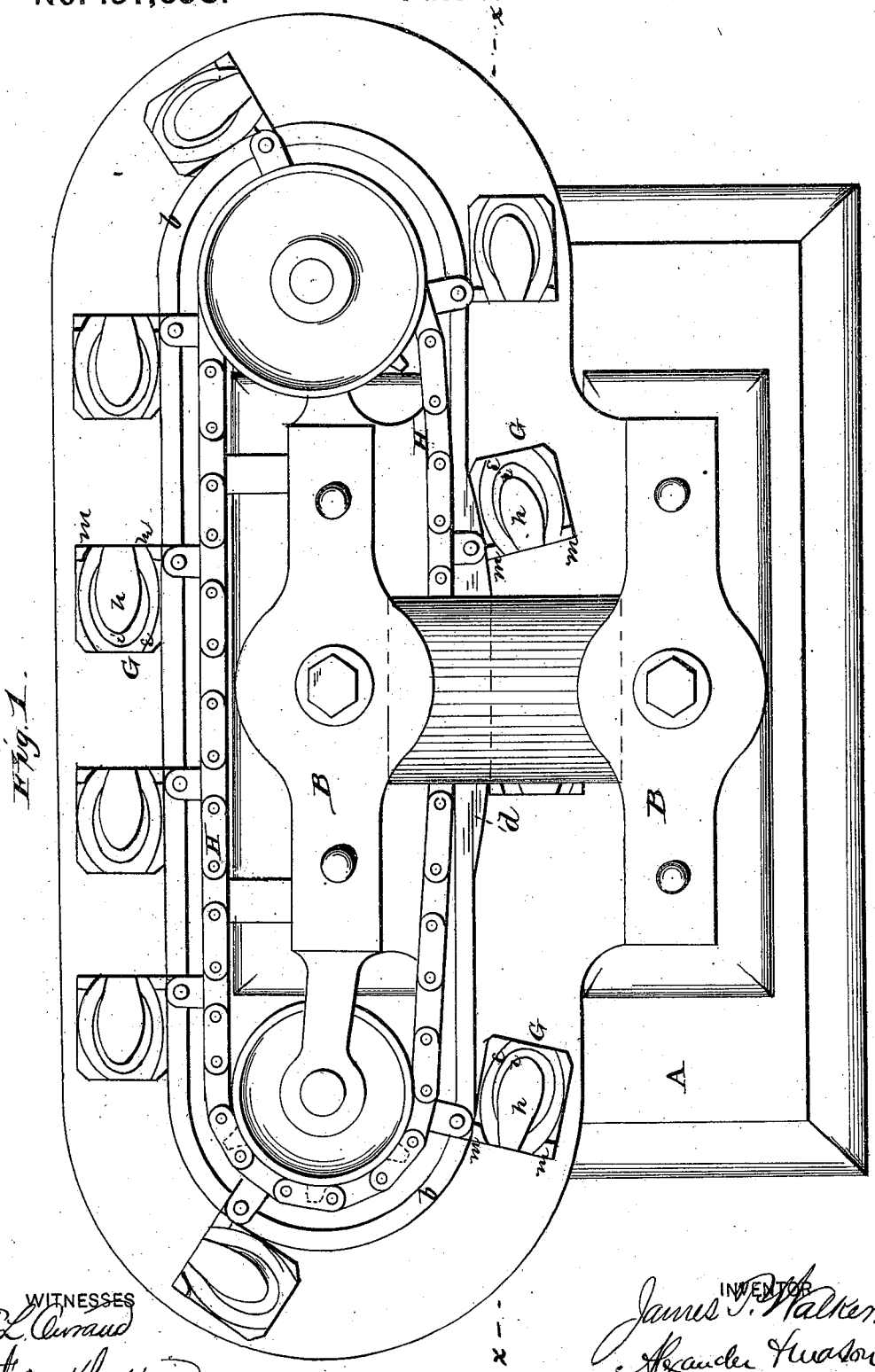
3 Sheets—Sheet 1.

