No. 864,172. PATENTED AUG. 27, 1907.

E. L. KNAPP.

SHOE FASTENER.

APPLICATION FILED AUG. 30, 1906.

Fig. 1.

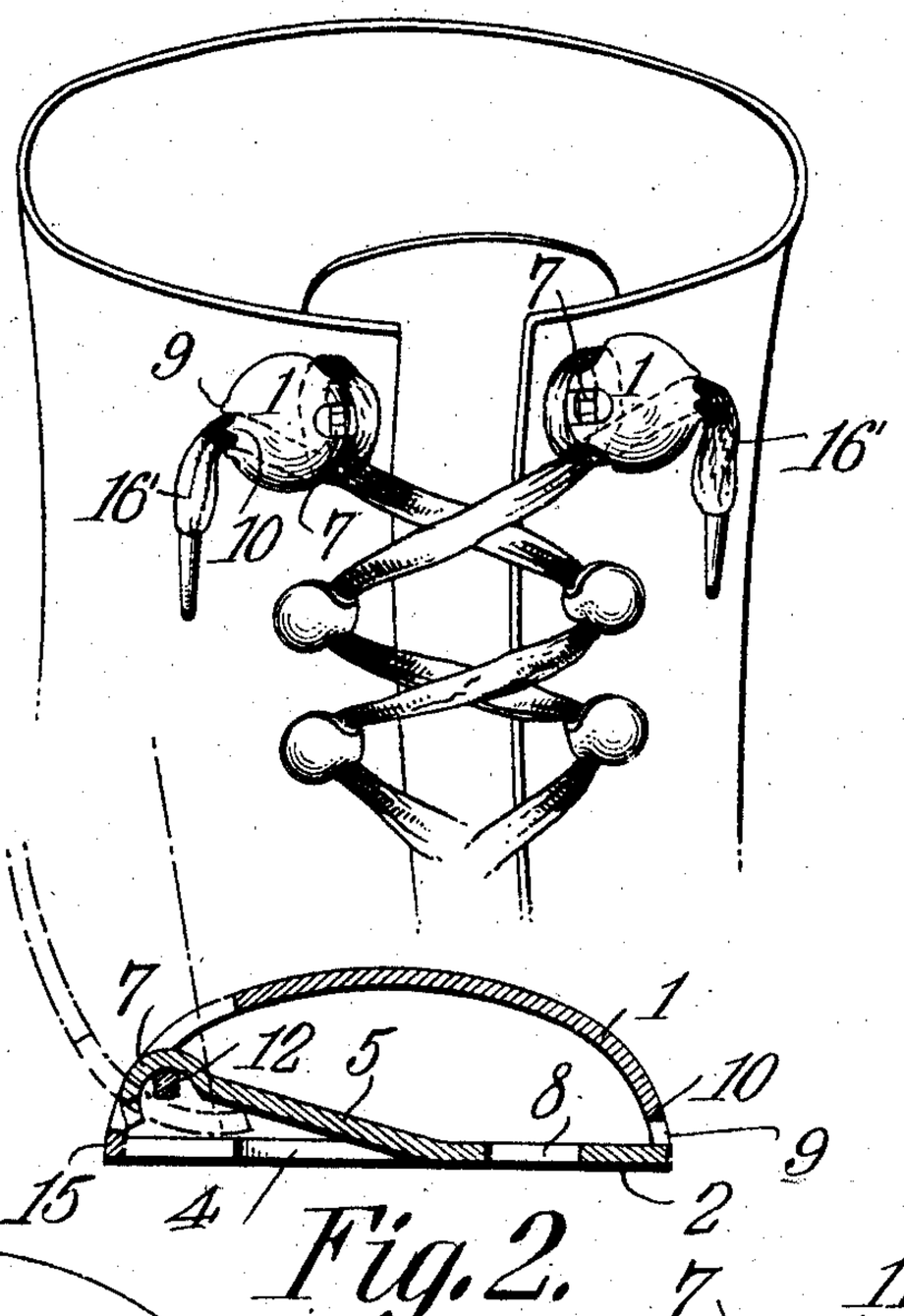
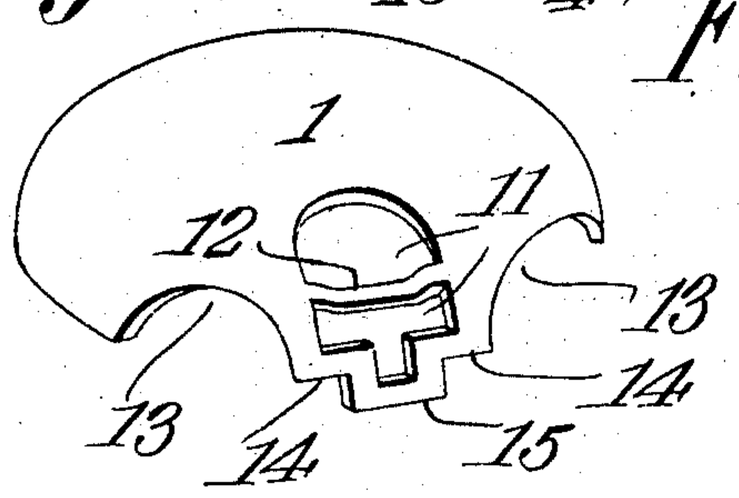


