

G. H. ELLIS.
Stud for Boots and Shoes.

No. 220,817.

Patented Oct. 21, 1879.

Fig. 1.

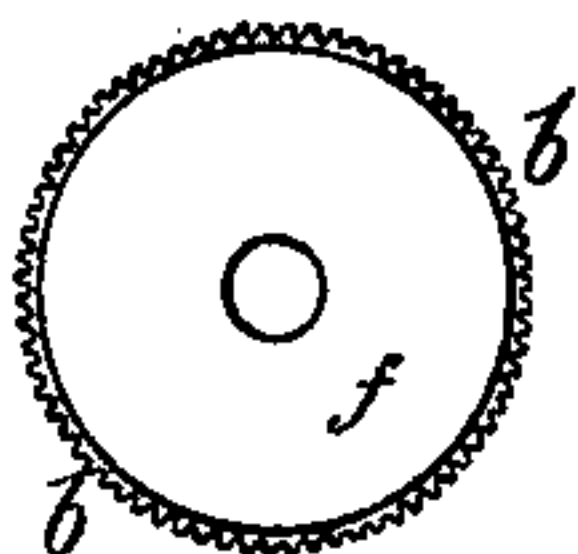


Fig. 5.

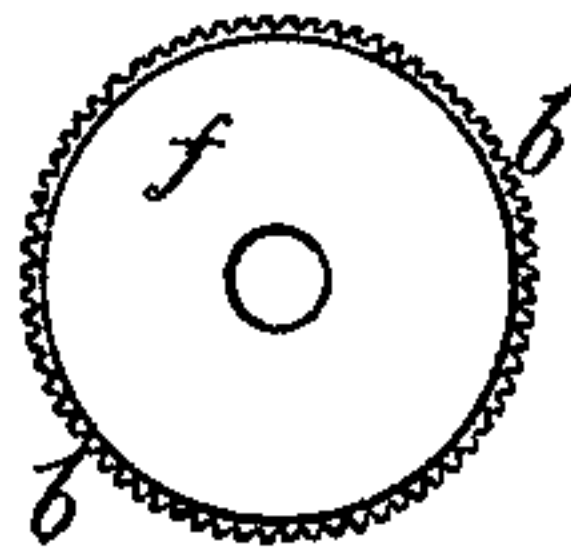


Fig. 4.

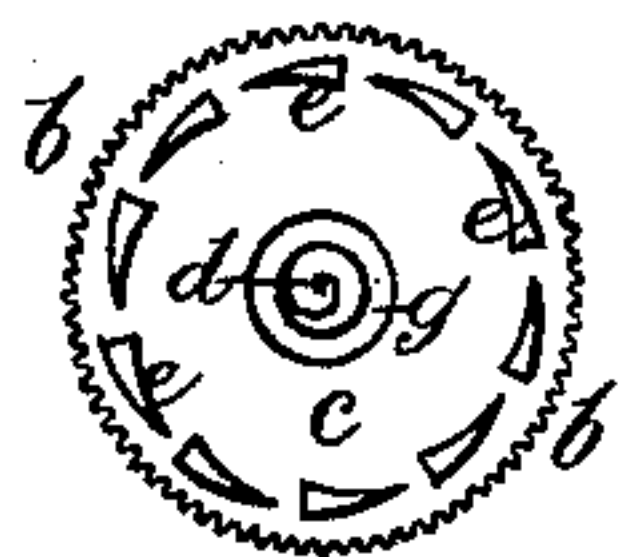


Fig. 8.

