(No Model.)

G. W. KELLER.

SHOE MAKER'S LAST.

No. 384,448. Patented June 12, 1888.

FIG. 1.

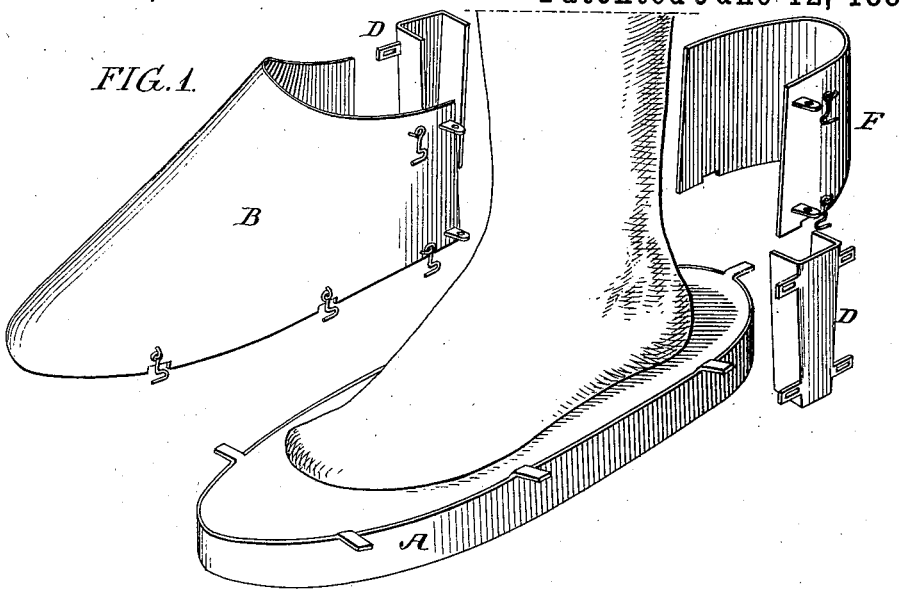


FIG. 2

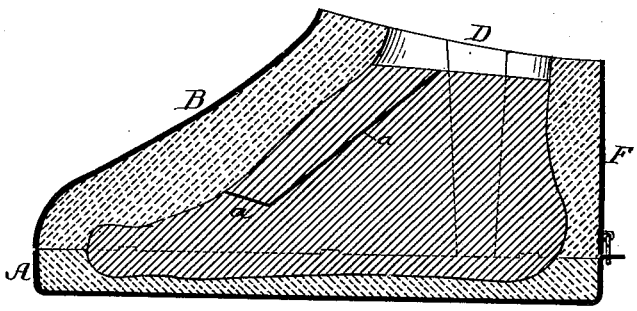
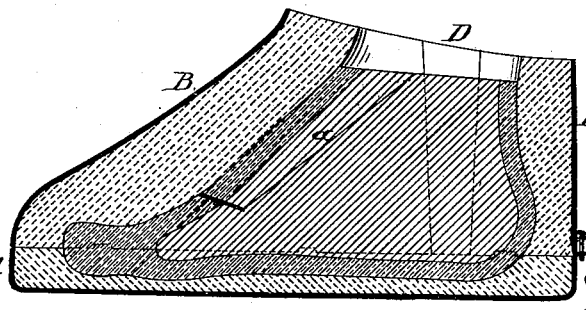


FIG. 3



Witnesses
Harry Drury
William D. Conner.

Inventor
George Wm. Keller.
by his attorneys.
Hodgson & Sons

UNITED STATES PATENT OFFICE.

GEORGE WM. KELLER, OF PHILADELPHIA, PENNSYLVANIA.

SHOE-MAKER'S LAST.

SPECIFICATION forming part of Letters Patent No. 384,448, dated June 12, 1888.

Application filed April 29, 1887. Serial No. 236,595. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WM. KELLER, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Shoe-Makers' Lasts, of which the following is a specification.

My invention consists of an improvement in that form of last which constitutes a reproduction of an individual human foot, the object of my invention being to provide a last of this character which can be cheaply manufactured and can be used with as much facility as an ordinary wooden last. This object I attain by first making a mold or matrix from the foot, and then casting or otherwise introducing directly into said mold or matrix lead or other material of such character that it will receive and retain the lasting-tacks, so that the reproduction is capable of use as a last in the ordinary manner.

