(No Model.)

G. TROXLER, Jr.

FASTENER FOR SECURING THE ENDS OF LACING CORDS ON SHOES, &c.

No. 459,160. Patented Sept. 8, 1891.

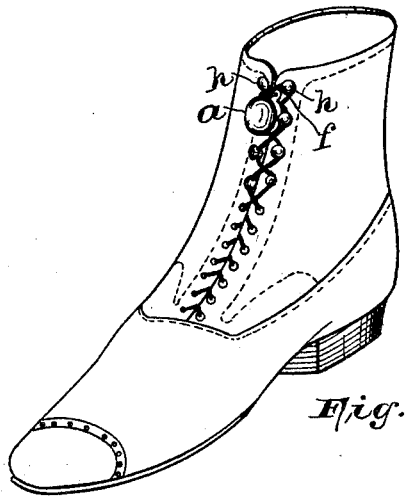

Fig. 1

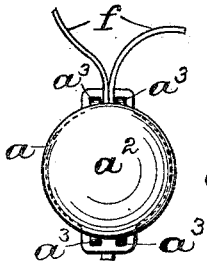

Fig. 2

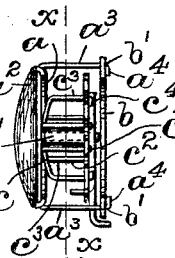

Fig. 3

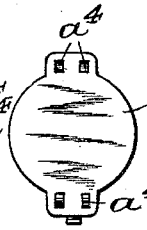

Fig. 4

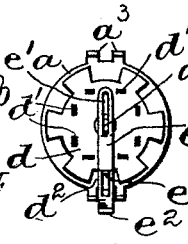

Fig. 5

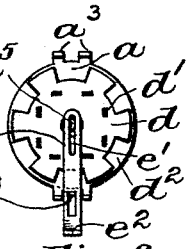

Fig. 6

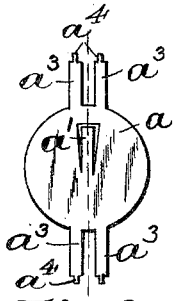

Fig. 8

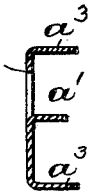

Fig. 9

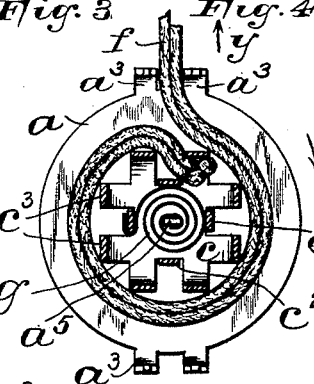

Fig. 7

Fig. 10

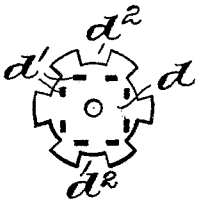

Fig. 11

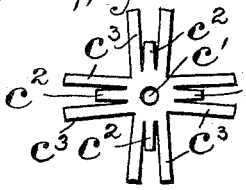

Fig. 12

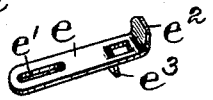

Fig. 14

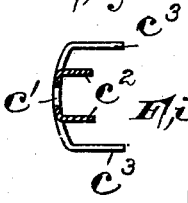

Fig. 13

WITNESSES:

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Wm. H. Canfield Jr.

INVENTOR:

Gustavus Troxler, Jr.

BY Fred'C. Fraentzel, ATT'Y.

UNITED STATES PATENT OFFICE.

GUSTAVUS TROXLER, JR., OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF TO ISAAC L. SILVERBERG, OF SAME PLACE.

FASTENER FOR SECURING THE ENDS OF LACING-CORDS ON SHOES, &c.

SPECIFICATION forming part of Letters Patent No. 459,160, dated September 8, 1891.

