

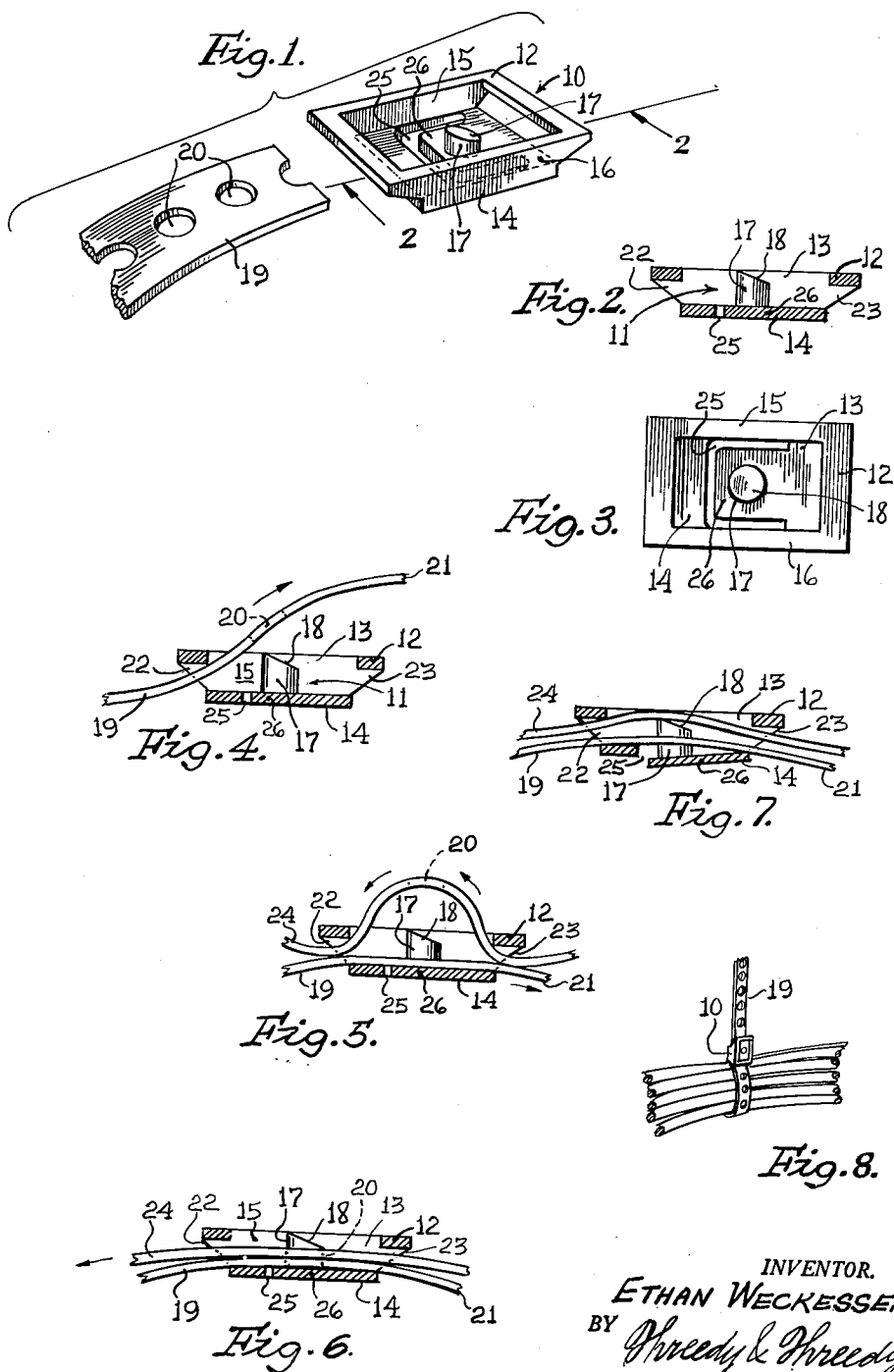
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RATCHET BUCKLE

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RATCHET BUCKLE

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1 Claim. (Cl. 24—180)

My invention relates to a new and useful improvement in a ratchet buckle and more particularly a buckle used for holding together in an adjusted position a perforated strapping.

Another object of my invention is in the provision in a device of this character of a construction of a buckle which readily receives and attaches to one end of a perforated strapping and receives the other end or a portion of the strapping in such a manner that it may be moved through the buckle in one direction for readily adjusting the tightness of the strap.

Another object of my invention is in the provision in a device of this character of a non-slipping buckle that will cooperate with a perforated strapping which may be used to secure wires, cables, rods, tubing and pipes or any combination thereof into a compact bundle.

A still further object of my invention is in the provision in a device of this character of making a buckle from a one piece mold and which buckle is non-conductive, non-corrosive, light-weight and strong.

An equally important object of my invention is in the provision in a buckle of this character of a resilient supporting means for a strap engaging and holding ratchet pin which permits the same to be flexed into or out of holding position with respect to the strap and which permits the strap to be moved thereover in one direction so as to tighten the strap into a binding loop for connecting articles together into a compact bundle.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

FIG. 1 is a perspective view of my improved ratchet buckle and a portion of the perforated strapping associated therewith;

FIG. 2 is a side elevational detailed sectional view taken on line 2—2 of FIG. 1;

FIG. 3 is a top plan view of my improved ratchet buckle;

FIG. 4 is a side elevational sectional view of my ratchet buckle and the first position of the strapping as it is connected thereto;

FIG. 5 is a side elevational sectional view of my improved ratchet buckle showing a successive step of connecting the perforated strapping thereto;

FIG. 6 is a side elevational sectional view of my improved ratchet buckle showing the position of the perforated strapping in latched position;

FIG. 7 is a side elevational sectional view of my improved ratchet buckle showing the ratchet pin thereof in its flexed position with respect to the body of the ratchet buckle and the strapping; and

FIG. 8 is a fragmentary perspective view of my ratchet buckle and strap in application.