In the accompanying drawings, Figure 1 is a perspective view of a flask for making a mold or matrix in accordance with my invention, the different parts of the flask being shown as separated from each other. Fig. 2 is a sectional view showing the flask with its mold fitted together and the mold filled, and Fig. 3 is a sectional view showing the use of a core.

The flask shown in Fig. 1 comprises five parts—namely, the base A, instep portion B, opposite side portions, D D, and heel portion F—the general conformation of these parts being such as is required by the average human foot. The flask is made of any suitable material, preferably metal, and the different parts of the flask are constructed for being readily fitted together or detached from each other.

In making the mold a stocking is drawn on over the foot, and this stocking is lubricated, in order to prevent the plaster-of-paris or other material or composition of which the mold or matrix is to be made from sticking thereto. A portion of the plaster or other material being poured into the base, the foot is placed therein, and the base is then filled to such a level as will not cause any portion of the material to overlap any part of the foot, and thus prevent the withdrawal of the foot from the mold. When the material in the base has become set, the upper surface of the same is lubricated or otherwise treated to prevent the material afterward inserted from sticking thereto, and the upper portions of the flask are then applied to the base portion so as to inclose the foot, the flask being then filled with the material over the instep, around the heel, and up to the desired point on the ankle. When the material in the upper part of the flask has become set, the parts of the flask are detached from each other, the portion B being lifted from the instep, the portion F removed rearwardly from the heel, and the portions D removed laterally, whereupon the foot is free to be lifted from the base portion of the mold.

When the parts of the flask with their contained sections of the mold are again fitted together, they form a matrix, by which may be formed a reproduction of the foot from which the mold was made. This may be done by simply pouring molten metal—such as lead—into the mold; or the mold may be filled with material or composition of any desired character which, when dry and hard, will be capable of use for the purpose of a last; or a shell of metal may be electro-deposited in the mold, and this shell afterward filled with soft metal or other material to give it the requisite body; but whatever material is used, it should be such that nails or pegs can be driven into the same for securing insoles to the last, or for other purposes.

The last is preferably provided with a core, G, of wood or composition, as shown in Fig. 3, the metal or other material filling the space between said core and the interior of the mold, so as to form a shell around the core.

When it is desired that the last shall have a removable instep portion, suitable dividing-plates, *a*, may be inserted in the mold before the formation of the last therein, so as to separate the instep portion of the last from the other portion, and the same plan may be adopted when the last is provided with a core, the latter being made in two parts, as shown in Fig. 3.

I am aware that a last forming a reproduction of an individual human foot is not new, it having been before proposed to make such a last by a series of operations comprising the formation of a sectional matrix from the foot, the making of a plaster cast in said matrix,

the use of this plaster cast as a pattern for the formation of a sand mold, the casting of an iron last in said mold, and the drilling and plugging of said iron last to provide the same with portions for receiving the lasting-tacks; but it will be observed that I dispense with the last three and decidedly most costly steps of this process, and therefore make a last which is much cheaper than one made by the process referred to, my improved last being also much more acceptable in use than one made in the manner just described, for the reason that said improved last can be used with the same facility as a wooden last, whereas the use of a cast-iron last plugged for receiving the lasting-tacks necessitates the driving of these tacks always in the same places, and consequently demands the exercise of much greater care than usual in the lasting operation.

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

1. The within-described flask for making a mold of the foot, said flask comprising a base portion, A, for the sole of the foot, an instep portion, B, covering the top of the foot, a portion, F, at the rear of the heel, opposite side portions, D, interposed between the heel portion and instep portion above the base, said side portions having flanges projecting inwardly toward the foot, which are adapted to separate the side portions from the other portions of the flask, and fastening devices for separably securing the various portions of the flask together in their proper relative positions, all substantially as specified.

2. A shoe-maker's last composed of cast-lead or equivalent material, as described, and forming a reproduction of an individual human foot, all substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE WM. KELLER.

Witnesses:
ALBERT POPKINS,
HARRY SMITH.