

(No Model.)

2 Sheets—Sheet 1.

W. F. FOSTER.  
LACING HOOK FOR GLOVES.

No. 275,628.

Patented Apr. 10, 1883.

Fig. 5

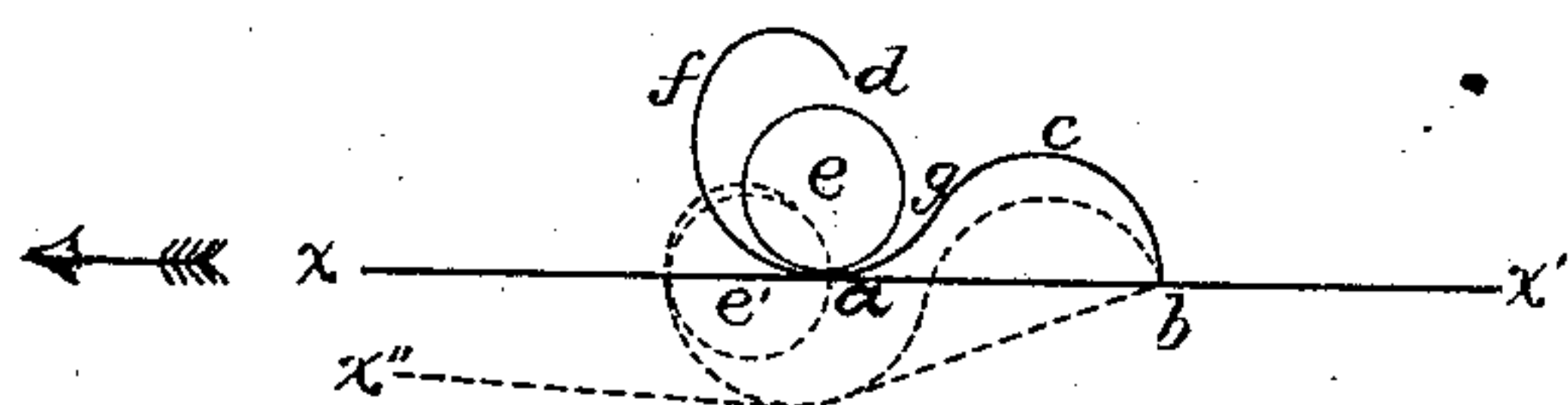


Fig. 6.