My improved ratchet buckle is adapted to be used in conjunction with a perforated strapping which may be utilized to secure together into bundles a plurality of wires, cables, rods, tubing and pipes or any combination thereof.

The buckle 10 comprises a body portion having a longitudinally extending passage 11 formed therethrough. The top wall 12 has a rectangularly shaped opening 13 formed

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therein and in open communication with the passage 11. The body portion is provided with a reduced base 14 which corresponds in size to the opening 13 formed in the top wall 12. The reduced base 14 is so positioned with respect to the top wall 12 that it is in alignment with the opening 13 as viewed in FIG. 2. The reduced base 14 is connected to the top wall 12 by corresponding oppositely disposed longitudinally extending side walls 15 and 16.

A circular ratchet pin 17 is carried by the base 14 and intersects the passage 11 which extends through the body portion. The ratchet pin 17 has a diameter less than the width of the base 14 and extends to a height equal to the horizontal plane of the exposed surface of the top wall 12 as shown in FIGS. 2, 4, 5 and 6. The free end of the pin 17 has its top surface tapered downwardly to a point that lies on the horizontal plane defined by the underface of the top wall 12. The tapered top surface of the ratchet pin 17 provides a cam surface 18 which is exposed to one end of the passage 11 for a purpose hereinafter made apparent.

Adapted to cooperate with my ratchet buckle is a nylon strapping 19 perforated as at 20 throughout its length.

To tie together into a bundle any of the heretofore enumerated materials the perforated strapping 19 will be first formed into a loop. To accomplish this, one end 21 of the strapping 19 is inserted into the passage 11 from the open end 22 of the buckle 10 and over the high side of the pin 17 as seen in FIG. 4. The end 21 of the strapping 19 is then passed out the opposite end 23 of the buckle 10 with the ratchet pin 17 inserted through one of the perforations 20. The strapping 19 is then caused to lie in facial abutment with the inner surface of the base 14 as seen in FIG. 5. The opposite free end 24 of the strapping 19 is then reversely threaded into the buckle 10 through the passage 11 from the opposite end 23. The strapping 19 as it is thus threaded into the buckle 10 will have the undersurface thereof exposed to the cam surface 18 of the tapered top surface of the ratchet pin 17. The free end of the strapping 19 is then passed out of the buckle 10 through the end 22 thereof. The ratchet pin 17 will then be projected through a selected perforation 20 to cause the end 24 to lie upon, in facial abutment, the end 21 of the strapping 19. In this condition as is shown in FIG. 6 the buckle 10 has cooperated with the strapping 19 to form a loop of strapping material. To tighten the strapping loop so formed all that is required is that the buckle 10 be held in place while the free end 24 of the strapping 19 be pulled in the direction of the arrow as shown in FIG. 6. By such movement the top strapping will be forced over the cam surface 18 of the ratchet pin 17 so that the pin 17 will be disengaged from the perforation 20.

To facilitate the tightening movement of the strapping 19 with respect to the buckle, I have provided the ratchet pin 17 with a resilient support. Such resilient supporting means comprises a portion of the base 14 which has formed therein a U-shaped cut 25 forming a peninsula 26, as seen in FIG. 3. When the free end 24 of the strapping 19 is pulled to the left as seen in FIG. 7, an edge portion of the perforation 20 through which the pin 17 is projected will bear upon the cam providing side of such pin 17 and cause the same together with the peninsula 26 to be downwardly flexed as seen in FIG. 7 to such a degree that the strapping 19 will become disengaged and freely pass over the cam surface 18.

However a movement of the strapping 19 to the right as seen in FIG. 7 will cause the pin 17 and the peninsula 26 to be flexed upwardly toward the opening 13 of the top wall 12 thus raising and further projecting the pin 17 into the selected perforation 20 so as to prevent the movement in that direction.

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When the free end 24 is ceased to be pulled through the buckle 10 the pin 17 will snap into the nearest perforation thus holding the loop in its tightened condition. A suitable tool may be used to perform this latter formation.

From the foregoing description, it is clear that any pull upon the strap 19 which would tend to loosen the loop so formed, would result in a pull upon the strapping 19 on the tall side of the pin 17, which would resist such movement.

Such movement would also cause the end 24 of the strapping 19 to be compressed upon the lowermost end 21 of the strapping 19, and forcefully bear the same into tightened facial engagement with the base 14, and prevent disengagement of that end 21 of the strapping 19 from the pin 17.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claim.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

A buckle for latching a perforated strap including a rectangularly shaped body having a longitudinally extending passage formed therethrough, a base for said body providing a longitudinally extending closed bottom wall for said passage, a transversely extending strap-latching ratchet

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pin carried by said base and intersecting said passage, said body including a top wall providing a rectangularly shaped opening having communication with said passage and through which said perforated strap is looped so as to pass over said strap-latching pin when said strap is inserted in one direction through said passage, said base providing a resilient support for said strap-latching pin so that said support may be moved out of the longitudinal plane with respect to said body and said pin out of strap latching position within said passage when said strap is moved in an opposite direction through said passage, said strap-latching ratchet pin having its free end formed to provide a cam surface for engagement by said perforated strap when it is moved in an opposite direction through said passage for camming said strap-latching ratchet pin and its resilient support out of strap-latching position.

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