April 20, 1943. G. L. DIEBOLD 2,316,846

ADJUSTABLE STRAP FASTENER

Filed April 27, 1942

Fig. 1.

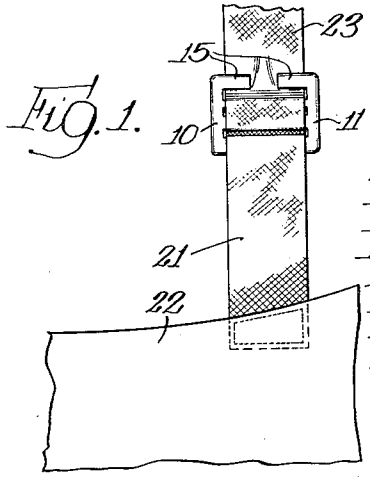


Fig. 2.

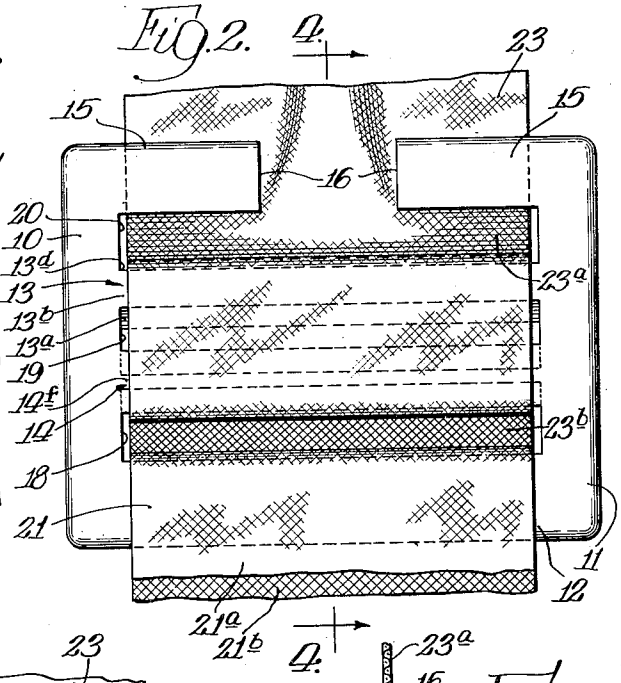


Fig. 3.

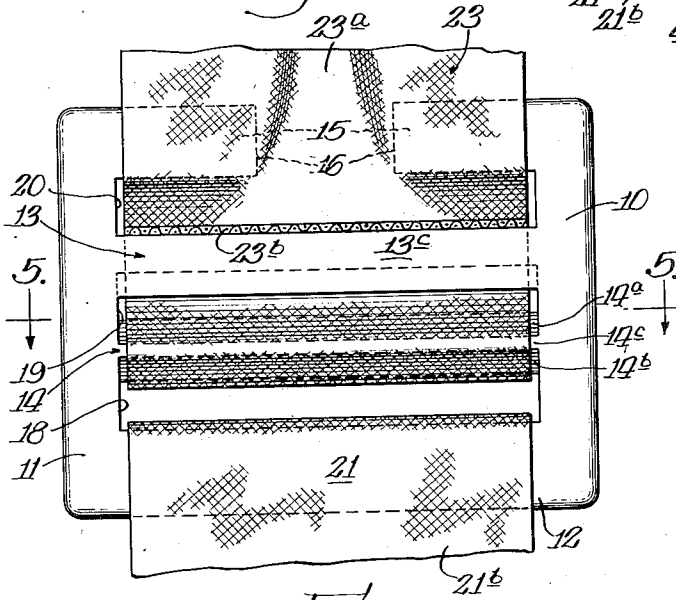


Fig. 4.

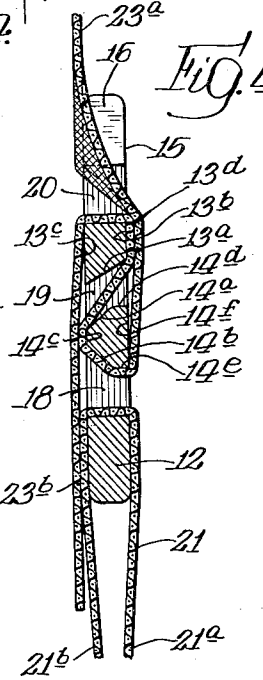
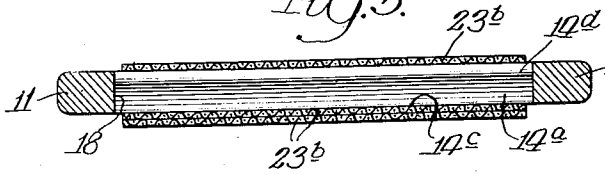


Fig. 5.