Application filed May 29, 1891. Serial No. 394,891. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVUS TROXLER, Jr., a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Fasteners for Securing the Ends of Lacing-Cords on Shoes, &c.; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The general class of inventions to which the herein-described device refers is a holding attachment or fastener, to which the free ends of a shoe-lace are attached, which is used to retain the ends of the lacing-cord in the lacing-studs of a shoe, thereby avoiding the necessity of tying the same together, as is the usual custom, and also the annoyance caused by the want of any suitable means for fastening the same.

The improvement herein described is designed to effectually perform the functions of a lacing-cord fastener, which may be used on any shoe, with nothing to mar the outward appearance thereof, and which, by reason of its construction, will permit of a great variety of design and ornamentation.

The invention consists of the application of a fastener to the ends of a lacing-cord for shoes provided with a spring-actuated wheel, so that after the foot has been placed in the shoe the latter can be laced up in the usual manner and the meeting edges of the upper thereby brought together down the front of the foot, when the remaining portions of the cord projecting from the two upper lacing-studs will be drawn into the casing of the fastener by the action of its spring-actuated wheel, and the fastener assumes its holding position at the top of the shoe.

In the accompanying sheet of drawings, in which similar letters of reference are employed to indicate corresponding parts in each of the several views, Figure 1 is a perspective view of a shoe laced up in the usual manner, the ends of the lacing-cord being provided with the fastener, whereby the same are securely held in their positions on the shoe. Fig. 2 is a top view of the fastener. Fig. 3 is a side view of the same, and Fig. 4 is a back view of the same. Figs. 5 and 6 are views of the fastener with the back plate detached, clearly illustrating a brake mechanism in its operative and inoperative sliding engagement with a central post for locking or unlocking the spring-actuated wheel or reel in the desired position. Fig. 7 is an enlarged sectional view of the fastener, taken on line x in Fig. 3, clearly illustrating the arrangement of a spring-actuated wheel or reel and the manner of securing the free ends of the lacing-cord thereto. Figs. 8 to 14, inclusive, are views of the several parts of the fastener detached to illustrate more clearly the construction of the same.

The essential and elemental features of the fastener illustrated in the above-described views are a head portion or face a, a back plate b, and an intermediately-arranged wheel or reel c, adapted to rotate on a post or shank a' on the inner side of said face plate. The face plate a may be provided with an ornamental plate a^2, secured thereto in any convenient manner, such plate being illustrated in Figs. 1 and 2.

As will be seen from Figs. 3, 7, 8, and 9, the face plate a, which is preferably struck up from sheet metal, has formed thereon the arms a^3 and is provided with a centrally-arranged tongue or post a', all of which project out at right angles from said face plate, as shown in Fig. 9. To said arms a^3 is secured the back plate b, which is provided with perforations b', (see Fig. 10,) and through the perforations the ends of the arms a^3 are forced and turned over upon the back plate, as at a^4, in Figs. 3 and 4. The tongue or post a' projects out from the inner surface of said face plate to within close proximity of said back plate, and upon said tongue or post is arranged the wheel or reel c. Said reel c can also be made of sheet metal and struck up by means of a die into the shape illustrated in Fig. 12, being provided with a central hole c' and the short radial arms c^2 and the longer arms c^3. Said arms c^2 and c^3 are bent at right angles to the body-plate, as in Fig. 13, and the free

ends of the arms c^3 are made to project through perforations d' in the plate d, (shown in Fig. 11,) and said ends are turned over upon said plate d, as at c^4. (Shown in Fig. 3.) The shorter arms c^2, which project up against the inner surface of the plate d, help to stiffen the device, and by this construction a wheel or reel c has been obtained, which can be arranged upon the tongue or post a', as will be evident from Fig. 7. To said central post a' and to one of the said arms c^2 a spiral spring g is attached, preferably in the manner as illustrated in said Fig. 7, the operation of which and the reason therefor will be described hereinafter.

