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Signature /Robert J. Vechiola/

Date April, 20, 2021

Name Robert J. Vechiola

Telephone 847-821-5551

Title V.P., General Counsel & Corporate Secretary

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ABSTRACT

A safety helmet includes an outer shell having a front receptacle disposed on a front side of the outer shell and a rear receptacle disposed on a rear side of the outer shell. A first accessory device having a first mating receptacle formed thereon is releasably mountable onto each of the front receptacle or the rear receptacle of the outer shell, and a second accessory device having a second mating receptacle formed thereon is releasably mountable onto each of the front receptacle or the rear receptacle of the outer shell.

CLAIMS

1. A safety helmet system, comprising:
a safety helmet comprising:
a molded outer shell adapted to be worn by a user, the outer shell having an exterior surface defining a front side, a rear side, and a brim extending forward from the front side;
a front receptacle having a first pair of external slots and a stop, wherein each of the first pair of external slots extends upwardly along the front side of the outer shell and the stop is disposed between the first pair of external slots, and wherein the stop is integrally molded with the exterior surface of the outer shell; and
a rear receptacle disposed on the rear side on the exterior surface of the outer shell, the rear receptacle having a second pair of external slots; and
an accessory device having a mating receptacle formed thereon, at least a portion of the mating receptacle being selectively engageable with the front receptacle or the rear receptacle such that the accessory device is releasably mountable onto each of the front receptacle and the rear receptacle;
wherein each of the first pair of external slots of the front receptacle is a receiver slot;
wherein the stop comprises a protruding member;
wherein the accessory device includes a clip; and
wherein the receiver slot aligns the clip therein, the raised walls retain the clip, and the protruding member engages the clip to releasably mount the accessory device in the front receptacle.
2. The safety helmet system of claim 1, wherein the outer shell, the front receptacle, and the rear receptacle are formed from a common material.
3. The safety helmet system of claim 2, wherein the common material is plastic.
4. The safety helmet system of claim 1, further including a second accessory device having a second mating receptacle formed thereon, at least a portion of the second accessory device

being releasably mountable onto each of the front receptacle or the rear receptacle on the exterior of the outer shell.

