(No Model.)

C. H. SMITH.

SNAP HOOK.

No. 359,407. Patented Mar. 15, 1887.

Fig. 1

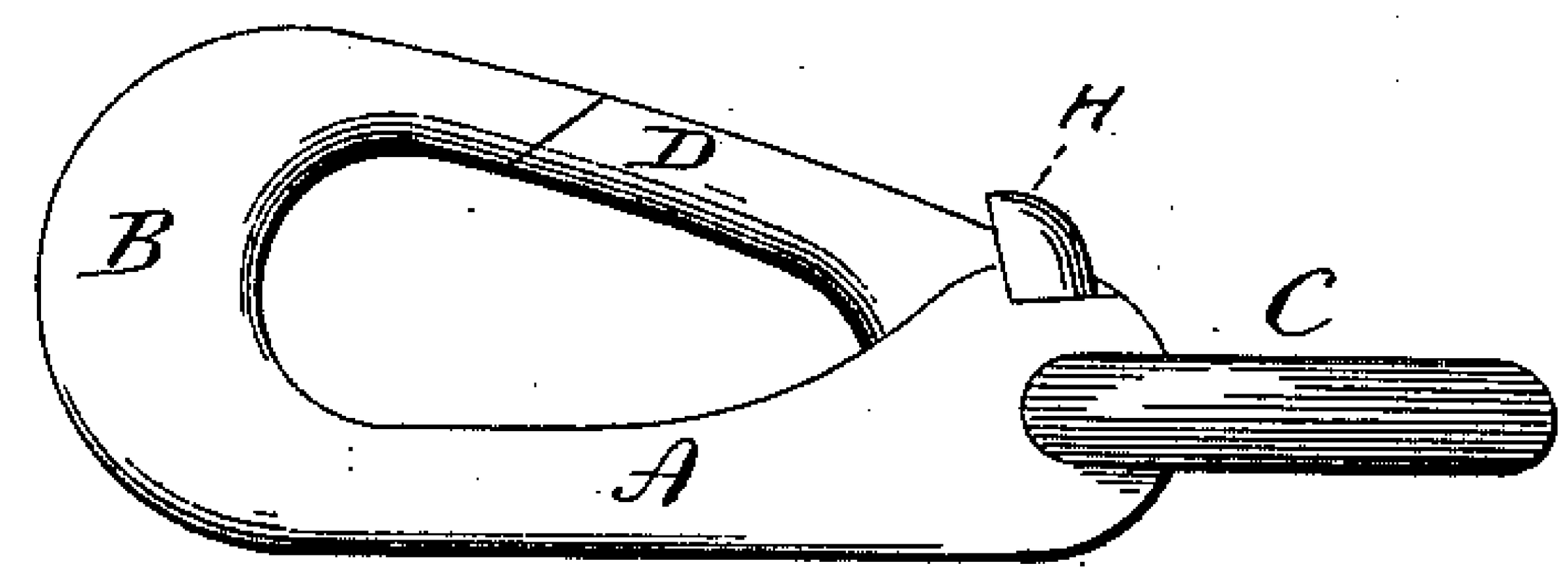


Fig. 2

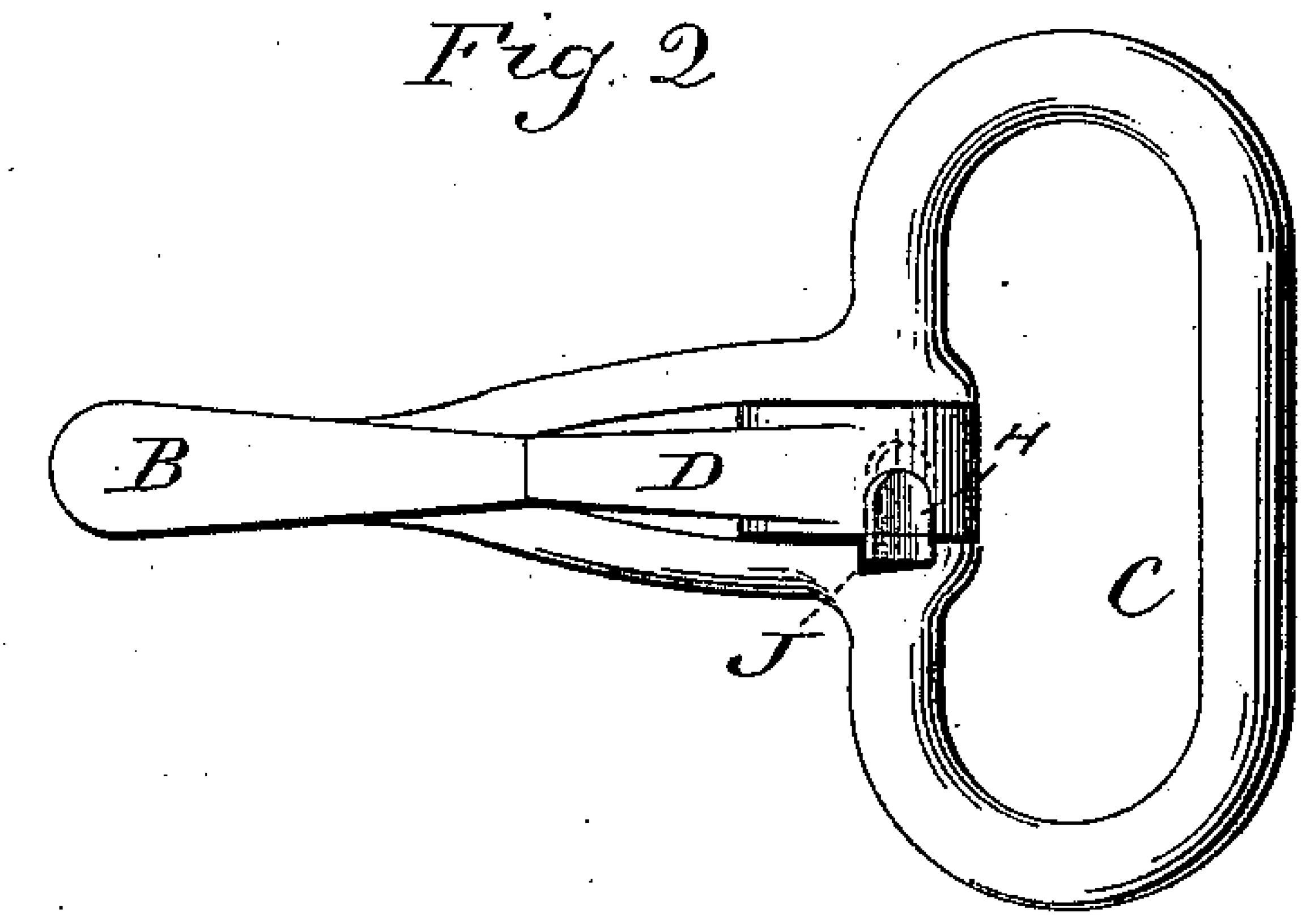


Fig. 3