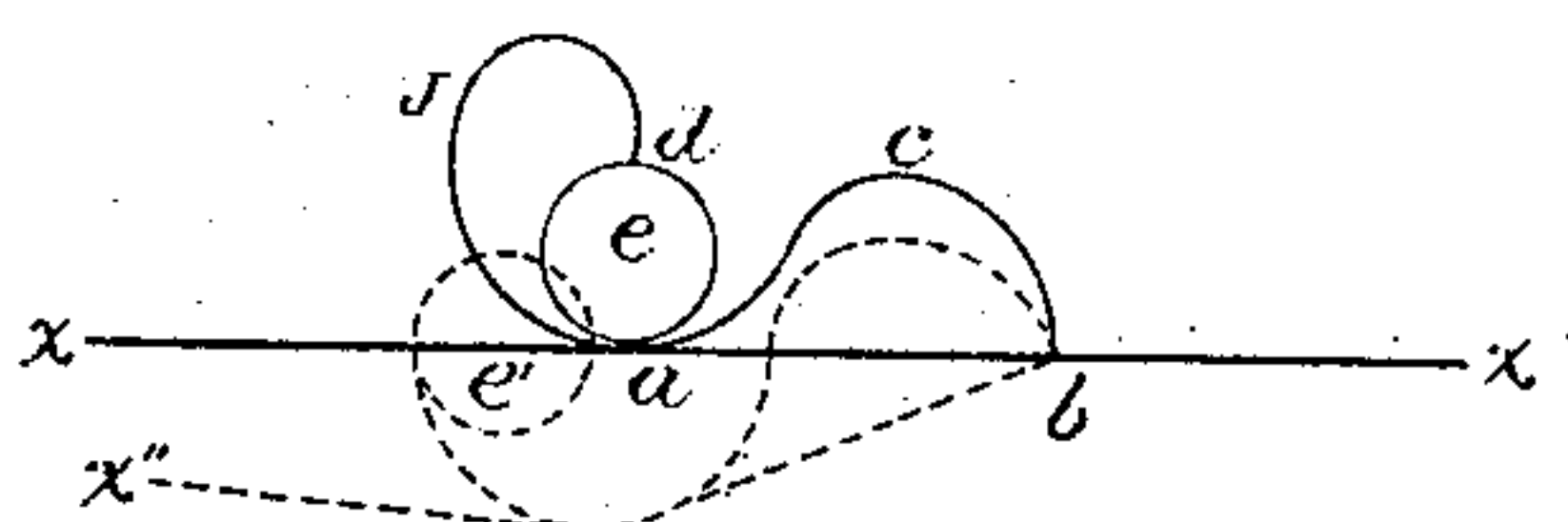


Fig. 2,

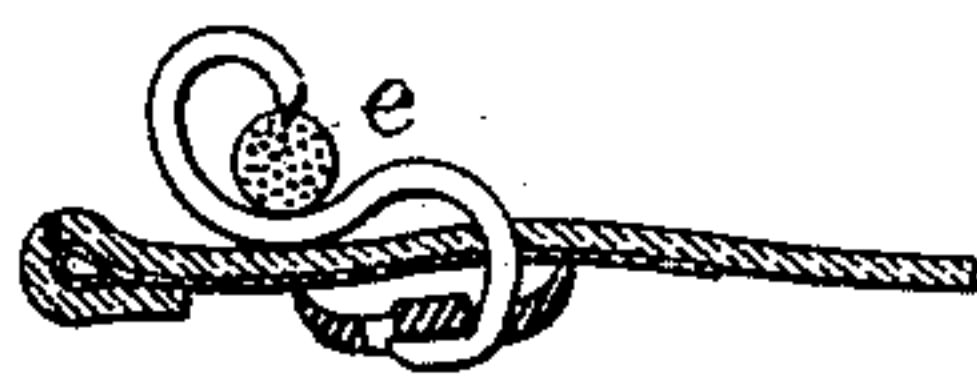


Fig. 3,



Fig. 4

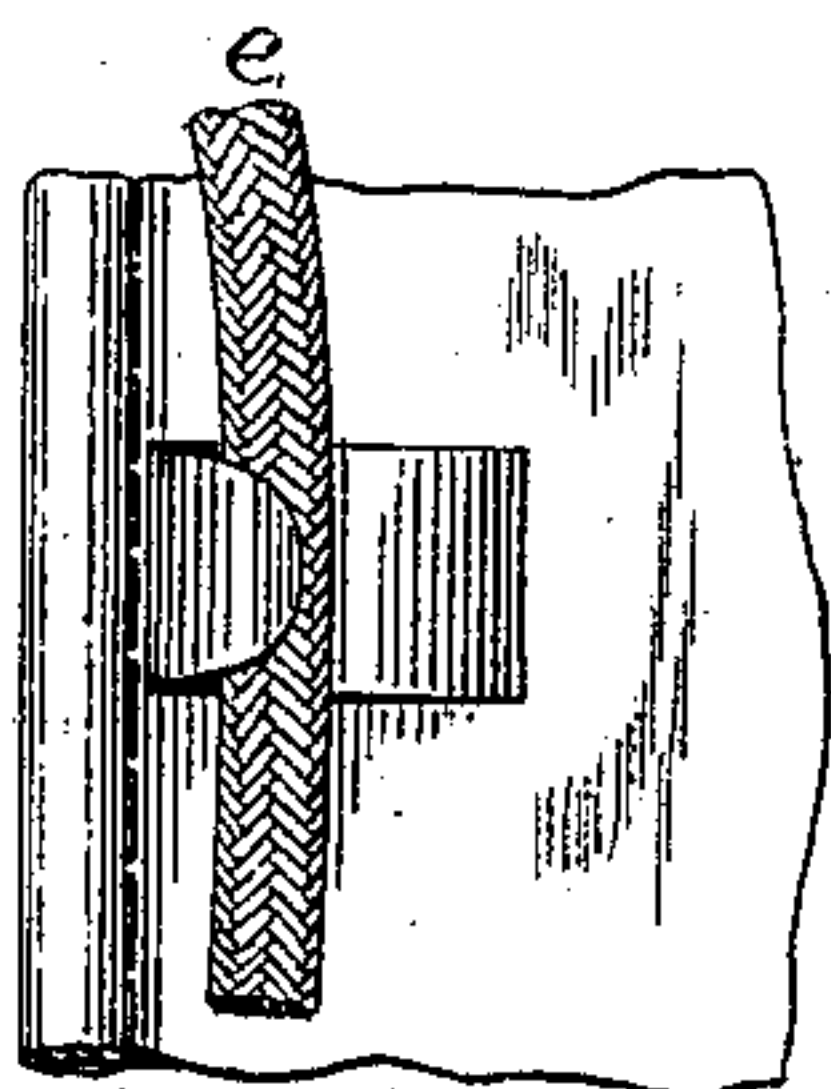
