W. H. Thompson,

Horseshoe Machine,

No. 37,062, Patented Dec. 2, 1862.

Fig. 3.

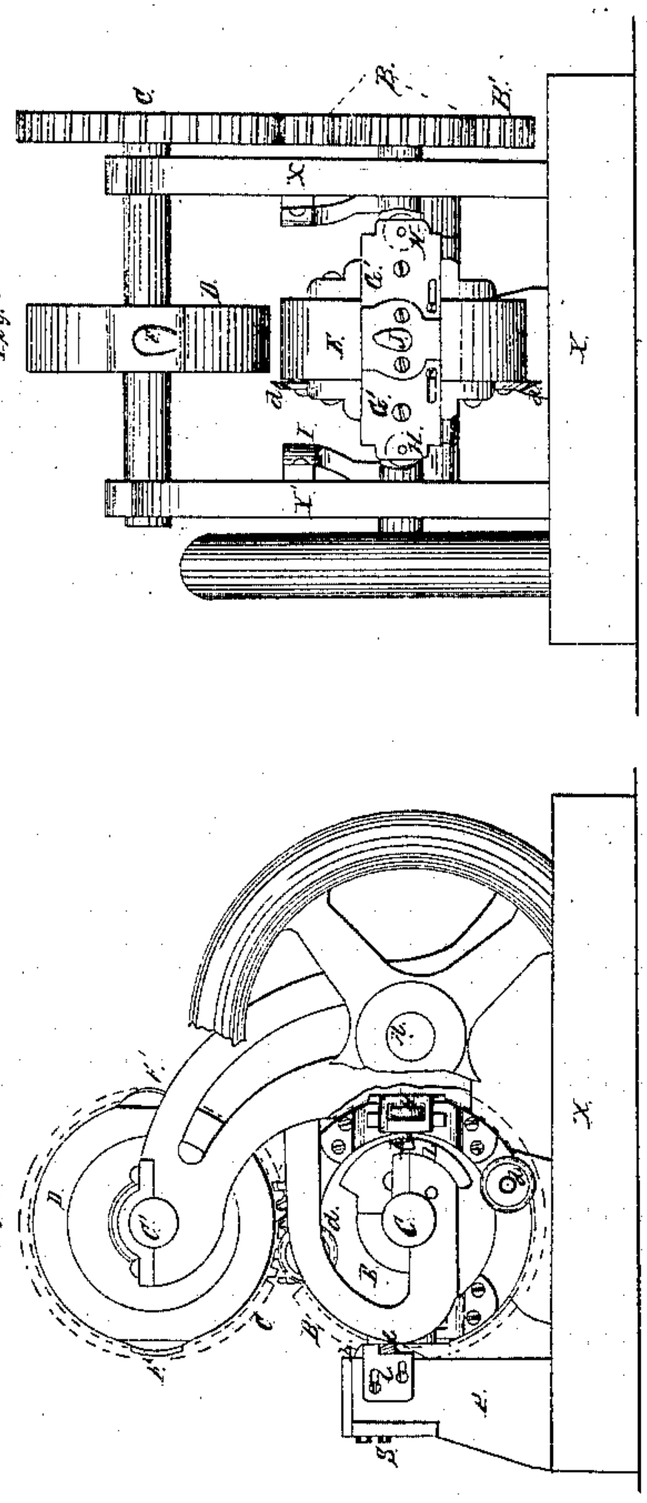


Fig. 8.

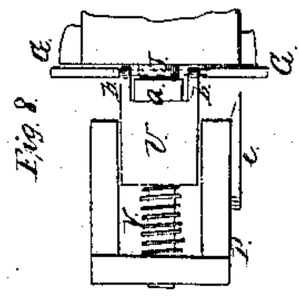


Fig. 6.

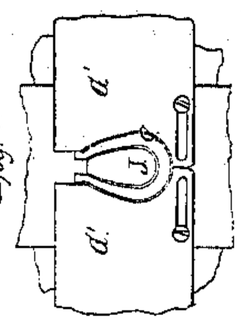


Fig. 7.

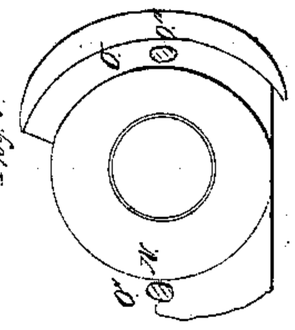


Fig. 2.

