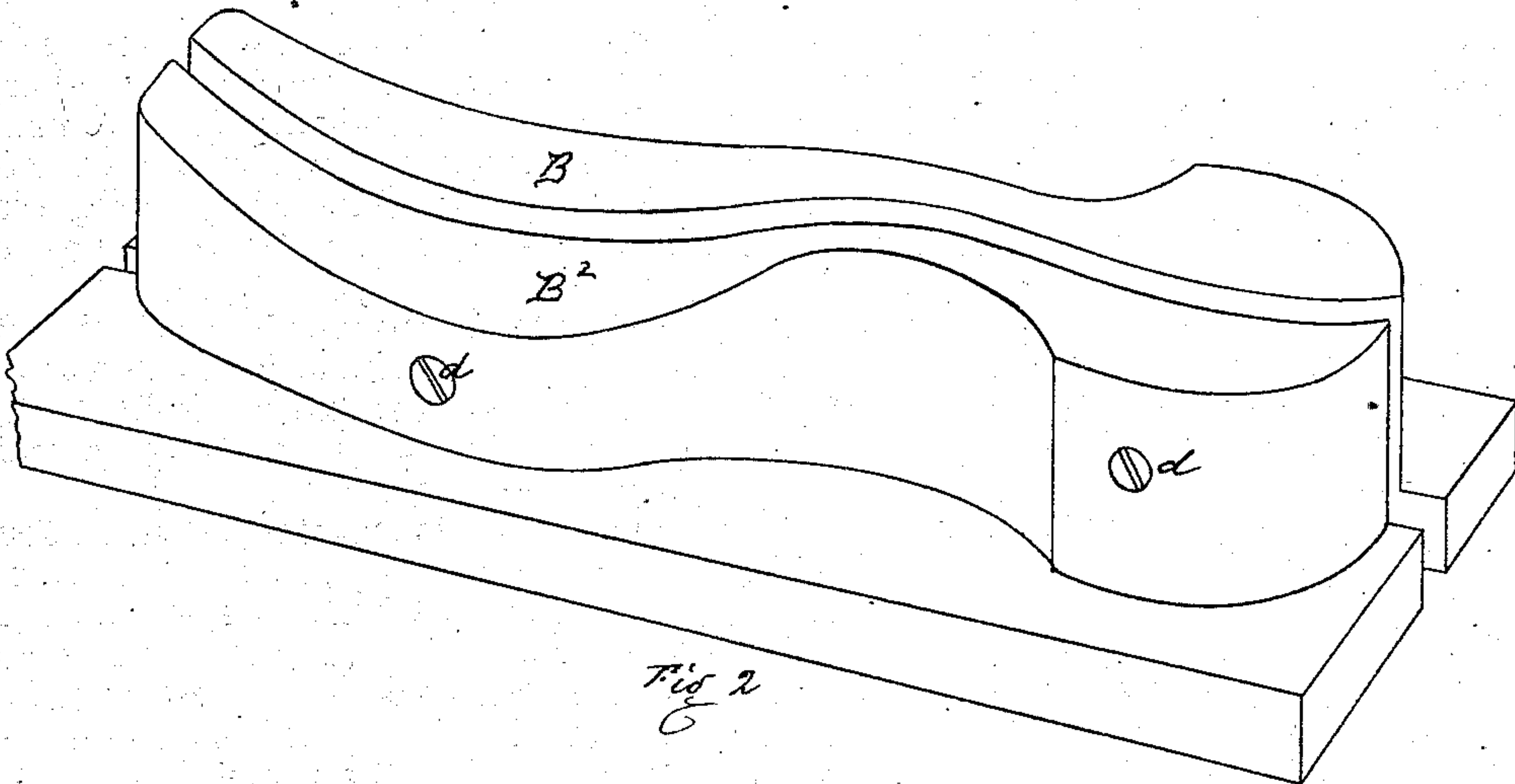
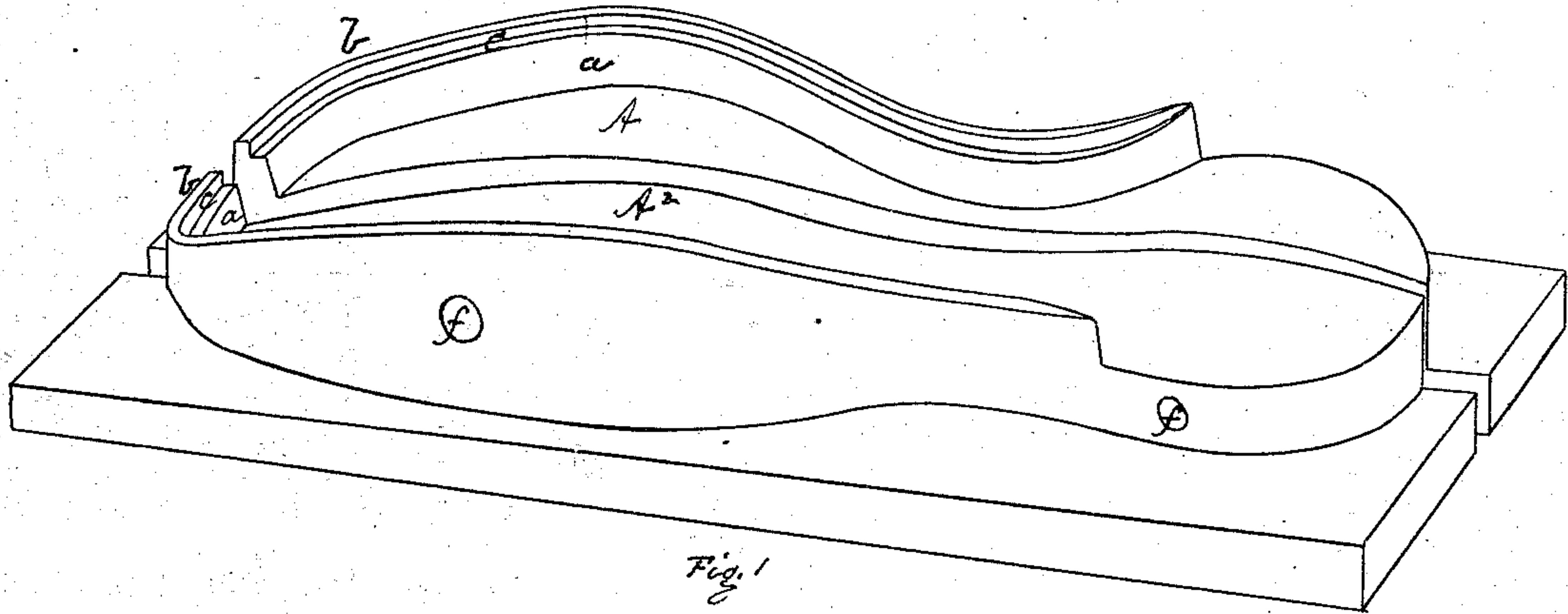
