Jan. 10, 1967 J. STREULE ETAL 3,296,667

ADJUSTABLE SHOE CLOSURE

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Fig.1

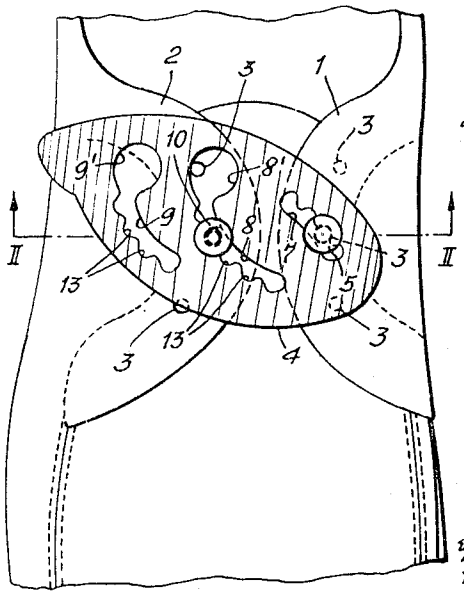


Fig.2

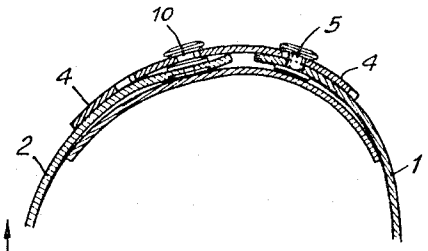


Fig.3

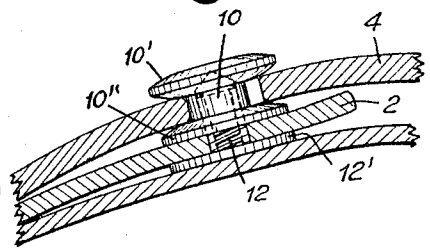


Fig.4

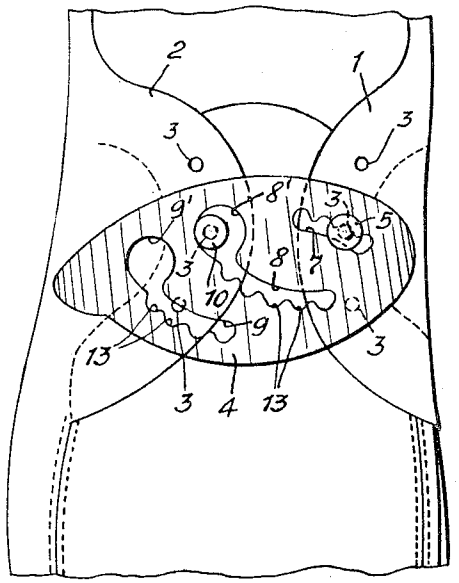


Fig.5

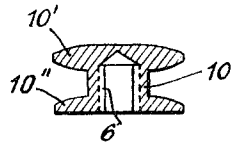


Fig.6

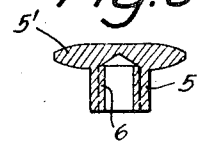
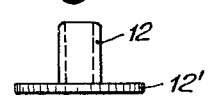


