

H. A. WILLS.  
Horseshoe Machine.

No. 19,528.

Patented March 2, 1858.

Fig. 2.

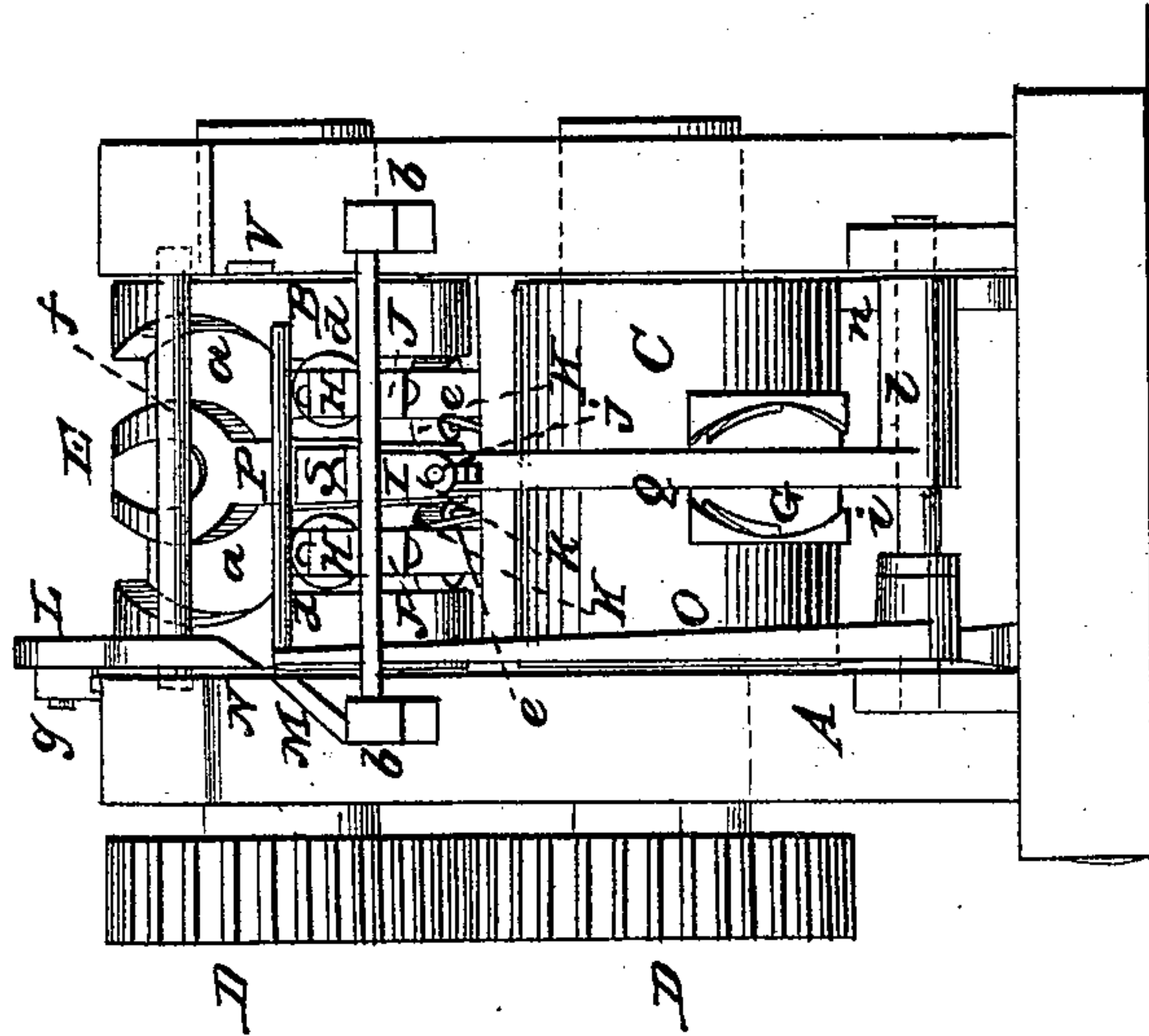


Fig. 3.