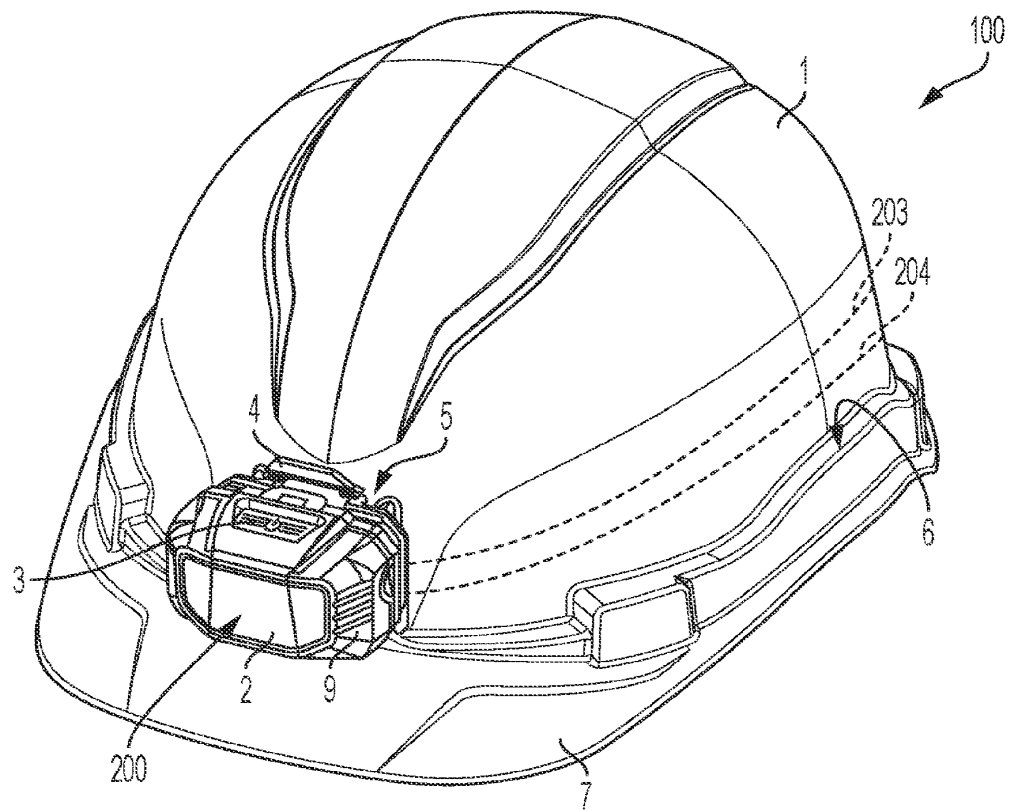


FIG. 1

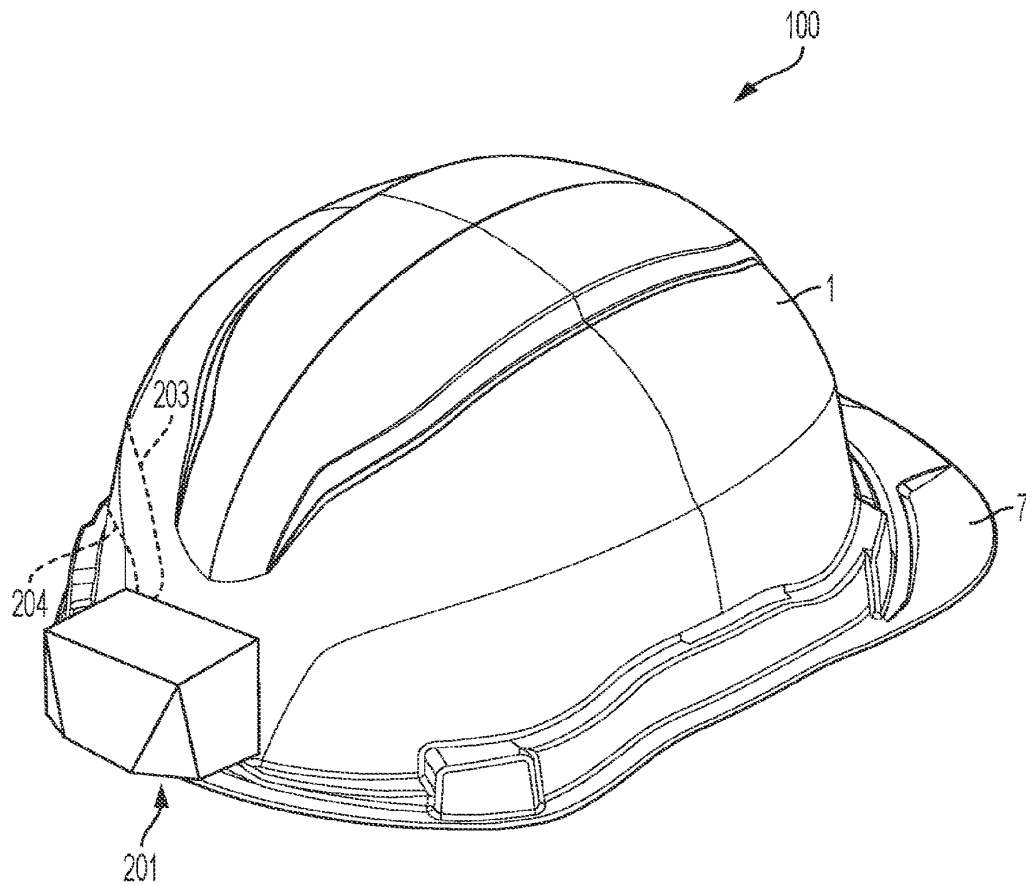


FIG. 2

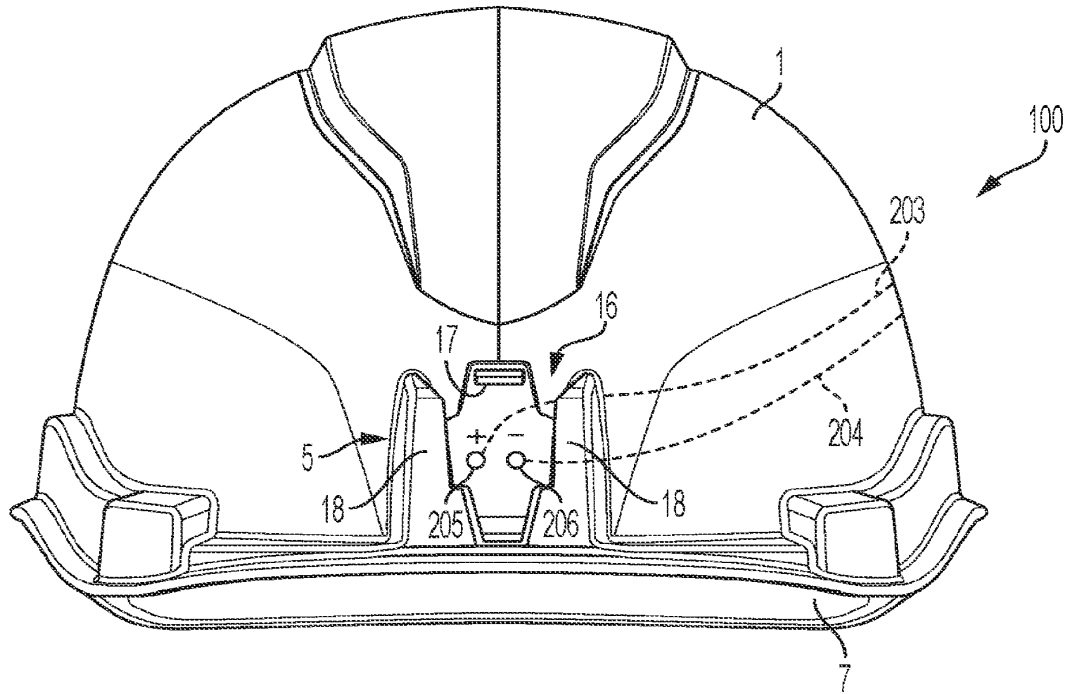


FIG. 3

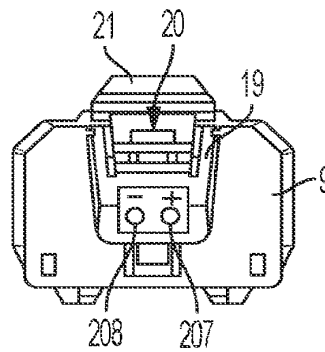


FIG. 4

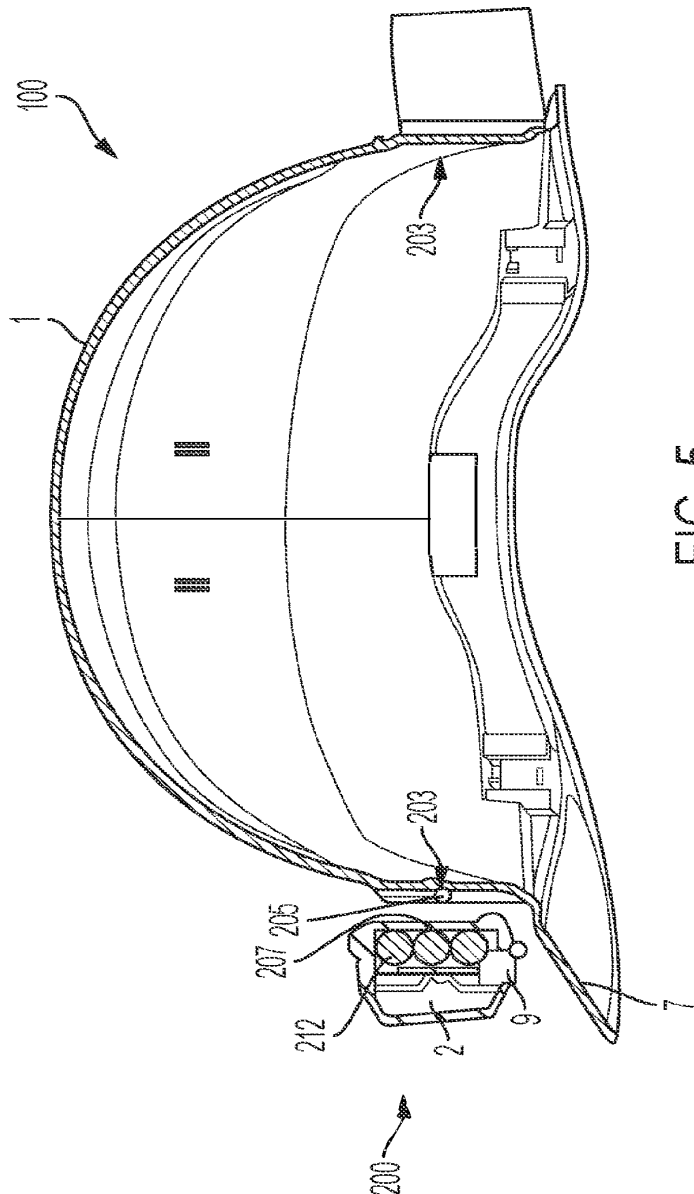


FIG. 5

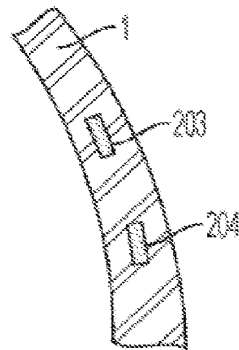


