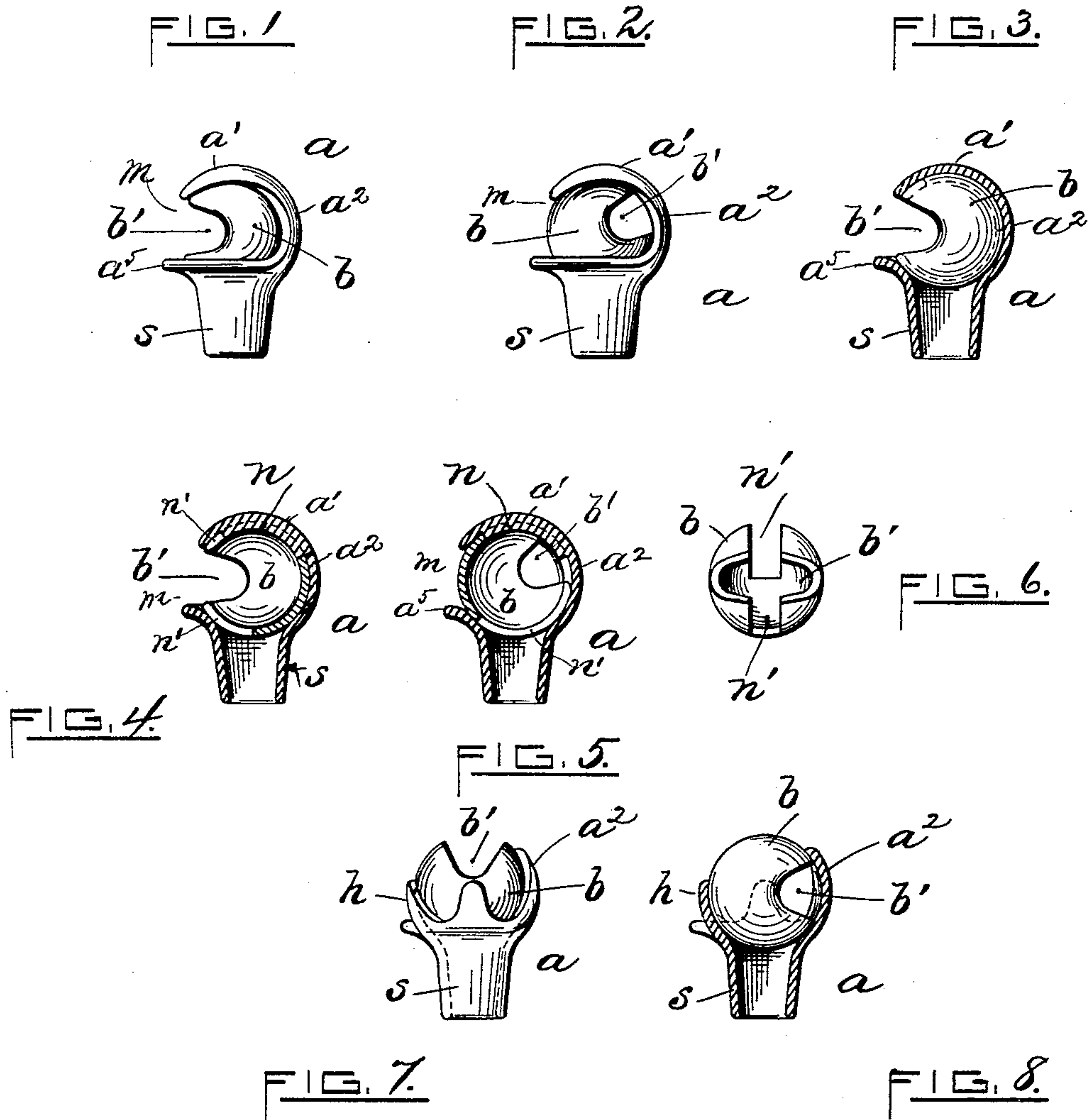


(No Model.)

E. H. ROBERTSON.
LACING HOOK OR STUD.

No. 583,087.

Patented May 25, 1897.



WITNESSES.

Charles T. Hannigan
Remington Sherman

INVENTOR.

Edward H. Robertson
By Geo. H. Remington & Co.
Attys.

UNITED STATES PATENT OFFICE.

EDWARD H. ROBERTSON, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR OF
ONE-HALF TO WILLIAM D. PERRIN, OF SAME PLACE.