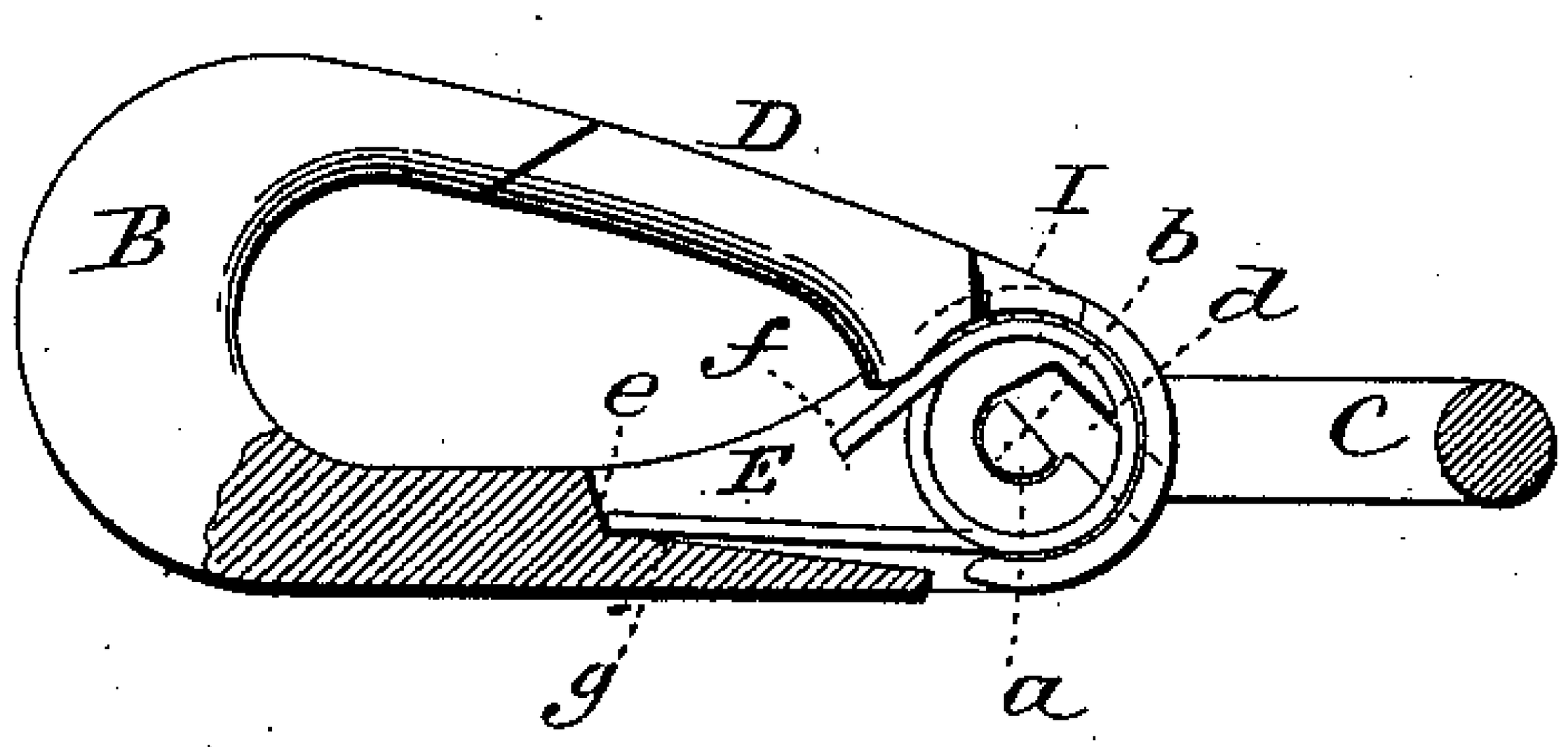


Fig. 4

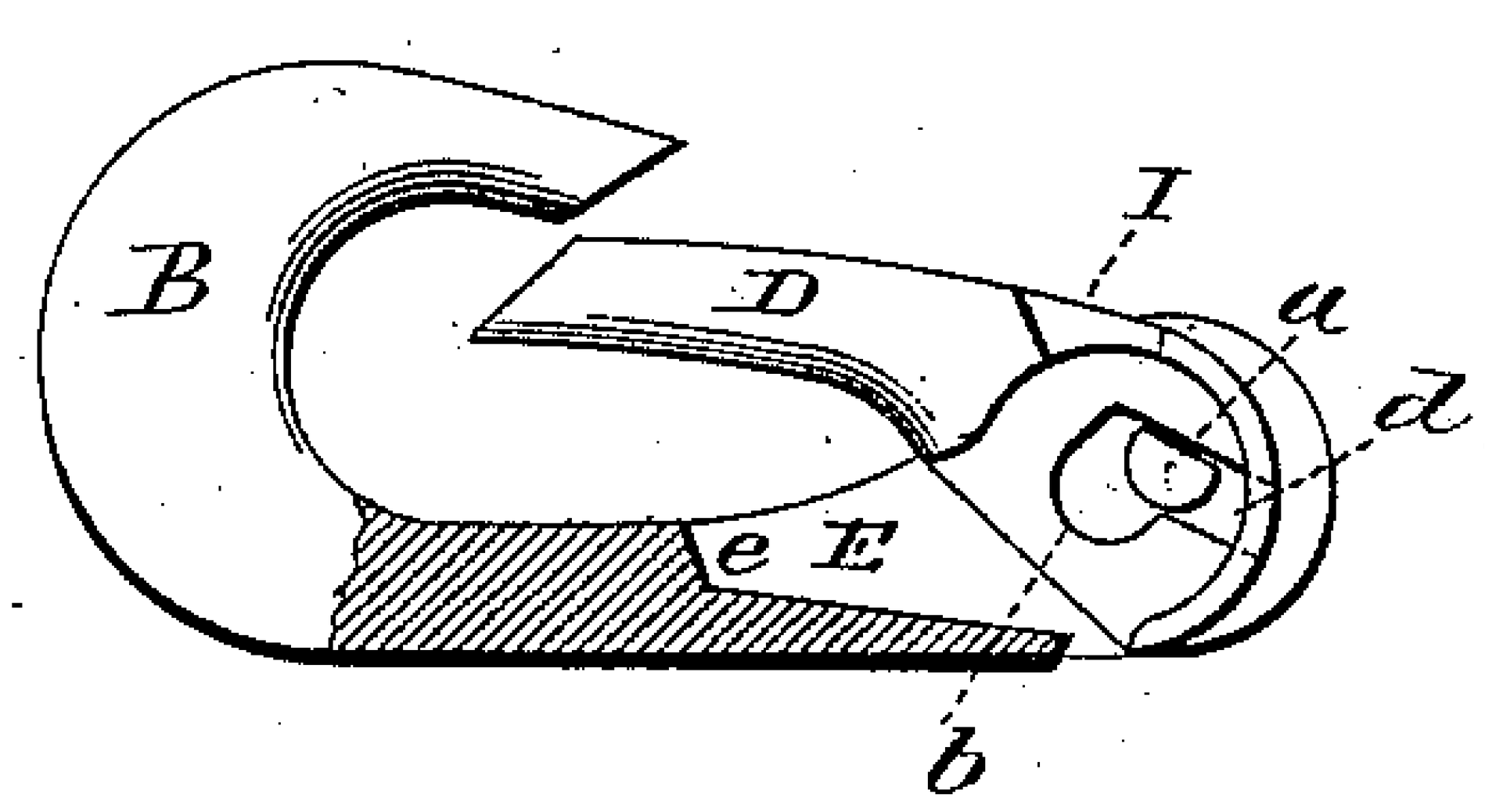


Fig. 5