Fig. 5.

Fig. 2.



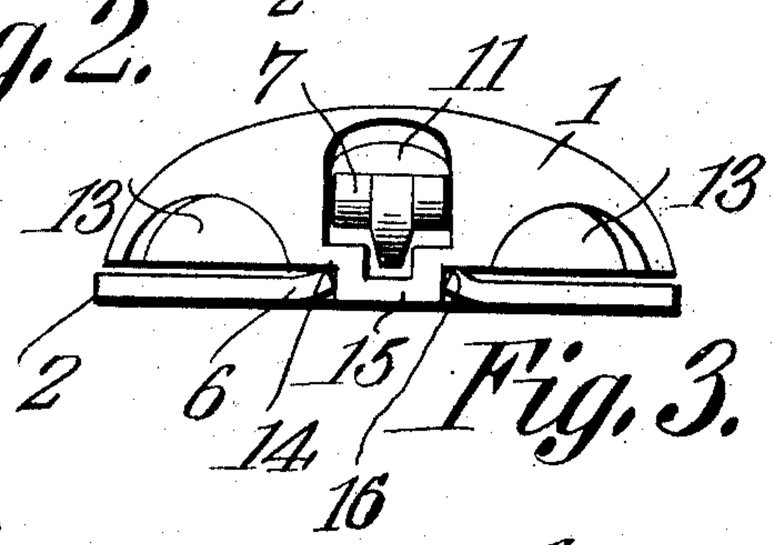
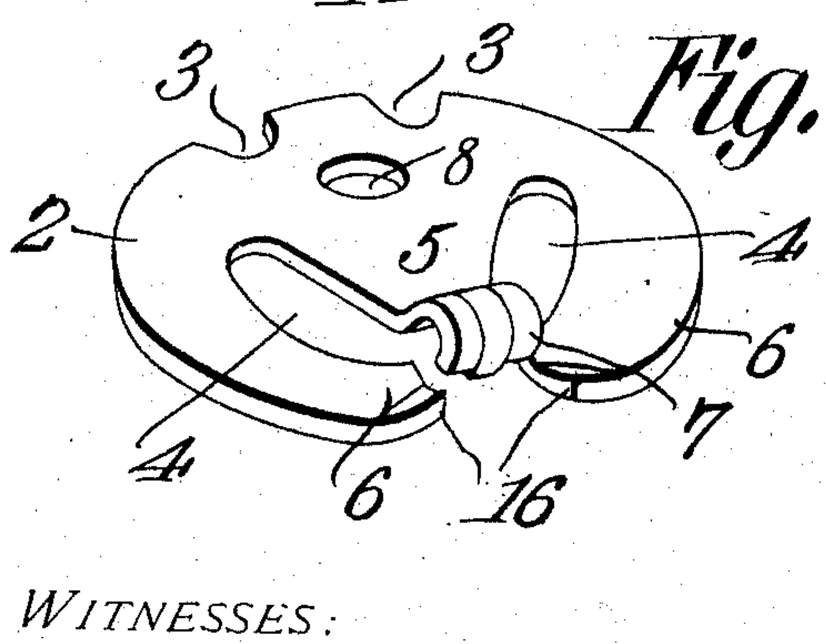


Fig. 3.

