

No. 782,759.

PATENTED FEB. 14, 1905.

E. ROSSER.
MACHINE FOR CALKING HORSESHOES.

APPLICATION FILED MAR. 1, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

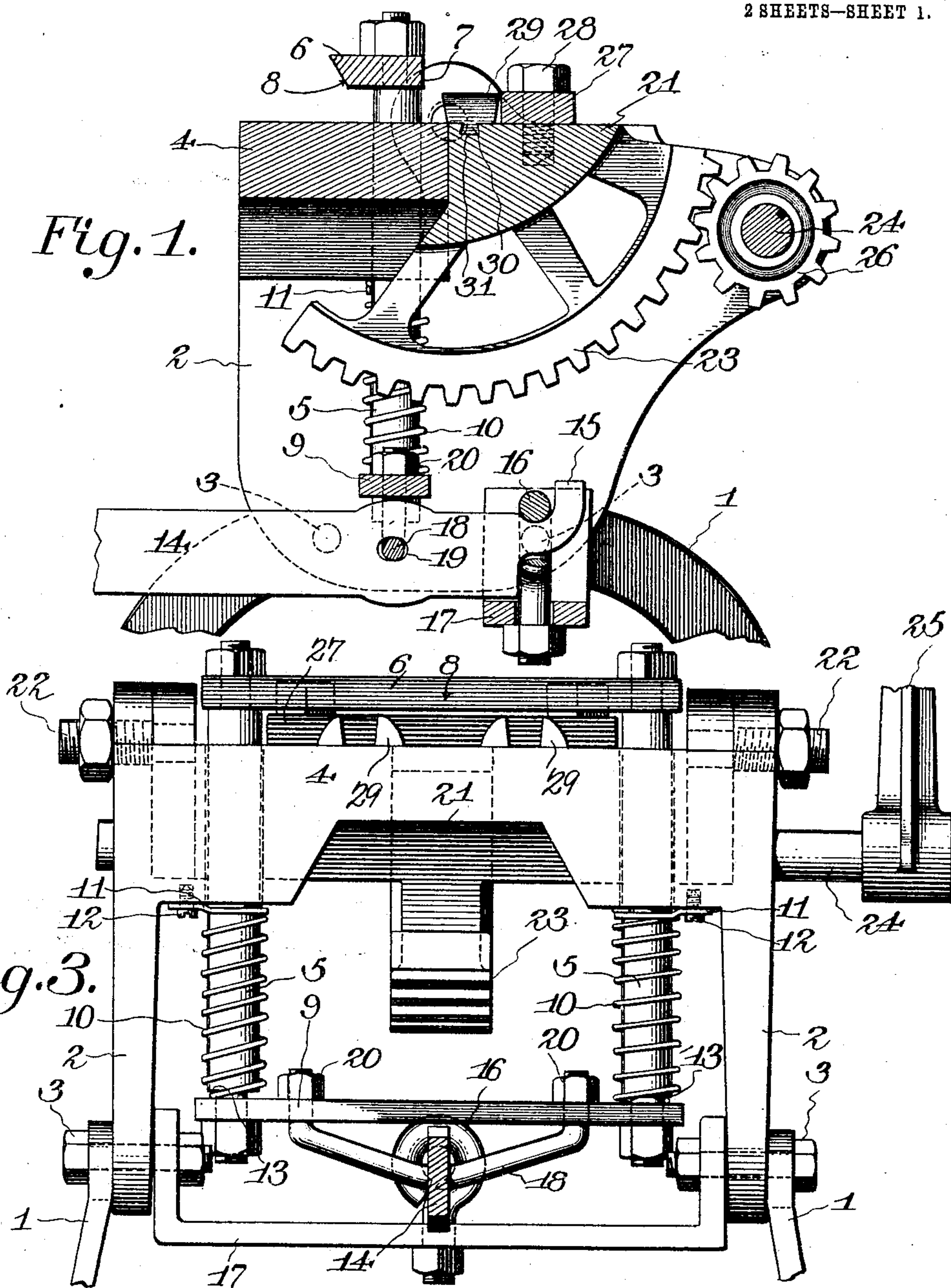


Fig. 3.

