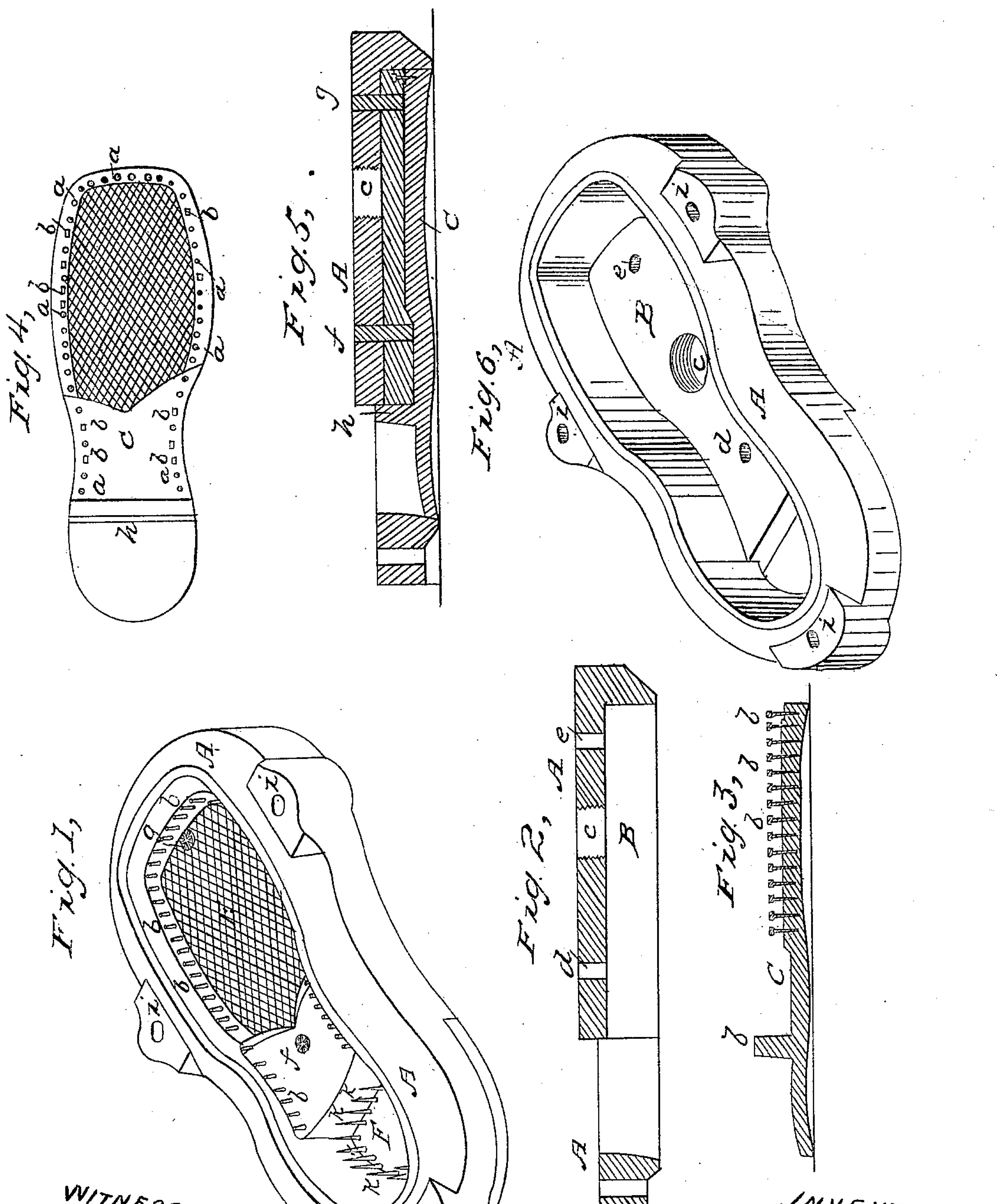
C. McBURNEY.

Vulcanizing Apparatus.

No. 38,688. Patented May 26, 1863.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES McBURNEY, OF ROXBURY, MASSACHUSETTS.