Fig. 5.

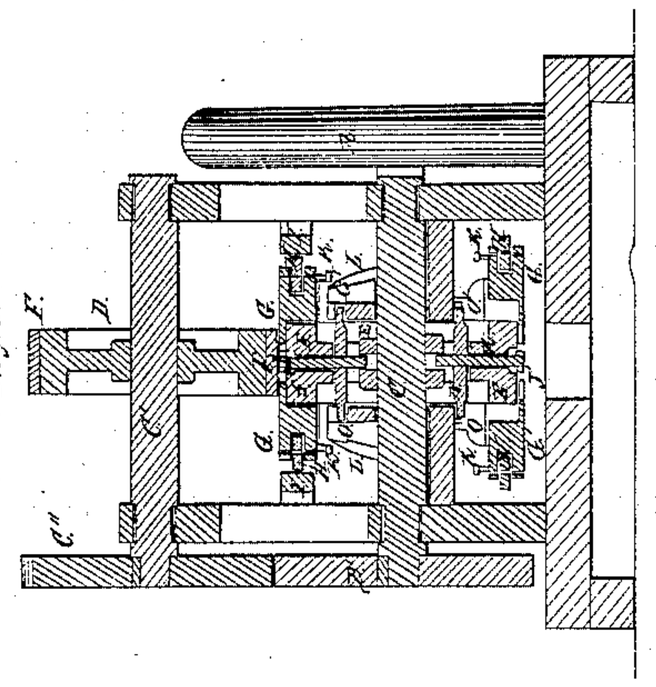


Fig. 1.

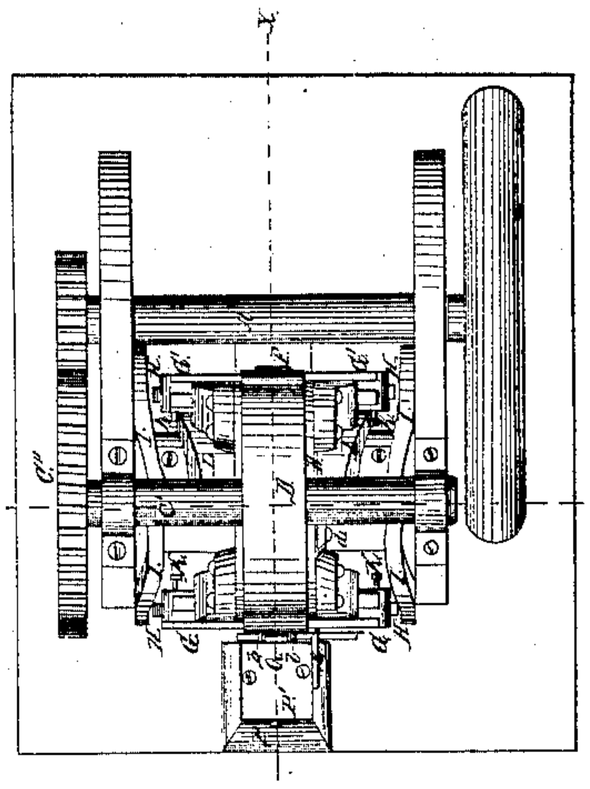
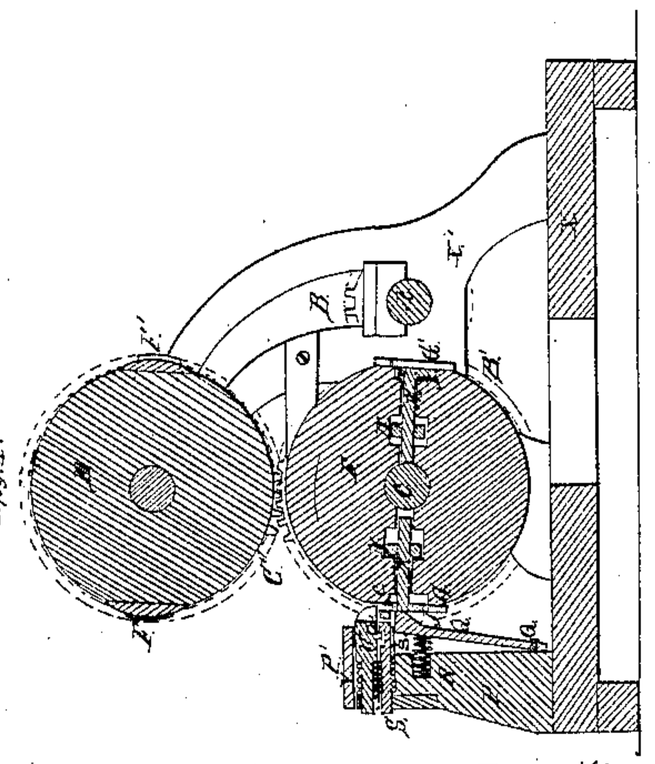


