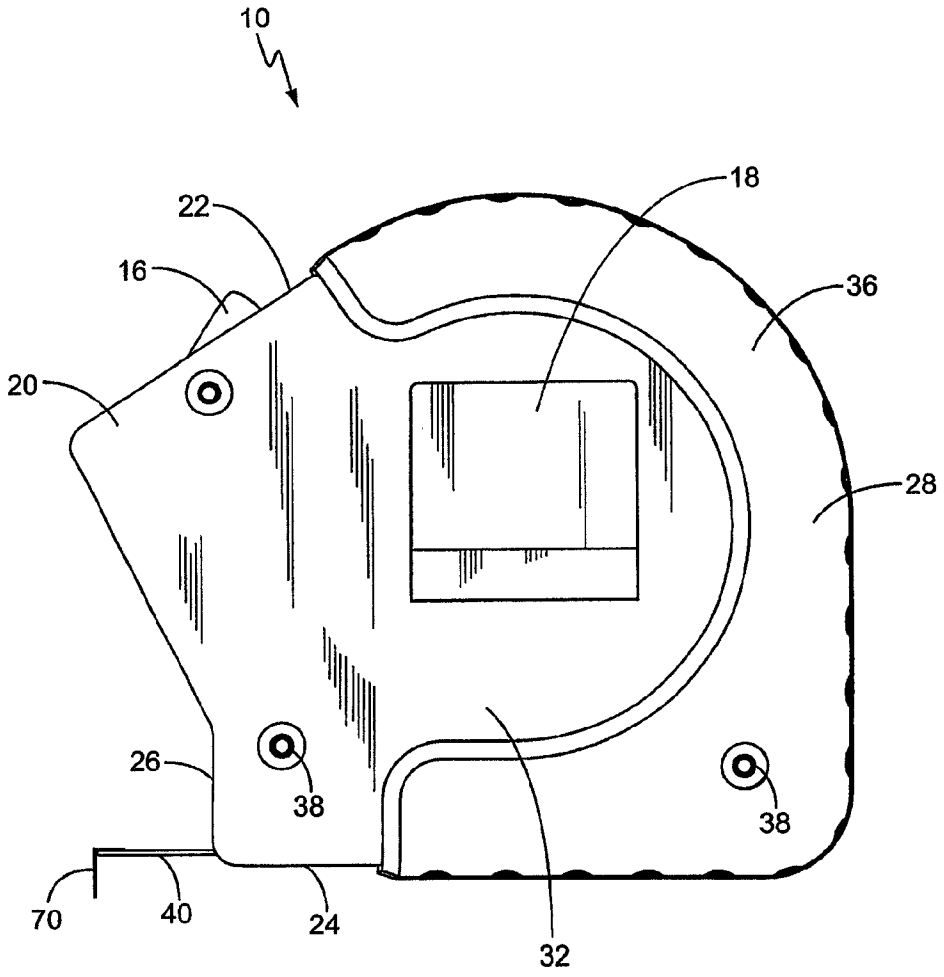


图 1

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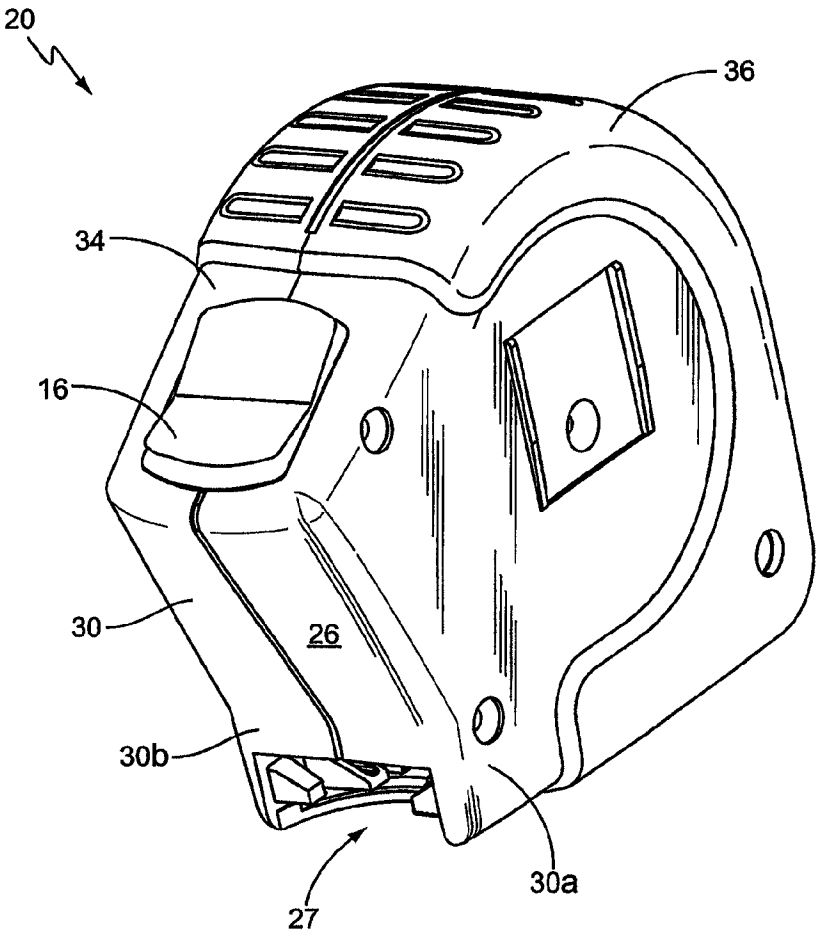


图 2

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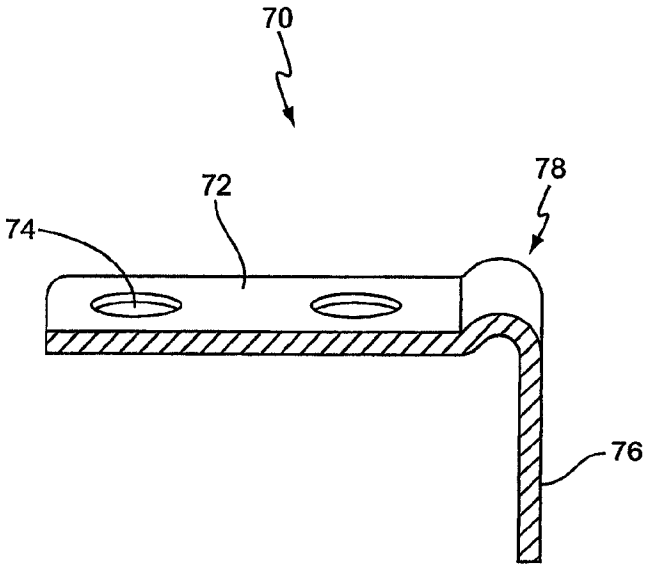


图 3

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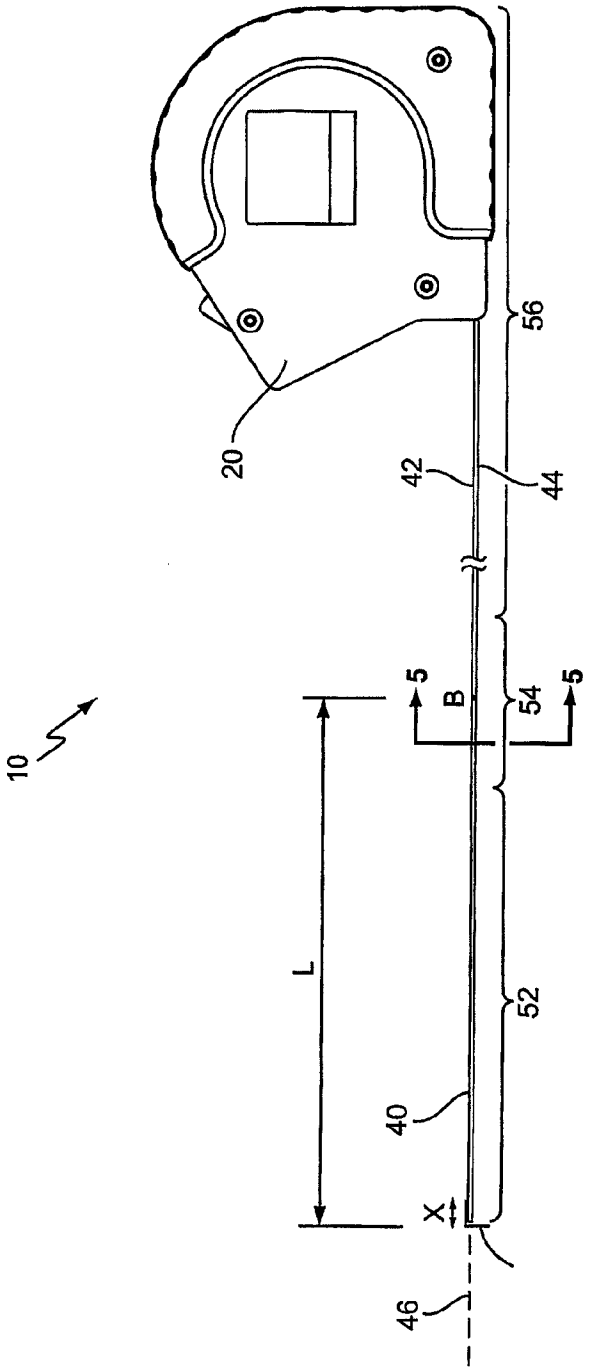


图 4

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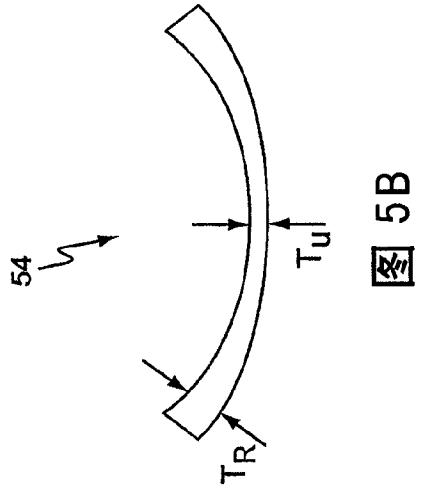


图 5B

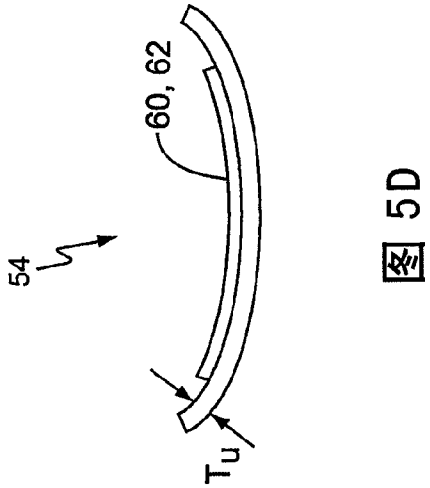


图 5D

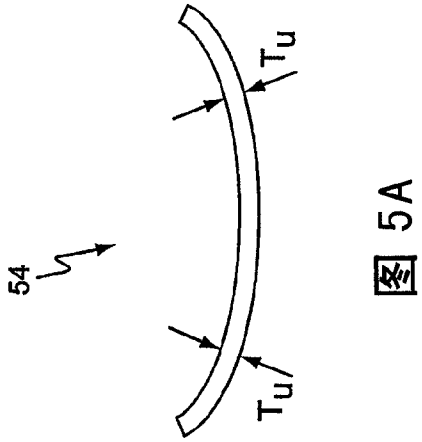


图 5A

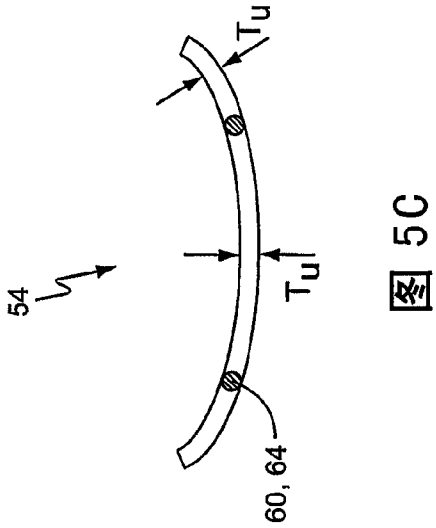


图 5C

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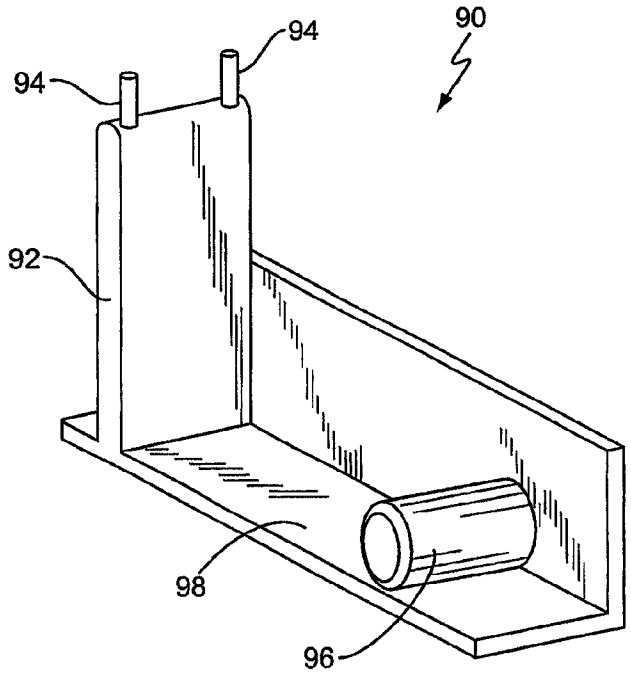


图 6

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Electronic Acknowledgement Receipt

EFS ID:	45456190
Application Number:	17328388
International Application Number:	
Confirmation Number:	6253
Title of Invention:	Tape Measure with Tape Blade Profile Increasing Tape Standout
First Named Inventor/Applicant Name:	Jonathan F. Vitas
Customer Number:	142078
Filer:	James D. Borchardt/Andrea Dietzel
Filer Authorized By:	James D. Borchardt
Attorney Docket Number:	066749-2558
Receipt Date:	12-APR-2022
Filing Date:	24-MAY-2021
Time Stamp:	16:23:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	066749-2558_Transmittal.pdf	81382 3a85cb15f11bf17ff246eb9c73a3cf1c5941cca2	no	2

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	066749-2558_SB08.pdf	93668 b109e3942b3f5adc48e250d43dca5021962988aa	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Foreign Reference	CN106537080A.pdf	2257930 54b770e449bbfb9bb26db7f4e01aac58b5c483f4	no	61
Warnings:					
Information:					
4	Foreign Reference	CN1922462A.pdf	1060294 3a1c59c83228d2003c571be0e0d4f35ef4231d31	no	37
Warnings:					
Information:					
		Total Files Size (in bytes):	3493274		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Milwaukee Electric Tool Corporation
Title:	Tape Measure with Tape Blade Profile Increasing Tape Standout
Appl. No.:	17/328,388
Filing Date:	May 24, 2021
Examiner:	To Be Determined
Art Unit:	To Be Determined
Confirmation Number:	6253

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Submitted herewith on Form PTO/SB/08 is a listing of the documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR § 1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR § 1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(b)(3), before the mailing date of the first Office action on the merits.

RELEVANCE OF EACH DOCUMENT

The relevance of the foreign-language document(s) is shown in the figures of foreign-language documents, in the accompanying English language search report/office action from a related foreign application, and/or are described in the English-language abstract and/or machine translation submitted herewith, where available. An English non-machine translation of the foreign-language document is not readily available. However, the absence of such translation does not relieve the PTO from its duty to consider the submitted foreign language document (37 CFR §1.98 and MPEP §609).

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

Although Applicant believes that no fee is required for this Request, the Commissioner is hereby authorized to charge any additional fees which may be required for this Request to Deposit Account No. 18-0882.

Respectfully submitted,

Date April 12, 2022

By /James D. Borchardt/

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UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/328,388	05/24/2021	Jonathan F. Vitas	066749-2558	6253

142078 7590 08/24/2022

Reinhart (Milwaukee Tool)
ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE, WI 53202

EXAMINER
GUADALUPE, YARITZA

ART UNIT	PAPER NUMBER
2861	

NOTIFICATION DATE	DELIVERY MODE
08/24/2022	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPAdmin@reinhartlaw.com

Office Action Summary	Application No. 17/328,388	Applicant(s) Vitas et al.	
	Examiner YARITZA GUADALUPE-MCCALL	Art Unit 2861	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on May 24, 2021.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-12 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1,3-4,8-10 and 12 is/are rejected.

8) ☑ Claim(s) 2,5-7 and 11 is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 5/24/21 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date 5/24/21;6/28/21;11/11/21;2/18/22;4/12/22.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Information Disclosure Statement

1. The information disclosure statements (IDS) submitted on May 24, 2021; June 28, 2021; November 11, 2021; February 18, 2022 and April 12, 2022 were filed in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*,

140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP § 2146 *et seq.* for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

3. Claims 1, 3, 4, 8 – 10 and 12 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1 – 5 and 8 - 9 of U.S. Patent No. 11,293,739 to Vitas et al. Although the claims at issue are not identical, they are not patentably distinct from each other because the subject matter claimed in the present application is also recited in the copending claims.

With respect to claim 1, the copending application recites a tape measure comprising: a housing; a tape reel rotatably mounted within the housing; an elongate blade wound around the reel, the elongate blade comprising: an upper surface; a lower surface; an elongate metal core having a first thickness, T1, between 0.12 mm and 0.14 mm; a length between 15 feet and 40 feet; a flat width of 20 mm to 40 mm; a curved profile such that the upper surface of the elongate blade defines a concave surface and the lower surface defines a convex surface; a curved width, wherein the curved width is less than the flat width; and a curved height between 8.5 mm and 9.5 mm; wherein a ratio of the curved width to the flat width is between 0.6 and 0.8; wherein a ratio of curved height to flat width is greater than 0.285; wherein a standout distance of the elongate blade from the housing is greater than 150 inches; and a retraction system coupled to the tape reel, wherein the retraction system drives rewinding of the elongate blade on to the tape reel (See Claim 1 of the US Patent).

Referring to claim 3, the copending application teaches a tape measure wherein the curved profile is located at a location between 5 feet and 15 feet along a length of the elongate blade measured from a hook located at an end of the tape blade (See Claim 3 of the US Patent).

In regards to claim 4, the copending application shows a tape measure wherein the curved profile is located at a location between 6.5 feet and 13 feet along a length of the elongate blade measured from a hook located at an end of the tape blade (See Claim 4 of the US Patent).

Regarding to claim 8, the copending application sets forth a tape measure wherein the standout distance of the elongate blade from the housing is at least 156 inches (See Claim 9 of the US Patent).

With regards to claim 9, the copending application teaches a tape measure wherein, when the elongate blade is at a maximum standout length, the curved profile is located in a section of tape blade that extends 5 feet from the housing toward a hook located at the end of the tape blade (See Claim 2 of the US Patent).

Referring to claim 10, the copending application teaches a tape measure further comprising: an upper polymer coating coupled to an upper surface of the elongate metal core, the upper polymer coating having a second thickness, T2; and a lower polymer coating coupled to a lower surface of the elongate metal core, the lower polymer coating having a third thickness, T3; wherein T1+T2+T3 is between 0.15mm and 0.5 (See Claim 5 of the US Patent).

In regards to claim 12, the copending application teaches a tape measure wherein the retraction system is a spring-based retraction system comprising a spring coupled to the tape reel, wherein, as the elongate blade is unwound from the tape reel to extend from the housing, the spring stores energy and the spring releases energy driving rewinding of the elongate blade on to the tape reel (See Claim 8 of the US Patent).

Allowable Subject Matter

4. Claims 2, 5, 6, 7 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are considered of relevance but fail to teach the combination as claimed:

a. Khangar et al. (US Pub. No. 2022/0042779)

b. Vitas et al. (US Pub No. 2022/0065605)

c. Vitas et al. (US 11,022,416)

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to YARITZA GUADALUPE-MCCALL whose telephone number is (571)272-2244. The examiner can normally be reached Mon -Thu, 8:00am - 6:00pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272 - 2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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YARITZA GUADALUPE-MCCALL
Primary Examiner
Art Unit 2861
August 18, 2022

/YARITZA GUADALUPE-MCCALL/
Primary Examiner, Art Unit 2861

Notice of References Cited	Application/Control No. 17/328,388	Applicant(s)/Patent Under Reexamination Vitas et al.	
	Examiner YARITZA GUADALUPE-MCCALL	Art Unit 2861	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20220252383-A1	08-2022	Khangar; Abhijeet A.	G01B3/1003	1/1
*	B	US-20220146244-A1	05-2022	Khangar; Abhijeet A.	G01B3/1005	1/1
*	C	US-20220065605-A1	03-2022	Vitas; Jonathan F.	G01B3/1003	1/1
*	D	US-20220042779-A1	02-2022	Khangar; Abhijeet A.	G01B3/1041	1/1
*	E	US-11293739-B2	04-2022	Vitas; Jonathan F.	G01B3/1003	1/1
	F					
	G					
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	N					
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	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/328,388	Vitas et al.
	Examiner	Art Unit
	YARITZA GUADALUPE-MCCALL	2861

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/19/2022								
	1	✓								
	2	O								
	3	✓								
	4	✓								
	5	O								
	6	O								
	7	O								
	8	✓								
	9	✓								
	10	✓								
	11	O								
	12	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/328,388	Vitas et al.
	Examiner	Art Unit
	YARITZA GUADALUPE-MCCALL	2861

CPC - Searched*		
Symbol	Date	Examiner
G01B3/1003 OR G01B1/00 OR G01B3/1041 OR G01B2003/103 OR G01B2003/1038	08/19/2022	YGM

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
PE2E Search	08/19/2022	YGM
Inventor Search	08/19/2022	YGM
Text Search	08/19/2022	YGM
CPC Search	08/19/2022	YGM

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

	/YARITZA GUADALUPE-MCCALL/ Primary Examiner, Art Unit 2861

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Ex-1002, Page 209

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Date Submitted: February 18, 2022

(use as many sheets as necessary)

Sheet | 1 | of | 1

Complete if Known	
Application Number	17/328,388
Filing Date	May 24, 2021
First Named Inventor	Jonathan F. Vitas
Art Unit	To be determined
Examiner Name	To be determined
Attorney Docket Number	066749-2558

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A1	10,126,107	11-13-2018	Khangar; Abhijeet A.	
	A2	10,697,747	06-30-2020	Vitas; Jonathan F.	
	A3	2002/0129509	09-19-2002	Evans, John Joseph III	
	A4	2019/0063893	02-28-2019	Vitas; Jonathan F.	
	A5	2019/0316892	10-17-2019	Vitas; Jonathan F.	
	A6	2020/0340792	10-29-2020	Vitas; Jonathan F.	
	A7	2021/0278188	09-09-2021	Vitas; Jonathan F.	

UNPUBLISHED U.S. PATENT APPLICATION DOCUMENTS

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Examiner Signature	/YARITZA GUADALUPE-MCCALL/	Date Considered	08/19/2022

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	17/328,388
				Filing Date	May 24, 2021
Date Submitted: November 11, 2021				**First Named Inventor**	Jonathan F. Vitas
				Art Unit	To be determined
(use as many sheets as necessary)				Examiner Name	To be determined
Sheet	1	of	1	Attorney Docket Number	066749-2558

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A1	10,712,142	07-14-2020	Vitas et al.	
	A2	11,022,416	06-01-2021	Vitas et al.	

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Examiner Initials*	Cite No.[1]	U.S. Patent Application Document Serial Number-Kind Code[2] (*if known*)	Filing Date of Cited Document MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	17/328,388
				Filing Date	May 24, 2021
Date Submitted: June 28, 2021				**First Named Inventor**	Jonathan F. Vitas
				Art Unit	2861
(use as many sheets as necessary)				Examiner Name	To be determined /YARITZA GUADALUPE-MCCALL/
Sheet	1	of	1	Attorney Docket Number	066749-2558

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	17/328,388
Date Submitted: April 12, 2022				**Filing Date**	May 24, 2021
				First Named Inventor	Jonathan F. Vitas
(use as many sheets as necessary)				Art Unit	To be determined
				Examiner Name	To be determined
Sheet	1	of	1	Attorney Docket Number	066749-2558

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	A1	CN106537080A	03-22-2017	BROOKS TODD		
	A2	CN1922462A	02-28-2007	COOPER BRANDS INC		

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Substitute for form 1449/PTO				*Complete if Known*	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	To be determined
				Filing Date	May 24, 2021
Date Submitted: May 24, 2021				**First Named Inventor**	Jonathan F. Vitas
				Art Unit	To be determined
(use as many sheets as necessary)				Examiner Name	To be determined /YARITZA GUADALUPE-MCCALL/
Sheet	1	of	2	Attorney Docket Number	066749-2558

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	A1	4,429,462	02-07-1984	Rutty et al.	
	A2	6,324,769	12-04-2001	Murray	
	A3	7,159,331	01-09-2007	Critelli et al.	
	A4	10,422,617	09-24-2019	Vitas et al.	
	A5	10,697,747	06-30-2020	Vitas et al.	
	A6	2015/0247716	09-03-2015	Craig et al.	

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	A7	Petition for Post Grant Review of United States Patent No. 10,422,617, dated April 10, 2020, 103 pages.	
	A8	Patent Owner's Preliminary Response to Petition for Post Grant Review of United States Patent No. 10,422,617, dated July 15, 2020, 60 pages.	
	A9	Exhibit 2001, "Expert Declaration of Dr. Kimberly Cameron" in PGR 2020-00056, 34 pages.	

Examiner Signature	/YARITZA GUADALUPE-MCCALL/	Date Considered	08/19/2022

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Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	To be determined
Date Submitted: May 24, 2021				**Filing Date**	May 24, 2021
				First Named Inventor	Jonathan F. Vitas
(use as many sheets as necessary)				Art Unit	To be determined
				Examiner Name	To be determined
Sheet	2	of	2	Attorney Docket Number	066749-2558

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]
	A10	Exhibit 2002, "Declaration of Inventor A. Khangar" in PGR 2020-00056, 16 pages.	
	A11	Exhibit 2003, "Milwaukee Wide Blade Tape Measure" in PGR 2020-00056, 4 pages.	
	A12	Exhibit 2004, "CDCA-03-03-cv-00655-60" in PGR 2020-00056, 8 pages.	
	A13	Exhibit 2005, "DMN-0-13-cv-01287-155" in PGR 2020-00056, 44 pages.	
	A14	Exhibit 2006, "Dictionary Definition of Profile" in PGR 2020-00056, 3 pages.	
	A15	Exhibit 2007, "Dictionary Definition of Such That" in PGR 2020-00056, 3 pages.	
	A16	Exhibit 2008, "Patent Office Assignment Record for Gilliam Ex. 1013" in PGR 2020-00056, 2 pages.	
	A17	Exhibit 2009, "Milwaukee Tool Internal Stand Out Issue Analysis May 8, 2017" in PGR 2020-00056, 3 pages.	
	A18	Exhibit 2010, "Dr. Kimberly Cameron CV" in PGR 2020-00056, 5 pages.	
	A19	Exhibit 2011, "Dr. Kimberly Cameron Testifying Experience" in PGR 2020-00056, 2 pages.	
	A20	Exhibit 2012, "Dictionary Definition of Define" in PGR 2020-00056, 3 pages.	

Examiner Signature	/YARITZA GUADALUPE-MCCALL/	Date Considered	08/19/2022

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**.

