Oct. 1, 1929. J. M. CLARK 1,729,608

SUSPENDER ADJUSTING DEVICE

Filed Dec. 12, 1925

Fig. 1.

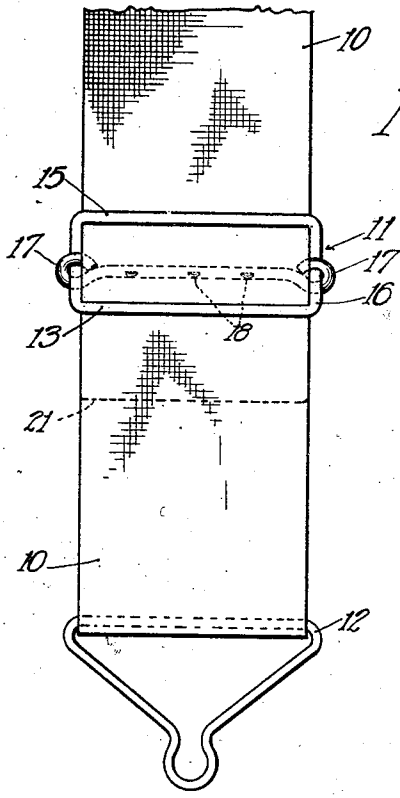



Fig. 2.

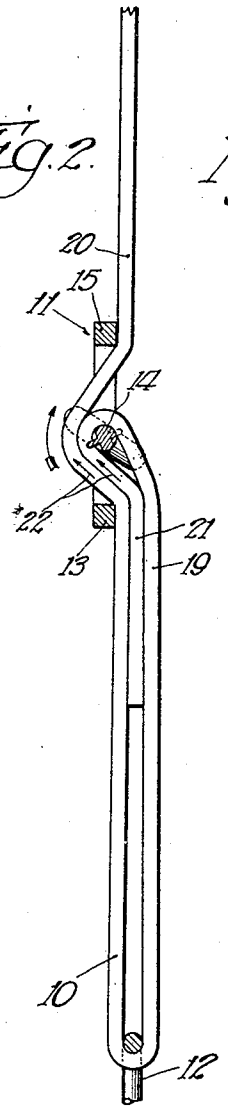



Fig. 3.

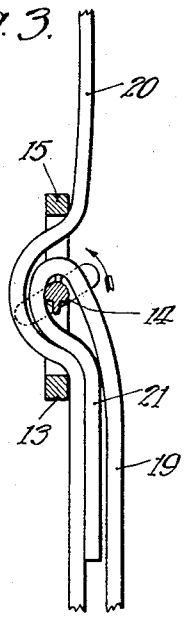



Fig. 6.

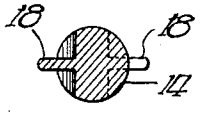



Fig. 4.

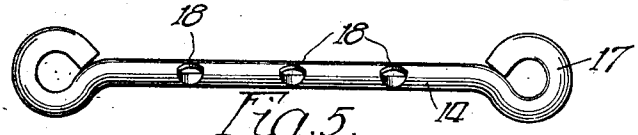
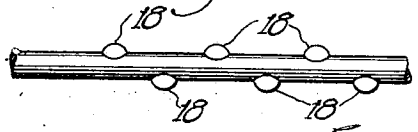



Fig. 5.




Inventor.
John M. Clark.
Emery, Booth, Janney & Varney.
Attys.

Patented Oct. 1, 1929 1,729,608

# UNITED STATES PATENT OFFICE

JOHN M. CLARK, OF DETROIT, MICHIGAN, ASSIGNOR TO UNIVERSAL BUTTON FASTENING AND BUTTON COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN

## SUSPENDER-ADJUSTING DEVICE

Application filed December 12, 1925. Serial No. 74,974.

This invention relates to improvements in so-called suspender slides and the like, and aims to provide a novel and improved device of this character which is simple and efficient in operation.

The invention may be readily understood by reference to one illustrative device embodying the invention and illustrated in the accompanying drawing.

In said drawing:

Fig. 1 is an elevation of a suspender strap carrying the illustrative slide.

Fig. 2 is an enlarged vertical section of the construction illustrated in Fig. 1.

Fig. 3 is an enlarged section, similar to that of Fig. 2, but illustrating an advantageous relation of parts to permit adjustment of the suspended strap.

Fig. 4 is an enlarged view of the middle or cross bar of the device.

Fig. 5 is a fragmentary view of the same bar rotated so that the arrangement of gripping lugs or teeth may be shown.

Fig. 6 is a cross-section of the same bar taken on a line through one of the gripping lugs or teeth.

For convenient description, the illustrative slide has been shown in one typical use, namely, on an ordinary overall suspended strap 10 which is usually made of heavy denim or some other fabric of adequate strength. In the arrangement shown the suspender strap is threaded through the illustrative slide 11 and around a typical button loop 12, the latter serving to hook over a button or the like to connect the strap with the overall bib.

