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UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN (SANTA ANA) DIVISION

MERIDIAN INTERNATIONAL CO.,
LTD.,

Plaintiff,

v.

TOUGHBUILT INDUSTRIES, INC.,

Defendant.

Case No. 8:24-cv-01840-JWH-JDE

DECLARATION-REPORT OF J.
MICHAEL MCCARTHY

Date: November 8, 2024

Time: 9:00 a.m.

DECLARATION-REPORT OF J. MICHAEL MCCARTHY

ToughBuilt EX1024
ToughBuilt v. Meridian
IPR2025-01461

**NON-INFRINGEMENT AND INVALIDITY REPORT OF J. MICHAEL
McCARTHY, Ph.D.**

Meridian International Co. v. ToughBuilt Industries, Inc

October 11, 2024

I. INTRODUCTION

1. I have been retained by Defendant ToughBuilt Industries, Inc. (“ToughBuilt”) in connection with the matter *Meridian International Co. v. ToughBuilt Industries, Inc*, Case No. 8:24-CV1840 before the U.S. District Court, Central District of California, Southern Division, to evaluate the alleged infringement of Claim 1 of U.S. Patent No. 11,986,946 awarded to H. Zhang, Q. Wang, and S. Cai (the “’946 patent”) and Claim 1 of U.S. Patent No. 11,192,689 awarded to S. Cai (the “’689 patent”) (collectively the “Asserted Claims” of the “Asserted Patents”). I understand that the Asserted Patents are assigned to Meridian International Co. (“Meridian”).
2. More specifically, I was asked to compare Claim 1 of the ’946 patent and Claim 1 of the ’689 patent to the ToughBuilt’s accused products (defined below), in order to determine whether these products infringe the Asserted Claims.
3. As part of my analysis, I have been asked to review the August 26, 2024 report of Dr. John Pratt, “Declaration of John D. Pratt, Ph.D., PE, In Support of Meridian’s Motion for Preliminary Injunction,” and respond to his infringement analysis.
4. I have also been asked to compare the Claim 1 of the ’946 patent to (1) U.S. Patent No. 11,788,329, “Latch Structure,” awarded to W. Li and Y. Fu, Oct. 17, 2023 (the “Li patent”) and (2) U.S. Patent No. 9,725,209, “Stackable Tool-Box Assembly,” awarded to Z. Ben-Gigi, Aug. 8, 2017 (and “Ben-Gigi patent”), and provide an opinion regarding the invalidity of Claim 1 due to anticipation by the Li patent, and obviousness due to the combination of the Ben-Gigi and Li patents.
5. I am being compensated for my time at my standard consulting rate. I am also being reimbursed for expenses that I incur during the course of this work. My compensation in no way depends on the outcome of this matter. I have no other financial interest in this proceeding.
6. This report presents the results of my evaluation and of my analysis of infringement of the Asserted Claims by the accused products, as well as the results of my evaluation and of my analysis of invalidity of the asserted claim of the ’946 patent. My analysis here is based on my years of education and experience, as well as my investigation and study of relevant materials, including those recited in this report. I expect to provide testimony on the matters set forth in the following report.

7. My analysis of the materials in this proceeding is ongoing, and I will continue to review any new material as it is provided. This report represents only those opinions that I have formed to date. I reserve the right to revise, supplement, and/or amend my opinions stated herein based on new information and on my continuing analysis of the materials already provided.

II. SUMMARY OF OPINIONS

8. This section summarizes my opinions regarding non-infringement of Claim 1 of the '946 patent by the accused StackTech products (defined below) and non-infringement of Claim 1 of the '689 patent by the accused Tool Bag products (defined below). This section also summarizes my opinions regarding the invalidity of Claim 1 of the '946 patent in view of both the Li patent alone, as well as the Ben-Gigi patent and Li patent. To summarize:
 - i. For the reasons discussed below, it is my opinion that Claim 1 of the '946 patent is not infringed because the accused StackTech products do not include a locking part or a stop part. It is also my opinion that Dr. Pratt finds these elements because he misunderstands the operation of the accused StackTech products.
 - ii. For the reasons discussed below, it is my opinion that Claim 1 of the '689 patent is not infringed because the accused Tool Bag products does not include a second container. It is also my opinion that Dr. Pratt incorrectly introduces a container that I understand is manufactured by Meridian in order to satisfy the claim limitations associated with a second container.
 - iii. For the reasons discussed below, it is my opinion that Claim 1 of the '946 patent is invalid because a person of ordinary skill in the art would recognize that all the limitations of Claim 1 of the '946 Patent are present in the Li patent. Therefore, it is my opinion that all the limitations of Claim 1 of the '946 patent are anticipated by the Li patent.
 - iv. For the reasons discussed below, it is my opinion that Claim 1 of the '946 patent is invalid because a person of ordinary skill in the art would find that Claim 1 of the '946 patent are present in a combination of the Ben-Gigi patent, and the Li patent. Therefore, it is my opinion that all the limitations of Claim 1 of the '946 patent are an obvious combination of the Ben-Gigi patent and the Li patent.

The following paragraphs include an expanded summary of my non-infringement and invalidity analyses, which are supported by the analysis provided in the sections that follow.

9. **Claim 1 of the '946 patent is not infringed:** In my opinion, limitation [d] of Claim 1 of the '946 patent, which recites a locking buckle is not present in the accused StackTech products because the requirement that the "locking buckle is configured to slide inward with respect to the mounting part so that the locking buckle is

- automatically lockable with the mating part of the other storage box” is not met. Dr. Pratt’s analysis is incorrect because the cleat of the accused StackTech products, which Dr. Pratt misidentifies as the locking buckle, moves outward with respect to the mounting part and storage box in order to automatically lock with another storage box.
10. In my opinion, limitation [e] of Claim 1 of the ’946 patent, which recites a locking part, is not present in the accused StackTech products because the requirement of “manual movement of the locking part causes the locking buckle to move to an unlocked state” is not met. Dr. Pratt’s analysis is incorrect because it is impossible to manually move the cleat of the StackTech products, which he incorrectly identifies as the recited “locking part.” Specifically, the cleat is not accessible in the locked configuration because it is hidden between the stacked storage boxes; furthermore, it is not manually movable because it is held in place by the cam slots of the cleat locking cam.
 11. In my opinion, limitation [f] of Claim 1 of the ’946 patent, which recites a stop part, is not present in the accused StackTech products for the following reasons:
 - i. First, the requirement that the “stop part projects outward with respect to a locking path of the locking part, said locking part is not automatically lockable and said first connection part is in a state of remaining unlocked” is not met by the accused StackTech products. Dr. Pratt’s opinion is incorrect because it relies on the existence of what he terms an “override position” and an “override configuration” (defined below) which is not actually present in the accused StackTech products. Even if this override configuration was present in the accused StackTech products, the cleat locking cam, which Dr. Pratt misidentifies as the recited “stop part,” remains entirely within the first container and never projects outward to engage the other container in any manner, much less to maintain an unlock configuration as required by limitation [f].
 - ii. Second, I understand that during his deposition, Dr. Pratt stated that the “stop part” of the accused StackTech products included a detent (which Dr. Pratt refers to as a catch) and its spring. If these components are considered part of the “stop part,” the accused StackTech products still do not meet limitation [f] because the detent is not extended when in an unlocked state and is not compressed when in a locked state.
 - iii. Third, the requirement that the “stop part being extended when said first connection part is in a holding unlocked state with said second connection part of the other storage box” is not met by the accused StackTech products. Dr. Pratt relies on an override configuration that is not present in the accused StackTech products. Even assuming this override configuration exists, the accused StackTech products still do not meet limitation [f] because the cleat locking cam cannot be extended during a holding unlocked state. Instead,

the cleat locking cam remains entirely within the first container and does not extend outward.

- iv. Fourth, the requirement that the “stop part being compressed when said first connection part is in a locked state” is not met by the accused StackTech products. Dr. Pratt relies on an override configuration that is not present in the accused StackTech products. Even assuming Dr. Pratt’s override configuration exists, the accused StackTech products still do not meet limitation [f] because the cleat locking cam cannot be compressed during a locked state. Instead, the cleat locking cam is actuated by an extension spring, which one of ordinary skill in the art would recognize cannot be compressed.
12. It is my opinion none of the above limitations are met by the accused StackTech products. Therefore, the accused StackTech products do not infringe Claim 1 of the ’946 patent.
13. **Claim 1 of the ’689 patent is not infringed:** In my opinion, limitation [a] of Claim 1 of the ’689 patent, which recites “a first storage container configured and arranged to be selectively connected to a second storage container,” is not present in the accused Tool Bag products because there is no second container in the accused Tool Bag products.
14. In my opinion, limitation [b] of Claim 1 of the ’689 patent, which recites “the second storage container comprises a sliding mechanism...,” is not present in the accused Tool Bag products because there is no second storage container. Therefore, the accused Tool Bag products cannot include a second storage container with a sliding mechanism.
15. In my opinion, limitation [c] of Claim 1 of the ’689 patent, which recites “the sliding mechanism extends laterally...,” is not present in the accused Tool Bag products because the accused Tool Bag products do not include a sliding mechanism and therefore it cannot extend laterally.
16. In my opinion, limitation [d] of Claim 1 of the ’689 patent, which further recites “the sliding mechanism is coplanar with the side surface of the second container...,” is not present in the accused Tool Bag products because the accused Tool Bag products do not include a sliding mechanism and therefore it cannot be coplanar with the side surface of the second container.
17. In my opinion, Dr. Pratt’s analysis is incorrect because he relies on the use of a Kobalt storage box—which I understand is manufactured by Meridian and sold by Lowe’s under their Kobalt brand—to satisfy claim limitations directed to the recited “second container” that are not present in the accused Tool Bag products.
18. **Claim 1 of the ’946 patent is invalid:** Based on my experience, knowledge of the art as of the priority date of the ’946 patent, and my analysis of the ’946 patent, including its Prosecution History and prior art references, it is my opinion that Claim 1 of the ’946 patent is invalid as anticipated or rendered obvious, or both, by the prior art references examined in this report.
19. Claim 1 is invalid for the following reasons:

- i. Claim 1 is anticipated by the Li patent, or it is an obvious combination of the Li patent and the Ben-Gigi patent, or both.

III. QUALIFICATIONS

20. I am a Distinguished Professor in Mechanical and Aerospace Engineering in the Henry Samueli School of Engineering at the University of California, Irvine. I am the past Director of UCI's Performance Engineering Program, and former Director of the Center for Engineering Science in Design at the University of California, Irvine, which supports the design and execution of team engineering projects across the School of Engineering. I received my Ph.D. at Stanford University, and have taught at Loyola Marymount University and the University of Pennsylvania before joining UCI in 1986. In Winter 2018, I was a Visiting Professor at Stanford University and taught a graduate course in Kinematic Synthesis of Mechanisms. From 2019-2024 I served as an elected member of the Executive Council of IFTOMM, the International Federation for the Promotion of Mechanisms and Machine Science. I am a co-founder and co-organizer of the Biannual USCToMM Symposium on Mechanical Systems and Robotics, and listed in the 2020 Marquis Who's Who in America, 73rd Edition.
21. I have published over 250 articles and five books including *The Geometric Design of Linkages* (Springer 2000, 2nd Ed. 2010) and the recent *Kinematic Synthesis of Mechanisms: a project based approach*. I have served as the Editor-in-Chief of the ASME Journal of Mechanical Design (2002-2007) and I am the founding Editor-in-Chief of the ASME Journal of Mechanisms and Robotics (2007-2014). I serve on the Technical Communications and Publications Committee of ASME International.
22. My research team is responsible for the Sphinx, Synthetica and MecGen software packages, which extend computer-aided design to spherical and spatial linkage systems and integrate this process with geometric modeling. I have presented tutorials on the design of linkages and robotic systems at ASME and IEEE conferences, including the NSF sponsored 2012 Workshop on 21st Century Kinematics.
23. In addition to working on many projects for local industry, I served as Chief Technical Officer of Accuray Incorporated to assist the transition of a robotic radio-surgery system from research to market. I have served two terms as Chair of the Board of Governors for the Southern California Section of SAE international and as the Secretary for the Orange County Engineering Council.
24. Over the past 20 years at UCI, I have focused on developing engineering leadership through student design and execution of major engineering projects. I introduced project engineering courses for graduate students, seniors, and freshman at UCI and provided course materials for racecar engineering courses in local high schools, including a Summer Program for Racecar Engineering. I organized the UCI Energy Invitational racecar energy time trial and the UCI Rescue Robotics competition for local High School engineering teams from 2010 until 2019.

25. After returning from a Visiting Faculty position in the Design Division of Stanford University, I completed the book, *Kinematic Synthesis of Mechanisms: a project based approach* (MDA Press 2019). I have developed new techniques for teaching the design of robotic systems at both the undergraduate and graduate level using the design, fabrication and testing of two-legged and four-legged walking robots.
26. My education, work, teaching and research have helped me develop a broad base of knowledge regarding machine design and the design of mechanical systems, such as robotic systems. This field of technology encompasses mechanical products, in general, and their structural members and components.
27. This Report sets forth the substance of the facts and opinions I have developed on an expedited basis and a summary of the reasons for my opinions. In addition, where appropriate within this report, I have identified the most pertinent source or sources of the information on which I have relied. These references are not intended to be exclusive of other sources. A list of publications is included in my Curriculum Vitae, which is attached with this report as Exhibit 1.
28. A list of the cases in which I have testified in deposition or at trial during is also included in Exhibit 1.

IV. MATERIALS AND INFORMATION CONSIDERED

29. The documents and other information that I have considered in connection with forming my opinions are listed below:
 - i. Meridian International v. ToughBuilt Industries, “Complaint for Patent Infringement,” filed August 21, 2024.
 - ii. U.S. Patent No. 11,986,946, “Connection Structure of Module, Storage Box and Storage Box Assembly,” awarded to H. Zhang, Q. Wang, and S. Cai, May 21, 2024.
 - iii. U.S. Patent No. 11,192,289, “Stacked Storage Container Latch,” awarded to S. Cai, December 7, 2021.
 - iv. Thomas W. Barber, *The Engineer’s Sketch-book of Mechanical Movements*, Soon and Chamberlain, New York, 1897.
 - v. N. Sclater, and N. P. Chironis, *Mechanisms and Mechanical Devices*, Third Edition, McGraw-Hill, New York, 2001.
 - vi. L. E. Torfason, *Ratchet and Latches*, in *Standard Handbook of Mechanical Design* Third Edition, J. E. Shigley, C. R. Mischke, T. H. Brown Jr. editors, McGraw-Hill, New York, 2004.
 - vii. Photographs of Exemplars of the accused StackTech products and accused Tool Bag products.
 - viii. Dr. John Pratt, “Declaration of John D. Pratt Ph.D., PE, In Support of Motion for Preliminary Injunction,” filed August 26, 2024.

- ix. Transcript of the Deposition of Dr. John Pratt, taken October 2, 2024.
 - x. ToughBuilt StackTech Illustrations from the Solid Model of the Accused Devices.
 - xi. ToughBuilt StackTech website discussing the “StackTech Advantage” at <https://stacktech.toughbuilt.com/advantage/>.
 - xii. U.S. Patent Application, US-2024-0150094, Stackable Storage Containers with Stacking Self-Lock, 05/09/2024.
 - xiii. Prosecution history for U.S. Patent No. 11,986,946.
 - xiv. Prosecution history for U.S. Patent No. 11,192,689.
 - xv. U.S. Patent No. 9,725,209, Stackable Tool Box Assembly, awarded to Z. Ben-Gigi, Aug. 8, 2017.
 - xvi. U.S. Patent No. 11,788,329, Latch Structure, awarded to W. Li and Y. Fu, Oct. 17, 2023.
30. I have also considered any materials cited in this report, even if not listed above.
31. In addition to the materials above, I relied upon my education and experience in the design, engineering, and manufacture of mechanical systems, and in supervising engineers in education, research and in industry. My opinions are from the perspective of a person of ordinary skill in the art as of the priority date for each Asserted Patent.

V. PERSON OF ORDINARY SKILL IN THE ART

32. It is my understanding that the Asserted Patents must be evaluated from the perspective of a hypothetical person of ordinary skill in the art with respect to the subject matter. I understand that there are several relevant factors that determine the level of ordinary skill in the art. These can include, for example, (1) types of problems encountered in the art, (2) the prior art solutions to those problems, (3) rapidity and pace with which innovations are made in the field, (4) the sophistication of the technology, and (5) educational level of active workers in the field.
33. **Level of ordinary skill in the art.** The Asserted Patents are directed to latches and locks to connect two items and, more specifically, two storage containers, such as toolboxes. See, for example [Illustrations 3, 4 and 5](#) (attached to this report as [Exhibit 2](#)). Considering the factors listed above, it is my opinion that a person of ordinary skill in the art would have had at least a degree in the mechanical arts, or a related discipline, and two years of experience in the design and/or analysis of mechanical devices, latches and locks, and/or kinematic linkages. Additional work experience could serve as a substitute for a formal degree and vice versa.
34. Based on my education and experience, I have at least the necessary qualifications of a person of ordinary skill in the art. In addition, my experience training young

engineers having these qualifications provides additional understanding of the perspective of one of ordinary skill in the art. Specifically, (1) my research work in the design of spherical and spatial linkage systems that are the foundation for robotic movement and (2) managing engineers in the design and fabrication of a robotic radiosurgery system give me experience in the design of articulated systems.

35. I understand that Dr. Pratt provides the opinion that a person of ordinary skill in the art would have had “at least the equivalent of an undergraduate degree in mechanical engineering, industrial engineering, or a closely related field, and two years of industry or academic experience with connecting technologies or similar mechanisms, or an equivalent combination of education and experience.” Pratt Decl. ¶ 4, page 2. I also have at least the necessary qualifications of a person of ordinary skill in the art under Dr. Pratt’s definition.

