E. FISHER.

Molds for Compressing Boot and Shoe Heels.

No. 156,556. Patented Nov. 3, 1874.

Fig. 1.

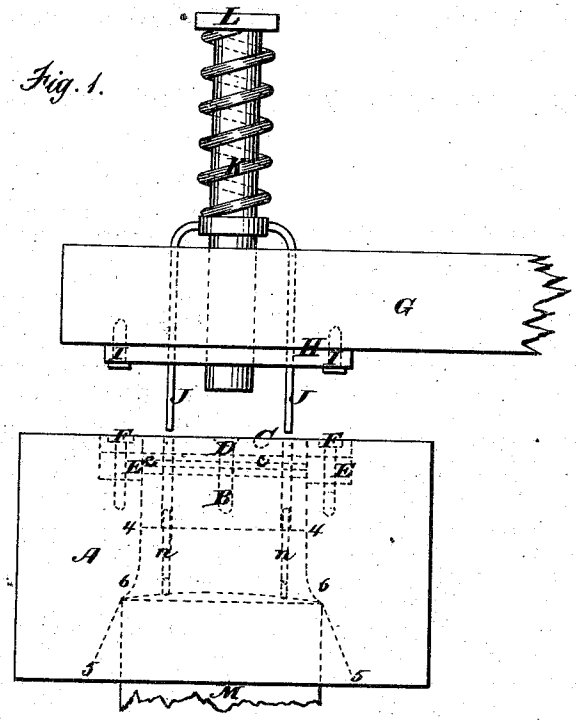


Fig. 2.

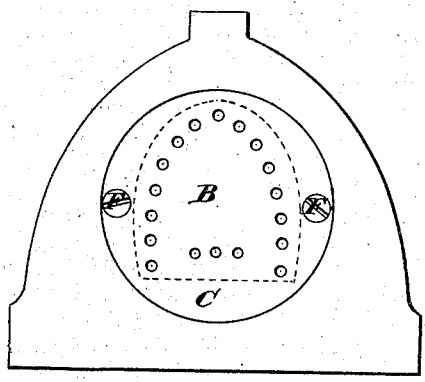
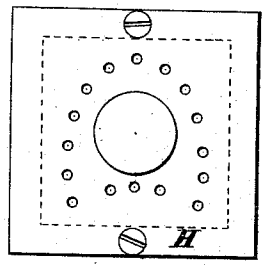


Fig. 3.



WITNESSES

C. F. Brown

W. F. Ellsworth

By

INVENTOR

Edwin Fisher

Wm. F. Ellsworth

Attorneys.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

EDWIN FISHER, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO WILLIAM R. ALBERTSON, OF SAME PLACE.

IMPROVEMENT IN MOLDS FOR COMPRESSING BOOT AND SHOE HEELS.

Specification forming part of Letters Patent No. **156,556**, dated November 3, 1874; application filed November 29, 1873.

To all whom it may concern:

Be it known that I, EDWIN FISHER, of the city and county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Molds for Compressing Boot and Shoe Heels; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings forming part of this specification, in which—

Figure 1 is a side elevation of the mold and the parts co-operating therewith. Fig. 2 is a top view of the mold; and Fig. 3 is a detached view, showing the under side of the plate H.

Similar letters of reference in the accompanying drawings denote the same parts.

This invention is an improvement in the construction and operation of the machine for compressing boot and shoe heels, patented by Horace H. Bigelow, July 5, 1870. In said machine, as heretofore constructed, the heel, having been previously moistened with water, is compressed under powerful pressure into a tapering mold, whereby its sides, top, and bottom are molded to the proper shape. The pressure is then removed by the operation of the machine, and after the heel has been pricked and has received the nails, it is ejected from the machine by the movement, first, of a sliding block, and, secondly, of a sliding central pin or stud, which works through the block. In practical operation it is found that the central pin or stud, which is from one-half an inch to three-quarters of an inch in diameter, retreats slightly into the block while the heel is under compression, and thus a central bulge or protuberance is created on the surface of the top lift, which has come to be a permanent characteristic of the Bigelow heels, and which constitutes a serious defect, inasmuch as it disfigures the heel and renders it necessary to grind off the top lift to a considerable extent.