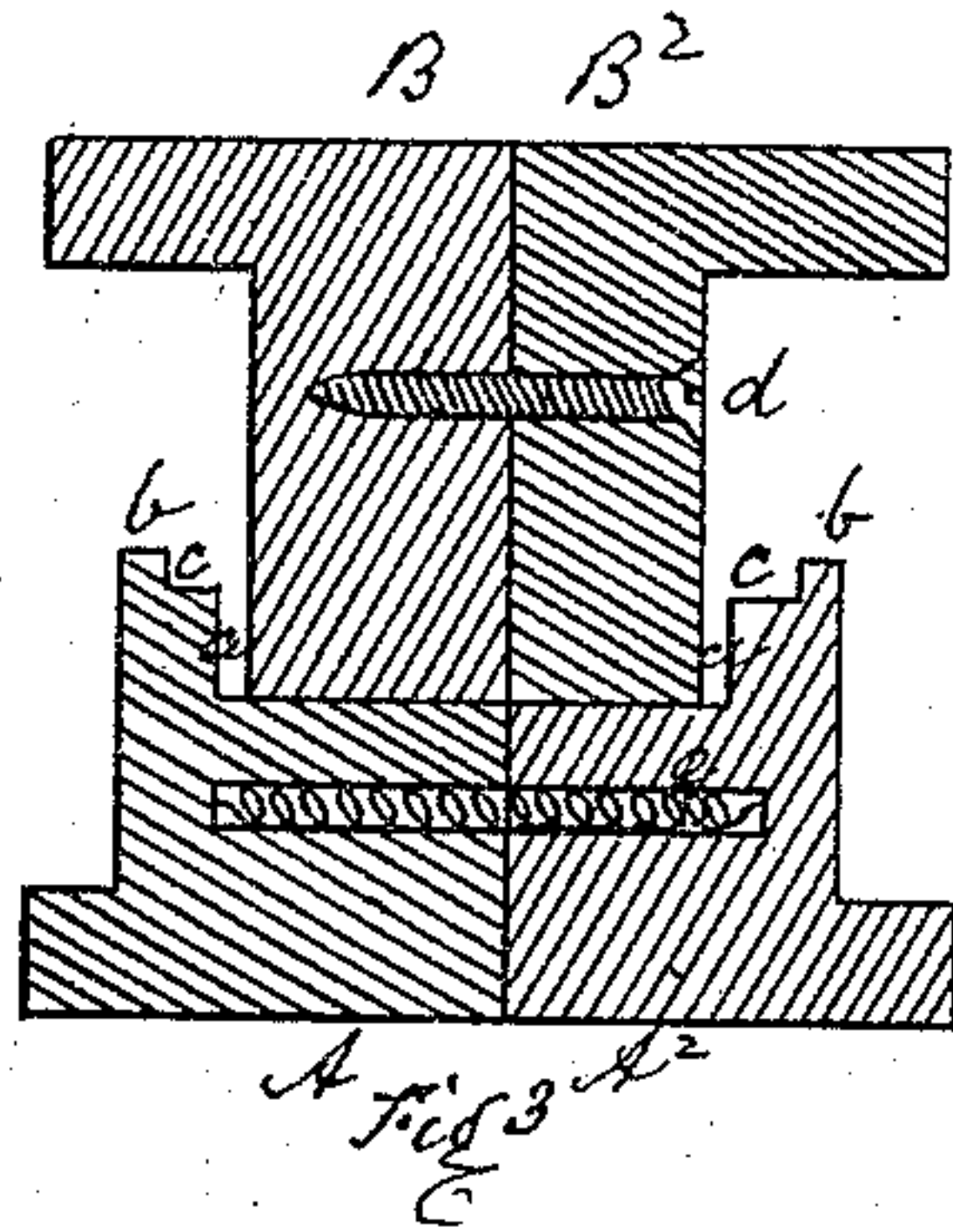