VI. LEGAL STANDARDS

36. I am not an attorney and offer no legal opinions, but in the course of my work, I have had experience studying and analyzing patents and patent claims from the perspective of a person of ordinary skill. For purposes of this report, I have been informed about certain aspects of the law that are relevant to my analysis, as summarized below.
37. **Claim construction.** I understand that analyzing infringement of a claimed invention first requires a determination of the meaning and scope of the claim, commonly referred to as claim construction. I understand that the claims of a patent define the claimed invention. I understand that the purpose of claim construction is to understand how one skilled in the art would have understood the claim terms at the time of the purported invention. I understand that claim construction is a matter of law for the Court to decide. It is my understanding that constructions have not been provided by the Court.
38. I understand that to determine how a person of ordinary skill would understand a claim term, I should look to those sources available to that show what a person of ordinary skill in the art would have understood the claim language to mean. Such sources include the words of the claims themselves, the remainder of the patent’s specification, the prosecution history of the patent (all considered “intrinsic evidence”), and “extrinsic evidence” concerning relevant scientific principles, the meaning of technical terms, and the state of the art.
39. I understand that, in construing a claim term, I look primarily to the intrinsic patent evidence, including the words of the claims themselves, the remainder of the patent specification, and the prosecution history. I understand that extrinsic evidence, which is evidence external to the patent and prosecution history, may also be useful in interpreting patent claims when the intrinsic evidence itself is insufficient.
40. I understand that words or terms should be given their ordinary and accepted meaning unless it appears that the inventors were using them to mean something else. In making this determination, however, of primary importance are the claims,

- the patent specification, and the prosecution history. Additionally, the specification and prosecution history must be consulted to confirm whether the patentee has acted as its own lexicographer, which means they have provided its own special meaning to specific claim terms) or intentionally disclaimed, disavowed, or surrendered any claim scope.
41. I understand that when a claim element is described in terms of the functions it performs, without reciting any structure, it is considered to be a “means plus function” claim term. I understand that if a claim term does not use the phrase “means for” or “step for,” there is a presumption that the term is not a means plus function term. I also understand, however, that this presumption can be overcome. I understand that if the term does not convey sufficiently definite structure as understood by a person of ordinary skill in the art, then the structure of this element is understood to correspond to any structures disclosed in the specification as performing the function, and equivalent structures.
 42. **Infringement.** I understand that for the Accused Products to infringe the Asserted Claims, Meridian must prove that either: (1) the Accused Products directly infringe the asserted claims, either literally or under the doctrine of equivalents, or (2) that a third-party directly infringed the Asserted Claims and ToughBuilt is indirectly liable for such infringement under the doctrines of “inducement” or “contributory infringement.”
 43. **Direct infringement.** I understand that for the Asserted Claims of either the ’946 or ’689 patents to be directly infringed, each and every claim limitation must be met in the accused device, either literally, or under the doctrine of equivalents. If even one limitation is not satisfied in an Asserted Claim, then the accused device does not infringe the that Asserted Claim. In the event I do not discuss all limitations of the Asserted Claims or all aspects of Dr. Pratt’s declaration, this does not mean that I am of the opinion that those unaddressed claim limitations or aspects are present in or practiced by the accused products, nor does it mean that I agree with any opinion regarding those limitations set forth by Dr. Pratt.
 44. **Literal infringement.** I understand Meridian is asserting literal infringement, meaning that the claim limitations must be literally present in the Accused Products for an Accused Product to infringe. It is my understanding that Meridian is not asserting that the Accused Products infringe the Asserted Patents under the doctrine of equivalents.
 45. **Indirect infringement.** I am also informed that a defendant may be liable for certain forms of indirect infringement even if that party does not directly infringe. I understand that there are two types of indirect infringement: induced infringement and contributory infringement. I understand that there cannot be indirect infringement without someone else engaging in direct infringement. I understand that a finding of contributory infringement or inducement of infringement by an accused party first requires underlying proof of direct infringement by some other party. I understand that upon failure of proof of direct infringement, any claim of inducement of infringement or contributory infringement fails.

46. **Presumption of validity.** I understand that a patent is presumed valid and that each claim of a patent is to be considered separately in an invalidity analysis.
47. **Anticipation.** I understand that, once the claims of a patent have been properly construed, the second step in determining anticipation of a patent claim requires a comparison of the properly construed claim language to the prior art on a limitation-by-limitation basis.
48. My understanding is that patent claim is invalid as anticipated if every feature or “element” of the claim is disclosed, expressly or inherently, in a single prior art reference. I am informed that an element of a claim is disclosed inherently in a prior art reference if that element is necessarily present in the reference, even if the author of the reference or a person of ordinary skill does not recognize that element's presence. Further, I understand, that under the principles of inherency, if the prior art necessarily functions in accordance with, or includes the claimed limitations, it anticipates. In addition, a new scientific explanation for the functioning of the prior art does not render the old matter patentable. Such a reference, if it contained each and every element of a claim, would anticipate the claim.
49. I understand that there is no requirement that a person of ordinary skill in the art would have recognized the inherent disclosure at the time of invention, but only that the subject matter is in fact inherent in the prior art reference.
50. I understand that a claim is invalid as anticipated if the invention claimed was known or used by others in this country or described in a printed publication in this or a foreign country, before the invention by the patentee.
51. I understand that a claim is invalid as anticipated if the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States.
52. I also understand that anticipation requires clear and convincing evidence that a single prior art reference discloses either expressly or inherently, all elements of the claimed invention arranged as in the claim. I further understand that a reference inherently discloses an unstated limitation when that limitation is necessarily present in the reference.
53. I understand that in this context, a reference is a “printed publication” if it was publicly accessible prior to the date of alleged invention. I further understand that whether a reference is publicly accessible is determined on a case-by-case basis, but that a reference is generally publicly accessible if it was disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence can locate it.
54. **Obviousness.** I have been instructed by counsel on the law regarding obviousness and understand that even if a patent claim is not anticipated, it is still invalid if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person of ordinary skill in the pertinent art.

55. I understand that a claim is obvious when all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination yields nothing more than predictable results to a person of ordinary skill in the art. Obviousness must be based on prior art that is analogous to the claimed invention. A reference is analogous art when it is from the same field of endeavor as the claimed invention or if it is reasonably pertinent to the problem faced by the inventor.
56. Obviousness is assessed from the vantage point of a person of ordinary skill in the art, which is a hypothetical person who is presumed to have known the relevant art at the time of the invention. A person of ordinary skill in the art is also a person of ordinary creativity, not an automaton. That creativity includes the ability to fit the teachings of multiple references together, considering the inferences and creative steps that a person of ordinary skill in the art would employ.
57. I also understand that an obviousness determination includes the consideration of various factors such as (1) the scope and content of the prior art, (2) the differences between the prior art and the claims at issue, (3) the level of ordinary skill in the pertinent art, and (4) the existence of objective indicia of non-obviousness or obviousness.
58. I am informed that objective indicia of non-obviousness may include (1) a long felt but unmet need in the prior art that was satisfied by the invention of the patent, (2) commercial success or lack of commercial success of processes covered by the patent, (3) unexpected results achieved by the invention, (4) praise of the invention by others skilled in the art, (5) taking of licenses under the patent by others, and (6) deliberate copying of the invention. I also understand that there must be a relationship between any such objective indicia and the invention. I further understand that contemporaneous and independent invention by others is a secondary consideration supporting an obviousness determination.
59. I understand that an obviousness evaluation can be based on a combination of multiple prior art references. I understand that the prior art references themselves may provide a suggestion, motivation, or reason to combine, but other times the nexus linking two or more prior art references is simple common sense. I further understand that an obviousness analysis recognizes that market demand, rather than scientific literature, often drives innovation, and that a motivation to combine references may be supplied by the direction of the marketplace.
60. I understand that if a technique has been used to improve one device or method, and a person of ordinary skill in the art at the time of the alleged invention would recognize that it would improve similar devices or methods in the same way, using the technique is obvious unless its actual application is beyond his or her skill.
61. I also understand that practical and common-sense considerations should guide a proper obviousness analysis, because familiar items may have obvious uses beyond their primary purposes. I further understand that a person of ordinary skill in the art at the time of the alleged invention looking to overcome a problem will often be able to fit the teachings of multiple publications together like pieces of a puzzle,

- although the prior art need not be like two puzzle pieces that must fit perfectly together.
62. I understand that an obviousness analysis therefore takes into account the inferences and creative steps that a person of ordinary skill in the art at the time of the alleged invention would employ under the circumstances.
 63. I understand that a particular combination may be proven obvious by showing that it was obvious to try the combination. For example, when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill in the art at the time of the alleged invention has good reason to pursue the known options within his or her technical grasp because the result is likely the product not of innovation but of ordinary skill and common sense.
 64. I understand that the combination of familiar elements according to known methods may be proven obvious when it does no more than yield predictable results. When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill in the art at the time of the alleged invention can implement a predictable variation, obviousness likely bars its patentability.
 65. It is further my understanding that a proper obviousness analysis focuses on what was known or obvious to a person of ordinary skill in the art at the time of the alleged invention, not just the patentee. Accordingly, I understand that any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed. I further understand that a solution to a problem may be obvious when a person of ordinary skill in the art is presented with a finite number of identified, predictable solutions, with a reasonable expectation of success.
 66. I understand that a claim can be obvious in light of a single reference, without the need to combine references, if the elements of the claim that are not found explicitly or inherently in the reference can be supplied by the common sense of one of skill in the art at the time of the alleged invention.
 67. I understand that a person of ordinary skill in the art at the time of the alleged invention could have combined two pieces of prior art or substituted one prior art element for another if the substitution can be made with predictable results, even if the swapped-in element is different from the swapped-out element. In other words, the prior art need not be like two puzzle pieces that must fit together perfectly. The relevant question is whether prior art techniques are interoperable with respect to one another, such that a person of ordinary skill in the art at the time of the alleged invention would view them as a design choice, or whether a person of ordinary skill in the art at the time of the alleged invention could apply prior art techniques in a new combined system.
 68. In sum, my understanding is that prior art teachings are properly combined where a person of ordinary skill in the art at the time of the alleged invention having the understanding and knowledge reflected in the prior art and motivated by the general

- problem facing the inventor would have been led to make the combination of elements recited in the claims. Under this analysis, the prior art references themselves, or any need or problem known in the field of endeavor at the time of the invention, can provide a reason for combining the elements of multiple prior art references in the claimed manner.
69. I have been informed and understand that the obviousness analysis requires a comparison of the properly construed claim language to the prior art on a limitation-by-limitation basis. I have conducted such an analysis below.

VII. TECHNOLOGY OF THE ASSERTED PATENTS

70. The '946 patent (see [Illustration 1](#)) and the '689 patent (see [Illustration 2](#)) describe mechanical latching systems designed to automatically connect tool storage components. Specifically, the '946 patent describes a latching system to connect a top storage box to a second storage box on which it rests. The '689 patent describes a latching system to connect a first storage container to a second storage container on which it rests. This automatic latching is achieved by a spring-loaded tab that is pushed out of the way when the top box or bag is placed on top of the lower box, and then snaps back into a corresponding slot provided in the top box or bag.
71. Generally, latches are used to connect bodies that move relative to each other. A simple example is a spring-loaded latch on a door that engages a door frame to hold it closed. Latches are important examples of mechanical linkage systems. Examples can be found in books from the 1800s, for example [Illustration 3](#) is from 1897. More recent examples from 2001 and 2004 are shown in [Illustrations 3–5](#).

VIII. THE ASSERTED CLAIM OF THE '946 PATENT

72. **Claim 1 of the '946 patent recites:**

A storage box comprising:

[a] a first connection part disposed on one area of said storage box connectable to a second connection part of another storage box;

[b] wherein, said first connection part comprises

a mounting body, a locking buckle movable with respect to said mounting body, and a first resilient member located between said mounting body and said locking buckle,

wherein said first resilient member keeping said locking buckle automatically in a locked state;

[c] wherein said second connection part of the other storage box comprises a mating part interlockable with the locking buckle,

[d] wherein the locking buckle is configured to slide inward with respect to the mounting part so that the locking buckle is automatically lockable with the mating part of the other storage box by action of said first

resilient member when the locking buckle is aligned with the mating part of the other storage box;

[e] a locking part cooperating with the locking buckle, wherein manual movement of the locking part causes the locking buckle to move to an unlocked state; and

[f] a stop part,

wherein when the stop part projects outward with respect to a locking path of the locking part, said locking part is not automatically lockable and said first connection part is in a state of remaining unlocked from said second connection part,

wherein the stop part is retractable, said stop part being extended when said first connection part is in a holding unlocked state with said second connection part of the other storage box, and said stop part being compressed when said first connection part is in a locked state with said second connection part.

73. **Claim Terms of the '946 patent.** The following is a list of terms from Claim 1 and a summary of how these terms are described in the specification of the '946 patent:

- i. first connection part and second connection part: the structure of one storage box, such as a lower storage box, and a second storage box, such as, an upper storage box, respectively, that contain the parts that connect the two storage boxes, shown in Figure 1 as items 1 and 2, respectively, (see [Illustration 6](#)). See also '946 patent, col. 6, lns. 23-26).
- ii. mounting body: a portion of the first connection part of one storage box, in particular the lower storage box, shown in Figure 1 as item 11, (see [Illustration 6](#)). See also '946 patent, col. 6, lns. 53-57. The mounting body and mounting slot are described in the specification as components of the mounting portion that are fixed to the box lid.
- iii. locking buckle: a portion of the locking part 12 that engages the bottom of the second storage box, such as the upper storage box, and fits into the slot 211, shown in Figure 7 at item 122 (see [Illustration 7](#)). See also '946 patent, col. 8, lns. 26-31.
- iv. first resilient member: compression springs shown in Figure 7 as item 13 that are positioned between the mounting portion 11 and the locking part 12 (see [Illustration 7](#)). See also '946 patent, col. 6, lns. 40-43.
- v. locking part: the locking part is shown in Figure 7 as item 12 (see [Illustration 7](#)). See also '946 patent, col. 6, lns. 64-65.

- vi. stop part: the stop part is shown in Figure 7 as item 3 (see [Illustration 7](#)). It can be mounted in the locking part 12 and can move upwards and away from the horizontal direction of movement of the locking part to engage the second connection part 2 of the upper box, which holds the locking part 12 in the unlocked position. See '946 patent, col. 7, lns. 58-64.
74. I understand that the Court has not construed any claim terms of the Asserted Patents as of the date of this report. Accordingly, I have given all the claim terms their plain and ordinary meaning, as would have been understood by a person of ordinary skill in the art at the time of the alleged invention.
75. **Operation of connection structure for two storage boxes.** The '946 patent describes the structure of an automatic locking connection structure for a pair of stacked storage boxes, including one embodiment described at col. 8, lns. 9-17 and 28-36 of the '946 patent. The operation of automatically locking two storage boxes together occurs as follows:
- i. Place the second connection part 2 of the upper storage box 50 above the first connection part 1 of the hinged lid 52 of the lower storage box, so the upper box can make contact with the locking part 12 on the lower box. See [Illustration 6 and 8](#).
 - ii. Downward pressure from the upper box causes the locking buckle 122 to push the locking part 12 horizontally relative to the mounting body 11 on the lower storage box, which compresses the resilient member 13. See [Illustration 9](#) (annotated).
 - iii. When the upper storage box moves a certain distance the locking buckle 122 aligns with the mating part 211 in the upper box. At this point the resilient member 13 pushes the locking part 12 with the locking buckle 122 to engage the mating part 211, which locks the two storage boxes together. At the same time, stop part 3 is compressed by the compression of second connection part 2 of the upper storage box, so that it second resilient member 33 is compressed and card stop 32 is within holding slot 31.
76. The operation of unlocking the storage boxes is described in the '946 patent, at col. 8, lns. 37-51. Unlocking the connection between two storage boxes occurs as follows:
- i. Manually pull the locking part 12 horizontally away from the upper box. When it moves a certain distance the locking buckle 122 will disengage from the mating part 211, which unlocks the two storage boxes.
 - ii. Pulling the locking part 12 also releases the stop part 3 so it is no longer compressed by the upper storage box. This allows it to lift upwards under the action of the resilient member 33 and engage the back wall of the recess 22 of the upper box. This holds the locking part 12 in the unlocked state by preventing the resilient member 13

from moving the locking part 12 back into the locking position allowing the two boxes to be separated. See [Illustration 10](#).

IX. THE ACCUSED STACKTECH PRODUCTS FOR THE '946 PATENT

77. I understand that Meridian accuses the following ToughBuilt StackTech products of infringing the '946 patent (collectively the “accused StackTech products”):

- i. TOUGHBUILT STACKTECH 22.3-in W x 26-in H Black Plastic/Metal Wheels Tool Box (Model TB-B1-B-70R);
- ii. TOUGHBUILT STACKTECH XL 21-in W x 15.6-in H Black Plastic/Metal Tool Box (Model TB-B1-B-70);
- iii. TOUGHBUILT STACKTECH Large 21-in W x 11.7-in H Black Plastic/Metal Tool Box (Model TB-B1-B-50);
- iv. TOUGHBUILT STACKTECH 21-in Black Plastic/Metal Tool Box (Model TB-B1-B-30);
- v. TOUGHBUILT STACKTECH Crate 21-in W x 11.4-in H Black Plastic/Metal Tool Box (Model TB-B1-X-50);
- vi. TOUGHBUILT STACKTECH Compact 10.4-in Black Plastic/Metal Tool Box (Model TB-B1-B-60C);
- vii. TOUGHBUILT STACKTECH 11-Compartment Large Plastic Small Parts Organizer (Model TB-B1-O-30);
- viii. TOUGHBUILT 22-Compartment STACKTECH Low-Profile Plastic Small Parts Organizer (Model TB-B1-O-10);
- ix. TOUGHBUILT 12-Compartment STACKTECH Compact Low-Profile Plastic Small Parts Organizer (Model TB-B1-O-10C);
- x. TOUGHBUILT STACKTECH XL 21-in W x 15.6-in H Ball-bearing 3-Drawer Black Plastic/Metal Tool Box (Model TB-B1-D-70-3);
- xi. TOUGHBUILT STACKTECH 21-in W x 8.8-in H Ball-bearing 1-Drawer Black Plastic/Metal Tool Box (Model TB-B1-D-30-1);
- xii. TOUGHBUILT STACKTECH XL White 38-Quart Insulated Chest Cooler (Model TB-B1-C-70); and
- xiii. TOUGHBUILT STACKTECH Compact White 16-Quart Insulated Chest Cooler (Model TB-B1-C-60C).

Meridian Complaint ¶ 13, page 3.