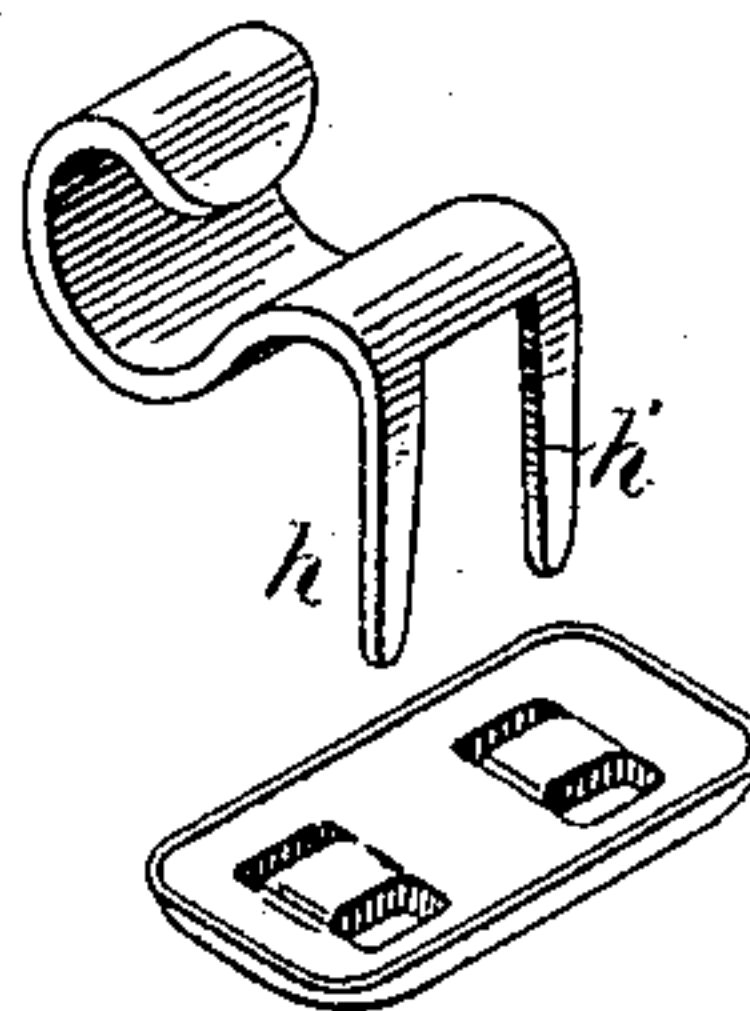


Fig. 1,



WITNESSES

Wm A. Skink  
Geo N. Brock

INVENTOR

By his Attorneys

William F. Foster,

Lafford & Lafford

(No Model.)

