U. Billings,

Horseshoe Machine,

No. 38,804. Patented June 9, 1863

Fig. 3.

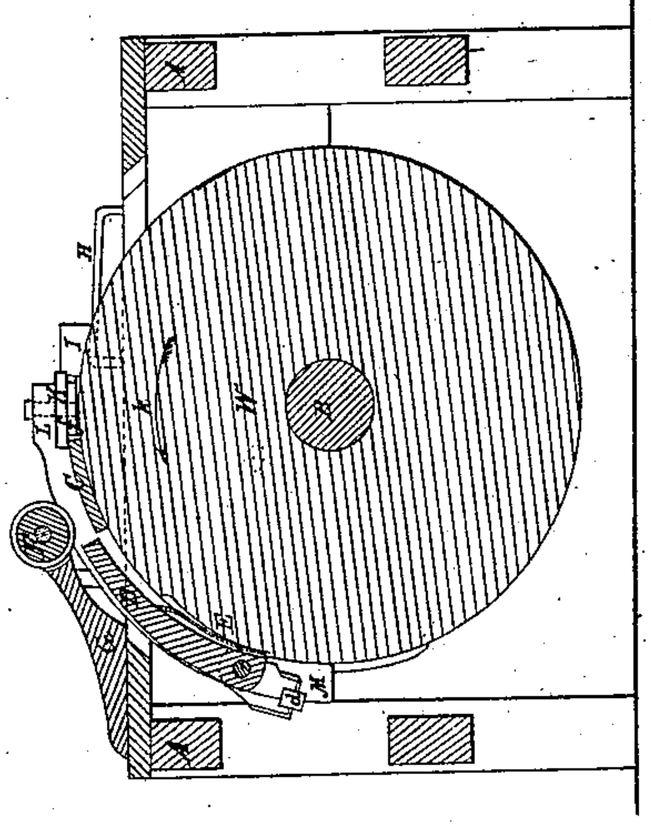


Fig. 2.

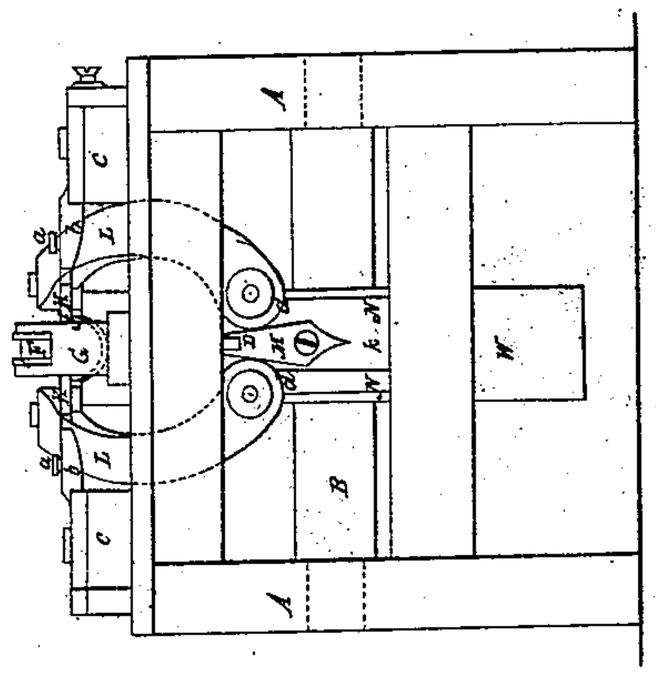


Fig. 4.

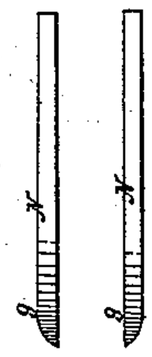
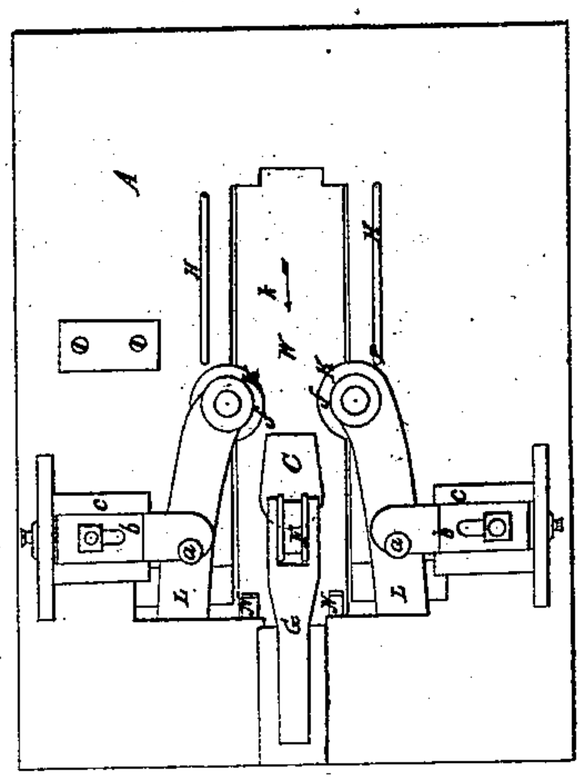


Fig. 1.