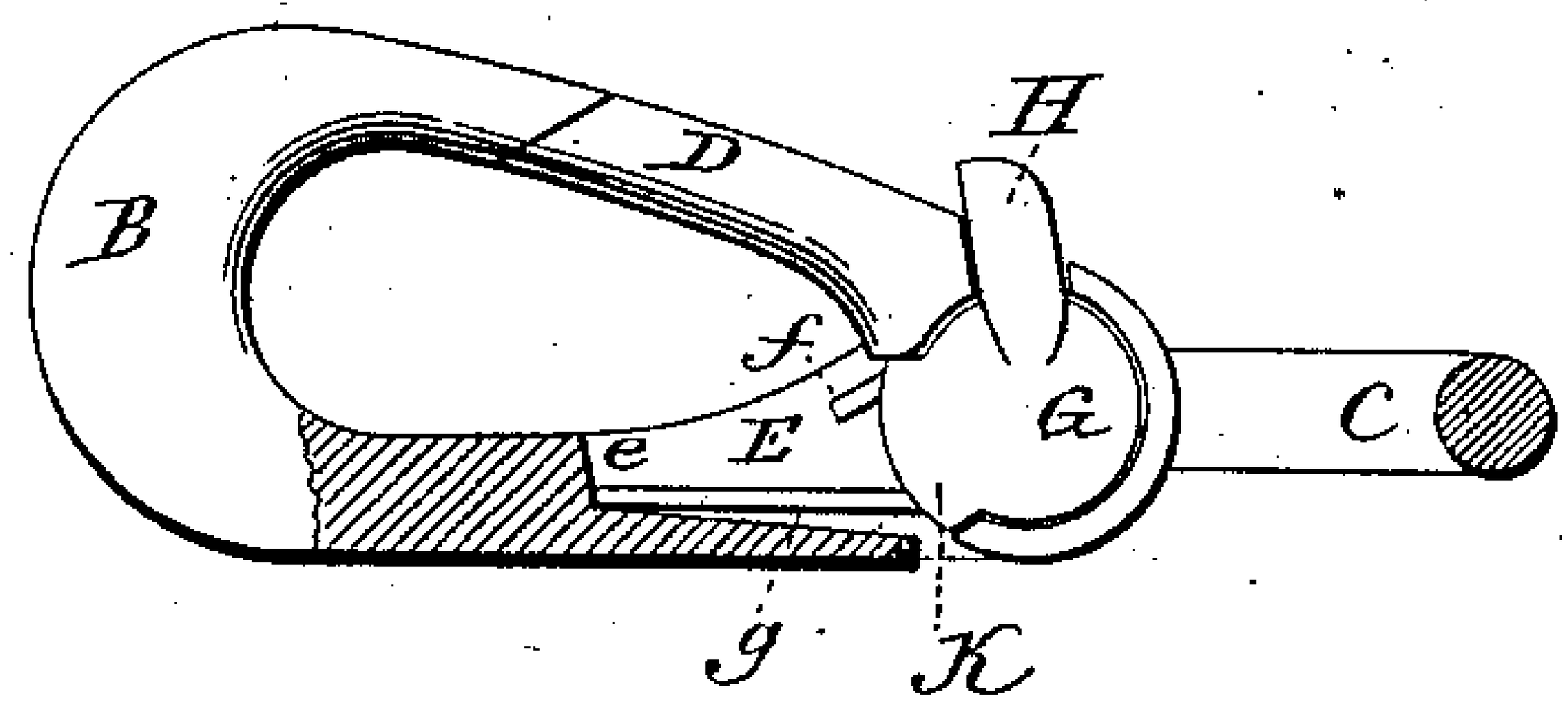


Fig. 6

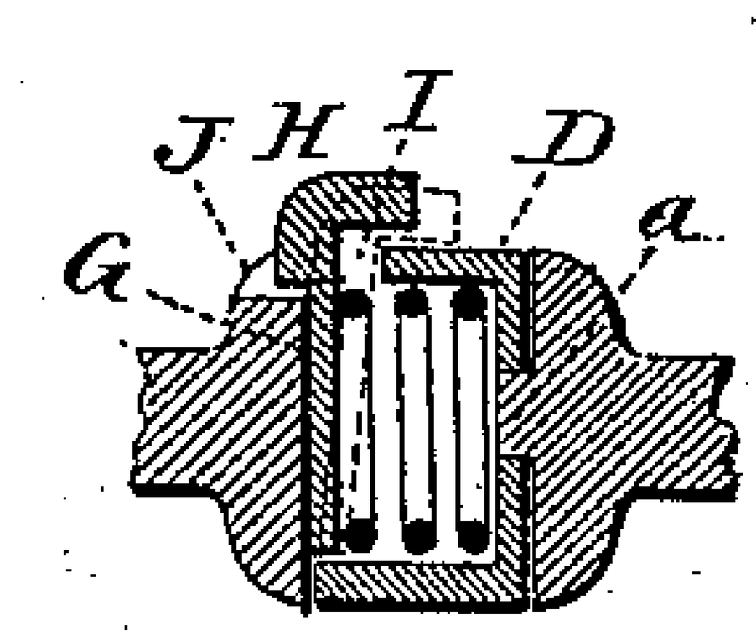


