

Aug. 8, 1961

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2,994,935

SHOE CLOSURE

Filed Sept. 29, 1958

2 Sheets-Sheet 1

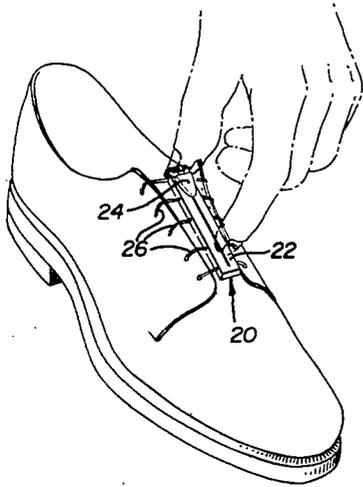


Fig. 1

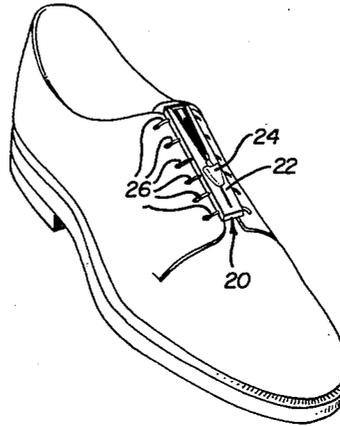


Fig. 2

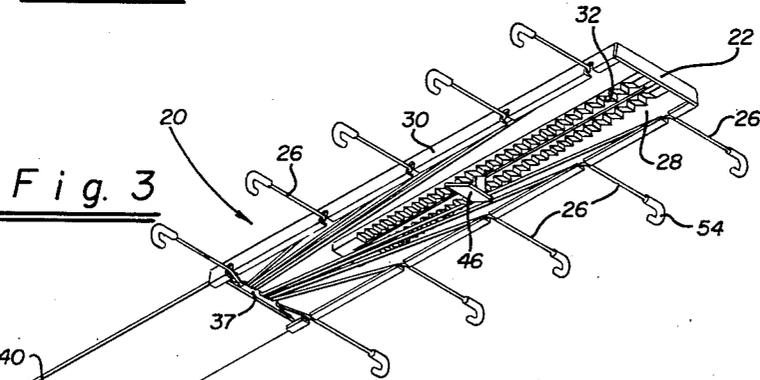


Fig. 3

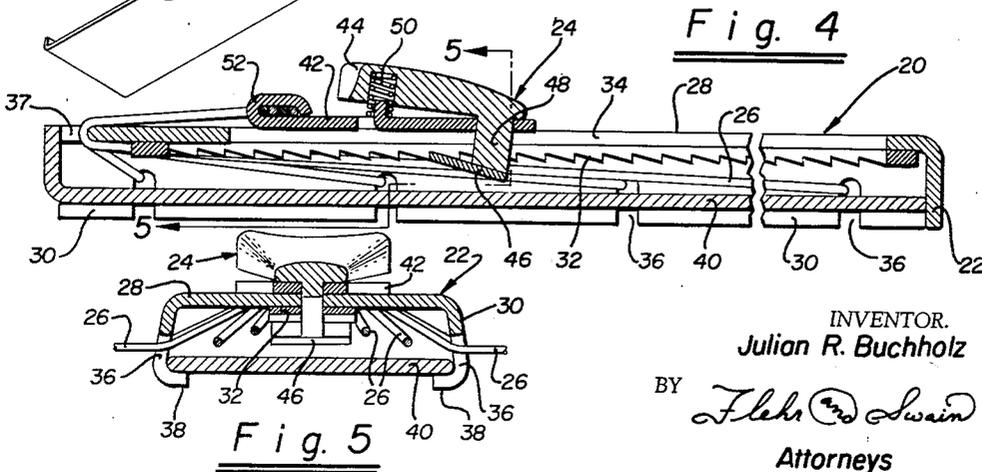


Fig. 4

Fig. 5

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2 Sheets-Sheet 2

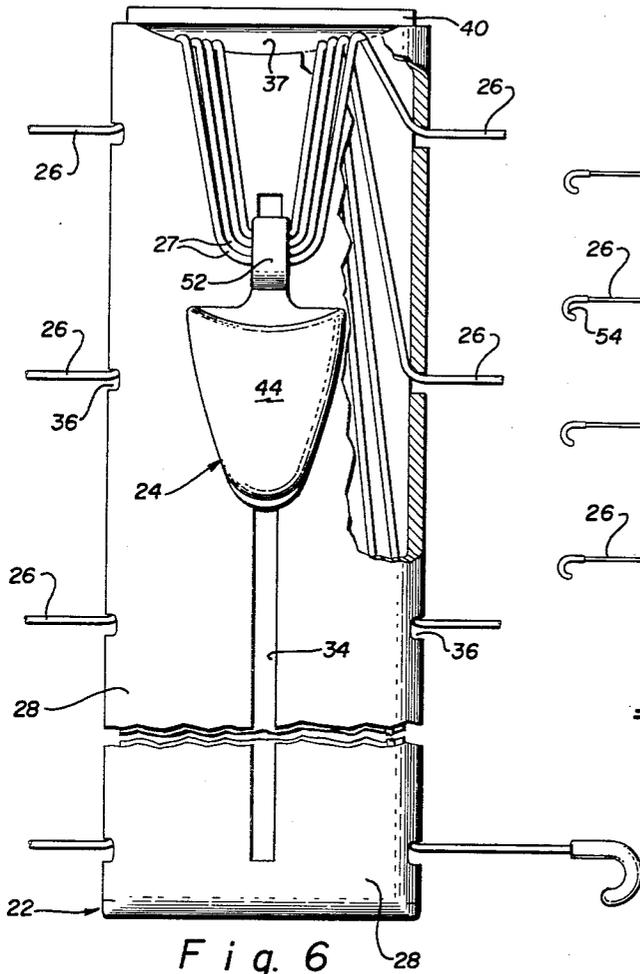


Fig. 6

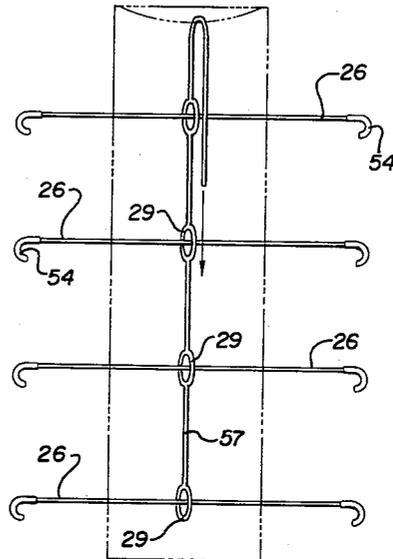


Fig. 9

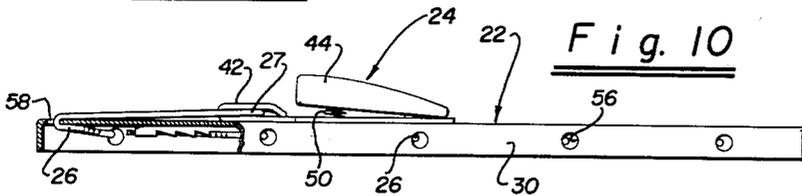


Fig. 10



Fig. 7

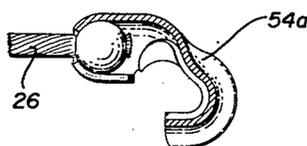


Fig. 8

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SHOE CLOSURE

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7 Claims. (Cl. 24-205.17)

This invention relates generally to a shoe closure. In general it is an object of the invention to improve upon the construction of such devices, particularly with respect to means by which the shoes can be quickly and easily loosened or tightened without the conventional tying and untying of knots.

It is another object of the invention to provide a shoe closure of the above type employing a single operating member that can be manipulated with one hand.

A further object of the invention is to provide a shoe closure that can be so adjusted to the wearer's comfort and which will retain such adjustment throughout long periods of wear, in fact, until the shoe is removed.

Another object of the invention is to provide such a device capable of employing thin high-strength fishline, wire, etc., in place of conventional shoe laces.

