(No Model.) 2 Sheets—Sheet 1.

E. A. BUCK.

DRIVING CALK.

No. 325,194. Patented Aug. 25, 1885.

Fig. 4.

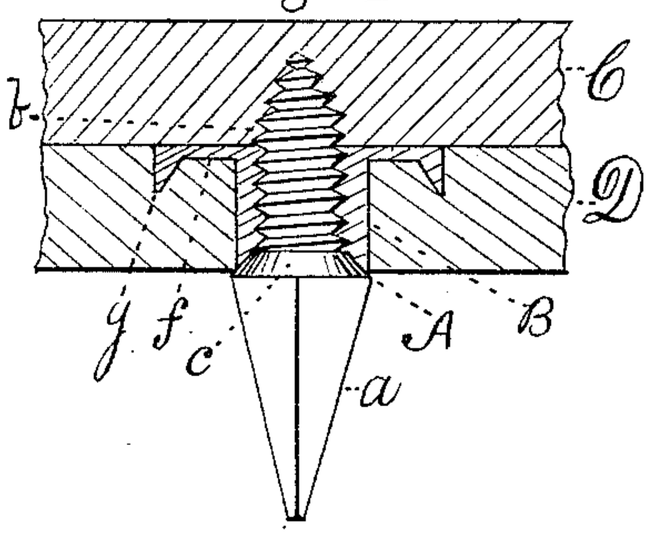


Fig. 3.

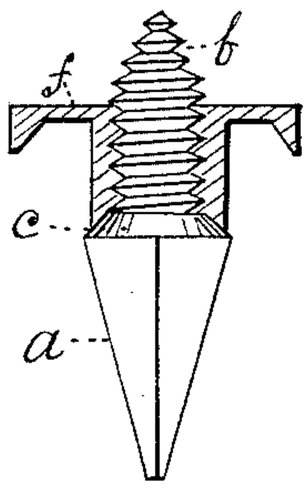


Fig. 2.

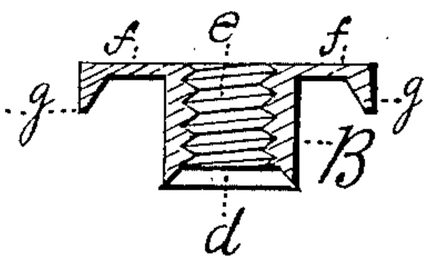
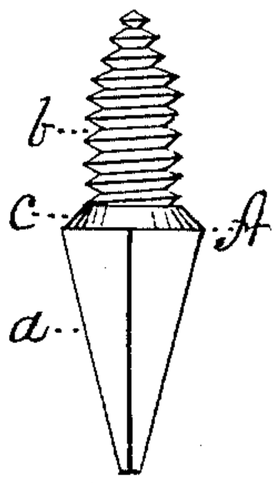


Fig. 1.



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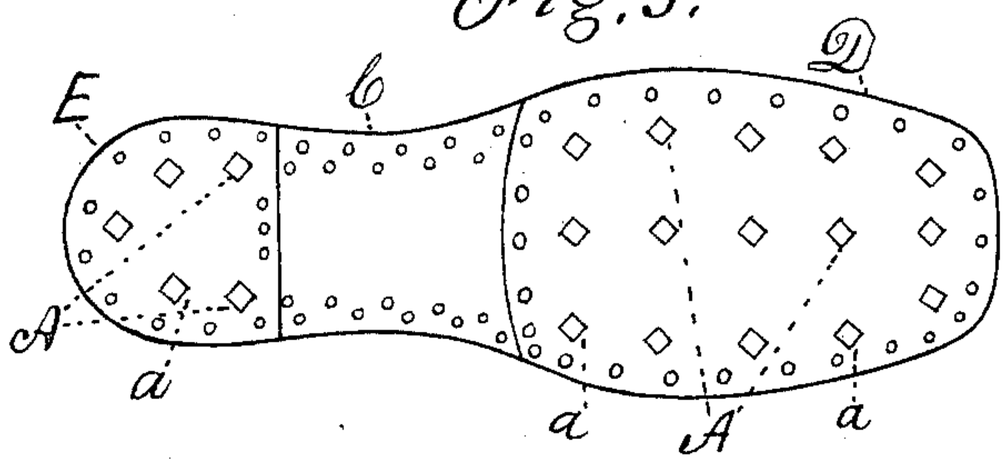