Fig. 4.



Witnesses.
W. H. Burridge
E. A. Lawton

Inventor.
W. H. Thompson

UNITED STATES PATENT OFFICE.

W. H. THOMPSON, OF CLEVELAND, OHIO.

IMPROVEMENT IN HORSESHOE-MACHINES.

Specification forming part of Letters Patent No. **37,062,** dated December 2, 1862.

To all whom it may concern:

Be it known that I, W. H. THOMPSON, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Horseshoe-Machines; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan view. Fig. 2 is a side elevation. Fig. 3 is a rear view. Fig. 4 is a longitudinal section. Fig. 5 is a cross-section, and Figs. 6, 7, and 8 are detached sections.

Like letters of reference denote like parts in the several views.

The frame-work of this machine consists of a bed-plate, X, and the parts X′ X′, for supporting the boxes for the several shafts.

A represents the main shaft. To one end of this, outside of the part X′, is a fly-wheel, A′. Upon the opposite end of the same shaft is placed a driving cog-wheel, B. A shaft, C, Figs. 2, 4, and 5, rests in boxes and lies parallel to and in the same horizontal plane with the shaft A. To one end of this shaft C is secured a cog-gear, B′, which is put in motion by the driving-wheel B.

C′ represents a shaft which is situated nearly vertical to the shaft C, and parallel thereto, and to the end thereof corresponding to ends of the other shafts carrying the wheels B and B′ is attached a cog-gear, C″, having the same diameter and the same number of teeth as the wheel B′. Consequently the shafts C and C′ rotate in perfect concert, their revolutions being equal.

D is a disk-wheel secured to the middle of the shaft C′. Upon the periphery of this wheel D, and upon exactly-opposite sides, is secured the dies F F′. These are raised above the face of the wheel, and are so curved upon their outer face that they will form contact with flat revolving dies, hereinafter to be described. Upon the face of the dies F and F′ are lips or projections which form the crease in the shoe.

E is a disk-wheel secured to the middle of the shaft C, and has the same diameter as the wheel D. They move in concert with each other in the direction of the arrows in Fig. 4. This wheel E is provided with two mandrels, J J′, the stems of which, M M′, are inclosed in an opening or cavity extending from one circumference of the wheel to the other, being, however, interrupted at the center by the shaft C. The stems M M′ can only be drawn in till they meet the shaft. Upon each of these stems are cross-arms N N′, by means of which the mandrels J J′ are shoved out and in, as hereinafter described.

O O′ are stationary cams, so formed and arranged as to act upon the arms N N′ that the mandrel is shoved out and thus held while the wheel performs about half a revolution, or until it has moved from its horizontal position to a point beyond the vertical, so as to have passed the dies F F′, respectively, for purposes hereinafter explained. For the remainder of the circuit the mandrels, respectively, are drawn within the face of the wheel E. At the points of the face of the wheel E which are pierced by the mandrels J J′ the face of the wheel is flattened, and the dies F F′ have a fullness and form just sufficient to compensate for the flattened surfaces upon the wheel E, so that the flat surface seen at G′, Fig. 4, and the curved surface F′ at each revolution will move over each other in contact. By this means I obtain a flat surface for the female dies for forming the shoe.