Fig.7



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Fig. 8

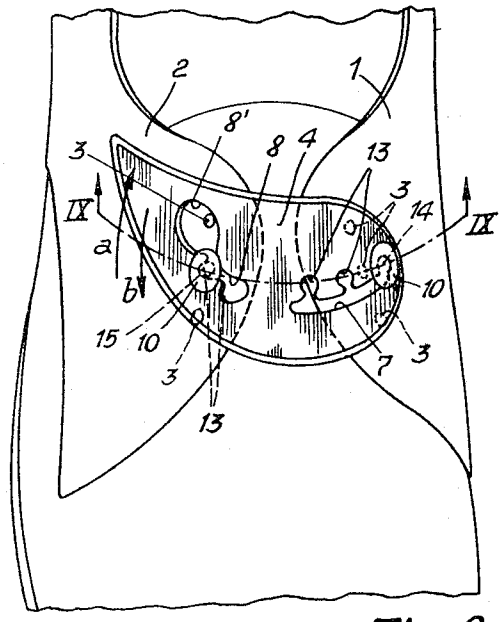


Fig. 11

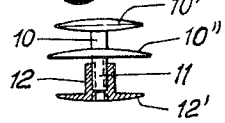


Fig. 12

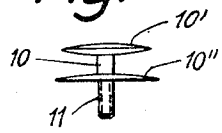


Fig. 13



Fig. 14

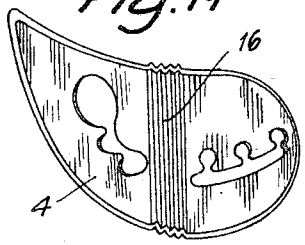


Fig. 9

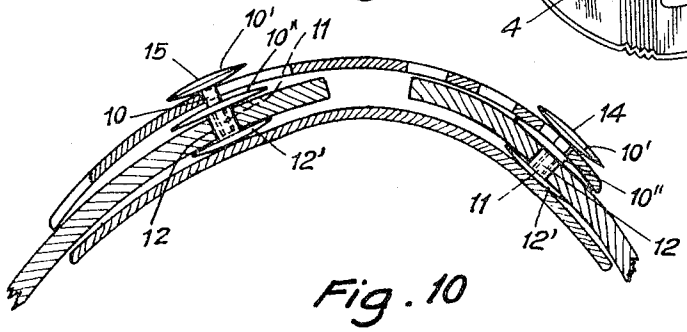
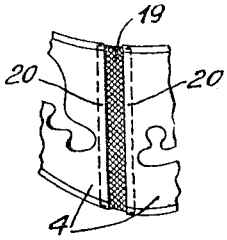


Fig. 10

Fig. 16



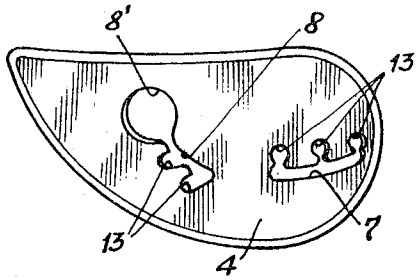
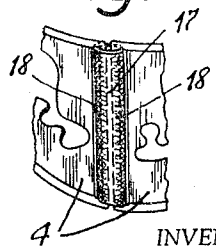


Fig. 15



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ADJUSTABLE SHOE CLOSURE

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Filed Mar. 18, 1965, Ser. No. 440,724
7 Claims. (Cl. 24—68)

The present invention relates to improvements in adjustable shoe closures.

A purpose of the invention is to replace the conventional lace or buckle closures by a very simple construction.

A further purpose is to provide a shoe closure of an extremely easy and quick serviceability.

Further purposes appear in the specification and in the claims.

FIG. 1 shows a partial front view of a shoe in a first example, depicting the closure in closed position;

FIG. 2 is a cross-section on the line II—II in FIG. 1;

FIG. 3 is a detail of FIG. 2 in a larger scale;

FIG. 4 is a partial view according to FIG. 1 and showing the closure in open position;

FIG. 5 is an axial section of the exterior portion of the two-part adjusting stud;

FIG. 6 is an axial section of the exterior part of the two-part axle pin;

FIG. 7 is a view of the interior part of the adjusting stud as well as of the axle pin;

FIG. 8 is a view similar to FIG. 1 of a second example and showing the closure in closed position;

FIG. 9 is a cross-section on the line IX—IX in FIG. 8 in a larger scale;

FIG. 10 is a top view of the closure shield;

FIG. 11 depicts a two-part connecting pin serving as pivotal axle or adjusting pin partly in axial section and in a modification; and

FIGS. 12 and 13 show the two separated parts of the connecting pin;

FIG. 14 shows a third form of the closure shield comprising a flexible center portion; and

FIGS. 15 and 16 are partial views of a closure shield in two further forms comprising a flexible and elastic center portion.

In the first example (FIGS. 1 to 7) **1** and **2** are the two shoe-shank portions provided with lacing eyelets **3**. In the eyelet **3** positioned in the center portion of shank portion **1** a closure shield **4** is pivoted on a two-part axle pin **5, 12** (FIGS. 6, 7), said shield being arched in accordance with the shoe instep. Closure shield **4** is provided with three curved slots **7, 8** and **9** which serve as catch curves. Slot **7** serves for engaging the axle pin **5**, while the two other slots **8, 9** serve for engaging a hook-in stud **10** fixed in the center eyelet **3** of shoe-shank portion **2**. The closure shield **4** is made of flexible material and being arched transversely to its longitudinal direction, is resilient, and constitutes the connecting element of the two shoe-shank portions **1, 2** across which it extends. The closure shield is subject to tension in the space between axle pin **5** and adjusting stud **10**. The tension-accommodating borders of the slots **7** to **9**, which latter are inclined relatively to the direction of tension, are provided with notches **13**.