Fig. 7

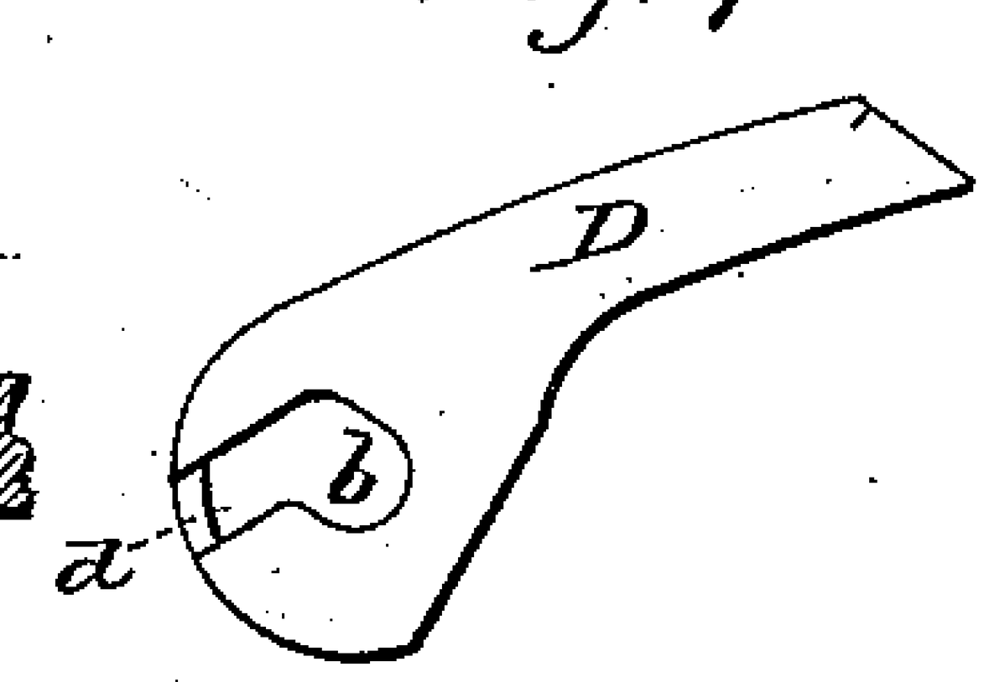


Fig. 9

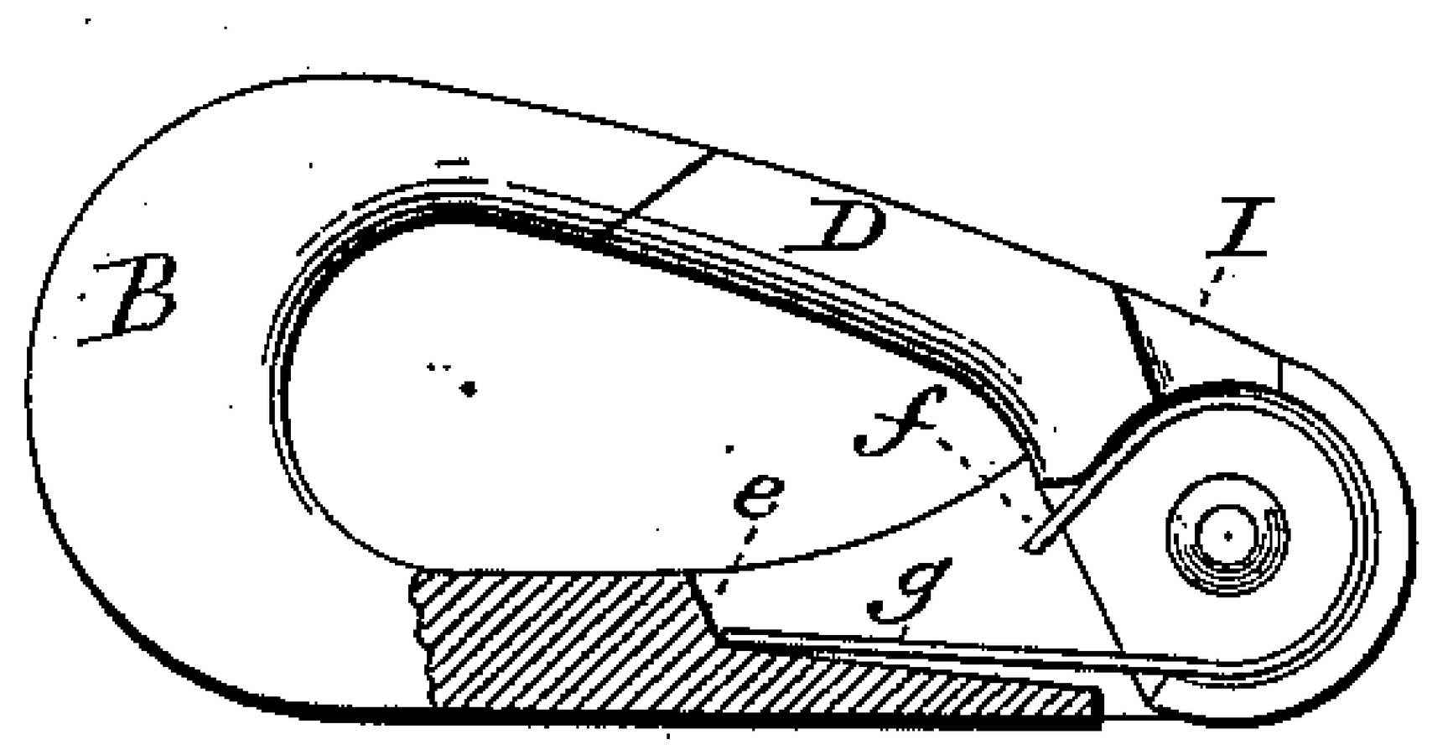