78. In his declaration, Dr. Pratt analyzed the ToughBuilt StackTech Tool Box model number TB-B1-B-30 and the ToughBuilt StackTech 11-Compartment Large Plastic Small Parts Organizer model number TB-B1-O-30. Pratt Decl. ¶ 7, page 3. Dr. Pratt provides the opinion that the connection of the other accused StackTech products functions in the same way as the products he analyzed. Pratt Decl. ¶ 7,

- page 3. For purposes of my analysis, I accept Dr. Pratt's assumption that the connection of the accused StackTech products operates in the same manner.
79. Photos of one of the accused StackTech products are in [Illustration 11](#), shown in both a separated and locked together configuration. Photos of the latching system on the upper storage box, which I annotated, are in [Illustration 12](#). Photos, which I annotated, of the protrusion and locking grooves on the lower storage box that interfaces with the upper storage box of the accused StackTech products are in [Illustration 13](#).
80. **Operation of the accused StackTech products.** The operation of the latching system of the accused StackTech products can be summarized as follows:
- i. The latch system on the upper storage box starts in an unlocked position, which is shown (with my annotations) by the sliding switch in [Illustration 11](#) and [18](#).
 - ii. The beveled edges of the upper storage box are aligned with the beveled edges of the lower storage box, which positions the detent slot of the upper box over the protrusion of the lower box. See [Illustration 11](#) and [18](#), which I annotated.
 - iii. When the boxes are pushed together the protrusion of the lower box rotates the torsion spring of the detent counter-clockwise (when looking along the cleat locking cam, Dr. Pratt calls this the horizontal bar, from the sliding switch toward the extension spring), which releases it from the detent catch, allowing the extension spring to pull the cleat locking cam. The movement of the cleat locking cam guides cam-follower pins, which push the cleats outward into the locking grooves of the lower storage box. This also pulls the slider bar to the left to designate a locked configuration. See [Illustration 12, 13](#) and [18](#), which include my own annotations.
 - iv. To separate the two locked boxes, the slider bar is momentarily moved to the right which causes the cleat locking cam to retract the cleats and move the detent to the right of the detent catch. The torsion spring rotates the detent clockwise so it engages the detent catch when the upper storage box is removed. The extension spring pulls the detent against the detent catch and the latch is ready for connection to another box.

X. NON-INFRINGEMENT ANALYSIS FOR THE '946 PATENT

81. **Claim 1 of the '946 patent is not infringed by the accused StackTech products.** In my opinion, the accused StackTech products do not infringe asserted Claim 1 of the '946 patent because they do not satisfy multiple claim limitations, as discussed below.
82. Above, I describe the operation of the latching system of the accused StackTech products, which is consistent with my understanding of how ToughBuilt advertises

- the operation of the accused StackTech products. See <https://stacktech.toughbuilt.com/advantage/>, which illustrates what ToughBuilt terms “intuitive stacking” of the accused StackTech products. I understand that during his deposition, Dr. Pratt referred to the operation described above as the “normal use” for the accused StackTech products when they are stacked and locked together. Pratt Deposition at 49:20-50:25.
83. I understand that Dr. Pratt does not have an opinion on whether the “normal use” of the accused StackTech products, which I describe above, meets all of the limitations of Claim 1 of the ’946 patent. Specifically, I understand that if the upper accused StackTech product starts in an unlocked position (see [Illustration 11](#)) before two accused StackTech products are stacked together, Dr. Pratt does not have an opinion on whether the operation of the accused StackTech products meets the limitation “wherein the locking buckle is configured to slide inward with respect to the mounting part so that the locking buckle is automatically lockable with the mating part of the other storage box by action of said first resilient member when the locking buckle is aligned with the mating part of the other storage box.” Pratt Deposition at 63:20-65:7.
84. Instead, I understand that in order to analyze whether the accused StackTech products meet what Dr. Pratt refers to as limitation [1e], it was necessary that he configure the upper accused StackTech product so that the cleat was extended before the product was stacked. Pratt Deposition at 63:20-65:7. In order for the cleat to be extended before an accused StackTech product is stacked, the detent in one storage box must be manually tripped. In the normal operation of the accused StackTech products that I describe above, the detent is tripped only by the protrusion of the lower storage box as two accused StackTech products are stacked. But to trip the detent of the upper storage box before it is stacked, a small tool or finger must rotate the detent counter-clockwise. See also Pratt Deposition at 51:1-6, 58:2-13. If the detent is not tripped, contact between the detent and the detent catch prevents movement of the slide switch to the locked position. It is not possible to manually move the slide switch to the locked position. See Pratt Deposition at 51:1-52:9.
85. **Limitation [d]: locking buckle** of Claim 1 is configured to slide inwards relative to “the mounting part” of the first connection part, as shown in [Illustration 9](#). However, the term “mounting part” does not appear anywhere else in Claim 1. I assume that this reference to “mounting part” should be a reference to the “mounting body.” Based on my review of Dr. Pratt’s report, he appears to make the same assumption. Pratt Decl. Ex. 3, pages 15-16.
86. The ’946 patent describes that the locking part, which includes the locking buckle, of the storage box faces the interior of the storage box (see [Illustration 1](#)). When the locking buckle of the first storage box is aligned with the mating part of the second storage box by pressing the upper storage box down onto the lower storage box, the locking buckle extends inward toward the interior of the storage box to engage the mating portion of the second storage box to automatically lock. See ’946 patent, col. 7, lns. 33-51.

87. As I describe above, for operation of the accused StackTech products, the upper storage box starts in an unlocked position with the cleat retracted. When the upper storage box is stacked on top of a lower storage box, the protrusion of the lower storage box releases the detent of the upper storage box causing the cleat locking cam to move, pushing the cam follower pins and the attached cleat outwards to engage the locking groove of the lower storage box, thus locking the two storage boxes together. The locking function of the accused StackTech products, therefore, depends on alignment of the protrusion of the lower storage box with the detent of the upper storage box. It does not depend on alignment of the “locking buckle” with the “mating part of the other storage box” as recited in Claim 1. I also understand that Dr. Pratt does not have an opinion on whether this operation of the accused StackTech products meets limitation [d] of Claim 1. Pratt Deposition at 63:20-65:7.
88. Dr. Pratt’s analysis for limitation [d], which he identifies as limitation [1e], depends on the cleat of the upper storage box of the accused StackTech products being extended before the upper storage box is stacked onto the lower storage box. Pratt Decl. Ex. 3, pages 15-16. Dr. Pratt states that the force of stacking two accused StackTech products causes the cleat of the upper product to retract inward with respect to the mounting part before the cleat is aligned with the mating part of the lower storage box. Pratt Decl. Ex. 3, pages 15-16. In Dr. Pratt’s opinion, the inward movement of the cleat before it is received by the mating part and locked in this improper operation meets limitation [d]. Pratt Decl. Ex. 3, pages 15-16. But limitation [d] states that the locking buckle is configured to slide inward with respect to the mounting part so that the locking buckle is automatically lockable with the mating part of the other storage box. Even in Dr. Pratt’s improper operation of the accused StackTech products, the cleat of the upper box extends outward, not inward, with respect to what Dr. Pratt identifies as the mounting body to lock with the locking groove of the lower storage box.
89. In addition, the specification teaches a person of ordinary skill that “configured to slide inward” refers to movement directed inwardly relative to the side of the storage box, and this is where the locking buckle of the first storage box engages and automatically locks with the mating area of the second storage box. In Dr. Pratt’s improper operation of the accused StackTech products, the cleat also extends outwardly away from the interior of the storage box to engage the lower storage box, not inward toward the interior of the storage box, as described in the ’946 patent.
90. The accused StackTech products, therefore, do not include a “locking buckle [that] is configured to slide inward with respect to the mounting part so that the locking buckle is automatically lockable with the mating part of the other storage box by action of said first resilient member when the locking buckle is aligned with the mating part of the other storage box.”
91. **Limitation [e]: a locking part.** Claim 1 recites a locking part that cooperates with the locking buckle, “wherein manual movement of the locking part causes the locking buckle to move to an unlocked state.” The specification describes manual movement of the locking part as:

When it is necessary to unlock the two storage boxes, pull the locking part 12 of the lower storage box outward so that it moves toward the unlocking direction, and when the locking part moves a certain distance toward the unlocking direction, the locking buckle 122 of the lower storage box is detached from the slot 211 of the upper storage box. '946 patent, col 8, lns. 37-42.

92. Dr. Pratt identifies the cleat of the accused StackTech products as both the locking buckle and the locking part. Pratt Decl. Ex. 3, page 8. Dr. Pratt also identifies the guide pins that interface with guide grooves as the locking part. Pratt Decl. Ex. 3, page 17. In his deposition, I understand Dr. Pratt testified that the springs he refers to as the first resilient member are also part of the locking part. Pratt Deposition at 69:22-71:25. And Dr. Pratt finds the claim element, “manual movement of the locking part causes the locking buckle to move to an unlocked state” is literally present in the StackTech product, stating:

As the slide switch is moved from the locked position to the unlocked position, the guide grooves in the stop part cause the locking part to move in the negative z direction from an extended position to a retracted position, thereby moving the locking buckle from the extended position to the unlocked position. Pratt Decl. Ex. 3, page 17.

93. I agree with Dr. Pratt that the manual movement of the sliding switch moves the cleat locking cam which drives the cam slots in a manner that causes the cam follower pins to move the cleats from a locked position to an unlocked position. However, it is my opinion that a person of ordinary skill in the art would not conclude that this is manual movement of the locking part, as recited in claim limitation [e]. Limitation [e] requires manual movement of the locking part, but it is impossible to manually move the cleat, guide pins, or springs of the accused StackTech products, which Dr. Pratt identifies as the locking part. Dr. Pratt's analysis omits that neither the cleat, guide pins, nor springs are accessible for manual movement from an outward direction into an unlocked state at any time. Instead, the cleat is either enclosed between two connected storage containers in the locked state or retracted into the side of the upper storage container in the unlocked state and, therefore, out of reach of the user. As such, the cleat cannot be manually moved from a locked state to an unlocked state. And the guide pins and springs are internal to the connection of the accused StackTech products so they cannot be reached by the user. As such, the guide pins and springs cannot be manually moved from a locked state to an unlocked state.
94. Therefore, the accused StackTech products do not include “a locking part cooperating with the locking buckle, wherein manual movement of the locking part causes the locking buck to move to an unlocked state.”
95. **Limitation [f]: a stop part.** Claim 1 of the '946 patent recites a stop part that has two functions. The first function is that the stop part “projects outward with respect to the locking path of the locking part” where the locking part is not automatically lockable and the first and second connection parts are in the unlocked state. The

second function of the stop part has two aspects, either: (i) extended when the first connection part is in a holding unlocked state; or (ii) compressed when the first connection part is in a locked state with the second connection part.

96. In my opinion, the claim term “stop part” does not, by itself, convey a definite structure to a person of ordinary skill in the art, because the term simply states that it must be a part that functions to “stop” something. In order to understand the structure of the stop part and how it performs the functions recited in the claim, I reviewed the specification for disclosure of structures that perform the recited functions. But I do not provide a function-way-result analysis of the means-plus-function element in this report, because I understand Dr. Pratt did not identify the “stop part” is a means-plus-function term. Instead I focus on the functions recited in the claim language. In my opinion, the accused StackTech products do not perform the two functions recited in limitation [f], as I discuss below.
97. The specification describes the structure that performs the first function of the stop part as:

stopping part 3 is provided on the locking part 12, which can move horizontally with the locking part 12, and when the locking part 12 is in the unlocked state the stopping part 3 can be held with the second connection part 2 in the locking path of the locking part 12, and the locking part 12 cannot be automatically locked, so that the first connection part 1 and the second connection part 2 are in the maintained unlocked state. '946 patent, col. 7, lns. 59-64.

The stop part 3 can be seen blocking the movement of the locking part 12 in [Illustration 10](#).

98. The specification describes two structural components that perform the second function of the stop part recited in Claim 1. The first structural component is described in the specification as a combination of components holding slot 31, a card block 32 and a second resilient spring 33 of the stop part 3. Specifically:

The stopping part 3 includes a holding slot 31 opened on the locking part 12, a card block 32 that can be accommodated in the holding slot 31 and a second resilient member 33 disposed between the holding slot 31 and the card block 32, and the card block 32 can be retracted to the holding slot 31 under the action of the second resilient member 33. '946 patent, col. 7, ln. 66 to col. 8, ln. 5.

99. The second structural component is described in the specification as:

when the first connection part 1 and the second connection part 2 are in a locked state the second resilient member 33 compresses and the card block 32 is compressed in the holding slot 31 by the compression of the second connection part 2. '946 patent, col. 8, lns. 13-17.

The compression of the stop part when the storage boxes are locked together can be seen in [Illustration 9](#).

100. The specification describes that when the two storage boxes are locked together, the second resilient spring 33 is compressed by the top storage box. This can be seen more clearly in [Illustration 6](#), where card block 32 is under storage box 2 and a person of ordinary skill in the art would understand that second resilient spring 33 is compressed. When the locking part 12 is pulled out in an unlocking direction, the stop part 3 “loses the squeeze of the upper storage box” and the card block 32 is automatically extended upward under the action of second resilient spring 33. ’946 patent, col. 8, lns. 44-51. The extension of stop part 3 outwards and outside the periphery of the first storage box prevents it from being locked with the second storage box because it will make contact with the side of second storage box 2 and is a physical obstacle. This can be seen more clearly in [Illustration 10](#), where card block 32 is extended and comes into contact with the side of storage box 2, which prevents storage box 1 and storage box 2 from being locked.
101. The specification also describes that if the user wants to lock the two storage boxes again, they can press down on card block 32 to make it and second resilient member 33 retract into holding slot 31, so that card block 32 is no longer an obstacle. ’946 patent, col. 8, lns. 54-56.
102. Turning to the first function of the “stop part,” in his infringement analysis Dr. Pratt identifies a horizontal bar and its guide grooves in the accused StackTech products as the stop part, [Illustration 16](#). See Pratt Decl. Ex. 3 at 19. This horizontal bar can be seen more clearly in [Illustration 17](#) as the cleat locking cam (green) in the solid model of the latching system for the accused StackTech products. The proper operation of the latching system of the accused StackTech products is shown in [Illustration 18](#), where when the sliding switch is momentarily opened, the detent catch holds the detent in alignment with the protrusion slot, ready to be latched to another box.
103. Dr. Pratt finds that the “stop part projects outward with respect to a locking path of the locking part, said locking part is not automatically lockable and said first connection part is in a state of remaining unlocked” of limitation [f] is literally present in the accused StackTech products. Specifically, Dr. Pratt states:

When the system is in an override configuration, the stop part is fully extended in a positive x direction (i.e., outward in relation to the path of the locking part along the z-axis) and the locking part is retracted in the negative z direction to render the system not automatically lockable. Pratt Decl. Ex. 3, page 21.
104. But Dr. Pratt improperly introduces an “override configuration” in which the sliding switch is manually held to the right while two boxes are stacked. This causes the detent of the upper box to be misaligned with the protrusion in the lower box, so the detent and catch locking cam are held in the position where the cleats are retracted. See [Illustration 19](#). This is an improper operation of the accused StackTech products. Despite my disagreement, if I assume that Dr. Pratt’s opinion on the “override configuration” is correct, I still find that Dr. Pratt’s analysis does not demonstrate limitation [f] is met by what he calls the horizontal bar, otherwise known as the cleat locking cams in the accused StackTech products.

105. This can be seen by examining the operation of the cleat locking cam. The cleat locking cam is actuated manually in one direction and released, which moves the cleats into the unlocked position and causes the detent to be positioned in line with the protrusion slot. In this operation the cam slots open the cleats by displacing the cam-follower pins, and hold them open, because the detent engages to hold the cleat locking cam in the open position, resisting the extension spring.
106. But the cleat locking cam does not move outward with respect to the locking path to engage the other storage box. In fact, the horizontal bar remains inside the storage box and the action of the cam slots guides the cam-follower pins to move the locking cleats rather than stop them. In other words, the cleat locking cam and its guide grooves do not create an obstacle to the locking path of the cleats. This is different than the stop part described in the '946 patent, where it outwardly projects to create an obstacle to the locking path of the locking part of the storage box and physically obstructs the two storage boxes from being locked together. Therefore, the horizontal bar that Dr. Pratt mistakenly identifies as the stop part does not perform the first function of the stop part.
107. I understand that during his deposition, Dr. Pratt testified that the stop part corresponds to not simply the horizontal bar that he identified in his report, which is called the cleat locking cam by ToughBuilt, but also to the assembly formed by the cleat locking cam, the detent and its supporting torsion spring, Pratt Deposition at 76:13-77:6. Dr. Pratt also testified that the detent and its torsion spring are a necessary part of the stop part to enable what he refers to as the override function to work. Pratt Deposition at 80:14-22. Specifically, Dr. Pratt testified that the detent and its torsion spring keep the stop part in an unlocked position prior to stacking and maintaining stacked boxes in a holding, unlocked position. Pratt Deposition at 80:23-81:16. Although Dr. Pratt states the detent and its torsion spring are necessary parts of the stop part, Dr. Pratt testified that he did not identify these components as part of the stop part in his declaration. Pratt Deposition at 81:17-82:14.
108. I find that Dr. Pratt's revised opinion that it is the assembly formed by the cleat locking cam, detent and torsion spring that correspond to claimed stop part, strengthens my opinion that there is no claimed stop part in the accused StackTech products. Specifically, Claim 1 requires that the stop part is "extended when said first connection part is in a holding unlocked state" and that the stop part is "compressed when said first connection part is in a locked state with said second connection part." The torsion spring that attaches the detent to the cleat locking cam can be rotated and this only occurs when the upper storage box is in an unlocked state. In the unlocked state the torsion spring rotates clock-wise to position the detent against the detent catch and is not extended like the stop part recited in Claim 1. In addition, if the upper storage box is in a locked state, the torsion spring is rotated counter-clockwise releasing the detent from the detent catch, which means it is not compressed when the upper storage box is in a locked state, like the stop part required by Claim 1. This is shown on page 21 of exhibit 3 to Dr. Pratt's declaration.
109. Turning to the second function of the "stop part," I also disagree with Dr. Pratt's

analysis where he finds that the “stop part being extended when said first connection part is in a holding unlocked state with said second connection part of the other storage box” of limitation [f] is literally present in the accused StackTech products. Specifically, Dr. Pratt states:

As such, the stop part is extended in the positive x direction (causing the guide grooves to move the guide pins and locking part further in the negative z direction) when said first connection part is in an override configuration (a holding unlocked state) with the second connection part of the Organizer (the other storage box). Pratt Decl. Ex. 3, page 24.

Again, Dr. Pratt relies on an “override configuration,” which is an improper operation of the accused StackTech products. Despite my disagreement, if I assume Dr. Pratt’s opinion on the “override configuration” is correct, I still find that the cleat locking cam cannot be extended during a holding unlocked state. The cleat locking cam of the accused StackTech products moves under the action of an extension spring, which means that it is retractable, but it remains inside the storage box for the entire movement and cannot be extended to engage the other storage box. The cleat locking cam, therefore, does not perform the second recited function of the stop part.

110. I further disagree with Dr. Pratt’s analysis where he finds that the “stop part being compressed when said first connection part is in a locked state” of limitation [f] is literally present in the accused StackTech products. Specifically, Dr. Pratt states:

Likewise, the stop part is compressed (causing the guide grooves to allow the guide pins and locking part to move further in the extended, positive z direction) when said first connection part is in a locked state with the second connection part of the Organizer. Pratt Decl. Ex. 3, page 24.

