No. 786,355. PATENTED APR. 4, 1905.

A. P. GULLIVER.

SHOE LACING STUD.

APPLICATION FILED SEPT. 7, 1904.

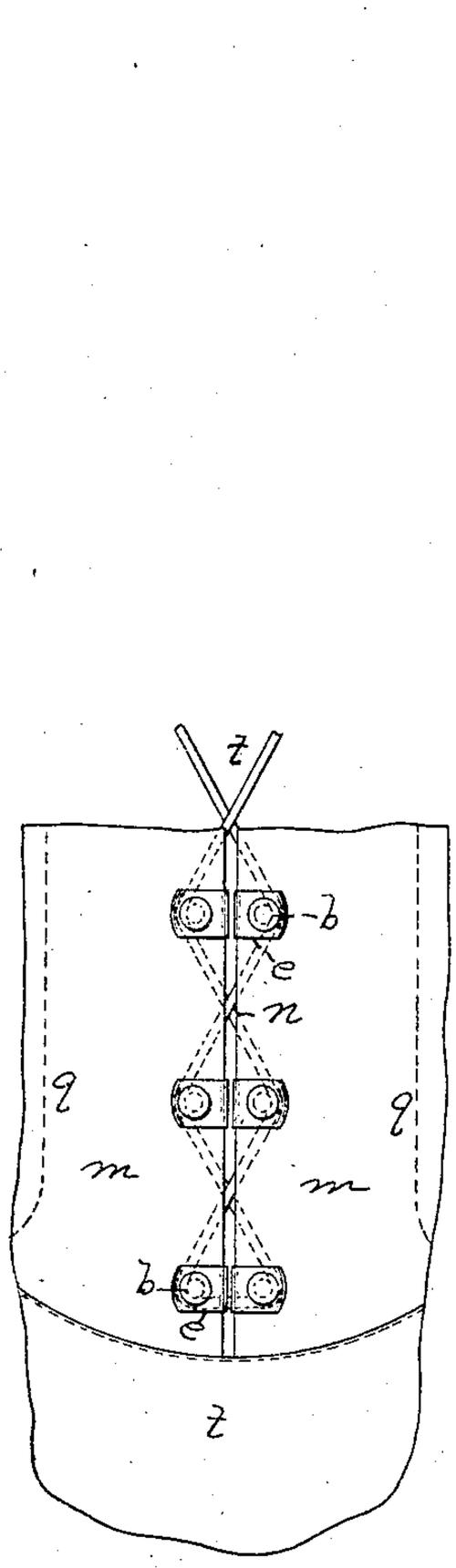


Fig. 2.

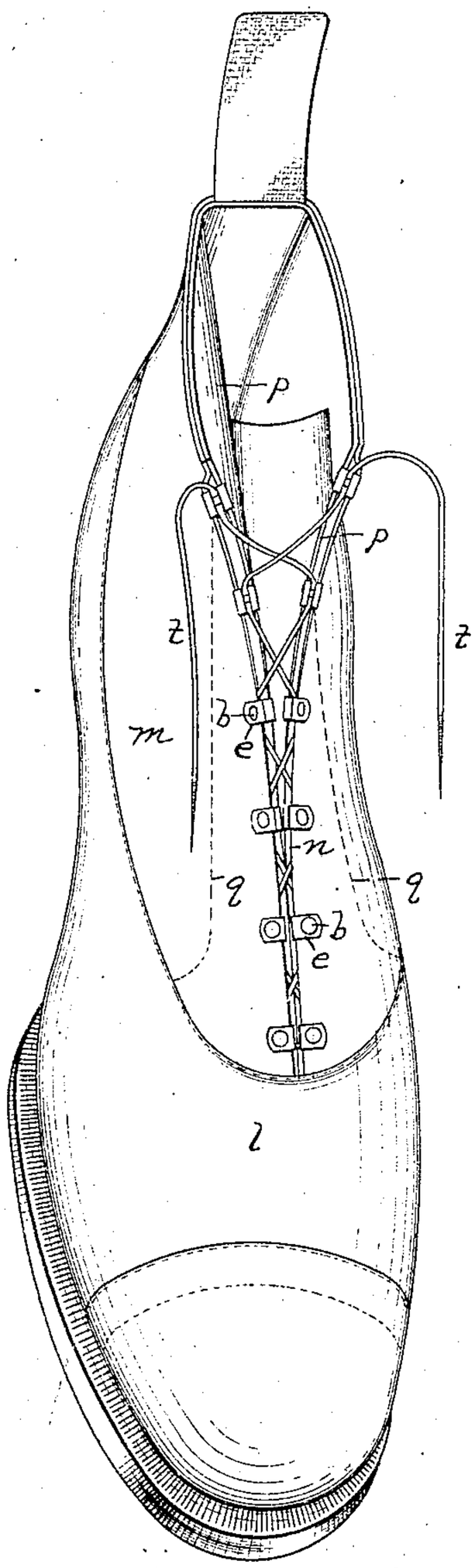


Fig. 1.

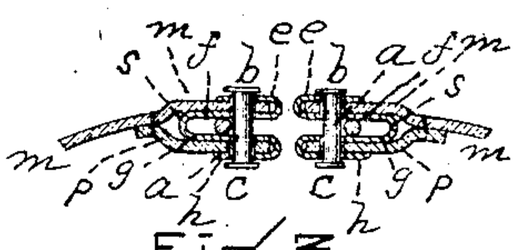


Fig. 3.