Fig. 10

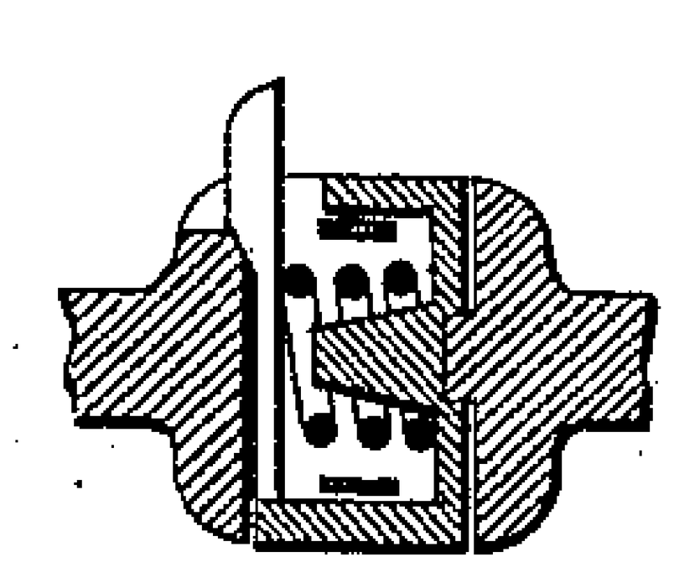
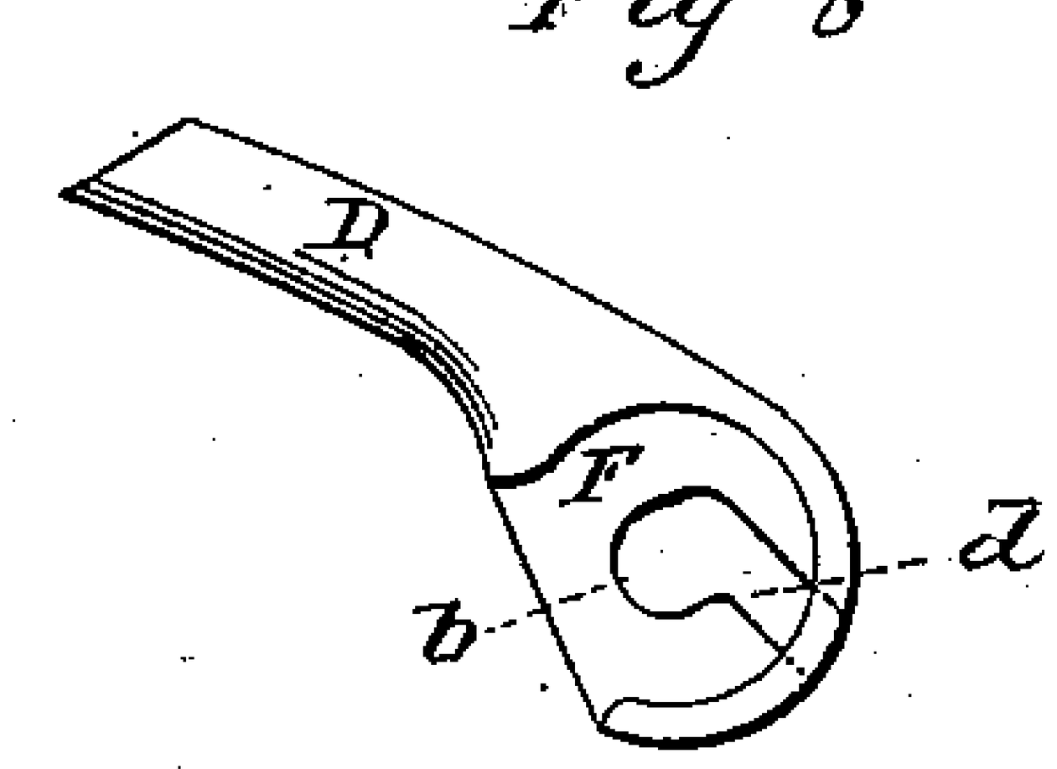