Again, Dr. Pratt relies on an “override configuration,” which is an improper operation of the accused StackTech products. Despite my disagreement, if I assume Dr. Pratt’s opinion on the “override configuration” is correct, I still find that the cleat locking cam cannot be compressed during a locked state because the spring of the cleat locking cam is an extension spring that cannot be compressed. This is another reason why the cleat locking cam does not perform the second recited function of the stop part.

111. The accused StackTech products, therefore, do not include a stop part as recited in Claim 1 of the ’946 patent.
112. For the reasons discussed above, multiple limitations of Claim 1 of the ’946 patent are missing from the accused StackTech products. The accused StackTech products, therefore, do not infringe Claim 1 of the ’946 patent.

XII. THE ASSERTED CLAIM OF THE ’689 PATENT

113. **Claim 1 of the ’689 patent recites:**

A stackable storage system comprising:

[a] a first storage container configured and arranged to be selectively connected to a second storage container,

[b] wherein the first storage container comprises at least one locking groove and the second container comprises a sliding mechanism for selectively engaging the locking groove to connect and hold the first storage container to the second storage container, and

[c] wherein a portion of the sliding mechanism extends laterally away from the side surface of the second container when the sliding mechanism is disengaged from the locking groove, and

[d] wherein the portion of the sliding mechanism is coplanar with the side of the second container when the sliding mechanism is engaged in the locking groove.

XIII. THE ACCUSED TOOL BAG PRODUCTS FOR THE '689 PATENT

114. I understand that Meridian accuses the following ToughBuilt products of infringing Claim 1 of the '689 patent (collectively the “accused Tool Bag products”):

- i. Kobalt CaseStack Blue Polyester 20-in Zippered Tool Bag (model number KB-CS-S20); and
- ii. Kobalt CaseStack Blue Polyester 20-in Tool Tote (model number KB-CS-T20)

Meridian Complaint ¶ 37, page 12.

115. In his declaration, Dr. Pratt analyzed the Kobalt CaseStack Blue Polyester 20-in Zippered Tool Bag (model number KB-CS-S20). Pratt Decl. ¶ 8, page 3. Dr. Pratt provides the opinion that the other accused Tool Bag products share the same “CaseStack” attaching mechanism and therefore function in the same way as the product he analyzed. Pratt Decl. ¶ 9, pages 3-4. For purposes of my analysis, I accept Dr. Pratt’s assumption that the attaching mechanism for the accused Tool Bag products operates in the same manner.

116. Photos of the Kobalt CaseStack Blue Polyester 20-in Zippered Tool Bag (model number KB-CS-S20) are in [Illustrations 20](#) and [21](#).

XIV. NON-INFRINGEMENT ANALYSIS FOR THE '689 PATENT

117. **Claim 1 of the '689 patent is not infringed by the accused Tool Bag products.** In my opinion, the accused Tool Bag products do not infringe asserted Claim 1 of the '689 patent because they do not satisfy multiple claim limitations, as discussed below.

118. **Limitation [a]: second storage container.** Limitation [a] recites “a first storage container configured and arranged to be selectively connected to a second storage

container.” In my opinion, the “stackable storage system” of Claim 1 requires two containers—a “first container” and a “second container.”

119. Dr. Pratt considered the infringement of the accused Tool Bag products when they are connected with a Kobalt CaseStack Plastic Tool Box. He states in his declaration:

For claim 1 of the '689 patent, I conducted an infringement analysis of the CaseStack Tool Bag (model number KB-CS-S20) when used with another Kobalt CaseStack product, in this case the Kobalt CaseStack Plastic Tool Box (model number KCS-SSBOX1-03). Pratt Decl, ¶ 9, pages 3-4.

120. Dr. Pratt notes that the Kobalt CaseStack Tool Bag is manufactured by ToughBuilt and sold by Lowe's under the Kobalt brand name:

For my infringement analysis of the '689 patent, I analyzed a Kobalt CaseStack Tool Bag (model number KB-CS-S20), which I acquired when Lowe's Home Improvement shipped them to my Laguna Niguel office. I understand that “CaseStack” refers to a line of Kobalt storage and accessory products that are designed to interconnect and intended to be used with other Kobalt CaseStack products to provide a modular storage system. I further understand that the Kobalt CaseStack Tool Bag (model number KB-CS-S20) is manufactured and provided by ToughBuilt for sale under the Kobalt brand name. Pratt Decl. ¶ 8, page 3.

121. In his declaration, Dr. Pratt identifies the accused Tool Bag products as the recited “first container.” But as Dr. Pratt appears to acknowledge, the accused Tool Bag products are only a single “container.” During his deposition, Dr. Pratt confirmed that Claim 1 of the '689 patent requires two storage containers and that he identifies the accused Tool Bag products as the “first storage container” of Claim 1. Pratt Deposition at 97:24-98:1. Dr. Pratt also confirmed that the separate Kobalt Toolbox, which he assumes is not manufactured by ToughBuilt, is the “second storage container” recited in Claim 1. Pratt Deposition at 98:9-24. The accused Tool Bag products, therefore, cannot be the second container recited in Claim 1 of the '689 patent.

122. **Limitation [b]: second storage container with a sliding mechanism.** Limitation [b] recites that “the second storage container comprises a sliding mechanism....” As discussed above, the accused Tool Bag products cannot be both the recited first container and recited second container. Dr. Pratt identifies the accused Tool Bag products as the “first container.” Pratt Decl. Ex. 4 at 3-4. The accused Tool Bag products, therefore, do not include the sliding mechanism that is recited as part of the second storage container with a sliding mechanism in limitation [b].

123. **Limitation [c]: sliding mechanism that extends laterally.** Limitation [c] recites “the sliding mechanism [of the second container] extends laterally....” The accused Tool Bag products do not include a sliding mechanism and, therefore, do not satisfy

- limitation [c], which requires, in part, that “the sliding mechanism extends laterally.”
124. **Limitation [d]: sliding mechanism that is coplanar.** Limitation [d] recites “the sliding mechanism is coplanar...” The accused Tool Bag products do not include a sliding mechanism and, therefore, do not satisfy limitation [d], which requires, in part, that “the sliding mechanism is coplanar.”
125. **Meridian manufactures the “second storage container” in Dr. Pratt’s infringement analysis.** As described above, the accused Tool Bag products are only a single “container” and therefore do not meet any of the “second storage container” limitations of Claim 1 of the ’689 patent. In order to perform his infringement analysis, Dr. Pratt combines the accused Tool Bag products with the Kobalt CaseStack Plastic Tool Box. Pratt Decl. ¶ 9, pages 3-4. I understand that the Kobalt CaseStack Plastic Tool Box that Dr. Pratt identifies as the “second container” in his infringement analysis is manufactured by Meridian. Dr. Pratt also states that “the connective mechanisms of the CaseStack Tool Bag are especially adapted to connect to other CaseStack products and they have no substantial use other than to connect to other CaseStack products.” Pratt Decl. ¶ 9, page 4. I understand, therefore, that Dr. Pratt argues the accused Tool Bag products are only made for use with other CaseStack products, which I understand are manufactured by Meridian.
126. For the reasons discussed above, multiple limitations of Claim 1 of the ’689 patent are missing from the accused Tool Bag products, and I understand Dr. Pratt cannot rely on a product manufactured by Meridian, the patent owner, to demonstrate infringement of the recited “stackable storage system.” The accused Tool Bag products, therefore, do not infringe Claim 1 of the ’689 patent.

XV. INVALIDITY ANALYSIS FOR THE ’946 PATENT

127. It is my understanding that the accused StackTech products cannot infringe an invalid patent. In this section, I explain my opinion that the ’946 patent is invalid when compared to the prior art.
128. **Prior Art for the ’946 Patent.** The following is a summary of prior art references I rely on for the invalidity of the Asserted Claims of the ’946 Patent. At least one of these references were considered by the Patent Office during the original prosecution of the ’946 patent discussed herein.
129. **U.S. Patent No. 11,788,329 (“Li patent”)** The Li patent is titled “Latch Structure” and issued as U.S. Patent No. 11,788,329 on October 17, 2023. See [Illustration 22](#). The Li patent discloses a latch structure with an elastic pull latch. The top of the elastic pull latch includes a latch bar with grooves and an elastic boss that moves in and out. Li patent, col. 3, lns. 42-65. The top side of the box has an elastic pull latch and the bottom side of the box has a catch groove with a catch. When at least two boxes are stacked together, the catch in the catch groove of the top box snaps into the latch groove of the elastic pull latch of the lower box to securely connect the two boxes.

130. **U.S. Patent No. 9,725,209 (“Ben-Gigi patent”).** The Ben-Gigi patent is titled “Stackable Tool Box Assembly” and issued as U.S. Patent No. 9,725,209 on August 8, 2017. See [Illustration 23](#). The Ben-Gigi patent discloses a stackable toolbox assembly with side catches in which each individual toolbox has a handle with a catch. Ben-Gigi patent, col. 1, lns. 36 to col. 2, ln. 2. The first and second toolboxes have a stacked orientation in which the second toolbox sits on top of the first toolbox. Ben-Gigi patent, col. 1, lns. 58-59. Once the toolboxes are oriented on top of each other, the catch is pivoted so the catch edge is movable towards and away from the sidewalls of the toolboxes. Ben-Gigi patent, col. 1, lns. 51-57. When the catches pivot toward the sidewalls, they are able to lock the stacked toolboxes in place. Ben-Gigi patent, col. 1, lns. 47-55.

131. **Claim 1 of the ‘946 patent is anticipated by the Li patent.** The subject of the Li patent is a latch for stackable storage boxes. This is described in the Li patent as,

when objects such as boxes, crates, or pallets that are stacked one above another, adjacent stacked objects can be joined together by a latch to improve the stability of the stacked-up objects. Li patent, col. 1, lns. 19-22.

This can also be seen in figure 6 of the Li patent, as shown in [Illustration 24](#). Figure 1 of the Li patent (see [Illustration 25](#)) shows the elastic pull latch 3, which corresponds to limitation [d] of the ‘946 patent that claims the locking part.

132. **Limitations [a-f] of Claim 1 of the ‘946 patent are present in the Li patent.** Limitations [a-f] of Claim 1 of the ‘946 patent are recited as follows:

A storage box comprising:

[a] a first connection part disposed on one area of said storage box connectable to a second connection part of another storage box;

[b] wherein, said first connection part comprises

(i) a mounting body,

(ii) a locking buckle movable with respect to said mounting body,

(iii) and a first resilient member located between said mounting body and said locking buckle, wherein said first resilient member keeping said locking buckle automatically in a locked state;

[c] wherein said second connection part of the other storage box comprises a mating part interlockable with the locking buckle,

[d] wherein the locking buckle is configured to slide inward with respect to the mounting part so that the locking

buckle is automatically lockable with the mating part of the other storage box by action of said first resilient member when the locking buckle is aligned with the mating part of the other storage box;

[e] a locking part cooperating with the locking buckle, wherein manual movement of the locking part causes the locking buckle to move to an unlocked state; and

[f] a stop part,

(i) wherein when the stop part projects outward with respect to a locking path of the locking part,

(ii) said locking part is not automatically lockable and said first connection part is in a state of remaining unlocked from said second connection part,

(iii) wherein the stop part is retractable,

(iv) said stop part being extended when said first connection part is in a holding unlocked state with said second connection part of the other storage box, and

(v) said stop part being compressed when said first connection part is in a locked state with said second connection part.

133. A person of ordinary skill in the art would recognize that all the limitations of Claim 1 of the '946 Patent are present in the Li patent.

134. **[preamble] A storage box comprising.** To the extent that the preamble is limiting, figures 1 and 6 of the Li patent (see [Illustrations 22 and 23](#)) show a box body 1 with cover 2. A person of ordinary skill in the art would have recognized that these figures of the Li patent are of a storage box.

135. **Limitation [a]**

(i) **a first connection part disposed on one area of said storage box.** Figure 1 of the Li patent (see [Illustration 25](#)) shows an area in the cover 2 that contains an elastic pull latch 3. This corresponds to the first connection part.

(ii) **connectable to a second connection part of another storage box.** Figures 1 and 6 of the Li patent (see [Illustrations 24 and 25](#)) show an area on box body 1. This corresponds to the second connection part, which contains a catch 12 and catch groove 11.

136. Therefore, it is my opinion that a person of ordinary skill in the art would have recognized that limitation [a] is present in the Li patent.

137. **Limitation [b]**

- (i) **wherein, said first connection part comprises a mounting body.** Figure 6 of the Li patent (see [Illustration 25](#)) shows the “sides of the cover 2” with an elastic pull latch 3 mounted on the side. Li Patent, col. 3, lns. 46-47. This corresponds to the mounting body. The specification of the Li patent states that “[t]he left and right sides of the cover of the carrier are each provided with an elastic pull latch that can be pulled out.” Li patent, col. 1, lns. 35-37.
- (ii) **a locking buckle movable with respect to said mounting body.** Figure 4 of the Li patent (see [Illustration 26](#)) shows the latch bar 321, the locking buckle, and Figures 7 and 9 of the Li Patent (see [Illustration 27](#)) show the movement of the latch bar 321, locking buckle, relative to the side of the cover 2, mounting body,
- (iii) **and, a first resilient member located between said mounting body and said locking buckle, wherein said first resilient member keeping said locking buckle automatically in a locked state.** Figure 4 (see [Illustration 26](#)) also shows the first spring 34, the first resilient member, as being located between the side of the cover, mounting body, and the latch bar, locking buckle. In addition, the first spring 34 holds the latch in a locked state causing the latch to snap into the mating latch bar as two boxes are assembled. The Li patent describes this as “[w]hen one carrier is stacked above another carrier, the catch 12 on the bottom of the upper carrier is snapped into the latch groove 321 of the elastic pull latch 3 located on the cover 2 of the lower carrier.” Li patent, col. 4, lns. 1-4. Figure 4 (see [Illustration 26](#)) also shows the first spring 34, the first resilient member, holds the latch bar 321 against the side of the cover 2.
138. Therefore, it is my opinion that a person of ordinary skill in the art would have recognized that each of the elements in limitation [b] are present in the Li patent.
139. **Limitation [c] wherein said second connection part of the other storage box comprises a mating part interlockable with the locking buckle.** Figures 6 and 7 of the Li patent (see [Illustration 24](#) and [top of Illustration 27](#)) show the box body 1 (the second connection part) with a catch 12 (the mating part) that engages the latch bar 321, which is the locking buckle. I have added color shading to Figures 7 and 9 to highlight the second connection part in grey, the mating part in green, and the locking part with the locking buckle in blue. It is evident that a person of ordinary skill in the art would have recognized that limitation [c] is present in the Li patent.
140. **Limitation [d] wherein the locking buckle is configured to slide inward with respect to the mounting part so that the locking buckle is automatically lockable with the mating part of the other storage box by action of said first resilient member when the locking buckle is aligned with the mating part of the other storage box.** Figures 4 and 7 of the Li patent (see [Illustrations 24](#) and [top of Illustration 25](#)) show the catch 12 (the mating part), engaged with the latch bar 321 (the locking buckle). The engagement of the latch bar 321 with the catch is maintained by the first spring 34 (the first resilient member) which is described in Li patent “[w]hen the elastic pull latch 3 is pulled outwards, the stop piece 35 stays inside the snap-in hole 211 and the first spring 34 becomes compressed.” Li patent,

- col. 4, lns. 4-47. Therefore, it is my opinion that a person of ordinary skill in the art would have recognized that limitation [d] is present in the Li patent.
141. **Limitation [e] a locking part cooperating with the locking buckle, wherein manual movement of the locking part causes the locking buckle to move to an unlocked state.** Figure 9 of the Li patent (see [Illustration 27](#)) shows latch bar 321 (the locking buckle) disengaging the catch 12 (the mating part). This would unlock the latch. The Li patent describes this function as “the elastic pull latch 3 that can extend outwards when pulled.” Li patent, col. 4, lns. 47-48. Therefore, it is my opinion that a person of ordinary skill in the art would have recognized that limitation [e] is present in the Li patent.
142. **Limitation[f] a stop part.** I understand that Dr. Pratt does not opine the term “stop part” is a means-plus-function term. For purposes of my invalidity analysis, I also do not take the position that the term “stop part” is a means-plus-function term.
- (i) **wherein when the stop part projects outward with respect to a locking path of the locking part.** Figure 4 of the Li patent (see [Illustration 26](#)) shows the elastic boss 33 supported by a second spring 36, outwards with respect to the path of the elastic pull latch 3.
- (ii) **said locking part is not automatically lockable and said first connection part is in a state of remaining unlocked from said second connection part.** Figure 9 of the Li patent (see [bottom figure of Illustration 27](#)) shows elastic boss 33 projecting outwards to establish contact with the top box, which is the second connection part. The elastic boss is shaded red in [Illustration 27](#). It is the contact between the extended elastic boss (the stop part), and the top box (the second connection part) that holds the elastic pull latch (the locking part) in the unlocked position.
- (iii) **wherein the stop part is retractable.** Figure 4 of the Li patent (see [Illustration 26](#)) shows the elastic boss 33 (the stop part) supported by a second elastic spring 36, which is retractable.
- (iv) **said stop part being extended when said first connection part is in a holding unlocked state with said second connection part of the other storage box.** Figure 9 (see [bottom figure of Illustration 27](#)) also shows elastic boss 33 (the stop part) extended when the latch in the bottom box is in a holding unlocked state.
- (v) **and said stop part being compressed when said first connection part is in a locked state with said second connection part.** Figure 7 of the Li patent (see [top figure of Illustration 27](#)) shows that the elastic boss 33 (the stop part) is compressed, when the lower box, the first connection part, is in a locked state with the top box, the second connection part.
143. Therefore, it is my opinion that a person of ordinary skill in the art would have recognized that each element of limitation [f] is present in the Li patent.
144. This analysis shows the Li patent discloses a connection structure for a modular storage box assembly as claimed in Claim 1 of the '946 patent.

145. It is my opinion that a person of ordinary skill in the art would find that all the limitations of Claim 1 of the '946 patent are anticipated by the Li patent. Therefore, I conclude that Claim 1 of the '946 patent is invalid.

146. **Moreover, Claim 1 of the '946 Patent is an obvious in view of the Ben-Gigi and Li patents.** In the prosecution history of the '946 patent the Patent Office identifies specific elements of Claim 1 as being present in the prior art reference U.S. Patent No. 9,725,209 to Ben-Gigi. The Patent Office determined that:

Claim(s) 1,10-13,15 and 20 is/are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Ben-Gigi (US9725209B1).