Axle pin **5** comprises an exterior part provided with a holding plate **5'** and a threaded hole **6**, and an interior part provided with a holding plate **12'**, said interior part being screwable as threaded pin **12** into hole **6** of exterior part **5**. In contrast thereto, the adjusting stud **10** comprises two spaced holding plates **10', 10''** which define a constricted portion of said stud. Stud **10** has a threaded axial hole **6**. A threaded pin **12, 12'** serves for securing

the adjusting stud **10** on an eyelet **3** of shoe-shank portion **2**, while another such threaded pin **12, 12'** serves for securing the axle pin **12** on an eyelet **3** of shank portion **1**. The pins **12** are stuck from the inside through an eyelet **3** of shank portion **1** or **2**, while pin **5** and stud **10** are screwed or otherwise secured on the protruding pin **12** on the outside of shank portion **1**.

When securing axle pin **5**, shield **4** with the aid of its slot **7** that lets pass pin **12** through same, is inserted between pin **12** and shank portion **1**. For such purpose, any notch **13** of slot **7** may be selected as bearing for the passage of pin **12**, which allows variations in the spacing of bearing **5** from the slots **8, 9**. The latter, on their ends further spaced from pin **5** and lying on top, are provided with enlargements on their introduction holes **8'** and **9'**. The slots **8, 9** extend away from said enlargements and downwardly in a curve running away at an angle to pivot **5**; and said curve causes the tension space between stud **10** and pin **5** to be shortened when advancing stud **10** downwardly away from the holes **8', 9'**.

As shown in FIG. 4, stud **10** has just been engaged in hole **8'** so that slot **8** is positioned in the constriction of stud **10** between the two holding plates **10', 10''** thereof (FIG. 3). By swinging the shield **4** upwardly, stud **10** in slot **8** is depressed, and thereby the two shank portions **1, 2** are attracted to each other. If the wearer of the shoe has a high instep, stud **10** is engaged in hole **9'** and dislocated downwardly by swinging upwardly closure shield **4** in slot **9**.

Closure shield **4** preferably is made of flexible, semi-rigid, elastic material and suitably has the color of the leather of the respective shoe. Again, both pin **5** and stud **10** may be made of plastic. Two-part pin **5, 12** as well as two-part stud **10, 12** may be made of hard elastic plastic. The parts **5, 12** of the axial pin and the parts **10, 12** of the adjusting stud may comprise a push-button connection with the appurtenant shank portions in lieu of the thread-connection.

According to FIGS. 10, 11 the shoe closure unit again comprises a shield **4** and two-part connector studs **10, 12** engaged thereto. One of the two connector studs **10, 12** serves as pivot **14** and is secured to left-hand shaft portion **1** in an eyelet **3**, as shown in FIG. 1. The other connector stud **10, 12** serves as adjusting pin **15** for hooking-in the shield **4** in adaptation to the instep width of the shoe and is secured in an eyelet **3** of the right-hand shank portion **2**. The stud serving as pivot pin **14**, as well as the stud serving as adjusting stud **15** are of similar construction, forming a pin **10** with a double plate **10', 10''** and a threaded stem **11** projecting from the second plate **10''**. To stem **11** is secured a nut **12** with lock plate **12'**. For the purpose of securing stud **10, 12** to one of the eyelets **3** of shoe-shank portions **1** and **2**, stud part **10** with its threaded stem **11** is stuck from the shank outside through eyelet **3**. Nut **12** with lock plate **12'**, however, is screwed on to stem **11** from the shank-inside, passing through eyelet **3**, as shown in FIG. 2 on the left hand right shoe shank portion.

To the connector stud serving as pivot axle **14** is pivoted closure shield **4**. To such end, shield **4** is provided with a notched slot **7** that in the closed position extends in the horizontal direction and comprises three bearing notches **13**. For the purpose of mounting shield **4** to pivot pin **14**, the first plate **10'** of stud **10** is passed through slot **7** so that the plane of shield **4** will be situated in the constriction of stud **10**. The transition from longitudinal slot **7** to the notches **13** is necked so that a push-buttonlike engagement of stud **10** in a notch is possible. Depending on the desired instep width, either an exterior notch or notch that is disposed closer to the middle of shield **4** is chosen as pivot axis.