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /Y.G.M./

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	11	("0000002" OR "10422617" OR "10697747" OR "10712142" OR "11022416" OR "20070079520" OR "20080010847" OR "20150247716" OR "4429462" OR "6324769" OR "7159331").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/01/19 09:55 PM
L2	7024	(G01B3/1003 OR G01B1/00 OR G01B3/1041 OR G01B2003/103 OR G01B2003/1038).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 11:08 AM
L3	206	L2 AND standout	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 11:09 AM
L4	1276	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3 ("CORPORATION"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/01/20 01:45 PM
L5	90	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/01/20 01:49 PM

L6	165	(tape ADJ measure) AND standout	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 01:51 PM
L7	10	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 02:01 PM
L8	33	(Artificial Intelligence) More Like: US-20210278188-A1 Text: (WO-2019040752-A1 OR CN-111033167-A OR WO-2019160867-A1 OR US-20200370873-A1 OR CN-113124725-A OR CN-111758011-A OR US-20190063893-A1 OR TW-201917346-A OR EP-3762679-A1 OR CN-109661556-A OR US-10712142-B2 OR BR-202012023804-Y1 OR US-11199390-B2 OR US-20180195847-A1 OR US-10126107-B2 OR US-7395608-B2 OR CN-111989535-A OR US-20080010847-A1 OR CA-3044195-A1 OR WO-2018048810-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 02:01 PM

		A1).did.					
L9	33	(Artificial Intelligence) More Like: US-20200340792-A1 Text: (WO-2019040752-A1 OR CN-111033167-A OR WO-2019160867-A1 OR US-20200370873-A1 OR CN-113124725-A OR US-20190063893-A1 OR CN-111758011-A OR US-10712142-B2 OR TW-201917346-A OR EP-3762679-A1 OR BR-202012023804-Y1 OR CN-109661556-A OR US-10126107-B2 OR US-20180195847-A1 OR US-7395608-B2 OR CA-3044195-A1 OR US-11199390-B2 OR CN-111989535-A OR WO-2018048810-A1 OR EP-3510347-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 02:07 PM
L10	32	(Artificial Intelligence) More Like: US-10697747-B1 Text: (US-10422617-B1 OR US-20190316892-A1 OR US-20210278188-A1 OR WO-2019040752-A1 OR CN-111033167-A OR US-11022416-B2 OR WO-2019160867-A1 OR US-20200370873-A1 OR US-20200340792-A1 OR EP-3762679-A4 OR TW-201917346-A OR CN-111758011-A OR US-20190063893-A1 OR US-10712142-B2 OR US-10876825-B2 OR US-10132605-B2 OR EP-3510347-A4 OR BR-202012023804-Y1 OR US-20190242686-A1 OR TW-201812242-A).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 02:08 PM
L11	11	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY,	OR	ON	ON	2022/01/20 02:10 PM

		B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L12	4	(tape ADJ measure) AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 04:06 PM
L13	533006	(G01B3/1041 OR G01B1/00 OR G01B3/1003 OR G01B3/1005 OR G01B3/1043 OR G01B3/1046 OR G01B3/1056 OR G01B2003/103 OR G01B3/1084 OR G01B2003/1038 OR G01B2003/1053 OR G01B2003/1058 OR G01B2003/1015 OR G01B3/1048 OR G01B3/1061 OR G01B3/1069 OR G01B2003/1025 OR G01B3/1094 OR G01B3/10 OR G01B2003/1064 OR G01B3/1089 OR G01B3/1092 OR G01B2003/101 OR G01B3/102 OR G01B21/042 OR G01B2003/1074 OR G01B5/012 OR G01B3/1071 OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 04:07 PM

		G01B7/18 OR G01B2003/1087 OR G01B2003/1012 OR G01B2003/1023 OR G01B2003/1051 OR G01B5/0014 OR G01B3/30 OR G01B3/1007 OR G01B3/004 OR G01B3/1004 OR G01B2003/1028 OR G01B2003/1035 OR G01B2003/1076 OR G01B5/0004 OR G01B3/04 OR G01B5/008 OR G01B5/02 OR G01B2003/1017 OR G01B5/016 OR G01B21/04 OR G01B5/025 OR G01B3/11 OR G01B11/02 OR G01B2210/00 OR G01B3/02 OR G01B5/0009 OR G01B11/005 OR G01B2003/1033 OR G01B7/14 OR G01B2003/1079 OR G01B21/02 OR G01B7/003 OR G01B2210/58 OR G01B5/0002 OR G01B5/0016 OR G01B7/02 OR G01B11/16 OR G01B7/30 OR G01B3/566 OR G01B2003/1097 OR G01B3/06 OR G01B5/30 OR G01B3/006 OR G01B5/0007 OR G01B5/12 OR G01B7/026 OR G01B7/16 OR G01B11/24 OR G01B11/026 OR G01B11/18 OR G01B3/20 OR G01B7/012 OR G01B2003/1066 OR G01B3/14 OR G01B3/18 OR G01B5/28 OR G01B3/008 OR G01B5/00 OR					

		G01B5/14 OR G01B3/563 OR G01B5/20 OR G01B9/08 OR G01B11/06 OR G01B21/08 OR G01B3/12 OR G01B3/38 OR G01B11/007 OR G01B11/26 OR G01B15/02 OR G01B3/56 OR G01B11/245 OR G01B11/00 OR G01B3/002 OR G01B11/165 OR G01B17/02 OR G01B5/08 OR G01B5/0025 OR G01B21/32 OR G01B2210/60 OR G01B7/105 OR G01B21/047 OR G01B3/205 OR G01B3/08 OR G01B5/061 OR G01B7/20 OR G01B7/28 OR G01B9/02091 OR G01B5/0035 OR G01B11/0691 OR G01B21/045 OR G01B2210/44 OR G01B3/22 OR G01B7/001 OR G01B7/016 OR G01B21/00 OR G01B3/34 OR G01B3/46 OR G01B5/18 OR G01B11/002 OR G01B21/30 OR G01B2290/65 OR G01B3/00 OR G01B7/22 OR G01B9/0205 OR G01B11/0608 OR G01B3/28 OR G01B17/025 OR G01B21/085 OR G01B5/06 OR G01B7/10 OR G01B21/20 OR G01B2290/00 OR G01B2290/25 OR G01B5/0023 OR G01B11/303 OR G01B3/16 OR					

		G01B7/34 OR G01B11/306 OR G01B3/50 OR G01B5/004 OR G01B5/202 OR G01B7/24 OR G01B21/10 OR G01B7/023 OR G01B7/26 OR G01B11/024 OR G01B11/028 OR G01B11/0616 OR G01B11/08 OR G01B11/12 OR G01B11/168 OR G01B11/2441 OR G01B15/04 OR G01B17/00 OR G01B2210/50 OR G01B2210/66 OR G01B3/166 OR G01B5/26 OR G01B9/02 OR G01B9/02001 OR G01B9/02044 OR G01B9/0209 OR G01B11/162 OR G01B11/30 OR G01B3/36 OR G01B5/245 OR G01B5/255 OR G01B7/046 OR G01B11/2755 OR G01B2210/14 OR G01B2210/16 OR G01B3/26 OR G01B3/32 OR G01B3/42 OR G01B5/066 OR G01B5/207 OR G01B5/242 OR G01B5/25 OR G01B7/06 OR G01B9/02064 OR G01B11/28 OR G01B13/00 OR G01B13/10 OR G01B21/14 OR G01B21/24 OR G01B5/04 OR G01B5/201 OR G01B5/204 OR G01B5/213 OR G01B5/24 OR G01B7/042 OR G01B11/043 OR G01B11/0641 OR G01B11/0675 OR					

		G01B21/06 OR G01B2210/40 OR G01B2210/56 OR G01B3/24 OR G01B3/40 OR G01B5/0021 OR G01B5/10 OR G01B7/008 OR G01B7/044 OR G01B7/15 OR G01B9/02024 OR G01B9/02056 OR G01B9/02072).cpc.					
L14	8	L13 AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 04:08 PM
L15	12	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 04:08 PM
L16	11	("0000002" OR "10422617" OR "10697747" OR "10712142" OR "11022416" OR "20070079520" OR "20080010847" OR "20150247716" OR "4429462" OR "6324769" OR	(US-PGPUB; USPAT)	OR	ON	ON	2022/01/27 07:11 PM

		"7159331").pn.					
L17	7039	(G01B3/1003 OR G01B1/00 OR G01B3/1041 OR G01B2003/103 OR G01B2003/1038).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM
L18	207	L2 AND standout	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM
L19	1277	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3 ("CORPORATION"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/01/27 07:11 PM
L20	91	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/01/27 07:11 PM
L21	165	(tape ADJ measure) AND standout	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO;	OR	ON	ON	2022/01/27 07:11 PM

			JPO; DERWENT; IBM_TDB)				
L22	10	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM
L23	32	(Artificial Intelligence) More Like: US-20210278188-A1 Text: (WO-2019040752-A1 OR CN-111033167-A OR WO-2019160867-A1 OR US-20200370873-A1 OR CN-113124725-A OR CN-111758011-A OR US-20190063893-A1 OR TW-201917346-A OR EP-3762679-A1 OR CN-109661556-A OR US-10712142-B2 OR US-11199390-B2 OR US-20180195847-A1 OR US-10126107-B2 OR US-7395608-B2 OR CN-111989535-A OR US-20080010847-A1 OR CA-3044195-A1 OR WO-2018048810-A1 OR EP-3510347-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM
L24	33	(Artificial Intelligence) More Like: US-20200340792-A1 Text: (WO-2019040752-A1 OR CN-111033167-A OR WO-2019160867-A1 OR US-20200370873-A1 OR CN-113124725-A OR US-20190063893-A1 OR CN-111758011-A OR US-10712142-B2	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA,	OR	ON	ON	2022/01/27 07:11 PM

		OR TW-201917346-A OR EP-3762679-A1 OR BR-202012023804-Y1 OR CN-109661556-A OR US-20180195847-A1 OR US-10126107-B2 OR US-7395608-B2 OR CA-3044195-A1 OR US-11199390-B2 OR CN-111989535-A OR WO-2018048810-A1 OR EP-3510347-A1).did.	VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L25	32	(Artificial Intelligence) More Like: US-10697747-B1 Text: (US-10422617-B1 OR US-20190316892-A1 OR US-20210278188-A1 OR WO-2019040752-A1 OR CN-111033167-A OR US-11022416-B2 OR WO-2019160867-A1 OR US-20200370873-A1 OR US-20200340792-A1 OR EP-3762679-A4 OR TW-201917346-A OR CN-111758011-A OR US-20190063893-A1 OR US-10712142-B2 OR US-10876825-B2 OR US-20200011648-A1 OR US-20180106585-A1 OR US-10132605-B2 OR US-6282808-B1 OR EP-3510347-A4).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM
L26	11	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM
L27	4	(tape ADJ measure)	(US-PGPUB; USPAT;	OR	ON	ON	2022/01/27

		AND (reinforced ADJ blade)	USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				07:11 PM
L28	533803	(G01B3/1041 OR G01B1/00 OR G01B3/1003 OR G01B3/1005 OR G01B3/1043 OR G01B3/1046 OR G01B3/1056 OR G01B2003/103 OR G01B3/1084 OR G01B2003/1038 OR G01B2003/1053 OR G01B2003/1058 OR G01B2003/1015 OR G01B3/1048 OR G01B3/1061 OR G01B3/1069 OR G01B2003/1025 OR G01B3/1094 OR G01B3/10 OR G01B2003/1064 OR G01B3/1089 OR G01B3/1092 OR G01B2003/101 OR G01B3/102 OR G01B21/042 OR G01B2003/1074 OR G01B5/012 OR G01B3/1071 OR G01B7/18 OR G01B2003/1087 OR G01B2003/1012 OR G01B2003/1023 OR G01B2003/1051 OR G01B5/0014 OR G01B3/30 OR G01B3/1007 OR G01B3/004 OR G01B3/1004 OR G01B2003/1028 OR G01B2003/1035 OR G01B2003/1076 OR G01B5/0004 OR G01B3/04 OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM

		G01B5/008 OR G01B5/02 OR G01B2003/1017 OR G01B5/016 OR G01B21/04 OR G01B5/025 OR G01B3/11 OR G01B11/02 OR G01B2210/00 OR G01B3/02 OR G01B5/0009 OR G01B11/005 OR G01B2003/1033 OR G01B7/14 OR G01B2003/1079 OR G01B21/02 OR G01B7/003 OR G01B2210/58 OR G01B5/0002 OR G01B5/0016 OR G01B7/02 OR G01B11/16 OR G01B7/30 OR G01B3/566 OR G01B2003/1097 OR G01B3/06 OR G01B5/30 OR G01B3/006 OR G01B5/0007 OR G01B5/12 OR G01B7/026 OR G01B7/16 OR G01B11/24 OR G01B11/026 OR G01B11/18 OR G01B3/20 OR G01B7/012 OR G01B2003/1066 OR G01B3/14 OR G01B3/18 OR G01B5/28 OR G01B3/008 OR G01B5/00 OR G01B5/14 OR G01B3/563 OR G01B5/20 OR G01B9/08 OR G01B11/06 OR G01B21/08 OR G01B3/12 OR G01B3/38 OR G01B11/007 OR G01B11/26 OR G01B15/02 OR G01B3/56 OR G01B11/245 OR G01B11/00 OR G01B3/002 OR					

		G01B11/165 OR G01B17/02 OR G01B5/08 OR G01B5/0025 OR G01B21/32 OR G01B2210/60 OR G01B7/105 OR G01B21/047 OR G01B3/205 OR G01B3/08 OR G01B5/061 OR G01B7/20 OR G01B7/28 OR G01B9/02091 OR G01B5/0035 OR G01B11/0691 OR G01B21/045 OR G01B2210/44 OR G01B3/22 OR G01B7/001 OR G01B7/016 OR G01B21/00 OR G01B3/34 OR G01B3/46 OR G01B5/18 OR G01B11/002 OR G01B21/30 OR G01B2290/65 OR G01B3/00 OR G01B7/22 OR G01B9/0205 OR G01B11/0608 OR G01B3/28 OR G01B17/025 OR G01B21/085 OR G01B5/06 OR G01B7/10 OR G01B21/20 OR G01B2290/00 OR G01B2290/25 OR G01B5/0023 OR G01B11/303 OR G01B3/16 OR G01B7/34 OR G01B11/306 OR G01B3/50 OR G01B5/004 OR G01B5/202 OR G01B7/24 OR G01B21/10 OR G01B7/023 OR G01B7/26 OR G01B11/024 OR G01B11/028 OR G01B11/0616 OR G01B11/08 OR G01B11/12 OR G01B11/168 OR					

		G01B11/2441 OR G01B15/04 OR G01B17/00 OR G01B2210/50 OR G01B2210/66 OR G01B3/166 OR G01B5/26 OR G01B9/02 OR G01B9/02001 OR G01B9/02044 OR G01B9/0209 OR G01B11/162 OR G01B11/30 OR G01B3/36 OR G01B5/245 OR G01B5/255 OR G01B7/046 OR G01B11/2755 OR G01B2210/14 OR G01B2210/16 OR G01B3/26 OR G01B3/32 OR G01B3/42 OR G01B5/066 OR G01B5/207 OR G01B5/242 OR G01B5/25 OR G01B7/06 OR G01B9/02064 OR G01B11/28 OR G01B13/00 OR G01B13/10 OR G01B21/14 OR G01B21/24 OR G01B5/04 OR G01B5/201 OR G01B5/204 OR G01B5/213 OR G01B5/24 OR G01B7/042 OR G01B11/043 OR G01B11/0641 OR G01B11/0675 OR G01B21/06 OR G01B2210/40 OR G01B2210/56 OR G01B3/24 OR G01B3/40 OR G01B5/0021 OR G01B5/10 OR G01B7/008 OR G01B7/044 OR G01B7/15 OR G01B9/02024 OR G01B9/02056 OR G01B9/02072).cpc.					
L29	8	L13 AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT,	OR	ON	ON	2022/01/27 07:11 PM

			AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L30	12	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM
L31	186	US-10697747-$.did. US-10712142-$.did. US-10422617-$.did. US-11022416-$.did. US-20190316892-$.did. US-20200340792-$.did. US-20190063893-$.did. WO-2019040752-$.did. CN-111033167-$.did. TW-201917346-$.did. CN-113124725-$.did. US-20200370873-$.did. US-20200370874-$.did. US-20190242686-$.did. US-10746521-$.did. US-20190056208-$.did. CN-111758011-$.did. US-20180195847-$.did. US-10126107-$.did. CN-109661556-$.did. WO-2019160867-$.did. WO-2018048810-$.did. EP-3510347-$.did. AU-2017324329-$.did. CA-3044195-$.did. US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:47 PM

		20190277612-$.did. US-11199390-$.did. WO-2019173514-$.did. EP-3762679-$.did. CN-111989535-$.did. CN-113767262-$.did. US-20210072010-$.did. WO-2020227007-$.did. TW-I745424-$.did. TW-201812242-$.did. CN-109661556-$.did. JP-2001201301-$.did. JP-4648528-$.did. JP-4671482-$.did. JP-2001201302-$.did. JP-2011191310-$.did. JP-5307180-$.did. EP-1074811-$.did. US-20020029489-$.did. WO-2003031903-$.did. EP-1444479-$.did. EP-1702196-$.did. US-6804899-$.did. US-20130067759-$.did. WO-2005065227-$.did. US-8584373-$.did. CA-2790319-$.did. CA-2790319-$.did. CA-2552174-$.did. US-7159331-$.did. US-20050138829-$.did. AU-2004311784-$.did. JP-2001241901-$.did. AU-2004311784-$.did. EP-2573506-$.did. BR-202012023804-$.did. EP-2573506-$.did. AU-2012216614-$.did. US-6449866-$.did. AU-2012216614-$.did. US-7490414-$.did. CN-111373220-$.did. US-6249986-$.did. DE-60028878-$.did. US-20080034605-$.did. US-20070006476-$.did. BR-202012023804-$.did. EP-1074813-$.did. US-10989512-$.did. WO-2019067515-$.did. DE-3335655-$.did. DE-60029279-$.did. US-20210207935-$.did. EP-1074812-$.did. US-20200278189-$.did. EP-1647797-$.did. EP-1074811-$.did. US-					

		20020078585-$.did. US-6324769-$.did. KR-20070006704-$.did. US-20150247716-$.did. US-6643947-$.did. US-7107698-$.did. US-20060168838-$.did. US-RE39719-$.did. DE-3335573-$.did. EP-1647797-$.did. EP-1074813-$.did. US-10876825-$.did. US-20180106585-$.did. CN-109804219-$.did. US-9874428-$.did. KR-20190067836-$.did. US-10132605-$.did. EP-3523600-$.did.					
L32	185	US-20200011648-$.did. WO-2018067716-$.did. US-20210108907-$.did. US-10458771-$.did. CA-3042641-$.did. US-20190056207-$.did. MX-2012010946-$.did. TW-I735674-$.did. US-6243964-$.did. US-20210348906-$.did. US-7174654-$.did. CN-108398069-$.did. MX-PA06007506-$.did. US-20060201013-$.did. US-11092418-$.did. US-20070240477-$.did. DE-3335573-$.did. US-6282808-$.did. US-20180224263-$.did. TW-I283290-$.did. US-7490500-$.did. EP-1074812-$.did. TW-201818045-$.did. CA-2629677-$.did. WO-2018148185-$.did. US-20060059703-$.did. WO-2019035029-$.did. US-7096596-$.did. WO-2007044004-$.did. US-20210088316-$.did. US-20050183279-$.did. US-7062862-$.did. DE-3335655-$.did. WO-2021011379-$.did. US-20200225017-$.did. AU-2010241209-$.did. US-11118887-$.did. EP-3680601-$.did. CN-111133271-$.did. US-10989513-$.did. US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:57 PM

		20200326171-$.did. NL-8303064-$.did. US-20210088318-$.did. CN-111133271-$.did. CN-113924456-$.did. WO-2019067531-$.did. US-11009332-$.did. CN-106767220-$.did. US-20200263969-$.did. WO-2020247374-$.did. EP-1469276-$.did. AU-2020287866-$.did. EP-1469276-$.did. EP-3928055-$.did. WO-2020171980-$.did. CA-3141136-$.did. US-20180245903-$.did. US-10605579-$.did. CN-108398069-$.did. AU-2010241209-$.did. EP-3232150-$.did. US-20170292821-$.did. CN-113302021-$.did. TW-I296702-$.did. US-8117763-$.did. US-20110179664-$.did. CA-2725259-$.did. EP-2357443-$.did. CA-2725259-$.did. US-11226187-$.did. NL-8303047-$.did. US-20110099828-$.did. EP-3165871-$.did. US-20200033108-$.did. US-20210095946-$.did. CA-2944209-$.did. US-9329014-$.did. EP-3165871-$.did. WO-2019035026-$.did. US-20210131780-$.did. CA-2944209-$.did. EP-2400258-$.did. TW-552398-$.did. AU-2004201113-$.did. AU-2016244217-$.did. CN-112534205-$.did. US-20040205976-$.did. WO-2020142266-$.did. CN-109804219-$.did. AU-2010241219-$.did. US-6892468-$.did. AU-2004201113-$.did. US-20110179661-$.did. US-8117762-$.did. EP-2400258-$.did. US-7007400-$.did. WO-2020023528-$.did. AU-2010241219-$.did. CA-					

		2460404-$.did. AU-2016244217-$.did.					
L33	185	CA-2725254-$.did. US-20050210696-$.did. CA-2725254-$.did. MX-PA01001686-$.did. US-6959500-$.did. WO-2020205821-$.did. US-20050022413-$.did. DE-3600719-$.did. TW-201839348-$.did. EP-1914508-$.did. US-6907676-$.did. US-20050022412-$.did. EP-2846125-$.did. US-11022417-$.did. US-20210247170-$.did. US-9032639-$.did. US-20180274894-$.did. US-20140007444-$.did. AU-2014221294-$.did. US-20210102794-$.did. EP-2846125-$.did. US-20160061573-$.did. WO-2007030112-$.did. US-9841264-$.did. WO-2020252172-$.did. WO-2021183519-$.did. WO-2005114092-$.did. TW-518407-$.did. US-20020129509-$.did. WO-2018175612-$.did. TW-550374-$.did. US-8528222-$.did. US-20130145637-$.did. TW-201839349-$.did. US-20070079520-$.did. WO-2007044739-$.did. EP-2998689-$.did. CA-2603000-$.did. CA-2901361-$.did. CN-112088286-$.did. CA-2862207-$.did. US-20050252020-$.did. EP-2469218-$.did. US-20210025685-$.did. EP-1914508-$.did. EP-1914509-$.did. US-20080086902-$.did. TW-201522909-$.did. CN-106091856-$.did. US-10767971-$.did. US-7565751-$.did. WO-2019195246-$.did. CN-107421407-$.did. US-10260852-$.did. DE-69922969-$.did. EP-2998689-$.did. CA-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:59 PM

		2603361-$.did. CA-2603361-$.did. US-7398604-$.did. CN-103134406-$.did. US-20080086904-$.did. TW-201237364-$.did. CN-106091856-$.did. DE-3600719-$.did. CA-2603000-$.did. CN-106767220-$.did. US-9846021-$.did. AU-2011253971-$.did. AU-2011253971-$.did. US-20120159799-$.did. EP-1914509-$.did. US-8375595-$.did. CA-2901361-$.did. TW-I532975-$.did. AU-2011253971-$.did. AU-2011253971-$.did. CN-113939709-$.did. TW-200827665-$.did. CN-204388729-$.did. CN-212843235-$.did. CN-112066832-$.did. CA-2761887-$.did. CN-101358821-$.did. CN-101358822-$.did. EP-2469218-$.did. CN-100429470-$.did. CN-1922462-$.did. TW-I644079-$.did. TW-200848697-$.did. US-20190170491-$.did. US-11231261-$.did. US-20160138900-$.did. US-20080098610-$.did. EP-2786092-$.did. US-9851193-$.did. WO-2013082098-$.did. US-20140196302-$.did. US-6996915-$.did. US-9163918-$.did. FR-2535840-$.did.					
L34	207	US-20150168118-$.did. EP-2786092-$.did. US-20060240195-$.did. US-20200333123-$.did. JP-2007018624-$.did. US-9470500-$.did. US-20210095947-$.did. US-20210088317-$.did. TW-I472713-$.did. WO-2020159114-$.did. AU-2012346129-$.did. US-5062215-$.did. TW-201333424-$.did. US-10859362-$.did. US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO;	OR	ON	ON	2022/01/27 08:04 PM

		2680576-$.did. KR-20190078597-$.did. AU-7876998-$.did. WO-2019046248-$.did. WO-2019191234-$.did. EP-3278056-$.did. US-20200318939-$.did. CA-1193854-$.did. CA-2857462-$.did. US-7730630-$.did. CA-2857462-$.did. US-7395608-$.did. US-10690472-$.did. US-20180283837-$.did. JP-5467655-$.did. US-20080010847-$.did. AU-2012346129-$.did. US-8191278-$.did. KR-102236808-$.did. JP-2012232349-$.did. WO-2012147519-$.did. US-20070056182-$.did. CN-101165453-$.did. US-4375721-$.did. JP-2004127340-$.did. BR-102020017149-$.did. US-20100293801-$.did. CN-101165453-$.did. WO-2004033114-$.did. US-8033033-$.did. US-8898922-$.did. EP-3567336-$.did. DE-202005012765-$.did. CA-2499811-$.did. US-20210325159-$.did. CA-2796657-$.did. WO-2003085353-$.did. US-20040071869-$.did. US-20130133215-$.did. CA-2796657-$.did. WO-2009157135-$.did. WO-2020014578-$.did. BR-102013023828-$.did. WO-2019035036-$.did. AU-2012258438-$.did. CA-2592531-$.did. US-4411072-$.did. CA-2592531-$.did. AU-2012258438-$.did. US-7251904-$.did. US-9441932-$.did. EP-1923661-$.did. EP-0896200-$.did. CN-110446904-$.did. US-20200333122-$.did. US-7900370-$.did. KR-20210038713-$.did. US-11052565-$.did.	JPO; DERWENT; IBM_TDB)				

		US-20070124951-$.did. US-20150040416-$.did. EP-2784437-$.did. CA-3044290-$.did. US-20200023541-$.did. JP-2013215856-$.did. CA-2940626-$.did. TW-I345048-$.did. EP-3136044-$.did. US-20030154617-$.did. FR-2767915-$.did. US-9778010-$.did. KR-20200094615-$.did. CN-112400093-$.did. US-20140075772-$.did. AU-2014201834-$.did. CN-110986715-$.did. GB-2127968-$.did. JP-2001179682-$.did. CN-111989536-$.did. US-8590171-$.did. US-10836603-$.did. JP-2005317068-$.did. US-4578867-$.did. CN-110986715-$.did. CA-1193855-$.did. CA-2940626-$.did. CN-105318795-$.did.					
L35	206	US-9239217-$.did. US-20170059294-$.did. US-20180273341-$.did. AU-2018240118-$.did. TW-I283291-$.did. EP-1104542-$.did. GB-2127967-$.did. US-20160290776-$.did. EP-3567336-$.did. JP-2021196361-$.did. CA-2243262-$.did. WO-2018175461-$.did. AU-2013222009-$.did. EP-3601943-$.did. AU-2013222009-$.did. WO-2016161452-$.did. JP-2001273629-$.did. US-7559154-$.did. US-9207058-$.did. US-20140290085-$.did. EP-2924388-$.did. EP-3278056-$.did. US-8479630-$.did. CN-202660994-$.did. US-10012489-$.did. TW-I665377-$.did. FR-2872894-$.did. US-20130133216-$.did. TW-200827664-$.did. US-20070087170-$.did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 08:06 PM

		US-6115933-$.did. EP-2784437-$.did. US-5402583-$.did. TW-201608209-$.did. US-8898921-$.did. US-2893655-$.did. US-3545322-$.did. US-5001843-$.did. CA-2519363-$.did. WO-2021124188-$.did. CN-1752711-$.did. CA-1193853-$.did. CA-2840859-$.did. AU-2014201834-$.did. TW-200831851-$.did. US-20210283797-$.did. CN-107407546-$.did. CA-2840859-$.did. KR-102261071-$.did. GB-2431394-$.did. US-20210070585-$.did. US-5349760-$.did. CA-1233978-$.did. JP-6426728-$.did. US-7458536-$.did. TW-I611092-$.did. RU-2278780-$.did. CA-2826135-$.did. US-6910280-$.did. EP-2111528-$.did. WO-2000009969-$.did. US-6237243-$.did. EP-1104542-$.did. EP-2711662-$.did. US-4429462-$.did. US-7555845-$.did. US-20070101599-$.did. MX-2015001369-$.did. CA-1307106-$.did. US-20060118244-$.did. US-4903912-$.did. US-4930227-$.did. US-20080034604-$.did. JP-2009508703-$.did. EP-0354779-$.did. US-20210389110-$.did. US-20100224046-$.did. US-20040143984-$.did. US-20060038050-$.did. TW-202134591-$.did. EP-2955476-$.did. KR-20210128478-$.did. WO-2004094937-$.did. WO-2008021759-$.did. AU-2016222406-$.did. WO-2008132515-$.did. US-6367161-$.did. EP-2144725-$.did. JP-					