Witnesses
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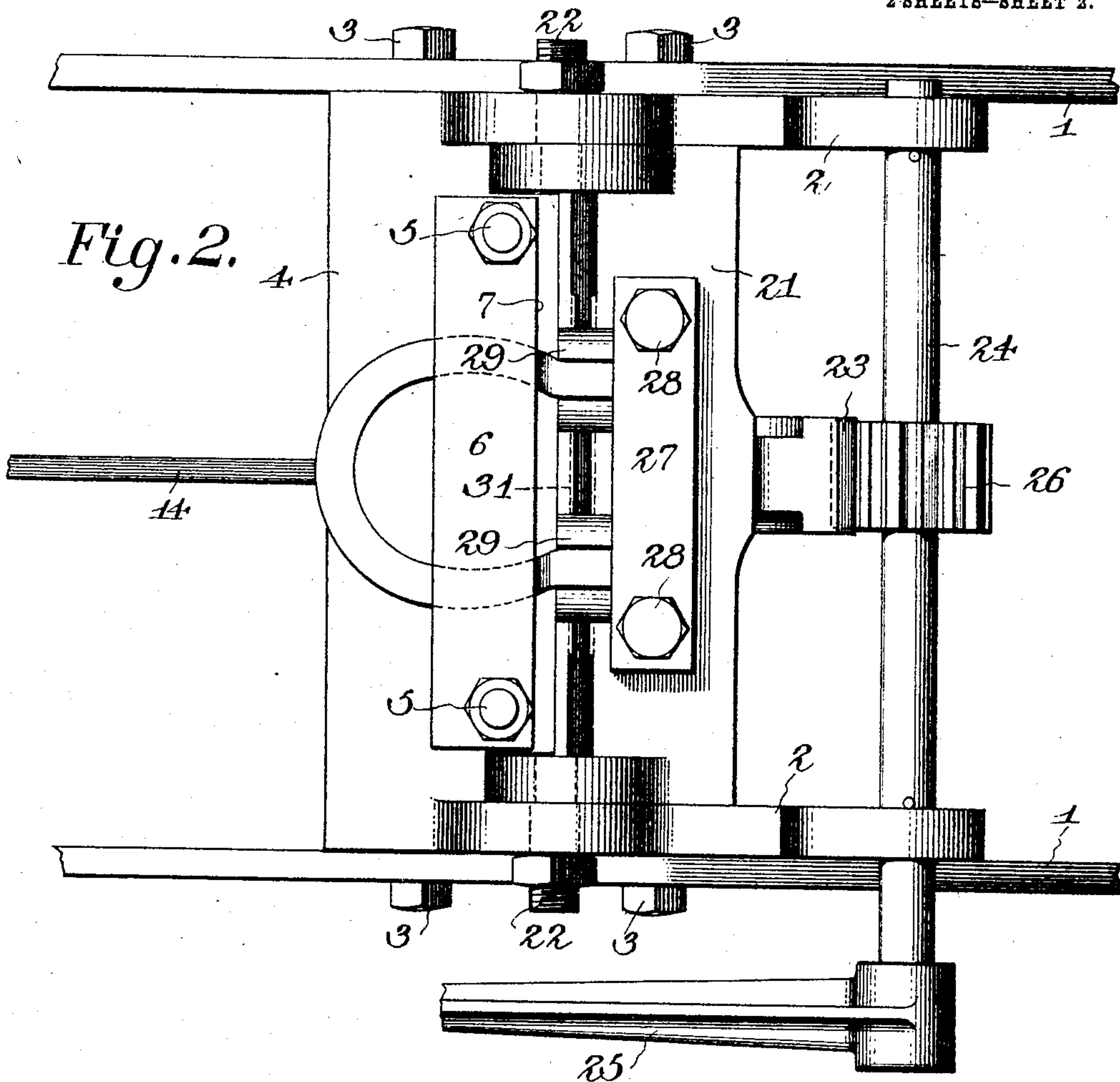


Fig. 4.