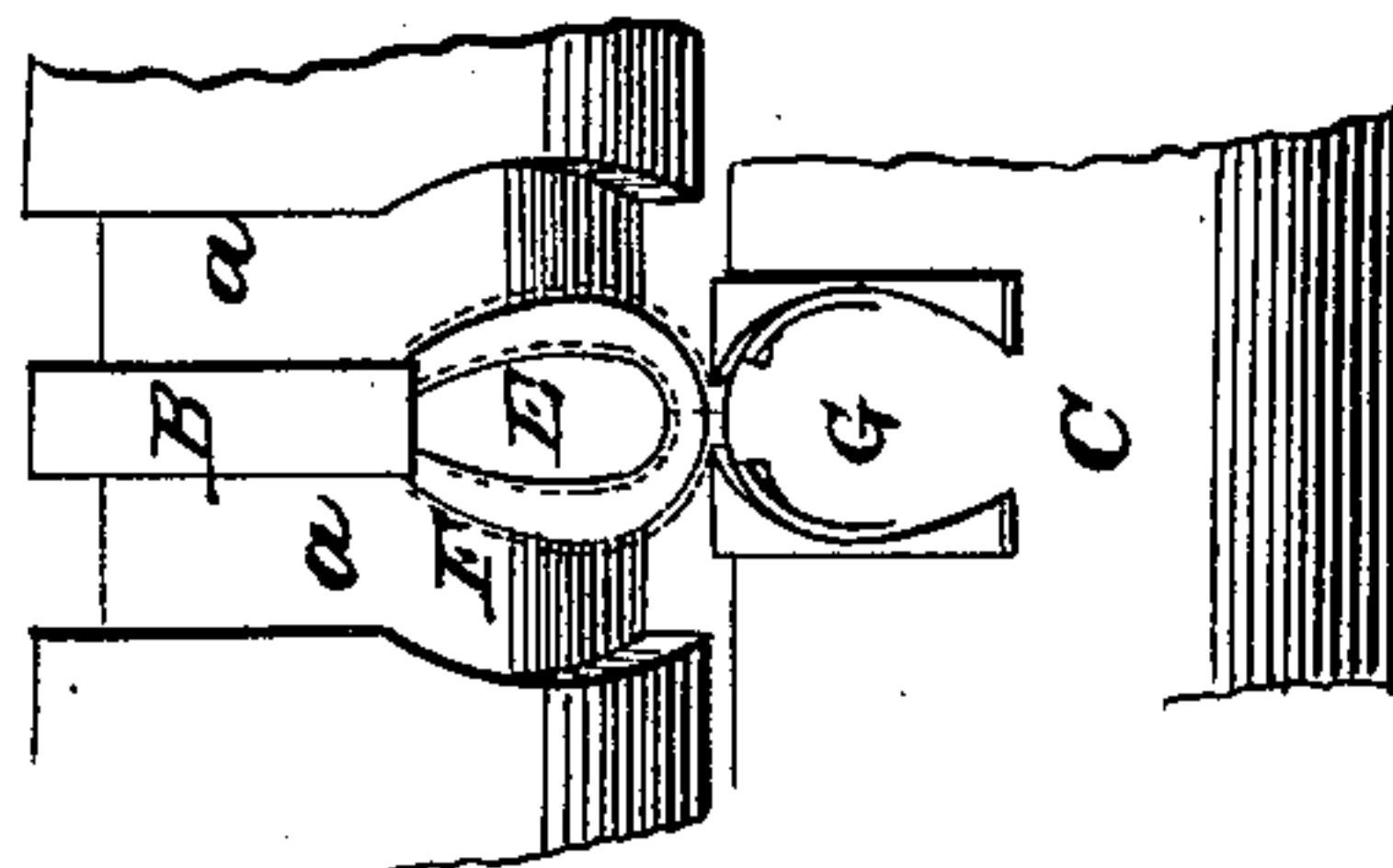
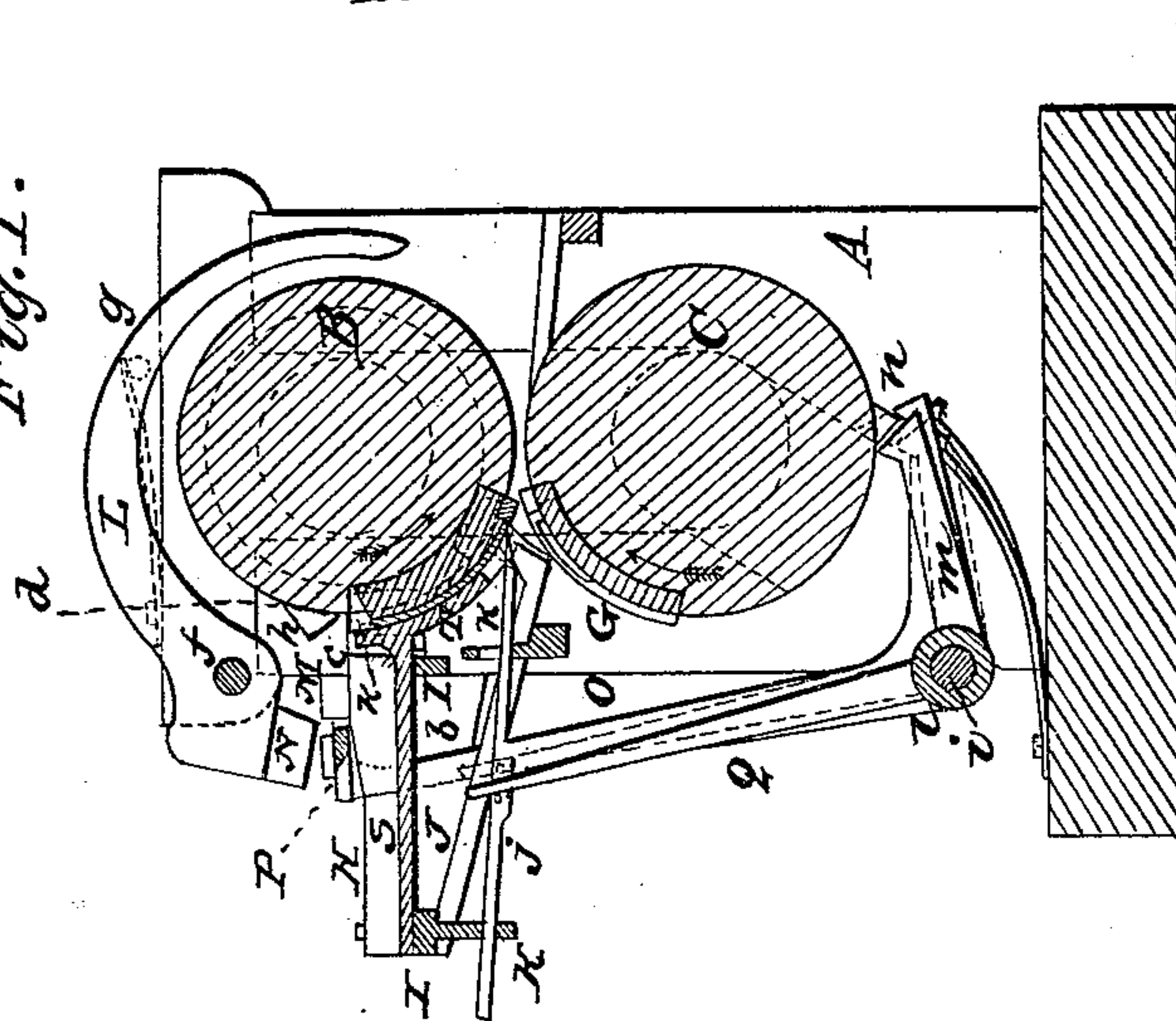