For the purpose of engaging stud **15** in a second notched slot **8** of shield **4**, which slot in the closed position extends in the inclined direction, first plate **10'** of stud **15** is passed through slot **8** so that the plane of shield **4** lies in the constriction between the two plates **10'**, **10''**. In this notched slot, the transition into the catches **13** is not necked so that the stud may be readily disengaged for the purpose of adjusting the shield **4**.

Closure shield **4** is of semicircular form on its end portion that accommodates pivot axle **14**, and of an upwardly pointed form on its pivotable end portion. The closure shield consists of elastic and flexible material, preferably in the color of the shoe and is of curved shape in the section line IX—IX in adaptation to the instep outside, as may be seen from FIG. 9.

For the purpose of engaging the adjusting stud **15** in a desired notch **13** shield **4** is turned in the direction of arrow *a*. Swinging shield **4** in the direction of arrow *b* will cause disengagement of stud **15** from the notch **13** used. In the disengaged position of shield **4**, stud **15** lies in a hole-like enlargement **8'** of slot **8** and is readily disengageable from shield **4** if such should still be necessary when putting-on or taking-off the shoe.

In the arrangement of the slot that in the closed position extends in a horizontal direction, a single relatively steep slot **8** in the inclined position will suffice. The closing action is more effective in the formation and disposition of the slots **7**, **8** according to FIGS. 8 and 10 and self-disengagement normally is precluded, provided that the notches **13** are not worn-down too much.

The shield **4** shown in FIG. 14 comprises a center portion **16** extending as a transverse band and which is of wave shape or zig-zag shape in cross-section. Thereby shield **4** is given greater flexibility for a better adaptation thereof to the instep-arch.

FIG. 15 shows a closure shield comprising an elastic and flexible center portion **17**. Shield **4** in this case is subdivided in the center. The two half portions on the edges facing each other are provided with slotted eyelets **18** through which an elastic band is passed as center portion **17**. Said band is closed in itself and forms an endless and flexible connecting member.

According to FIG. 16, shield **4** also is divided in two parts and provided with an elastic and flexible center section **19** of an elastic band which interconnects the two half portions. The connecting edges of said section **19** are pressed-in or molded in the plastic mass of the edges **20** of the two shield half-portions, that are opposite to each other.

The shoe closure described can stand all the normally arising stresses; it distributes the pressure on its entire surface uniformly on the two shank portions **1** and **2** and thereby ensures an agreeable fit that is free of local pressure spots and is additionally favored by its flexibility. The self-resilience of the closure shield, that is effective transversely of its longitudinal direction, contributes to the good support or hold of stud **10** in the notches **13** so as to avoid any unintentional self-disengagement. The closure shield has a pleasing appearance, and the closing and opening operations may be carried out by simple manipulation and in a very short time. The disclosed closure is applicable to all types of shoes, and is readily mountable on old shoes too.

For shoes comprising higher shanks, a plurality of closure means according to the present invention may of course be disposed at different elevations of said shank.

While the invention has been described in detail with respect to a now preferred example and embodiment of the invention it will be understood by those skilled in the art after understanding the invention, that various changes and modifications may be made without departing from the spirit and scope of the invention and it is intended, therefore, to cover all such changes and modifications in the appended claims.

What we claim as new and desire to secure by Letters Patent is:

1. A shoe closure for a shoe having two shoe shank portions, said closure comprising an arched flexible closure shield bridging the two shoe-shank portions and being detachably pivoted to one of said portions so that it is swingable above same, said shield being provided with a plurality of slots spaced from the pivot and being equipped with notches for the engagement of an adjusting stud fixed to the other of said portions, said stud being engageable in one of said notches which defines the instep width of the shoe, said shield being a platelike oblong body made of elastic and flexible material which gives said shield a self-resilience in the longitudinal direction thereof, the pivot being an axle pin comprising two detachably interconnected parts passing through a lacing eyelet of the shoe shank portion and being provided with a holding plate for holding together said portion and said shield.