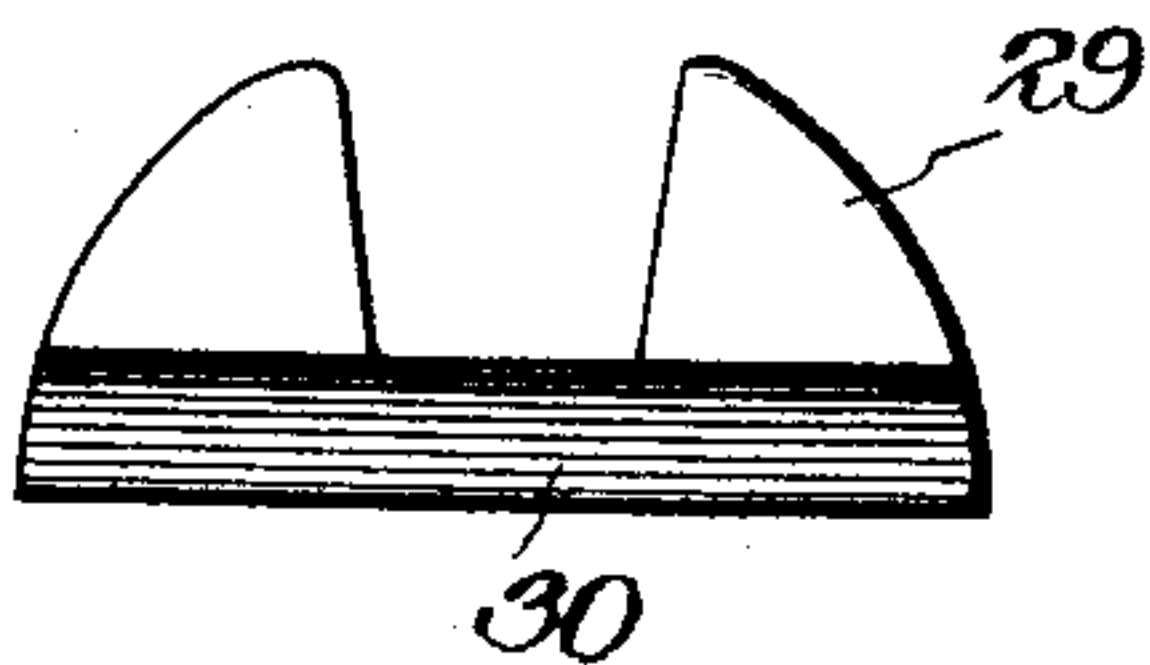
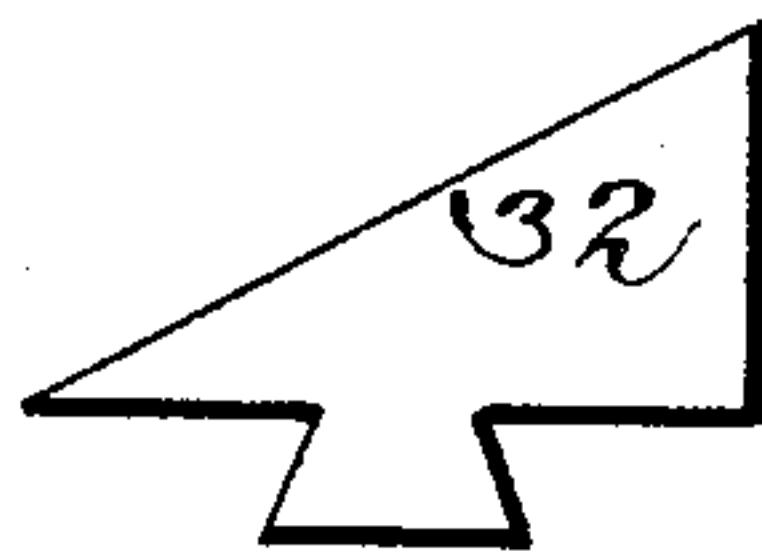


Fig. 5.



Fig. 6.



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UNITED STATES PATENT OFFICE.

EDWARD ROSSER, OF TRAVERSE CITY, MICHIGAN.

MACHINE FOR CALKING HORSESHOES.

SPECIFICATION forming part of Letters Patent No. 782,759, dated February 14, 1905.

Application filed March 1, 1904. Serial No. 196,035.

To all whom it may concern:

Be it known that I, EDWARD ROSSER, a citizen of the United States, residing at Traverse City, in the county of Grand Traverse and State of Michigan, have invented a new and useful Machine for Calking Horseshoes, of which the following is a specification.

This invention relates to machines for forming calks upon horseshoes or for sharpening such calks; and the principal object of the invention is to provide a novel form of machine of this character adapted to form calks upon horseshoes with a minimum expenditure of effort in the shortest possible time.

A further object of the invention is to improve the construction of machines of this class by providing novel clamping means by which the horseshoes may be instantaneously secured in position in the machine and from which the shoes may be immediately released after the formation of the calks thereon.

Further objects of the invention are to simplify the general design of machines of the character specified, to increase their durability in service, and to provide means whereby the form and dimensions of the calks to be formed may be quickly changed when desired.