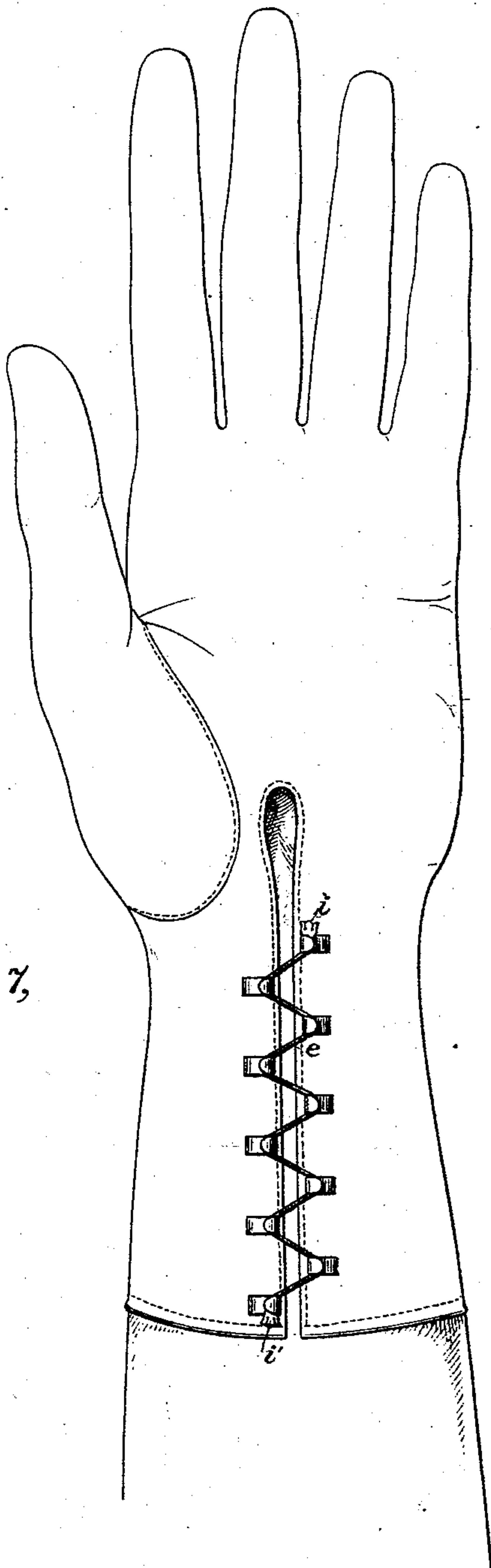
2 Sheets—Sheet 2.

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*Fig. 7,*



WITNESSES

*Wm A. Skinkle*  
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INVENTOR

By his Attorneys

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# UNITED STATES PATENT OFFICE.

WILLIAM F. FOSTER, OF NEW YORK, N. Y.

## LACING-HOOK FOR GLOVES.

SPECIFICATION forming part of Letters Patent No. 275,628, dated April 10, 1883.

Application filed September 6, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM F. FOSTER, residing at the city of New York, in the county and State of New York, have invented a new and useful Improvement in Lacing-Hooks for Gloves, of which the following is a specification.

In the construction of an efficient lacing-hook for gloves it should be so made that the manner of applying the lacing to it will be readily understood by any ordinary wearer of gloves without instruction, and so that the lacing can be readily caught in the hook without requiring the particular attention of the user. The hook should also be so constructed that when the glove is laced there is as little liability as possible of laces and other portions of garments being caught in it. In the hooks which have heretofore been produced the provisions which have been made to prevent the engagement of laces, &c., in the hooks have to a more or less extent interfered with and complicated the operation of lacing the glove by rendering it more or less difficult to cause the lacing to engage with the hooks.

The object of my invention is to produce a lacing-hook which, before the strain of the lacing is brought to bear upon it, will be in a condition to readily engage with the lacing, but which, under the strain of the lacing, will assume a condition so that the hook will be protected against engagement with laces or other portions of the garment.

Figure 1 represents an isometric view of a hook embodying my invention before it is applied to the glove, also the plate which is used in attaching it to the glove. Fig. 2 represents a side view of the same after it is applied to a glove, (shown in section,) but before it is laced, the cord resting in the hook without any strain on it. This figure represents a hook of about three times the size I prefer to use. Fig. 3 represents a side view of the same applied to a glove (shown in section) and after it is laced. Fig. 4 is a plan view of Fig. 2. Fig. 5 is a diagram, which will serve to illustrate the principle upon which I believe that my improved hook operates, which principle I believe myself to be the first to utilize. Fig. 6 is a modification of Fig. 5, showing a somewhat different form of hook. Fig. 7 shows a glove having my improved lacing-hook applied to it.

