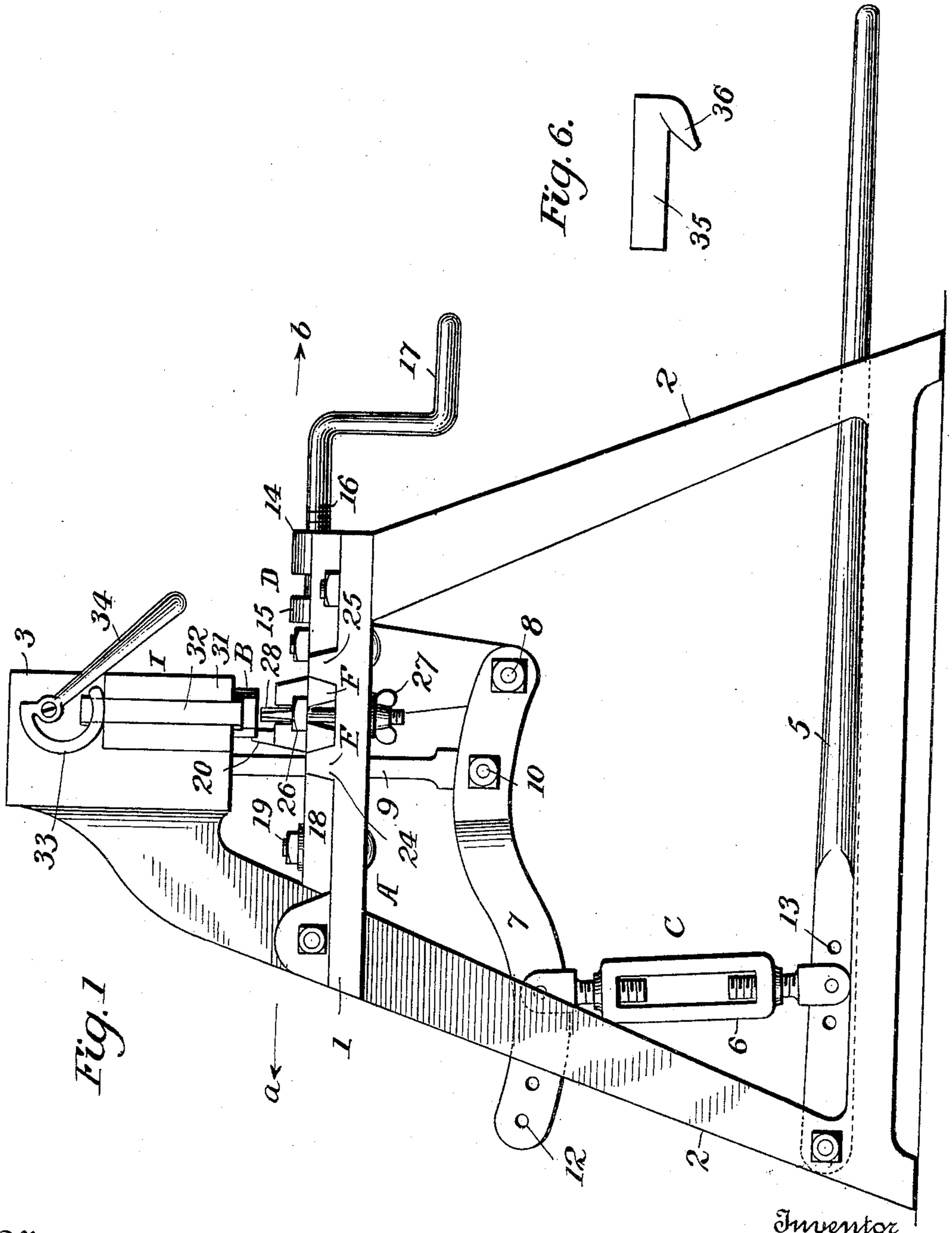
No. 887,956. PATENTED MAY 19, 1908.