Fig. 6.



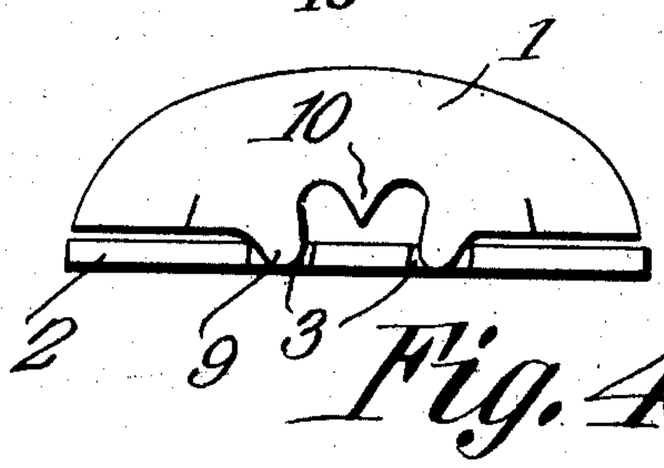


Fig. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

EUGENE L. KNAPP, OF CHITTENDEN, VERMONT.

SHOE-FASTENER.

No. 864,172. Specification of Letters Patent. Patented Aug. 27, 1907.

Application filed August 30, 1906. Serial No. 332,649.

To all whom it may concern:

Be it known that I, EUGENE L. KNAPP, a citizen of the United States, residing at Chittenden, in the county of Rutland and State of Vermont, have invented a new and useful Shoe-Fastener, of which the following is a specification.

This invention relates to a fastening device which may be used for securing the ends of shoe lacings in a simple, thoroughly feasible and practical manner, without having to resort to tying the ends as is the common custom. While the invention is particularly useful as a shoe fastener, it will be understood that it is not necessarily limited to this purpose, but is susceptible to more general application.

The invention has for one of its objects to provide a fastening device of the character specified, which is of simple and improved construction, so as to be thoroughly reliable in operation and inexpensive to manufacture.

A further object of the invention is to so construct and arrange the parts of the fastening device that a large clamping or gripping power is produced so that the lacing will be positively held from loosening.

With these objects in view, and others, as will appear as the nature of the invention is better understood, the invention comprises the various novel features of construction and arrangement of parts, which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one of the embodiments of the invention, Figure 1 is a perspective view of the upper portion of a shoe having two of the fastening devices applied thereto. Fig. 2 is a central section of one of the fastening devices shown on an enlarged scale. Figs. 3 and 4 are rear and front views, respectively, of the fastening device. Fig. 5 is a perspective view of a cap. Fig. 6 is a perspective view of the base plate of the device.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Referring to the drawing, 1 designates the cap and 2 the base plate of the device which are hinged together at one point adjacent their edges. The base plate is a disk-shaped punching of metal formed with two spaced peripheral notches 3 at its front portion and two diverging slots 4 in its body portion whereby are formed a central resilient tongue 5 and resilient peripheral arms 6. The free ends of the arms 6 are cut away from the tip of the tongue 5 during the stamping or punching operation and the tip of the tongue is curved into a hook 7 for engaging a pintle on the cap of the device. At the base of the tongue 5, or at any other suitable point, the base plate 2 is provided with an opening 8 for receiving an eyelet whereby the fastening device may be secured to the shoe. If desired, however, the device may be secured to the shoe by threads, in which case the stitches are made back and forth between the eye or opening 8 and one or both slots 4. The cap 1, which may also be, and preferably is, a metal stamping, is formed so as to be round or convex on its outside. At the front portion of the cap, two depending lugs or members 9 are formed that project beyond the edge of the cap, as shown in Fig. 4, and are spaced apart so as to engage in the notches 3 of the base plate when the cap is closed. These two lugs form a keeper between which is retained the free end of the lacing. Between the lugs is provided a suitable means, such as a tooth or spur 10, formed by an integral part of the cap, which is adapted to bite into the lacing and prevent the free end from drawing loose. At the rear side of the cap, portions are cut away so as to provide the openings 11. Between these openings the portion 12 is permitted to remain, so as to form a pintle that engages under the hook-shaped extremity 7 of the spring tongue 5 on the base plate. This pintle is offset, as shown in Fig. 5, so as to permit the hook 7 of the tongue 5 to be flush with the top surface of the cap 1, as shown in Fig. 2.