Witnesses.
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UNITED STATES PATENT OFFICE.

URIAH BILLINGS, OF BEDFORD, MASSACHUSETTS.

IMPROVEMENT IN HORSESHOE-MACHINES.

Specification forming part of Letters Patent No. **38,804**, dated June 9, 1863.

To all whom it may concern:

Be it known that I, URIAH BILLINGS, a citizen of the United States of America, and a resident of New Bedford, in the county of Bristol and State of Massachusetts, have invented an Improved Machine for Making Horseshoes or Bending and Reducing Iron therefor; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 an end elevation, and Fig. 3 a vertical and longitudinal section, of it.

The nature of my invention consists in the combination of a gripper and its operative mechanism with the said wheel, the shoe-blank former, the actuator, and the swaging-rollers; also, in the combination of certain guide rails and an abutment with the wheel, the shoe-blank former, and the swaging-rollers or mechanism.

In the said drawings, A denotes the frame of the machine, the same serving to support in suitable boxes the shaft B of a heavy vertical wheel, W, which, during the operation of the machine, not only performs the function of supporting important parts of the operative mechanism, but serves the purpose of a fly-wheel, and thereby, by its momentum while in revolution, facilitates or materially aids them in successful action. The shoe-blank former C is fixed to the periphery of the wheel W, and, furthermore, there is, in advance of the said former C and on the said periphery, a tapering or cam-shaped gripper, D, which consists of a curved arm hinged at its front end to the wheel and furnished with a spring, E, for elevating it so far above the shoe-former as to enable a blank or bar of metal to be converted into a horseshoe to be placed underneath it and directly in advance of the said former C. A roller, F, supported by a strut, G, extended from the frame A, serves to force the gripper down upon the blank after it may have been placed upon the wheel, and during the revolution of the wheel. Two inclined rails, H H, and an abutment, I, arranged on the upper part of the frame A, and with respect to the wheel as shown in the drawings, serve to aid in placing the shoe-blank in a proper position to be seized by the wheel. While the wheel may be in motion the blank is to be laid on the rails and with one end of it against the abutment. At the same time, or immediately afterward, the blank, at its middle, should be pressed underneath the gripper and upon the periphery of the wheel. As the wheel may advance the gripper will be forced down upon the blank and will hold it firmly in place against the shoe-former C. To co-operate with the said former C there are two swaging-rollers, K K, which are held or carried by the shorter arms of two levers, L L, whose fulcra *a a* are supported by adjustable slides *b b*, supported in boxes *c c*, affixed on the top of the latter or frame A. In each of the longer arms of the said levers there is a friction-roller, *d*, the said levers being arranged with respect to the wheel as shown in the drawings. The said levers are to be actuated or operated by a wedge-shaped cam or actuator, M, or by one or more cams or equivalent devices, the said actuator or devices being fixed either wholly or partially, as the case may require, on the periphery of the wheel and in advance of or in a proper position with respect to the gripper. The actuator or the cam, by which the levers L L are operated, should be shaped so as to cause the rollers K K not only to bend the horseshoe-blank around the former C, but swage it down at the heels to the necessary taper or form. The flanges *f f* of the said swaging-rollers serve to keep the blank to its proper thickness at the heels of the shoe.

For the purpose of forcing and keeping the swaging-rollers apart from one another after they may have performed their office on a shoe-blank, as well as to serve as a stop, against which the blank may be pushed while in the act of being introduced into the machine, there are on the periphery of the wheel two cam-fillets, N N, which are arranged as shown in the drawings, and have their front ends curved or made cam-shaped, the same being as shown at *g g* in top view in Fig. 4.

The wheel, when the machine is in use, is to have a continuous rotary motion in one direction, as indicated by the arrow *k*. It may, however, have a reciprocating motion. During the rotary motion a shoe blank or short bar of metal will not only be bent and converted into

a horseshoe, but it will be discharged from the wheel and the former C, from which it will fall by its gravitating power while the said former may be descending toward the lowest position it may have in its circle of revolution.

The blank-former and the devices for operating, either in whole or in part, the levers of the swaging-rollers may be arranged, as described, on a reciprocating slider carrier or carriage, instead of being placed on a wheel, but in this case the discharge of the blank could not be effected as it is by means of a rotary wheel. The rotary wheel has, therefore, an important advantage over a slider or carriage, and performs a function not incident thereto.

I claim—

1. The combination of the gripper D and its operative mechanism with the wheel W, the blank-former C, the actuator M, and the swaging-rollers.

2. The combination of the guide-rails H H and the abutment I with the wheel M, the former C, and the swaging-rollers or mechanism, arranged and so as to operate together, substantially as specified.

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Witnesses:
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