(No Model.)

F. H. RICHARDS.

SUSPENDER BUCKLE.

No. 456,523. Patented July 21, 1891.

Fig. 1

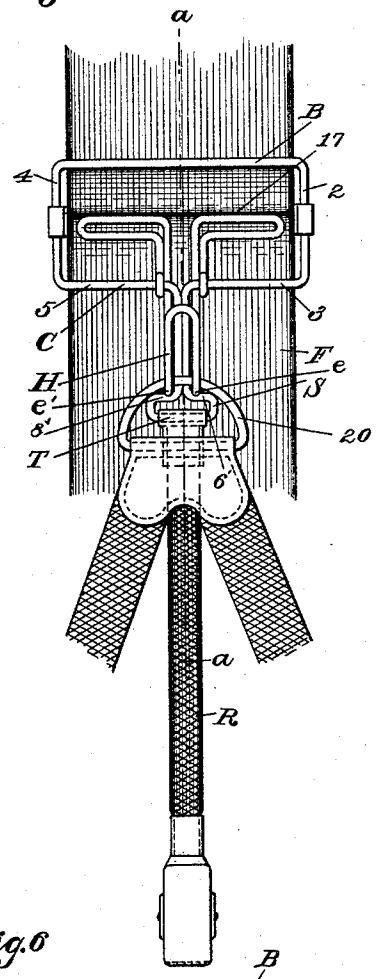


Fig. 2

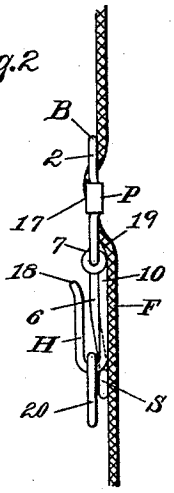


Fig. 3

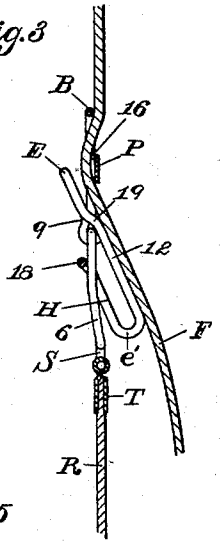


Fig. 4

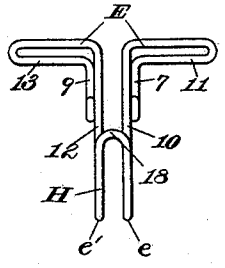


Fig. 5

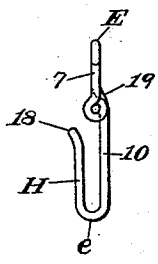


Fig. 6

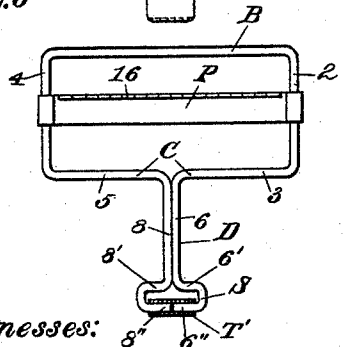
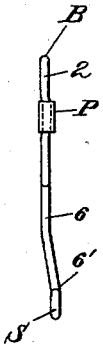


Fig. 7



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UNITED STATES PATENT OFFICE.

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SUSPENDER-BUCKLE.

SPECIFICATION forming part of Letters Patent No. 456,523, dated July 21, 1891.

Application filed April 28, 1891. Serial No. 390,783. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Suspender-Buckles, of which the following is a specification.

This invention relates to that class of frame-and-lever buckles in which the web-clamping lever is supported upon the lower bar of the buckle-frame and is locked close by the cast-off ring, the invention being in the nature of an improvement on the buckle described and claimed in Letters Patent of the United States No. 451,840, granted to George B. Pilkington, May 5, 1891.

In the drawings accompanying and forming a part of this specification, Figure 1 is a front view of an improved suspender-buckle embodying my present improvements, the buckle being shown on a suspender-web. Fig. 2 is an edge view of the buckle as shown in Fig. 1. Fig. 3 is a sectional edge view in line *a a*, Fig. 1, but with the lever swung open. Fig. 4 is a front view of the clamping-lever. Fig. 5 is an edge view of the lever shown in Fig. 4. Fig. 6 is a front view of the buckle-frame, also shown in Figs. 1, 2, and 3. Fig. 7 is an edge view of the same.