		6143825-$.did. JP-2007109324-$.did. TW-201809445-$.did. GB-2169707-$.did. US-6971185-$.did. JP-2010040096-$.did. JP-5269180-$.did. CA-2826135-$.did. AU-2006230689-$.did. US-20050183280-$.did. JP-2004005774-$.did.					
L36	12	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 09:00 PM
L37	11	("0000002" OR "10422617" OR "10697747" OR "10712142" OR "11022416" OR "20070079520" OR "20080010847" OR "20150247716" OR "4429462" OR "6324769" OR "7159331").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/08/18 11:06 PM
L38	7263	(G01B3/1003 OR G01B1/00 OR G01B3/1041 OR G01B2003/103 OR G01B2003/1038).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L39	223	L2 AND standout	(US-PGPUB; USPAT;	OR	ON	ON	2022/08/18

			USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				11:06 PM
L40	1401	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3 ("CORPORATION"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/08/18 11:06 PM
L41	100	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/08/18 11:06 PM
L42	177	(tape ADJ measure) AND standout	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L43	10	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM

L44	29	(Artificial Intelligence) More Like: US-20210278188-A1 Text: (US-11293739-B2 OR US-20220065605-A1 OR US-11022416-B2 OR US-20200340792-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR US-7395608-B2 OR US-20080010847-A1 OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR EP-3762679-A1 OR US-11199390-B2 OR US-20220042779-A1 OR US-10126107-B2).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L45	30	(Artificial Intelligence) More Like: US-20200340792-A1 Text: (US-11022416-B2 OR US-11293739-B2 OR US-20220065605-A1 OR US-20210278188-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR US-7395608-B2 OR US-20080010847-A1 OR TW-201917346-A OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR EP-3762679-A1 OR US-11199390-B2 OR US-20220042779-A1 OR US-20180195847-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L46	29	(Artificial Intelligence) More Like: US-10697747-B1 Text: (US-11293739-B2 OR	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA,	OR	ON	ON	2022/08/18 11:06 PM

		US-20220065605-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-20210278188-A1 OR US-11022416-B2 OR US-20200340792-A1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR US-7395608-B2 OR US-20080010847-A1 OR WO-2018048810-A1 OR AU-2017324329-A1 OR US-20180195847-A1 OR US-10126107-B2).did.	EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L47	11	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L48	5	(tape ADJ measure) AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L49	561220	(G01B3/1041 OR G01B1/00 OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT,	OR	ON	ON	2022/08/18 11:06 PM

		G01B3/1003 OR G01B3/1005 OR G01B3/1043 OR G01B3/1046 OR G01B3/1056 OR G01B2003/103 OR G01B3/1084 OR G01B2003/1038 OR G01B2003/1053 OR G01B2003/1058 OR G01B2003/1015 OR G01B3/1048 OR G01B3/1061 OR G01B3/1069 OR G01B2003/1025 OR G01B3/1094 OR G01B3/10 OR G01B2003/1064 OR G01B3/1089 OR G01B3/1092 OR G01B2003/101 OR G01B3/102 OR G01B21/042 OR G01B2003/1074 OR G01B5/012 OR G01B3/1071 OR G01B7/18 OR G01B2003/1087 OR G01B2003/1012 OR G01B2003/1023 OR G01B2003/1051 OR G01B5/0014 OR G01B3/30 OR G01B3/1007 OR G01B3/004 OR G01B3/1004 OR G01B2003/1028 OR G01B2003/1035 OR G01B2003/1076 OR G01B5/0004 OR G01B3/04 OR G01B5/008 OR G01B5/02 OR G01B2003/1017 OR G01B5/016 OR G01B21/04 OR G01B5/025 OR G01B3/11 OR G01B11/02 OR G01B2210/00 OR G01B3/02 OR G01B5/0009 OR G01B11/005 OR G01B2003/1033 OR G01B7/14 OR G01B2003/1079 OR G01B21/02 OR G01B7/003 OR	AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				

		G01B2210/58 OR G01B5/0002 OR G01B5/0016 OR G01B7/02 OR G01B11/16 OR G01B7/30 OR G01B3/566 OR G01B2003/1097 OR G01B3/06 OR G01B5/30 OR G01B3/006 OR G01B5/0007 OR G01B5/12 OR G01B7/026 OR G01B7/16 OR G01B11/24 OR G01B11/026 OR G01B11/18 OR G01B3/20 OR G01B7/012 OR G01B2003/1066 OR G01B3/14 OR G01B3/18 OR G01B5/28 OR G01B3/008 OR G01B5/00 OR G01B5/14 OR G01B3/563 OR G01B5/20 OR G01B9/08 OR G01B11/06 OR G01B21/08 OR G01B3/12 OR G01B3/38 OR G01B11/007 OR G01B11/26 OR G01B15/02 OR G01B3/56 OR G01B11/245 OR G01B11/00 OR G01B3/002 OR G01B11/165 OR G01B17/02 OR G01B5/08 OR G01B5/0025 OR G01B21/32 OR G01B2210/60 OR G01B7/105 OR G01B21/047 OR G01B3/205 OR G01B3/08 OR G01B5/061 OR G01B7/20 OR G01B7/28 OR G01B9/02091 OR G01B5/0035 OR G01B11/0691 OR G01B21/045 OR					

		G01B2210/44 OR G01B3/22 OR G01B7/001 OR G01B7/016 OR G01B21/00 OR G01B3/34 OR G01B3/46 OR G01B5/18 OR G01B11/002 OR G01B21/30 OR G01B2290/65 OR G01B3/00 OR G01B7/22 OR G01B9/0205 OR G01B11/0608 OR G01B3/28 OR G01B17/025 OR G01B21/085 OR G01B5/06 OR G01B7/10 OR G01B21/20 OR G01B2290/00 OR G01B2290/25 OR G01B5/0023 OR G01B11/303 OR G01B3/16 OR G01B7/34 OR G01B11/306 OR G01B3/50 OR G01B5/004 OR G01B5/202 OR G01B7/24 OR G01B21/10 OR G01B7/023 OR G01B7/26 OR G01B11/024 OR G01B11/028 OR G01B11/0616 OR G01B11/08 OR G01B11/12 OR G01B11/168 OR G01B11/2441 OR G01B15/04 OR G01B17/00 OR G01B2210/50 OR G01B2210/66 OR G01B3/166 OR G01B5/26 OR G01B9/02 OR G01B9/02001 OR G01B9/02044 OR G01B9/0209 OR G01B11/162 OR G01B11/30 OR G01B3/36 OR G01B5/245 OR G01B5/255 OR G01B7/046 OR					

		G01B11/2755 OR G01B2210/14 OR G01B2210/16 OR G01B3/26 OR G01B3/32 OR G01B3/42 OR G01B5/066 OR G01B5/207 OR G01B5/242 OR G01B5/25 OR G01B7/06 OR G01B9/02064 OR G01B11/28 OR G01B13/00 OR G01B13/10 OR G01B21/14 OR G01B21/24 OR G01B5/04 OR G01B5/201 OR G01B5/204 OR G01B5/213 OR G01B5/24 OR G01B7/042 OR G01B11/043 OR G01B11/0641 OR G01B11/0675 OR G01B21/06 OR G01B2210/40 OR G01B2210/56 OR G01B3/24 OR G01B3/40 OR G01B5/0021 OR G01B5/10 OR G01B7/008 OR G01B7/044 OR G01B7/15 OR G01B9/02024 OR G01B9/02056 OR G01B9/02072).cpc.					
L50	9	L13 AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L51	12	((US-20210278188-A1 OR US-20200340792-	(US-PGPUB; USPAT; USOCR; FIT (AP, AT,	OR	ON	ON	2022/08/18 11:06 PM

		A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L52	11	("0000002" OR "10422617" OR "10697747" OR "10712142" OR "11022416" OR "20070079520" OR "20080010847" OR "20150247716" OR "4429462" OR "6324769" OR "7159331").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/08/18 11:06 PM
L53	7263	(G01B3/1003 OR G01B1/00 OR G01B3/1041 OR G01B2003/103 OR G01B2003/1038).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L54	223	L2 AND standout	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO;	OR	ON	ON	2022/08/18 11:06 PM

			JPO; DERWENT; IBM_TDB)				
L55	1401	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3 ("CORPORATION"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/08/18 11:06 PM
L56	100	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/08/18 11:06 PM
L57	177	(tape ADJ measure) AND standout	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L58	10	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L59	29	(Artificial Intelligence) More Like: US-20210278188-A1 Text: (US-11293739-B2 OR US-20220065605-A1 OR US-11022416-B2 OR US-20200340792-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA,	OR	ON	ON	2022/08/18 11:06 PM

		US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR US-7395608-B2 OR US-20080010847-A1 OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR EP-3762679-A1 OR US-11199390-B2 OR US-20220042779-A1 OR US-10126107-B2).did.	VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L60	30	(Artificial Intelligence) More Like: US-20200340792-A1 Text: (US-11022416-B2 OR US-11293739-B2 OR US-20220065605-A1 OR US-20210278188-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR US-7395608-B2 OR US-20080010847-A1 OR TW-201917346-A OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR EP-3762679-A1 OR US-11199390-B2 OR US-20220042779-A1 OR US-20180195847-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L61	29	(Artificial Intelligence) More Like: US-10697747-B1 Text: (US-11293739-B2 OR US-20220065605-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-20210278188-A1 OR US-11022416-B2 OR US-20200340792-A1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR CN-114858027-A OR	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM

		CN-111033167-B OR CN-111033167-A OR US-7395608-B2 OR US-20080010847-A1 OR WO-2018048810-A1 OR AU-2017324329-A1 OR US-20180195847-A1 OR US-10126107-B2).did.					
L62	11	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L63	5	(tape ADJ measure) AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L64	561220	(G01B3/1041 OR G01B1/00 OR G01B3/1003 OR G01B3/1005 OR G01B3/1043 OR G01B3/1046 OR G01B3/1056 OR G01B2003/103 OR G01B3/1084 OR G01B2003/1038 OR G01B2003/1053 OR G01B2003/1058 OR G01B2003/1015 OR G01B3/1048 OR G01B3/1061 OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT;	OR	ON	ON	2022/08/18 11:06 PM

		G01B3/1069 OR G01B2003/1025 OR G01B3/1094 OR G01B3/10 OR G01B2003/1064 OR G01B3/1089 OR G01B3/1092 OR G01B2003/101 OR G01B3/102 OR G01B21/042 OR G01B2003/1074 OR G01B5/012 OR G01B3/1071 OR G01B7/18 OR G01B2003/1087 OR G01B2003/1012 OR G01B2003/1023 OR G01B2003/1051 OR G01B5/0014 OR G01B3/30 OR G01B3/1007 OR G01B3/004 OR G01B3/1004 OR G01B2003/1028 OR G01B2003/1035 OR G01B2003/1076 OR G01B5/0004 OR G01B3/04 OR G01B5/008 OR G01B5/02 OR G01B2003/1017 OR G01B5/016 OR G01B21/04 OR G01B5/025 OR G01B3/11 OR G01B11/02 OR G01B2210/00 OR G01B3/02 OR G01B5/0009 OR G01B11/005 OR G01B2003/1033 OR G01B7/14 OR G01B2003/1079 OR G01B21/02 OR G01B7/003 OR G01B2210/58 OR G01B5/0002 OR G01B5/0016 OR G01B7/02 OR G01B11/16 OR G01B7/30 OR G01B3/566 OR G01B2003/1097 OR G01B3/06 OR G01B5/30 OR G01B3/006 OR G01B5/0007 OR G01B5/12 OR	IBM_TDB)				

		G01B7/026 OR G01B7/16 OR G01B11/24 OR G01B11/026 OR G01B11/18 OR G01B3/20 OR G01B7/012 OR G01B2003/1066 OR G01B3/14 OR G01B3/18 OR G01B5/28 OR G01B3/008 OR G01B5/00 OR G01B5/14 OR G01B3/563 OR G01B5/20 OR G01B9/08 OR G01B11/06 OR G01B21/08 OR G01B3/12 OR G01B3/38 OR G01B11/007 OR G01B11/26 OR G01B15/02 OR G01B3/56 OR G01B11/245 OR G01B11/00 OR G01B3/002 OR G01B11/165 OR G01B17/02 OR G01B5/08 OR G01B5/0025 OR G01B21/32 OR G01B2210/60 OR G01B7/105 OR G01B21/047 OR G01B3/205 OR G01B3/08 OR G01B5/061 OR G01B7/20 OR G01B7/28 OR G01B9/02091 OR G01B5/0035 OR G01B11/0691 OR G01B21/045 OR G01B2210/44 OR G01B3/22 OR G01B7/001 OR G01B7/016 OR G01B21/00 OR G01B3/34 OR G01B3/46 OR G01B5/18 OR G01B11/002 OR G01B21/30 OR G01B2290/65 OR G01B3/00 OR G01B7/22 OR					

		G01B9/0205 OR G01B11/0608 OR G01B3/28 OR G01B17/025 OR G01B21/085 OR G01B5/06 OR G01B7/10 OR G01B21/20 OR G01B2290/00 OR G01B2290/25 OR G01B5/0023 OR G01B11/303 OR G01B3/16 OR G01B7/34 OR G01B11/306 OR G01B3/50 OR G01B5/004 OR G01B5/202 OR G01B7/24 OR G01B21/10 OR G01B7/023 OR G01B7/26 OR G01B11/024 OR G01B11/028 OR G01B11/0616 OR G01B11/08 OR G01B11/12 OR G01B11/168 OR G01B11/2441 OR G01B15/04 OR G01B17/00 OR G01B2210/50 OR G01B2210/66 OR G01B3/166 OR G01B5/26 OR G01B9/02 OR G01B9/02001 OR G01B9/02044 OR G01B9/0209 OR G01B11/162 OR G01B11/30 OR G01B3/36 OR G01B5/245 OR G01B5/255 OR G01B7/046 OR G01B11/2755 OR G01B2210/14 OR G01B2210/16 OR G01B3/26 OR G01B3/32 OR G01B3/42 OR G01B5/066 OR G01B5/207 OR G01B5/242 OR G01B5/25 OR G01B7/06 OR G01B9/02064 OR G01B11/28 OR					

		G01B13/00 OR G01B13/10 OR G01B21/14 OR G01B21/24 OR G01B5/04 OR G01B5/201 OR G01B5/204 OR G01B5/213 OR G01B5/24 OR G01B7/042 OR G01B11/043 OR G01B11/0641 OR G01B11/0675 OR G01B21/06 OR G01B2210/40 OR G01B2210/56 OR G01B3/24 OR G01B3/40 OR G01B5/0021 OR G01B5/10 OR G01B7/008 OR G01B7/044 OR G01B7/15 OR G01B9/02024 OR G01B9/02056 OR G01B9/02072).cpc.					
L65	9	L13 AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L66	12	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT;	OR	ON	ON	2022/08/18 11:06 PM

		11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	IBM_TDB)				
L67	192	US-10697747-$.did. US-10712142-$.did. US-10422617-$.did. US-11022416-$.did. US-20190316892-$.did. US-20200340792-$.did. US-20190063893-$.did. WO-2019040752-$.did. CN-111033167-$.did. TW-201917346-$.did. CN-113124725-$.did. US-20200370873-$.did. US-20200370874-$.did. US-20190242686-$.did. US-10746521-$.did. US-20190056208-$.did. CN-111758011-$.did. US-20180195847-$.did. US-10126107-$.did. CN-109661556-$.did. WO-2019160867-$.did. WO-2018048810-$.did. EP-3510347-$.did. AU-2017324329-$.did. CA-3044195-$.did. US-20190277612-$.did. US-11199390-$.did. WO-2019173514-$.did. EP-3762679-$.did. CN-111989535-$.did. CN-113767262-$.did. US-20210072010-$.did. WO-2020227007-$.did. TW-I745424-$.did. TW-201812242-$.did. CN-109661556-$.did. JP-2001201301-$.did. JP-4648528-$.did. JP-4671482-$.did. JP-2001201302-$.did. JP-2011191310-$.did. JP-5307180-$.did. EP-1074811-$.did. US-20020029489-$.did. WO-2003031903-$.did. EP-1444479-$.did. EP-1702196-$.did. US-6804899-$.did. US-20130067759-$.did. WO-2005065227-$.did. US-8584373-$.did. CA-2790319-$.did. CA-2790319-$.did. CA-2552174-$.did. US-7159331-$.did. US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM

		20050138829-$.did. AU-2004311784-$.did. JP-2001241901-$.did. AU-2004311784-$.did. EP-2573506-$.did. BR-202012023804-$.did. EP-2573506-$.did. AU-2012216614-$.did. US-6449866-$.did. AU-2012216614-$.did. US-7490414-$.did. CN-111373220-$.did. US-6249986-$.did. DE-60028878-$.did. US-20080034605-$.did. US-20070006476-$.did. BR-202012023804-$.did. EP-1074813-$.did. US-10989512-$.did. WO-2019067515-$.did. DE-3335655-$.did. DE-60029279-$.did. US-20210207935-$.did. EP-1074812-$.did. US-20200278189-$.did. EP-1647797-$.did. EP-1074811-$.did. US-20020078585-$.did. US-6324769-$.did. KR-20070006704-$.did. US-20150247716-$.did. US-6643947-$.did. US-7107698-$.did. US-20060168838-$.did. US-RE39719-$.did. DE-3335573-$.did. EP-1647797-$.did. EP-1074813-$.did. US-10876825-$.did. US-20180106585-$.did. CN-109804219-$.did. US-9874428-$.did. KR-20190067836-$.did. US-10132605-$.did. EP-3523600-$.did.					
L68	194	US-20200011648-$.did. WO-2018067716-$.did. US-20210108907-$.did. US-10458771-$.did. CA-3042641-$.did. US-20190056207-$.did. MX-2012010946-$.did. TW-I735674-$.did. US-6243964-$.did. US-20210348906-$.did. US-7174654-$.did. CN-108398069-$.did. MX-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK,	OR	ON	ON	2022/08/18 11:06 PM

		PA06007506-$.did. US-20060201013-$.did. US-11092418-$.did. US-20070240477-$.did. DE-3335573-$.did. US-6282808-$.did. US-20180224263-$.did. TW-I283290-$.did. US-7490500-$.did. EP-1074812-$.did. TW-201818045-$.did. CA-2629677-$.did. WO-2018148185-$.did. US-20060059703-$.did. WO-2019035029-$.did. US-7096596-$.did. WO-2007044004-$.did. US-20210088316-$.did. US-20050183279-$.did. US-7062862-$.did. DE-3335655-$.did. WO-2021011379-$.did. US-20200225017-$.did. AU-2010241209-$.did. US-11118887-$.did. EP-3680601-$.did. CN-111133271-$.did. US-10989513-$.did. US-20200326171-$.did. NL-8303064-$.did. US-20210088318-$.did. CN-111133271-$.did. CN-113924456-$.did. WO-2019067531-$.did. US-11009332-$.did. CN-106767220-$.did. US-20200263969-$.did. WO-2020247374-$.did. EP-1469276-$.did. AU-2020287866-$.did. EP-1469276-$.did. EP-3928055-$.did. WO-2020171980-$.did. CA-3141136-$.did. US-20180245903-$.did. US-10605579-$.did. CN-108398069-$.did. AU-2010241209-$.did. EP-3232150-$.did. US-20170292821-$.did. CN-113302021-$.did. TW-I296702-$.did. US-8117763-$.did. US-20110179664-$.did. CA-2725259-$.did. EP-2357443-$.did. CA-2725259-$.did. US-11226187-$.did. NL-	TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				

		8303047-$.did. US-20110099828-$.did. EP-3165871-$.did. US-20200033108-$.did. US-20210095946-$.did. CA-2944209-$.did. US-9329014-$.did. EP-3165871-$.did. WO-2019035026-$.did. US-20210131780-$.did. CA-2944209-$.did. EP-2400258-$.did. TW-552398-$.did. AU-2004201113-$.did. AU-2016244217-$.did. CN-112534205-$.did. US-20040205976-$.did. WO-2020142266-$.did. CN-109804219-$.did. AU-2010241219-$.did. US-6892468-$.did. AU-2004201113-$.did. US-20110179661-$.did. US-8117762-$.did. EP-2400258-$.did. US-7007400-$.did. WO-2020023528-$.did. AU-2010241219-$.did. CA-2460404-$.did. AU-2016244217-$.did.					
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L73	1401	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3 ("CORPORATION"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/08/19 09:28 AM
L74	100	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/08/19 09:37 AM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
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N2	1284	L2	(US-PGPUB; USPAT)	OR	ON	ON	2022/01/27

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	892	08/24/2022	066749-2558
	1449	08/24/2022	066749-2558
	1449	08/24/2022	066749-2558
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	1449	08/24/2022	066749-2558

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APPROVAL LETTER

APPLICATION #	FILING DATE	APPLICANT/PATENT UNDER REEXAMINATION
17/328,388	05/24/2021	Jonathan Vitas

Title of Invention

Tape Measure with Tape Blade Profile Increasing Tape Standout

Electronic terminal disclaimer filed on 12/21/2022

☑ Approved

This patent is subject to a Terminal Disclaimer

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TERMINAL DISCLAIMER TO OBVIATE A PROVISIONAL DOUBLE PATENTING REJECTION OVER A PENDING "REFERENCE" APPLICATION

APPLICATION #	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET #
17328388	05/24/2021	Jonathan Vitas	066749-2558

Title of Invention

Tape Measure with Tape Blade Profile Increasing Tape Standout

☑ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☑ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent interest
Milwaukee Electric Tool Corporation	100%
Total	100%

The owner(s) of percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of any patent granted on pending reference Application Number(s)

Application #	Filing Date

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instant application and is binding upon the grantee, its successors or assigns.
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11293739

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- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.



Terminal disclaimer fee under 37 CFR 1.20(d) included with Electronic Terminal Disclaimer request.

Applicant claims the following entity status:
Regular Undiscounted

I hereby declare that all statements made herein of my own knowledge are true and that all statemnts made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I certify, in accordance with 37 CFR 1.4(d)(4) that I am: An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application

Signature	Name	Registration #
/James D. Borchardt/	James Borchardt	62025

* Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner). Form PTO/SB/96 may be used for making this certification. See MPEP 324.

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/328,388	**12/21/2022 03:40:11 PM ET**	**066749-2558**

Title of Invention

Tape Measure with Tape Blade Profile Increasing Tape Standout

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	6253	FILED BY	James Borchardt
PATENT CENTER #	61332140	FILING DATE	05/24/2021
CUSTOMER #	142078	FIRST NAMED INVENTOR	Jonathan F. Vitas
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	-

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
petition-request.pdf	3	Terminal Disclaimer-Filed (Electronic)	48 KB
grantLetter.pdf	1	Terminal Disclaimer-Electronic-Approved	19 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
petition-request.pdf	F4D537D2A18939080998B5D25115A5876CC11DF7D461B0EE3 3F067E39F06B4640521FED83B7299F70716E8BAF6D444F055F

	B1680F58C2B47567C81DDE7C480E2
grantLetter.pdf	341D65E729EF1E3E12DE08CAB60A4CE10848255C4C1C6743F C74C760AD776ED8F69738B251E645F9ED831DA2E154B72D16 83A379F779A16A8CF664F0887F06EB

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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PATENT AND TRADEMARK OFFICE

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/328,388	12/21/2022 03:40:11 PM ET	066749-2558

Title of Invention

Tape Measure with Tape Blade Profile Increasing Tape Standout

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	6253	FILED BY	James Borchardt
PATENT CENTER #	61332140	AUTHORIZED BY	-
CUSTOMER #	142078	FILING DATE	05/24/2021
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Jonathan F. Vitas

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
DA / 180882	E2022BKF41321842	James Borchardt

PRE-AUTHORIZED ACCOUNT	PRE-AUTHORIZED CATEGORY
180882	37 CFR 1.16 (National application filing, search, and examination fees); 37 CFR 1.17 (Patent application and reexamination processing fees); 37 CFR 1.19 (Document supply fees); 37 CFR 1.20 (Post Issuance fees); 37 CFR 1.21 (Miscellaneous fees and charges)

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1814	STATUTORY DISCLAIMER, INCLUDING TERMINAL DISCLAIMER	170.00	1	170.00
			TOTAL AMOUNT:	$170.00

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Milwaukee Electric Tool Corporation
Title:	Tape Measure with Tape Blade Profile Increasing Tape Standout
Appl. No.:	17/328,388
Filing Date:	May 24, 2021
Examiner:	Yaritza Guadalupe
Art Unit:	2855
Confirmation No:	6253

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY UNDER 37 C.F.R. § 1.111

This communication is responsive to the Non-Final Office Action dated August 24, 2022, concerning the above-referenced patent application.

Applicant hereby petitions for a one-month extension of time and the accompanying fee is included herewith.

A listing of claims is reproduced beginning on page 2 of this document for the Examiner's convenience and reference. No claim amendments are made herein.

Remarks begin on page 4 of this document.

Please amend the application as follows:

Klein Tools
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This listing of claims is reproduced for the Examiner's convenience and reference. No claim amendments are made herein:

Listing of Claims:

1. (Original) A tape measure comprising:

a housing;

a tape reel rotatably mounted within the housing;

an elongate blade wound around the reel, the elongate blade comprising:

an upper surface;

a lower surface;

an elongate metal core having a first thickness, T1, between 0.12 mm and 0.14 mm;

a length between 15 feet and 40 feet;

a flat width of 20 mm to 40 mm;

a curved profile such that the upper surface of the elongate blade defines a concave surface and the lower surface defines a convex surface;

a curved width, wherein the curved width is less than the flat width; and

a curved height between 8.5 mm and 9.5 mm;

wherein a ratio of the curved width to the flat width is between 0.6 and 0.8;

wherein a ratio of curved height to flat width is greater than 0.285;

wherein a standout distance of the elongate blade from the housing is greater than 150 inches; and

a retraction system coupled to the tape reel, wherein the retraction system drives rewinding of the elongate blade on to the tape reel.

2. (Original) The tape measure of claim 1, wherein the curved profile is located at a location along at least the first 132 inches of a length of the elongate blade.

3. (Original) The tape measure of claim 1, wherein the curved profile is located at a location between 5 feet and 15 feet along a length of the elongate blade measured from a hook located at an end of the tape blade.

Klein Tools
Ex-1002, Page 280

4. (Original) The tape measure of claim 1, wherein the curved profile is located at a location between 6.5 feet and 13 feet along a length of the elongate blade measured from a hook located at an end of the tape blade.

5. (Original) The tape measure of claim 4, wherein the flat width is 25 mm to 32 mm.

6. (Original) The tape measure of claim 5, wherein the flat width is 32 mm.

7. (Original) The tape measure of claim 6, wherein the curved width is less than 26 mm.

8. (Original) The tape measure of claim 1, wherein the standout distance of the elongate blade from the housing is at least 156 inches.

9. (Original) The tape measure of claim 1, wherein, when the elongate blade is at a maximum standout length, the curved profile is located in a section of tape blade that extends 5 feet from the housing toward a hook located at the end of the tape blade.

10. (Original) The tape measure of claim 1, further comprising:

an upper polymer coating coupled to an upper surface of the elongate metal core, the upper polymer coating having a second thickness, T2; and

a lower polymer coating coupled to a lower surface of the elongate metal core, the lower polymer coating having a third thickness, T3;

wherein T1+T2+T3 is between 0.15 mm and 0.5.

11. (Original) The tape measure of claim 1, wherein the ratio of the curved height to T1 is greater than 65.

12. (Original) The tape measure of claim 1, wherein the retraction system is a spring-based retraction system comprising a spring coupled to the tape reel, wherein, as the elongate blade is unwound from the tape reel to extend from the housing, the spring stores energy and the spring releases energy driving rewinding of the elongate blade on to the tape reel.

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REMARKS

This reply is intended to be completely responsive to the Non-Final Office Action dated August 24, 2022.

Status

Claims 1-12 are pending in this application. Claims 1, 3, 4, 8-10 and 12 were rejected, and claims 2, 5-7 and 11 are objected to as depending from a rejected base claim.

Applicant believes that each of the rejections raised by the Examiner has been addressed and the application is in condition for allowance. Reconsideration and allowance of the application is respectfully requested.