Regarding claim 1, Ben-Gigi teaches **a storage box comprising** (fig. 1, 2A shows tool box assembly 10):

a first connection part disposed on one area of said storage box (fig. 1-3 first connection is formed where latch 26 arranged to slide along side wall 18); **connectable to**

a second connection part another storage box (fig. 1-3 lip 24 is the second connection part of the first box 12);

wherein, said first connection part comprises a mounting body (fig. 1-3 shows the latch 26 with a body 31), **a locking buckle movable with respect to said mounting body** (fig. 4C shows catch edge 30 movable with respect to body 31), **and a first resilient member located between said mounting part body and said locking buckle** (fig. 4A-4C first biasing device 34 located between the body 31 and edge 30), **wherein said first resilient member keeping said locking part buckle automatically in a locked state** (fig. 4C shows it locked state);

wherein, said second connection part of the other storage box comprises a mating part interlockable with the locking buckle (fig. 1-3 lip 24 of the first tool box 12 engages the catch edge 30),

wherein the locking buckle is configured to slide inward with respect to the mounting part so that the locking buckle is automatically locked lockable with the mating part of the other storage box by action of said first resilient member when the locking buckle is aligned with the mating part of the other storage box (fig. 4C the edge 30 is capable of sliding inwards with respect to the mounting part and lock with the lip 24 with the help of device 34);

a locking part cooperating with the locking buckle, wherein manual movement of the locking part causes the locking buckle to move to an unlocked state (fig. 4A-4C catch 28 cooperating with the edge 30 to move from locking to unlocking position); and

a stop part, wherein when the stop part projects outward with respect to a locking path of the locking part (fig. 4A-4C shows pivot 32 that projects outward with respect to a locking patch of catch 28), **said locking part is not automatically lockable and said first connection part is in a state of remaining unlocked from said second connection part** (fig. 4A-4C catch 28 is not automatically locked).

'946 patent prosecution history, para. 7, pages 3-5, page file 2/2, pages 87-89.

The Patent Office relied on the language of the original Claim 1 and found that limitations [a-d] were present in the Ben-Gigi patent. Moreover, the Patent Office determined that claim limitation [e] is present with the exception of functions that were recited in the original version of Claim 2. The Patent Office states:

Claim 2-5, 14 and 21 objected to as being dependent on 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. '946 patent prosecution history, para. 8, pg. 7.

It is clear from these remarks that the Patent Office considered the functions in original Claim 2 to be allowable subject matter. In response, the Applicant amended Claim 2 to include Claim 1 and cancelled Claim 1. The resulting claim became Claim 1 in the issued '946 patent. In its response to the Office Action, Applicant:

thank[ed] the Examiner for indicating that claims 2-5, 14, and 21 contain allowable subject matter. ***In order to expedite a Notice of Allowance***, Applicant has amended the claims to place them in condition for allowance.

Claim 2 has been amended to include the limitations of claim 1, thus placing it in condition for allowance. '946 patent prosecution history, file 2/2 pg. 80 (emphasis added).

147. It is my opinion that the prosecution history shows that the Patent Office considered the functions, recited in limitation [f] ("the stop part"), that distinguish Claim 1 of the '946 patent from the Ben-Gigi patent. By combining original Claim 1 with original Claim 2, Applicant overcame the Patent Office's objection and expedited allowance of the '946 patent.

148. **Limitation [f] A stop part.** Limitation [f] of Claim 1 of the '946 patent recites as follows:

[f] a stop part,

- (i) wherein when the stop part projects outward with respect to a *locking path of the locking part*,
- (ii) said locking part is not automatically lockable and said first connection part is in a state of remaining unlocked from said second connection part,
- (iii) wherein the stop part is retractable,
- (iv) said stop part being extended when said first connection part is in a holding unlocked state with said second connection part of the other storage box,
- (v) and said stop part being compressed when said first connection part is in a locked state with said second connection part.

149. Clauses (i) and (ii) of limitation [f] are present in the Ben-Gigi patent, which was acknowledge by the Patent Office during prosecution of the '946 patent:

a stop part, wherein when the stop part projects outward with respect to a locking path of the locking part (fig. 4A-4C shows pivot 32 that projects outward with respect to a locking patch of catch 28), **said locking part is not automatically lockable and said first connection part is in a state of remaining unlocked from said second connection part** (fig. 4A-4C catch 28 is not automatically locked). '946 patent prosecution history, para. 7, pages 3-5, page file 2/2, pages 87-89.

Overall, I find clauses (i) and (ii) and the remaining clauses of limitation[f] to be present in the Li patent, as follows:

1. Limitation [f] a stop part,

(i) wherein when the stop part projects outward with respect to a locking path of the locking part. Figure 4 of the Li patent (see [Illustration 26](#)) shows the elastic boss 33 supported by a second spring 36. This is directed outwards with respect to the path of the elastic pull latch 3.

(ii) said locking part is not automatically lockable and said first connection part is in a state of remaining unlocked from said second connection part. Figure 9 of the Li patent (see [bottom figure of Illustration 27](#)) shows elastic boss 33 projecting outwards to establish contact with the top box (the second connection part). The elastic boss is shaded red in [Illustration 27](#). The contact between the extended elastic boss (the stop part), and the top box (the second connection part), hold the elastic pull latch (the locking part) in the unlocked position.

I have added color shading to Figure 9 to highlight the second connection part in grey, the mating part in green, the stop part in red, and the locking part with the locking buckle in blue.

(iii) wherein the stop part is retractable. Figure 4 of the Li patent (see [Illustration 26](#)) shows the elastic boss 33 (the stop part) supported by a second elastic spring 36, which is retractable.

(iv) said stop part being extended when said first connection part is in a holding unlocked state with said second connection part of the other storage box. Figure 9 (see [bottom figure of Illustration 27](#)) also shows elastic boss 33 (the stop part) as extended when the latch in the bottom box is in an unlocked state, holding its position.

(v) and said stop part being compressed when said first connection part is in a locked state with said second connection part. Figure 7 of the Li patent (see [top figure of Illustration 27](#)) shows that the elastic boss 33 (the stop part) is compressed, when the lower box (the first connection part) is in a locked state with the top box (the second connection part).

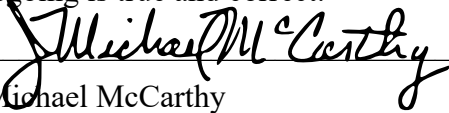
151. This analysis shows that each element of limitation [f] is present in the Li patent.
152. Thus, it is my opinion that a person of ordinary skill in the art would find that Claim 1 of the '946 patent is a combination of limitations [a-e] found in the Ben-Gigi patent, and limitation [f] found in the Li patent. Therefore, it is my opinion that this

analysis shows all the elements of Claim 1 of the '946 patent are an obvious in view of the combination of the Ben-Gigi patent and the Li patent. I conclude that Claim 1 of the '946 patent is invalid.

XV. CONCLUSION

153. For the foregoing reasons, it is my opinion that the accused StackTech products do not infringe Claim 1 of the '946 patent. It is also my opinion that the accused Tool Bag products do not infringe Claim 1 of the '689 patent.
154. For the foregoing reasons, it is my opinion that Claim 1 of the '946 patent is invalid as anticipated or rendered obvious, or both, by the Li patent and the Ben-Gigi patent.
155. I reserve the right to supplement my opinions in the future to respond to any arguments or positions taken by Meridian or Dr. Pratt, the Court's construction of any claim terms, or of the production of new information that was not available to me before this report was submitted.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.



J. Michael McCarthy

Irvine, CA

October 11, 2024

Exhibit 2 to McCarthy Report
UNREDACTED VERSION OF
DOCUMENT TO BE FILED UNDER SEAL

REPORT OF J. MICHAEL McCARTHY, Ph.D.
ILLUSTRATIONS

Meridian International Co. v. ToughBuilt Industries, Inc

October 11, 2024


US011986946B2

(12) **United States Patent**
Zhang et al.

(10) **Patent No.:** **US 11,986,946 B2**
(45) **Date of Patent:** **May 21, 2024**

(54) **CONNECTION STRUCTURE OF MODULE,
STORAGE BOX AND STORAGE BOX
ASSEMBLY**

(71) Applicant: **Meridian International Co., Ltd.**
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(73) Assignee: **Meridian International Co., Ltd.**,
Shanghai (CN)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) Appl. No.: **18/518,200**

(22) Filed: **Nov. 22, 2023**

(65) **Prior Publication Data**
US 2024/0083014 A1 Mar. 14, 2024

Related U.S. Application Data

(63) Continuation of application No. 18/176,907, filed on
Mar. 1, 2023.

(30) **Foreign Application Priority Data**
Mar. 4, 2022 (CN) 202210212862.5
Jan. 13, 2023 (CN) 202320135456.3

(51) **Int. Cl.**
B25H 3/02 (2006.01)
B65D 21/02 (2006.01)

(52) **U.S. Cl.**
CPC **B25H 3/026** (2013.01); **B65D 21/0228**
(2013.01); **B65D 2235/00** (2013.01)

(58) **Field of Classification Search**
CPC B65D 21/0223; B65D 21/0228; B65D

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ABSTRACT
(57)
A mating part in a locking path of a stop part so that the
locking part is not automatically lockable and a first con-
nection part is in a state of remaining unlocked from a
second connection part.

16 Claims, 16 Drawing Sheets

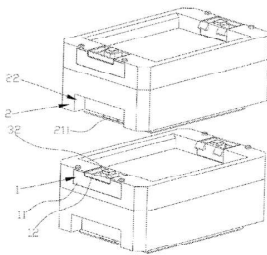


Illustration 1. Cover page of U.S. Patent No. 11,986,946, “Connection Structure of Module, Storage Box and Storage Box Assembly,” awarded to H. Zhang, Q. Wang, and S. Cai, May 21, 2024.

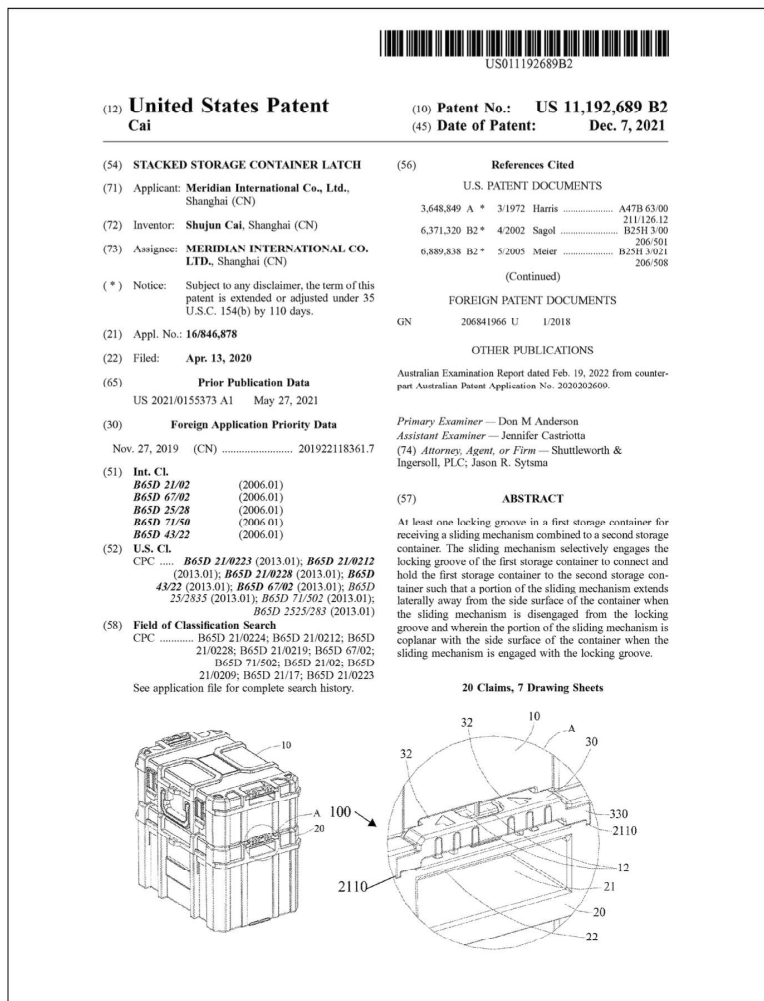


Illustration 2. Cover page of U.S. Patent No. 11,192,689, “Stacked Storage Container Latch,” awarded to S. Cai, December 7, 2011

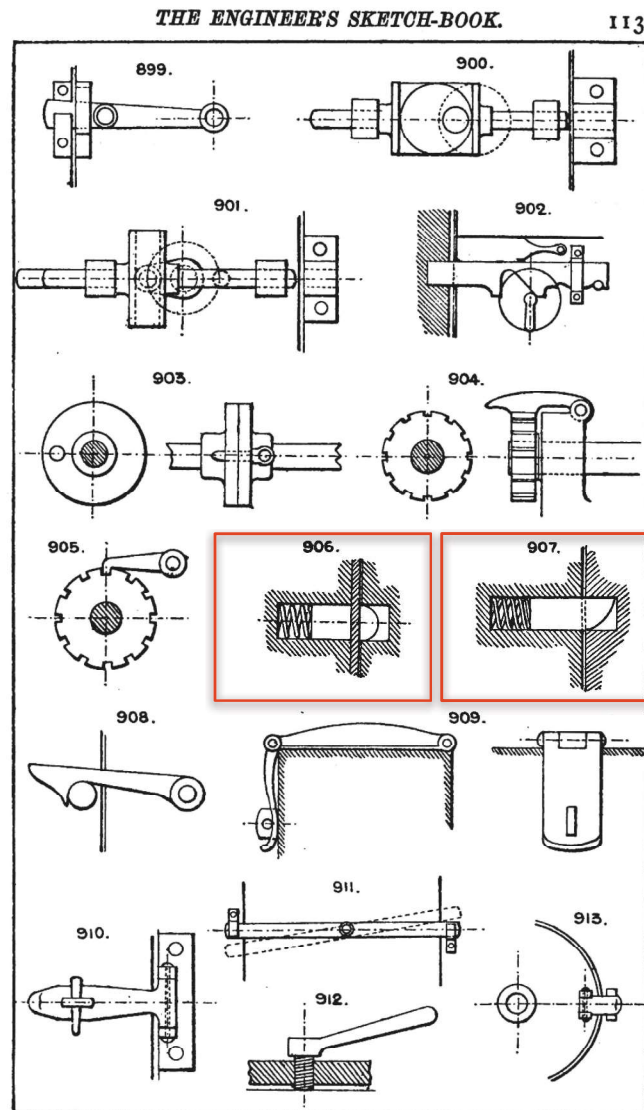


Illustration 3. Page on locking devices from Thomas W. Barber, *The Engineer's Sketch-book of Mechanical Movements*, Soon and Chamberlain, New York, 1897.

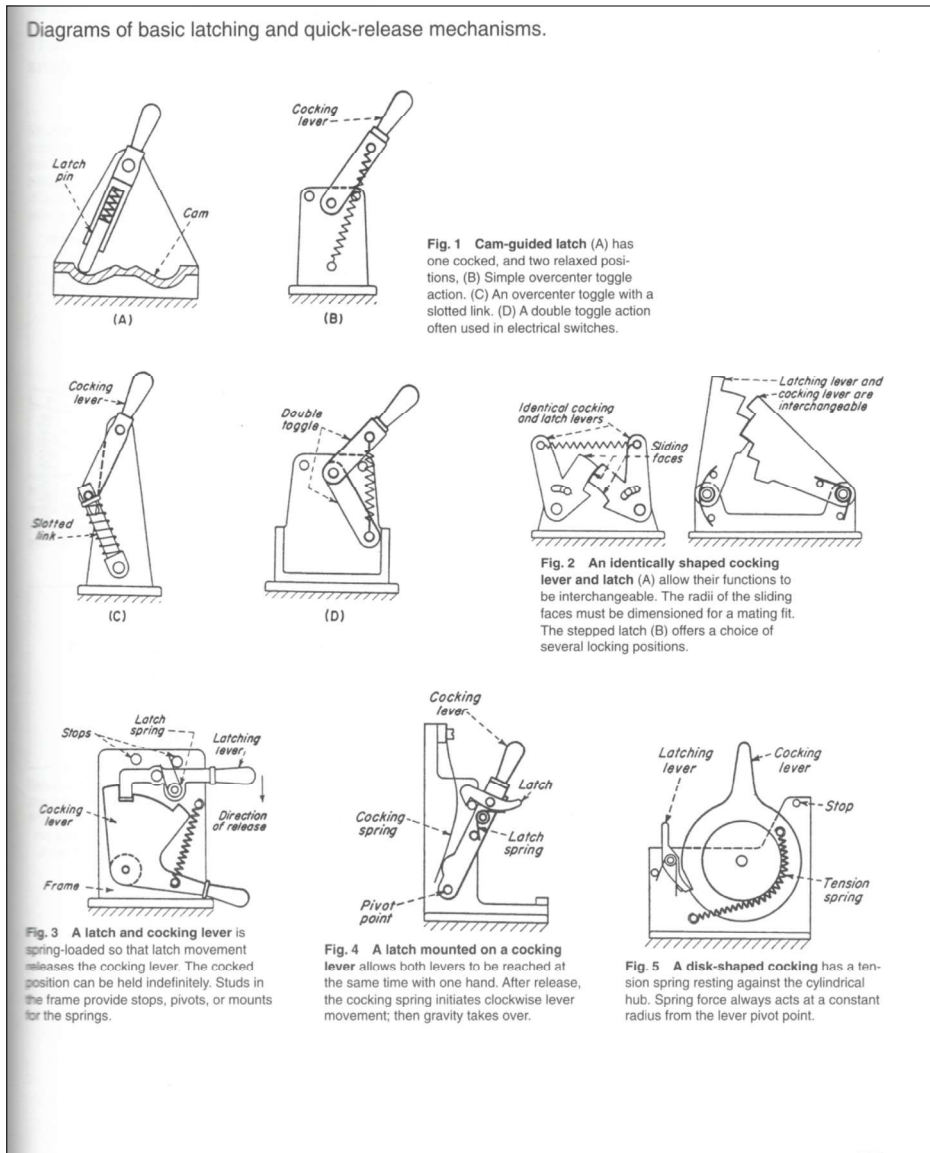


Illustration 4. Diagrams of basic latching and quick-release mechanisms, N. Sclater, and N. P. Chironis, *Mechanisms and Mechanical Devices, Third Edition*, McGraw-Hill, New York, 2001.