FIG. 6

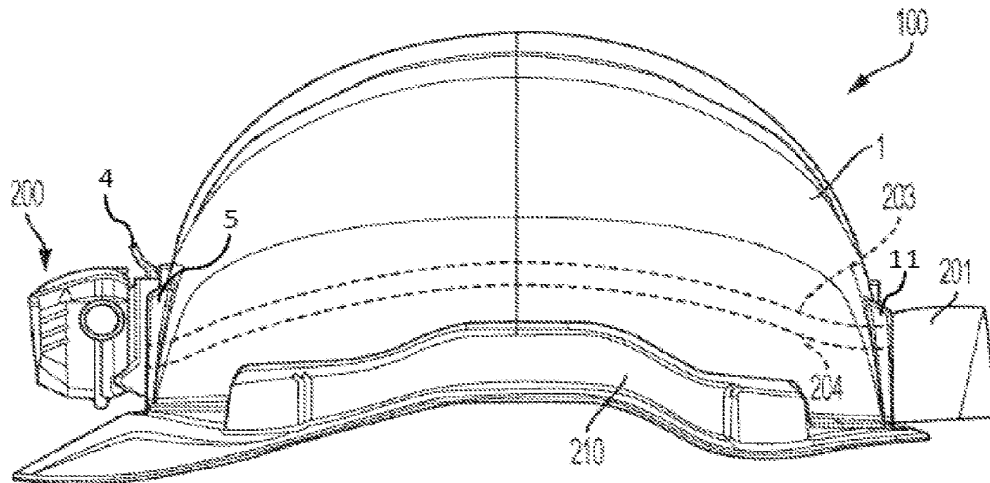


FIG. 7

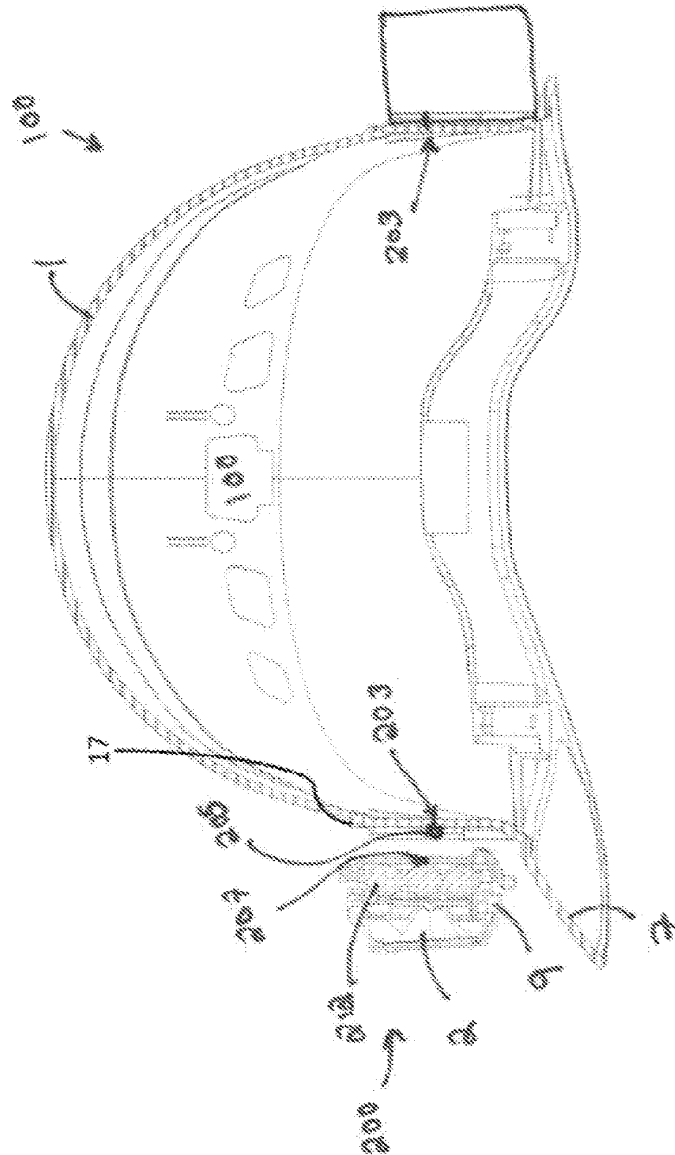


FIG. 8

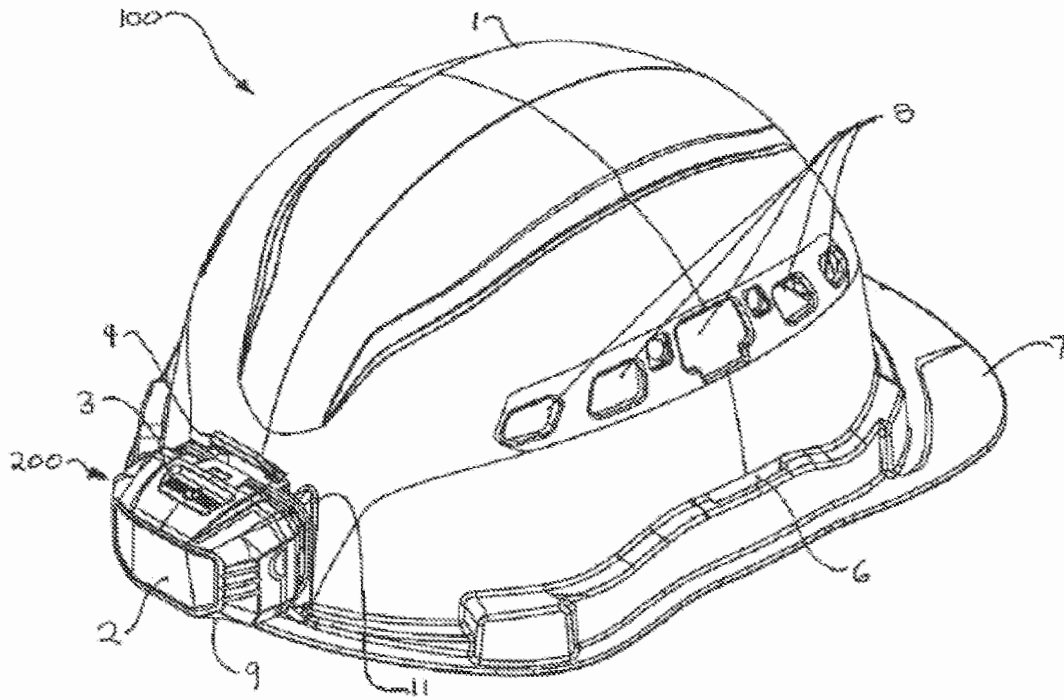


FIG. 9

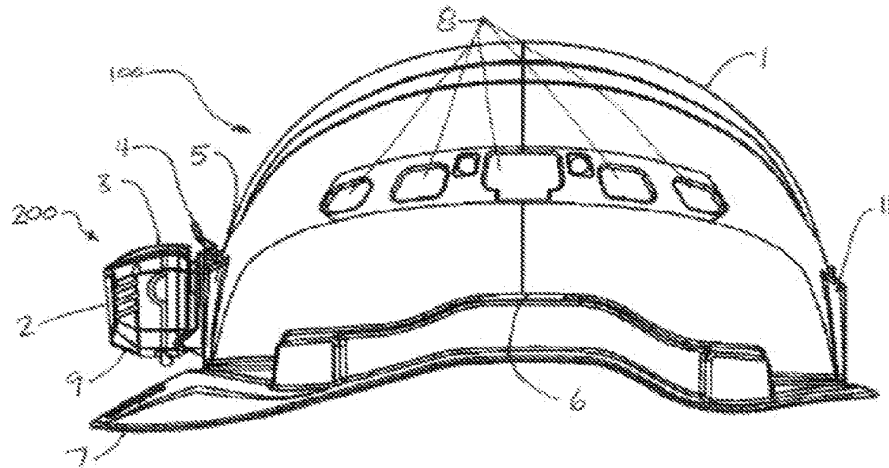


FIG. 10

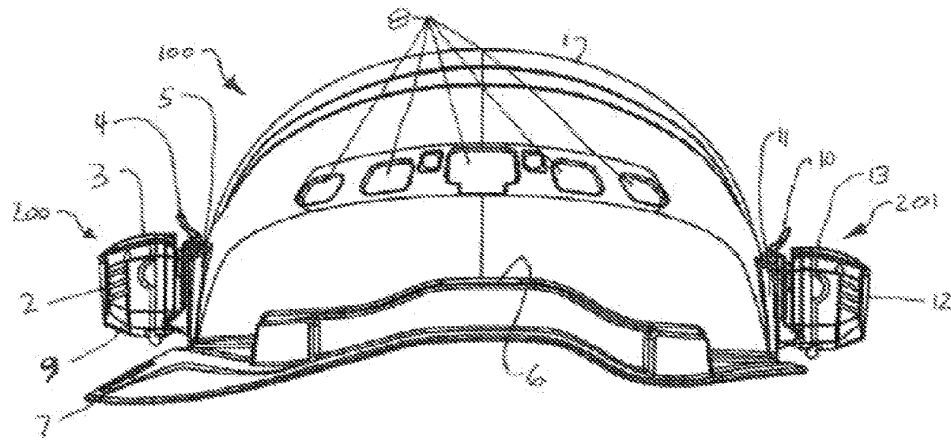


FIG. 11

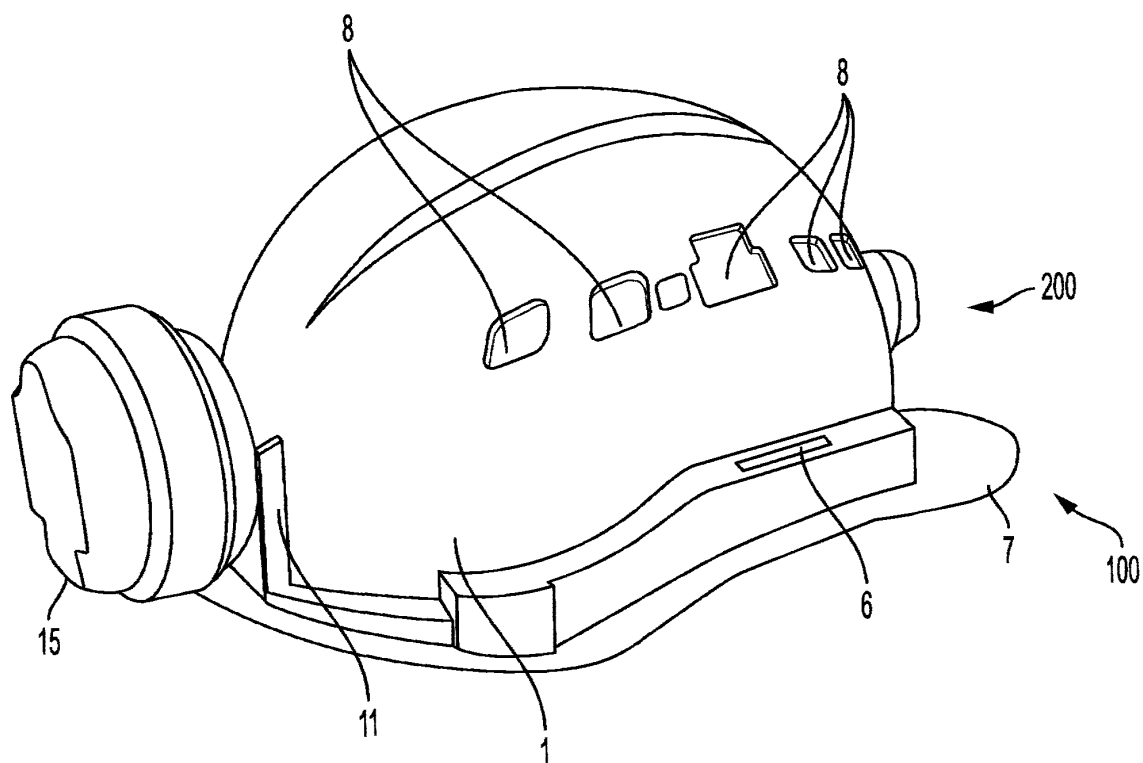