Double Patenting

On pages 2-4 of the Office Action, the Examiner has rejected claims 1, 3, 4, 8-10 and 12 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5, 8 and 9 of U.S. Patent No. 11,293,739. Applicant submits herewith a terminal disclaimer, signed by the Attorney of Record, to overcome the referenced obviousness-type double patenting rejection. Withdrawal of the double patent rejection is respectfully requested.

Conclusion

Applicant believes that the present application is in condition for allowance. Favorable reconsideration of the application is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

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The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 18-0882. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 18-0882.

Respectfully submitted,

Date December 21, 2022

By /James D. Borchardt/

Reinhart Boerner Van Deuren s.c.
Customer Number: 142078
Telephone: (414) 298-8160
Facsimile: (414) 298-8097

James D. Borchardt
Attorney for Applicant
Registration No. 62,025

Klein Tools
Ex-1002, Page 283

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/328,388	**12/21/2022 04:00:50 PM ET**	**066749-2558**

Title of Invention

Tape Measure with Tape Blade Profile Increasing Tape Standout

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	6253	FILED BY	Andrea Dietzel
PATENT CENTER #	61333203	FILING DATE	05/24/2021
CUSTOMER #	142078	FIRST NAMED INVENTOR	Jonathan F. Vitas
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	James Borchardt

Documents

TOTAL DOCUMENTS: 3

DOCUMENT		PAGES	DESCRIPTION	SIZE (KB)
066749-2558_Response.pdf		5	-	91 KB
066749-2558_Response-A....pdf	(1-1)	1	Amendment/Request for Reconsideration-After Non-Final Rejection	71 KB
066749-2558_Response-CLM.pdf	(2-3)	2	Claims	68 KB
066749-2558_Response-REM.pdf	(4-5)	2	Applicant Arguments/Remarks Made in an Amendment	62 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
066749-2558_Response.pdf	F31B4EEDA1045CCBF95C011F97F67EC2F6CA50F9B3F26F8D11AC3F74A2469060B68F6E96B44416C21408518388D0F80E9BD10D145C4C8F6FEB9D39533A20CEF7
066749-2558_Response-A....pdf	5E4464675EDA46D14A8BAB63552FA64F9C860BF635DB77C7F400809A28C57C990591314A7868482123D1272412804C17171A0321ED42A2741FF6143FC38DE3C5
066749-2558_Response-CLM.pdf	5D5E6C472A987882DB66184CD277ED5F45F11092B190E41995251AF41B72F705E0D53FA667FA3F1EA75F9169CF2C55EC13B1AEFBA658CB2F992EB874BFACB4F5
066749-2558_Response-REM.pdf	EA971CCA99C4B762ED9F7EA8E846D5A4B319A64F8882262AD33200431072B9EAE3576164AEB4D70D9A3F2AE632083853B5B7CFDD67D75C048CC1889F69948D3

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/328,388	12/21/2022 04:00:50 PM ET	066749-2558

Title of Invention

Tape Measure with Tape Blade Profile Increasing Tape Standout

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	6253	FILED BY	Andrea Dietzel
PATENT CENTER #	61333203	AUTHORIZED BY	James Borchardt
CUSTOMER #	142078	FILING DATE	05/24/2021
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Jonathan F. Vitas

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
DA / 180882	E2022BKG01452370	Andrea Dietzel

PRE-AUTHORIZED ACCOUNT	PRE-AUTHORIZED CATEGORY
180882	37 CFR 1.16 (National application filing, search, and examination fees); 37 CFR 1.17 (Patent application and reexamination processing fees); 37 CFR 1.19 (Document supply fees); 37 CFR 1.20 (Post Issuance fees); 37 CFR 1.21 (Miscellaneous fees and charges)

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1251	EXTENSION FOR RESPONSE WITHIN FIRST MONTH	220.00	1	220.00
			TOTAL AMOUNT:	$220.00

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 17/328,388	Filing Date 05/24/2021	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $480 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	12/21/2022	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 12	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 1	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/ANGELA S WHITE/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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NOTICE OF ALLOWANCE AND FEE(S) DUE

142078 7590 01/25/2023

Reinhart (Milwaukee Tool)
ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE, WI 53202

EXAMINER
GUADALUPE, YARITZA

ART UNIT	PAPER NUMBER
2855	

DATE MAILED: 01/25/2023

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/328,388	05/24/2021	Jonathan F. Vitas	066749-2558	6253

TITLE OF INVENTION: Tape Measure with Tape Blade Profile Increasing Tape Standout

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	04/25/2023

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 40% the amount of undiscounted fees, and micro entity fees are 20% the amount of undiscounted fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

142078 7590 01/25/2023
Reinhart (Milwaukee Tool)
ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE, WI 53202

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/328,388	05/24/2021	Jonathan F. Vitas	066749-2558	6253

TITLE OF INVENTION: Tape Measure with Tape Blade Profile Increasing Tape Standout

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	04/25/2023

EXAMINER	ART UNIT	CLASS-SUBCLASS
GUADALUPE, YARITZA	2855	033-771000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/328,388	05/24/2021	Jonathan F. Vitas	066749-2558	6253

142078 7590 01/25/2023

Reinhart (Milwaukee Tool)
ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE, WI 53202

EXAMINER	
GUADALUPE, YARITZA	
ART UNIT	PAPER NUMBER
2855	

DATE MAILED: 01/25/2023

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 17/328,388	Applicant(s) Vitas et al.	
	Examiner YARITZA GUADALUPE-MCCALL	Art Unit 2855	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to the Terminal Disclaimer filed December 21, 2022.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-12 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some* c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/YARITZA GUADALUPE-MCCALL/
Primary Examiner, Art Unit 2855

DETAILED ACTION

In response to the Terminal Disclaimer filed December 21, 2022

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Reasons for Allowance

1. The following is an examiner's statement of reasons for allowance:

a. Claims 1 – 12 are allowable over the Prior Art of Record because it fails to teach or suggest a tape measure comprising an elongate blade wound around the reel, the elongate blade comprising an elongate metal core having a first thickness, T1, between 0.12 mm and 0.14 mm; a length between 15 feet and 40 feet; a flat width of 20 mm to 40 mm; a curved profile such that the upper surface of the elongate blade defines a concave surface and the lower surface defines a convex surface; a curved width, wherein the curved width is less than the flat width; and a curved height between 8.5 mm and 9.5 mm; wherein a ratio of the curved width to the flat width is between 0.6 and 0.8; wherein a ratio of curved height to flat width is greater than 0.285; wherein a standout distance of the elongate blade from the housing is greater than 150 inches; and a retraction system

coupled to the tape reel, wherein the retraction system drives rewinding of the elongate blade on to the tape reel in combination with the remaining limitations of the claims.

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Vitas et al. (US Pub. 2022/0363510)

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to YARITZA GUADALUPE-MCCALL whose telephone number is (571)272-2244. The examiner can normally be reached on Mon -Thu, 8:00am - 6:00pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

4. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lisa Caputo, can be reached on (571) 272 - 2388. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

YARITZA GUADALUPE-MCCALL
Primary Examiner
Art Unit 2855
January 14, 2023

/YARITZA GUADALUPE-MCCALL/
Primary Examiner, Art Unit 2855

Notice of References Cited	Application/Control No. 17/328,388	Applicant(s)/Patent Under Reexamination Vitas et al.	
	Examiner YARITZA GUADALUPE-MCCALL	Art Unit 2855	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20220363510-A1	11-2022	Vitas; Jonathan F.	G01B3/1056	1/1
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/328,388	Vitas et al.
	Examiner	Art Unit
	YARITZA GUADALUPE-MCCALL	2855

CPC - Searched*		
Symbol	Date	Examiner
G01B3/1003 OR G01B1/00 OR G01B3/1041 OR G01B2003/103 OR G01B2003/1038	01/14/2023	YGM

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
PE2E Search	01/14/2023	YGM
Inventor Search	01/14/2023	YGM
Text Search	01/14/2023	YGM
CPC Search	01/14/2023	YGM
Similarity Search	01/14/2023	YGM

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
G01B	3/10	01/14/2023	YGM

	/YARITZA GUADALUPE-MCCALL/ Primary Examiner, Art Unit 2861

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/328,388	Vitas et al.
	Examiner	**Art Unit**
	YARITZA GUADALUPE-MCCALL	2855

CPC								
Symbol							**Type**	**Version**
G01B	/	3	/	1003			F	2020-01-01
G01B	/	3	/	1041			I	2013-01-01
G01B	/	1	/	00			I	2013-01-01
G01B	/	2003	/	103			A	2013-01-01
G01B	/	2003	/	1038			A	2013-01-01

CPC Combination Sets								
Symbol							**Type**	**Set**	**Ranking**	**Version**
	/		/							

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	12	
/YARITZA GUADALUPE-MCCALL/ Primary Examiner, Art Unit 2855	14 January 2023	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	12	1

U.S. Patent and Trademark Office

Part of Paper No.: 20230114

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/328,388	Vitas et al.
	Examiner	**Art Unit**
	YARITZA GUADALUPE-MCCALL	2855

INTERNATIONAL CLASSIFICATION				
CLAIMED				
G01B3/1003	/	3	/	1003
G01B3/1041	/	3	/	1041

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	12	
/YARITZA GUADALUPE-MCCALL/ Primary Examiner, Art Unit 2855	14 January 2023	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	12	1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/328,388	Vitas et al.
	Examiner	**Art Unit**
	YARITZA GUADALUPE-MCCALL	2855

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10												
	2		11												
	3		12												
	4														
	5														
	6														
	7														
	8														
	9														

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	12	
/YARITZA GUADALUPE-MCCALL/ Primary Examiner, Art Unit 2855	14 January 2023	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	12	1

U.S. Patent and Trademark Office

Part of Paper No.: 20230114

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/328,388	Vitas et al.
	Examiner	Art Unit
	YARITZA GUADALUPE-MCCALL	2855

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/19/2022	01/14/2023							
	1	✓	=							
	2	O	=							
	3	✓	=							
	4	✓	=							
	5	O	=							
	6	O	=							
	7	O	=							
	8	✓	=							
	9	✓	=							
	10	✓	=							
	11	O	=							
	12	✓	=							

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	11	("0000002" OR "10422617" OR "10697747" OR "10712142" OR "11022416" OR "20070079520" OR "20080010847" OR "20150247716" OR "4429462" OR "6324769" OR "7159331").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/01/19 09:55 PM
L2	7024	(G01B3/1003 OR G01B1/00 OR G01B3/1041 OR G01B2003/103 OR G01B2003/1038).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 11:08 AM
L3	206	L2 AND standout	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 11:09 AM
L4	1276	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3 ("CORPORATION"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/01/20 01:45 PM
L5	90	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/01/20 01:49 PM

L6	165	(tape ADJ measure) AND standout	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 01:51 PM
L7	10	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 02:01 PM
L8	33	(Artificial Intelligence) More like doc: US-20210278188-A1 Text: (WO-2019040752-A1 OR CN-111033167-A OR WO-2019160867-A1 OR US-20200370873-A1 OR CN-113124725-A OR CN-111758011-A OR US-20190063893-A1 OR TW-201917346-A OR EP-3762679-A1 OR CN-109661556-A OR US-10712142-B2 OR BR-202012023804-Y1 OR US-11199390-B2 OR US-20180195847-A1 OR US-10126107-B2 OR US-7395608-B2 OR CN-111989535-A OR US-20080010847-A1 OR CA-3044195-A1 OR WO-2018048810-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 02:01 PM

		A1).did.					
L9	33	(Artificial Intelligence) More like doc: US-20200340792-A1 Text: (WO-2019040752-A1 OR CN-111033167-A OR WO-2019160867-A1 OR US-20200370873-A1 OR CN-113124725-A OR US-20190063893-A1 OR CN-111758011-A OR US-10712142-B2 OR TW-201917346-A OR EP-3762679-A1 OR BR-202012023804-Y1 OR CN-109661556-A OR US-10126107-B2 OR US-20180195847-A1 OR US-7395608-B2 OR CA-3044195-A1 OR US-11199390-B2 OR CN-111989535-A OR WO-2018048810-A1 OR EP-3510347-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 02:07 PM
L10	32	(Artificial Intelligence) More like doc: US-10697747-B1 Text: (US-10422617-B1 OR US-20190316892-A1 OR US-20210278188-A1 OR WO-2019040752-A1 OR CN-111033167-A OR US-11022416-B2 OR WO-2019160867-A1 OR US-20200370873-A1 OR US-20200340792-A1 OR EP-3762679-A4 OR TW-201917346-A OR CN-111758011-A OR US-20190063893-A1 OR US-10712142-B2 OR US-10876825-B2 OR US-10132605-B2 OR EP-3510347-A4 OR BR-202012023804-Y1 OR US-20190242686-A1 OR TW-201812242-A).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 02:08 PM
L11	11	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY,	OR	ON	ON	2022/01/20 02:10 PM

		B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L12	4	(tape ADJ measure) AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 04:06 PM
L13	533006	(G01B3/1041 OR G01B1/00 OR G01B3/1003 OR G01B3/1005 OR G01B3/1043 OR G01B3/1046 OR G01B3/1056 OR G01B2003/103 OR G01B3/1084 OR G01B2003/1038 OR G01B2003/1053 OR G01B2003/1058 OR G01B2003/1015 OR G01B3/1048 OR G01B3/1061 OR G01B3/1069 OR G01B2003/1025 OR G01B3/1094 OR G01B3/10 OR G01B2003/1064 OR G01B3/1089 OR G01B3/1092 OR G01B2003/101 OR G01B3/102 OR G01B21/042 OR G01B2003/1074 OR G01B5/012 OR G01B3/1071 OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 04:07 PM

		G01B7/18 OR G01B2003/1087 OR G01B2003/1012 OR G01B2003/1023 OR G01B2003/1051 OR G01B5/0014 OR G01B3/30 OR G01B3/1007 OR G01B3/004 OR G01B3/1004 OR G01B2003/1028 OR G01B2003/1035 OR G01B2003/1076 OR G01B5/0004 OR G01B3/04 OR G01B5/008 OR G01B5/02 OR G01B2003/1017 OR G01B5/016 OR G01B21/04 OR G01B5/025 OR G01B3/11 OR G01B11/02 OR G01B2210/00 OR G01B3/02 OR G01B5/0009 OR G01B11/005 OR G01B2003/1033 OR G01B7/14 OR G01B2003/1079 OR G01B21/02 OR G01B7/003 OR G01B2210/58 OR G01B5/0002 OR G01B5/0016 OR G01B7/02 OR G01B11/16 OR G01B7/30 OR G01B3/566 OR G01B2003/1097 OR G01B3/06 OR G01B5/30 OR G01B3/006 OR G01B5/0007 OR G01B5/12 OR G01B7/026 OR G01B7/16 OR G01B11/24 OR G01B11/026 OR G01B11/18 OR G01B3/20 OR G01B7/012 OR G01B2003/1066 OR G01B3/14 OR G01B3/18 OR G01B5/28 OR G01B3/008 OR G01B5/00 OR					

		G01B5/14 OR G01B3/563 OR G01B5/20 OR G01B9/08 OR G01B11/06 OR G01B21/08 OR G01B3/12 OR G01B3/38 OR G01B11/007 OR G01B11/26 OR G01B15/02 OR G01B3/56 OR G01B11/245 OR G01B11/00 OR G01B3/002 OR G01B11/165 OR G01B17/02 OR G01B5/08 OR G01B5/0025 OR G01B21/32 OR G01B2210/60 OR G01B7/105 OR G01B21/047 OR G01B3/205 OR G01B3/08 OR G01B5/061 OR G01B7/20 OR G01B7/28 OR G01B9/02091 OR G01B5/0035 OR G01B11/0691 OR G01B21/045 OR G01B2210/44 OR G01B3/22 OR G01B7/001 OR G01B7/016 OR G01B21/00 OR G01B3/34 OR G01B3/46 OR G01B5/18 OR G01B11/002 OR G01B21/30 OR G01B2290/65 OR G01B3/00 OR G01B7/22 OR G01B9/0205 OR G01B11/0608 OR G01B3/28 OR G01B17/025 OR G01B21/085 OR G01B5/06 OR G01B7/10 OR G01B21/20 OR G01B2290/00 OR G01B2290/25 OR G01B5/0023 OR G01B11/303 OR G01B3/16 OR					

		G01B7/34 OR G01B11/306 OR G01B3/50 OR G01B5/004 OR G01B5/202 OR G01B7/24 OR G01B21/10 OR G01B7/023 OR G01B7/26 OR G01B11/024 OR G01B11/028 OR G01B11/0616 OR G01B11/08 OR G01B11/12 OR G01B11/168 OR G01B11/2441 OR G01B15/04 OR G01B17/00 OR G01B2210/50 OR G01B2210/66 OR G01B3/166 OR G01B5/26 OR G01B9/02 OR G01B9/02001 OR G01B9/02044 OR G01B9/0209 OR G01B11/162 OR G01B11/30 OR G01B3/36 OR G01B5/245 OR G01B5/255 OR G01B7/046 OR G01B11/2755 OR G01B2210/14 OR G01B2210/16 OR G01B3/26 OR G01B3/32 OR G01B3/42 OR G01B5/066 OR G01B5/207 OR G01B5/242 OR G01B5/25 OR G01B7/06 OR G01B9/02064 OR G01B11/28 OR G01B13/00 OR G01B13/10 OR G01B21/14 OR G01B21/24 OR G01B5/04 OR G01B5/201 OR G01B5/204 OR G01B5/213 OR G01B5/24 OR G01B7/042 OR G01B11/043 OR G01B11/0641 OR G01B11/0675 OR					

		G01B21/06 OR G01B2210/40 OR G01B2210/56 OR G01B3/24 OR G01B3/40 OR G01B5/0021 OR G01B5/10 OR G01B7/008 OR G01B7/044 OR G01B7/15 OR G01B9/02024 OR G01B9/02056 OR G01B9/02072).cpc.					
L14	8	L13 AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 04:08 PM
L15	12	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/20 04:08 PM
L16	11	("0000002" OR "10422617" OR "10697747" OR "10712142" OR "11022416" OR "20070079520" OR "20080010847" OR "20150247716" OR "4429462" OR "6324769" OR	(US-PGPUB; USPAT)	OR	ON	ON	2022/01/27 07:11 PM

		"7159331").pn.					
L17	7039	(G01B3/1003 OR G01B1/00 OR G01B3/1041 OR G01B2003/103 OR G01B2003/1038).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM
L18	207	L2 AND standout	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM
L19	1277	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3 ("CORPORATION"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/01/27 07:11 PM
L20	91	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/01/27 07:11 PM
L21	165	(tape ADJ measure) AND standout	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO;	OR	ON	ON	2022/01/27 07:11 PM

			JPO; DERWENT; IBM_TDB)				
L22	10	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM
L23	32	(Artificial Intelligence) More like doc: US-20210278188-A1 Text: (WO-2019040752-A1 OR CN-111033167-A OR WO-2019160867-A1 OR US-20200370873-A1 OR CN-113124725-A OR CN-111758011-A OR US-20190063893-A1 OR TW-201917346-A OR EP-3762679-A1 OR CN-109661556-A OR US-10712142-B2 OR US-11199390-B2 OR US-20180195847-A1 OR US-10126107-B2 OR US-7395608-B2 OR CN-111989535-A OR US-20080010847-A1 OR CA-3044195-A1 OR WO-2018048810-A1 OR EP-3510347-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM
L24	33	(Artificial Intelligence) More like doc: US-20200340792-A1 Text: (WO-2019040752-A1 OR CN-111033167-A OR WO-2019160867-A1 OR US-20200370873-A1 OR CN-113124725-A OR US-20190063893-A1 OR CN-111758011-A OR US-10712142-B2	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA,	OR	ON	ON	2022/01/27 07:11 PM

		OR TW-201917346-A OR EP-3762679-A1 OR BR-202012023804-Y1 OR CN-109661556-A OR US-20180195847-A1 OR US-10126107-B2 OR US-7395608-B2 OR CA-3044195-A1 OR US-11199390-B2 OR CN-111989535-A OR WO-2018048810-A1 OR EP-3510347-A1).did.	VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L25	32	(Artificial Intelligence) More like doc: US-10697747-B1 Text: (US-10422617-B1 OR US-20190316892-A1 OR US-20210278188-A1 OR WO-2019040752-A1 OR CN-111033167-A OR US-11022416-B2 OR WO-2019160867-A1 OR US-20200370873-A1 OR US-20200340792-A1 OR EP-3762679-A4 OR TW-201917346-A OR CN-111758011-A OR US-20190063893-A1 OR US-10712142-B2 OR US-10876825-B2 OR US-20200011648-A1 OR US-20180106585-A1 OR US-10132605-B2 OR US-6282808-B1 OR EP-3510347-A4).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM
L26	11	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM
L27	4	(tape ADJ measure)	(US-PGPUB; USPAT;	OR	ON	ON	2022/01/27

		AND (reinforced ADJ blade)	USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				07:11 PM
L28	533803	(G01B3/1041 OR G01B1/00 OR G01B3/1003 OR G01B3/1005 OR G01B3/1043 OR G01B3/1046 OR G01B3/1056 OR G01B2003/103 OR G01B3/1084 OR G01B2003/1038 OR G01B2003/1053 OR G01B2003/1058 OR G01B2003/1015 OR G01B3/1048 OR G01B3/1061 OR G01B3/1069 OR G01B2003/1025 OR G01B3/1094 OR G01B3/10 OR G01B2003/1064 OR G01B3/1089 OR G01B3/1092 OR G01B2003/101 OR G01B3/102 OR G01B21/042 OR G01B2003/1074 OR G01B5/012 OR G01B3/1071 OR G01B7/18 OR G01B2003/1087 OR G01B2003/1012 OR G01B2003/1023 OR G01B2003/1051 OR G01B5/0014 OR G01B3/30 OR G01B3/1007 OR G01B3/004 OR G01B3/1004 OR G01B2003/1028 OR G01B2003/1035 OR G01B2003/1076 OR G01B5/0004 OR G01B3/04 OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM

		G01B5/008 OR G01B5/02 OR G01B2003/1017 OR G01B5/016 OR G01B21/04 OR G01B5/025 OR G01B3/11 OR G01B11/02 OR G01B2210/00 OR G01B3/02 OR G01B5/0009 OR G01B11/005 OR G01B2003/1033 OR G01B7/14 OR G01B2003/1079 OR G01B21/02 OR G01B7/003 OR G01B2210/58 OR G01B5/0002 OR G01B5/0016 OR G01B7/02 OR G01B11/16 OR G01B7/30 OR G01B3/566 OR G01B2003/1097 OR G01B3/06 OR G01B5/30 OR G01B3/006 OR G01B5/0007 OR G01B5/12 OR G01B7/026 OR G01B7/16 OR G01B11/24 OR G01B11/026 OR G01B11/18 OR G01B3/20 OR G01B7/012 OR G01B2003/1066 OR G01B3/14 OR G01B3/18 OR G01B5/28 OR G01B3/008 OR G01B5/00 OR G01B5/14 OR G01B3/563 OR G01B5/20 OR G01B9/08 OR G01B11/06 OR G01B21/08 OR G01B3/12 OR G01B3/38 OR G01B11/007 OR G01B11/26 OR G01B15/02 OR G01B3/56 OR G01B11/245 OR G01B11/00 OR G01B3/002 OR					

		G01B11/165 OR G01B17/02 OR G01B5/08 OR G01B5/0025 OR G01B21/32 OR G01B2210/60 OR G01B7/105 OR G01B21/047 OR G01B3/205 OR G01B3/08 OR G01B5/061 OR G01B7/20 OR G01B7/28 OR G01B9/02091 OR G01B5/0035 OR G01B11/0691 OR G01B21/045 OR G01B2210/44 OR G01B3/22 OR G01B7/001 OR G01B7/016 OR G01B21/00 OR G01B3/34 OR G01B3/46 OR G01B5/18 OR G01B11/002 OR G01B21/30 OR G01B2290/65 OR G01B3/00 OR G01B7/22 OR G01B9/0205 OR G01B11/0608 OR G01B3/28 OR G01B17/025 OR G01B21/085 OR G01B5/06 OR G01B7/10 OR G01B21/20 OR G01B2290/00 OR G01B2290/25 OR G01B5/0023 OR G01B11/303 OR G01B3/16 OR G01B7/34 OR G01B11/306 OR G01B3/50 OR G01B5/004 OR G01B5/202 OR G01B7/24 OR G01B21/10 OR G01B7/023 OR G01B7/26 OR G01B11/024 OR G01B11/028 OR G01B11/0616 OR G01B11/08 OR G01B11/12 OR G01B11/168 OR					

		G01B11/2441 OR G01B15/04 OR G01B17/00 OR G01B2210/50 OR G01B2210/66 OR G01B3/166 OR G01B5/26 OR G01B9/02 OR G01B9/02001 OR G01B9/02044 OR G01B9/0209 OR G01B11/162 OR G01B11/30 OR G01B3/36 OR G01B5/245 OR G01B5/255 OR G01B7/046 OR G01B11/2755 OR G01B2210/14 OR G01B2210/16 OR G01B3/26 OR G01B3/32 OR G01B3/42 OR G01B5/066 OR G01B5/207 OR G01B5/242 OR G01B5/25 OR G01B7/06 OR G01B9/02064 OR G01B11/28 OR G01B13/00 OR G01B13/10 OR G01B21/14 OR G01B21/24 OR G01B5/04 OR G01B5/201 OR G01B5/204 OR G01B5/213 OR G01B5/24 OR G01B7/042 OR G01B11/043 OR G01B11/0641 OR G01B11/0675 OR G01B21/06 OR G01B2210/40 OR G01B2210/56 OR G01B3/24 OR G01B3/40 OR G01B5/0021 OR G01B5/10 OR G01B7/008 OR G01B7/044 OR G01B7/15 OR G01B9/02024 OR G01B9/02056 OR G01B9/02072).cpc.					
L29	8	L13 AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT,	OR	ON	ON	2022/01/27 07:11 PM

			AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L30	12	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:11 PM
L31	186	US-10697747-$.did. US-10712142-$.did. US-10422617-$.did. US-11022416-$.did. US-20190316892-$.did. US-20200340792-$.did. US-20190063893-$.did. WO-2019040752-$.did. CN-111033167-$.did. TW-201917346-$.did. CN-113124725-$.did. US-20200370873-$.did. US-20200370874-$.did. US-20190242686-$.did. US-10746521-$.did. US-20190056208-$.did. CN-111758011-$.did. US-20180195847-$.did. US-10126107-$.did. CN-109661556-$.did. WO-2019160867-$.did. WO-2018048810-$.did. EP-3510347-$.did. AU-2017324329-$.did. CA-3044195-$.did. US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:47 PM

		20190277612-$.did. US-11199390-$.did. WO-2019173514-$.did. EP-3762679-$.did. CN-111989535-$.did. CN-113767262-$.did. US-20210072010-$.did. WO-2020227007-$.did. TW-I745424-$.did. TW-201812242-$.did. CN-109661556-$.did. JP-2001201301-$.did. JP-4648528-$.did. JP-4671482-$.did. JP-2001201302-$.did. JP-2011191310-$.did. JP-5307180-$.did. EP-1074811-$.did. US-20020029489-$.did. WO-2003031903-$.did. EP-1444479-$.did. EP-1702196-$.did. US-6804899-$.did. US-20130067759-$.did. WO-2005065227-$.did. US-8584373-$.did. CA-2790319-$.did. CA-2790319-$.did. CA-2552174-$.did. US-7159331-$.did. US-20050138829-$.did. AU-2004311784-$.did. JP-2001241901-$.did. AU-2004311784-$.did. EP-2573506-$.did. BR-202012023804-$.did. EP-2573506-$.did. AU-2012216614-$.did. US-6449866-$.did. AU-2012216614-$.did. US-7490414-$.did. CN-111373220-$.did. US-6249986-$.did. DE-60028878-$.did. US-20080034605-$.did. US-20070006476-$.did. BR-202012023804-$.did. EP-1074813-$.did. US-10989512-$.did. WO-2019067515-$.did. DE-3335655-$.did. DE-60029279-$.did. US-20210207935-$.did. EP-1074812-$.did. US-20200278189-$.did. EP-1647797-$.did. EP-1074811-$.did. US-					