INVENTOR.
George L. Diebold.

By Davis, Lindsey, Smith & Shouts Attys

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ADJUSTABLE STRAP FASTENER

George L. Diebold, Chicago, Ill.

Application April 27, 1942, Serial No. 440,569

5 Claims. (Cl. 24—200)

This invention relates to adjustable strap fasteners and more particularly to an adjustable strap fastener adapted to be applied to the straps of various articles of wearing apparel, such as women's undergarments and the like.

Heretofore, numerous attempts have been made to provide adjustable strap fasteners, buckles or clasps for the above stated purposes but these attempts for varying reasons have proven unsuccessful. In some instances, such adjustable strap fasteners failed to perform their intended function in that they failed to hold securely without slippage the straps to which they were applied. Other fasteners while achieving satisfactory operation from the standpoint of holding the straps securely failed in another respect because they were incapable of ready adjustment, particularly when in operative position on the wearer of the garment. Still other adjustable fasteners, while achieving some degree of success with respect to holding the straps against slippage and being capable of ready adjustment, nevertheless were of such bulk or of such odd shapes that their cost of manufacture was prohibitive commercially or they were incapable of lying flat when being worn, thereby pressing into the body of the wearer or raising unsightly bulges in the outer garments.

It is, therefore, one of the principal objects of my invention to provide an adjustable fastener adapted to be applied to straps and the like whereby the straps may be securely fastened at a predetermined length against slippage and may be readily adjusted with a minimum of effort.

Another object of my invention is to provide an adjustable fastening means applicable to straps of various articles of wearing apparel whereby a strap may be securely held against slippage at a predetermined length and is capable of being readily adjusted to vary the length of the strap, even when the adjustable fastening means is in a relatively inaccessible position or is disposed at a relatively awkward angle on the body of the wearer.

Still another object of my invention is to provide an adjustable strap fastener adapted to be readily applied to the straps of various articles of wearing apparel which is of simple, neat and inexpensive construction and by which the length of a strap may be easily and quickly varied to suit the needs and comfort of the wearer.

A further object of my invention is to provide an adjustable strap fastener which is flat and relatively inconspicuous in design, of relatively low cost, efficient in operation, and capable of ready attachment and adjustment.

Other and further objects of the invention will appear as the description proceeds, reference being had to the accompanying drawing in which:

Figure 1 is a front elevational view of my improved adjustable strap fastener with straps operably connected thereto in garment supporting position;

Fig. 2 is an enlarged front elevational view of the adjustable fastener and the straps operably connected thereto illustrated in Fig. 1;

Fig. 3 is an enlarged rear elevational view of the strap fastener and operably connected straps illustrated in Fig. 2;

Fig. 4 is a vertical sectional view of the strap fastener and operably connected straps taken on the line 4—4 in Fig. 2 looking in the direction of the arrows; and

Fig. 5 is a horizontal sectional view of the strap fastener and operably connected straps taken on the line 5—5 in Fig. 3 looking in the direction of the arrows.

The adjustable strap fastener illustrated in the drawing may be composed of any suitable material having sufficient strength to withstand the strains to which it is subjected during wear and preferably may be composed of plastics from which the member may be inexpensively formed by well-known stamping or molding processes.

Specifically, the improved adjustable strap fastener comprises a substantially flat frame member of generally rectangular outline having side portions 10 and 11 integrally connected by an end portion 12 and intermediate spaced cross members or bars 13 and 14. The other end portion 15 of the frame member is also integrally connected to the side portions 10 and 11, but it is provided with a gap or opening 16 through which a strap 23 may be passed as hereinafter described more fully. By the foregoing arrangement of parts the member is, therefore, provided with three transverse slots 18, 19 and 20, slots 18 and 19 being closed and slot 20 being open at the gap 16 in the end portion 15.