J. T. WALKER.

Horseshoe-Machine.

No. 197,698. Patented Nov. 27, 1877.



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3 Sheets—Sheet 2.

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Horseshoe-Machine.

No. 197,698. **Patented Nov. 27, 1877.**

Fig. 4.

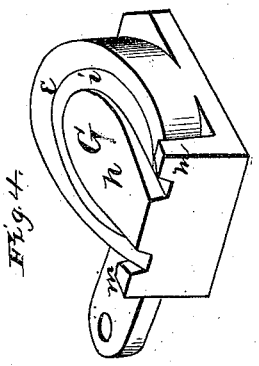
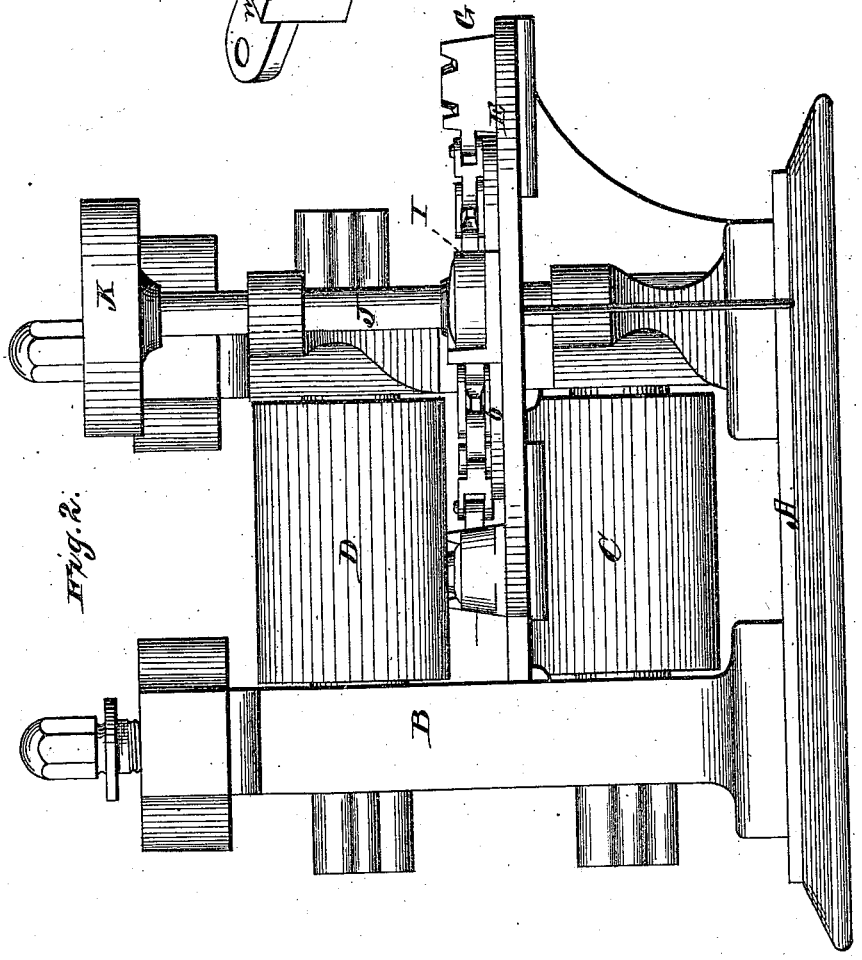


Fig. 2.



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3 Sheets—Sheet 3.