		20020078585-$.did. US-6324769-$.did. KR-20070006704-$.did. US-20150247716-$.did. US-6643947-$.did. US-7107698-$.did. US-20060168838-$.did. US-RE39719-$.did. DE-3335573-$.did. EP-1647797-$.did. EP-1074813-$.did. US-10876825-$.did. US-20180106585-$.did. CN-109804219-$.did. US-9874428-$.did. KR-20190067836-$.did. US-10132605-$.did. EP-3523600-$.did.					
L32	185	US-20200011648-$.did. WO-2018067716-$.did. US-20210108907-$.did. US-10458771-$.did. CA-3042641-$.did. US-20190056207-$.did. MX-2012010946-$.did. TW-I735674-$.did. US-6243964-$.did. US-20210348906-$.did. US-7174654-$.did. CN-108398069-$.did. MX-PA06007506-$.did. US-20060201013-$.did. US-11092418-$.did. US-20070240477-$.did. DE-3335573-$.did. US-6282808-$.did. US-20180224263-$.did. TW-I283290-$.did. US-7490500-$.did. EP-1074812-$.did. TW-201818045-$.did. CA-2629677-$.did. WO-2018148185-$.did. US-20060059703-$.did. WO-2019035029-$.did. US-7096596-$.did. WO-2007044004-$.did. US-20210088316-$.did. US-20050183279-$.did. US-7062862-$.did. DE-3335655-$.did. WO-2021011379-$.did. US-20200225017-$.did. AU-2010241209-$.did. US-11118887-$.did. EP-3680601-$.did. CN-111133271-$.did. US-10989513-$.did. US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:57 PM

		20200326171-$.did. NL-8303064-$.did. US-20210088318-$.did. CN-111133271-$.did. CN-113924456-$.did. WO-2019067531-$.did. US-11009332-$.did. CN-106767220-$.did. US-20200263969-$.did. WO-2020247374-$.did. EP-1469276-$.did. AU-2020287866-$.did. EP-1469276-$.did. EP-3928055-$.did. WO-2020171980-$.did. CA-3141136-$.did. US-20180245903-$.did. US-10605579-$.did. CN-108398069-$.did. AU-2010241209-$.did. EP-3232150-$.did. US-20170292821-$.did. CN-113302021-$.did. TW-I296702-$.did. US-8117763-$.did. US-20110179664-$.did. CA-2725259-$.did. EP-2357443-$.did. CA-2725259-$.did. US-11226187-$.did. NL-8303047-$.did. US-20110099828-$.did. EP-3165871-$.did. US-20200033108-$.did. US-20210095946-$.did. CA-2944209-$.did. US-9329014-$.did. EP-3165871-$.did. WO-2019035026-$.did. US-20210131780-$.did. CA-2944209-$.did. EP-2400258-$.did. TW-552398-$.did. AU-2004201113-$.did. AU-2016244217-$.did. CN-112534205-$.did. US-20040205976-$.did. WO-2020142266-$.did. CN-109804219-$.did. AU-2010241219-$.did. US-6892468-$.did. AU-2004201113-$.did. US-20110179661-$.did. US-8117762-$.did. EP-2400258-$.did. US-7007400-$.did. WO-2020023528-$.did. AU-2010241219-$.did. CA-					

		2460404-$.did. AU-2016244217-$.did.					
L33	185	CA-2725254-$.did. US-20050210696-$.did. CA-2725254-$.did. MX-PA01001686-$.did. US-6959500-$.did. WO-2020205821-$.did. US-20050022413-$.did. DE-3600719-$.did. TW-201839348-$.did. EP-1914508-$.did. US-6907676-$.did. US-20050022412-$.did. EP-2846125-$.did. US-11022417-$.did. US-20210247170-$.did. US-9032639-$.did. US-20180274894-$.did. US-20140007444-$.did. AU-2014221294-$.did. US-20210102794-$.did. EP-2846125-$.did. US-20160061573-$.did. WO-2007030112-$.did. US-9841264-$.did. WO-2020252172-$.did. WO-2021183519-$.did. WO-2005114092-$.did. TW-518407-$.did. US-20020129509-$.did. WO-2018175612-$.did. TW-550374-$.did. US-8528222-$.did. US-20130145637-$.did. TW-201839349-$.did. US-20070079520-$.did. WO-2007044739-$.did. EP-2998689-$.did. CA-2603000-$.did. CA-2901361-$.did. CN-112088286-$.did. CA-2862207-$.did. US-20050252020-$.did. EP-2469218-$.did. US-20210025685-$.did. EP-1914508-$.did. EP-1914509-$.did. US-20080086902-$.did. TW-201522909-$.did. CN-106091856-$.did. US-10767971-$.did. US-7565751-$.did. WO-2019195246-$.did. CN-107421407-$.did. US-10260852-$.did. DE-69922969-$.did. EP-2998689-$.did. CA-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 07:59 PM

		2603361-$.did. CA-2603361-$.did. US-7398604-$.did. CN-103134406-$.did. US-20080086904-$.did. TW-201237364-$.did. CN-106091856-$.did. DE-3600719-$.did. CA-2603000-$.did. CN-106767220-$.did. US-9846021-$.did. AU-2011253971-$.did. AU-2011253971-$.did. US-20120159799-$.did. EP-1914509-$.did. US-8375595-$.did. CA-2901361-$.did. TW-I532975-$.did. AU-2011253971-$.did. AU-2011253971-$.did. CN-113939709-$.did. TW-200827665-$.did. CN-204388729-$.did. CN-212843235-$.did. CN-112066832-$.did. CA-2761887-$.did. CN-101358821-$.did. CN-101358822-$.did. EP-2469218-$.did. CN-100429470-$.did. CN-1922462-$.did. TW-I644079-$.did. TW-200848697-$.did. US-20190170491-$.did. US-11231261-$.did. US-20160138900-$.did. US-20080098610-$.did. EP-2786092-$.did. US-9851193-$.did. WO-2013082098-$.did. US-20140196302-$.did. US-6996915-$.did. US-9163918-$.did. FR-2535840-$.did.					
L34	207	US-20150168118-$.did. EP-2786092-$.did. US-20060240195-$.did. US-20200333123-$.did. JP-2007018624-$.did. US-9470500-$.did. US-20210095947-$.did. US-20210088317-$.did. TW-I472713-$.did. WO-2020159114-$.did. AU-2012346129-$.did. US-5062215-$.did. TW-201333424-$.did. US-10859362-$.did. US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO;	OR	ON	ON	2022/01/27 08:04 PM

		2680576-$.did. KR-20190078597-$.did. AU-7876998-$.did. WO-2019046248-$.did. WO-2019191234-$.did. EP-3278056-$.did. US-20200318939-$.did. CA-1193854-$.did. CA-2857462-$.did. US-7730630-$.did. CA-2857462-$.did. US-7395608-$.did. US-10690472-$.did. US-20180283837-$.did. JP-5467655-$.did. US-20080010847-$.did. AU-2012346129-$.did. US-8191278-$.did. KR-102236808-$.did. JP-2012232349-$.did. WO-2012147519-$.did. US-20070056182-$.did. CN-101165453-$.did. US-4375721-$.did. JP-2004127340-$.did. BR-102020017149-$.did. US-20100293801-$.did. CN-101165453-$.did. WO-2004033114-$.did. US-8033033-$.did. US-8898922-$.did. EP-3567336-$.did. DE-202005012765-$.did. CA-2499811-$.did. US-20210325159-$.did. CA-2796657-$.did. WO-2003085353-$.did. US-20040071869-$.did. US-20130133215-$.did. CA-2796657-$.did. WO-2009157135-$.did. WO-2020014578-$.did. BR-102013023828-$.did. WO-2019035036-$.did. AU-2012258438-$.did. CA-2592531-$.did. US-4411072-$.did. CA-2592531-$.did. AU-2012258438-$.did. US-7251904-$.did. US-9441932-$.did. EP-1923661-$.did. EP-0896200-$.did. CN-110446904-$.did. US-20200333122-$.did. US-7900370-$.did. KR-20210038713-$.did. US-11052565-$.did.	JPO; DERWENT; IBM_TDB)				

		US-20070124951-$.did. US-20150040416-$.did. EP-2784437-$.did. CA-3044290-$.did. US-20200023541-$.did. JP-2013215856-$.did. CA-2940626-$.did. TW-I345048-$.did. EP-3136044-$.did. US-20030154617-$.did. FR-2767915-$.did. US-9778010-$.did. KR-20200094615-$.did. CN-112400093-$.did. US-20140075772-$.did. AU-2014201834-$.did. CN-110986715-$.did. GB-2127968-$.did. JP-2001179682-$.did. CN-111989536-$.did. US-8590171-$.did. US-10836603-$.did. JP-2005317068-$.did. US-4578867-$.did. CN-110986715-$.did. CA-1193855-$.did. CA-2940626-$.did. CN-105318795-$.did.					
L35	206	US-9239217-$.did. US-20170059294-$.did. US-20180273341-$.did. AU-2018240118-$.did. TW-I283291-$.did. EP-1104542-$.did. GB-2127967-$.did. US-20160290776-$.did. EP-3567336-$.did. JP-2021196361-$.did. CA-2243262-$.did. WO-2018175461-$.did. AU-2013222009-$.did. EP-3601943-$.did. AU-2013222009-$.did. WO-2016161452-$.did. JP-2001273629-$.did. US-7559154-$.did. US-9207058-$.did. US-20140290085-$.did. EP-2924388-$.did. EP-3278056-$.did. US-8479630-$.did. CN-202660994-$.did. US-10012489-$.did. TW-I665377-$.did. FR-2872894-$.did. US-20130133216-$.did. TW-200827664-$.did. US-20070087170-$.did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 08:06 PM

		US-6115933-$.did. EP-2784437-$.did. US-5402583-$.did. TW-201608209-$.did. US-8898921-$.did. US-2893655-$.did. US-3545322-$.did. US-5001843-$.did. CA-2519363-$.did. WO-2021124188-$.did. CN-1752711-$.did. CA-1193853-$.did. CA-2840859-$.did. AU-2014201834-$.did. TW-200831851-$.did. US-20210283797-$.did. CN-107407546-$.did. CA-2840859-$.did. KR-102261071-$.did. GB-2431394-$.did. US-20210070585-$.did. US-5349760-$.did. CA-1233978-$.did. JP-6426728-$.did. US-7458536-$.did. TW-I611092-$.did. RU-2278780-$.did. CA-2826135-$.did. US-6910280-$.did. EP-2111528-$.did. WO-2000009969-$.did. US-6237243-$.did. EP-1104542-$.did. EP-2711662-$.did. US-4429462-$.did. US-7555845-$.did. US-20070101599-$.did. MX-2015001369-$.did. CA-1307106-$.did. US-20060118244-$.did. US-4903912-$.did. US-4930227-$.did. US-20080034604-$.did. JP-2009508703-$.did. EP-0354779-$.did. US-20210389110-$.did. US-20100224046-$.did. US-20040143984-$.did. US-20060038050-$.did. TW-202134591-$.did. EP-2955476-$.did. KR-20210128478-$.did. WO-2004094937-$.did. WO-2008021759-$.did. AU-2016222406-$.did. WO-2008132515-$.did. US-6367161-$.did. EP-2144725-$.did. JP-					

		6143825-$.did. JP-2007109324-$.did. TW-201809445-$.did. GB-2169707-$.did. US-6971185-$.did. JP-2010040096-$.did. JP-5269180-$.did. CA-2826135-$.did. AU-2006230689-$.did. US-20050183280-$.did. JP-2004005774-$.did.					
L36	12	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/01/27 09:00 PM
L37	11	("0000002" OR "10422617" OR "10697747" OR "10712142" OR "11022416" OR "20070079520" OR "20080010847" OR "20150247716" OR "4429462" OR "6324769" OR "7159331").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/08/18 11:06 PM
L38	7263	(G01B3/1003 OR G01B1/00 OR G01B3/1041 OR G01B2003/103 OR G01B2003/1038).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L39	223	L2 AND standout	(US-PGPUB; USPAT;	OR	ON	ON	2022/08/18

			USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				11:06 PM
L40	1401	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3 ("CORPORATION"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/08/18 11:06 PM
L41	100	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/08/18 11:06 PM
L42	177	(tape ADJ measure) AND standout	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L43	10	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM

L44	29	(Artificial Intelligence) More like doc: US-20210278188-A1 Text: (US-11293739-B2 OR US-20220065605-A1 OR US-11022416-B2 OR US-20200340792-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR US-7395608-B2 OR US-20080010847-A1 OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR EP-3762679-A1 OR US-11199390-B2 OR US-20220042779-A1 OR US-10126107-B2).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L45	30	(Artificial Intelligence) More like doc: US-20200340792-A1 Text: (US-11022416-B2 OR US-11293739-B2 OR US-20220065605-A1 OR US-20210278188-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR US-7395608-B2 OR US-20080010847-A1 OR TW-201917346-A OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR EP-3762679-A1 OR US-11199390-B2 OR US-20220042779-A1 OR US-20180195847-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L46	29	(Artificial Intelligence) More like doc: US-10697747-B1 Text: (US-11293739-B2 OR	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA,	OR	ON	ON	2022/08/18 11:06 PM

		US-20220065605-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-20210278188-A1 OR US-11022416-B2 OR US-20200340792-A1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR US-7395608-B2 OR US-20080010847-A1 OR WO-2018048810-A1 OR AU-2017324329-A1 OR US-20180195847-A1 OR US-10126107-B2).did.	EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L47	11	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L48	5	(tape ADJ measure) AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L49	561220	(G01B3/1041 OR G01B1/00 OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT,	OR	ON	ON	2022/08/18 11:06 PM

		G01B3/1003 OR G01B3/1005 OR G01B3/1043 OR G01B3/1046 OR G01B3/1056 OR G01B2003/103 OR G01B3/1084 OR G01B2003/1038 OR G01B2003/1053 OR G01B2003/1058 OR G01B2003/1015 OR G01B3/1048 OR G01B3/1061 OR G01B3/1069 OR G01B2003/1025 OR G01B3/1094 OR G01B3/10 OR G01B2003/1064 OR G01B3/1089 OR G01B3/1092 OR G01B2003/101 OR G01B3/102 OR G01B21/042 OR G01B2003/1074 OR G01B5/012 OR G01B3/1071 OR G01B7/18 OR G01B2003/1087 OR G01B2003/1012 OR G01B2003/1023 OR G01B2003/1051 OR G01B5/0014 OR G01B3/30 OR G01B3/1007 OR G01B3/004 OR G01B3/1004 OR G01B2003/1028 OR G01B2003/1035 OR G01B2003/1076 OR G01B5/0004 OR G01B3/04 OR G01B5/008 OR G01B5/02 OR G01B2003/1017 OR G01B5/016 OR G01B21/04 OR G01B5/025 OR G01B3/11 OR G01B11/02 OR G01B2210/00 OR G01B3/02 OR G01B5/0009 OR G01B11/005 OR G01B2003/1033 OR G01B7/14 OR G01B2003/1079 OR G01B21/02 OR G01B7/003 OR	AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				

		G01B2210/58 OR G01B5/0002 OR G01B5/0016 OR G01B7/02 OR G01B11/16 OR G01B7/30 OR G01B3/566 OR G01B2003/1097 OR G01B3/06 OR G01B5/30 OR G01B3/006 OR G01B5/0007 OR G01B5/12 OR G01B7/026 OR G01B7/16 OR G01B11/24 OR G01B11/026 OR G01B11/18 OR G01B3/20 OR G01B7/012 OR G01B2003/1066 OR G01B3/14 OR G01B3/18 OR G01B5/28 OR G01B3/008 OR G01B5/00 OR G01B5/14 OR G01B3/563 OR G01B5/20 OR G01B9/08 OR G01B11/06 OR G01B21/08 OR G01B3/12 OR G01B3/38 OR G01B11/007 OR G01B11/26 OR G01B15/02 OR G01B3/56 OR G01B11/245 OR G01B11/00 OR G01B3/002 OR G01B11/165 OR G01B17/02 OR G01B5/08 OR G01B5/0025 OR G01B21/32 OR G01B2210/60 OR G01B7/105 OR G01B21/047 OR G01B3/205 OR G01B3/08 OR G01B5/061 OR G01B7/20 OR G01B7/28 OR G01B9/02091 OR G01B5/0035 OR G01B11/0691 OR G01B21/045 OR					

		G01B2210/44 OR G01B3/22 OR G01B7/001 OR G01B7/016 OR G01B21/00 OR G01B3/34 OR G01B3/46 OR G01B5/18 OR G01B11/002 OR G01B21/30 OR G01B2290/65 OR G01B3/00 OR G01B7/22 OR G01B9/0205 OR G01B11/0608 OR G01B3/28 OR G01B17/025 OR G01B21/085 OR G01B5/06 OR G01B7/10 OR G01B21/20 OR G01B2290/00 OR G01B2290/25 OR G01B5/0023 OR G01B11/303 OR G01B3/16 OR G01B7/34 OR G01B11/306 OR G01B3/50 OR G01B5/004 OR G01B5/202 OR G01B7/24 OR G01B21/10 OR G01B7/023 OR G01B7/26 OR G01B11/024 OR G01B11/028 OR G01B11/0616 OR G01B11/08 OR G01B11/12 OR G01B11/168 OR G01B11/2441 OR G01B15/04 OR G01B17/00 OR G01B2210/50 OR G01B2210/66 OR G01B3/166 OR G01B5/26 OR G01B9/02 OR G01B9/02001 OR G01B9/02044 OR G01B9/0209 OR G01B11/162 OR G01B11/30 OR G01B3/36 OR G01B5/245 OR G01B5/255 OR G01B7/046 OR					

		G01B11/2755 OR G01B2210/14 OR G01B2210/16 OR G01B3/26 OR G01B3/32 OR G01B3/42 OR G01B5/066 OR G01B5/207 OR G01B5/242 OR G01B5/25 OR G01B7/06 OR G01B9/02064 OR G01B11/28 OR G01B13/00 OR G01B13/10 OR G01B21/14 OR G01B21/24 OR G01B5/04 OR G01B5/201 OR G01B5/204 OR G01B5/213 OR G01B5/24 OR G01B7/042 OR G01B11/043 OR G01B11/0641 OR G01B11/0675 OR G01B21/06 OR G01B2210/40 OR G01B2210/56 OR G01B3/24 OR G01B3/40 OR G01B5/0021 OR G01B5/10 OR G01B7/008 OR G01B7/044 OR G01B7/15 OR G01B9/02024 OR G01B9/02056 OR G01B9/02072).cpc.					
L50	9	L13 AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L51	12	((US-20210278188-A1 OR US-20200340792-	(US-PGPUB; USPAT; USOCR; FIT (AP, AT,	OR	ON	ON	2022/08/18 11:06 PM

		A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L52	11	("0000002" OR "10422617" OR "10697747" OR "10712142" OR "11022416" OR "20070079520" OR "20080010847" OR "20150247716" OR "4429462" OR "6324769" OR "7159331").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/08/18 11:06 PM
L53	7263	(G01B3/1003 OR G01B1/00 OR G01B3/1041 OR G01B2003/103 OR G01B2003/1038).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L54	223	L2 AND standout	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO;	OR	ON	ON	2022/08/18 11:06 PM

			JPO; DERWENT; IBM_TDB)				
L55	1401	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3 ("CORPORATION"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/08/18 11:06 PM
L56	100	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/08/18 11:06 PM
L57	177	(tape ADJ measure) AND standout	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L58	10	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L59	29	(Artificial Intelligence) More like doc: US-20210278188-A1 Text: (US-11293739-B2 OR US-20220065605-A1 OR US-11022416-B2 OR US-20200340792-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA,	OR	ON	ON	2022/08/18 11:06 PM

		US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR US-7395608-B2 OR US-20080010847-A1 OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR EP-3762679-A1 OR US-11199390-B2 OR US-20220042779-A1 OR US-10126107-B2).did.	VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L60	30	(Artificial Intelligence) More like doc: US-20200340792-A1 Text: (US-11022416-B2 OR US-11293739-B2 OR US-20220065605-A1 OR US-20210278188-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR US-7395608-B2 OR US-20080010847-A1 OR TW-201917346-A OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR EP-3762679-A1 OR US-11199390-B2 OR US-20220042779-A1 OR US-20180195847-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L61	29	(Artificial Intelligence) More like doc: US-10697747-B1 Text: (US-11293739-B2 OR US-20220065605-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-20210278188-A1 OR US-11022416-B2 OR US-20200340792-A1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR CN-114858027-A OR	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM

		CN-111033167-B OR CN-111033167-A OR US-7395608-B2 OR US-20080010847-A1 OR WO-2018048810-A1 OR AU-2017324329-A1 OR US-20180195847-A1 OR US-10126107-B2).did.					
L62	11	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L63	5	(tape ADJ measure) AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L64	561220	(G01B3/1041 OR G01B1/00 OR G01B3/1003 OR G01B3/1005 OR G01B3/1043 OR G01B3/1046 OR G01B3/1056 OR G01B2003/103 OR G01B3/1084 OR G01B2003/1038 OR G01B2003/1053 OR G01B2003/1058 OR G01B2003/1015 OR G01B3/1048 OR G01B3/1061 OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT;	OR	ON	ON	2022/08/18 11:06 PM

		G01B3/1069 OR G01B2003/1025 OR G01B3/1094 OR G01B3/10 OR G01B2003/1064 OR G01B3/1089 OR G01B3/1092 OR G01B2003/101 OR G01B3/102 OR G01B21/042 OR G01B2003/1074 OR G01B5/012 OR G01B3/1071 OR G01B7/18 OR G01B2003/1087 OR G01B2003/1012 OR G01B2003/1023 OR G01B2003/1051 OR G01B5/0014 OR G01B3/30 OR G01B3/1007 OR G01B3/004 OR G01B3/1004 OR G01B2003/1028 OR G01B2003/1035 OR G01B2003/1076 OR G01B5/0004 OR G01B3/04 OR G01B5/008 OR G01B5/02 OR G01B2003/1017 OR G01B5/016 OR G01B21/04 OR G01B5/025 OR G01B3/11 OR G01B11/02 OR G01B2210/00 OR G01B3/02 OR G01B5/0009 OR G01B11/005 OR G01B2003/1033 OR G01B7/14 OR G01B2003/1079 OR G01B21/02 OR G01B7/003 OR G01B2210/58 OR G01B5/0002 OR G01B5/0016 OR G01B7/02 OR G01B11/16 OR G01B7/30 OR G01B3/566 OR G01B2003/1097 OR G01B3/06 OR G01B5/30 OR G01B3/006 OR G01B5/0007 OR G01B5/12 OR	IBM_TDB)				

		G01B7/026 OR G01B7/16 OR G01B11/24 OR G01B11/026 OR G01B11/18 OR G01B3/20 OR G01B7/012 OR G01B2003/1066 OR G01B3/14 OR G01B3/18 OR G01B5/28 OR G01B3/008 OR G01B5/00 OR G01B5/14 OR G01B3/563 OR G01B5/20 OR G01B9/08 OR G01B11/06 OR G01B21/08 OR G01B3/12 OR G01B3/38 OR G01B11/007 OR G01B11/26 OR G01B15/02 OR G01B3/56 OR G01B11/245 OR G01B11/00 OR G01B3/002 OR G01B11/165 OR G01B17/02 OR G01B5/08 OR G01B5/0025 OR G01B21/32 OR G01B2210/60 OR G01B7/105 OR G01B21/047 OR G01B3/205 OR G01B3/08 OR G01B5/061 OR G01B7/20 OR G01B7/28 OR G01B9/02091 OR G01B5/0035 OR G01B11/0691 OR G01B21/045 OR G01B2210/44 OR G01B3/22 OR G01B7/001 OR G01B7/016 OR G01B21/00 OR G01B3/34 OR G01B3/46 OR G01B5/18 OR G01B11/002 OR G01B21/30 OR G01B2290/65 OR G01B3/00 OR G01B7/22 OR					

		G01B9/0205 OR G01B11/0608 OR G01B3/28 OR G01B17/025 OR G01B21/085 OR G01B5/06 OR G01B7/10 OR G01B21/20 OR G01B2290/00 OR G01B2290/25 OR G01B5/0023 OR G01B11/303 OR G01B3/16 OR G01B7/34 OR G01B11/306 OR G01B3/50 OR G01B5/004 OR G01B5/202 OR G01B7/24 OR G01B21/10 OR G01B7/023 OR G01B7/26 OR G01B11/024 OR G01B11/028 OR G01B11/0616 OR G01B11/08 OR G01B11/12 OR G01B11/168 OR G01B11/2441 OR G01B15/04 OR G01B17/00 OR G01B2210/50 OR G01B2210/66 OR G01B3/166 OR G01B5/26 OR G01B9/02 OR G01B9/02001 OR G01B9/02044 OR G01B9/0209 OR G01B11/162 OR G01B11/30 OR G01B3/36 OR G01B5/245 OR G01B5/255 OR G01B7/046 OR G01B11/2755 OR G01B2210/14 OR G01B2210/16 OR G01B3/26 OR G01B3/32 OR G01B3/42 OR G01B5/066 OR G01B5/207 OR G01B5/242 OR G01B5/25 OR G01B7/06 OR G01B9/02064 OR G01B11/28 OR					

		G01B13/00 OR G01B13/10 OR G01B21/14 OR G01B21/24 OR G01B5/04 OR G01B5/201 OR G01B5/204 OR G01B5/213 OR G01B5/24 OR G01B7/042 OR G01B11/043 OR G01B11/0641 OR G01B11/0675 OR G01B21/06 OR G01B2210/40 OR G01B2210/56 OR G01B3/24 OR G01B3/40 OR G01B5/0021 OR G01B5/10 OR G01B7/008 OR G01B7/044 OR G01B7/15 OR G01B9/02024 OR G01B9/02056 OR G01B9/02072).cpc.					
L65	9	L13 AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM
L66	12	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT;	OR	ON	ON	2022/08/18 11:06 PM

		11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	IBM_TDB)				
L67	192	US-10697747-$.did. US-10712142-$.did. US-10422617-$.did. US-11022416-$.did. US-20190316892-$.did. US-20200340792-$.did. US-20190063893-$.did. WO-2019040752-$.did. CN-111033167-$.did. TW-201917346-$.did. CN-113124725-$.did. US-20200370873-$.did. US-20200370874-$.did. US-20190242686-$.did. US-10746521-$.did. US-20190056208-$.did. CN-111758011-$.did. US-20180195847-$.did. US-10126107-$.did. CN-109661556-$.did. WO-2019160867-$.did. WO-2018048810-$.did. EP-3510347-$.did. AU-2017324329-$.did. CA-3044195-$.did. US-20190277612-$.did. US-11199390-$.did. WO-2019173514-$.did. EP-3762679-$.did. CN-111989535-$.did. CN-113767262-$.did. US-20210072010-$.did. WO-2020227007-$.did. TW-I745424-$.did. TW-201812242-$.did. CN-109661556-$.did. JP-2001201301-$.did. JP-4648528-$.did. JP-4671482-$.did. JP-2001201302-$.did. JP-2011191310-$.did. JP-5307180-$.did. EP-1074811-$.did. US-20020029489-$.did. WO-2003031903-$.did. EP-1444479-$.did. EP-1702196-$.did. US-6804899-$.did. US-20130067759-$.did. WO-2005065227-$.did. US-8584373-$.did. CA-2790319-$.did. CA-2790319-$.did. CA-2552174-$.did. US-7159331-$.did. US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM

		20050138829-$.did. AU-2004311784-$.did. JP-2001241901-$.did. AU-2004311784-$.did. EP-2573506-$.did. BR-202012023804-$.did. EP-2573506-$.did. AU-2012216614-$.did. US-6449866-$.did. AU-2012216614-$.did. US-7490414-$.did. CN-111373220-$.did. US-6249986-$.did. DE-60028878-$.did. US-20080034605-$.did. US-20070006476-$.did. BR-202012023804-$.did. EP-1074813-$.did. US-10989512-$.did. WO-2019067515-$.did. DE-3335655-$.did. DE-60029279-$.did. US-20210207935-$.did. EP-1074812-$.did. US-20200278189-$.did. EP-1647797-$.did. EP-1074811-$.did. US-20020078585-$.did. US-6324769-$.did. KR-20070006704-$.did. US-20150247716-$.did. US-6643947-$.did. US-7107698-$.did. US-20060168838-$.did. US-RE39719-$.did. DE-3335573-$.did. EP-1647797-$.did. EP-1074813-$.did. US-10876825-$.did. US-20180106585-$.did. CN-109804219-$.did. US-9874428-$.did. KR-20190067836-$.did. US-10132605-$.did. EP-3523600-$.did.					
L68	194	US-20200011648-$.did. WO-2018067716-$.did. US-20210108907-$.did. US-10458771-$.did. CA-3042641-$.did. US-20190056207-$.did. MX-2012010946-$.did. TW-I735674-$.did. US-6243964-$.did. US-20210348906-$.did. US-7174654-$.did. CN-108398069-$.did. MX-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK,	OR	ON	ON	2022/08/18 11:06 PM