Fig. 1.





# UNITED STATES PATENT OFFICE.

HARRY A. WILLS, OF KEESEVILLE, NEW YORK.

## HORSESHOE-MACHINE.

Specification of Letters Patent No. 19,528, dated March 2, 1858.

*To all whom it may concern:*

Be it known that I, H. A. WILLS, of Keeseville, in the county of Essex and State of New York, have invented a new and useful Improvement in Machines for Forming or Making Horseshoes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a side sectional elevation of my improvement. Fig. 2, is a front view of ditto. Fig. 3, is a detached view of a portion of ditto, showing clearly a peculiarity in its operation.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to an improvement on a machine for making horse shoes for which Letters Patent, dated July 29th, 1837, were granted to B. Young and S. Titus.

The invention consists in the employment or use of shears or cutters a feeding device, auxiliary guides and a vibrating bar or loosening rod arranged and applied to the machine above alluded to as hereinafter shown so as to greatly facilitate its operation and insure the perfectness of its work.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents a strong rectangular framing in which two metallic rollers B, C, are placed and connected at one end by gearing D, D.

The uppermost roller B, has two grooves (a) (a) made in it circumferentially and a projection or mold E, is formed on the upper roller B, said mold being between the grooves (a), (a), and corresponding in form to the internal part of the horse shoe. This will be understood by referring to Fig. 3, the unfinished shoe being shown in blue and designated by F. The lower roller C, has a female die G, attached to its periphery, said die corresponding to the external form of the shoe as plainly shown in Fig. 3.

H, H, are two bars, the outer ends of which are pivoted as shown at (a<sup>x</sup>) to a bar I, the ends of which are attached to horizontal supports (b), (b), connected with the framing A. The inner ends of the bars H, H, have each two rollers (c), (d), on them, the rollers (c) fitting and working in the grooves (a), (a), the rollers (d), (d)

being directly back of rollers (a) as shown in Fig. 1.