Additional objects and features of the invention will appear from the following description and from the drawings in which:

FIGURE 1 is a view in perspective of an article of footwear embodying the invention, with the closure device shown in loosened position;

FIGURE 2 is a like view showing the closure device in tightened position;

FIGURE 3 is an isometric view of the closure device of FIGURE 2, taken from below;

FIGURE 4 is a view in longitudinal section thereof;

FIGURE 5 is a view in transverse section along the line 5-5 of FIGURE 4;

FIGURE 6 is an enlarged view in top plan of the shoe closure device, with parts broken away to show details of construction;

FIGURE 7 is a detail view partly in section of means for attaching the laces to the eyes of the shoe flaps.

FIGURE 8 is a like view of a modified form of attachment means;

FIGURE 9 is a view in side elevation and section of a modified construction in accordance with the invention; and

FIGURE 10 is a schematic view of a modified arrangement for attaching the laces to the closure operating mechanism.

In the drawings, the closure device has been illustrated as primarily of metallic construction. It is to be understood however that other materials such as plastic, wood or combinations of such materials could be employed with equal success.

Generally stated, a shoe closure of the present invention comprises a substantially planar, elongate body having a slot to receive a single slidable operating device. Preferably the operating device includes a pivoted pawl normally biased into engagement with a ratchet provided on the under surface of the body. Lace means are attached to the operating device and extend through openings in the sides of the body for engagement with the eyes of the shoe flaps. By this general construction the wearer of the shoe is enabled to grasp the operating device, pivot it out of engagement with the ratchet and then slide the operating device to either tighten or loosen the laces. Upon release of the operating device, its pawl is again biased into engagement with the ratchet to retain the closure device in either a loosened or tightened position.

Referring to the drawings in detail, 20 indicates one

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form of a closure device including the body portion 22, operating member 24 and lace means 26. As best seen in FIGURES 3 and 6, the body portion comprises a substantially planar upper plate 28 having downwardly extending side flanges 30 and a downwardly facing ratchet 32. An elongated slot 34 extending through both the plate and ratchet can receive the operating mechanism 24. Openings 36 in the sides of the body receive the laces 26. Preferably the lower edges 38 of the sides are crimped inwardly to receive a slide member 40. This slide member serves to close the slotted openings 36 and the end opening 37, holding the laces in place, yet is easily removable to permit replacement of the laces.

As shown in detail in FIGURES 4 and 5, the operating device 24 comprises the slide member 42 and a pawl mechanism including the operating button 44, pawl 46 and connecting shank 48. The latter is received in an aperture in the slide member and facilitates pivotal movement of the pawl 46 relative to the ratchet 32. The shank 48 also insures cooperative movement of the button and slide member in the longitudinal slot 34. A spring 50 between the button and slide member normally urges the pawl 46 into engagement with the ratchet, and retains the operating device in a particular position of adjustment. To obtain different positions of adjustment, as in loosening or tightening the shoe, the button 44 is depressed against the pressure of the spring 50 to disengage the pawl 46 for free sliding movements relative to the body 22. Upon releasing the button the pawl again engages the ratchet 32.

As is particularly shown in FIGURE 6, the bight 27 of each lace 26 is firmly held in an eye portion 52 of the slide member 42 so as to be movable therewith. Thus, downward movement of the operating device (FIGURE 6) will cause the laces to be pulled inwardly toward the body of the closure device. Conversely upward movement of the operating device will permit an outward or loosening movement of the laces. Preferably the ends of the laces are provided with rigid hook means 54 to permit a proper engagement of the laces with the eyes of the shoe flaps. It will be understood that various types of hooks can be employed as suggested in FIGURES 7 and 8, or, if desired, the laces can be permanently attached to the flaps, for example, by means of terminal loops secured in such eyes.

The operation of the device just described can be summarized as follows:

Assume that the closure device is in loosened position, as in FIGURE 1. To tighten the closure, it is only necessary to depress the operating button 44 to release the pawl 46 and to slide the operating device downwardly as in FIGURE 2. Downward movement of the operating device tends to tension the ends of the laces, so that the hooks 54 pull inwardly on the shoe flaps to tighten the shoe. To loosen the shoe a reverse procedure is followed, and the flaps grasped in the hands and pulled outwardly. Because all of the laces 26 are simultaneously loosened, the shoe can be opened completely to permit a ready removal or insertion of the foot without the use of a shoe horn. A further advantage is that the closure can be adjusted by the button 44 to any position desired for the wearer's comfort, and the spring action of the pawl 46 will thereafter retain the closure in such position of adjustment until a subsequent operation of the device for readjustment or to remove the shoe.