		PA06007506-$.did. US-20060201013-$.did. US-11092418-$.did. US-20070240477-$.did. DE-3335573-$.did. US-6282808-$.did. US-20180224263-$.did. TW-I283290-$.did. US-7490500-$.did. EP-1074812-$.did. TW-201818045-$.did. CA-2629677-$.did. WO-2018148185-$.did. US-20060059703-$.did. WO-2019035029-$.did. US-7096596-$.did. WO-2007044004-$.did. US-20210088316-$.did. US-20050183279-$.did. US-7062862-$.did. DE-3335655-$.did. WO-2021011379-$.did. US-20200225017-$.did. AU-2010241209-$.did. US-11118887-$.did. EP-3680601-$.did. CN-111133271-$.did. US-10989513-$.did. US-20200326171-$.did. NL-8303064-$.did. US-20210088318-$.did. CN-111133271-$.did. CN-113924456-$.did. WO-2019067531-$.did. US-11009332-$.did. CN-106767220-$.did. US-20200263969-$.did. WO-2020247374-$.did. EP-1469276-$.did. AU-2020287866-$.did. EP-1469276-$.did. EP-3928055-$.did. WO-2020171980-$.did. CA-3141136-$.did. US-20180245903-$.did. US-10605579-$.did. CN-108398069-$.did. AU-2010241209-$.did. EP-3232150-$.did. US-20170292821-$.did. CN-113302021-$.did. TW-I296702-$.did. US-8117763-$.did. US-20110179664-$.did. CA-2725259-$.did. EP-2357443-$.did. CA-2725259-$.did. US-11226187-$.did. NL-	TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				

		8303047-$.did. US-20110099828-$.did. EP-3165871-$.did. US-20200033108-$.did. US-20210095946-$.did. CA-2944209-$.did. US-9329014-$.did. EP-3165871-$.did. WO-2019035026-$.did. US-20210131780-$.did. CA-2944209-$.did. EP-2400258-$.did. TW-552398-$.did. AU-2004201113-$.did. AU-2016244217-$.did. CN-112534205-$.did. US-20040205976-$.did. WO-2020142266-$.did. CN-109804219-$.did. AU-2010241219-$.did. US-6892468-$.did. AU-2004201113-$.did. US-20110179661-$.did. US-8117762-$.did. EP-2400258-$.did. US-7007400-$.did. WO-2020023528-$.did. AU-2010241219-$.did. CA-2460404-$.did. AU-2016244217-$.did.					
L69	188	CA-2725254-$.did. US-20050210696-$.did. CA-2725254-$.did. MX-PA01001686-$.did. US-6959500-$.did. WO-2020205821-$.did. US-20050022413-$.did. DE-3600719-$.did. TW-201839348-$.did. EP-1914508-$.did. US-6907676-$.did. US-20050022412-$.did. EP-2846125-$.did. US-11022417-$.did. US-20210247170-$.did. US-9032639-$.did. US-20180274894-$.did. US-20140007444-$.did. AU-2014221294-$.did. US-20210102794-$.did. EP-2846125-$.did. US-20160061573-$.did. WO-2007030112-$.did. US-9841264-$.did. WO-2020252172-$.did. WO-2021183519-$.did. WO-2005114092-$.did. TW-518407-$.did. US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM

		20020129509-$.did. WO-2018175612-$.did. TW-550374-$.did. US-8528222-$.did. US-20130145637-$.did. TW-201839349-$.did. US-20070079520-$.did. WO-2007044739-$.did. EP-2998689-$.did. CA-2603000-$.did. CA-2901361-$.did. CN-112088286-$.did. CA-2862207-$.did. US-20050252020-$.did. EP-2469218-$.did. US-20210025685-$.did. EP-1914508-$.did. EP-1914509-$.did. US-20080086902-$.did. TW-201522909-$.did. CN-106091856-$.did. US-10767971-$.did. US-7565751-$.did. WO-2019195246-$.did. CN-107421407-$.did. US-10260852-$.did. DE-69922969-$.did. EP-2998689-$.did. CA-2603361-$.did. CA-2603361-$.did. US-7398604-$.did. CN-103134406-$.did. US-20080086904-$.did. TW-201237364-$.did. CN-106091856-$.did. DE-3600719-$.did. CA-2603000-$.did. CN-106767220-$.did. US-9846021-$.did. AU-2011253971-$.did. AU-2011253971-$.did. US-20120159799-$.did. EP-1914509-$.did. US-8375595-$.did. CA-2901361-$.did. TW-I532975-$.did. AU-2011253971-$.did. AU-2011253971-$.did. CN-113939709-$.did. TW-200827665-$.did. CN-204388729-$.did. CN-212843235-$.did. CN-112066832-$.did. CA-2761887-$.did. CN-101358821-$.did. CN-101358822-$.did. EP-2469218-$.did. CN-100429470-$.did. CN-					

		1922462-$.did. TW-I644079-$.did. TW-200848697-$.did. US-20190170491-$.did. US-11231261-$.did. US-20160138900-$.did. US-20080098610-$.did. EP-2786092-$.did. US-9851193-$.did. WO-2013082098-$.did. US-20140196302-$.did. US-6996915-$.did. US-9163918-$.did. FR-2535840-$.did.					
L70	212	US-20150168118-$.did. EP-2786092-$.did. US-20060240195-$.did. US-20200333123-$.did. JP-2007018624-$.did. US-9470500-$.did. US-20210095947-$.did. US-20210088317-$.did. TW-I472713-$.did. WO-2020159114-$.did. AU-2012346129-$.did. US-5062215-$.did. TW-201333424-$.did. US-10859362-$.did. US-2680576-$.did. KR-20190078597-$.did. AU-7876998-$.did. WO-2019046248-$.did. WO-2019191234-$.did. EP-3278056-$.did. US-20200318939-$.did. CA-1193854-$.did. CA-2857462-$.did. US-7730630-$.did. CA-2857462-$.did. US-7395608-$.did. US-10690472-$.did. US-20180283837-$.did. JP-5467655-$.did. US-20080010847-$.did. AU-2012346129-$.did. US-8191278-$.did. KR-102236808-$.did. JP-2012232349-$.did. WO-2012147519-$.did. US-20070056182-$.did. CN-101165453-$.did. US-4375721-$.did. JP-2004127340-$.did. BR-102020017149-$.did. US-20100293801-$.did. CN-101165453-$.did. WO-2004033114-$.did. US-8033033-$.did. US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM

		8898922-$.did. EP-3567336-$.did. DE-202005012765-$.did. CA-2499811-$.did. US-20210325159-$.did. CA-2796657-$.did. WO-2003085353-$.did. US-20040071869-$.did. US-20130133215-$.did. CA-2796657-$.did. WO-2009157135-$.did. WO-2020014578-$.did. BR-102013023828-$.did. WO-2019035036-$.did. AU-2012258438-$.did. CA-2592531-$.did. US-4411072-$.did. CA-2592531-$.did. AU-2012258438-$.did. US-7251904-$.did. US-9441932-$.did. EP-1923661-$.did. EP-0896200-$.did. CN-110446904-$.did. US-20200333122-$.did. US-7900370-$.did. KR-20210038713-$.did. US-11052565-$.did. US-20070124951-$.did. US-20150040416-$.did. EP-2784437-$.did. CA-3044290-$.did. US-20200023541-$.did. JP-2013215856-$.did. CA-2940626-$.did. TW-I345048-$.did. EP-3136044-$.did. US-20030154617-$.did. FR-2767915-$.did. US-9778010-$.did. KR-20200094615-$.did. CN-112400093-$.did. US-20140075772-$.did. AU-2014201834-$.did. CN-110986715-$.did. GB-2127968-$.did. JP-2001179682-$.did. CN-111989536-$.did. US-8590171-$.did. US-10836603-$.did. JP-2005317068-$.did. US-4578867-$.did. CN-110986715-$.did. CA-1193855-$.did. CA-2940626-$.did. CN-105318795-$.did.					
L71	209	US-9239217-$.did. US-20170059294-$.did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP,	OR	ON	ON	2022/08/18 11:06 PM

		US-20180273341-$.did. AU-2018240118-$.did. TW-I283291-$.did. EP-1104542-$.did. GB-2127967-$.did. US-20160290776-$.did. EP-3567336-$.did. JP-2021196361-$.did. CA-2243262-$.did. WO-2018175461-$.did. AU-2013222009-$.did. EP-3601943-$.did. AU-2013222009-$.did. WO-2016161452-$.did. JP-2001273629-$.did. US-7559154-$.did. US-9207058-$.did. US-20140290085-$.did. EP-2924388-$.did. EP-3278056-$.did. US-8479630-$.did. CN-202660994-$.did. US-10012489-$.did. TW-I665377-$.did. FR-2872894-$.did. US-20130133216-$.did. TW-200827664-$.did. US-20070087170-$.did. US-6115933-$.did. EP-2784437-$.did. US-5402583-$.did. TW-201608209-$.did. US-8898921-$.did. US-2893655-$.did. US-3545322-$.did. US-5001843-$.did. CA-2519363-$.did. WO-2021124188-$.did. CN-1752711-$.did. CA-1193853-$.did. CA-2840859-$.did. AU-2014201834-$.did. TW-200831851-$.did. US-20210283797-$.did. CN-107407546-$.did. CA-2840859-$.did. KR-102261071-$.did. GB-2431394-$.did. US-20210070585-$.did. US-5349760-$.did. CA-1233978-$.did. JP-6426728-$.did. US-7458536-$.did. TW-I611092-$.did. RU-2278780-$.did. CA-2826135-$.did. US-6910280-$.did. EP-2111528-$.did. WO-	AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				

		2000009969-$.did. US-6237243-$.did. EP-1104542-$.did. EP-2711662-$.did. US-4429462-$.did. US-7555845-$.did. US-20070101599-$.did. MX-2015001369-$.did. CA-1307106-$.did. US-20060118244-$.did. US-4903912-$.did. US-4930227-$.did. US-20080034604-$.did. JP-2009508703-$.did. EP-0354779-$.did. US-20210389110-$.did. US-20100224046-$.did. US-20040143984-$.did. US-20060038050-$.did. TW-202134591-$.did. EP-2955476-$.did. KR-20210128478-$.did. WO-2004094937-$.did. WO-2008021759-$.did. AU-2016222406-$.did. WO-2008132515-$.did. US-6367161-$.did. EP-2144725-$.did. JP-6143825-$.did. JP-2007109324-$.did. TW-201809445-$.did. GB-2169707-$.did. US-6971185-$.did. JP-2010040096-$.did. JP-5269180-$.did. CA-2826135-$.did. AU-2006230689-$.did. US-20050183280-$.did. JP-2004005774-$.did.					
L72	12	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/08/18 11:06 PM

L73	1401	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3 ("CORPORATION"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/08/19 09:28 AM
L74	100	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/08/19 09:37 AM
L75	11	("0000002" OR "10422617" OR "10697747" OR "10712142" OR "11022416" OR "20070079520" OR "20080010847" OR "20150247716" OR "4429462" OR "6324769" OR "7159331").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2023/01/14 10:36 PM
L76	7466	(G01B3/1003 OR G01B1/00 OR G01B3/1041 OR G01B2003/103 OR G01B2003/1038).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L77	232	L2 AND standout	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L78	1506	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3 ("CORPORATION"))).A	(USPAT)	OR	ON	ON	2023/01/14 10:36 PM

		S,AANM.					
L79	104	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2023/01/14 10:36 PM
L80	182	(tape ADJ measure) AND standout	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L81	10	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L82	29	(Artificial Intelligence) More like doc: US-20210278188-A1 Text: (US-20220065605-A1 OR US-11293739-B2 OR US-20200340792-A1 OR US-11022416-B2 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR CN-114858027-A OR US-7395608-B2 OR US-20080010847-A1	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM

		OR CN-111033167-B OR CN-111033167-A OR TW-I782078-B OR US-20190242686-A1 OR EP-3762679-A1 OR US-11199390-B2).did.					
L83	30	(Artificial Intelligence) More like doc: US-20200340792-A1 Text: (US-11022416-B2 OR US-20220065605-A1 OR US-11293739-B2 OR US-20210278188-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR US-7395608-B2 OR US-20080010847-A1 OR TW-201917346-A OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR US-20190242686-A1 OR TW-I782078-B OR EP-3762679-A1 OR US-11199390-B2).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L84	30	(Artificial Intelligence) More like doc: US-10697747-B1 Text: (US-20220065605-A1 OR US-11293739-B2 OR US-20190316892-A1 OR US-10422617-B1 OR US-20210278188-A1 OR US-20200340792-A1 OR US-11022416-B2 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR US-7395608-B2 OR US-20080010847-A1 OR TW-I782078-B OR US-20190242686-A1 OR WO-2018048810-A1 OR AU-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM

		2017324329-A1).did.					
L85	11	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L86	5	(tape ADJ measure) AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L87	599578	(G01B3/1041 OR G01B1/00 OR G01B3/1003 OR G01B3/1005 OR G01B3/1043 OR G01B3/1046 OR G01B3/1056 OR G01B2003/103 OR G01B3/1084 OR G01B2003/1038 OR G01B2003/1053 OR G01B2003/1058 OR G01B2003/1015 OR G01B3/1048 OR G01B3/1061 OR G01B3/1069 OR G01B2003/1025 OR G01B3/1094 OR G01B3/10 OR G01B2003/1064 OR G01B3/1089 OR G01B3/1092 OR G01B2003/101 OR G01B3/102 OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM

		G01B21/042 OR G01B2003/1074 OR G01B5/012 OR G01B3/1071 OR G01B7/18 OR G01B2003/1087 OR G01B2003/1012 OR G01B2003/1023 OR G01B2003/1051 OR G01B5/0014 OR G01B3/30 OR G01B3/1007 OR G01B3/004 OR G01B3/1004 OR G01B2003/1028 OR G01B2003/1035 OR G01B2003/1076 OR G01B5/0004 OR G01B3/04 OR G01B5/008 OR G01B5/02 OR G01B2003/1017 OR G01B5/016 OR G01B21/04 OR G01B5/025 OR G01B3/11 OR G01B11/02 OR G01B2210/00 OR G01B3/02 OR G01B5/0009 OR G01B11/005 OR G01B2003/1033 OR G01B7/14 OR G01B2003/1079 OR G01B21/02 OR G01B7/003 OR G01B2210/58 OR G01B5/0002 OR G01B5/0016 OR G01B7/02 OR G01B11/16 OR G01B7/30 OR G01B3/566 OR G01B2003/1097 OR G01B3/06 OR G01B5/30 OR G01B3/006 OR G01B5/0007 OR G01B5/12 OR G01B7/026 OR G01B7/16 OR G01B11/24 OR G01B11/026 OR G01B11/18 OR G01B3/20 OR G01B7/012 OR G01B2003/1066 OR G01B3/14 OR					

		G01B3/18 OR G01B5/28 OR G01B3/008 OR G01B5/00 OR G01B5/14 OR G01B3/563 OR G01B5/20 OR G01B9/08 OR G01B11/06 OR G01B21/08 OR G01B3/12 OR G01B3/38 OR G01B11/007 OR G01B11/26 OR G01B15/02 OR G01B3/56 OR G01B11/245 OR G01B11/00 OR G01B3/002 OR G01B11/165 OR G01B17/02 OR G01B5/08 OR G01B5/0025 OR G01B21/32 OR G01B2210/60 OR G01B7/105 OR G01B21/047 OR G01B3/205 OR G01B3/08 OR G01B5/061 OR G01B7/20 OR G01B7/28 OR G01B9/02091 OR G01B5/0035 OR G01B11/0691 OR G01B21/045 OR G01B2210/44 OR G01B3/22 OR G01B7/001 OR G01B7/016 OR G01B21/00 OR G01B3/34 OR G01B3/46 OR G01B5/18 OR G01B11/002 OR G01B21/30 OR G01B2290/65 OR G01B3/00 OR G01B7/22 OR G01B9/0205 OR G01B11/0608 OR G01B3/28 OR G01B17/025 OR G01B21/085 OR G01B5/06 OR G01B7/10 OR G01B21/20 OR G01B2290/00 OR					

		G01B2290/25 OR G01B5/0023 OR G01B11/303 OR G01B3/16 OR G01B7/34 OR G01B11/306 OR G01B3/50 OR G01B5/004 OR G01B5/202 OR G01B7/24 OR G01B21/10 OR G01B7/023 OR G01B7/26 OR G01B11/024 OR G01B11/028 OR G01B11/0616 OR G01B11/08 OR G01B11/12 OR G01B11/168 OR G01B11/2441 OR G01B15/04 OR G01B17/00 OR G01B2210/50 OR G01B2210/66 OR G01B3/166 OR G01B5/26 OR G01B9/02 OR G01B9/02001 OR G01B9/02044 OR G01B9/0209 OR G01B11/162 OR G01B11/30 OR G01B3/36 OR G01B5/245 OR G01B5/255 OR G01B7/046 OR G01B11/2755 OR G01B2210/14 OR G01B2210/16 OR G01B3/26 OR G01B3/32 OR G01B3/42 OR G01B5/066 OR G01B5/207 OR G01B5/242 OR G01B5/25 OR G01B7/06 OR G01B9/02064 OR G01B11/28 OR G01B13/00 OR G01B13/10 OR G01B21/14 OR G01B21/24 OR G01B5/04 OR G01B5/201 OR G01B5/204 OR G01B5/213 OR G01B5/24 OR					

		G01B7/042 OR G01B11/043 OR G01B11/0641 OR G01B11/0675 OR G01B21/06 OR G01B2210/40 OR G01B2210/56 OR G01B3/24 OR G01B3/40 OR G01B5/0021 OR G01B5/10 OR G01B7/008 OR G01B7/044 OR G01B7/15 OR G01B9/02024 OR G01B9/02056 OR G01B9/02072).cpc.					
L88	9	L13 AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L89	12	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L90	11	("0000002" OR "10422617" OR "10697747" OR "10712142" OR "11022416" OR "20070079520" OR	(US-PGPUB; USPAT)	OR	ON	ON	2023/01/14 10:36 PM

		"20080010847" OR "20150247716" OR "4429462" OR "6324769" OR "7159331").pn.					
L91	7466	(G01B3/1003 OR G01B1/00 OR G01B3/1041 OR G01B2003/103 OR G01B2003/1038).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L92	232	L2 AND standout	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L93	1506	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3 ("CORPORATION"))).AS,AANM.	(USPAT)	OR	ON	ON	2023/01/14 10:36 PM
L94	104	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2023/01/14 10:36 PM
L95	182	(tape ADJ measure) AND standout	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL,	OR	ON	ON	2023/01/14 10:36 PM

			PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L96	10	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L97	29	(Artificial Intelligence) More like doc: US-20210278188-A1 Text: (US-20220065605-A1 OR US-11293739-B2 OR US-20200340792-A1 OR US-11022416-B2 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR CN-114858027-A OR US-7395608-B2 OR US-20080010847-A1 OR CN-111033167-B OR CN-111033167-A OR TW-I782078-B OR US-20190242686-A1 OR EP-3762679-A1 OR US-11199390-B2).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L98	30	(Artificial Intelligence) More like doc: US-20200340792-A1 Text: (US-11022416-B2 OR US-20220065605-A1 OR US-11293739-B2 OR US-20210278188-A1 OR US-20190316892-A1 OR	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO,	OR	ON	ON	2023/01/14 10:36 PM

		US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR US-7395608-B2 OR US-20080010847-A1 OR TW-201917346-A OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR US-20190242686-A1 OR TW-I782078-B OR EP-3762679-A1 OR US-11199390-B2).did.	NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L99	30	(Artificial Intelligence) More like doc: US-10697747-B1 Text: (US-20220065605-A1 OR US-11293739-B2 OR US-20190316892-A1 OR US-10422617-B1 OR US-20210278188-A1 OR US-20200340792-A1 OR US-11022416-B2 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR US-7395608-B2 OR US-20080010847-A1 OR TW-I782078-B OR US-20190242686-A1 OR WO-2018048810-A1 OR AU-2017324329-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L100	11	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT;	OR	ON	ON	2023/01/14 10:36 PM

		AND USPT.dbnm.)	IBM_TDB)				
L101	5	(tape ADJ measure) AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L102	599578	(G01B3/1041 OR G01B1/00 OR G01B3/1003 OR G01B3/1005 OR G01B3/1043 OR G01B3/1046 OR G01B3/1056 OR G01B2003/103 OR G01B3/1084 OR G01B2003/1038 OR G01B2003/1053 OR G01B2003/1058 OR G01B2003/1015 OR G01B3/1048 OR G01B3/1061 OR G01B3/1069 OR G01B2003/1025 OR G01B3/1094 OR G01B3/10 OR G01B2003/1064 OR G01B3/1089 OR G01B3/1092 OR G01B2003/101 OR G01B3/102 OR G01B21/042 OR G01B2003/1074 OR G01B5/012 OR G01B3/1071 OR G01B7/18 OR G01B2003/1087 OR G01B2003/1012 OR G01B2003/1023 OR G01B2003/1051 OR G01B5/0014 OR G01B3/30 OR G01B3/1007 OR G01B3/004 OR G01B3/1004 OR G01B2003/1028 OR G01B2003/1035 OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM

		G01B2003/1076 OR G01B5/0004 OR G01B3/04 OR G01B5/008 OR G01B5/02 OR G01B2003/1017 OR G01B5/016 OR G01B21/04 OR G01B5/025 OR G01B3/11 OR G01B11/02 OR G01B2210/00 OR G01B3/02 OR G01B5/0009 OR G01B11/005 OR G01B2003/1033 OR G01B7/14 OR G01B2003/1079 OR G01B21/02 OR G01B7/003 OR G01B2210/58 OR G01B5/0002 OR G01B5/0016 OR G01B7/02 OR G01B11/16 OR G01B7/30 OR G01B3/566 OR G01B2003/1097 OR G01B3/06 OR G01B5/30 OR G01B3/006 OR G01B5/0007 OR G01B5/12 OR G01B7/026 OR G01B7/16 OR G01B11/24 OR G01B11/026 OR G01B11/18 OR G01B3/20 OR G01B7/012 OR G01B2003/1066 OR G01B3/14 OR G01B3/18 OR G01B5/28 OR G01B3/008 OR G01B5/00 OR G01B5/14 OR G01B3/563 OR G01B5/20 OR G01B9/08 OR G01B11/06 OR G01B21/08 OR G01B3/12 OR G01B3/38 OR G01B11/007 OR G01B11/26 OR G01B15/02 OR G01B3/56 OR					

		G01B11/245 OR G01B11/00 OR G01B3/002 OR G01B11/165 OR G01B17/02 OR G01B5/08 OR G01B5/0025 OR G01B21/32 OR G01B2210/60 OR G01B7/105 OR G01B21/047 OR G01B3/205 OR G01B3/08 OR G01B5/061 OR G01B7/20 OR G01B7/28 OR G01B9/02091 OR G01B5/0035 OR G01B11/0691 OR G01B21/045 OR G01B2210/44 OR G01B3/22 OR G01B7/001 OR G01B7/016 OR G01B21/00 OR G01B3/34 OR G01B3/46 OR G01B5/18 OR G01B11/002 OR G01B21/30 OR G01B2290/65 OR G01B3/00 OR G01B7/22 OR G01B9/0205 OR G01B11/0608 OR G01B3/28 OR G01B17/025 OR G01B21/085 OR G01B5/06 OR G01B7/10 OR G01B21/20 OR G01B2290/00 OR G01B2290/25 OR G01B5/0023 OR G01B11/303 OR G01B3/16 OR G01B7/34 OR G01B11/306 OR G01B3/50 OR G01B5/004 OR G01B5/202 OR G01B7/24 OR G01B21/10 OR G01B7/023 OR G01B7/26 OR G01B11/024 OR G01B11/028 OR G01B11/0616 OR					

		G01B11/08 OR G01B11/12 OR G01B11/168 OR G01B11/2441 OR G01B15/04 OR G01B17/00 OR G01B2210/50 OR G01B2210/66 OR G01B3/166 OR G01B5/26 OR G01B9/02 OR G01B9/02001 OR G01B9/02044 OR G01B9/0209 OR G01B11/162 OR G01B11/30 OR G01B3/36 OR G01B5/245 OR G01B5/255 OR G01B7/046 OR G01B11/2755 OR G01B2210/14 OR G01B2210/16 OR G01B3/26 OR G01B3/32 OR G01B3/42 OR G01B5/066 OR G01B5/207 OR G01B5/242 OR G01B5/25 OR G01B7/06 OR G01B9/02064 OR G01B11/28 OR G01B13/00 OR G01B13/10 OR G01B21/14 OR G01B21/24 OR G01B5/04 OR G01B5/201 OR G01B5/204 OR G01B5/213 OR G01B5/24 OR G01B7/042 OR G01B11/043 OR G01B11/0641 OR G01B11/0675 OR G01B21/06 OR G01B2210/40 OR G01B2210/56 OR G01B3/24 OR G01B3/40 OR G01B5/0021 OR G01B5/10 OR G01B7/008 OR G01B7/044 OR G01B7/15 OR G01B9/02024 OR G01B9/02056 OR					

		G01B9/02072).cpc.					
L103	9	L13 AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L104	12	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L105	195	US-10697747-$.did. US-10712142-$.did. US-10422617-$.did. US-11022416-$.did. US-20190316892-$.did. US-20200340792-$.did. US-20190063893-$.did. WO-2019040752-$.did. CN-111033167-$.did. TW-201917346-$.did. CN-113124725-$.did. US-20200370873-$.did. US-20200370874-$.did. US-20190242686-$.did. US-10746521-$.did. US-20190056208-$.did. CN-111758011-$.did. US-20180195847-$.did. US-10126107-$.did. CN-109661556-$.did. WO-2019160867-$.did. WO-2018048810-$.did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM

		EP-3510347-$.did. AU-2017324329-$.did. CA-3044195-$.did. US-20190277612-$.did. US-11199390-$.did. WO-2019173514-$.did. EP-3762679-$.did. CN-111989535-$.did. CN-113767262-$.did. US-20210072010-$.did. WO-2020227007-$.did. TW-I745424-$.did. TW-201812242-$.did. CN-109661556-$.did. JP-2001201301-$.did. JP-4648528-$.did. JP-4671482-$.did. JP-2001201302-$.did. JP-2011191310-$.did. JP-5307180-$.did. EP-1074811-$.did. US-20020029489-$.did. WO-2003031903-$.did. EP-1444479-$.did. EP-1702196-$.did. US-6804899-$.did. US-20130067759-$.did. WO-2005065227-$.did. US-8584373-$.did. CA-2790319-$.did. CA-2790319-$.did. CA-2552174-$.did. US-7159331-$.did. US-20050138829-$.did. AU-2004311784-$.did. JP-2001241901-$.did. AU-2004311784-$.did. EP-2573506-$.did. BR-202012023804-$.did. EP-2573506-$.did. AU-2012216614-$.did. US-6449866-$.did. AU-2012216614-$.did. US-7490414-$.did. CN-111373220-$.did. US-6249986-$.did. DE-60028878-$.did. US-20080034605-$.did. US-20070006476-$.did. BR-202012023804-$.did. EP-1074813-$.did. US-10989512-$.did. WO-2019067515-$.did. DE-3335655-$.did. DE-60029279-$.did. US-20210207935-$.did. EP-1074812-$.did. US-					