The edge of the cap at opposite sides of the openings 11 is recessed or notched at 13 so as to form, with the base plate, eyes through which the lacing is passed. The portion of the cap between the notches 13 is cut away to form shoulders 14 and a rectangular tongue 15 between the shoulders. The shoulders 14 are arranged to engage the free ends of the spring arms 6 of the base plate, so that the arms will exert a tension to maintain the cap closed. The edges 16 of the spring arms 6 are parallel and sufficiently spaced apart to closely engage on opposite sides of the tongue 15 on the cap. By means of the tongue 15 engaging between these edges of the spring arms, the cap swings open and closed by a movement in only one plane. An important advantage of the present construction is the great resiliency of the tongue 5 and arms 6 of the base plate whereby a maximum gripping effect on the lacing can be produced, the tongues and arms operating to tightly hold the parts of the fastening closed. The ends of the arm 6 are slightly bent upwardly toward the shoulders 14 to firmly bear against the same.

In practice, two fastening devices are employed for each shoe and are secured thereto in any suitable manner, at the upper ends of the rows of studs, as shown in Fig. 1. In lacing a shoe, the caps 1 of the fasteners are opened so as to occupy a position at about right angles to the base plate, which position is shown by dotted lines in Fig. 2. When the fastener is opened, the tongue 15 of the cap will abut the underside of the spring tongue 5 of the base plate, the latter tongue thus

serving as a stop for limiting the opening movement of the fastener. With the fasteners open, the shoe is laced in the usual manner by passing the lacing successively around the usual studs and then finally the terminals 16′ of the lacing are each passed through the eyes 13 of one fastening, thence around the hinge and back under the cap to a position over the tooth 10 and between the lugs 9 of the cap of the latter fastening. While the terminal of the lacing is held against the tooth of each fastener, the caps are closed, so that the terminals of the lacing will be tightly gripped. To unfasten the lacing, the terminals are pulled outwardly, thereby opening the caps of the fastener, and the lacing is unlaced in an obvious manner.

I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, but I desire to have it understood that the apparatus shown is clearly illustrative, and that such changes may be made, when desired, as are within the scope of the appended claims.

What is claimed is:—

1. In a device of the class described, the combination of a base plate having peripheral notches and provided with a spring tongue and spring arms, a cap hinged on the tongue and provided with depending members arranged to engage in the notches of the base plate and also provided with shoulders arranged in contact with the spring arms, and a member on the cap adjacent the shoulders which is adapted to abut the tongue of the base plate to limit the opening movement of the cap.

2. In a device of the class described, a base plate comprising a spring tongue and spring arms on opposite sides of the tongue with their free ends parallel and spaced apart, a cap hinged on the spring tongue and provided with shoulders arranged in contact with the spring arms, and a tongue disposed between the shoulders and arranged to engage the parallel ends of the spring arms to assist in guiding the movement of the cap.

3. In a device of the class described, a base plate comprising a spring tongue and spring arms, a cap hinged on the tongue and provided with shoulders arranged in contact with the spring arms, and a member on the cap adjacent the shoulders which is adapted to abut the tongue of the base plate to limit the opening movement of the cap.

4. In a device of the class described, a cap comprising a single piece having a tongue, shoulders adjacent the tongue, notches in the edge of the cap adjacent the shoulders, and openings at the portion of the cap between the notches whereby a pintle is formed between the openings.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

EUGENE L. KNAPP.

Witnesses:
E. C. POWELL,
L. E. HUGHES.