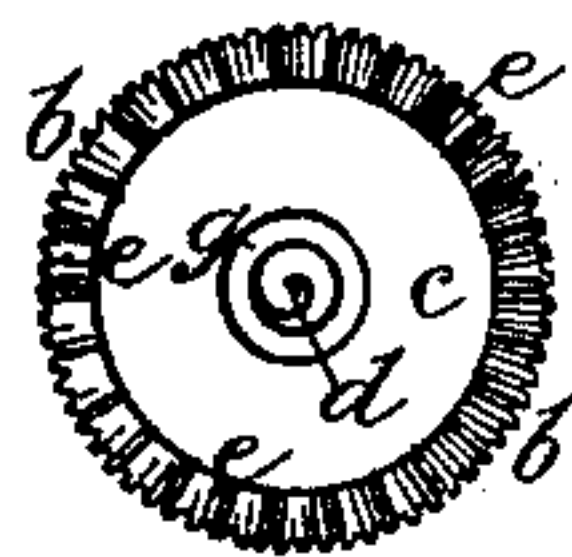


Fig. 2.



Fig. 6.



Fig. 3.



Fig. 7.

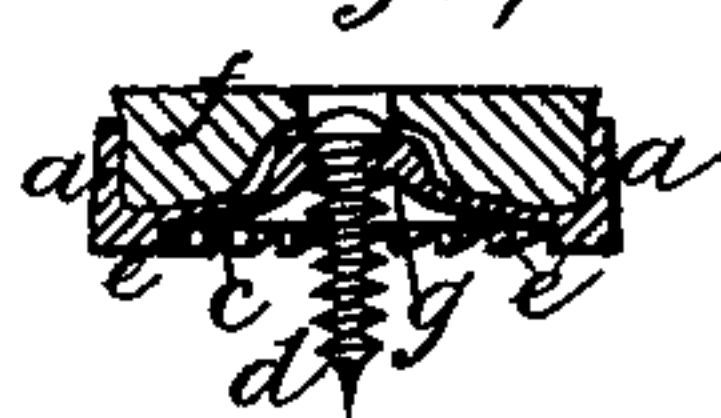
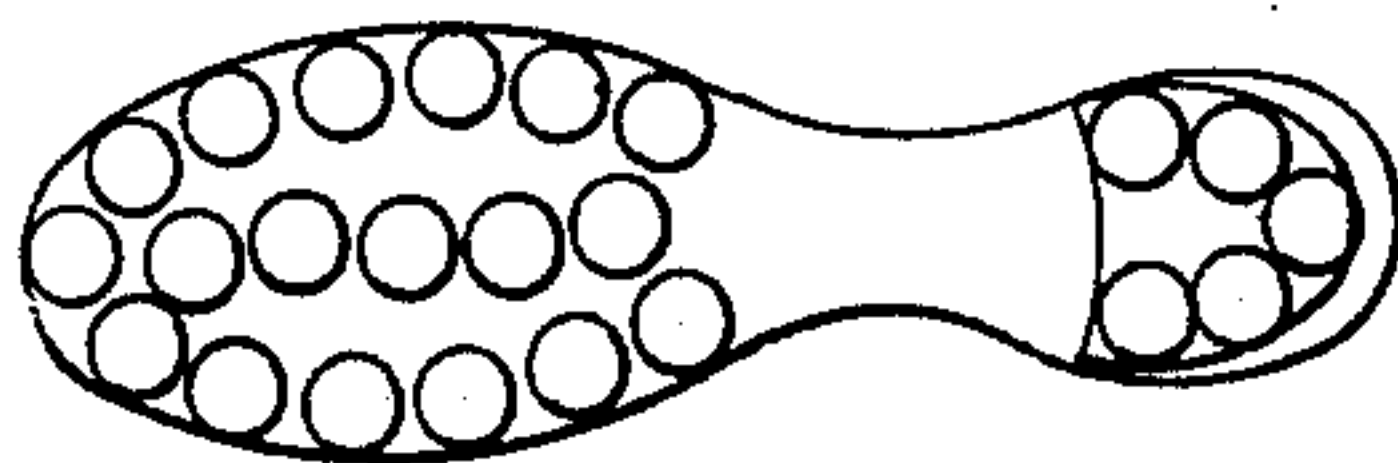


Fig. 9.



Witnesses,
D. P. Cowl
L. Bacon

Inventor,
George Henry Ellis.
by John J. Halsted
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UNITED STATES PATENT OFFICE.

GEORGE H. ELLIS, OF LONDON, ENGLAND.