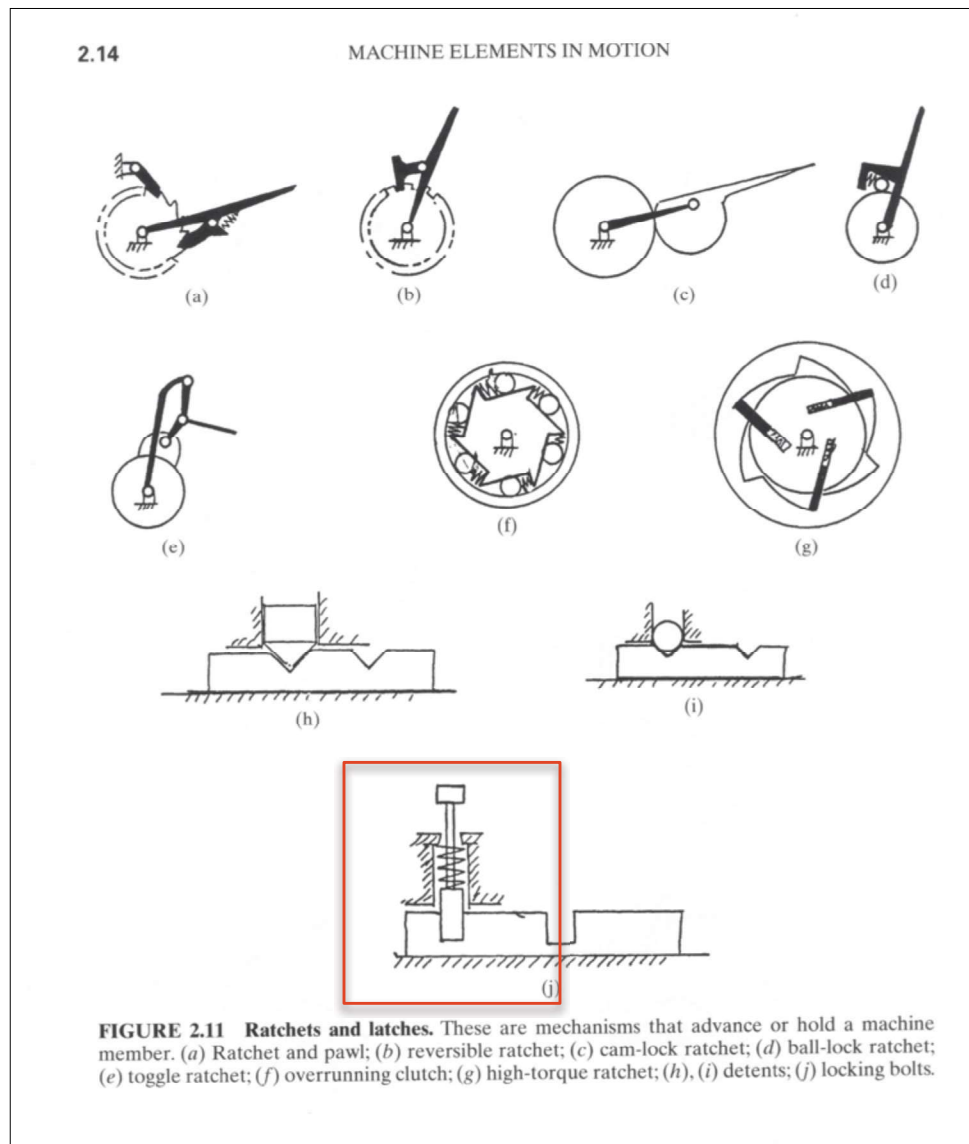


Illustration 5. L. E. Torfason, Ratchet and Latches, in *Standard Handbook of Mechanical Design Third Edition*, McGraw-Hill, New York, 2004.

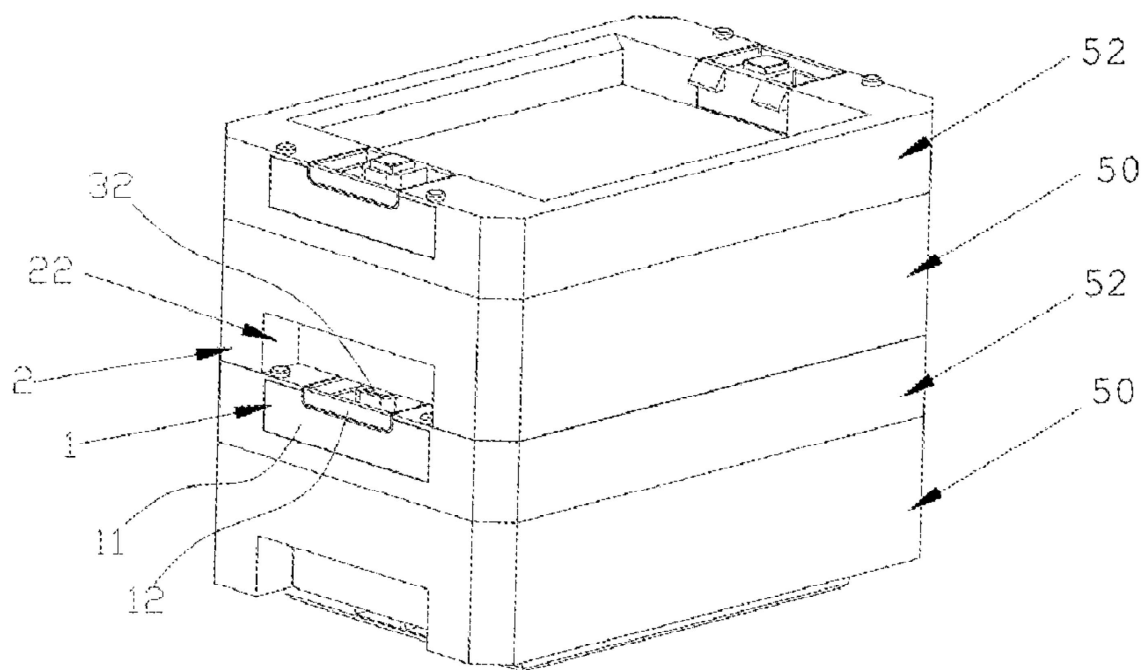


FIG. 1

Illustration 6. Figure 1 of the '946 Patent illustrating the claim terms first connection part 1, second connection part 2, and mounting portion 11.

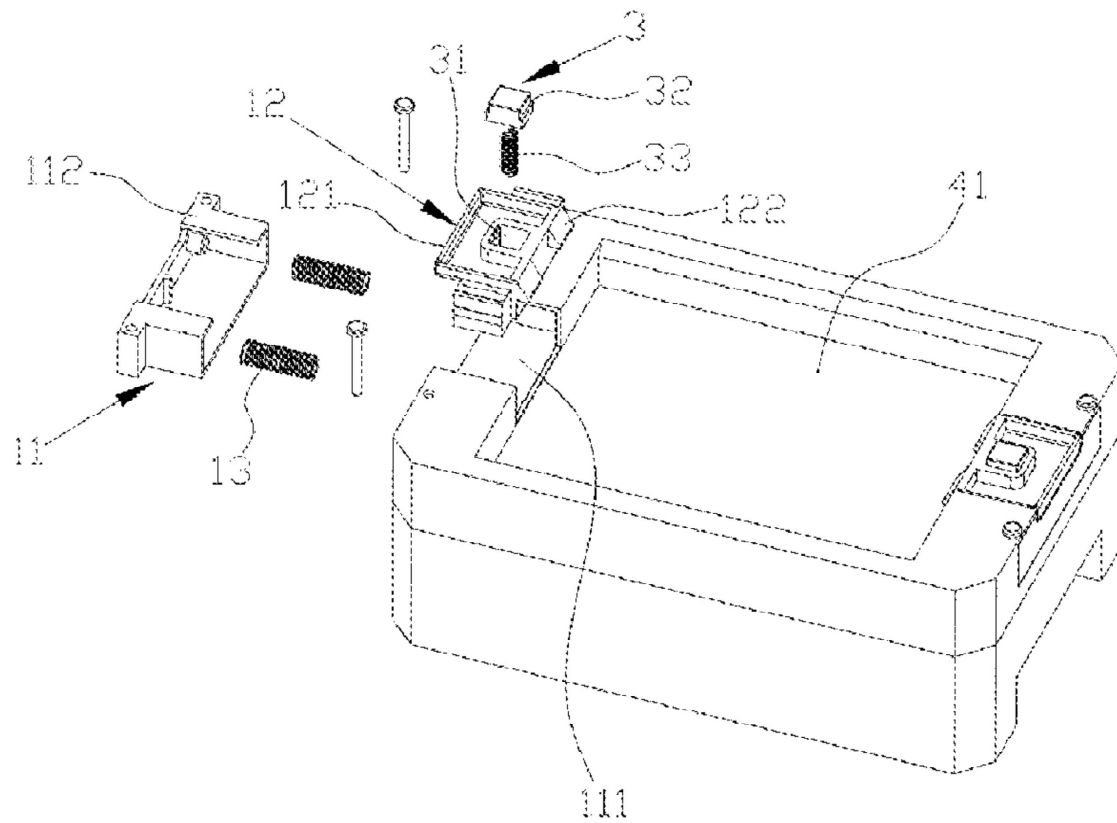


FIG. 7

Illustration 7. Figure 7 of the '946 Patent illustrating the claim terms mounting portion 11 (which includes mounting body 112), locking part 12, locking buckle 122, first resilient member 13, and stop part 3.

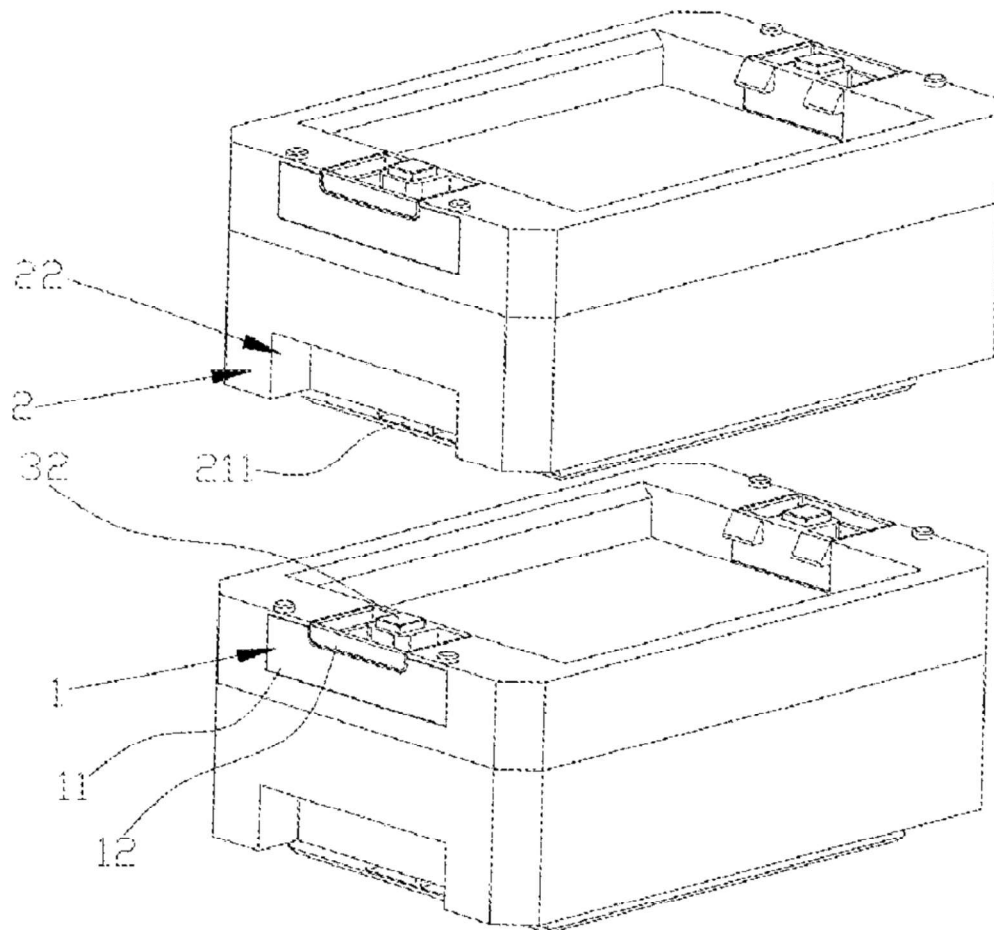


FIG. 4

Illustration 8. Figure 4 of the '946 Patent illustrating the position of the upper storage box above the lower storage box prior to automatic locking. The locking parts 12 are seen to be in the locked position.

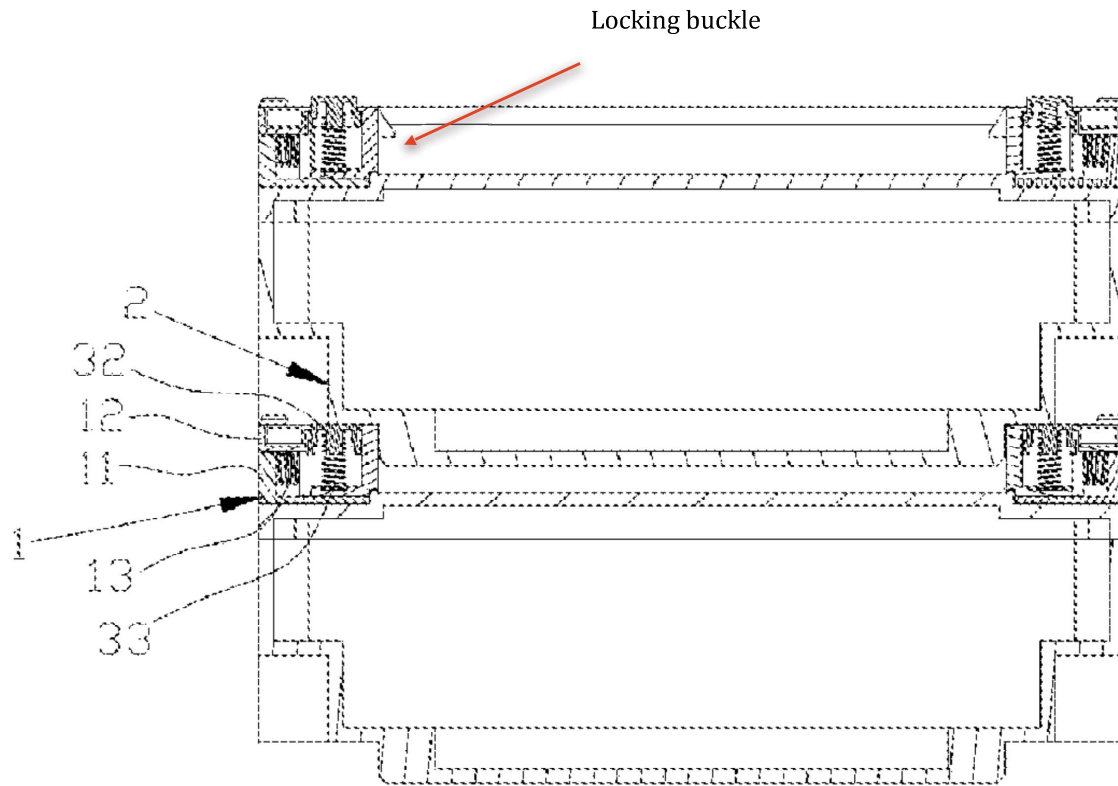


FIG. 2

Illustration 9. Figure 2 of the '946 Patent illustrating the position of the the locking parts 12 in the locked position with the locking buckle extended toward the center of the storage box, with and without a connection to another storage box.

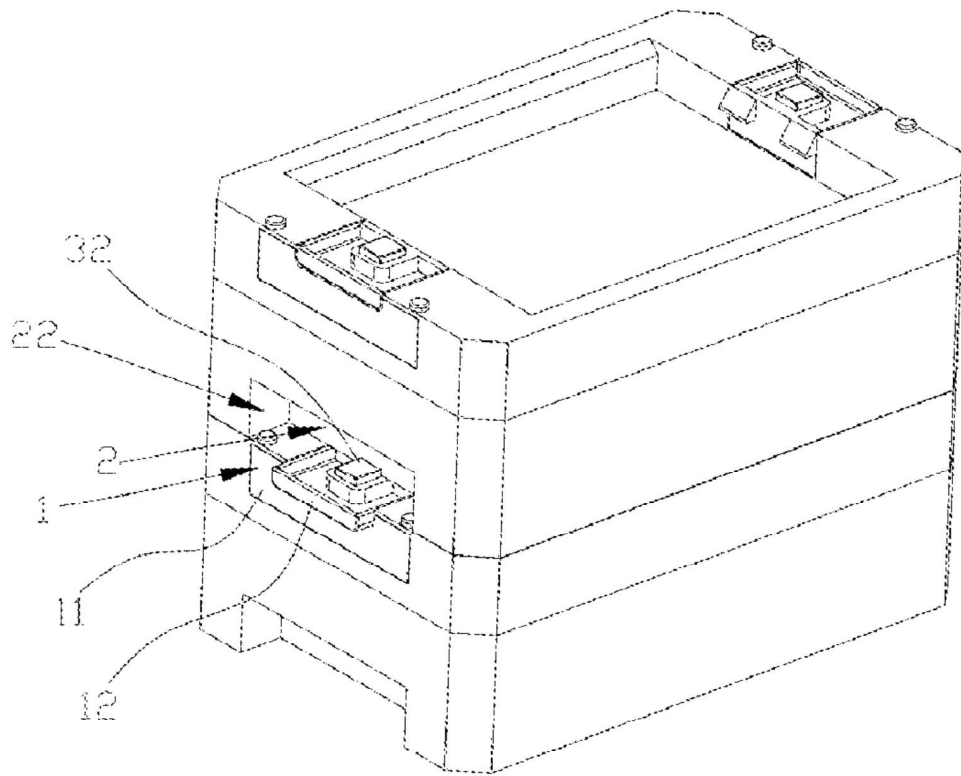


FIG. 3

Illustration 10. Figure 3 of the '946 Patent illustrating the position of the the stop part 3 which holds the locking part 2 in the unlocked position by engaging with the recess 22 under the action of the compliant member 13.



(a). Exemplar of the Accused StackTech Products of the '946 Patent showing an upper storage box separated from a lower storage box.

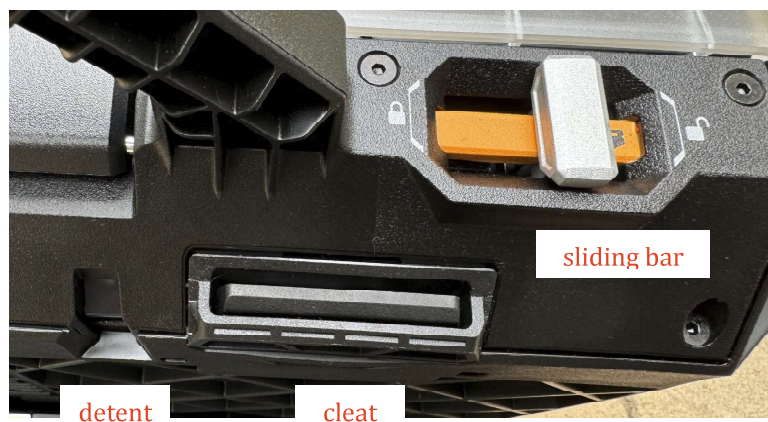


(b). Exemplar of the Accused StackTech PStroduct of the '946 Patent showing an upper storage box locked to a lower storage box.