The illustrative slide comprises three parallel bars 13, 14 and 15, around which the suspender strap is threaded. In the present arrangement the strap passes under bars 13 and 15 and over bar 14, and, after passing around the loop 12, an end of the strap is threaded downwardly outside of bar 14 so that it lies between this bar and the outer strand of the suspender strap,—thereby concealing the bar 14 and preventing its contact with the wearer's clothing. The foregoing arrangement of bars is provided, in this instance, by employing an elongated or rectangular loop of wire 16, the longer sides of which provide the bars 13 and 15 and the ends of which carry the middle bar 14, which is slidably connected thereto by eyes 17 through which the ends of the loop pass. The eyes 17 are conveniently made larger than the diameter of the ends of the loop 16 to permit the bar 14 to rotate on its axis through a limited angle. The loop 16 is in this instance formed from wire of square cross section, the ends of which have been suitably connected, as by butt welding. The bar 14 may be given an angular cross-section or formed with lugs or teeth 18 to provide means for biting into or gripping the suspender strap. In the present arrangement the bar 14 is provided with two, opposite rows of teeth 18 which are advantageously formed by upsetting or extruding the metal of the bar. This is conveniently done by punching the bar adjacent its periphery by oppositely moving dies which squeeze out a lip or fin of metal beyond the normal periphery of the bar.

Under tension applied by the downward pull of the button loop 12, the bar 14 is drawn down until it clamps the two intervening thicknesses of suspender strap against the corner of bar 13. During this relative adjustment of the two bars, the bar 14 is rotated on its axis in the direction of the arrow (Fig. 2), thereby bringing the rows of teeth 18 into engagement with the adjacent strands of suspender strap. The degree with which the teeth grip or bite into the strap increases with the further rotation of the bar; and a corresponding increase in resistance to such further rotation of the bar is thereby developed.

The above described clamping or gripping action of bar 14 materially resists relative slipping of the suspender straps in the slide, thereby preventing accidental change in adjusted length of the suspender strap. In the arrangement illustrated, wherein the bar 14 is concealed by looping the suspender strap around it, there is a greater tendency for the strap to increase in length because under the tension on strands 19 and 20, both the strands 20 and 21 tend to slip in same direction, namely that of arrows 22, and these

strands do not therefore mutually resist the tendency to slip or creep in the slide. Therefore the effectual checking of any slipping of strand 21 serves, through the frictional contact between strands 20 and 21, to resist the slipping or creeping of strand 20.

In Fig. 3 is illustrated a convenient manner of adjusting the length of the suspender strap. By rotating the bar 14 in the direction of the arrow the gripping of the teeth 18 on the strap is relieved, thereby allowing the various strands of the strap to be loosened and slipped through the slide to secure the desired adjustment.

The number of gripping teeth as well as their angular position relative to the eyes 17 and the plane of loop 16 may be varied to suit requirements. If the strand 19 is looped around bar 14 in the opposite direction (thereby placing the end 21 against the wearer), a corresponding change in the angular position of teeth 18 or in the number of the rows of teeth may be desirable because the tension around bar 14 will then be such as to rotate it in a direction opposite to that illustrated.

Obviously the invention is not limited to the details or mode of use of the illustrative device, since these may be variously modified. Moreover, it is not indispensable that all features of the invention be used conjointly, since certain features may be advantageously used in various combinations and sub-combinations.

Having described one embodiment of my invention, I claim:

1. A suspender slide comprising in combination a rectangular closed loop of wire and an intermediate straight wire bar having eyes at its extremities which pass around the sides of said loop, thereby making said bar slidable in said loop, said bar having gripping teeth consisting of tooth-like projections of metal upset from the metal of said bar and depressions therein adjacent said teeth, thereby exposing said teeth better to grip a suspender strap.

2. A suspender slide comprising in combination a rectangular closed loop of wire formed to provide suspender engaging corners and an intermediate straight wire bar having eyes at its extremities which pass around the sides of said loop, thereby making said bar slidable in said loop, said bar having gripping teeth consisting of tooth-like projections of metal upset from the metal of said bar and depressions therein adjacent said teeth, thereby exposing said teeth better to grip a suspender strap, said loop and bar arranged to cooperate to grip a suspender strap between the teeth on said bar and a corner of the wire forming said loop.

3. A suspender slide comprising in combination a rectangular closed loop of wire formed with suspender engaging corners, with the corners of said wire arranged to engage a suspender strap threaded through said loop, an intermediate straight wire bar having eyes at its extremities which pass around the sides of the loop, the openings in said eyes being substantially larger than the sides of the loop to permit said bar to twist on its axis through a substantial but limited angle, said bar having relatively small gripping teeth thereon adapted to engage the suspender strap and cooperate with said loop to prevent said strap from slipping, said bar being adapted to twist through a limited angle under the tension of said strap to bring said teeth into firm engagement with said strap.

4. A suspender slide comprising in combination a rectangular closed loop of wire formed with suspender engaging edges, an intermediate bar extending transversely of said loop, means for connecting the ends of said bar to the sides of said loop so as to permit the bar to slide in said loop and to rotate relative thereto, said bar being provided with a series of relatively small teeth adapted to bite into a suspender strap without distorting it to prevent the strap from slipping, and a suspender strap having one strand threaded over the slidable bar and under the ends of said loop and having a return strand looped around said slidable bar and lying underneath said first strand, said suspender strands cooperating under tension to draw the bar toward an end of said loop to grip the intervening suspender strands and to cause said teeth to bite more firmly into the adjacent suspender strand.

In testimony whereof, I have signed my name to this specification.

JOHN M. CLARK.