F. KRICH.

OPENING AND CLOSING DEVICE.

APPLICATION FILED FEB. 17, 1915.

1,183,652. Patented May 16, 1916.

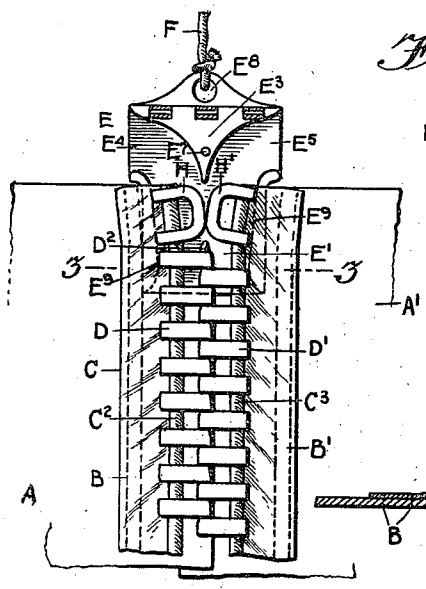


Fig. 1.

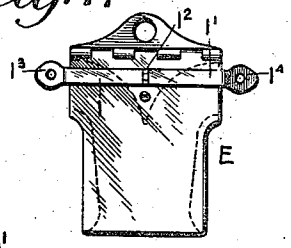


Fig. 7.

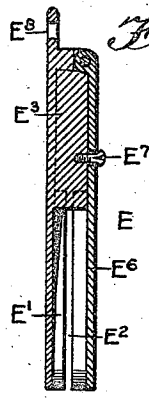


Fig. 4.

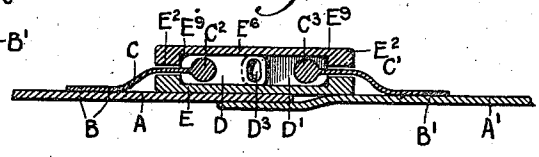


Fig. 3.

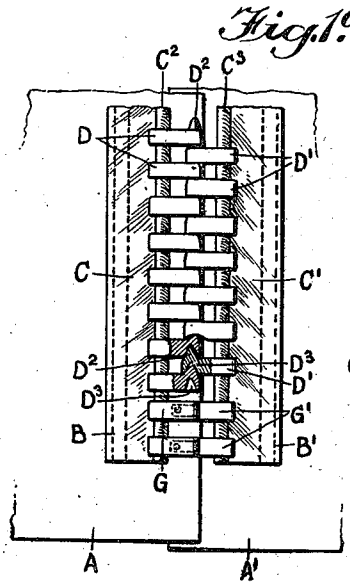


Fig. 1a.

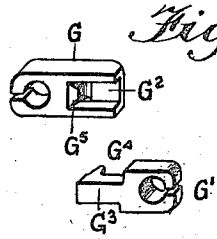


Fig. 6.

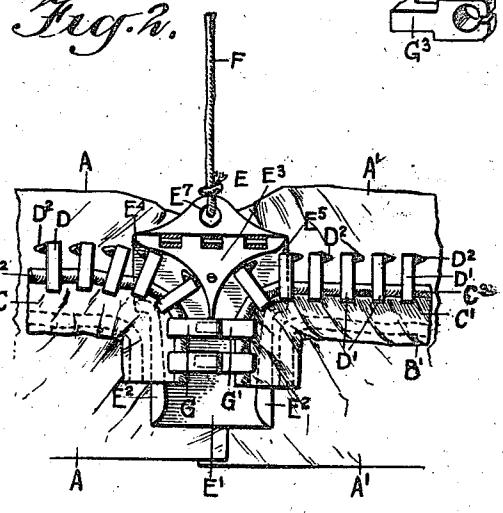


Fig. 2.

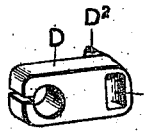


Fig. 5.

WITNESSES

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OPENING AND CLOSING DEVICE.

1,183,652. Specification of Letters Patent. Patented May 16, 1916.

Application filed February 17, 1915. Serial No. 8,761.

To all whom it may concern:

Be it known that I, FRANK KRICH, a subject of the King of Hungary, and a resident of the city of New York, borough of the Bronx, county of Bronx, and State of New York, have invented a new and Improved Opening and Closing Device, of which the following is a full, clear, and exact description.

The invention relates to wearing apparel, and its object is to provide a new and improved opening and closing device for use on shoes, corsets, dresses and other articles of wear, and arranged to enable the wearer to securely and conveniently open or close the article.

In order to accomplish the desired result, use is made of interlocking members arranged on the parts of the article to be fastened together, and a manually controlled slide adapted to engage the said interlocking members on moving the slide in one direction to unlock and open the said members, the slide on being moved in the opposite direction closing the said members.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is an enlarged face view of the upper portion of the opening and closing device as applied to a shoe and with the members interlocked and the cover of the slide in section; Fig. 1ª is a similar view of the lower portion of the opening and closing device with the parts shown in section; Fig. 2 is a similar view of the same with the slide and interlocking members in unlocked position; Fig. 3 is an enlarged sectional plan view of the opening and closing device on the line 3—3 of Fig. 1; Fig. 4 is an enlarged cross section of the slide; Fig. 5 is a perspective view of one of the interlocking members; Fig. 6 is a similar view of a pair of stopping members for the slide; and Fig. 7 is a face view of a modified form of the slide.