LACING HOOK OR STUD.

SPECIFICATION forming part of Letters Patent No. 583,087, dated May 25, 1897.

Application filed December 21, 1896. Serial No. 616,388. (No model.)

To all whom it may concern:

Be it known that I, EDWARD H. ROBERTSON, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Lacing Hooks or Studs; 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.

My invention relates to improvements in lacing hooks or studs and other analogous holders or fasteners adapted to be secured to articles of wearing-apparel.

In lacing-hooks as heretofore constructed the mouth part of the hook-opening has been made practically wide open or unobstructed, so as to readily receive the lacing-cord. That is to say, articles of this class have heretofore consisted of a single piece of suitably-fashioned metal, the upper or cord-holding portion of each hook being provided with a fixed or non-adjustable hook-opening.

There are objections to the use of lacing-hooks such as above referred to. For example, the lacing-cord is liable to become detached from the hook in case the cord is accidentally loosened. Another disadvantage is that since the cord-receiving portions of such former hooks are always open in front the unprotected edges of the hook adjacent to the opening operate to wear or abrade the surface of the fabric or material when the latter is brought into engagement with the hooks as in use. This is especially true when the hooks are employed on ladies' shoes, because in that case the front lower edge of the skirt of the wearer is usually in direct contact with the said exposed edges of the hooks. Consequently after a short time the corresponding part of the fabric is liable to become "frayed" or ragged.

The object I have in view is to produce a lacing-hook devoid of the objections or disadvantages inherent in articles of this class as heretofore made. To that end my inven-

tion consists, essentially, of a lacing hook or stud or other analogous article adapted to receive a lacing or securing member therein, and having a swinging or axially-movable member mounted in and closing the throat-opening adapted to be made operative by the act of introducing or releasing the said lacing or securing member.

By means of my improved lacing-hook the hook-opening is completely closed when in use; or, in other words, shoes or other articles of wearing-apparel provided with my improved hook or fastening device can be worn without abrading or defacing the contiguous surface of any garment liable to be brought into frictional engagement with the hook. This result is due to the fact that the head portion of the hook presents a practically smooth and unbroken surface when in use, the hook-opening being for the time fully closed by means of a spherical or other suitably-shaped movable member adapted to complete the contour of the head. At the same time, however, the said movable part is capable of swinging outwardly, thereby uncovering the hook-opening for the ready reception or removal of the lacing-cord.

In the accompanying sheet of drawings, Figure 1 is a side elevation (enlarged) of a lacing-hook embodying my improvement, the throat of the hook being open or in the normal position to receive the flexible lacing member. Fig. 2 is a similar view, the throat-opening being closed, as in use. Fig. 3 is a vertical central sectional view corresponding with Fig. 1. Fig. 4 is a similar sectional view, the hook being provided with a guide adapted to keep the axis of the movable closing member in proper relation to the hook-opening. Fig. 5 is a sectional view showing the hook-opening closed. Fig. 6 is a front elevation of the corresponding movable member detached from the hook. Figs. 7 and 8 show modified forms of the hook in the open and closed positions, respectively.

In my improved lacing-hook or fastening device the principal or attaching member *a* is or may be made substantially as common, though I do not desire to thus limit my invention. As drawn, the body *a* consists of a tu-

bular or eyeleted shank s , a head a' , and an offset or eccentric neck or post a^2 , integral with and uniting said head and shank portions. The head is concavo-convex and generally extends well toward the front, its under side or circumscribing edge being substantially parallel with the flange or base a^5 . As thus constructed it will be seen that a horizontal U-shaped opening m is formed between the said parts a' and a^5 . It is in this opening that the lacing-cord is mounted, the post a^2 being of sufficient strength to withstand the pressure or tension of the cord.

Thus far the description applies generally to the ordinary or well-known lacing-hook.

My invention resides in interposing a freely-movable spherical or other suitably-shaped member, as b , in said hook-opening m , the same being placed therein before the head a' is fully bent down into position. When completed, the device presents somewhat the appearance of a ball-and-socket joint. I prefer to make the member b a hollow sphere and having a suitable or V-shaped transverse notch b' formed therein. The bottom of said notch or recess should not, however, extend past the center of the sphere, as otherwise the member could not be so readily oscillated owing to the reduced leverage.