As shown in Figs. 4 and 5, the side portions 10 and 11 and the end portions 12 and 15 are of substantially the same regular rectangular cross section except that the outer edges of these portions which may contact the skin and other garments of the wearer have been rounded off to avoid irritation and snagging. The cross members 13 and 14, however, as shown in detail in Fig. 4, are not rectangular in cross section, but are provided with a cross sectional configuration

of such nature as to hold securely, in cooperation with the other elements of the frame, a section of strap against slippage when in operable position and at the same time permit ready adjustment of the strap to a desired length.

Specifically, the cross member 13 is provided with a beveled or sloping face 13a wihch forms one of the sides of the transverse slot 19, this face 13a sloping rearwardly and outwardly from a relatively narrow face 13b on the front of the cross member 13 to a relatively wide face 13c on the rear of the cross member 13. The cross member 14 is provided with sloping faces 14a and 14b, face 14a forming the one of the other sides of the transverse slot 19 and face 14b forming one of the sides of the slot 18. The faces 14a and 14b slope outwardly and forwardly from a relatively narrow face 14c at the rear of the cross member 14 to the horizontal faces 14d and 14e of the cross member 14, the juncture where the beveled faces 14a and 14b meet the horizontal faces 14d and 14e, respectively, being rounded to facilitate movement of the strap during adjustment as hereinafter described.

As shown clearly in Figs. 1 and 4 of the drawings, a section of strap 21 passes through the slot 18 and extends in a loop around the end portion 12, its loose ends 21a and 21b being secured to the top edge of a garment 22 which may be a brassière, slip, foundation garment or the like. By this arrangement the adjustable strap fastener is secured to the garment 22 in a substantially permanent manner, although the fastener also may be directly attached to the garment 22 by sewing or other appropriate means, if desired.

A shoulder strap 23 which may be fastened to the upper portion of the back (not shown) of the garment 22 and extends over the shoulder of the wearer is also illustrated in the drawings detachably and adjustably secured to the improved strap fastener which constitutes my invention in the manner hereinafter described. The shoulder strap 23 extends downwardly to the rear (or to the left as viewed in Fig. 4) of each section of the end portion 15, and then diagonally outwardly through the transverse slot 20 from which it extends downwardly over the relatively narrow front face 13b of the cross member 13, over the transverse slot 19 and over the wide front face 14f of the cross member 14. It then passes rearwardly through the transverse slot 18 and is looped about the cross member 14 so that it extends in close proximity to the horizontal and beveled faces 14a and 14b, respectively, of the cross member 14, after which it extends upwardly over the relatively narrow face 14c, and diagonally forwardly and upwardly through the transverse slot 19 in close proximity to the beveled faces 14a and 13a of the cross members 14 and 13, respectively. The strap 23 then poses upwardly over the face 13b between the cross member 13 and itself from which it pasess rearwardly through the transverse slot 20. After passing rearwardly through slot 20 the loose end 23b of the strap 23 is permitted to hang downwardly in parallel relation to the strap 21 behind which it is concealed from view. In Fig. 3 this loose end 23b has been cut away as at 23c to better illustrate the manner of application of the strap to the slide fastener.

The foregoing construction provides a strap fastener which is capable of holding the shoulder strap 23 without slippage so that the garment 22 will be properly supported. By passing or looping the strap 23 about the beveled cross bars 13 and 14 and doubling it back upon itself in the manner described in detail above no slippage whatsoever is possible. When the fastener is in operable position on the wearer the upper portion 23a of the strap 23 is pulled taut over the shoulder in supporting the weight of the garment 22 which pressure results in the outer portion of the loop of the strap 23 bearing against its inner portion and holding the inner portion against the face 13b and relatively sharp corner 13d of the cross member 13. Also a slight snubbing action is effected by looping the strap 23 about the beveled cross member 14. Both of these latter factors insure the strap 23 being held at the desired length without slippage.

If it is desired to lengthen the strap 23, that is, to increase the length of that portion above the adjustable strap fastener and to decrease the length of the dangling loose end, this operation may be very readily accomplished by moving the upper end of the strap 23 forwardly (to the right as viewed in Fig. 4) through the gap 16 in the end portion 15 and then by pulling upwardly on the strap 23 which is permitted to slip around the cross members 13 and 14 very readily without binding or snubbing due to the beveled faces 13a, 14a and 14b of the cross members 13 and 14, respectively. When this strap 23 has been lengthened to the desired adjustment, it may then be moved rearwardly through the gap 16 in the end portion 15 to operable binding position behind the end portion 15 as shown in Fig. 4 and described in detail hereinbefore.