Fig. 8



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UNITED STATES PATENT OFFICE.

CHARLES H. SMITH, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO O. B. NORTH & CO., OF SAME PLACE.

SNAP-HOOK.

SPECIFICATION forming part of Letters Patent No. 359,407, dated March 15, 1887.

Application filed January 24, 1887. Serial No. 225,245. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. SMITH, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Snap-Hooks; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of the hook complete; Fig. 2, a top view of the hook complete; Fig. 3, a sectional side view showing the tongue in the closed position; Fig. 4, a sectional side view illustrating the method of introducing the tongue; Fig. 5, a sectional side view showing the thumb-piece engaged with the tongue; Fig. 6, a transverse central section through the spring-chamber; Fig. 7, a side view of the tongue opposite the spring-chamber; Fig. 8, a side view of the tongue, looking into the spring-chamber; Figs. 9 and 10, modifications of the spring.

This invention relates to an improvement in that class of snap-hooks in which the body is constructed with a hook at one end and attaching loop or device at the opposite end, with a tongue hung in a recess at the rear end of the body, so as to swing in the plane of the hook, and under the action of a spring hold the end of the tongue up beneath the nose of the hook, the object of the invention being, first, to permit the introduction of the tongue without bending the parts, and hold the tongue upon its pivot or bearing by means of its spring, and, second, to lock the tongue, so as to prevent accidental disengagement.

A represents the body, terminating at one end in the hook B, and at the opposite end in a loop, C, or other device for attachment.

D represents the tongue, hung in a recess, E, at the rear end of the body, and so as to swing in the plane of the hook, and so that the point of the tongue will come to a bearing beneath the nose of the hook, under the action of a spring arranged in a recess in the hub of the tongue. Broadly considered, this is the common and well-known construction.

The body is constructed with an inwardly-projecting stud, *a*, in one side of the recess in which the tongue is hung, and, as seen in Figs. 4 and 6, the tongue is constructed with a hub of substantially the usual shape and corresponding to the recess E in the body. Upon one side the tongue is recessed in the usual manner to form the spring-chamber F, as seen in Fig. 8.

Upon the reverse side of the hub a concentric pivot-recess, *b*, is formed. (See Fig. 7.) From the upper edge of this recess *b* there is a rearwardly-turned slot, *d*, opening through the rear end of the hub, and so that the tongue, being introduced below the nose of the hook, may be passed rearward onto the stud *a*, as seen in Fig. 4, until the stud *a* may enter the pivot-recess *b*, as seen in Fig. 3. Then the tongue is raised to bring the pivot to a bearing in the seat *b*, as seen in Fig. 3. The pivot-stud *a* is preferably flattened upon its upper side to reduce its thickness or diameter, and so that the slot *d* may be made considerably narrower than the diameter of the stud, the diameter of the stud corresponding to the pivot-bearing *b*.

At the forward end of the recess E in the body a shoulder, *e*, is formed, as seen in Figs. 3 and 4. The spring (which may be the common helical spring, as seen in Fig. 3) is introduced into the spring-chamber F in the hub, as seen in Fig. 3, one arm, *f*, taking a bearing against the tongue. The other arm, *g*, is of sufficient length to extend to and take a bearing against the shoulder *e* in the recess E when the tongue is in place.

In assembling the parts the spring is introduced into the spring-chamber in the tongue in the usual manner; then the tongue is set in place over the pivot, as before described, and as it reaches its proper position in the opening and against the pivot *d* the arm *g* of the spring drops upon the shoulder *e*, as seen in Fig. 3. The spring substantially fills the spring-chamber, and because of its bearing in the chamber rearward and against the shoulder *e* forward the tongue cannot be moved forward, but is held against the forward side of the pivot-stud *a*, the bearing *b* surrounding the stud to a sufficient extent to prevent up-and-down movement of the tongue, as seen in Fig.

3, and therefore the tongue is held firmly upon its pivot, but yet free to be opened or closed in the usual manner.