It will be observed that at no time during operation of the closure device it is necessary for the hands to come into contact with the laces 26. This fact makes possible the use of a variety of materials in place of the materials conventionally used for shoe laces. For example, the laces can be segments of waxed high-strength fishline,

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wire, or other suitable materials which heretofore have been unsuitable for the purpose.

To those skilled in this art many additional changes in construction and widely differing applications of the invention will suggest themselves without departing from the spirit and scope of invention. For example, FIGURE 9 suggests a modified form of attachment of the laces 26 to the slidable operating device 24, namely, a separate independent lace 57 having eyelets 29 to receive the bight of the individual lace members. FIGURE 10 illustrates a further modification by which the slide member 40 can be eliminated. In this embodiment the laces pass through apertures 56 in the sides of the body, and through a top aperture 58. It will be understood that each of these disclosures, as well as the description herein, is purely illustrative and is not intended to be in any sense limiting.

I claim:

1. A shoe closure for shoes of the type having flat eyelets therein capable of being easily operated by one hand, comprising: a substantially planar elongate body provided with a downwardly facing ratchet, said body also being provided with openings on the sides thereof and an elongated slot, a single pawl means slidable in said slot and having a downwardly extending portion normally biased into engagement with said ratchet, said pawl means having an operating portion slidably positioned above said slot, and a plurality of lace means each having a bight portion attached to said single pawl means, end portions extending through said openings in the sides of said body and an intermediate portion being disposed about a point at one end of said body, said end portions being adapted for engagement with the eyes of the shoe flaps whereby said operating portion of the pawl means can be manipulated to loosen and tighten the lace means.

2. The shoe closure of claim 1 wherein said body includes means mounted for sliding movements longitudinally of said body and adapted to cover and uncover said openings, to thereby permit replacement of the lace means.

3. The shoe closure of claim 1 wherein said single pawl means includes a separate slide portion and spring means between such slide portion and the operating portion of the pawl means to pivotally urge said pawl means into contact with the ratchet.

4. A shoe closure manipulable in one hand, comprising: a substantially planar elongate body having openings in the sides thereof and a downwardly facing ratchet on its under surface, elongated slot means extending through said body and ratchet, a slide member slidably positioned above said slot, operating means pivotally mounted in

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said slide member and including a button and a downwardly extending pawl, spring means between said slide member and button normally urging said pawl into engagement with the ratchet, and a plurality of lace means each having a bight portion looped through said slide member, free end portions extending through said openings in side portions of said body and an intermediate portion being disposed about a point at one end of said body, said end portions being adapted for engagement with eyes of a shoe flap whereby upon pivoting said operating means to disengage the pawl said slide member can be manipulated to loosen and tighten the lace means.

5. The shoe closure of claim 4 wherein each end of said plurality of lace means is provided with a rigid hook element adapted to engage the eye of a shoe flap.

6. The shoe closure of claim 4 wherein said lace means comprise thin high-strength segments of fishline.

7. A shoe closure manipulable in one hand, comprising: a substantially planar elongate body having openings on the side thereof and a downwardly facing ratchet on its under surface, elongated slot means extending through said body and ratchet, a slide member slidably positioned above said slot, operating means pivotally mounted in said slide member and including a button and a downwardly extending pawl, spring means between said slide member and button normally urging said pawl into engagement with the ratchet, a plurality of lace means, separate independent lace means attached to said slide member and having a plurality of eyelets, said plurality of lace means each having a bight portion looped through one of said eyelets so as to be movable with said slide member, free end portions of said plurality of lace means extending through said openings in said side portions of said body for engagement with eyes of a shoe flap whereby upon pivoting said operating means to disengage the pawl said slide member can be manipulated to loosen and tighten the lace means.

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