If it is desired to shorten the strap 23 over the shoulder of the wearer, this may also be accomplished with a minimum of effort and operation. By merely grasping the loose dangling end 23b of the strap 23 and pulling downwardly the strap 23 is caused to slip readily through the fastener. As the loose end 23b of the strap is pulled downwardly, the special beveled constructions of the cross members 13 and 14 cooperate to permit ready slippage of the strap by reducing to a minimum the snubbing effect of the cross members 13 and 14 heretofore deemed necessary and essential to prevent slippage of the strap while in operable position.

Because of its definite holding capacity and its ease and simplicity of adjustment, the improved adjustable strap fastener above described is adaptable not only to shoulder straps but also may be applied to straps of a wide variety of uses. Further, it may be used in relatively inaccessible and awkward positions where the manipulation of the strap and the fastener for adjustment must be accomplished by feel alone without the aid of sight.

Also, it has been found that the fastener operates with the same efficient and definite holding capacity and with the same ease of adjustment as above described, with various thicknesses of strap and with various types of material. The fastener with its specific combination of elements is capable of holding against slippage straps comprised of thin smooth silk while the very same construction is also adapted to permit ready adjustment of relatively heavy or thick straps having transverse ribs which possess relatively great frictional resistance to movement.

I claim:

1. An adjustable strap fastener comprising a frame all parts of which lie in a single plane, said frame comprising side portions and upper and lower end portions forming the outer outline of said frame and two cross bars extending between said side portions and forming within

said side and end portions a plurality of transverse slots, the upper of said cross bars having a sloping lower face extending downwardly and rearwardly from the front of said upper cross bar and the lower cross bar having sloping upper and lower faces extending convergingly inwardly and rearwardly from the front of said lower cross bar.

2. An adjustable strap fastener comprising a frame all parts of which lie in a single plane, said frame comprising side portions and upper and lower end portions forming the outer outline of said frame, the upper of said end portions having a gap and the lower end portion being adapted for connection to a garment, and two cross bars extending between said side portions and forming within said side and said end portions a plurality of transverse slots, the upper of said cross bars having a sloping lower face extending downwardly and rearwardly from the front of said upper cross bar and the lower cross bar having sloping upper and lower faces extending inwardly and rearwardly from the front of said lower cross bar.

3. An adjustable strap fastener comprising a frame all parts of which lie in a single plane, said frame comprising side portions, an end portion at the top of said frame and two cross bars extending between said side portions and forming within said side portions and said end portion a plurality of transverse slots, the upper of said cross bars having a sloping lower face extending downwardly and rearwardly from the front of said cross bar and the lower of said cross bars having sloping upper and lower faces extending convergingly inwardly and rearwardly from the front of said second cross bar, and means on said frame adapted to fasten said frame in operable position.

4. An adjustable strap fastener comprising a frame all parts of which lie in a single plane, said frame comprising side portions, an end portion at the top of said frame and two cross bars extending between said side portions and forming within said side portions and said end portion a plurality of transverse slots, the upper of said cross bars having a sloping lower face extending downwardly and rearwardly from the front of said cross bar and the lower of said cross bars having sloping upper and lower faces extending convergingly inwardly and rearwardly from the front of said lower cross bar.

5. An adjustable strap fastener comprising a frame all parts of which lie in a single plane, said frame comprising side portions, an end portion at the top of said frame having a gap therethrough and two cross bars extending between said side portions and forming within said side portions and said end portion a plurality of transverse slots, said cross bars being substantially straight with smooth and uninterrupted surfaces from end to end and the upper of said cross bars having a sloping lower face extending rearwardly and downwardly from a relatively narrow front face of the cross bar to a relatively wide rear face of the cross bar and the lower of said cross bars having two sloping faces extending rearwardly and inwardly from upper and lower horizontal faces of said lower cross bar and converging with a relatively narrow rear face of said lower cross bar, and means on said frame adapted to fasten said frame in operable position

GEORGE L. DIEBOLD.