IMPROVEMENT IN MOLDS FOR VULCANIZING RUBBER SOLES FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **38,688**, dated May 26, 1863.

To all whom it may concern:

Be it known that I, CHARLES McBURNEY, of Roxbury, in the county of Norfolk and State of Massachusetts, have invented an Improved Mold for Vulcanizing India-Rubber Soles for Boots and Shoes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of the lower half of my improved mold; Fig. 2, a longitudinal section through the block or outer casing, A, inverted; Fig. 3, a section through the piece C, and Fig. 4 a plan of the same; Fig. 5, a longitudinal section showing the method of constructing the mold; Fig. 6, a view of the block or casing A.

Certain descriptions of molds for vulcanizing india-rubber soles for boots and shoes are furnished with pins for the purpose of making the holes for the pegs, and the molds having been made of cast-iron or other hard metal, it was necessary to drill a hole for each pin and accurately fit the same, which, together with the labor of engraving the device, was an exceedingly tedious and expensive operation.

My invention has for its object to avoid these objections; and it consists in making the mold partially of soft metal, in which the pins are secured by casting the soft metal around them, thereby greatly simplifying its manufacture and materially reducing its cost, the object of the mold being to produce a vulcanized india-rubber sole and heel in one piece, with the holes necessary for the pegs or nails formed therein.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the accompanying drawings, A is a block or case of cast-iron or other suitable metal, in which is formed the cavity B, Fig. 6. This cavity is cut entirely through the block at the heel, for a purpose that will be afterward described.

C is a piece of hard metal of the form of the sole, on the upper surface of which the required device is engraved or cast, as seen in Fig. 4. Around its edge are formed a series of holes, *a*, in which are inserted the pins or nails *b*, the heads of which project up, as seen in Fig. 3. The piece C, with the pins *b* projecting therefrom, is now placed on a flat surface. The block A is then inverted and placed over the piece C, as seen in Fig. 5, and the pins *f* and *g* are passed through the holes *d e* in the block A, their lower ends resting on the piece C. The joint between the block A and piece C is then luted with clay, and melted lead or any soft alloy is poured through the hole *c* in the block A, completely filling the space between the case A and the piece C, as seen in Fig 5, and surrounding the heads of the pins *b*, the division-plate *h*, projecting from the piece C, preventing the metal from running into the rear portion of the mold corresponding to the heel. The metal being allowed to cool, a few slight blows are given to the pins *f* and *g*, when the piece C will be detached, leaving the mold, as seen in Fig. 1, with the pins *b* projecting up from the soft-metal surface E. The pins *f* and *g* are then driven back and left even with the surface of the mold. The rear portion of the mold corresponding to the heel is cut entirely through, as seen in Fig. 6, and to this portion is fitted the removable plate F, Fig. 1, from which project the pins *k*. The mold is now filled with plastic rubber and the top half or counterpart placed over it, being guided and kept in position by pins which enter the holes *i* in the block A, after which the sole is vulcanized in the ordinary manner.

In the above description I have spoken of the portion E corresponding to the sole only being made of soft metal. It is obvious, however, that the portion F corresponding to the heel can also be made in a similar manner. I prefer, however, to make the portion F separate and of hard metal.

It will be seen that by the above arrangement the portion E can be easily replaced by one having any desired device cast thereon, and that the cost will be trifling compared with one of hard metal.

I have spoken of my invention as particularly applicable to molds for vulcanizing india-rubber soles for boots and shoes. It is obvious, however, that it can be applied to molds for vulcanizing other articles of india-rubber, and that the pins or projections may be left out, if desired, without departing from the spirit of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The within-described method of constructing molds for vulcanizing india-rubber soles for boots and shoes by casting soft metal around the heads of the pins *b*, or their equivalents, in the manner substantially as set forth.

2. The method herein described of casting a mold partially of soft metal, with or without the pins or projections, for the purpose of vulcanizing other articles, as set forth.

CHARLES McBURNEY.

Witnesses:
ALBERT E. PEIRCE,
NORMAN W. STEARNS.