With the objects above mentioned and others of minor importance in view, as will appear in the complete disclosure of the invention, the invention consists in the novel combination and arrangement of parts of a machine for forming and sharpening calks upon horseshoes, as hereinafter fully described, and illustrated in a preferred form of embodiment in the accompanying drawings, it being understood that changes in the minor details of construction may be made without departing from the spirit of the invention or sacrificing the advantages thereof.

In the drawings, Figure 1 is a vertical section through the complete machine. Fig. 2 is a plan view. Fig. 3 is a view in front elevation, the foot-lever for operating the clamping devices being shown in section. Figs. 4 and 5 are detail views showing one form of die used in shaping the calks. Fig. 6 is a side view of a form of die used in the machine for sharpening toe-calks.

Referring to the drawings, in which corresponding parts are designated by similar characters of reference, 1 1 represent arched members, forming the supporting-standards of the machine, and 2 2 represent side plates secured in position upon the members 1 by means of bolts 3, of which two are provided at each side of the machine to connect one of the side plates with one of the standards. The side plates are preferably formed integral with a transverse bed 4, which extends horizontally between them and affords a support for the horseshoes during the operations of forming or sharpening the calks. The bed 4 is vertically bored at both sides to provide guide-ways for rods 5, which have secured thereon at their upper ends a clamping-bar 6, which has one perpendicular face 7 and one beveled face 8, as best seen in Fig. 1. The rods 5 are connected at their lower ends by means of a transverse bar 9, secured in position by means of nuts, as shown, and springs 10 are provided around rods 5 to keep the rods normally elevated and hold the clamping-plate 6 in inoperative position. The springs 10 are securely fastened at their upper ends by means of plates 11, attached to the under surface of the bed 4 by screws 12, and at their lower ends the springs 10 are secured by engagement with shoulders 13, formed on the rods 5.

In order to depress the clamping-bar 6 into operative position, I provide a foot-lever 14, having its forward end formed into a hook 15, which engages with an eye 16, which is mounted upon a bar 17, secured between the plates 2 by means of the bolts 3 at the rear of the machine. The lever 14 is connected with the bar 9 between the lower ends of the rods 5 by means of a rod 18, which extends through a slightly-elongated opening 19 in the lever and has its ends bent upward to pass through the bar 9 and threaded to receive nuts 20, by which the rod is held in position. As the springs 10 keep the rods 5 and the bar 6 normally elevated, the horseshoe may be introduced between the bar 6 and the bed 4 without first raising the clamping-bar, and as soon as the horseshoe is in position the depression of the foot-lever will draw the rods 5 downward

against the action of the springs 10 and will bring the bar 6 into clamping engagement with the horseshoe.

The calk forming and sharpening devices 5 which act upon the horseshoes clamped upon the bed 4 include a former 21, arranged just behind the bed 4 and pivotally supported by gudgeons formed at the ends of bolts 22, secured in upward extensions on the side plates 10 2 of the machine. The bolts are so located that the axes thereof are in alinement with the upper rear edge of the bed 4, and the upper surface of the former 21 lies normally in the plane of the upper surface of the bed, the forward margin of the former and the rear margin 15 of the bed being in contact. Upon the under side of the former I provide a segmental gear 23 of substantially quadrangular form, and at the rear of the machine I mount in rearward extensions from the plates 2 a driving-shaft 24, provided at one end with a crank 25 and having keyed thereto about the middle a pinion 26, which meshes with the segmental gear 23.

25 Upon the upper surface of the former 21 I secure a gage-bar 27, using screws 28 to hold it in position. The gage-bar 27 will ordinarily be made of such dimensions and be so located that its forward edge is about one and 30 one-half inches distant from the rear edge of the clamping-bar 6 when arranged with its perpendicular face to the rear. The bar 6 is then about one-half an inch from the rear edge of the bed 4, and, similarly, the gage-bar will 35 be about one inch from the forward edge of the former 21. Between the gage-bar and the forward edge of the former I secure dies 29, which may be of any suitable form for the purpose. In the form of the invention illus- 40 trated the dies 29 are adapted to impart to the rear surface of the calks a slight wedge shape, and the dies are secured in position by means of dovetail ribs 30 upon their under surfaces, which engage with a correspondingly-formed 45 groove in the upper surface of the former, as shown at 31. The groove 31 is not of dovetail cross-section throughout its entire length, being provided at the ends with portions of rectangular cross-section to permit the ready 50 introduction of the ribs 30 into the grooves. The bases of the dies 29 must lie flush with the upper surface of the former 21 in order to permit the horseshoes to be clamped readily upon the bed 4; but the sides of the dies may 55 project upward to any necessary extent.

