H. J. BATCHELDER.

Horse-Shoe Machine.

No. 159,743 Patented Feb. 16, 1875.

Fig. 1

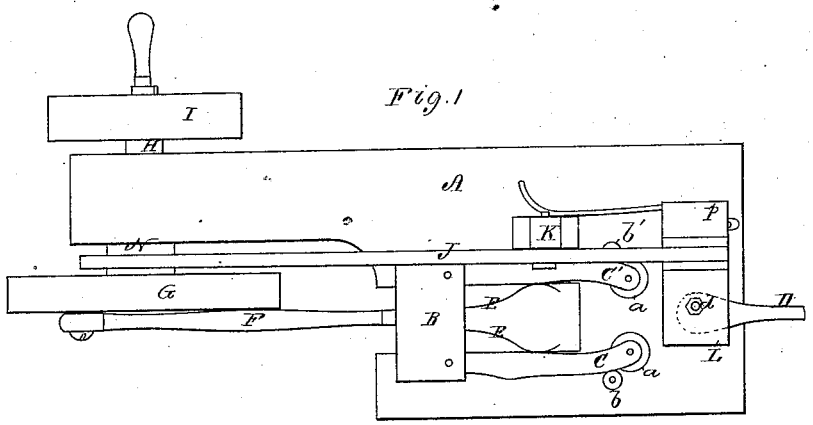


Fig. 2

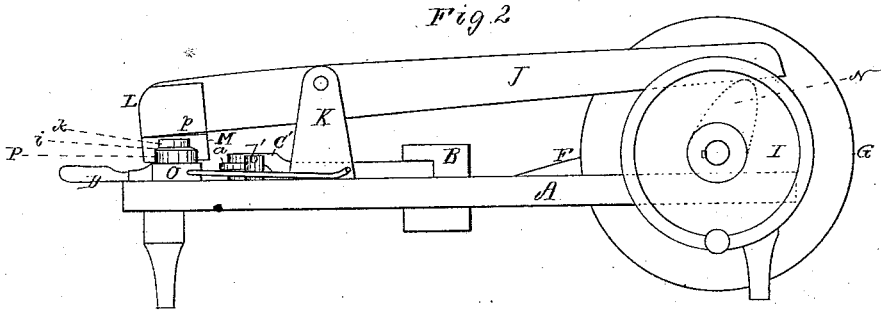


Fig 3

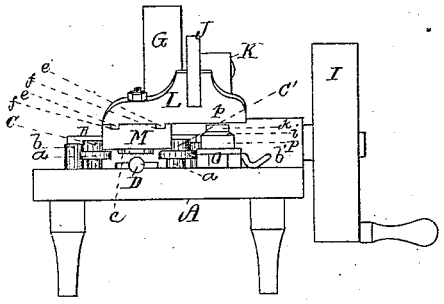


Fig 5

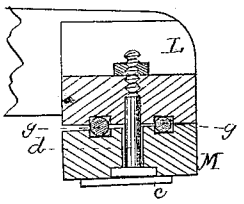


Fig 6

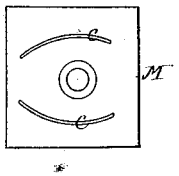
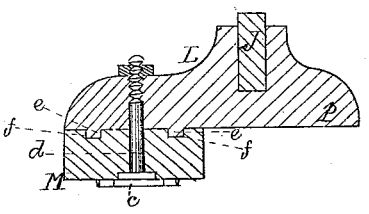


Fig. 4



Witnesses.

Geo Gray

F. C. Hale

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UNITED STATES PATENT OFFICE.

HAZEN J. BATCHELDER, OF FITCHBURG, ASSIGNOR TO THEODORE S. VERY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN HORSESHOE-MACHINES.

Specification forming part of Letters Patent No. **159,743**, dated February 16, 1875; application filed September 24, 1874.

To all whom it may concern:

Be it known that I, HAZEN J. BATCHELDER, of Fitchburg, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Horseshoe-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

In the said drawing, Figure 1 denotes a top view, Fig. 2 a side elevation, and Fig. 3 an end view, of a horseshoe-machine embodying my improvements. Fig. 4 is a longitudinal section of the creaser-carrier and the head-stock to which it is attached; and Fig. 5, a cross-section of the same.

My present invention may be said to be an improvement on that patented by me and Geo. E. Wood April 21, 1868, and has reference to the operations of bending, creasing, and seating the shoe, and also imparting the desired thickness thereto; and consists in the construction, combination, and arrangement of the several parts whereby the results are attained, as hereinafter described and claimed.