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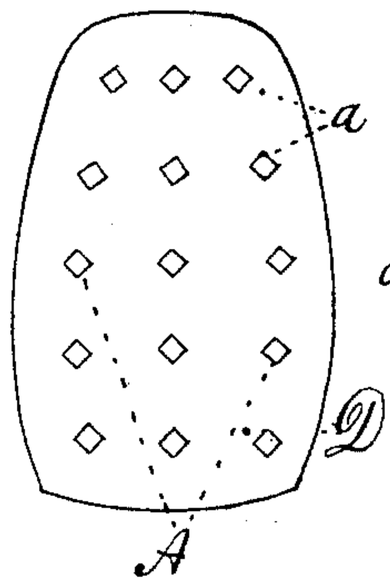

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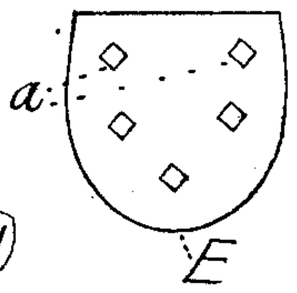


Fig. 10

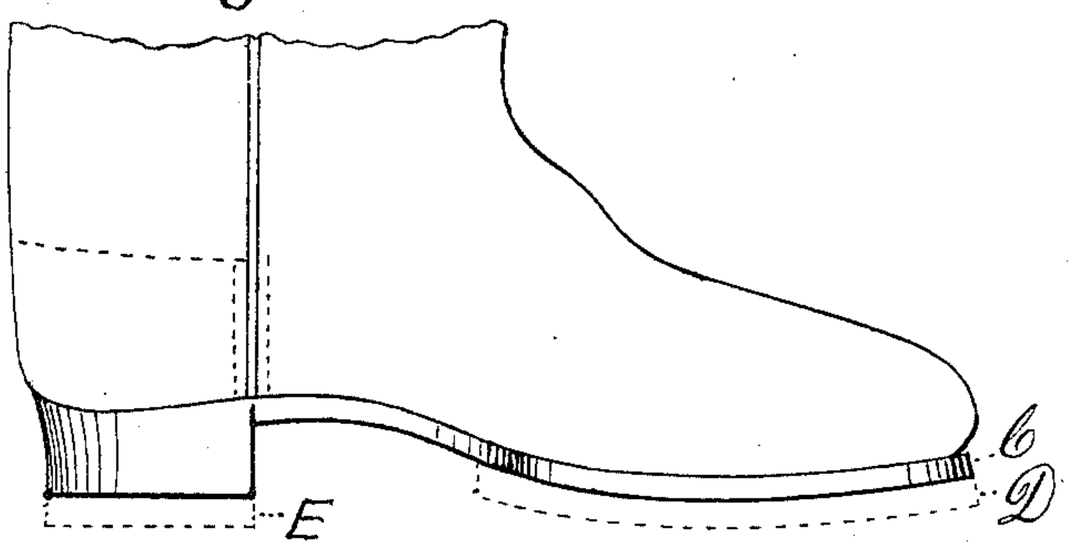


Fig. 8.

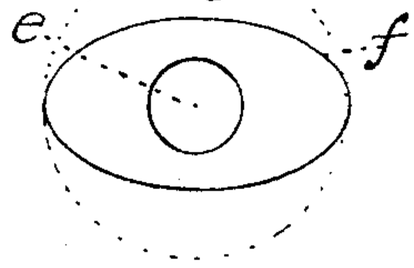


Fig. 9.

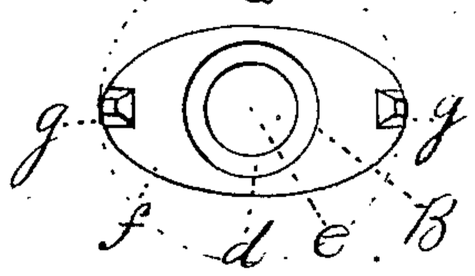


Fig. 12

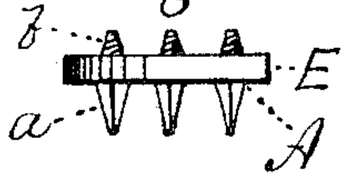
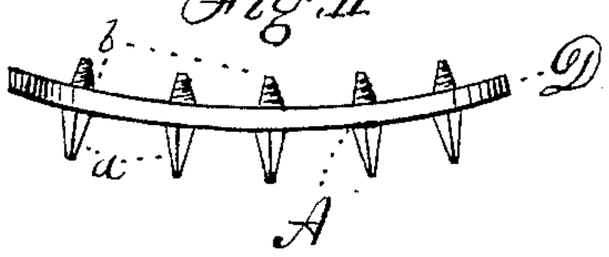