To the parts A and A′ to be opened and closed are secured by rows of stitches or other fastening devices B, B′ the outer edges of two leather or fabric tapes, cords or similar flexible carriers C, C′ having their inner edges C^2, C^3 somewhat thickened, as plainly indicated in Fig. 3. To the edges C^2, C^3 are secured alternately arranged interlocking members D, D′ each provided on top of its free end with a pin or point D^2 and on the under side with a recess D^3 in alinement with the axis of the pin or point D^2. The pin D^2 of one interlocking member is adapted to engage the recess of the next adjacent interlocking member thus holding the members D and D′ interlocked and the parts A, A′ in closed position.

In order to move the members D and D′ into interlocking or into open position use is made of a manually controlled slide E provided with a chamber E′ open at the bottom for the passage of the interlocking members D, D′ and the thickened portions C^2, C^3 of the carriers C, C′, and the sides of the said chamber E′ are provided with slots E^2 for the passage of the free ends of the carriers C, C′ as will be readily understood by reference to Fig. 3. Within the upper portion of the chamber E′ is centrally disposed a tongue E^3 separating the upper end of the chamber E′ into sidewise extending branch channels E^4, E^5 open at the sides of the carrier E and of a width corresponding approximately to the width of the corresponding interlocking member D or D′. When the slide E is moved downward the point of the tongue E^3 directs the interlocking members D and D′ into the branch channels E^4, E^5 whereby the points D^2 move out of engagement with the recesses D^3 thus unlocking and disconnecting the members D and D′, as will be readily understood by reference to Fig. 2. In a like manner when the slide E is moved upward the carriers C, C′ pass successively through the channels E^4, E^5 into the chamber E′ and in doing so the points D^2 engage the recesses D^3 to interlock the members D and D′. The slide E is provided with a cover E^6 hinged at its upper end to the upper end of the tongue E^3, and the cover E^6 is normally held in a closed position by a split pin E^7 or a similar spring catch. The upper end of the slide E is provided with an eye E^8 engaged by one end of a string F under the control of the operator for pulling the slide E upward with a view to interlock the members D, D′ with each other, as previously explained.

In order to prevent the slide E from disengaging the lowermost interlocking members D, D′, use is made of one or two pairs of stopping members G, G′ secured to the thickened portions C^2, C^3 of the flexible car-

riers C, C′ at the lower ends thereof. The stopping member G is provided at its free end with a recess G^2 into which extends the shank G^3 of the other member G′, and the shank G^3 is provided with a pin G^4 adapted to engage a depression G^5 in the roof of the recess G^2. By this arrangement the stopping members G and G′ can be disconnected from each other by the wearer whenever it is desired to completely open the parts A and A′, but normally the stopping members G and G′ are interlocked and form an abutment for the point of the tongue E^3 to abut against at the time the slide E reaches a lowermost position, as indicated in Fig. 2.

In order to prevent the slide E from disengagement with the uppermost members D and D′ at the time the slide E reaches uppermost position, use is made of abutting members H, H′ secured to the thickened portions C^2, C^3 of the carriers C, C′ at the upper ends thereof. The members H and H′ abut against each other at the time the slide E reaches an uppermost position and the outer ends of the members H, H′ abut against inclined faces E^9 of the side walls of the chamber E′ thus preventing the members H, H′ from reaching and passing through the lower open end of the chamber E′ as will be readily understood by reference to Fig. 1.

From the foregoing it will be seen that by the arrangement described, it is only necessary for the user to push the slide E downward whenever it is desired to disconnect the interlocking members D and D′ from each other, and when it is desired to close the parts A and A′ the wearer pulls the slide E upward so as to move the interlocking members D and D′ into interlocking position.

When the opening and closing device is applied to shoes, use is made of a temporary fastener for holding the slide E locked in uppermost position, and for this purpose the back of the slide E is provided with two sidewise extending arms I, I′ connected with each other at their inner ends by a hinge I^2 attached to the back of the slide E. The outer ends of the arms I, I′ are provided with sockets I^3, I^4 adapted to engage studs secured on the upper ends of the parts A and A′ to temporarily hold the slide E in uppermost position, that is, until it is desired to open the shoe, at which time the sockets I^3, I^4 are disconnected from their studs to permit of sliding the slide E downward.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. An opening and closing device comprising flexible carriers adapted to be secured to the parts to be opened and closed, interlocking members attached alternately to the free edges of said carriers, a manually controlled slide mounted to slide on the carriers and adapted to engage the interlocking members to separate and unlock the members, or to move the said members into interlocking engagement, means for temporarily fastening the slide in place on the parts to be closed, a cover for the slide adapted to be opened and closed to permit of engaging the slide with the carriers and interlocking members, the said slide having inclined faces and means on the carrier adapted to be engaged by the inclined faces of the slide to hold the latter against displacement.

2. An opening and closing device, comprising flexible carriers adapted to be secured along their outer edges to the parts to be opened and closed, interlocking members attached alternately to the free inner edges of the said carriers, a manually controlled slide mounted to slide on the said carriers and adapted when moved in one direction to engage the interlocking members to unlock and separate said members, and when moved in the opposite direction to interlock the said members, means for temporarily fastening the slide in place on the parts to be opened and closed when the latter are in closed position, a cover hinged to the slide and adapted to be opened to permit of engaging the slide with the inner edges of the flexible carriers and with the said interlocking members, and means for fastening the cover in closed position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK KRICH.

Witnesses:
FREDERICK SURMAN,
HERBERT FRANKS.