In the drawing, A denotes a table for supporting the main operating parts. B is a cross-head, which is so affixed to the table as to be capable of sliding longitudinally thereon. C C′ are two jaws or levers, which are pivoted to the cross-head, each of these levers having a friction-wheel, *a*, disposed on its outer end. D is the die or former, around which the shoe is bent. *b b′* are guide-rollers, respectively arranged against the outer vertical faces of the levers C C′, the latter being so shaped as to cause them, when acting against the guide-rollers and impelled forward, to bend the shoe in conformity with and around the die or former D. E E are two springs extending from the cross-head, their free ends bearing against the inner faces of the levers, and serving to maintain them in contact with the guide-rollers before mentioned. F is a pitman, which connects the cross-head B with a wheel, G, disposed on one end of a driving-shaft, H, which is arranged at the rear end of the frame, and carries on its opposite end a cranked wheel, I, by rotating which reciprocating movements may be imparted to the cross-head B, and consequently to the bending-levers C C′. J is a lever, which is pivoted to a standard, K, extending up from the table, such lever extending longitudinally of the table, and having a head-block, L, securely affixed to its front end. To this block is pivoted the creaser-carrier M, which has the creasers *c c* affixed to its under surface, as shown in Fig. 6, which is an under-side view of the creaser-carrier and the creasers. This creaser-block is connected with the head L by means of a screw-rod, *d*, extending up through the two, the hole in the creaser-carrier being somewhat elongated, so as to allow the head L to have short reciprocating movements longitudinally on the creaser-carrier, same being guided in such movements by means of parallel ribs *e e*, affixed to the under surface of the stock, and corresponding grooves *f f*, made in the top surfaces of the creaser-carrier, or vice versa. *g g* are two friction-rollers, arranged transversely in grooves made in the top of the creaser-carrier, the inner one being slightly larger in diameter than the outer one, in order to maintain the face of the creasers in parallelism with the shoe when the lever is moved downward, and the creaser brought in contact with the shoe. The object of the rollers *g g* is to allow the creasers to maintain a fixed parallel position with the shoe while forming the creases in the latter, while the head-block is moved back to conform to the arc of the circle in which it moves. N is a cam, which is affixed on the axle or driving-shaft H, such cam actuating the lever J, and being so arranged and timed, with respect to the wheel which reciprocates the bending-jaws, that after the latter have been moved forward and bent the shoe around the former or die, and the jaws been moved backward, (leaving the shoe upon the former,) the creasers shall be forced downward and the shoe creased. Disposed near the front end of the machine is a block, O, which is pivoted thereto, so as to be capable of being moved both under and out from the head-block L, one part thereof—viz., *p*—being formed to constitute a presser

to operate with the die-block P, disposed on the base O. On the die P the shoe (after having been bent into its approximate shape by the die D and the levers C C′ hereinbefore mentioned) is to be placed in order to be seated, and have the desired longitudinal shape imparted to it. For this purpose the lower part, *i*, of the die is formed with a convex upper surface, in order to impart a corresponding concavity to the under surface or seat of the shoe. The upper part, *k*, of the die P corresponds in curvature with the original die around which the shoe was bent. This part *k* may be formed of an even thickness, or with a greater thickness at one end than at the other, so that the shoe may be made of an even thickness, or the heel portion thicker than the toe, or vice versa, the reduction of the shoe to such shape being effected by the presser *p* or head L when moved downward, the said device or block O being provided with a handle or lever, by which it may be moved under the head or presser, or out therefrom and into a convenient position to receive the shoe or remove it therefrom, as may be desired.

Having described the construction of my machine, its operation is as follows: If we suppose the blanks to form the shoe to have been severed from a bar, a blank is to be placed in position on the table between the die D and the ends of the forming-jaws, when, by rotating the wheel G, the jaws will be moved forward and bend the blank around the die D. This being effected, a further rotation of the wheel will retract the levers, drawing them away from the blank, which will be left upon the die D. A further rotation of the wheel or driving-shaft will cause the cam N to act against the tail of the lever J, and thereby force the creasers into the shoe to the desired depth. A further rotation of the driving-shaft will cause the tail of the lever J to fall by the action of gravity upon that part of the cam having the least eccentricity, and thereby raise the creasers from the shoe, when the latter may be taken from the die D and placed upon the die P, when by a further rotation of the driving-shaft the head L or presser *p*, by the action of the cam, will be forced downward upon the shoe on the die P, and press the shoe into the ultimate or required shape, a further rotation of the shaft allowing the head to rise, when the die P, with the shoe on it, may be moved from under the head, and the shoe removed.

What I claim as my invention is—

1. The above-described improved horseshoe-machine, consisting of the blank-bending mechanism, the creasing mechanism, and the shaping and seating mechanism, when all are constructed, combined, and arranged together as shown and described, and provided with mechanism for operating them, as set forth.

2. In a horseshoe machine, the combination, substantially as described, of the reciprocating head-block L, former D, swinging die P, and the creaser-carrier M, provided with creasers *c c*.

3. In a horseshoe-machine, substantially as described, the creaser-carrier M, loosely pivoted to the head-block L, and provided with guides and friction-rolls *g g*, as and for the purpose set forth.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

HAZEN J. BATCHELDER.

Witnesses:

F. P. HALE.

THEO. S. VERY.