Illustration 11. Photographs of an exemplar of the ToughBuilt Stacktech Products which are the Accused StackTech Product for Claim 1 of the '946 Patent. It is shown (a) separated, and (b) locked together.



(a). The latch system on the upper storage box with the sliding switch in the unlocked position.



(b). Close-up of the sliding switch, cleat, and detent.

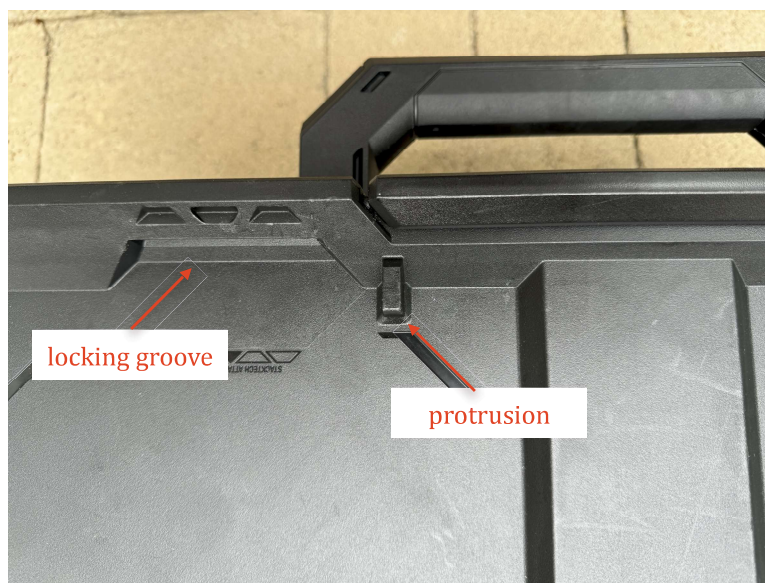


(c). When the slider bar is in the unlocked position (b), the detent is positioned in the opening ready to be tripped by the protrusion from the lower box.

Illustration 12. Photographs of the upper storage box with the latching system.



(a). The lower storage box showing the protrusion that trips the detent to cause the cleats to engage the locking grooves.



(b). Close-up of the protrusion that trips the detent when the upper and lower storage boxes are connected..

Illustration 13. Photographs of the of the lower storage box with the protrusion that engages the detent and the locking grooves engaged by the cleats.

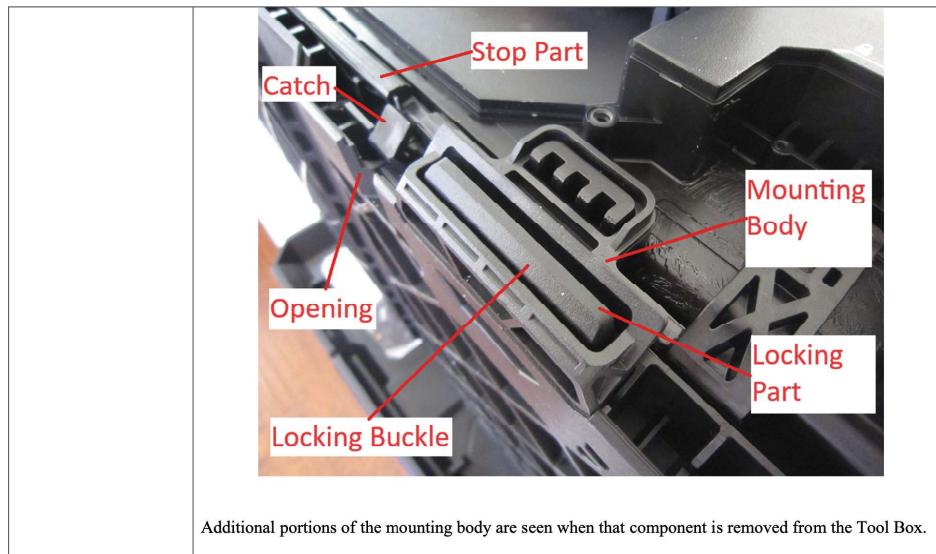
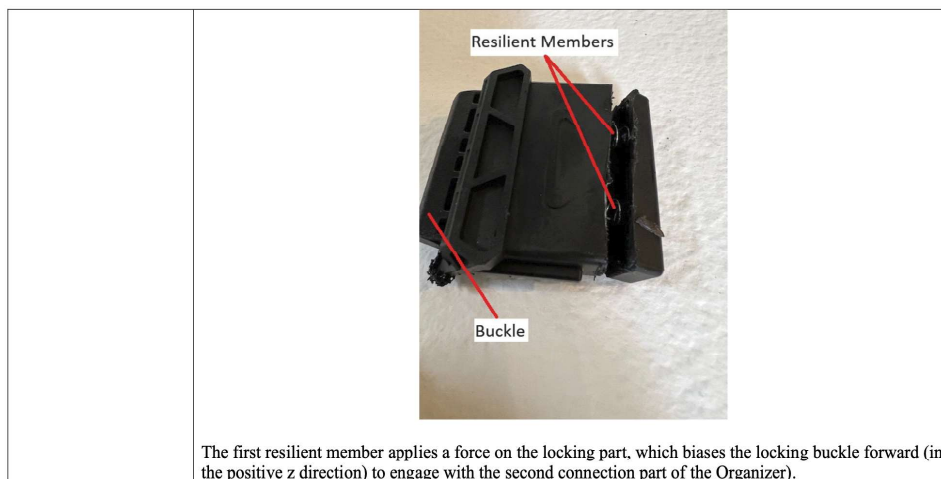


Illustration 14. Declaration of John Pratt 8/26/24, top: Exhibit 3 page 9, and bottom Exhibit 3 page 12.

<p>[1d] wherein, said second connection part of the other storage box comprises a mating part interlockable with the locking buckle,</p>	<p>The second connection part of the other storage box (i.e., the Organizer) comprises a mating part interlockable with the locking buckle. For example:</p> <p>The second connection part, located on the lid of the Organizer, defines a recess that serves as a mating part that is interlockable with the locking buckle of the Tool Box. See the image below. If the locking part of the first connection part is already extended in the positive z direction when the Tool Box is being placed on the Organizer, the upper surface of the second connection part interfaces with the locking buckle to force the locking part to retract against its spring bias until such time as it is aligned with, and free to enter, the recess of the second connection part.</p>
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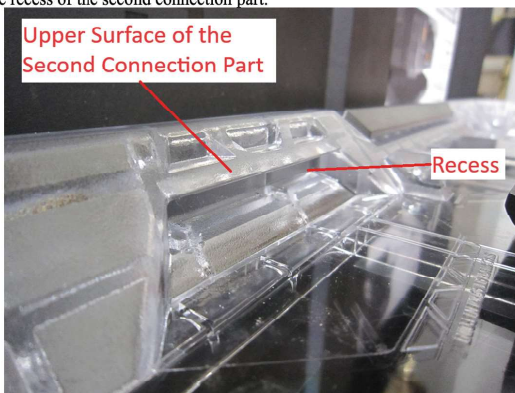


Exhibit 3 — Page 14

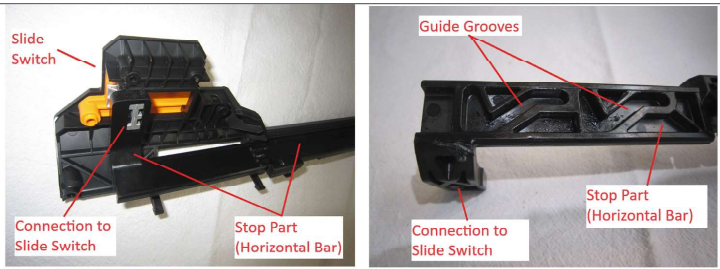
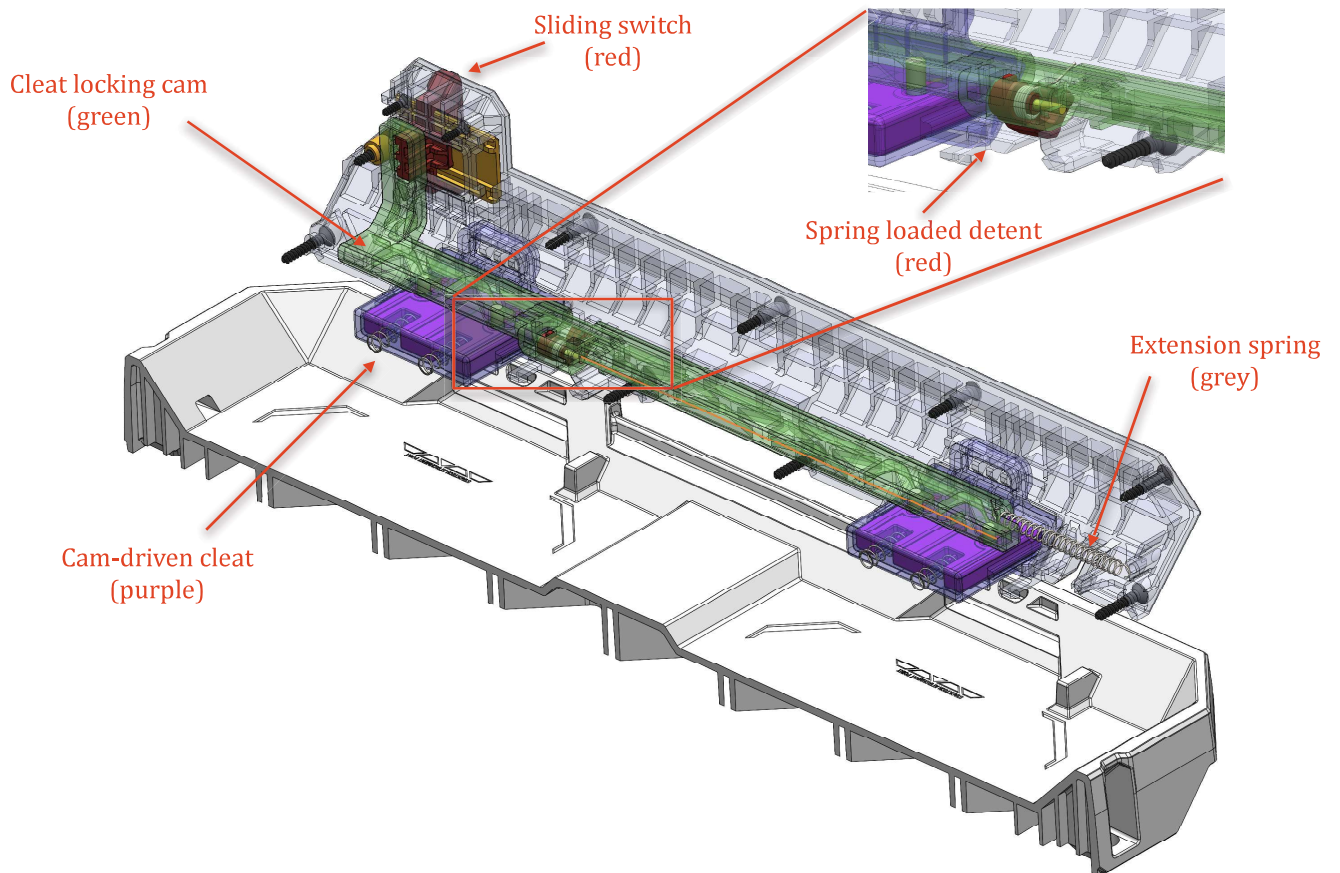
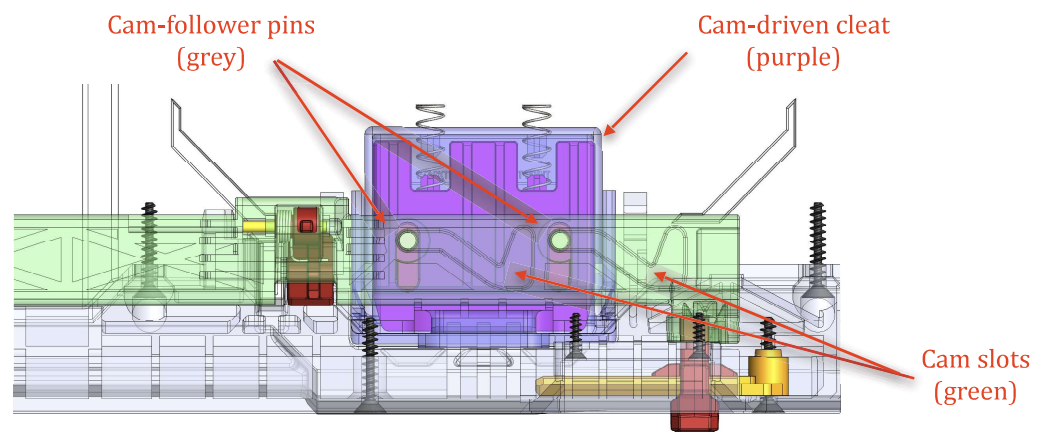
	
<p>[1g] a stop part, wherein when the stop part projects outward with respect to a locking path of the locking part, said locking part is not automatically lockable and said first connection part is in a state of remaining unlocked from said second connection part, wherein the stop part is retractable, said stop part being extended when said first connection part is in a holding unlocked state with said second connection part of the other storage box (i.e., the Organizer), and said stop part being compressed when said first connection part is in a locked state with said second connection part. For example:</p>	<p>The Tool Box includes a stop part, wherein when the stop part projects outward with respect to a locking path of the locking part, said locking part is not automatically lockable and said first connection part is in a state of remaining unlocked from said second connection part, wherein the stop part is retractable, said stop part being extended when said first connection part is in a holding unlocked state with said second connection part of the other storage box (i.e., the Organizer), and said stop part being compressed when said first connection part is in a locked state with said second connection part. For example:</p> <p>The stop part is comprised of a horizontal bar, with guide grooves, attached to the slide switch.</p>

Exhibit 3 — Page 19

Illustration 16. Declaration of John Pratt 8/26/24, top: Exhibit 3 page 19,.

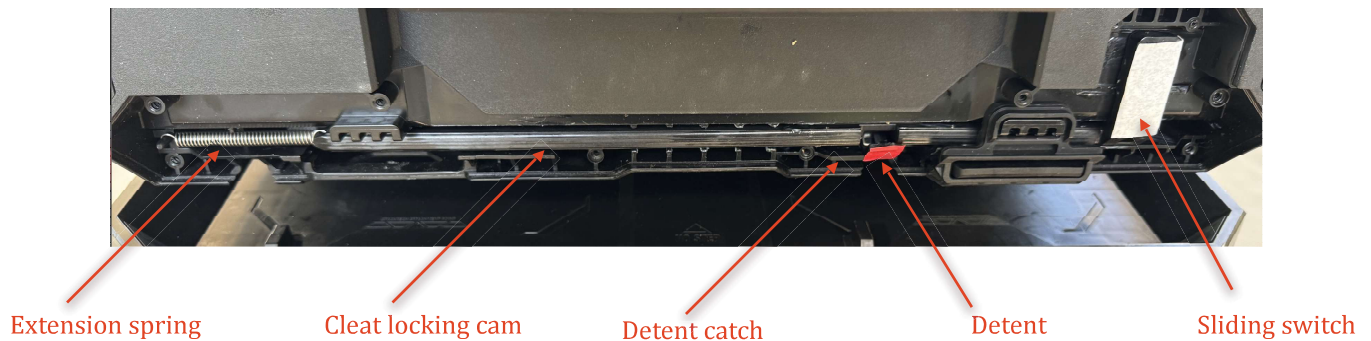


(a) The solid model of the latching system in the Accused StackTech Products for the '946 patent showing the sliding switch, the cleat locking cam, the spring loaded cleats, the extension spring and the spring loaded detent.



(b) Close-up showing the cam-driven cleat, the cam slots, the cam-follower pints and the spring-loaded detent.

Illustration 17. Illustrations of the latching system of the Accused StackTech Products for the '946 Patent.



Components of the cleat locking cam of the Accused StackTech Products.

1. When the slide bar is momentarily moved to the right and released, the extension spring pulls the detent against the detent catch and holds it in the protrusion slot..



2. When the boxes come in contact the protrusion enters the slot and rotates the detent torsion spring counter-clockwise releasing detent from the detent catch allowing the catch locking cam to be pulled to the left by the extension spring.

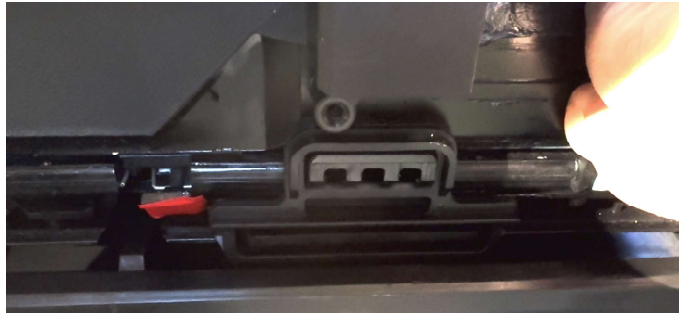


3. The movement of the detent is stopped as the slider bar reaches its end of travel.



Illustration 18. Proper operation of the cleat locking cam of the Accused StackTech Products.

1. When the slider bar is held at the right end of its travel, the detent moves to the right beyond the protrusion of the lower box. The torsion spring keeps the detent rotated clockwise, and the cleats are retracted.



2. When the boxes come in contact, the protrusion bypasses the detent and fails to rotate the torsion spring.



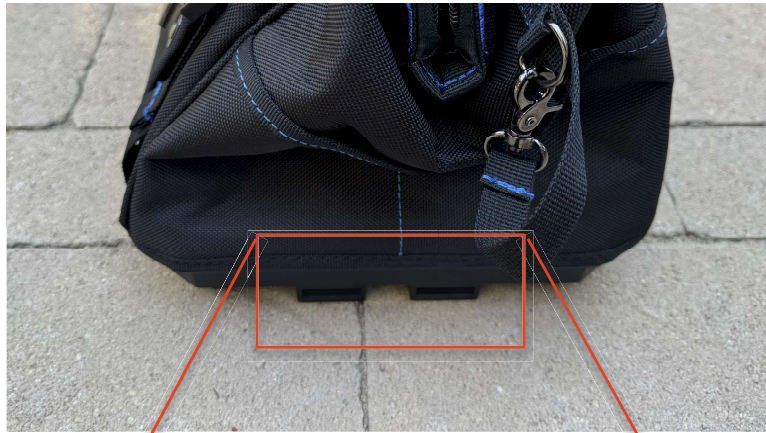
3. Release of sliding switch when the boxes are in contact causes the extension spring to pull the detent against the protrusion as though it was the detent catch. This keeps the sliding switch at the right end in the unlocked position and the cleats retracted.