		20200278189-$.did. EP-1647797-$.did. EP-1074811-$.did. US-20020078585-$.did. US-6324769-$.did. KR-20070006704-$.did. US-20150247716-$.did. US-6643947-$.did. US-7107698-$.did. US-20060168838-$.did. US-RE39719-$.did. DE-3335573-$.did. EP-1647797-$.did. EP-1074813-$.did. US-10876825-$.did. US-20180106585-$.did. CN-109804219-$.did. US-9874428-$.did. KR-20190067836-$.did. US-10132605-$.did. EP-3523600-$.did.					
L106	196	US-20200011648-$.did. WO-2018067716-$.did. US-20210108907-$.did. US-10458771-$.did. CA-3042641-$.did. US-20190056207-$.did. MX-2012010946-$.did. TW-I735674-$.did. US-6243964-$.did. US-20210348906-$.did. US-7174654-$.did. CN-108398069-$.did. MX-PA06007506-$.did. US-20060201013-$.did. US-11092418-$.did. US-20070240477-$.did. DE-3335573-$.did. US-6282808-$.did. US-20180224263-$.did. TW-I283290-$.did. US-7490500-$.did. EP-1074812-$.did. TW-201818045-$.did. CA-2629677-$.did. WO-2018148185-$.did. US-20060059703-$.did. WO-2019035029-$.did. US-7096596-$.did. WO-2007044004-$.did. US-20210088316-$.did. US-20050183279-$.did. US-7062862-$.did. DE-3335655-$.did. WO-2021011379-$.did. US-20200225017-$.did. AU-2010241209-$.did. US-11118887-$.did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM

		EP-3680601-$.did. CN-111133271-$.did. US-10989513-$.did. US-20200326171-$.did. NL-8303064-$.did. US-20210088318-$.did. CN-111133271-$.did. CN-113924456-$.did. WO-2019067531-$.did. US-11009332-$.did. CN-106767220-$.did. US-20200263969-$.did. WO-2020247374-$.did. EP-1469276-$.did. AU-2020287866-$.did. EP-1469276-$.did. EP-3928055-$.did. WO-2020171980-$.did. CA-3141136-$.did. US-20180245903-$.did. US-10605579-$.did. CN-108398069-$.did. AU-2010241209-$.did. EP-3232150-$.did. US-20170292821-$.did. CN-113302021-$.did. TW-I296702-$.did. US-8117763-$.did. US-20110179664-$.did. CA-2725259-$.did. EP-2357443-$.did. CA-2725259-$.did. US-11226187-$.did. NL-8303047-$.did. US-20110099828-$.did. EP-3165871-$.did. US-20200033108-$.did. US-20210095946-$.did. CA-2944209-$.did. US-9329014-$.did. EP-3165871-$.did. WO-2019035026-$.did. US-20210131780-$.did. CA-2944209-$.did. EP-2400258-$.did. TW-552398-$.did. AU-2004201113-$.did. AU-2016244217-$.did. CN-112534205-$.did. US-20040205976-$.did. WO-2020142266-$.did. CN-109804219-$.did. AU-2010241219-$.did. US-6892468-$.did. AU-2004201113-$.did. US-20110179661-$.did. US-8117762-$.did. EP-2400258-$.did. US-					

		7007400-$.did. WO-2020023528-$.did. AU-2010241219-$.did. CA-2460404-$.did. AU-2016244217-$.did.					
L107	191	CA-2725254-$.did. US-20050210696-$.did. CA-2725254-$.did. MX-PA01001686-$.did. US-6959500-$.did. WO-2020205821-$.did. US-20050022413-$.did. DE-3600719-$.did. TW-201839348-$.did. EP-1914508-$.did. US-6907676-$.did. US-20050022412-$.did. EP-2846125-$.did. US-11022417-$.did. US-20210247170-$.did. US-9032639-$.did. US-20180274894-$.did. US-20140007444-$.did. AU-2014221294-$.did. US-20210102794-$.did. EP-2846125-$.did. US-20160061573-$.did. WO-2007030112-$.did. US-9841264-$.did. WO-2020252172-$.did. WO-2021183519-$.did. WO-2005114092-$.did. TW-518407-$.did. US-20020129509-$.did. WO-2018175612-$.did. TW-550374-$.did. US-8528222-$.did. US-20130145637-$.did. TW-201839349-$.did. US-20070079520-$.did. WO-2007044739-$.did. EP-2998689-$.did. CA-2603000-$.did. CA-2901361-$.did. CN-112088286-$.did. CA-2862207-$.did. US-20050252020-$.did. EP-2469218-$.did. US-20210025685-$.did. EP-1914508-$.did. EP-1914509-$.did. US-20080086902-$.did. TW-201522909-$.did. CN-106091856-$.did. US-10767971-$.did. US-7565751-$.did. WO-2019195246-$.did. CN-107421407-$.did. US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM

		10260852-$.did. DE-69922969-$.did. EP-2998689-$.did. CA-2603361-$.did. CA-2603361-$.did. US-7398604-$.did. CN-103134406-$.did. US-20080086904-$.did. TW-201237364-$.did. CN-106091856-$.did. DE-3600719-$.did. CA-2603000-$.did. CN-106767220-$.did. US-9846021-$.did. AU-2011253971-$.did. AU-2011253971-$.did. US-20120159799-$.did. EP-1914509-$.did. US-8375595-$.did. CA-2901361-$.did. TW-I532975-$.did. AU-2011253971-$.did. AU-2011253971-$.did. CN-113939709-$.did. TW-200827665-$.did. CN-204388729-$.did. CN-212843235-$.did. CN-112066832-$.did. CA-2761887-$.did. CN-101358821-$.did. CN-101358822-$.did. EP-2469218-$.did. CN-100429470-$.did. CN-1922462-$.did. TW-I644079-$.did. TW-200848697-$.did. US-20190170491-$.did. US-11231261-$.did. US-20160138900-$.did. US-20080098610-$.did. EP-2786092-$.did. US-9851193-$.did. WO-2013082098-$.did. US-20140196302-$.did. US-6996915-$.did. US-9163918-$.did. FR-2535840-$.did.					
L108	218	US-20150168118-$.did. EP-2786092-$.did. US-20060240195-$.did. US-20200333123-$.did. JP-2007018624-$.did. US-9470500-$.did. US-20210095947-$.did. US-20210088317-$.did. TW-I472713-$.did. WO-2020159114-$.did. AU-2012346129-$.did. US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO,	OR	ON	ON	2023/01/14 10:36 PM

		5062215-$.did. TW-201333424-$.did. US-10859362-$.did. US-2680576-$.did. KR-20190078597-$.did. AU-7876998-$.did. WO-2019046248-$.did. WO-2019191234-$.did. EP-3278056-$.did. US-20200318939-$.did. CA-1193854-$.did. CA-2857462-$.did. US-7730630-$.did. CA-2857462-$.did. US-7395608-$.did. US-10690472-$.did. US-20180283837-$.did. JP-5467655-$.did. US-20080010847-$.did. AU-2012346129-$.did. US-8191278-$.did. KR-102236808-$.did. JP-2012232349-$.did. WO-2012147519-$.did. US-20070056182-$.did. CN-101165453-$.did. US-4375721-$.did. JP-2004127340-$.did. BR-102020017149-$.did. US-20100293801-$.did. CN-101165453-$.did. WO-2004033114-$.did. US-8033033-$.did. US-8898922-$.did. EP-3567336-$.did. DE-202005012765-$.did. CA-2499811-$.did. US-20210325159-$.did. CA-2796657-$.did. WO-2003085353-$.did. US-20040071869-$.did. US-20130133215-$.did. CA-2796657-$.did. WO-2009157135-$.did. WO-2020014578-$.did. BR-102013023828-$.did. WO-2019035036-$.did. AU-2012258438-$.did. CA-2592531-$.did. US-4411072-$.did. CA-2592531-$.did. AU-2012258438-$.did. US-7251904-$.did. US-9441932-$.did. EP-1923661-$.did. EP-0896200-$.did. CN-110446904-$.did. US-20200333122-$.did.	RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				

		US-7900370-$.did. KR-20210038713-$.did. US-11052565-$.did. US-20070124951-$.did. US-20150040416-$.did. EP-2784437-$.did. CA-3044290-$.did. US-20200023541-$.did. JP-2013215856-$.did. CA-2940626-$.did. TW-I345048-$.did. EP-3136044-$.did. US-20030154617-$.did. FR-2767915-$.did. US-9778010-$.did. KR-20200094615-$.did. CN-112400093-$.did. US-20140075772-$.did. AU-2014201834-$.did. CN-110986715-$.did. GB-2127968-$.did. JP-2001179682-$.did. CN-111989536-$.did. US-8590171-$.did. US-10836603-$.did. JP-2005317068-$.did. US-4578867-$.did. CN-110986715-$.did. CA-1193855-$.did. CA-2940626-$.did. CN-105318795-$.did.					
L109	210	US-9239217-$.did. US-20170059294-$.did. US-20180273341-$.did. AU-2018240118-$.did. TW-I283291-$.did. EP-1104542-$.did. GB-2127967-$.did. US-20160290776-$.did. EP-3567336-$.did. JP-2021196361-$.did. CA-2243262-$.did. WO-2018175461-$.did. AU-2013222009-$.did. EP-3601943-$.did. AU-2013222009-$.did. WO-2016161452-$.did. JP-2001273629-$.did. US-7559154-$.did. US-9207058-$.did. US-20140290085-$.did. EP-2924388-$.did. EP-3278056-$.did. US-8479630-$.did. CN-202660994-$.did. US-10012489-$.did. TW-I665377-$.did. FR-2872894-$.did. US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM

		20130133216-$.did. TW-200827664-$.did. US-20070087170-$.did. US-6115933-$.did. EP-2784437-$.did. US-5402583-$.did. TW-201608209-$.did. US-8898921-$.did. US-2893655-$.did. US-3545322-$.did. US-5001843-$.did. CA-2519363-$.did. WO-2021124188-$.did. CN-1752711-$.did. CA-1193853-$.did. CA-2840859-$.did. AU-2014201834-$.did. TW-200831851-$.did. US-20210283797-$.did. CN-107407546-$.did. CA-2840859-$.did. KR-102261071-$.did. GB-2431394-$.did. US-20210070585-$.did. US-5349760-$.did. CA-1233978-$.did. JP-6426728-$.did. US-7458536-$.did. TW-I611092-$.did. RU-2278780-$.did. CA-2826135-$.did. US-6910280-$.did. EP-2111528-$.did. WO-2000009969-$.did. US-6237243-$.did. EP-1104542-$.did. EP-2711662-$.did. US-4429462-$.did. US-7555845-$.did. US-20070101599-$.did. MX-2015001369-$.did. CA-1307106-$.did. US-20060118244-$.did. US-4903912-$.did. US-4930227-$.did. US-20080034604-$.did. JP-2009508703-$.did. EP-0354779-$.did. US-20210389110-$.did. US-20100224046-$.did. US-20040143984-$.did. US-20060038050-$.did. TW-202134591-$.did. EP-2955476-$.did. KR-20210128478-$.did. WO-2004094937-$.did. WO-2008021759-$.did. AU-2016222406-$.did.					

		WO-2008132515-$.did. US-6367161-$.did. EP-2144725-$.did. JP-6143825-$.did. JP-2007109324-$.did. TW-201809445-$.did. GB-2169707-$.did. US-6971185-$.did. JP-2010040096-$.did. JP-5269180-$.did. CA-2826135-$.did. AU-2006230689-$.did. US-20050183280-$.did. JP-2004005774-$.did.					
L110	12	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L111	11	("0000002" OR "10422617" OR "10697747" OR "10712142" OR "11022416" OR "20070079520" OR "20080010847" OR "20150247716" OR "4429462" OR "6324769" OR "7159331").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2023/01/14 10:36 PM
L112	7466	(G01B3/1003 OR G01B1/00 OR G01B3/1041 OR G01B2003/103 OR G01B2003/1038).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO;	OR	ON	ON	2023/01/14 10:36 PM

			JPO; DERWENT; IBM_TDB)				
L113	232	L2 AND standout	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L114	1506	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3 ("CORPORATION"))).AS,AANM.	(USPAT)	OR	ON	ON	2023/01/14 10:36 PM
L115	104	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2023/01/14 10:36 PM
L116	182	(tape ADJ measure) AND standout	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L117	10	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN,	OR	ON	ON	2023/01/14 10:36 PM

		US-11022416-B2).did. AND USPT.dbnm.)	WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L118	29	(Artificial Intelligence) More like doc: US-20210278188-A1 Text: (US-20220065605-A1 OR US-11293739-B2 OR US-20200340792-A1 OR US-11022416-B2 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR CN-114858027-A OR US-7395608-B2 OR US-20080010847-A1 OR CN-111033167-B OR CN-111033167-A OR TW-I782078-B OR US-20190242686-A1 OR EP-3762679-A1 OR US-11199390-B2).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L119	30	(Artificial Intelligence) More like doc: US-20200340792-A1 Text: (US-11022416-B2 OR US-20220065605-A1 OR US-11293739-B2 OR US-20210278188-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR US-7395608-B2 OR US-20080010847-A1 OR TW-201917346-A OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR US-20190242686-A1 OR TW-I782078-B OR EP-3762679-A1 OR US-11199390-B2).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L120	30	(Artificial Intelligence) More like doc: US-10697747-B1 Text:	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU,	OR	ON	ON	2023/01/14 10:36 PM

		(US-20220065605-A1 OR US-11293739-B2 OR US-20190316892-A1 OR US-10422617-B1 OR US-20210278188-A1 OR US-20200340792-A1 OR US-11022416-B2 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR US-7395608-B2 OR US-20080010847-A1 OR TW-I782078-B OR US-20190242686-A1 OR WO-2018048810-A1 OR AU-2017324329-A1).did.	CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L121	11	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L122	5	(tape ADJ measure) AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L123	599578	(G01B3/1041 OR G01B1/00 OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT,	OR	ON	ON	2023/01/14 10:36 PM

		G01B3/1003 OR G01B3/1005 OR G01B3/1043 OR G01B3/1046 OR G01B3/1056 OR G01B2003/103 OR G01B3/1084 OR G01B2003/1038 OR G01B2003/1053 OR G01B2003/1058 OR G01B2003/1015 OR G01B3/1048 OR G01B3/1061 OR G01B3/1069 OR G01B2003/1025 OR G01B3/1094 OR G01B3/10 OR G01B2003/1064 OR G01B3/1089 OR G01B3/1092 OR G01B2003/101 OR G01B3/102 OR G01B21/042 OR G01B2003/1074 OR G01B5/012 OR G01B3/1071 OR G01B7/18 OR G01B2003/1087 OR G01B2003/1012 OR G01B2003/1023 OR G01B2003/1051 OR G01B5/0014 OR G01B3/30 OR G01B3/1007 OR G01B3/004 OR G01B3/1004 OR G01B2003/1028 OR G01B2003/1035 OR G01B2003/1076 OR G01B5/0004 OR G01B3/04 OR G01B5/008 OR G01B5/02 OR G01B2003/1017 OR G01B5/016 OR G01B21/04 OR G01B5/025 OR G01B3/11 OR G01B11/02 OR G01B2210/00 OR G01B3/02 OR G01B5/0009 OR G01B11/005 OR G01B2003/1033 OR G01B7/14 OR G01B2003/1079 OR G01B21/02 OR G01B7/003 OR	AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				

		G01B2210/58 OR G01B5/0002 OR G01B5/0016 OR G01B7/02 OR G01B11/16 OR G01B7/30 OR G01B3/566 OR G01B2003/1097 OR G01B3/06 OR G01B5/30 OR G01B3/006 OR G01B5/0007 OR G01B5/12 OR G01B7/026 OR G01B7/16 OR G01B11/24 OR G01B11/026 OR G01B11/18 OR G01B3/20 OR G01B7/012 OR G01B2003/1066 OR G01B3/14 OR G01B3/18 OR G01B5/28 OR G01B3/008 OR G01B5/00 OR G01B5/14 OR G01B3/563 OR G01B5/20 OR G01B9/08 OR G01B11/06 OR G01B21/08 OR G01B3/12 OR G01B3/38 OR G01B11/007 OR G01B11/26 OR G01B15/02 OR G01B3/56 OR G01B11/245 OR G01B11/00 OR G01B3/002 OR G01B11/165 OR G01B17/02 OR G01B5/08 OR G01B5/0025 OR G01B21/32 OR G01B2210/60 OR G01B7/105 OR G01B21/047 OR G01B3/205 OR G01B3/08 OR G01B5/061 OR G01B7/20 OR G01B7/28 OR G01B9/02091 OR G01B5/0035 OR G01B11/0691 OR G01B21/045 OR					

		G01B2210/44 OR G01B3/22 OR G01B7/001 OR G01B7/016 OR G01B21/00 OR G01B3/34 OR G01B3/46 OR G01B5/18 OR G01B11/002 OR G01B21/30 OR G01B2290/65 OR G01B3/00 OR G01B7/22 OR G01B9/0205 OR G01B11/0608 OR G01B3/28 OR G01B17/025 OR G01B21/085 OR G01B5/06 OR G01B7/10 OR G01B21/20 OR G01B2290/00 OR G01B2290/25 OR G01B5/0023 OR G01B11/303 OR G01B3/16 OR G01B7/34 OR G01B11/306 OR G01B3/50 OR G01B5/004 OR G01B5/202 OR G01B7/24 OR G01B21/10 OR G01B7/023 OR G01B7/26 OR G01B11/024 OR G01B11/028 OR G01B11/0616 OR G01B11/08 OR G01B11/12 OR G01B11/168 OR G01B11/2441 OR G01B15/04 OR G01B17/00 OR G01B2210/50 OR G01B2210/66 OR G01B3/166 OR G01B5/26 OR G01B9/02 OR G01B9/02001 OR G01B9/02044 OR G01B9/0209 OR G01B11/162 OR G01B11/30 OR G01B3/36 OR G01B5/245 OR G01B5/255 OR G01B7/046 OR					

		G01B11/2755 OR G01B2210/14 OR G01B2210/16 OR G01B3/26 OR G01B3/32 OR G01B3/42 OR G01B5/066 OR G01B5/207 OR G01B5/242 OR G01B5/25 OR G01B7/06 OR G01B9/02064 OR G01B11/28 OR G01B13/00 OR G01B13/10 OR G01B21/14 OR G01B21/24 OR G01B5/04 OR G01B5/201 OR G01B5/204 OR G01B5/213 OR G01B5/24 OR G01B7/042 OR G01B11/043 OR G01B11/0641 OR G01B11/0675 OR G01B21/06 OR G01B2210/40 OR G01B2210/56 OR G01B3/24 OR G01B3/40 OR G01B5/0021 OR G01B5/10 OR G01B7/008 OR G01B7/044 OR G01B7/15 OR G01B9/02024 OR G01B9/02056 OR G01B9/02072).cpc.					
L124	9	L13 AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L125	12	((US-20210278188-A1 OR US-20200340792-	(US-PGPUB; USPAT; USOCR; FIT (AP, AT,	OR	ON	ON	2023/01/14 10:36 PM

		A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L126	11	("0000002" OR "10422617" OR "10697747" OR "10712142" OR "11022416" OR "20070079520" OR "20080010847" OR "20150247716" OR "4429462" OR "6324769" OR "7159331").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2023/01/14 10:36 PM
L127	7466	(G01B3/1003 OR G01B1/00 OR G01B3/1041 OR G01B2003/103 OR G01B2003/1038).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L128	232	L2 AND standout	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO;	OR	ON	ON	2023/01/14 10:36 PM

			JPO; DERWENT; IBM_TDB)				
L129	1506	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3 ("CORPORATION"))).AS,AANM.	(USPAT)	OR	ON	ON	2023/01/14 10:36 PM
L130	104	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2023/01/14 10:36 PM
L131	182	(tape ADJ measure) AND standout	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L132	10	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L133	29	(Artificial Intelligence) More like doc: US-20210278188-A1 Text: (US-20220065605-A1 OR US-11293739-B2 OR US-20200340792-A1 OR US-11022416-B2 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA,	OR	ON	ON	2023/01/14 10:36 PM

		US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR CN-114858027-A OR US-7395608-B2 OR US-20080010847-A1 OR CN-111033167-B OR CN-111033167-A OR TW-I782078-B OR US-20190242686-A1 OR EP-3762679-A1 OR US-11199390-B2).did.	VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L134	30	(Artificial Intelligence) More like doc: US-20200340792-A1 Text: (US-11022416-B2 OR US-20220065605-A1 OR US-11293739-B2 OR US-20210278188-A1 OR US-20190316892-A1 OR US-10422617-B1 OR US-10697747-B1 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR US-7395608-B2 OR US-20080010847-A1 OR TW-201917346-A OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR US-20190242686-A1 OR TW-I782078-B OR EP-3762679-A1 OR US-11199390-B2).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L135	30	(Artificial Intelligence) More like doc: US-10697747-B1 Text: (US-20220065605-A1 OR US-11293739-B2 OR US-20190316892-A1 OR US-10422617-B1 OR US-20210278188-A1 OR US-20200340792-A1 OR US-11022416-B2 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR TW-201917346-A OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM

		US-7395608-B2 OR US-20080010847-A1 OR TW-I782078-B OR US-20190242686-A1 OR WO-2018048810-A1 OR AU-2017324329-A1).did.					
L136	11	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L137	5	(tape ADJ measure) AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L138	599578	(G01B3/1041 OR G01B1/00 OR G01B3/1003 OR G01B3/1005 OR G01B3/1043 OR G01B3/1046 OR G01B3/1056 OR G01B2003/103 OR G01B3/1084 OR G01B2003/1038 OR G01B2003/1053 OR G01B2003/1058 OR G01B2003/1015 OR G01B3/1048 OR G01B3/1061 OR G01B3/1069 OR G01B2003/1025 OR G01B3/1094 OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM

		G01B3/10 OR G01B2003/1064 OR G01B3/1089 OR G01B3/1092 OR G01B2003/101 OR G01B3/102 OR G01B21/042 OR G01B2003/1074 OR G01B5/012 OR G01B3/1071 OR G01B7/18 OR G01B2003/1087 OR G01B2003/1012 OR G01B2003/1023 OR G01B2003/1051 OR G01B5/0014 OR G01B3/30 OR G01B3/1007 OR G01B3/004 OR G01B3/1004 OR G01B2003/1028 OR G01B2003/1035 OR G01B2003/1076 OR G01B5/0004 OR G01B3/04 OR G01B5/008 OR G01B5/02 OR G01B2003/1017 OR G01B5/016 OR G01B21/04 OR G01B5/025 OR G01B3/11 OR G01B11/02 OR G01B2210/00 OR G01B3/02 OR G01B5/0009 OR G01B11/005 OR G01B2003/1033 OR G01B7/14 OR G01B2003/1079 OR G01B21/02 OR G01B7/003 OR G01B2210/58 OR G01B5/0002 OR G01B5/0016 OR G01B7/02 OR G01B11/16 OR G01B7/30 OR G01B3/566 OR G01B2003/1097 OR G01B3/06 OR G01B5/30 OR G01B3/006 OR G01B5/0007 OR G01B5/12 OR G01B7/026 OR G01B7/16 OR G01B11/24 OR					

		G01B11/026 OR G01B11/18 OR G01B3/20 OR G01B7/012 OR G01B2003/1066 OR G01B3/14 OR G01B3/18 OR G01B5/28 OR G01B3/008 OR G01B5/00 OR G01B5/14 OR G01B3/563 OR G01B5/20 OR G01B9/08 OR G01B11/06 OR G01B21/08 OR G01B3/12 OR G01B3/38 OR G01B11/007 OR G01B11/26 OR G01B15/02 OR G01B3/56 OR G01B11/245 OR G01B11/00 OR G01B3/002 OR G01B11/165 OR G01B17/02 OR G01B5/08 OR G01B5/0025 OR G01B21/32 OR G01B2210/60 OR G01B7/105 OR G01B21/047 OR G01B3/205 OR G01B3/08 OR G01B5/061 OR G01B7/20 OR G01B7/28 OR G01B9/02091 OR G01B5/0035 OR G01B11/0691 OR G01B21/045 OR G01B2210/44 OR G01B3/22 OR G01B7/001 OR G01B7/016 OR G01B21/00 OR G01B3/34 OR G01B3/46 OR G01B5/18 OR G01B11/002 OR G01B21/30 OR G01B2290/65 OR G01B3/00 OR G01B7/22 OR G01B9/0205 OR G01B11/0608 OR G01B3/28 OR					

		G01B17/025 OR G01B21/085 OR G01B5/06 OR G01B7/10 OR G01B21/20 OR G01B2290/00 OR G01B2290/25 OR G01B5/0023 OR G01B11/303 OR G01B3/16 OR G01B7/34 OR G01B11/306 OR G01B3/50 OR G01B5/004 OR G01B5/202 OR G01B7/24 OR G01B21/10 OR G01B7/023 OR G01B7/26 OR G01B11/024 OR G01B11/028 OR G01B11/0616 OR G01B11/08 OR G01B11/12 OR G01B11/168 OR G01B11/2441 OR G01B15/04 OR G01B17/00 OR G01B2210/50 OR G01B2210/66 OR G01B3/166 OR G01B5/26 OR G01B9/02 OR G01B9/02001 OR G01B9/02044 OR G01B9/0209 OR G01B11/162 OR G01B11/30 OR G01B3/36 OR G01B5/245 OR G01B5/255 OR G01B7/046 OR G01B11/2755 OR G01B2210/14 OR G01B2210/16 OR G01B3/26 OR G01B3/32 OR G01B3/42 OR G01B5/066 OR G01B5/207 OR G01B5/242 OR G01B5/25 OR G01B7/06 OR G01B9/02064 OR G01B11/28 OR G01B13/00 OR G01B13/10 OR G01B21/14 OR					

		G01B21/24 OR G01B5/04 OR G01B5/201 OR G01B5/204 OR G01B5/213 OR G01B5/24 OR G01B7/042 OR G01B11/043 OR G01B11/0641 OR G01B11/0675 OR G01B21/06 OR G01B2210/40 OR G01B2210/56 OR G01B3/24 OR G01B3/40 OR G01B5/0021 OR G01B5/10 OR G01B7/008 OR G01B7/044 OR G01B7/15 OR G01B9/02024 OR G01B9/02056 OR G01B9/02072).cpc.					
L139	9	L13 AND (reinforced ADJ blade)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L140	12	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM

L141	195	US-10697747-$.did. US-10712142-$.did. US-10422617-$.did. US-11022416-$.did. US-20190316892-$.did. US-20200340792-$.did. US-20190063893-$.did. WO-2019040752-$.did. CN-111033167-$.did. TW-201917346-$.did. CN-113124725-$.did. US-20200370873-$.did. US-20200370874-$.did. US-20190242686-$.did. US-10746521-$.did. US-20190056208-$.did. CN-111758011-$.did. US-20180195847-$.did. US-10126107-$.did. CN-109661556-$.did. WO-2019160867-$.did. WO-2018048810-$.did. EP-3510347-$.did. AU-2017324329-$.did. CA-3044195-$.did. US-20190277612-$.did. US-11199390-$.did. WO-2019173514-$.did. EP-3762679-$.did. CN-111989535-$.did. CN-113767262-$.did. US-20210072010-$.did. WO-2020227007-$.did. TW-I745424-$.did. TW-201812242-$.did. CN-109661556-$.did. JP-2001201301-$.did. JP-4648528-$.did. JP-4671482-$.did. JP-2001201302-$.did. JP-2011191310-$.did. JP-5307180-$.did. EP-1074811-$.did. US-20020029489-$.did. WO-2003031903-$.did. EP-1444479-$.did. EP-1702196-$.did. US-6804899-$.did. US-20130067759-$.did. WO-2005065227-$.did. US-8584373-$.did. CA-2790319-$.did. CA-2790319-$.did. CA-2552174-$.did. US-7159331-$.did. US-20050138829-$.did. AU-2004311784-$.did. JP-2001241901-$.did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM

		AU-2004311784-$.did. EP-2573506-$.did. BR-202012023804-$.did. EP-2573506-$.did. AU-2012216614-$.did. US-6449866-$.did. AU-2012216614-$.did. US-7490414-$.did. CN-111373220-$.did. US-6249986-$.did. DE-60028878-$.did. US-20080034605-$.did. US-20070006476-$.did. BR-202012023804-$.did. EP-1074813-$.did. US-10989512-$.did. WO-2019067515-$.did. DE-3335655-$.did. DE-60029279-$.did. US-20210207935-$.did. EP-1074812-$.did. US-20200278189-$.did. EP-1647797-$.did. EP-1074811-$.did. US-20020078585-$.did. US-6324769-$.did. KR-20070006704-$.did. US-20150247716-$.did. US-6643947-$.did. US-7107698-$.did. US-20060168838-$.did. US-RE39719-$.did. DE-3335573-$.did. EP-1647797-$.did. EP-1074813-$.did. US-10876825-$.did. US-20180106585-$.did. CN-109804219-$.did. US-9874428-$.did. KR-20190067836-$.did. US-10132605-$.did. EP-3523600-$.did.					
L142	196	US-20200011648-$.did. WO-2018067716-$.did. US-20210108907-$.did. US-10458771-$.did. CA-3042641-$.did. US-20190056207-$.did. MX-2012010946-$.did. TW-I735674-$.did. US-6243964-$.did. US-20210348906-$.did. US-7174654-$.did. CN-108398069-$.did. MX-PA06007506-$.did. US-20060201013-$.did. US-11092418-$.did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT;	OR	ON	ON	2023/01/14 10:36 PM