Fig. 11



Witnesses.
Fred. H. Coombs.
Patrick Cannes

Inventor.
Edward A. Buck

N. PETERS, Photo-Lithographer, Washington, D. C.

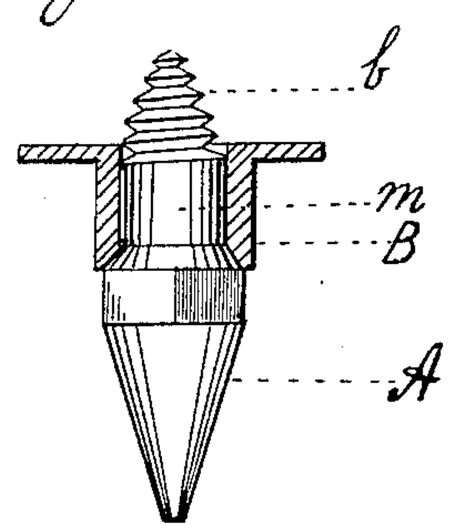
(No Model.) 2 Sheets—Sheet 2.

E. A. BUCK.

DRIVING CALK.

No. 325,194. Patented Aug. 25, 1885.

Fig. 13—



Witnesses.
Frederick M. Laughton
Harry D. Stewart.

Inventor.
E. A. Buck
by Fred. H. Coombs. Atty.

Boston, Mass.

UNITED STATES PATENT OFFICE.

EDWARD A. BUCK, OF BANGOR, MAINE, ASSIGNOR TO HIMSELF AND EDWARD W. VEAZIE, OF SAME PLACE.

DRIVING-CALK.

SPECIFICATION forming part of Letters Patent No. 325,194, dated August 25, 1885.

Application filed December 30, 1884. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. BUCK, a citizen of the United States, residing at Bangor, in the county of Penobscot and State of Maine, have invented a new and useful Improvement in Driving-Calks; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to calks for the soles of boots, commonly known as "driving-calks," from the fact of their extensive use by lumbermen in driving logs in rivers and other waters.

The object of my invention is to produce a calk which will be easily and readily fixed in the sole of a boot, will hold more firmly in place than any calk heretofore invented, which may be removed and replaced with the least possible trouble, and can be fitted to a tap and heel-lift independently of any boot, and when such tap or heel-lift is attached to the boot in the usual methods, whether by sewing, pegging, or wiring, the calks can be inserted at once, and strengthen rather than strain and weaken the sole of the boot.

In the accompanying drawings similar letters refer to corresponding parts throughout the several views.

Figure 1 is a view of the calk in elevation, showing the shoulder *c* designed to fit into the countersink *d* in the nut B, which may be of any suitable desirable depth. Fig. 2 is a sectional view of the flanged nut B. Fig. 3 is a view of a calk and nut, the nut being shown in section. Fig. 4 is a sectional view of part of a sole and tap and nut fitted together, the calk being shown in full, as when fitted. Fig. 5 is a bottom of a sole with the tap and heel-lift fitted on, showing the pegging, and the squares or diamonds indicating the way in which the calks are generally inserted, more or less in number and different arrangements of position being used to suit individual fancy. Figs. 6 and 7 are outline views of the tap and heel-lift, respectively showing them as fitted with the calks independently of the boots and prepared to be fitted to any boot calks and all. Fig. 8 is a rear view of the nut, showing the flanges. Fig. 9 is a front view of the nut and flange. Fig. 10 is the foot and sole of a boot, the dotted lines showing the position of the tap and heel-lift when attached. Figs. 11 and 12 are side views of the tap and heel-tap in position to be attached to the sole of the boot. Fig. 13 is a modification.

A is a calk; B, a nut; C, a sole; E, a heel-lift. *a* is the point of a calk. *b* is the shank, cut with a screw-thread. *c* is a beveled shoulder to the calk at any suitable angle and shape to fit the countersink *d* in the nut B. *d* is a countersink in the aperture *e* of the nut B, and at any suitable angle and depth to insure the fullest support, bearing, and friction-surface to the calk A. *e* is the hole in the nut cut with a female screw-thread. *f* is a flange or flange-wings on the inside or back end of nut. *g g* are spurs or studs on the front side of the flange to drive or press into the tap and prevent the nut from turning.