Illustration 19. Improper operation of the cleat locking cam that Dr. Pratt calls the “override position” (Pratt Exhibit 3, pg 20) and the “override configuration” (Pratt Exhibit 3, pg 21).



Illustration 20. Photograph of the ToughBuilt Industries Modular Tool Bag which is the Accused Product Tool Bag for Claim1 of the '689 Patent.



(a). Photograph of the cleat locking grooves on the Tool Bag.



(b). A close-up photograph of the cleat locking grooves on the Tool Bag.

Illustration 21. Photographs of the cleat locking grooves to the Accused Product Tool Bag of the '689 Patent.



US011788329B2

(12) **United States Patent**
Li et al.

(10) **Patent No.:** US 11,788,329 B2
(45) **Date of Patent:** Oct. 17, 2023

(54) **LATCH STRUCTURE**

(71) Applicant: Ningbo E-Power Engine Technology Co., Ltd., Ningbo (CN)

(72) Inventors: Wenquan LI, Ningbo (CN); Yiqiao Fu, Ningbo (CN)

(73) Assignee: NINGBO E-POWER ENGINE TECHNOLOGY CO., LTD., Ningbo (CN)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 15 days.

(21) Appl. No.: 17/530,216

(22) Filed: Nov. 18, 2021

(65) **Prior Publication Data**
US 2022/0396085 A1 Dec. 15, 2022

(30) **Foreign Application Priority Data**
Jun. 11, 2021 (CN) 202121315213.5
Jun. 11, 2021 (CN) 2021369362467.1

(51) **Int. Cl.**
E05C 19/06 (2006.01)
E05C 19/02 (2006.01)
E05C 19/12 (2006.01)
E05C 1/10 (2006.01)
E05C 19/10 (2006.01)
E05B 65/52 (2006.01)
E05B 9/00 (2006.01)

(52) **U.S. Cl.**
CPC *E05C 19/063* (2013.01); *E05C 1/10* (2013.01); *E05C 19/02* (2013.01); *E05C 19/10* (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC Y10T 292/1075; Y10T 292/0911; Y10T 292/0926; Y10T 292/0934;
(Continued)

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OTHER PUBLICATIONS
Extended European Search Report received for EP Patent Application Serial No. 22151585.1 dated Jul. 5, 2022, 7 pages.
Primary Examiner — Kristina R Fulton
Assistant Examiner — Steven A Tullia
(74) Attorney, Agent, or Firm — Rimon PC

(57) **ABSTRACT**
A latch structure comprising an elastic pull latch is disclosed. The top of the elastic pull latch includes a latch bar configured with a latch groove. The elastic pull latch also includes an elastic boss that moves in and out of the latch cover of the pull latch. On both sides of a box, an elastic pull latch is provided at the top and a catch groove having a catch affixed to the lower edge is provided at the bottom. When two boxes are stacked together, the catch in the catch groove of the upper box is snapped into the latch groove of the elastic pull latch of the lower box to securely connect the two boxes. When the latch is released, the catch of the upper box blocks the elastic boss of the latch of the lower box to prevent the latch from retracting inwards.

9 Claims, 9 Drawing Sheets

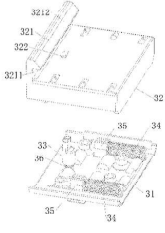


Illustration 22. Cover page of U.S. Patent No. 11,788,329, “Latch Structure,” awarded to W. Li and Y. Fu, Oct. 17, 2023 (“Li patent”).

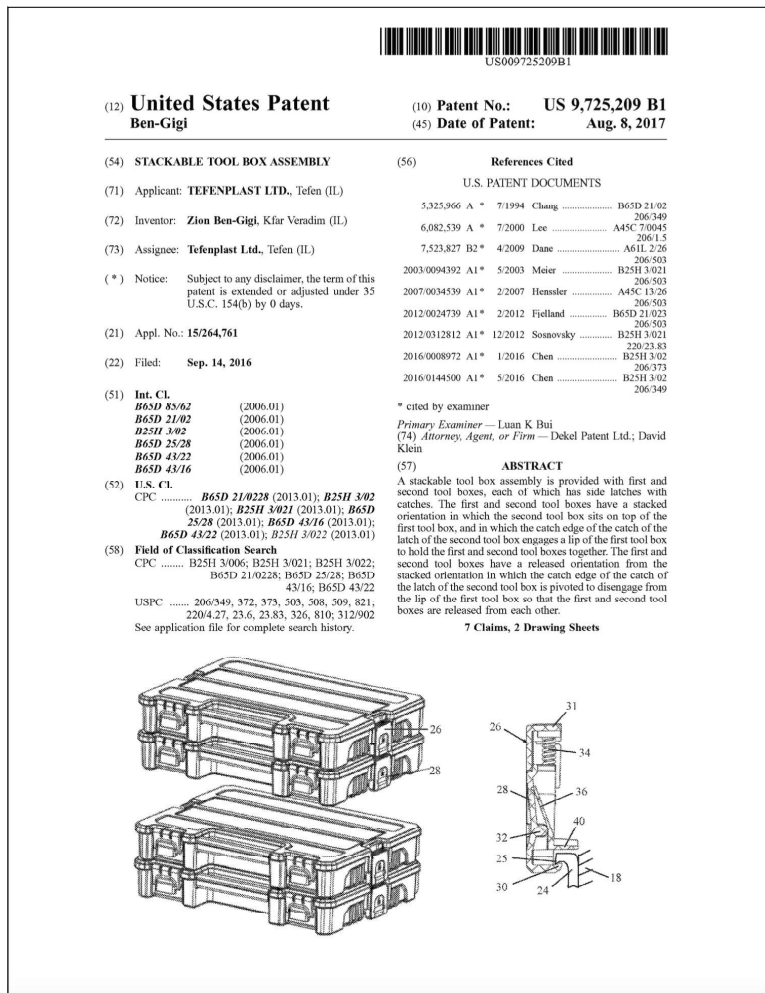


Illustration 23. Cover page of U.S. Patent No. 9,725,209, “Stackable Tool-Box Assembly,” awarded to Z. Ben-Gigi, Aug. 8, 2017 (“Ben-Gigi patent”).

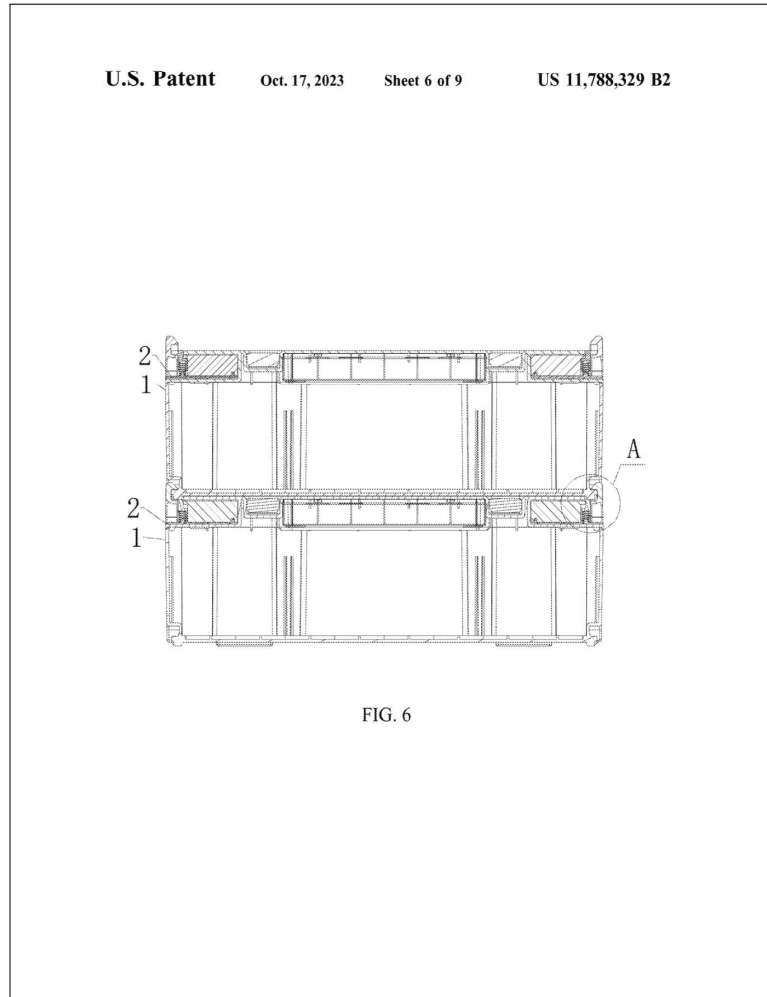


Illustration 24. Figure 6 of the Li Patent showing stackable tool boxes connected by the latch structure.

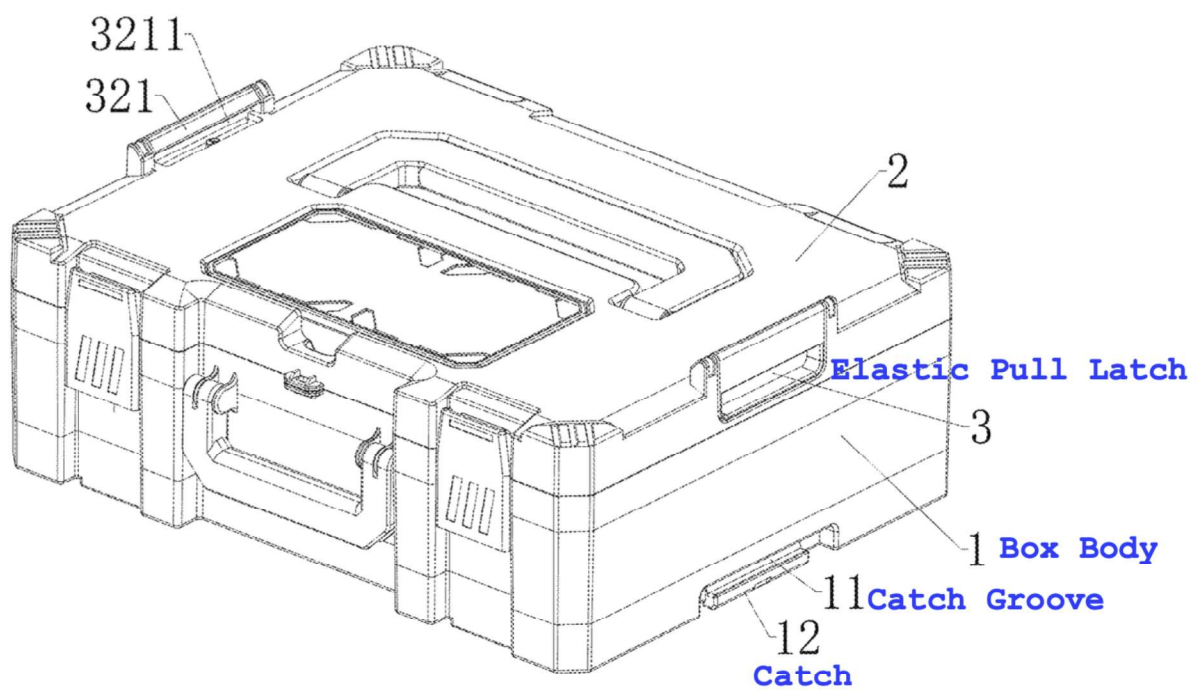


Illustration 25. Figure 1 of Li Patent with items labeled.

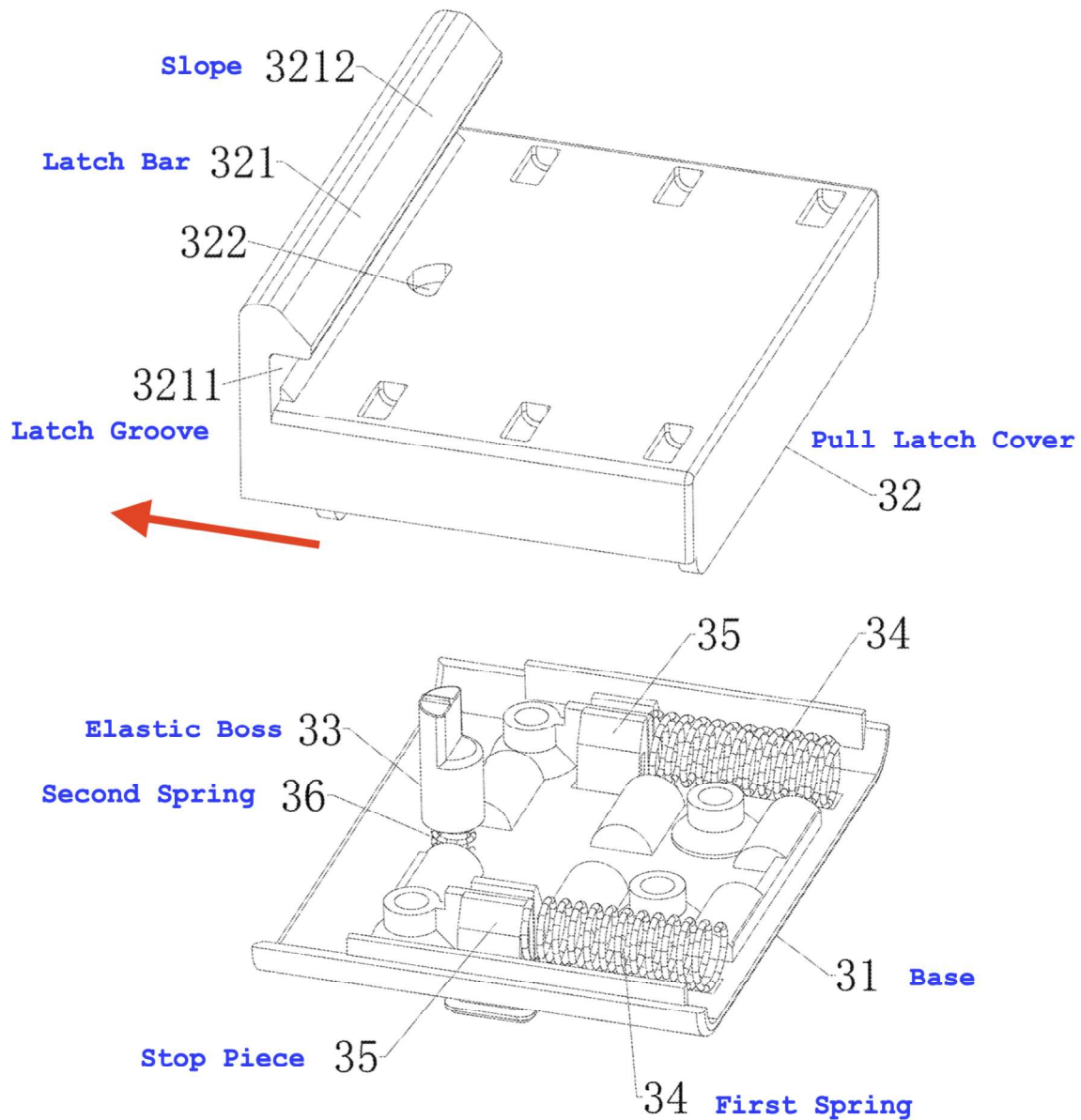


Illustration 26. Figure 4 of Li Patent showing the structure of the elastic pull latch 3. The elastic box 33 corresponds with the stop part of the '946 patent.

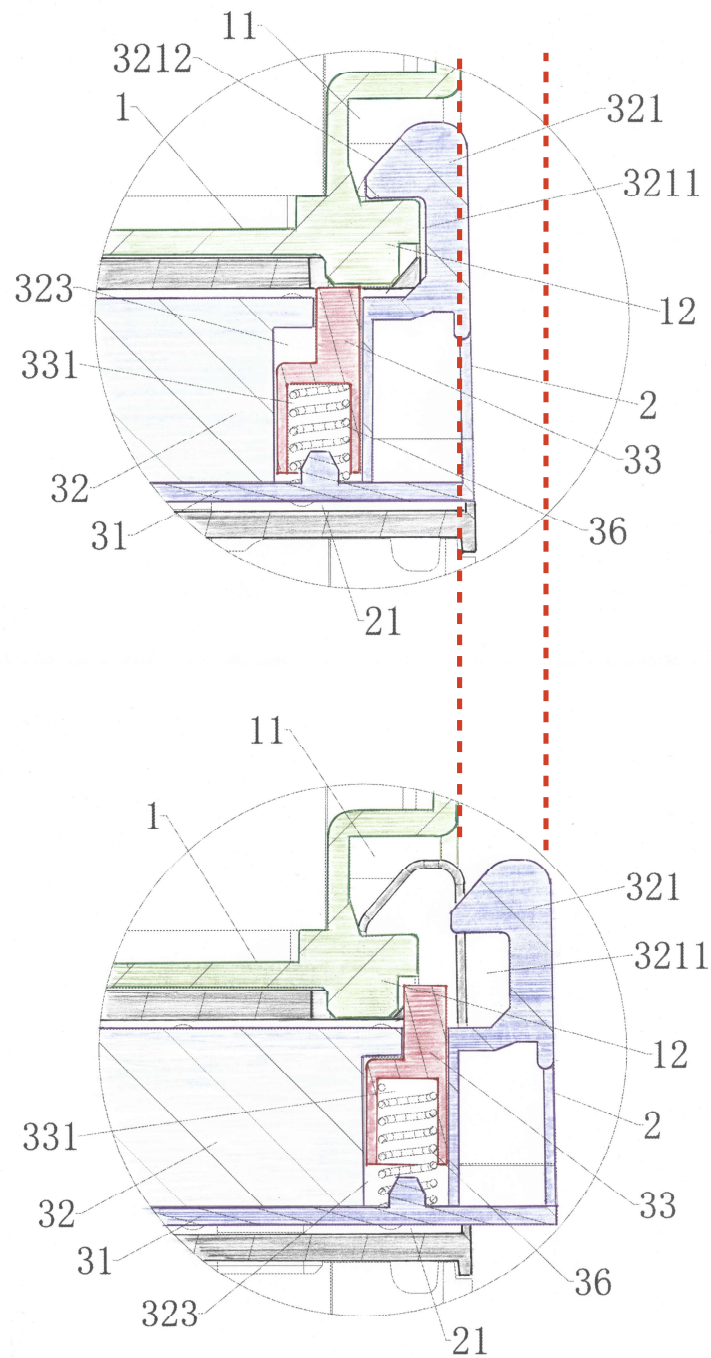


Illustration 27. top: Fig. 7 of the Li patent showing the elastic pull latch in the locked position; bottom: Fig. 9 of the Li Patent showing the elastic pull latch in the unlocked position.