In Figs. 4, 5, and 6 I have represented my improved lacing-hook provided with means for maintaining the sphere or hook-closing member b in position axially. This consists in providing a short and narrow fixed tongue n on the under side of the head a' , the wall of the sphere having a correspondingly-shaped groove or opening n' formed therein, the same being arranged at right angles to the said notch b' and extending rearwardly therefrom on both sides of it, substantially as shown in Fig. 6.

In Figs 7 and 8 the bent post or neck a^2 of the lacing-hook is unprovided with a head. The base or flange is, however, provided with a series of upturned fingers h . These in conjunction with the post serve to hold the notched loosely-mounted ball-shaped member b in place. The ball itself may be made of hard rubber, culluloid, or other suitable material. Fig. 7 shows the device ready to receive a lacing-cord in its notch b' , and Fig. 8 shows the ball swung or turned rearwardly, as in use.

The following is a description of the operation of my improved lacing-hook: Assuming that a series of the hooks are arranged and secured to a shoe substantially as usual, the lacing is then introduced into the several hook-openings in a zigzag manner, as common. In the present instance, however, the shoe-lace first enters the throat of the hook-opening m and is arrested by the bottom of the notch b' of the ball b , the position of the latter then being substantially as shown in Figs. 1, 3, 4, and 7. Meanwhile the slight pressure or tension exerted upon the cord or lace, as in lacing up a shoe, causes the balls

to successively and automatically turn rearwardly on their socket-shaped seats, thereby carrying or transferring the lace from the notches to the corresponding posts a^2 , the latter then sustaining the entire tension or work to which the lace is subjected, as in the usual lacing-hook. Figs. 2, 5, and 8 show the corresponding position of the balls. The simple act of unlacing the shoe causes the lace to engage the upper side of the notch b' of the ball b , the slight pressure or pull upon the lace at the same time swinging the ball toward the front and uncovering the hook-opening, thus freeing the lace.

I may add that in lacing-hooks or other fastening devices embodying my present invention and capable of being made operative by the employment of the usual lacing-cord it is obvious that the ball or movable member is subjected, practically, to no work whatever. In fact, they can be used with the same rapidity and facility as lacing-hooks unprovided with the invention.

I claim as my invention and desire to secure by United States Letters Patent—

1. As a new article of manufacture, a lacing hook or stud having a circularly-seated notched revoluble member located in and practically filling the head portion of the stud, means for limiting the movements of said revoluble member, and having the base of the hook provided with an eyelet or other suitable attaching means, all constructed and arranged whereby when in use the said revoluble members automatically close the hook-openings of the studs by the action of the lacing-cord in lacing the shoe, substantially as described.

2. In a lacing hook or stud provided with an attaching-shank, and an opening or hook portion adapted to receive a suitable lacing-cord, the combination therewith of a laterally-guided ball-shaped notched movable member mounted in the head portion of the stud and capable of closing the said hook-opening, substantially as hereinbefore described and for the purpose set forth.

3. In a lacing hook or stud provided with a shank, a post and a head, and an opening, as m , for the lacing-cord, located between said shank and head portions, the combination therewith of a ball-shaped member b movably mounted in a concave seat communicating with said opening, and having the member b provided with a transverse recess b' adapted to receive the lacing-cord and transfer it to said post concurrently with the act of lacing the shoe and at the same time automatically closing the mouth of the hook-opening, substantially as described and for the purpose set forth.

4. The combination in a lacing-hook provided with an opening m for the reception of a lacing-cord, of the ball member b mounted in and capable of closing the mouth of said opening, the said ball having a notch therein adapted to receive a lacing-cord, and means

for maintaining the axis of rotation of the ball in position with respect to the opening *m*, for the purpose specified.

5 5. In a lacing hook or stud having an attaching-shank provided on its upper end with a concave seat, and a cord-retaining post extending upwardly from the shank, the combination therewith of a movable spherical-shaped member resting on said concave seat,
10 means for retaining the sphere in position, and a notch or recess formed in the face of the sphere to receive a lacing-cord, constructed

and arranged whereby the act of lacing the shoe causes the sphere to turn rearwardly and deliver the cord to said post, the upper part 15 of the sphere being thereby exposed and practically constituting the cap of the lacing-hook.

In testimony whereof I have affixed my signature in presence of two witnesses.

EDWARD H. ROBERTSON.

Witnesses:

GEO. H. REMINGTON,
WILLIAM D. PERRIN.