FIG. 12

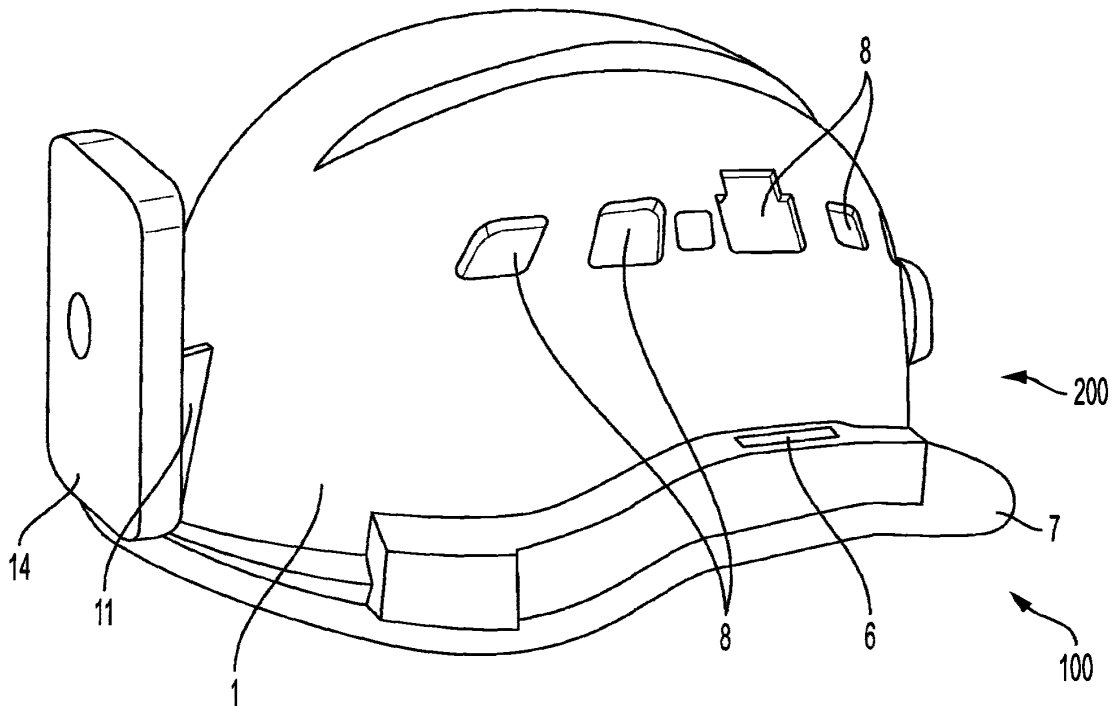


FIG. 13



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ELECTRONIC PAYMENT RECEIPT

APPLICATION #
19/074,885

RECEIPT DATE / TIME
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ATTORNEY DOCKET #
00016P02US