As will be seen from Fig. 3, the free end a^5 of the tongue or post a' projects entirely through the plate d, and upon said plate d, between the same and the back plate b, I have arranged a sliding brake-lever e, provided with a longitudinal slot e', by means of which said lever is made to embrace the end a^5 of the post a'. Said lever e is also provided with a finger-piece e^2 and a downwardly-projecting tongue or projection e^3, which can be thrown into and out of engagement with cut-away portions d^2 on the plate d, as will be seen more especially from Figs. 3, 5, and 6.

The several parts of the fastener are secured in the manner just above described, and the whole device assumes the appearance illustrated in the side elevation in Fig. 3.

When it is desired to attach the fastener to the ends of the shoe-lace, all that becomes necessary is to pass the free ends f between any two of the arms a^3 on the face plate and insert them between the arms c^2 and c^3 of the wheel or reel c, as shown in Fig. 7, and by simply knotting the ends of the lace the latter will be securely held in position on the reel, and the knots will be housed within the inner part of the reel and out of the way. The action of the spring g causes said lacing-cord to be wound upon the reel c, as will be readily understood.

Now when the shoe is to be laced up all that is necessary is to pull out the lever e, which causes the disengagement of the tongue or projection e^3 from one of the cut-away portions d^2 on the plate d, and by holding the fastener in one hand and pulling upon the cord the latter is unreeled in the direction of arrow y, (shown in Fig. 7,) which causes the spring g to become wound tight. After a sufficient length of lacing-cord has been pulled out the brake-lever e is again pushed in, which locks the reel in this position. The lacing-cord can then be arranged around the lacing-studs h on the shoe-upper in the usual manner, and after having laced up the shoe and arranged the cords around the last two lacing-studs the brake-lever e is again pulled out and the action of the previously-tightened spring g, by tending to resume its normal position, causes the reel c to rotate in the direction of arrow y', thereby winding up the cord until the fastener is in close contact with the last two and upper lacing-studs on the shoe, where it assumes the position indicated in Fig. 1 and tightly secures the ends of the lacing-cord in this position upon the shoe.

In order to prevent the possibility of the shoe-lace from becoming detached from the upper lacing-studs or from partly unwinding from the reel while walking, said brake-lever is again forced back into the device, causing the tongue e^3 to lock with said plate d, thereby firmly securing the device and effectually preventing the detaching thereof from the lacing-studs.

The arrangement and construction of the reel and the spring which is caused to wind and unwind the lacing-cord may be varied according to the requirements of the size and form of head portion or face plate to be used without departing from the scope of the present invention; but the construction herein shown is the preferred form.

Having thus described my invention, what I claim is—

1. In a shoe, the combination, with the lacing-cord thereof, of a fastening device consisting of a head portion provided with a spring-actuated wheel or reel to which the ends of the lacing-cord are fastened for winding and unwinding the lace and securing it in position in the lacing-studs of the shoe, for the purposes set forth.

2. In a shoe, the combination, with the lacing-cord thereof, of a fastening device consisting of a head portion provided with a spring-actuated wheel or reel to which the ends of the lacing-cord are fastened for winding or unwinding the lace and securing it in position in the lacing-studs of the shoe, and a brake mechanism adapted to lock said wheel or reel in any position, for the purposes set forth.

3. In a shoe, the combination, with the lacing-cord, of a fastening device consisting of a face plate provided with arms projecting at right angles therefrom, a back plate secured to said arms, a centrally-arranged tongue or post on said face plate, and a spring-actuated wheel or reel on said tongue or post, as and for the purposes set forth.

4. In a shoe, the combination, with the lacing-cord, of a fastening device consisting of a face plate provided with arms projecting at right angles therefrom, a back plate secured to said arms, a centrally-arranged tongue or post on said face plate and a spring-actuated wheel or reel on said tongue or post, and a brake mechanism adapted to lock said wheel or reel in any position, for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 28th day or May, 1891.

GUSTAVUS TROXLER, JR.

Witnesses:
FREDK. C. FRAENTZEL,
WM. H. CAMFIELD, Jr.