J, J, are two bars the outer ends of which are pivoted to the under side of bar I. The inner ends of the bars J, J, are bent or curved upward and are each provided with a roller K, said rollers fitting in the grooves (a), (a). To the inner side of each bar J, a flat spring (e) is attached, the use of which will be presently shown.

In the upper part of the framing A, and at its front edge a shaft (f) is fitted, on which a curved bar L, is fitted. A spring (g) which is attached to framing A, bears on the back part of the bar L, and has a tendency to keep the front end elevated. To the inner end of one of the horizontal supports (b), which is at the same side of the framing A, as the bar L, a stationary cutter M, is attached, and a cutter N, is formed on the front end of bar L, the cutter N, when operated, working over the cutter M, and operating like shears. To the upper roller B, a pin or tappet (h) is attached which actuates at proper intervals the bar L.

On one end of the lower roller C, a cam is formed which actuates a bent lever O. This lever is fitted loosely on a shaft (i) at the lower part of the framing, and to the upper end of said lever a horizontal bar P, is attached, said bar extending across the two bars H, H. On the shaft (i) a lever Q, is also placed loosely, the upper end of said lever connected to a horizontal bar (j) which is fitted in guides (k) (k), attached to the bars. The inner end of this bar is provided with a sharp or chisel edge, and is in line with the lower surface of roller B, as shown in Fig. 1. The lower end of the lever Q, is attached to a hub (l) which is placed loosely on shaft (i) and to the hub (l) an arm (m) is attached, said arm being acted upon by a pin or tappet (n) on the roller C.

Between the two bars H, H, a bar S, is placed. The outer end of this bar is permanently secured to the bar I, and to a bar, I', which is attached to the framing and is parallel with bar I. To the inner end of the bar S a segment T, is attached the curvature of which corresponds inversely with the roller B. To one side of the framing A, the side opposite to where the shears are placed, there is attached a stop U.



The operation is as follows: The bars from which the shoes are formed are of proper size, and a bar being properly heated it is placed between the shears M, N, the end of the bar bearing against the stop U. Power is applied to the rollers B, C, which rotate in the direction indicated by the arrows. The blank is first cut off from the bar by the shears, the pin (*h*) actuating the bar L, to which the cutter N, is attached. As soon as the blank is cut off, the lever O, is moved by the cam on the roller C, and the bar P, is moved toward the rollers carrying the blank forward to the rollers and retaining it until it is caught by the front end of the mold E. The blank as the roller B, rotates being around the mold E, the rollers (*c*) on the bars H, serving as supports or guides and keeping the blank snugly to the mold, the segment T, preventing the blank from falling bodily off from the mold. The female die G, and mold E, are placed in such a position on their respective rollers, that they will register as the rollers rotate, the blank while on the mold passing into the female die and being compressed by it, the springs (*e*) on the bars J, serving as auxiliary guides to the blank. Just previous to the entering of the mold E, and blank F, into the die G, the bar (*j*) is moved forward by the bar Q, which is operated by the pin or tappet (*n*) on the roller C, and the bar (*j*) shoves the front end of the blank F, a little off from the mold E, as shown in red Fig. 3, so as to allow the blank to be expanded laterally while being compressed by the die G. This is an important feature of the invention for it prevents a bur being formed on the front part of the blank or shoe adjoining the mold, a contingency

which would surely occur were the blank not freed in a measure from the mold at the time specified. The back part of the blank or shoe of course is not liable to be burred, as the pressure upon it is outward from the mold instead of inward as is the case with the front part.

The rollers B, C, mold E, guide rollers (*c*) and segment T, have been previously used, and were employed in the machine of Young and Titus, previously alluded to. I therefore do not claim said parts, but

I claim and desire to secure by Letters Patent.

1. I claim the peculiar arrangement of the shears M, N, in the relation to the upper roller B, *h*, and the feeding bar P, so that the cutter shall be brought into action and the cutting off of the blank effected in the revolution of the upper roller B', by means of the projection *h*, on the same, and the blank when cut off left in a position to be certainly fed between the rollers, substantially as set forth.

2. I further claim in combination with the guide rollers (*c*) attached to the bars H, H, the auxiliary spring guides (*e*) attached to the bars J, J, and arranged to operate conjointly with the guide rollers (*c*) as shown and described.

3. I also claim, loosening or shoving back the blank F, on the mold E, just previous to its entering the female die G, by means of the vibrating or loosening bar (*j*) for the purpose set forth.

HARRY A. WILLS.

Witnesses:

EDMUND KINGSLAND,  
JAMES R. ROMEYN.