Title of Invention

SAFETY HELMET

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	8403	FILED BY	John Whelan
PATENT CENTER #	69509785	AUTHORIZED BY	-
CUSTOMER #	144588	FILING DATE	-
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Shantanu Deshpande

Payment Information

PAYMENT METHOD DA / 602056	PAYMENT TRANSACTION ID E202530E22037005	PAYMENT AUTHORIZED BY John Whelan
PRE-AUTHORIZED ACCOUNT 602056	PRE-AUTHORIZED CATEGORY 37 CFR 1.16 (National application filing, search, and examination fees); 37 CFR 1.17 (Patent application and reexamination processing fees)	

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1111	UTILITY PATENT APPL. SEARCH FEE	770.00	1	770.00
1311	PATENT APPL. EXAMINATION FEE	880.00	1	880.00
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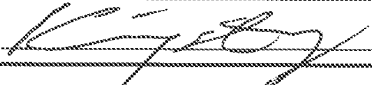
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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	Safety Helmet
As the below named inventor, I hereby declare that: This declaration is directed to: ☐ The attached application, or ☒ United States application or PCT international application number <u>16/246,935</u> filed on <u>January 14, 2019</u> The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. WARNING: Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available. LEGAL NAME OF INVENTOR Inventor: <u>Kingston Wong</u> Date (Optional): <u>07/16/2019</u> Signature: <u></u> Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/AIA/01 form for each additional inventor.	

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SAFETY HELMET

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This patent application is a continuation of U.S. Patent Application No. 17/856,628, filed July 01, 2022, which is a continuation of U.S. Patent Application No. 16/246,935, filed January 14, 2019, now U.S. Pat. No. 11,452,327, which claims the benefit of U.S. Provisional Application No. 62/622,472, filed January 26, 2018, and U.S. Provisional Application No. 62/645,491, filed March 20, 2018, each of which disclosure is incorporated herein by reference in their entireties.

BACKGROUND OF THE DISCLOSURE

[0002] The present disclosure relates to personal protection devices and, more particularly, safety helmets for use to protect the wearer from falling objects. Such helmets are commonly also referred to as "hard hats." Various types of safety helmets are commonly used in in several industries, many of which include mounted personal illumination devices commonly called headlamps, typically powered by a direct current power source (either replaceable or rechargeable chemical cells). In the simplest of such devices, the headlamp is permanently mounted to the safety helmet in a fixed orientation at the front of the safety helmet. In other such devices, a mounting bracket is included at the front of the helmet to allow for a headlamp to be inserted.

[0003] One common method of mounting headlamps onto a safety helmet is by using an elastic band to conform and adhere to the exterior of the safety helmet, and then mounting the portable device onto the elastic band. While use of elastic bands can permit mounting of the headlamp at any orientation relative to the safety helmet, and also mounting of additional devices onto a single band, switching between orientations is difficult. Moreover, band-type mounting systems are prone to slipping off from the safety helmet, especially when lubricating fluids may fall on the helmet and enter the interface between the helmet's exterior and the band, thus requiring constant readjustment by the user.

[0004] Another common issue with known safety helmet headlamp arrangements is the connection of a power source to the headlamp. Portable power sources such as batteries are known to be heavy and bulky. When integrated with the headlamp, which is worn on the front facing side of the helmet, headlamps with integrated power sources tend to pull the helmet down, especially when the wearer is looking down. To reduce the weight of headlamps, manufacturers decrease the size of the batteries that are integrated therewith, which also decreases their useful life and will also decrease the lumen output of the headlamp. In certain applications where long life and higher light intensity is desired such as in underground mines, headlamps are typically connected to a power source via a wire, which leads to heavier and bulkier batteries worn around the user's waist. The wire leading to the batteries, however, can present a nuisance to the user and also increases the chances of unsafe conditions as it may become snagged as the user is moving around.

BRIEF SUMMARY OF THE DISCLOSURE

[0005] In one aspect, the present disclosure describes a safety helmet. The safety helmet includes an outer shell adapted to be worn by a user. The outer shell has a front side and a rear side, wherein the outer shell is reversible such that one of the front side or the rear side is oriented above a face of the user when the outer shell is worn by the user. A front receptacle is disposed on the front side of the outer shell, and a rear receptacle is disposed on the rear side of the outer shell. The front receptacle and the rear receptacle are of identical construction. An accessory device has a mating receptacle formed thereon, and is releasably mountable onto each of the front receptacle and the rear receptacle of the outer shell.

[0006] In another aspect, the disclosure describes a safety helmet, which includes an outer shell adapted to be worn by a user. The outer shell has a front side and a rear side. The outer shell is reversible such that one of the front side or the rear side is oriented above a face of the user when the outer shell is worn by the user. A front receptacle is disposed on the front side of the outer shell, and a rear receptacle is disposed on the rear side of the outer shell. A first accessory device has a first mating receptacle formed thereon and is releasably mountable onto each of the front receptacle or the rear receptacle of the outer shell, and a second

accessory device has a second mating receptacle formed thereon and is releasably mountable onto each of the front receptacle or the rear receptacle of the outer shell.

[0007] In yet another aspect, the disclosure describes a safety helmet that includes an outer shell adapted to be worn by a user and having a front side and a rear side. The outer shell is reversible such that one of the front side or the rear side is oriented above a face of the user when the outer shell is worn by the user. The safety helmet further includes a front receptacle disposed on the front side of the outer shell, and a rear receptacle disposed on the rear side of the outer shell. The front receptacle includes a front set of terminals associated therewith, the rear receptacle includes a rear set of terminals associated therewith, and a set of conductors is connected between the front set of terminals and the rear set of terminals.

[0008] In yet another aspect, the disclosure describes a method for using a protective device. The method includes providing an outer shell adapted to be worn by a user, the outer shell having a front side and a rear side, wherein the outer shell is reversible such that the front side or the rear side is oriented above a face of the user when the user wears the outer shell. The method further includes providing a front receptacle disposed on the front side of the outer shell, and providing a rear receptacle disposed on the rear side of the outer shell. The method also includes releasably attaching an accessory device having a mating receptacle formed thereon into one of the front or rear receptacle, detaching the accessory device, and reattaching the accessory device into another one of the front or rear receptacle.