F. D. BALLOU.

Dies for Flanging Soles for Boots and Shoes.

No. 158,882.

Patented Jan. 19, 1875.



Geo. W. Popland
J. F. Raymond } Witnesses

Invented
Francis D. Ballou

UNITED STATES PATENT OFFICE.

FRANCIS D. BALLOU, OF ABINGTON, MASSACHUSETTS.

IMPROVEMENT IN DIES FOR FLANGING SOLES FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **158,882**, dated January 19, 1875; application filed September 4, 1874.

To all whom it may concern:

Be it known that I, FRANCIS D. BALLOU, of Abington, in the State of Massachusetts, have invented a new and Improved Flanging-Die for the Soles of Boots and Shoes, of which the following specification is sufficient to enable those skilled in the art to make and use the invention.

This invention is intended to shape and turn the flange of outer soles, which are to be attached, by machinery, to boots and shoes by stitching to a welt outside the upper.

A A^2 is a halved lower die. A rim, a , (shown in perspective in Fig. 1 and in section in Fig. 2,) borders the outer edge of each half of the die, and is shaped like a shoe-sole, narrowed by a regular distance for the flange all round. On the summit of this rim a is a rabbet, formed of a ledge, c , and rim b , which is shaped like the sole. The two parts of the die A A^2 are forced together laterally by springs e , which may be internal, as shown in Fig. 3, or may compress the dies from the outside with bearings near the toe and heel f . B B^2 is the upper die, made double. The two parts are set apart by the screws d , so that each size is adjustable to various degrees of fullness or blocks. It is, as shown in Fig. 3, narrower than the deep recess in die A A^2 by about twice the thickness of sole-leather. In using the die B B^2 , arranged for the wide blocks, quoins may be dropped between the parts A A^2 of the lower die, to prevent it from coming together fully. A piece of sole-leather cut to shape and properly tempered is laid in the recess c within the ledge b , and the upper die brought down. This turns a flange along the edges of the upper die, and shapes the sole to the bottom of the last.

As there is a variance in the thickness of sole-leather, the machine might choke if the lower die were solid; but the application of springs e allows it to stretch to accommodate any thickness.

In Baldwin's patent, No. 139,354, dated May 27, 1873, is shown a machine for molding boot and shoe bottoms. This is done by compress-

ing the leather cut approximately to shape within dies that inclose it entirely on all sides, and form the edges as well as the surfaces. It will be observed that, in this contrivance, the object is to turn a flange, and that the machinery to do it consists of a die which supports the leather along the border only of another die, which strikes the leather upon the space inside the border supported on the first die; and that, while in the Baldwin machine the leather, when the dies are brought together, is pressed against the wall bounding the lower die, in this it is drawn away from it. While in Baldwin's the half-dies are moved positively toward each other at and before the moment of pressure, in this, if the half-dies move at all, it is away from each other, at and after the moment of pressure. This being the state of the art,

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

1. The die A A^2 , provided with springs e for drawing the parts A A^2 toward each other, substantially as and for the purpose described.

2. The combination of the laterally-adjustable die B B^2 with the laterally-yielding die A A^2 , substantially as and for the purpose described.

3. The laterally-adjustable die A A^2 , formed with the ledge c and rim a , in combination with the laterally-adjustable die B B^2 , striking inside the ledge c , substantially as and for the purpose described.

4. In an apparatus for turning a flange upon a line near the edge of a boot and shoe sole, the die B B^2 of the width of the sole between the intruded flanges, in combination with the die A A^2 , having a deep central recess slightly wider than the die B B^2 , and the ledge c , within and on which to adjust the sole and present it properly to the stroke of die B B^2 , substantially as described.

FRANCIS D. BALLOU.

Witnesses:

GEO. W. COPELAND,
F. F. RAYMOND.