Instead of employing a helical spring, a flat U-shaped steel spring may be employed, as seen in Fig. 9, and serve the same purpose of holding the tongue upon its pivot. The spring cannot be accidentally thrown from its bearing against the shoulder *e;* hence there is no liability of accidental displacement of the tongue.

To lock the tongue when in its closed position, I arrange a flat disk, G, in the outer end of the spring-chamber, (see Fig. 5,) the disk being substantially the same diameter as the chamber, but so as to rest against the helical spring in the chamber, as seen in Fig. 6, the helical spring being wound open, as seen in Fig. 6, so as to bear forcibly against the disk G. From the disk G a thumb-piece, H, extends radially outward through a passage, I, formed in that side of the tongue, as seen in Fig. 6. In the side of the recess in the body next the disk a notch, J, is formed, corresponding to the notch I in the tongue, (see Fig. 2,) the thumb-piece being adapted to enter the notch J when the tongue is in the closed position, the thumb-piece being forced so to do by the spring in the spring-chamber, and as indicated in Figs. 2 and 6.

The disk G has an extension, K, upon one side, which engages the forward opening in the hub, and so that the disk must turn with the tongue in opening and closing. The disk is free laterally, so that it may be pressed inward against the spring, as indicated in broken lines, Fig. 6, or held outward by the spring, and because the disk is engaged with the tongue it follows that when the thumb-piece is engaged in the notch J of the body of the hook the tongue will be locked in its closed position; but by pressing the thumb-piece inward, as in broken lines, Figs. 2 and 6, it is disengaged from the body, and then the tongue will be free to be opened; but upon returning to the closed position and the thumb-piece left free it will be thrown into the locked position and engage the tongue and body, so that accidental opening of the tongue is impossible.

I prefer to make the locking device in the form of a disk in order that I may obtain a strong bearing of the spring laterally against the disk; but it is not necessary that the disk fill that end of the chamber, as I have described, it only being essential that the thumb-piece shall extend through the notches in the tongue into the spring-chamber, so as to attain a lateral bearing against a spring in that chamber.

The thumb-piece itself is of sufficient thickness to extend into the notch of the tongue when in the locked position, so that the locking device may be compelled to rotate with the tongue without other engagement of the locking device with the tongue or the extension K of the disk, which I have described.

In case it be not desirable to actuate the locking device by the same spring which actuates the tongue, an independent spring may be introduced into the spring-chamber, as seen in Fig. 10, to act upon the locking device only, and this spring (seen in that figure) may be in the form of a helical spring to bear laterally against the locking device, while the tongue for the spring will be independent of the locking device.

It will be evident that this locking device may be applied in hooks of similar construction and in which the tongue is otherwise supported than as I have described; therefore, while this construction of hook is peculiarly adapted to this locking device, I do not wish to be understood as limiting the locking device to this particular construction of hook.

I claim—

1. In a snap-hook consisting of a body constructed with a hook at one end, a fastening device at the opposite end, and a tongue hung in a recess in the body so as to swing in the plane of the hook, with a spring adapted to hold the tongue in its closed position against the nose of the hook, the body constructed with a stud, *a*, in one side of its recess, and with a shoulder, *e*, forward of said stud, the tongue constructed with a pivot-bearing, *b*, with a slot, *d*, extending rearwardly from the upper part of said bearing *b*, the said slot permitting the tongue to be passed rearwardly onto said stud and bring the stud into the bearing *b* of the tongue, the spring arranged in the spring-chamber of the tongue, one arm taking a bearing upon the tongue, the other arm extending forward and resting against said shoulder *e* when the tongue is in place, substantially as described.

2. In a snap-hook, the combination of the body A, constructed with a hook, B, at one end and an attaching device at the opposite end, the said body constructed with a recess at its rear end, a tongue, D, hung in said recess so as to swing in the plane of the hook, a spring adapted to hold the tongue in its closed position, the hub of the tongue and the corresponding side of the recess in which the tongue is hung constructed, respectively, with notches I and J, corresponding with each other when the tongue is in the closed position, a thumb-piece, H, extending through said notches into the spring-chamber, with a spring adapted to bear laterally against said thumb-piece, substantially as and for the purpose described.

3. The combination of the body A, terminating at one end in a hook, B, and at the opposite end in an attaching device, the said body constructed with a recess at its rear end, the tongue D, hung in said recess and so as to swing in the plane of the hook, the hub of the tongue constructed with a concentric spring-recess, the hub and corresponding side of the recess constructed, respectively, with corresponding notches, I J, with a

thumb-piece, H, extending through said notches into the spring-chamber of the tongue, a helical spring in the said spring-chamber, adapted to bear laterally against said thumb-piece, one arm of said spring extending forward and taking a bearing upon the tongue, the other arm extending forward and taking a bearing in the body, substantially as described.

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