BRIEF SUMMARY OF THE SEVERAL VIEWS OF THE DRAWINGS

[0009] FIGS. 1 and 2 are front and rear perspective views of a safety helmet in accordance with the disclosure.

[0010] FIG. 3 is a front view of the safety helmet of FIG. 1.

[0011] FIG. 4 is a rear view of a device that is connectable to the safety helmet of FIG. 1 in accordance with the disclosure.

[0012] FIG. 5 is a cross section of the safety helmet of FIG. 1.

[0013] FIG. 6 is an enlarged detail cross section of the helmet of FIG. 1.

[0014] FIG. 7 is a side view of an alternative embodiment.

[0014.1] FIG. 8 is a cross section of the safety helmet of FIG. 1 in an alternate configuration.

[0014.2] FIG. 9 is a rear top right perspective view of the safety helmet of FIG. 1 in another configuration wherein an electronic device is releasably mounted on the rear of the safety helmet.

[0014.3] FIG. 10 is a left side view of the safety helmet shown in FIG. 9 in yet another configuration wherein the electronic device is releasably mounted on the front of the safety helmet.

[0014.4] FIG. 11 is a left side view of the safety helmet shown in FIG. 9 in an alternate configuration wherein one of the electronic devices is releasably mounted on the front of the safety helmet and another of the electronic devices is releasably mounted on the rear of the helmet.

[0014.5] FIG. 12 is a rear to right perspective view of the safety helmet shown in FIG. 9 in yet another alternate configuration wherein the electronic device is releasably mounted on the front of the safety helmet and a different type of electronic device is releasably mounted on the rear of the safety helmet.

[0014.6] FIG. 13 is a rear to right perspective view of the embodiment shown in FIG. 9 in another alternate configuration wherein the electronic device is releasably mounted on the front of the safety helmet and another type of electronic device is releasably mounted on the rear of the safety helmet.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

[0015] The present invention relates to the field of personal protection devices and, more particularly, safety helmets. The safety helmets in accordance with the disclosure include two mounts, one on either the front or back facing sides of the helmet, which permit connection of removable modules onto the helmet such as headlamps, cameras, speakers, larger capacity batteries, cellphones, and the like. In one embodiment, the helmet includes an integrated, non-removable power source and integrated electrical leads or conductors to a port for a removable device. In this way, the removable device such as a headlamp can be made lighter

without sacrificing battery power output or electrical potential. The headlamp, which may include its own power source that is chargeable by the helmet, may be removed and used as a flashlight before being replaced onto the helmet for charging.

[0016] A safety helmet 100 in accordance with one embodiment of the present disclosure is shown in FIG. 1. The safety helmet 100 includes a detachably mounted, headlamp device 200. The safety helmet 100 includes a hard outer shell 1 designed to protect the head of the wearer from injury and a brim 7 designed to shield the user's eyes from sunlight or falling debris. Accessory slots 6 may be present to accept various accessories. The headlamp device 200 features a headlamp body 9, a light source 2, a power switch 3 to activate the light source 2, and a mounting bracket 4 to removably attach the headlamp device 200 to the safety helmet 100.

[0017] Connection of the headlamp device 200, which is shown as one exemplary embodiment of a device that can be connected to the safety helmet 100, is accomplished by releasable engagement of the mounting bracket 4 to a front tapered receiver slot 5 of the safety helmet 100. The front tapered receiver slot 5 is disposed on the front of hard outer shell 1 of the safety helmet 100. In this configuration, the light emanating from the light source 2 projects forward from the safety helmet 100, illuminating the area in front of a user when the safety helmet is in its standard orientation in which the brim 7 is disposed over the wearer's face.

[0018] The mounting bracket 4 and front tapered receiver slot 5 are one exemplary embodiment for releasably connecting the device 200 to the safety helmet 100. As also shown in FIGS. 3 and 4, the front tapered receiver slot 5 includes a tapered channel 16 formed between a pair of raised sidewalls 18 and a stop, shown in the preferred embodiment as a protruding nub 17 extending from the surface of the hard outer shell 1 of the safety helmet 100. The mounting bracket 4 is in the form of a tapered clip 19 conforming to the tapered channel 16 such that it is retained by the raised sidewalls 18 when it is inserted into the tapered channel. A slot 20 in the tapered clip 19 receives the protruding nub 17 on the hard outer shell 1 of the safety helmet 100 locking it into place. The mounting bracket 4 can be detached from the front tapered receiver slot 5 by pulling on the release lever 21 of the

tapered clip 19, which disengages the protruding nub 17 from the slot 20 to allow the headlamp device 200 to be lifted out of the tapered channel 16.

[0019] The safety helmet 100 is shown from a rear perspective in FIG. 2. As shown, the safety helmet 100 includes a second device 201 mounted on the rear side of the hard outer shell 1. While in certain embodiments the second device 201 may be releasably mounted to the safety helmet 100 using a second tapered receiver slot, similar to the front tapered receiver slot 5 on the front of the helmet (FIG. 1), in the illustrated embodiment of FIG. 2, the second device 201 is nonreleasably or, generally permanently, mounted onto the safety helmet 100. The second device shown in FIG. 2 is a battery pack or power storage device that houses disposable or rechargeable battery power cells. The battery cells in the second device 201 are configured to provide electrical potential in the form of a direct current (DC) electrical power output into two conductors, 203 and 204 (shown in FIG. 1), which are integrated into the hard outer shell 1. As shown in FIGS. 7 and 9-13 in two alternative embodiments, the safety helmet 100 includes a rear tapered slot 11 that is substantially identical to the front tapered receiver slot 5.

[0020] The conductors 203 and 204, which are shown in dashed lines in FIGS. 1 and 2, are metal conductors that can be made from copper, aluminum, steel, zinc or the like, and are molded into the thermoplastic material of the hard outer shell 1 of the safety helmet 100. In one embodiment, the conductors can be placed into a mold used for injection molding of the hard outer shell 1 such that the plastic used to construct the hard outer shell 1 can be over-molded around the conductors to conceal and protect the conductors as shown, for example, in FIG. 6. Placement of the conductors can be selected depending on the particular safety requirements of the helmet. As shown, the conductors are placed along an outer region of the helmet, away from the wearer's head.

[0021] At one end, the conductors 203 and 204 are permanently and electrically connected to two poles of the battery cells in the second device 201 such that an electrical potential created by the battery cells is available through the conductors. At another end the conductors 203 and 204 terminate at terminals 205 and 206, as shown in FIG. 3, which present bare

surfaces for achieving a releasable electrical connection with corresponding terminals 207 and 208 formed on the back side of the device 200 that is connectable to the front tapered receiver slot 5, as shown in FIG. 4. In this way, when the device 200 is mechanically connected to the receiver slot, an electrical connection between the first device, for example, the headlamp device 200 and the second device 201 is also established and maintained while the device 200 is mounted onto the safety helmet 100.