IMPROVEMENT IN STUDS FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **220,817**, dated October 21, 1879; application filed May 12, 1879.

To all whom it may concern:

Be it known that I, GEORGE HENRY ELLIS, of London, England, have invented certain Improvements in Boots and Shoes and Portable Studs therefor, of which the following is a specification.

This invention relates to the construction of wearing surfaces or studs which can be readily applied to the soles and heels of boots and shoes without the necessity of using any tool or appliance other than the thumb and finger, thus enabling any person to attach a number of such self-holding studs to the sole of any ordinary boot or shoe, and thereby form an outer sole or "clump," possessing advantages over the ordinary outer sole or clump, inasmuch as the damp or moisture does not penetrate through the studs, thereby keeping the feet of the wearer dry, warm, and comfortable; further, these studs can also be applied to the heels of boots or shoes, and when the said studs or any of them, either on the sole or heel become worn, they can be easily and quickly replaced, so that as long as the uppers of the boots or shoes remain good the boots or shoes may be kept in repair without the aid of skilled labor, and at very small cost.

In the accompanying drawings, Figure 1 is a plan; Fig. 2, a side view, and Fig. 3 a section of one of my improved studs; Fig. 4, plan of the under side of same.

In carrying out my invention, I construct the stud of a round (or it may be of other shape) open box, *a*, made of metal or other suitable material, and having the periphery or rim *b* milled, and the bottom *c* slightly recessed in the center at *g*, and made slightly concave or recessed. In the center of the said stud or box is fixed or applied a short deep-cut tapered screw, *d*, with sharp point, as shown, and on the under side or bottom and near the outer edge of the said stud I form a series of teeth or projections, *e*, (preferably ratchet-shaped,) in the reverse direction to the thread of the screw *d*. It will be understood that the body of the stud thus described may be formed by stamping out of sheet-metal blanks, the dies being so formed as to allow of the pro-

jections or teeth *e* being formed in the stamping operation.

In some cases, however, it may be found advisable to form ratchet-teeth by cutting or molding them in or upon the edge of the under side of the stud, as shown in Figs. 5, 6, 7, and 8, which are views of a stud (corresponding with Figs. 1, 2, 3, and 4) having the teeth thus cut or formed; but I do not recommend this method, as it is more expensive.

Into the open or box part of the studs I fit disks or pieces *f* of leather, gutta-percha, felt, wood, lead, or any suitable material or manufactured wearing material or composition, the surfaces being either plain, as shown in the drawing, or having grooves or indents thereon.

By this construction of stud it will be understood that a number of these studs may be easily screwed by the thumb and finger into the sole and heel of a boot or shoe, as shown in Fig. 9, and when tightened down to the surface of the sole or heel, the ratchet-shaped projections or teeth *e* will lock the studs, make them self-holding, and prevent them moving in the reverse direction or becoming loose in wearing, in consequence of the said projections or teeth *e* being in a reversed direction to that of the thread of the screw, as hereinbefore described. The recess *g*, in the center of the stud, serves to receive the cuttings or shavings of the leather thrown up by the screw *d*; otherwise such cuttings would, perhaps, prevent the stud being screwed close down.

For some purposes I dispense with the open or box part of the stud, in which case I make it of a solid body of a soft metal, wood, vulcanite, or other suitable material, but having the self-locking arrangement, as hereinbefore described.

When the studs wear they may be renewed by removing the old stumps and putting fresh studs in their places.

Having thus described the nature of my said invention, and the best means with which I am acquainted for carrying the same into effect, what I claim is—

1. A stud having a sharp-pointed deep-cut tapered screw in the center, and having a series of projections or teeth, in a reverse direction to the screw, on the bottom or under side of the stud, as and for the purposes described.

2. The described stud as made, of box form, recessed at *g*, and having a central screw ap-

plied thereto, teeth upon its under side, and with its periphery milled, all substantially as shown and set forth.

GEORGE H. ELLIS.

Witnesses:

G. F. REDFERN,
F. PRICE.