		US-20070240477-$.did. DE-3335573-$.did. US-6282808-$.did. US-20180224263-$.did. TW-I283290-$.did. US-7490500-$.did. EP-1074812-$.did. TW-201818045-$.did. CA-2629677-$.did. WO-2018148185-$.did. US-20060059703-$.did. WO-2019035029-$.did. US-7096596-$.did. WO-2007044004-$.did. US-20210088316-$.did. US-20050183279-$.did. US-7062862-$.did. DE-3335655-$.did. WO-2021011379-$.did. US-20200225017-$.did. AU-2010241209-$.did. US-11118887-$.did. EP-3680601-$.did. CN-111133271-$.did. US-10989513-$.did. US-20200326171-$.did. NL-8303064-$.did. US-20210088318-$.did. CN-111133271-$.did. CN-113924456-$.did. WO-2019067531-$.did. US-11009332-$.did. CN-106767220-$.did. US-20200263969-$.did. WO-2020247374-$.did. EP-1469276-$.did. AU-2020287866-$.did. EP-1469276-$.did. EP-3928055-$.did. WO-2020171980-$.did. CA-3141136-$.did. US-20180245903-$.did. US-10605579-$.did. CN-108398069-$.did. AU-2010241209-$.did. EP-3232150-$.did. US-20170292821-$.did. CN-113302021-$.did. TW-I296702-$.did. US-8117763-$.did. US-20110179664-$.did. CA-2725259-$.did. EP-2357443-$.did. CA-2725259-$.did. US-11226187-$.did. NL-8303047-$.did. US-20110099828-$.did. EP-3165871-$.did. US-	IBM_TDB)				

		20200033108-$.did. US-20210095946-$.did. CA-2944209-$.did. US-9329014-$.did. EP-3165871-$.did. WO-2019035026-$.did. US-20210131780-$.did. CA-2944209-$.did. EP-2400258-$.did. TW-552398-$.did. AU-2004201113-$.did. AU-2016244217-$.did. CN-112534205-$.did. US-20040205976-$.did. WO-2020142266-$.did. CN-109804219-$.did. AU-2010241219-$.did. US-6892468-$.did. AU-2004201113-$.did. US-20110179661-$.did. US-8117762-$.did. EP-2400258-$.did. US-7007400-$.did. WO-2020023528-$.did. AU-2010241219-$.did. CA-2460404-$.did. AU-2016244217-$.did.					
L143	191	CA-2725254-$.did. US-20050210696-$.did. CA-2725254-$.did. MX-PA01001686-$.did. US-6959500-$.did. WO-2020205821-$.did. US-20050022413-$.did. DE-3600719-$.did. TW-201839348-$.did. EP-1914508-$.did. US-6907676-$.did. US-20050022412-$.did. EP-2846125-$.did. US-11022417-$.did. US-20210247170-$.did. US-9032639-$.did. US-20180274894-$.did. US-20140007444-$.did. AU-2014221294-$.did. US-20210102794-$.did. EP-2846125-$.did. US-20160061573-$.did. WO-2007030112-$.did. US-9841264-$.did. WO-2020252172-$.did. WO-2021183519-$.did. WO-2005114092-$.did. TW-518407-$.did. US-20020129509-$.did. WO-2018175612-$.did. TW-550374-$.did. US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM

		8528222-$.did. US-20130145637-$.did. TW-201839349-$.did. US-20070079520-$.did. WO-2007044739-$.did. EP-2998689-$.did. CA-2603000-$.did. CA-2901361-$.did. CN-112088286-$.did. CA-2862207-$.did. US-20050252020-$.did. EP-2469218-$.did. US-20210025685-$.did. EP-1914508-$.did. EP-1914509-$.did. US-20080086902-$.did. TW-201522909-$.did. CN-106091856-$.did. US-10767971-$.did. US-7565751-$.did. WO-2019195246-$.did. CN-107421407-$.did. US-10260852-$.did. DE-69922969-$.did. EP-2998689-$.did. CA-2603361-$.did. CA-2603361-$.did. US-7398604-$.did. CN-103134406-$.did. US-20080086904-$.did. TW-201237364-$.did. CN-106091856-$.did. DE-3600719-$.did. CA-2603000-$.did. CN-106767220-$.did. US-9846021-$.did. AU-2011253971-$.did. AU-2011253971-$.did. US-20120159799-$.did. EP-1914509-$.did. US-8375595-$.did. CA-2901361-$.did. TW-I532975-$.did. AU-2011253971-$.did. AU-2011253971-$.did. CN-113939709-$.did. TW-200827665-$.did. CN-204388729-$.did. CN-212843235-$.did. CN-112066832-$.did. CA-2761887-$.did. CN-101358821-$.did. CN-101358822-$.did. EP-2469218-$.did. CN-100429470-$.did. CN-1922462-$.did. TW-I644079-$.did. TW-200848697-$.did. US-					

		20190170491-$.did. US-11231261-$.did. US-20160138900-$.did. US-20080098610-$.did. EP-2786092-$.did. US-9851193-$.did. WO-2013082098-$.did. US-20140196302-$.did. US-6996915-$.did. US-9163918-$.did. FR-2535840-$.did.					
L144	218	US-20150168118-$.did. EP-2786092-$.did. US-20060240195-$.did. US-20200333123-$.did. JP-2007018624-$.did. US-9470500-$.did. US-20210095947-$.did. US-20210088317-$.did. TW-I472713-$.did. WO-2020159114-$.did. AU-2012346129-$.did. US-5062215-$.did. TW-201333424-$.did. US-10859362-$.did. US-2680576-$.did. KR-20190078597-$.did. AU-7876998-$.did. WO-2019046248-$.did. WO-2019191234-$.did. EP-3278056-$.did. US-20200318939-$.did. CA-1193854-$.did. CA-2857462-$.did. US-7730630-$.did. CA-2857462-$.did. US-7395608-$.did. US-10690472-$.did. US-20180283837-$.did. JP-5467655-$.did. US-20080010847-$.did. AU-2012346129-$.did. US-8191278-$.did. KR-102236808-$.did. JP-2012232349-$.did. WO-2012147519-$.did. US-20070056182-$.did. CN-101165453-$.did. US-4375721-$.did. JP-2004127340-$.did. BR-102020017149-$.did. US-20100293801-$.did. CN-101165453-$.did. WO-2004033114-$.did. US-8033033-$.did. US-8898922-$.did. EP-3567336-$.did. DE-202005012765-$.did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM

		CA-2499811-$.did. US-20210325159-$.did. CA-2796657-$.did. WO-2003085353-$.did. US-20040071869-$.did. US-20130133215-$.did. CA-2796657-$.did. WO-2009157135-$.did. WO-2020014578-$.did. BR-102013023828-$.did. WO-2019035036-$.did. AU-2012258438-$.did. CA-2592531-$.did. US-4411072-$.did. CA-2592531-$.did. AU-2012258438-$.did. US-7251904-$.did. US-9441932-$.did. EP-1923661-$.did. EP-0896200-$.did. CN-110446904-$.did. US-20200333122-$.did. US-7900370-$.did. KR-20210038713-$.did. US-11052565-$.did. US-20070124951-$.did. US-20150040416-$.did. EP-2784437-$.did. CA-3044290-$.did. US-20200023541-$.did. JP-2013215856-$.did. CA-2940626-$.did. TW-I345048-$.did. EP-3136044-$.did. US-20030154617-$.did. FR-2767915-$.did. US-9778010-$.did. KR-20200094615-$.did. CN-112400093-$.did. US-20140075772-$.did. AU-2014201834-$.did. CN-110986715-$.did. GB-2127968-$.did. JP-2001179682-$.did. CN-111989536-$.did. US-8590171-$.did. US-10836603-$.did. JP-2005317068-$.did. US-4578867-$.did. CN-110986715-$.did. CA-1193855-$.did. CA-2940626-$.did. CN-105318795-$.did.					
L145	210	US-9239217-$.did. US-20170059294-$.did. US-20180273341-$.did. AU-2018240118-$.did. TW-I283291-$.did. EP-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA,	OR	ON	ON	2023/01/14 10:36 PM

		1104542-$.did. GB-2127967-$.did. US-20160290776-$.did. EP-3567336-$.did. JP-2021196361-$.did. CA-2243262-$.did. WO-2018175461-$.did. AU-2013222009-$.did. EP-3601943-$.did. AU-2013222009-$.did. WO-2016161452-$.did. JP-2001273629-$.did. US-7559154-$.did. US-9207058-$.did. US-20140290085-$.did. EP-2924388-$.did. EP-3278056-$.did. US-8479630-$.did. CN-202660994-$.did. US-10012489-$.did. TW-I665377-$.did. FR-2872894-$.did. US-20130133216-$.did. TW-200827664-$.did. US-20070087170-$.did. US-6115933-$.did. EP-2784437-$.did. US-5402583-$.did. TW-201608209-$.did. US-8898921-$.did. US-2893655-$.did. US-3545322-$.did. US-5001843-$.did. CA-2519363-$.did. WO-2021124188-$.did. CN-1752711-$.did. CA-1193853-$.did. CA-2840859-$.did. AU-2014201834-$.did. TW-200831851-$.did. US-20210283797-$.did. CN-107407546-$.did. CA-2840859-$.did. KR-102261071-$.did. GB-2431394-$.did. US-20210070585-$.did. US-5349760-$.did. CA-1233978-$.did. JP-6426728-$.did. US-7458536-$.did. TW-I611092-$.did. RU-2278780-$.did. CA-2826135-$.did. US-6910280-$.did. EP-2111528-$.did. WO-2000009969-$.did. US-6237243-$.did. EP-1104542-$.did. EP-	EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				

		2711662-$.did. US-4429462-$.did. US-7555845-$.did. US-20070101599-$.did. MX-2015001369-$.did. CA-1307106-$.did. US-20060118244-$.did. US-4903912-$.did. US-4930227-$.did. US-20080034604-$.did. JP-2009508703-$.did. EP-0354779-$.did. US-20210389110-$.did. US-20100224046-$.did. US-20040143984-$.did. US-20060038050-$.did. TW-202134591-$.did. EP-2955476-$.did. KR-20210128478-$.did. WO-2004094937-$.did. WO-2008021759-$.did. AU-2016222406-$.did. WO-2008132515-$.did. US-6367161-$.did. EP-2144725-$.did. JP-6143825-$.did. JP-2007109324-$.did. TW-201809445-$.did. GB-2169707-$.did. US-6971185-$.did. JP-2010040096-$.did. JP-5269180-$.did. CA-2826135-$.did. AU-2006230689-$.did. US-20050183280-$.did. JP-2004005774-$.did.						
L146	12	((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.) OR ((US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:36 PM
L147	1506	((("MILWAUKEE") near3 ("ELECTRIC") near3 ("TOOL") near3	(USPAT)	OR	ON	ON	2023/01/14 10:36 PM

		("CORPORATION"))).AS,AANM.					
L148	104	((("VITAS") near3 ("Jonathan")) OR (("KHANGAR") near3 ("Abhijeet"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2023/01/14 10:36 PM
L149	41	(Artificial Intelligence) Similar to: 17/328,388 with 0 CPC Selections and 0 Text Selections Text: (US-20220065605-A1 OR US-11293739-B2 OR US-10712142-B2 OR US-20190063893-A1 OR WO-2019040752-A1 OR US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1 OR US-10422617-B1 OR US-20190316892-A1 OR US-11022416-B2 OR US-20080010847-A1 OR US-7395608-B2 OR EP-1074813-A3 OR CN-114858027-A OR CN-111033167-B OR CN-111033167-A OR TW-201917346-A OR US-20150247716-A1 OR US-20110099828-A1 OR US-7159331-B2 OR US-20070006476-A1 OR US-20080034605-A1 OR US-6324769-B1 OR EP-1647797-A1 OR US-20020078585-A1 OR AU-2004311784-A1 OR EP-1702196-A2 OR WO-2005065227-A2 OR US-20050138829-A1 OR CA-2552174-A1 OR EP-1647797-B1 OR US-7490414-B2 OR EP-1074813-B1 OR EP-1074811-B1 OR EP-1074811-A2 OR US-6249986-B1 OR US-20220363510-A1 OR WO-2022159643-A1 OR EP-1074813-A2 OR US-6643947-B2 OR WO-2005065227-A3	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN))	OR	ON	ON	2023/01/14 10:37 PM

		OR AU-2018240118-A1 OR EP-3601943-A1 OR CA-3044290-A1 OR WO-2018175461-A1 OR ES-286072-U OR ES-8703626-A1 OR AU-2004311784-B2 OR US-20180274894-A1).did.					
L150	18	((US-20220065605-A1 OR US-20220146244-A1 OR US-20220042779-A1 OR US-20220252383-A1 OR US-20220363510-A1 OR US-20190063893-A1 OR US-20190316892-A1 OR US-20200340792-A1 OR US-20210278188-A1 OR US-20020129509-A1).did. AND PGPB.dbnm.) OR ((US-11293739-B2 OR US-10697747-B1 OR US-10712142-B2 OR US-11022416-B2 OR US-10126107-B2).did. AND USPT.dbnm.) OR ((US-20210278188-A1 OR US-20200340792-A1 OR US-10697747-B1).did. AND DWPI.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/01/14 10:44 PM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	66220	(G01B3/1041 OR G01B1/00 OR G01B3/1003 OR G01B3/1005 OR G01B3/1043 OR G01B3/1046 OR G01B3/1056 OR G01B2003/103 OR G01B3/1084 OR G01B2003/1038 OR G01B2003/1053 OR G01B2003/1058 OR G01B2003/1015 OR G01B3/1048 OR G01B3/1061 OR G01B3/1069 OR G01B2003/1025 OR	(US-PGPUB; USPAT)	OR	ON	ON	2022/01/20 06:25 PM

		G01B3/1094 OR G01B3/10 OR G01B2003/1064 OR G01B3/1089 OR G01B3/1092 OR G01B2003/101 OR G01B3/102 OR G01B21/042 OR G01B2003/1074 OR G01B5/012 OR G01B3/1071 OR G01B7/18 OR G01B2003/1087 OR G01B2003/1012 OR G01B2003/1023 OR G01B2003/1051 OR G01B5/0014 OR G01B3/30 OR G01B3/1007 OR G01B3/004 OR G01B3/1004 OR G01B2003/1028 OR G01B2003/1035 OR G01B2003/1076 OR G01B5/0004 OR G01B3/04 OR G01B5/008 OR G01B5/02 OR G01B2003/1017 OR G01B5/016 OR G01B21/04 OR G01B5/025 OR G01B3/11 OR G01B11/02 OR G01B2210/00 OR G01B3/02 OR G01B5/0009 OR G01B11/005 OR G01B2003/1033 OR G01B7/14 OR G01B2003/1079 OR G01B21/02 OR G01B7/003 OR G01B2210/58 OR G01B5/0002 OR G01B5/0016 OR G01B7/02 OR G01B11/16 OR G01B7/30 OR G01B3/566 OR G01B2003/1097 OR G01B3/06 OR G01B5/30 OR G01B3/006 OR G01B5/0007 OR G01B5/12 OR G01B7/026 OR G01B7/16 OR					

		G01B11/24 OR G01B11/026 OR G01B11/18 OR G01B3/20 OR G01B7/012 OR G01B2003/1066 OR G01B3/14 OR G01B3/18 OR G01B5/28 OR G01B3/008 OR G01B5/00 OR G01B5/14 OR G01B3/563 OR G01B5/20 OR G01B9/08 OR G01B11/06 OR G01B21/08 OR G01B3/12 OR G01B3/38 OR G01B11/007 OR G01B11/26 OR G01B15/02 OR G01B3/56 OR G01B11/245 OR G01B11/00 OR G01B3/002 OR G01B11/165 OR G01B17/02 OR G01B5/08 OR G01B5/0025 OR G01B21/32 OR G01B2210/60 OR G01B7/105 OR G01B21/047 OR G01B3/205 OR G01B3/08 OR G01B5/061 OR G01B7/20 OR G01B7/28 OR G01B9/02091 OR G01B5/0035 OR G01B11/0691 OR G01B21/045 OR G01B2210/44 OR G01B3/22 OR G01B7/001 OR G01B7/016 OR G01B21/00 OR G01B3/34 OR G01B3/46 OR G01B5/18 OR G01B11/002 OR G01B21/30 OR G01B2290/65 OR G01B3/00 OR G01B7/22 OR G01B9/0205 OR G01B11/0608 OR					

		G01B3/28 OR G01B17/025 OR G01B21/085 OR G01B5/06 OR G01B7/10 OR G01B21/20 OR G01B2290/00 OR G01B2290/25 OR G01B5/0023 OR G01B11/303 OR G01B3/16 OR G01B7/34 OR G01B11/306 OR G01B3/50 OR G01B5/004 OR G01B5/202 OR G01B7/24 OR G01B21/10 OR G01B7/023 OR G01B7/26 OR G01B11/024 OR G01B11/028 OR G01B11/0616 OR G01B11/08 OR G01B11/12 OR G01B11/168 OR G01B11/2441 OR G01B15/04 OR G01B17/00 OR G01B2210/50 OR G01B2210/66 OR G01B3/166 OR G01B5/26 OR G01B9/02 OR G01B9/02001 OR G01B9/02044 OR G01B9/0209 OR G01B11/162 OR G01B11/30 OR G01B3/36 OR G01B5/245 OR G01B5/255 OR G01B7/046 OR G01B11/2755 OR G01B2210/14 OR G01B2210/16 OR G01B3/26 OR G01B3/32 OR G01B3/42 OR G01B5/066 OR G01B5/207 OR G01B5/242 OR G01B5/25 OR G01B7/06 OR G01B9/02064 OR G01B11/28 OR G01B13/00 OR G01B13/10 OR					

		G01B21/14 OR G01B21/24 OR G01B5/04 OR G01B5/201 OR G01B5/204 OR G01B5/213 OR G01B5/24 OR G01B7/042 OR G01B11/043 OR G01B11/0641 OR G01B11/0675 OR G01B21/06 OR G01B2210/40 OR G01B2210/56 OR G01B3/24 OR G01B3/40 OR G01B5/0021 OR G01B5/10 OR G01B7/008 OR G01B7/044 OR G01B7/15 OR G01B9/02024 OR G01B9/02056 OR G01B9/02072).cpc.					
N2	1284	L2	(US-PGPUB; USPAT)	OR	ON	ON	2022/01/27 09:03 PM

PE2E SEARCH - Search History (Similarity Search)

Ref #	Application Number	Text Selections	CPC Selections
L149	17/328,388	No selections	No selections

Bibliographic Data

Application No: 17/328,388

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /YARITZA GUADALUPE-MCCALL/ (Examiner's Signature) | YGM (Initials)

Title: Tape Measure with Tape Blade Profile Increasing Tape Standout

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
05/24/2021	033	2855	066749-2558
RULE			

APPLICANTS

Milwaukee Electric Tool Corporation, Brookfield, WI,

INVENTORS

Jonathan F. Vitas, Muskego, WI, UNITED STATES

Abhijeet A. Khangar, Pewaukee, WI, UNITED STATES

CONTINUING DATA

This application is a CON of 16927693 07/13/2020 PAT 11022416

16927693 is a CON of 16113695 08/27/2018 PAT 10712142

16113695 is a CON of PCT/US2018/047759 08/23/2018

PCT/US2018/047759 has PRO of 62702575 07/24/2018

PCT/US2018/047759 has PRO of 62549511 08/24/2017

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

05/28/2021

STATE OR COUNTRY

UNITED STATES

ADDRESS

Reinhart (Milwaukee Tool)
ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE, WI 53202
UNITED STATES

FILING FEE RECEIVED

$1,820

To: IPAdmin@reinhartlaw.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 142078

Jan 25, 2023 03:25:55 AM

Dear PAIR Customer:

Reinhart (Milwaukee Tool)
ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE, WI 53202
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 142078 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

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Application	Document	Mailroom Date	Attorney Docket No.
17328388	NOA	01/25/2023	066749-2558
	892	01/25/2023	066749-2558

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If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

142078 7590 01/25/2023
Reinhart (Milwaukee Tool)
ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE, WI 53202

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/328,388	05/24/2021	Jonathan F. Vitas	066749-2558	6253

TITLE OF INVENTION: Tape Measure with Tape Blade Profile Increasing Tape Standout

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	04/25/2023

EXAMINER	ART UNIT	CLASS-SUBCLASS
GUADALUPE, YARITZA	2855	033-771000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Reinhart Boerner Van Deuren s.c.
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE	(B) RESIDENCE: (CITY and STATE OR COUNTRY)
Milwaukee Electric Tool Corporation	Brookfield, Wisconsin

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 180882

5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /James D. Borchardt/ Date April 18, 2023

Typed or printed name James D. Borchardt Registration No. 62,025

Klein Tools
Ex-1002, Page 410

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/328,388	**04/18/2023 03:49:53 PM ET**	**066749-2558**

Title of Invention

Tape Measure with Tape Blade Profile Increasing Tape Standout

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	6253	FILED BY	Andrea Dietzel
PATENT CENTER #	61940049	FILING DATE	05/24/2021
CUSTOMER #	142078	FIRST NAMED INVENTOR	Jonathan F. Vitas
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	James Borchardt

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
066749-2558_Transmittal.pdf	2	Transmittal Letter	91 KB
066749-2558_PTOL.pdf	1	Issue Fee Payment (PTO-85B)	931 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
066749-2558_Transmittal.pdf	AAE9164C98D37E81513C123D761C8B3C751F78EDE626F0F9F A124FDB41CDFBBE916E1C6A96F4FECA45774346525B0F4770 AE415FB30661C92F2EC026C62D6849

066749-2558_PTOL.pdf

9B0343712C8D5CBF2CA5C7652BD4C01C31D796E77F8AAC17
73E8820181F711B527C8C49C0B18EC517A0383CFD1F257B56
CF641A6B676C24D767838B62D5BB8AF

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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PATENT AND TRADEMARK OFFICE

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/328,388	04/18/2023 03:49:53 PM ET	066749-2558

Title of Invention

Tape Measure with Tape Blade Profile Increasing Tape Standout

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	6253	FILED BY	Andrea Dietzel
PATENT CENTER #	61940049	AUTHORIZED BY	James Borchardt
CUSTOMER #	142078	FILING DATE	05/24/2021
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Jonathan F. Vitas

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
DA / 180882	E20234HF51039400	Andrea Dietzel

PRE-AUTHORIZED ACCOUNT	PRE-AUTHORIZED CATEGORY
180882	37 CFR 1.16 (National application filing, search, and examination fees); 37 CFR 1.17 (Patent application and reexamination processing fees); 37 CFR 1.19 (Document supply fees); 37 CFR 1.20 (Post Issuance fees); 37 CFR 1.21 (Miscellaneous fees and charges)

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1501	UTILITY ISSUE FEE	1200.00	1	1200.00
			TOTAL AMOUNT:	$1,200.00

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If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement

Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Milwaukee Electric Tool Corporation
Title:	Tape Measure with Tape Blade Profile Increasing Tape Standout
Appl. No.:	17/328,388
Filing Date:	May 24, 2021
Examiner:	YARITZA GUADALUPE
Art Unit:	2855
Confirmation No.:	6253

ISSUE FEE TRANSMITTAL

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Enclosed herewith please find Issue Fee Transmittal Form PTOL-85(B).

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

On pages 2-3 of the Notice of Allowance dated January 25, 2023, the Examiner set forth various reasons for allowance. While the Applicant agrees that the allowed claims recite a combination of subject matter that is patentable over the cited references, the Applicant notes that the recited subject matter as well as various other subject matter and/or combinations of subject matter may be patentable for other reasons than those given by the Examiner. The Applicant expressly reserves the right to set forth additional and/or alternative reasons for patentability and/or allowance in connection with the present Application or in any other future proceeding.

REMARKS

These Comments on Statement of Reasons for Allowance under 37 C.F.R. § 1.104 are intended to be responsive to the Notice of Allowance dated January 25, 2023.

The requisite fees for payment of the Issue Fee are being charged to Deposit Account No. 18-0882.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 18-0882.

Respectfully submitted,

Date April 18, 2023

By /James D. Borchardt/

Reinhart Boerner Van Deuren s.c.
Customer Number: 142078
Telephone: (414) 298-8160
Facsimile: (414) 298-8097

James D. Borchardt
Attorney for Applicant
Registration No. 62,025

Klein Tools
Ex-1002, Page 416

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United States Patent and Trademark Office
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/328,388	05/23/2023	11656067	066749-2558	6253

142078 7590 05/03/2023

Reinhart (Milwaukee Tool)
ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE, WI 53202

ISSUE NOTIFICATION

The projected patent number and issue date are specified above. The patent will issue electronically. The electronically issued patent is the official patent grant pursuant to 35 U.S.C. § 153. The patent may be accessed on or after the issue date through Patent Center at https://patentcenter.uspto.gov/. The patent will be available in both the public and the private sides of Patent Center. Further assistance in electronically accessing the patent, or about Patent Center, is available by calling the Patent Electronic Business Center at 1-888-217-9197.

The USPTO is implementing electronic patent issuance with a transition period, during which period the USPTO will mail a ceremonial paper copy of the electronic patent grant to the correspondence address of record. Additional copies of the patent (i.e., certified and presentation copies) may be ordered for a fee from the USPTO's Certified Copy Center at https://certifiedcopycenter.uspto.gov/index.html. The Certified Copy Center may be reached at (800)972-6382.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 5 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

INVENTOR(s) (Please see PAIR WEB site http://pair.uspto.gov for additional inventors):

Jonathan F. Vitas, Muskego, WI;
Abhijeet A. Khangar, Pewaukee, WI;

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Milwaukee Electric Tool Corporation, Brookfield, WI;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

TO: IPAdmin@reinhartlaw.com
FROM: noreply@uspto.gov
CC: patentcenter_eofficeaction@uspto.gov
SUBJECT: USPTO: Patent Electronic System - Correspondence Notification for Customer Number 142078

Thu May 04 07:33:44 EDT 2023

Dear Patent Center Customer:

Correspondence Address:

Reinhart (Milwaukee Tool)
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UNITED STATES

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Application	Document	Mailroom Date	Attorney Docket No.
17328388	ISSUE.NTF	05/03/2023	066749-2558

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Sincerely,

The Patent Center Team

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United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, VA 22313-1450
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APPLICATION NO.	ISSUE DATE	PATENT NO.
17/328,388	23-MAY-23	11656067

Reinhart (Milwaukee Tool) ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET SUITE 2100
MILWAUKEE, WI 53202

EGRANT NOTIFICATION

Your electronic patent grant (eGrant) is now available, which can be accessed via Patent Center at https://patentcenter.uspto.gov

The electronic patent grant is the official patent grant under 35 U.S.C. 153. For more information, please visit https://www.uspto.gov/electronicgrants

TO: IPAdmin@reinhartlaw.com
FROM: noreply@uspto.gov
CC: patentcenter_eofficeaction@uspto.gov
SUBJECT: USPTO: Patent Electronic System - Correspondence Notification for Customer Number 142078

Tue May 23 05:56:34 EDT 2023

Dear Patent Center Customer:

Correspondence Address:

Reinhart (Milwaukee Tool)
ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE,WISCONSIN,53202
UNITED STATES

This is a courtesy notification regarding the following USPTO patent application(s) associated with your Customer Number, 142078, that have new outgoing correspondence. This correspondence is now available for viewing in Patent Center.

The official date of notification of the outgoing correspondence will be indicated on the form (e.g., PTOL-90) accompanying the correspondence.

Disclaimer:
The list of documents shown below are provided as a courtesy and is not part of the official file wrapper. The content of the images shown in the Image File Wrapper is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
17328388	EGRANT.NTF	05/23/2023	066749-2558

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