The first object of my invention is to remedy this defect in the construction and operation of said Bigelow heel-compressing machine; and to this end my invention consists in so constructing and arranging the sliding block, which starts the heel from the mold, and the sliding pin, which completes the ejectment of the heel, that no central pin or stud will be necessary—in other words, in so constructing and arranging the mold and ejectors that every part of the top lift, which is subsequently to be exposed to view in wearing the heel, will be compressed against the uniform surface of a solid block, whereby said top lift will be left perfectly smooth and even when the heel comes from the machine.

The second object of my invention is to improve the shape of the mold, so that it will answer as a guide with greater accuracy and uniformity of operation than heretofore, and, as a mold, will more perfectly form the heel; and to this end my invention consists in shaping the walls of the chamber or cavity of the mold with a uniform taper at its lower end, and a curved outline or varying taper conformed to the shape of the heel at its upper end, so that while the lower end of the cavity operates solely as a guide for the heel in its entrance to the mold, the upper end of said cavity operates as the heel-mold proper.

The third object of my invention is to improve the construction of the mold, so that the same mold can be adjusted and adapted to manufacturing heels of different heights without the necessity of using different molds, and without otherwise changing the adjustment of the heel; and to this end the invention consists in adjusting and varying the thickness of the block against which the heel is compressed.

Referring to the drawings, A represents the body of the mold; B, a movable steel block, having holes to admit the passage of the awls, nails, drivers, and ejectors; C, a steel plate fastened to the block B by the screw D; *c c c*, a plate or plates of iron or other suitable material, which may be interposed between the block B and plate C, for the purpose of varying the thickness of the compound block thus made up, and thereby adjusting the mold to make heels of different height; E, an open space below the ends or edges of the plate C, for the purpose of allowing the plate to drop into the mold in its operation of driving out the heel after the latter is pressed; F F, screws passing loosely through the plate C, and firmly into the body of the mold A, for the pur-

pose of limiting the movement of the plate and block, and preventing them from dropping out of the mold when the latter is removed from the machine, the heads of the screws being countersunk in the outer surface of the plate C, so as to make an even surface on the top of the mold. G is a part of the plunger of the machine in which the mold A is used. H is a square block or plate of steel or other suitable material, secured to the plunger by screws or other convenient device. L is a stout stem or headed bolt, screwed projecting through the plate H, and suitably secured thereto. J J are ejecting rods or drivers, which finish the operation of ejecting the heel from the mold. K is a spring, fastened to the stem L, for the purpose of holding or pressing down the drivers J while performing their work. M is a portion of the follower which holds the heels in place while being compressed; and *n n* represent the nails which are inserted and partially driven by the machine while the heel is under compression. The lines from 5 5 to 6 6 represent that part of the mold-cavity which tapers uniformly up to the point to be occupied by the heel when under full compression, and the lines from 6 6 to 4 4 represent that part of said cavity which is occupied by the heel when under full compression, the former constituting the heel-guide, and the latter the heel-mold proper.

In the operation of my improved device, the plunger G descends, causing the stem L to strike the plate or block C B, thereby starting the heel from its place in the mold proper. The moment that the heel is loosened, the drivers J, which have been held forced up through the block H by the friction of the heel wedged into the mold, now operate to complete the ejection of the heel from the mold, said drivers striking upon the nails *n n*.

The top lift of the heel, it will be observed, is, in this mold, compressed against a solid block of steel or other hard metal, so that the defect in the old machine is entirely obviated.

I claim as my invention—

1. The solid block B, combined with ejectors operating through the nail-holes of the block, substantially as and for the purposes set forth.

2. The plates *c c*, in combination with the block B, for the purpose of adjusting the same, substantially as described.

3. The mold provided with the straight, or substantially straight, guide-taper 5 5 6 6, and with the curved mold-taper 6 6 4 4, to form the heel, substantially as described.

EDWIN FISHER.

Witnesses:

FRANCIS DEANE,

F. B. DEANE.