The material of which gloves are composed is more or less elastic and is pliable. Its tendency is to present an approximately plane surface. When, therefore, a lacing-hook is placed upon the material the latter will tend to hold the points of contact between the hook and material in the same plane, and this will be substantially the position of the hook before any strain is brought to bear on it by the lacing. While in this position the hook should be so situated that the lacing can be readily caught into it.

With this object in view I construct my hook preferably of about the form shown in Fig. 5 by the unbroken curved line. In this figure the horizontal straight unbroken line  $x x'$  represents the general direction of the plane of the glove material. The form of lacing-hook which is shown meets this plane at the points  $a$  and  $b$ , which correspond with the points at which the lacing-hook would rest upon the material.  $b$  is the point at which the prongs are situated, which pass through the material and secure the lacing-hook to it. Between the bearing-points  $a$  and  $b$  the hook is curved upwardly somewhat, as shown, so as to form an upward projection,  $c$ . On the other side of  $a$  the device is continued upwardly, so as to form the hook proper, terminating in the point at  $d$ . Fig. 5 shows a very good form for this hook proper. It extends to a higher level above the plane of the points  $a$  and  $b$  than the projection  $c$ , and it then curves backward and downward to its point, leaving space enough between the projection  $c$  and the adjacent part of the hook for the passage of the lacing-cord. In Fig. 6 the point of the hook is represented as being about the center of the main portion of the hook, so that the cord, after passing over the projection and being intercepted by the bend of the hook, will pass downward around the point of the hook and then upward into the bend. Generally, however, it will be found best to form the hook as shown in Fig. 5. The preferable form of the hook is such that the vertical height of the hook, measured inside, is somewhat greater than the diameter of the lacing-cord, so that when the cord is inside the hook, but not subjected to any strain, its position will be represented by the circle  $e$ , which, it will be noticed, rests upon the lowest portion of the hook, the hook extending consid-



erably above it. It will be seen that in the particular form shown the point *f* is about the most distant point of the hook from the point *b*, where the hook is attached to the material.

5 When any strain is brought upon the cord in the direction of the arrow (which is about the direction of the pull on the cord in lacing the glove) the cord will assume a position in the hook as far distant as possible from the point of attachment of the hook, which will be opposite the point *f* in the example shown. At the same time the point at which the cord bears upon the hook and the point of attachment to the glove will take positions as nearly as possible in the line of pull. This is permitted by the flexibility of the material of the glove, which is not under any strain in front of the point of attachment. The consequence is that when a strain is brought on the cord and it slips up in the hook opposite the point *f* the hook at the same time swings down around the point of attachment *b* until it assumes the inclined position shown by the dotted line in Fig. 5, in which position the point *f* and the point *b* are about in the line of pull, while the position of the cord is shown in dotted lines at *e'*. Thus the application of the strain to the cord causes the hook to assume a position with reference to the level of the projection *c* lower than before the application of the strain, and the liability of the hook to catch in the garments is very much reduced, the projection *c* tending to deflect the garments above the hook. The change in the position of the hook thus caused by the strain on the cord will force the glove material into about the position shown by the broken line commencing at *x'*. When the strain is taken off of the hook by the unlacing of the glove the material of the glove tends to resume its first position in the plane *x x'*, and this, together with the elasticity of the arm of the wearer, causes the lacing-hook to swing back to its first position, in which it is ready to catch the cord readily when required. The pulling which the material of the glove receives in taking the glove off and putting it on also tends to straighten the material out, so as to still further insure the return of the hook to its first position.

50 In the manner above described when the glove is unlaced the hook is presented in a position to readily catch the cord, but when the glove is laced the hook is so protected as to be unlikely to catch in the garments of the wearer. 55 The liability of the hook to catch in the garments is still further reduced by making the curve of the hook near its point of about the same radius, or of less radius than the radius of the cord, as shown in Fig. 2, so that when 60 the strain on the cord slips it into the upper portion of the hook the point of the hook will be in contact with or slightly pressed into the surface of the cord, thereby causing the cord itself to assist in preventing the point of the 65 hook catching into the garments. At the same time the cord itself may be thus pinched by the hook and prevented from slipping.