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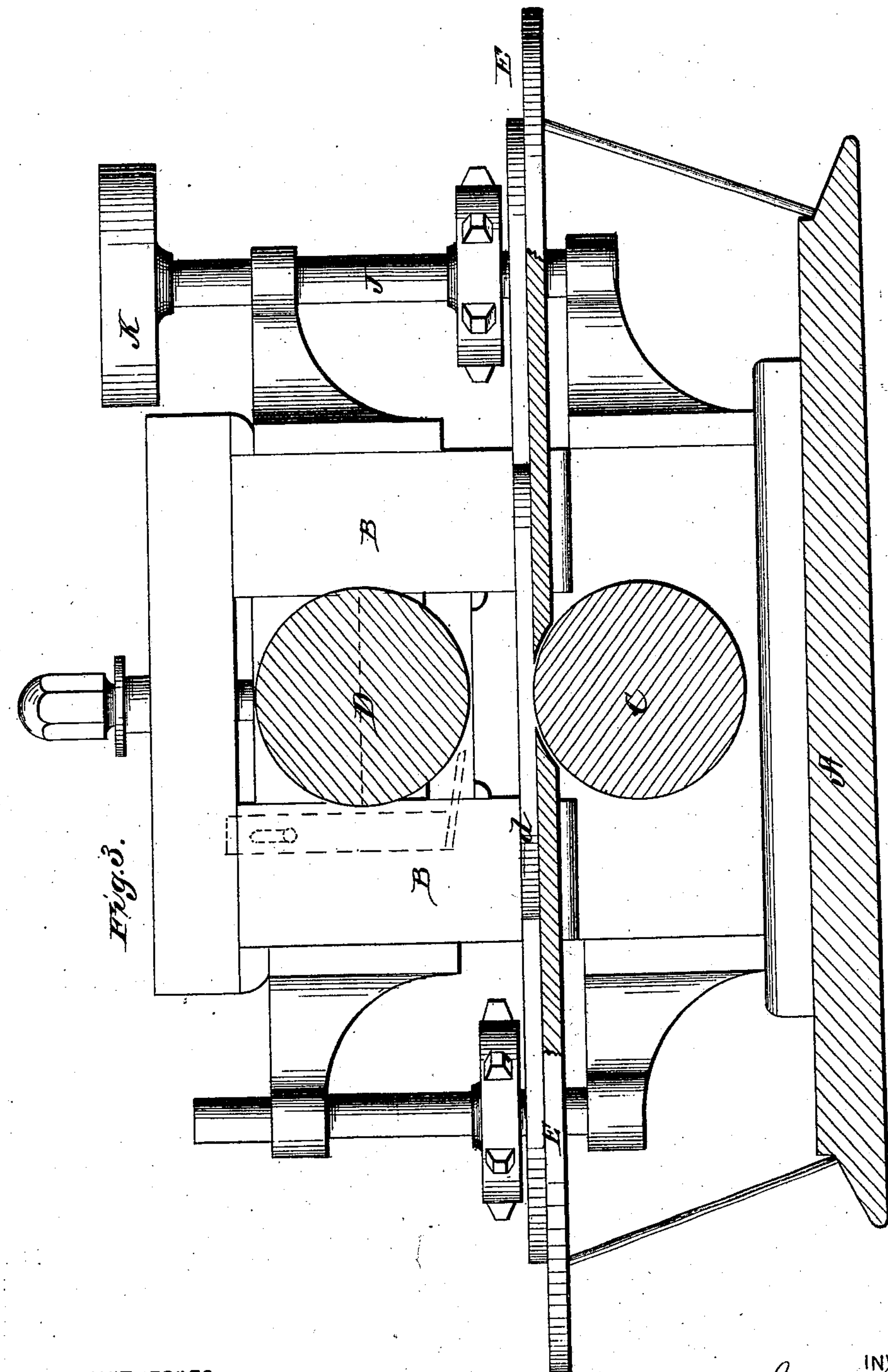
Horseshoe-Machine.

No. 197,698. Patented Nov. 27, 1877.

Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES T. WALKER, OF ALBANY, NEW YORK.

IMPROVEMENT IN HORSESHOE-MACHINES.

Specification forming part of Letters Patent No. **197,698**, dated November 27, 1877; application filed November 16, 1877.