In construction I form a calk of steel or any suitable metal, having the point *a* preferably square or angular in order to be readily and easily turned with a common hand-wrench or pinchers, or even by a piece of hard wood driven down onto them. This point is formed with the beveled shoulder *c*, and connected integrally with the screw-shank *b*. The beveled shoulder is formed to preserve the full strength of the calks at the junction of the point *a* with the shank *b* where the greatest strain comes, and to support the point and render the calk and nut more nearly integral in actual operation. The bevel and countersink also present a much larger surface for friction to prevent unscrewing, and the bevel and countersink allow of screwing up harder to compensate for any wear of the thread of either nut or shank, should it be desirable to remove the calks frequently.

The calks are preferably made of steel, in order to allow of tempering or hardening, but may be made of any suitable material desired, as, for instance, if used when handling powder in magazines or store-houses they might be made of some softer metal, and frequently changed as the points wore off.

The nut B, for convenience in inserting, is formed round, and provided with the flange or flanged wings or arms *f*, having the spurs or studs *g g* projecting forward. The body of the nut B is not necessarily formed cylindrical, but may be formed angular, or ribbed on the out-

side, if preferred, but it is intended to be driven through the tap from the inside, a suitable hole or perforation being made for the purpose, so that the flange or flanged arms *f*, with the points or studs *g g*, shall be embedded in the back or inside of the tap. The nut may be made of suitable dimensions to properly fit any thickness or varying thicknesses of tap, so that the front end of the nut will come just to the outside surface of the tap when attached to the boot, or to come sufficiently below the surface of the tap to allow for wear if the calks should be taken out. It is not necessary that the taps should be made of a single thickness, or lift, or layer, but the nuts may be just as well applied to taps composed of several thicknesses.

The nut B is formed with the flange *f* or flanged arms *f f*, in order that when the body of the nut is pressed through the tap the flange *f* may bear against the inner face of the tap, and by its increased surface of leverage support the body of the nut and render it firm in position and prevent any possibility of tipping, and, in the usual parlance, "make the calk stand up." As the tap would usually be dampened, the studs are easily forced into the leather, and the flange is pressed down level with the surface. The studs *g g* prevent the nut from turning, but if flanged arms are used the studs *g g* may be dispensed with, the arms alone being pressed into the leather preventing any turning. This nut may be used in other material than leather, as, for instance, in rubber, and in that case the form of the nut and flanges might quite as well or preferably be varied, or the nut used without flanges. The shank *b* is formed longer than the thickness or depth of the nut and gimlet-pointed, so that it may screw into the inner sole, thereby holding the tap and sole firmly together at the place of insertion and strengthening the whole sole and rendering it stronger than any pegging usually applied in the ball of the foot and central parts of the heel. By passing through the tap and screwing into the sole the two parts are so firmly held together that the flange is nearly as much supported by its bearing against the sole as against the tap, much in the same manner as anything is held in a vise by the pressure of both jaws. The points are not necessarily formed angular for their whole length, but may be formed angular at the shoulder *c* and rounded to the point if desirable; or the whole point may be formed round and flattened on two sides at the shoulders, or provided with ribs or projections at the shoulders to facilitate inserting and removal.

I am aware that driving-calks have been made and used with an infinite variety of shanks, and that removable calks or creepers with screw-threaded nuts attached to the tap-sole have also been patented in the case of patent to Pollard, No. 19,205, January 26, 1858, and Hutchinson, No. 68,881, September 17, 1867, ice-creepers. I therefore do not claim a driving-calk, broadly, and disclaim all relevance to the two patents referred to; but

What I do claim, and desire to secure by Letters Patent, is—

1. In a removable calk designed for use in the soles of rubber or leather boots and shoes, the combination of the point *a*, suitably-tapering shoulder *c*, and gimlet pointed screw-shank *b*, constructed and combined in a calk adapted to fit and screw into and through the nut B and screw more or less into the sole of a boot or shoe, as shown and described.

2. In a removable calk provided with a screw-threaded nut, and designed for use in the soles of leather or rubber boots and shoes, the flanged holding nut B, provided with arms *f f* and studs *g g*, and the aperture *e*, reamed out or countersunk at *d* to fit the beveled shoulder *c* and shank *b* of the calk A and adapted to fit into the sole of a leather or rubber boot or shoe and hold the calk A, and prevent it from tipping, as shown and described.

3. In a removable calk provided with a flanged holding nut, and designed for use in the soles and taps of leather or rubber boots or shoes, the flanged holding nut B, provided with the spurs *g* and calk A, in combination with the sole or tap-sole of a leather or rubber boot or shoe, as shown and described.

EDWARD A. BUCK.

Witnesses:
PATRICK CONNERS,
FRED. H. COOMBS.