2. A shoe closure for a shoe having two shoe shank portions, said closure comprising an arched flexible closure shield bridging the two shoe-shank portions and being detachably pivoted to one of said portions so that it is swingable above same, said shield being provided with a plurality of slots spaced from the pivot and being equipped with notches for the engagement of an adjusting stud fixed to the other of said portions, said stud being engageable in one of said notches which define the instep width of the shoe, said shield being a platelike oblong body made of elastic and flexible material which gives said shield a self-resilience in the longitudinal direction thereof, the notched slots extending curvilinearly relative to the pivot and being disposed on the longitudinal edges thereof which take up the tension, said slots being spaced from each other and comprising introductory holes for said adjusting stud, said adjusting stud engaging said slots in said shield and comprising two detachably interconnected members of which the exterior one forms a constriction between two holding plates which receives the edges of said slots, while the interior one forms a pin provided with holding plates and which is passed through a lacing eyelet, clamping said shank portion between said holding plates.

3. A shoe closure for a shoe having two shoe shank portions, said closure comprising an arched flexible closure shield bridging the two shoe-shank portions and being detachably pivoted to one of said portions so that it is swingable above same, said shield being provided with a plurality of slots spaced from the pivot and being equipped with notches for the engagement of an adjusting stud fixed to the other of said portions, said stud being engageable in one of said notches which define the instep width of the shoe, said shield being a platelike oblong body made of elastic and flexible material which gives said shield a self-resilience in the longitudinal direction thereof, the pivot being an axle pin comprising two detachably interconnected parts passing through a lacing eyelet of the shoe shank portion, one of said parts being provided with a holding plate for holding together said portion and said shield, the pivot and the adjusting stud each comprising two parts that are detachably interconnected by a threaded connector.

4. A shoe closure for a shoe having two shoe shank portions, said closure comprising an arched flexible closure shield bridging the two shoe-shank portions and being detachably pivoted to one of said portions so that it is swingable above same, said shield being provided with a plurality of slots spaced from the pivot and being equipped with notches for the engagement of an adjusting stud fixed to the other of said portions, said stud being engageable in one of said notches which define the instep width of the shoe, said shield being a platelike oblong body made of elastic and flexible material which gives said shield a self-resilience in the longitudinal direction thereof, the stud that serves as pivot for said shield and as

an adjusting stud for hooking-in said shield to the proper instep width carrying a double plate and a threaded pin projecting from the second of said plates through a lacing eyelet from the inside shoe shank portion, said pin having mounted thereon a nut with a locking plate and passing through said eyelet.

5. A shoe closure for a shoe having two shoe shank portions, said closure comprising an arched flexible closure shield bridging the two shoe-shank portions and being detachably pivoted to one of said portions so that it is swingable above same, said shield being provided with a plurality of slots spaced from the pivot and being equipped with notches for the engagement of an adjusting stud fixed to the other of said portions, said stud being engageable in one of said notches which define the instep width of the shoe, said shield being a platelike oblong body made of elastic and flexible material which gives said shield a self-resilience in the longitudinal direction thereof, the stud that serves as pivot for said shield and as an adjusting stud for hooking-in said shield to the proper instep width carrying a double plate and a threaded pin projecting from the second of said plates through a lacing eyelet from the inside shoe shank portion, said pin having mounted thereon a nut with a locking plate and passing through said eyelet, the closure shield comprising on one hand a notched slot with bearing notches for engagement of the connecting stud that serves as the pivot, and on the other hand a notched slot with bearing notches for engagement of the connecting stud that serves as adjusting stud.

6. A shoe closure for a shoe having two shoe shank portions, said closure comprising an arched flexible closure shield bridging the two shoe-shank portions and being detachably pivoted to one of said portions so that it is swingable above same, said shield being provided with a plurality of slots spaced from the pivot and being equipped with notches for the engagement of an adjusting stud fixed to the other of said portions, said stud being engageable in one of said notches which define the instep width of the shoe, said shield being a platelike oblong body made of elastic and flexible material which gives said shield a self-resilience in the longitudinal direction thereof, said closure shield having a center section in the form of a transverse band which is wave-like in cross-section.

7. A shoe closure for a shoe having two shoe-shank portions, said closure comprising an arched flexible closure shield bridging the two shoe-shank portions and being detachably pivoted to one of said portions so that it is swingable above same, said shield being provided with a plurality of slots spaced from the pivot and being equipped with notches for the engagement of an adjusting stud fixed to the other of said portions, said stud being engageable in one of said notches which define the instep width of the shoe, said shield being a platelike oblong body made of elastic and flexible material which gives said shield a self-resilience in the longitudinal direction thereof, said closure shield comprising two halves that are interconnected by an elastic and flexible center section.

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