[0022] FIG. 5 a side, section view through the safety helmet 100 shown in FIG. 1, and FIG. 6 is an enlarged detail view to illustrate the connections of the electrical conductors through the material of the hard outer shell 1 to the terminals 207 and 208 (only one visible) and also to the additional device 201. Also visible here are secondary, rechargeable batteries 212 used within the device 200, which can be charged through the conductors from the second device 201 and which also allow the device 200 to be used autonomously, if desired. In the embodiment shown, the rechargeable batteries 212 used in the device 200 have a smaller electrical capacity than batteries in the second device 201 to allow the device to be recharged while connected to the safety helmet 100, provided that the electrical potential of the second device 201 is higher than the device 200 and charging of the device 200 can occur. The recharging of the device 200 advantageously permits use of the device to be used autonomously when separated from the safety helmet 100, and then reconnected to the helmet for charging from the second device 201. While charging, the device 200 can also operate, for example, to provide light, by drawing sufficient electrical power from the second device to both operate and charge the device 200 because of the larger electrical capacity of the second device 201. When the second device 201 is connected to a power source for charging, and while the device 201 is connected, both devices can be charged simultaneously to increase to the total charge available on the safety helmet 100. Moreover, the second device 201 can include a shutoff or diode integrated therewith, which only permits flow of electrical power in the form of electrical DC current from the second device 201 to the device 200, but not in the opposite direction.

[0023] The devices 200 and 201 may be embodied as various types of devices or accessories. For example, in addition to headlamps or battery packs, the devices may be

embodied as a speaker, which can be connected to an audio player or similar device by known methods, a holder or bracket for another device such as a camera, smartphone or the like, a blinking or otherwise illuminated light that marks the location of the user, a GPS receiver or tag, and the like.

[0024] A first alternative embodiment is shown in FIG. 7, in which a plurality of electrical devices, in this case, illumination devices 210, are integrated around the helmet and connected to be powered by the second device 201. For example, the illumination devices 210 may be low-powered LED lights or strobes that can be illuminated and used as safety devices, in addition to reflective devices, in low light environments. The electrical connections to power the illumination devices 210 can be integrated into the hard outer shell in a fashion similar to the conductors 203 and 204, and be electrically connected therewith. A headlamp device 200 is shown mounted via the mounting bracket 4 to the front tapered receiver slot 5 formed by the hard outer shell 1". The second headlamp device 201 is mounted to a rear tapered receiver slot 11 formed by the hard outer shell 1". In this embodiment, the front tapered receiver slot 5 is substantially identical to the rear tapered receiver slot 1".

[0024.1] FIG. 8 shows a cross section view through the safety helmet 100 shown in FIG. 1 in an alternate configuration. FIG. 8 shows the safety helmet 100 including the detachably mounted headlamp device 200. The headlamp device 200 includes the light source 2, the headlamp body 9, and the rechargeable batteries 212. The conductors 203 are shown integrated into the outer shell 1' and terminating at the terminal 205. The headlamp device 200 includes the terminal 207 for releasable electrical connection with terminal 205. The safety helmet 100 of Fig. 8 shows that the protruding nub 17 and the brim 7 are unitary features of the hard outer shell 1'. Stated in other words, the outer shell forms or defines the protruding nub 17 and the brim, which are integrally molded with the outer shell from a common material such as plastic. The venting holes 8 may be present for ventilation of the interior of the safety helmet 100. As shown in FIG. 3, the protruding nub 17 is centrally disposed relative to the external slot. In the illustrated embodiment of FIG. 3, the protruding nub 17 is disposed at an upward location away from the brim 7.

[0024.2] FIG. 9 shows a rear top right perspective view of the safety helmet 100 of FIG. 1 in an alternate configuration. The safety helmet features a detachable mounted headlamp device 200 mounted via the mounting bracket 4 in a rear tapered receiver slot 11 substantially identical to the front tapered receiver slot 5 disposed on the hard outer shell 1' of the safety helmet 100. In this configuration, the light emanating from the light source 2 projects rearward of the safety helmet 100, illuminating the area in front of a user when the safety helmet is in its reverse orientation, with the brim 7 behind the wearer's head.

[0024.3] FIG. 10 depicts a side view of the safety helmet 100 of FIG. 9, featuring the detachable mounted headlamp device 200 mounted via the mounting bracket 4 in the front tapered receiver slot 5 of the hard outer shell 1' of the safety helmet 100. In this configuration, the light emanating from the light source 2 projects forward of the safety helmet 100, illuminating the area in front of a user when the safety helmet is in its reverse orientation, with the brim 7 above the wearer's face. The rear tapered receiver slot 11 can be seen in this view, disposed on the hard outer shell 1' opposite from the front tapered receiver slot 5.

[0024.4] FIG. 11 depicts a side view of the safety helmet 100 of FIG. 9 with the front tapered receiver slot 5 and the rear tapered receiver slot 11 oppositely formed by the hard outer shell 1' of the safety helmet 100. In this view, a second headlamp device 201 is mounted via a second mounting bracket 10 to the rear tapered receiver slot 11, while the headlamp device 200 is mounted via the mounting bracket 4 to the front tapered receiver slot 5. In this configuration of the safety helmet 100, the headlamp device 200 and second headlamp device 201 can be used in various ways. Both the headlamp device 200 and the second headlamp device 201 could be powered on, such that the light source 2 illuminates the area in front of the user and a second light source 12 illuminates the area behind the user's head while the cap is in its standard orientation. Alternately, the light source 2 on the headlamp device 200 might be powered on illuminating the area in front of the user while the safety helmet 100 is in its standard orientation, with the brim 7 above the user's face, and if the user chooses to move the helmet to its reverse orientation, with the brim 7 behind the user's face, the light source 2 could be powered down by means of pressing the power switch 3 and the second light source 12 powered on by pushing the second power switch 13 on the second headlamp

device 201, such that the second light source 12 illuminates the area in front of the user. The user might also store the second headlamp device 201 on the rear tapered receiver slot 11 as a backup to the headlamp device 200 on the front tapered receiver slot 11, switching the position of the headlamp device 200 and second headlamp device 201 as necessary, for example, to address a malfunction or low battery state of the headlamp device 200. If the headlamp device 200 and the second headlamp device 201 have a high and low setting for the light source 2 and the second light source 12, a user can quickly configure the safety helmet 100 such that in the standard orientation the light source 2 provides bright illumination while the second light source 12 provides only low brightness to allow for signaling and location of the wearer, and may be converted when in reverse orientation such that the second light source 12 provides bright illumination while the light source 2 provides only low brightness to allow for signaling and location of the wearer, without having to remove or reposition either the headlamp device 200 or the second headlamp device 201.