The operation of the machine as above described will be readily understood from the foregoing description and from the accompanying drawings. The parts of the machine 60 being in the position shown in Fig. 1, a horseshoe will be introduced into the machine, as shown in Fig. 2, with the ends of the shoe in contact with the gage-bar provided on the former. The foot-lever 14 will then be de-

pressed to bring the clamping-bar into engage- 65 ment with the horseshoe, and as soon as the horseshoe is firmly clamped the crank 27 may be turned through one and one-fourth revolutions to raise the former from the horizontal position shown in Fig. 1 to the vertical posi- 70 tion, so bending upward the ends of the horseshoe which overlie the former and are engaged by the dies 29 carried thereby. As the former 21 is swung upward into vertical position the clamping-bar 6 prevents any 75 movement of the horseshoe, and the forward perpendicular surface of the clamping-bar forms an anvil or mandrel against which the calks may be formed.

By substituting a gage-bar of different di- 80 mensions from that shown in the drawings the machine may be adapted for forming longer or shorter calks, as may be desired, and by substituting other dies than those illus- 85 trated a different contour may be given to the rear surface of the calks formed.

When it is desired to use the machine for sharpening calks instead of forming them, the clamping-bar 6 may be detached from the rods 5 by removing the nuts upon the upper ends 90 of the rods, and by reversing the position of the clamping-bar on the rods and bringing the beveled face thereof into position to cooperate with the former the machine may be adapted for sharpening dull calks instead of 95 forming new ones.

When the dies shown in Fig 4 and 5 are employed, with the clamp-bar 6 reversed in the manner just explained, the machine will work satisfactorily in sharpening the rear or 100 heel-calks to horseshoes; but if it is desired to sharpen the toe-calks as well it is necessary to remove the dies 29 from the machine and substitute therefor a single die 32 of the character illustrated in Fig. 6. When this die is 105 placed in position in the channel 31 of the pivoted former, with its perpendicular face disposed adjacent to the gage-bar, the machine will be equipped for the sharpening of toe-calks by operating the mechanism in the 110 manner already described.

From the foregoing description of the construction and operation of the machine it will be readily seen that the time required for clamping a horseshoe upon the bed for form- 115 ing or sharpening calks thereon is very short. It will also be seen that the machine is of simple and comparatively inexpensive design and is so constructed that there is no mechanism of a character that is liable to become 120 deranged and inoperative from service.

The proportions of the parts of the machine illustrated will be found satisfactory as a rule; but if it is desired to increase the rate of operation of the machine and sufficient power is 125 obtainable the segmental gear carried by the former may be reduced in size and the pinion enlarged. On the other hand, if greater power

is desired at the expense of some speed of operation the segmental gear may be slightly increased in size and the pinion reduced.

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

1. In a machine of the class described, a frame including a pair of suitably-supported cheeks or side pieces and a bed connecting the same, said cheeks being provided with upward-extending lugs, a shaft journaled in said lugs and carrying a former, vertically-movable rods extending through perforations in the bed, a clamping-bar connecting the upper ends of said rods, a cross-bar connecting the lower ends of said rods, spring means for forcing the frame including the rods, the clamping-bar and the cross-bar in an upward direction, lever means for forcing the said frame in a downward direction against the tension of the springs, and means for turning the former upon its axis.

2. In a device of the class described, a suitably-supported frame including cheeks or side pieces and a bed-plate connecting the same, a clamping-frame including side members extending vertically through perforations in the bed-plate, a clamping-bar connecting the up-

per ends of said side members above the bed-plate, a cross-bar connecting the lower ends of said side members, and springs coiled upon the latter and exercising tension to force the clamping-frame in an upward direction, a die-carrying former, hingedly connected with the rear edge of the bed-plate, and means for operating said former to cause the die to cooperate with the clamping-bar.

3. In a device of the class described, a suitably-supported bed-plate, a clamping-frame cooperating therewith, a former hingedly connected with the rear edge of the bed-plate and having a transverse die-carrying groove dovetailed in cross-section for the greater portion of its length and of rectangular cross-section at its ends, dies having dovetailed members insertible into the rectangular ends of the die-carrying groove and slidable into the dovetailed portion of the latter, and operating means for said former.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EDWARD ROSSER.

Witnesses:

CHAS. S. JOHNSON,
HAZLE CLAPPER.