The buckle consists of a frame having an upper bar, a lower bar, parallel side bars, a ribbed plate extending between the side bars intermediate to the upper and lower bars, and a depending arm intermediate of the length of the lower bar, a web-clamping lever supported on the lower bar, and means for operating the lever and locking the same closed. The top bar B at the right-hand and left-hand ends thereof joins the two side bars 2 and 4, respectively, which are joined at their lower ends to the side portions 3 and 5, respectively, of the lower bar, this being designated in a general way by C. Said lower bar C has a depending arm, consisting of the "close loop" D, which is composed of the two sides 6 and 8, that lie close together and at their lower ends are shaped to form a loop or eye S, serving the double purpose of a thumb-piece whereby to open and close the lever and as an eye or loop whereon to support the usual third strap R. The depending bars or arm sides 6 and 8 at a point near the lower ends thereof are bent first outwardly at about right angles and then downwardly and inwardly, as will be understood from the detail view, Fig. 6, to form the said loop or eye S, the extreme ends 6″ and 8″ of said bars abutting within the ferrule or clasp, as T′, which connects said ends together. When the strap R is to be used, the strap-carrying eye or clasp T (shown in Figs. 1 and 3) is substituted for said ferrule T′. (Shown in Fig. 6.) This clasp incloses said ends 6″ and 8″, and is attached to the upper end of the strap R in any well-known manner.

Intermediate of the length of the side bars 2 and 4 there is fastened to said bars a ribbed plate P, whose ends are clinched over the side bars in a well-known manner, (which will be understood by comparison of the several figures of drawings,) for the purpose of fixedly locating the plate on the side bars. The rib 16 on said plate is at the upper edge thereof, being usually toothed, as shown, for engaging the suspender-web F in a well-known manner; otherwise the buckle may be of the same construction as described in the aforesaid Letters Patent.

The buckle-lever consists of the web-clamping bar, downwardly-projecting arms having bearings whereby the lever is journaled on the side portions 3 and 5, respectively, of the lower bar C of the buckle-frame, and the lever-arm (comprising the sides 10 and 12) extending downward from the clamp-bar intermediate of said bearing-arms and terminating at the lower end thereof in a hook whereby the cast-off is supported and whereby the lever itself is locked closed by means of the cast-off ring. The hook-provided end of the lever-arm extends below the lever-bearings to furnish the leverage necessary for operating the lever, this usually requiring the hook H to be wholly below said bearings. In the preferred form of buckle-lever shown the bearing-arms 7 and 9 are straight, as indicated in Figs. 1 and 4, and are joined to the outer ends of the lever-bar E, respectively, through the short connecting lengths 11 and 13.

According to my present improvements, whereby, as above described, the depending arm D does not have the character of an open loop, the lever-arm and its hook are constructed and arranged to swing outside of said frame-arm D, instead of swinging through a depending loop, as described in the aforesaid Letters Patent. Said depending arm D may also be described as a "T-arm," it having at the lower end thereof a cross comprising the oppositely-projecting parts 6′ and 8′ upon which the lower rounded ends *e e′* of the hook H engage when the lever is swung from its open position in Fig. 3 to its closed position in Figs. 1 and 2. The hook H, swinging outside of the arm D, (instead of swinging through the open loop described in the prior patent,) the point 18 of said hook forms a stop, which by engaging said arm D, as in Fig. 3, limits the opening movement of the lever, thus keeping the lever always in proper position for instant closure.

An important feature of my present improvements is the additional fulcrum obtained for the lever, whereby the leverage is more direct, and permitting the use of a smaller and consequently cheaper wire for the making of the lever in any particular case. The two sides or lever-arms 10 and 12 of the lever being set sufficiently far apart to swing outside of the frame-arm D stand directly back of the inner ends of the side portions 3 and 5, respectively, of the lower bar C of the buckle-frame, and therefore take their fulcrum-bearing on said lower bar contiguous to the bearing-arms 7 and 9, respectively. This relieves said arms of their principal stress, due to the clamping action. This feature of the invention will be best understood by comparison of Figs. 1, 3, 4, and 5.

The buckle-lever when constructed and arranged in the buckle as herein described retains the elastic feature described in the aforesaid Letters Patent, whereby the clamp-bar E is sprung upward on the forcing of the rounded hook H over the lever-locking portion of the buckle-frame, this lever-locking portion in the present instance being the T formed at the lower end of the frame-arm D, and consisting of the oppositely-extending wires 6′ and 8′.

In using the buckle to unlock the same the cast-off ring 20 is first removed from the hook in the usual manner. Next, the user, placing one finger back of the eye S and the thumb upon the front hook H, forces back the hook from the position shown in Fig. 2 to the position shown in Fig. 3, thereby unclamping the web, as indicated in said views. For locking the buckle in place again on the web the reverse operation is performed, after which the said ring 20 is placed upon the hook, as indicated in the drawings.

In practice the lever-arms 10 and 12, where they pass back of and bear against the frame-bars 3 and 5, respectively, are curved at 19, as indicated in the edge views 3 and 5, thus securing the greatest symmetry of construction.

Having thus described my invention, I claim—

A buckle of the class specified, consisting of a frame having the clamp-bar and the lower cross-bar formed of the wire bent inwardly until the two branches are contiguous and then downwardly adjacent and parallel and formed with a loop or projection, and the lever having clamping-arms and the widened or expanded downwardly-extending hook adapted to embrace the depending arm, said lever being pivoted to the lower bar and fulcrumed on the under side of said bar contiguous to the depending arm, substantially as described.

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