The efficiency of my hook is still further increased by rounding off the corners of the point of the hook, as shown in Fig. 4, as this prevents likelihood of the corners catching in the garments, and also makes it more convenient to catch the cord in the hook.

The efficiency of my hook is still further increased by having the passage for the cord between the projection *c* and the adjacent part of the hook very slightly narrower than the cord, as shown in Fig. 5, between the points *d* and *g*, so that in passing through it the cord will be slightly compressed and the glove will thus not be as likely to become accidentally unlaced, the hook inside of this passage being a little wider than the passage, so as to allow the cord to slip freely in the act of lacing.

The means which I prefer to adopt for attaching the hook to the glove is represented in Fig. 7. The prongs *h h'*, which are formed on the hook at *b*, Fig. 5, are passed through the material of the glove, and also through a corresponding pair of holes formed in the plate, Fig. 1, which plate is below the material of the glove. The prongs are then clinched below the plate, and their points are covered by being forced upward through the other pair of holes in the plate, as shown in Figs. 2 and 3.

I prefer to secure the lacing, as shown in Fig. 7, by placing on each end of it a ball, *i i'*, which the form of the hook is well calculated to catch, and so prevent the cord from slipping through the hook farther than the point where the ball is situated.

I prefer to make the hook out of a single piece of sheet metal, which is bent from the blank into the form required.

I have represented in the various figures of the drawings the form of hook which I prefer to use; but I do not desire to limit myself to this precise form, since it may obviously be varied and still retain many of the advantages of my invention.

I am aware of the Patent No. 166,031, dated July 27, 1875, and make no claim to the device shown therein. In it the point of the hook projects into a depression contained within a horseshoe-shaped ridge, which, as it extends on each side of the hook's point, requires a very small lace to be used, and also tends to raise the lacing above said point, whereby care and precision are necessary to properly insert the cord between the depressions, so as to enable it to pass below the hook's point. In using my hook, by a single careless motion of the hand, without requiring the use of the eyes to guide the lace, the lacing is rapidly and easily accomplished, and when the lace is drawn tight the hook is depressed and the projection raised in the manner shown in Fig. 3, whereas in the device shown in the Patent No. 166,031 the rise in the bottom of the hook is so small as to have little or no appreciable effect in this respect, and it was never designed to have any, it being merely the ordinary bend in the metal caused in making the hook of which said bend



forms a part. Moreover, the objects (shoes) to which the hooks were intended to be attached, are usually of such thick and comparatively rigid material that the hooks would not be depressed sufficiently to raise the projections to any practical extent.

What I claim is—

1. In combination, the glove, the lacing-cord, and the series of lacing-hooks, each of said lacing-hooks consisting of a hook and a projection arranged entirely in front of the hook, leaving a straight transverse passage for the cord between the point of the hook and the projection, and suitable means of attachment, the construction of the hook being such that its upper portion extends above the level of the projection, whereby the cord, when laced, will occupy the upper portion of the hook and cause the device to incline, substantially as described.

2. In combination, the glove, the lacing-cord, and the series of lacing-hooks, each of said lacing-hooks consisting of a hook and a projection arranged entirely in front of the hook, leaving a straight transverse passage for the cord between the point of the hook and the projection, and suitable means for attachment, the curve of said hooks being con-

structed to extend upward to a greater height than the passage provided for the cord under its point, whereby provision is made for the cord to slip upward in the act of lacing, and thereby cause the device to incline, substantially as described.

3. In combination, the glove, the lacing-cord, and the series of lacing-hooks, each of said lacing-hooks consisting of a hook and a projection immediately in front of the hook, and suitable means of attachment, the passage between the hook-point and the projection being slightly less than the diameter of the cord, whereby the cord is compressed in passing through it.

4. In combination, the glove, the lacing-cord, and the series of lacing-hooks, each of said lacing-hooks consisting of a hook and a projection, and suitable means of attachment, the hook having the radius of its upper portion, as at *j*, corresponding with or slightly less than the radius of the cord, substantially as and for the purpose set forth.

WILLIAM F. FOSTER.

Witnesses:

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D. H. DRISCOLL.