G G and G′ G′ represent two pairs of sliding jaws, which slide to and from the mandrels J and J′ upon the flattened surfaces of the wheel E. The movement of the jaws is parallel to the shaft C and at right angles to the mandrels J J′. Upon each side of the mandrels the cylinder E is widened to give strength and support to the jaws, which, being attached to the wheel E, revolve around with it. The jaws G G G′ G′ are moved to and from the mandrels by means of stationary cams I I, attached to the posts X′ X′. A friction-wheel, H, is provided for the outer end of each of the jaws, in order to reduce the friction against the cams I I.

L L, Figs. 1 and 2, represent cams that, by acting upon a pin, K, which is inserted into the under side of the jaws near the wheel H, serve to draw the jaws apart after the pressure has been completed by the cams I I.

In Fig. 7 is shown, upon an enlarged scale, the cams O O′ and the position of the arms N N′ in their relation to them.

In Fig. 6 the jaws are shown in an enlarged view when closed around the mandrel in Fig. 6, with the partially-formed shoe *g* inclosed.

Immediately in front of the wheel E there arises from the bed-plate a standard, P, to which is attached the devices for gaging, holding, and cutting off the heated bar for the shoe.

Q′ is a movable rest pivoted to the standard P at Q. This rest is constantly pushed toward the face of the wheel E by a coiled spring, R, placed in a recess in the standard P. The rest Q′ is therefore constantly held in contact with the face of the wheel E, both on its curved and flattened surfaces, except when pushed back by the action of mandrels J J′, as hereinafter stated. Directly above the rest Q′ is a slide-gage, S, with a spiral spring, T, around the shank. The office of this slide-gage is to press the heated bar against the face of the wheel E.

U in Figs. 4 and 8 represents the body of the bending slider. It is placed immediately above the slide-gage S, and like it has a spiral spring, V, around its shank, for the purpose of keeping it pressed forward to the face of the wheel E.

a shows a projection on the under side, which falls into a notch in the slide-gage S, thus locking the two together, so that to a certain extent the two move in concert.

b b represent fingers that project from the body U toward the face of the wheel E, between which and underneath is seen the top of the rest Q′, Fig. 8. The mandrel J is also seen pressing against the rest Q′, which it presses back in its upward and outward movement.

P′ is a cap which covers the cavity in the top of the standard P, which incloses the shanks and spiral springs T V.

e is a stationary cutter secured to the front side of the standard P, and *d* is a disk-blade that acts in concert with the cutter *e*, to cut off the heated bar for a shoe. There being two of the disk-cutters *d* attached to the rim of the wheel E, every half-revolution brings one of them into contact with the stationary cutter *e*.

Having thus fully described the construction of the machine in all its parts, I will now proceed to describe its operation. A heated bar is introduced at *c*, Figs. 1 and 4, upon the rest Q′ and below the fingers *b b*. The wheels D and E being in motion in the direction of the arrows in Fig. 4, the mandrel that is approaching the heated bar is shoved outward, as before described, pushing back the rest Q′, the mandrel taking in its course the heated bar *c*, bending it into the form of the letter U between the fingers *b b*. As soon as the partly-formed shoe has passed the fingers, the jaws G G or G′ G′ are moved in upon its outer edges, thus pressing the heated iron *g* closely around the mandrel, as seen in Fig. 6, and while thus pressed between the jaws and mandrel, which thus form the female die, the male die F (or F′) is brought in contact by the revolution of the wheels, and the shoe is thereby pressed from the toe to the heel by a rolling motion, which forms and creases the shoe. The female die being flat, and the shoe being firmly held between the jaws during the pressure of the male die, the shoe is left flat. The opening of the jaws and the drawing in of the mandrel releases the formed shoe, and it falls to the ground. Thus it will be seen that every revolution of the machine is capable of making two shoes; but the machine may revolve empty without injury. Different-sized dies and gages may be used for different-sized shoes.

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

1. The adjustable rest Q′, gage S, slide U, and fingers *b b*, in combination with the cylinder E and sliding mandrels J J′.

2. The combination of the cylinder E, the mandrels J J′, with their radial stems M M′ and arms N N′, and the cams O O′, constructed and arranged substantially as set forth.

3. The combination of the cylinder F, the sliding jaws G G G′ G′, cams I I, and pin K, operating in conjunction with the wheel D and male dies F F′, the whole constructed and arranged substantially as specified.

W. H. THOMPSON.

Witnesses:
W. H. BURRIDGE,
E. A. LAWTON.