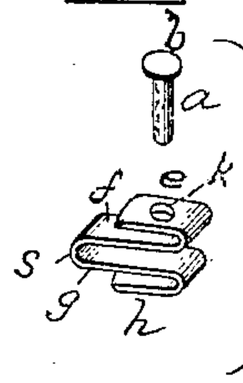


Fig. 4

WITNESSES.

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No. 786,355. Patented April 4, 1905.

UNITED STATES PATENT OFFICE.

ARTHUR P. GULLIVER, OF BROCKTON, MASSACHUSETTS.

SHOE-LACING STUD.

SPECIFICATION forming part of Letters Patent No. 786,355, dated April 4, 1905.

Application filed September 7, 1904. Serial No. 223,620.

To all whom it may concern:

Be it known that I, ARTHUR P. GULLIVER, a citizen of the United States, residing in Brockton, in the county of Plymouth and State of Massachusetts, have invented a new and useful Improvement in Shoe-Lacing Studs, of which the following is a specification.

This invention relates to lacing-studs as applied to shoes, and particularly to antifriction-studs in which the shoe can be laced for the entire length of its opening without removing the lacing from any of the studs or applying it to or over any of them and without grasping the lacing at any point except at its ends.

The invention comprises a rigid four-fold plate or frame adapted to receive the edge of the top of the shoe next its opening between two outer folds and the fly or stay between the two outer folds on the opposite side, the lacing extending between the two inner folds, around a pin or roller which extends through all the folds, the top, and the stay or fly, and is headed at its opposite ends, said pin being free to rotate in the plate and the folds of said plate being sufficiently stiff and rigid to prevent it from springing and thereby binding either the roll or the lacing.

The nature of the invention is fully described in detail below, and illustrated in the accompanying drawings, in which—

Figure 1 is a view of a shoe provided with my improved lacing-studs with the lacing untied and the opening slightly spread. Fig. 2 is an enlarged detail in plan of a portion of the top of the shoe next the opening with the opening closed. Fig. 3 is a slightly-modified enlarged cross-section taken through the top on opposite sides of the opening, showing a pair of the lacing-studs in position. Fig. 4 is an enlarged perspective view showing the plate and pin or roller before the parts are assembled. In Fig. 1 the fly or stay of the shoe to which the studs are applied is illustrated as extending around the interior of the shoe, and in Fig. 3 the flies or stays extend but a short distance back from the edges of the closure.

Similar letters of reference indicate corresponding parts.

a represents the roller or pin, and *b c* the heads on the opposite ends thereof.

e, *f*, *g*, and *h* represent the four parallel folds of an integral plate, made preferably of metal and of sufficiently thick material to render its folds stiff, so that they cannot spring or be contracted or compressed by any ordinary and legitimate use while they are in position on a shoe. The inner folds *f g* are preferably somewhat longer than the outer folds, as illustrated in Fig. 4. The folds are all provided with holes *k*, which are in line, so that they can receive the pin or roller *a*.

l represents a shoe whose top *m* is provided on its inner surface next the opening *n* with the flies or stays *p*, stitched at *q* to the inner surface of the top and making a portion of the lining, if desired, whereby a space is provided next each said edge *n* between the fly or stay *p* and top *m*. The plates are applied in pairs opposite each other by inserting the connections *s* of the two inner folds *f g* laterally between the flies and the top, at the same time pushing the fold *e* over or outside the top and the fold *h* under the fly. Thus the top is held between the folds *e* and *f* and the fly between the folds *g* and *h*. The pin or roller *a* while in the condition illustrated in Fig. 4—that is, with only one head—is then thrust through the holes *k* in the folds and corresponding holes in the top and fly and headed at its opposite end. When in this position, the pin is free to rotate. The lacing *t* may then be drawn around or over the pins or rollers and across the opening in the ordinary manner, and the wearer when applying the shoe simply pulls the ends of the lacing, with the effect that the rollers rotate and present practically no frictional resistance, so that with a single pull the edges of the opening are drawn together for their entire length, and the lacing is ready to be tied. To remove the shoe, the lacing is untied and the edges of the opening drawn apart without removing or loosening the lacing. It is very important that the lacing should not become crowded or jammed. As there are no pulleys on the pins or rollers whereby the lacing could become jammed between the pulleys and plate, the only danger

of the lacing becoming jammed could arise from the springing of the plate. This, however, is obviated by the thickness and breadth of the folds and the connecting portions of the plate. The extreme simplicity of the device and the ease with which it can be applied render the studs economical both to manufacture and apply.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A shoe-lacing stud comprising a stiff integral plate formed into four parallel folds provided with holes which register or are in line; and a roller or pin extending through the holes in said folds, free to rotate therein, and adapted to be headed at its opposite ends, for the purpose set forth.

2. The combination of a shoe provided on the inner side next the opposite edges of its opening n with the flies p; and a series of shoe-lacing studs each comprising a stiff integral plate formed into four parallel folds e, f, g, h provided with coincident holes, the top extending between the two folds e and f, and the fly extending between the two folds g and h, and the pin or roller e extending through said folds, top and fly and free to rotate therein, and headed at its opposite ends, for the purpose set forth.

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

ARTHUR P. GULLIVER.

Witnesses:
HENRY W. WILLIAMS,
A. K. HOOD.