[0024.5] FIG. 12 shows the safety helmet 100 in a configuration with a speaker device 15 mounted to the receiver slot 11 and the headlamp device 200 mounted to the receiver slot 5. FIG. 13 shows the safety helmet 100 in another configuration with a battery pack 14 mounted to the receiver slot 11 and the headlamp device 200 mounted to the receiver slot 5. As shown in FIGS. 12 and 13, the accessory slot(s) 6, the brim 7, the venting holes 8, and the receiver slot 11 are unitary features of the outer shell 1'. In other words, the outer shell 1' forms or defines the accessory slot(s) 6, the brim 7, the venting holes 8, and the receiver slot 11. The accessory slot(s) 6 are configured to accept various accessories. As shown in FIGS. 12 and 13, the accessory slot(s) 6 are integrated with the outer shell 1'. As shown in FIGS. 12 and 13, the brim 7 is integrated with the outer shell 1'. As shown in FIGS. 12 and 13, the venting holes 8 are integrated with the outer shell 1'. As shown in FIGS. 12 and 13, the receiver slot 11 is integrated with the outer shell 1'.

[0025] All references, including publications, patent applications, and patents cited herein are hereby incorporated by reference to the same extent as if each reference were individually and specifically indicated to be incorporated by reference and were set forth in its entirety herein.

[0026] The use of the terms "a" and "an" and "the" and "at least one" and similar referents in the context of describing the invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The use of the term "at least one" followed by a list of one or more items (for example, "at least one of A and B") is to be construed to mean one item selected from the listed items (A or B) or any combination of two or more of the listed items (A and B), unless otherwise indicated herein or clearly contradicted by context. The terms "comprising," "having," "including," and "containing" are to be construed as open-ended terms (i.e., meaning "including, but not limited to,") unless otherwise noted. Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein. All methods described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (e.g., "such as") provided herein, is intended merely to better illuminate the invention and does not pose a limitation on the scope of the invention unless otherwise claimed. No language in the specification should be construed as indicating any non-claimed element as essential to the practice of the invention.

[0027] Preferred embodiments of this invention are described herein, including the best mode known to the inventors for carrying out the invention. Variations of those preferred embodiments may become apparent to those of ordinary skill in the art upon reading the foregoing description. The inventors expect skilled artisans to employ such variations as appropriate, and the inventors intend for the invention to be practiced otherwise than as specifically described herein. Accordingly, this invention includes all modifications and equivalents of the subject matter recited in the claims appended hereto as permitted by applicable law. Moreover, any combination of the above-described elements in all possible variations thereof is encompassed by the invention unless otherwise indicated herein or otherwise clearly contradicted by context.

Application Data Sheet 37 CFR 1.76

The Application Data Sheet is part of the provisional or non-provisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.

Inventor Information

of inventors: 2

1. **Shantanu Deshpande**

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UNITED STATES

Application Information

Customer number 144588 -

Correspondence address ---

Title of invention **SAFETY HELMET**

Attorney docket number **00016P02US**

Entity status ---

Application type Nonprovisional Application under 35 USC 111(a)

Subject matter Utility

Total number of drawing sheets 10

Suggested figure for publication 1

Filing by reference No

Publication request Normal eighteen-month publication

Representative Information

of representatives: 1

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).

Customer number 144588

Domestic Benefit/National Stage Information

of benefit claims: 4

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c), 386(c), or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the

specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior application status	Pending
Application number	---
Continuity type	Continuation of
Prior application number	17856628
Prior application filing date	07/01/2022

Prior application status	Patented
Application number	17856628
Continuity type	Continuation of
Prior application number	16246935
Prior application filing date	01/14/2019
Patent number	11452327

Prior application status	Expired
Application number	16246935
Continuity type	Claims benefit of provisional
Prior application number	62622472
Prior application filing date	01/26/2018

Prior application status	Expired
Application number	16246935
Continuity type	Claims benefit of provisional
Prior application number	62645491
Prior application filing date	03/20/2018

Foreign Priority Information

of foreign priority claims: 0

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which

priority is not claimed. Providing this information in the Application Data Sheet constitutes the claim for priority as required by 35 U.S.C. 119 (b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).



Data was not provided for this section.

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

Checking this box will cause the application to be examined under the first inventor to file provisions of the AIA.

☐

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

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 2016, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization or Opt-Out of Authorization to Permit Access

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

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

NOTE:

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

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

Priority Document Exchange (PDX)

- A. Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the China National Intellectual Property Administration (CNIPA), the World Intellectual

Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h) (1).

Search Results from U.S. Application to EPO

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

B.

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐

A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐

B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with the search results from the instant application.

NOTE:

Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Applicant Information

of applicants: 1

The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46.

1. **Klein Tools, Inc.**
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Applicant	Organization
Applicant type	Assignee

Assignee Information including Non-Applicant Assignee Information

of assignees: 1

An assignee-applicant identified in the "Applicant" section will appear on the patent application as an applicant.

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Klein Tools, Inc.
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Lincolnshire, IL 60069
UNITED STATES

 8478213289
 ---
 ipcounsel@kleintools.com

Organization

Signature

NOTE:

This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c)**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See CFR 1.4(d) for the manner of making signatures and certifications.

Signature	First name	Last name	Registration #	Date
/John Whelan/	John	Whelan	76200	03/10/2025

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	Safety Helmet		
As the below named inventor, I hereby declare that:			
This declaration is directed to:			
☐ The attached application, or			
☒ United States application or PCT international application number <u>16/246,935</u>			
filed on <u>January 14, 2019</u>			
The above-identified application was made or authorized to be made by me.			
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.			
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
WARNING:			
Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.			
LEGAL NAME OF INVENTOR			
Inventor: <u>Shantanu Deshpande</u>		Date (Optional): <u>7/15/19</u>	
Signature: 			
Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/AIA/01 form for each additional inventor.			

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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



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APPLICATION #
19/074,885

RECEIPT DATE / TIME
03/10/2025 02:19:58 PM Z ET

ATTORNEY DOCKET #
00016P02US

Title of Invention

SAFETY HELMET

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 8403

FILED BY John Whelan

PATENT CENTER # 69509785

FILING DATE -

CUSTOMER # 144588

FIRST NAMED INVENTOR Shantanu Deshpande

CORRESPONDENCE ADDRESS -

AUTHORIZED BY -

Documents

TOTAL DOCUMENTS: 8

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
generatedADS69509785.pdf	6	Application Data Sheet	127 KB
ContinuationClaims-CLM.docx	2	Claims	17 KB
Warning: One or more pages are missing page numbering. Page numbering will be automatically applied after submission.			
PowerOfAttorney.pdf	2	Power of Attorney	201 KB
ContinuationAbstract-ABST.docx	1	Abstract	15 KB
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ContinuationSpecification-SPEC.docx	11	Specification	26 KB

DeclarationWong.pdf	1	Oath or Declaration filed	114 KB
DeclarationDeshpande.pdf	1	Oath or Declaration filed	112 KB
ContinuationDrawings.pdf	10	Drawings-only black and white line drawings	409 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

DocCode - SCORE

Placeholder Sheet for Supplemental Content

Application Number: 19074885

Document Date: 03/10/2025

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