To all whom it may concern:

Be it known that I, JAMES T. WALKER, of Albany, in the county of Albany and in the State of New York, have invented certain new and useful Improvements in Horseshoe-Machines; and do hereby declare that the following is a full, clear, and exact description thereof reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to machines for forming or shaping horseshoes after the blanks have been bent in any ordinary bending-machine; and the nature of my invention consists in one or more detachable independent and automatically-traveling horseshoe-dies, in combination with a pair of smooth-surfaced pressure-rollers, between which the die or dies pass, and also in the construction of the dies, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a plan view of a horseshoe-machine embodying my invention. Fig. 2 is an end elevation, and Fig. 3 a longitudinal vertical section, of the same on the line *x x*, Fig. 1; and Fig. 4 is an enlarged perspective view of one of the dies.

A represents the bed or floor on which the machine is erected. B B are two housings to receive the journals of the rollers C and D, the upper roller, D, being made adjustable up and down by any suitable means to regulate the pressure thereof.

E represents the table or platform, over which the dies G travel. These dies are connected to an endless chain or carrier, H, passed around ordinary sprocket-wheels I I, which are secured upon upright shafts J; and one of these shafts is provided with a pulley or band wheel, K, to be run by a belt or other means from an engine or other motive power.

The dies G, traveling on the platform E, bear against an endless track or guide, *b*, on the side of which, between the rollers C D, is a swell or enlargement, *d*, whereby the endless chain is stretched just as each die passes in between the rollers, and the dies are successively brought in squarely between said rollers, the lower roller, C, acting as a rolling support or bed for the die, while the upper roller, D, is the pressure-roller, pressing the blank into the die.

The construction of the dies G will be hereinafter described.

The blanks for the horseshoes are first bent in an ordinary bending-machine, and then placed on the dies either by hand or otherwise, and the dies, with the blanks thereon, are then moved successively in between the rollers C D.

Ordinarily "merchant" shoes, as distinguished from "hand-made" shoes, have been manufactured upon machines having reciprocating plungers, which come down and hammer the blank on the die. In such machines the jar and concussion soon injure the machine and render it unfit for use, necessitating expensive repairs.

I am also aware that a machine has been made in which an eccentric-sector, or a sector attached to a rotating eccentric-shaft, has been used with a traveling die. This, however, is very objectionable in practice, as it requires a very nice adjustment of the various parts to make such sector register properly with the die at all times.

In my machine the objections to both of above classes of machines are entirely obviated, as I employ two smooth-surfaced rollers, which are perfectly concentric with their axes.

The die G is constructed as shown in Fig. 4, the upper surface of the die forming the frog *h*, around the toe and sides of which is a slightly-convex incline, *i*, to form the required concavity on the top of the shoe. The tread *e* of the die is made inclined, so as to be the deepest at the heel on both sides, and the highest at the toe. This tread is also gradually made wider from the quarters to the toe.

The above is simply the general construction of the die; the incline *i* and tread *e* will be changed in degree and size according to the different numbers of shoes. The die is further formed on each side at the heel with a projection, *m*, of the same height as the frog *h*, to retain the heel of the shoe in the die.

In pressing the shoe, the greater amount of work being done on the inner edge thereof, the tendency is to spread the heel outward. This

is prevented by the projections *m m* on my die. The frog *h* should in all dies be perfectly parallel with the bottom of the die.

By this construction of the die, and the arrangement of the dies so that they will pass with the heel first in between the rolls, the blank is pressed so that the shoe will be the thickest at the heel, and the metal thinned and spread gradually toward the toe, where the shoe will be the thinnest and widest.

In some cases I may arrange the dies to enter toe first between the rolls; but I prefer to arrange them so as to enter heel first.

By the employment of the smooth-surfaced concentric rollers of proper diameter, the metal is practically condensed, and its flow of metal just the same as with the hammer, while the jar and concussion of the hammer are entirely obviated.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a horseshoe-machine, one or more detachable and independent and automatically-traveling horseshoe-shaping dies, in combination with a pair of smooth-surfaced pressure-rollers, between which the die or dies pass, for the purposes set forth.

2. A horseshoe-die, G, formed upon its upper surface with the frog *h*, projections *m*, incline *i*, and inclined tapering tread *e*, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 16th day of November, 1877.

JAMES T. WALKER.

Witnesses:
FRANK GALT,
J. M. MASON.