A. T. McCREARY.

HORSESHOE CALKING AND WELDING APPARATUS.

APPLICATION FILED JULY 29, 1905.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 2.

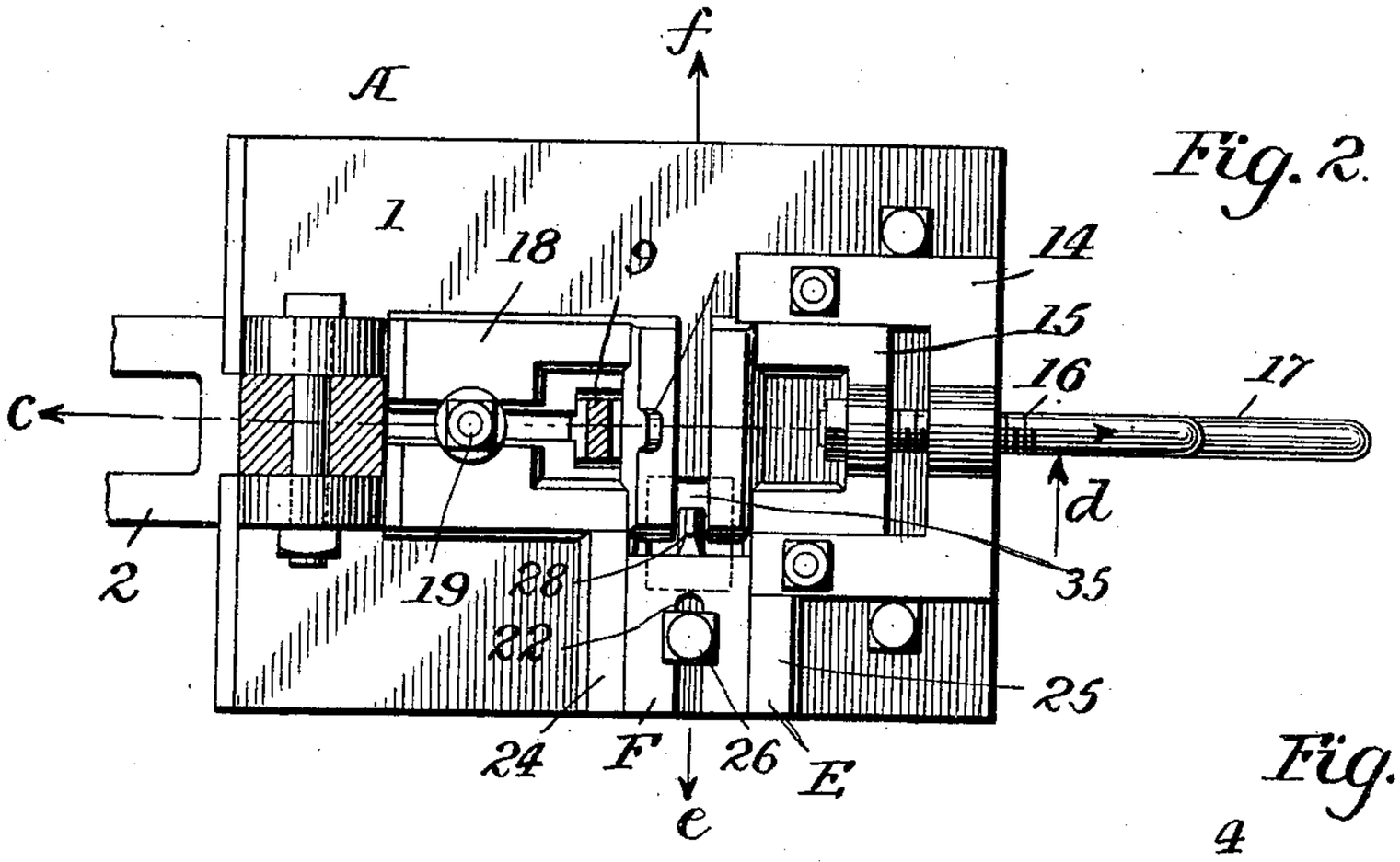

Fig. 3

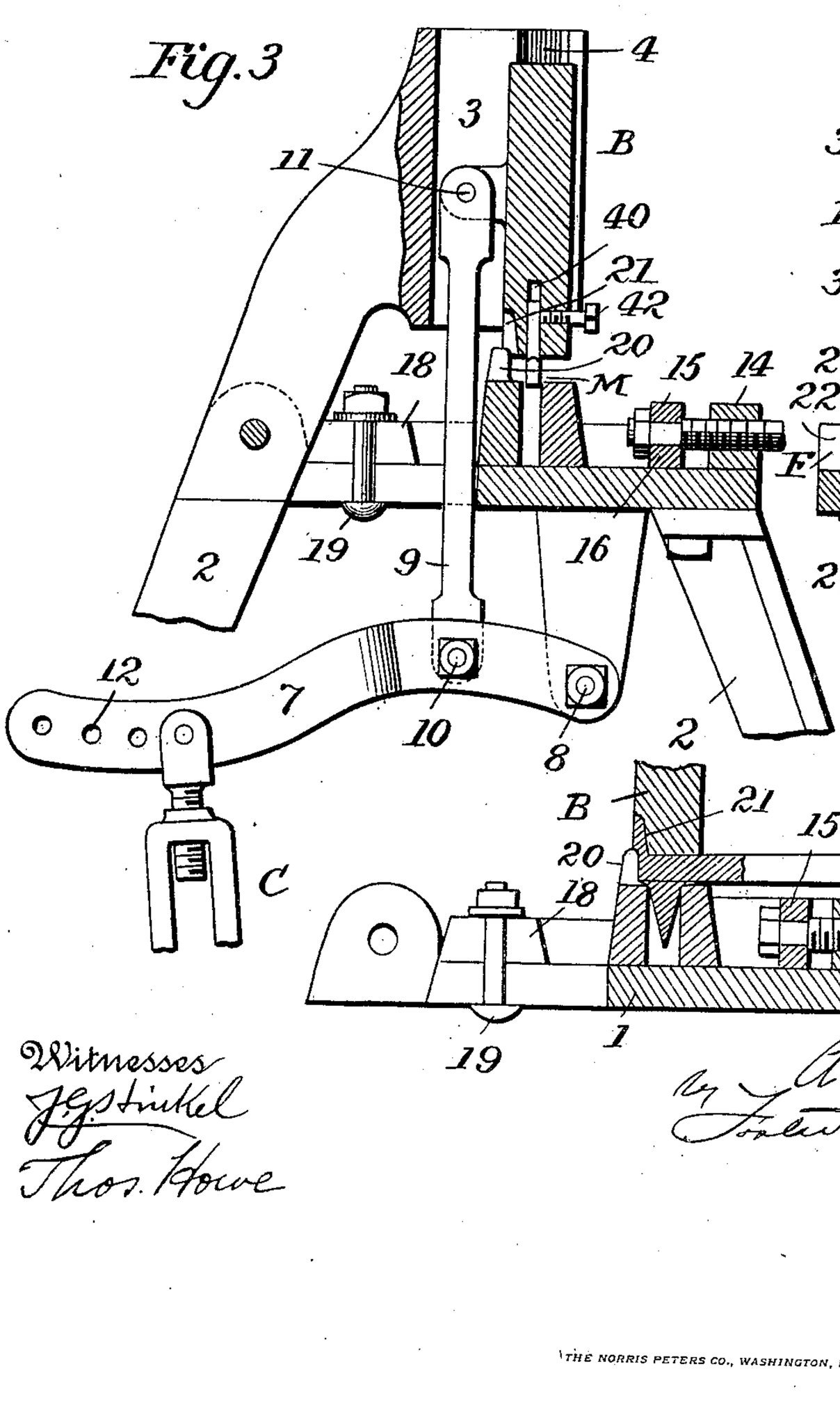

Fig. 4.

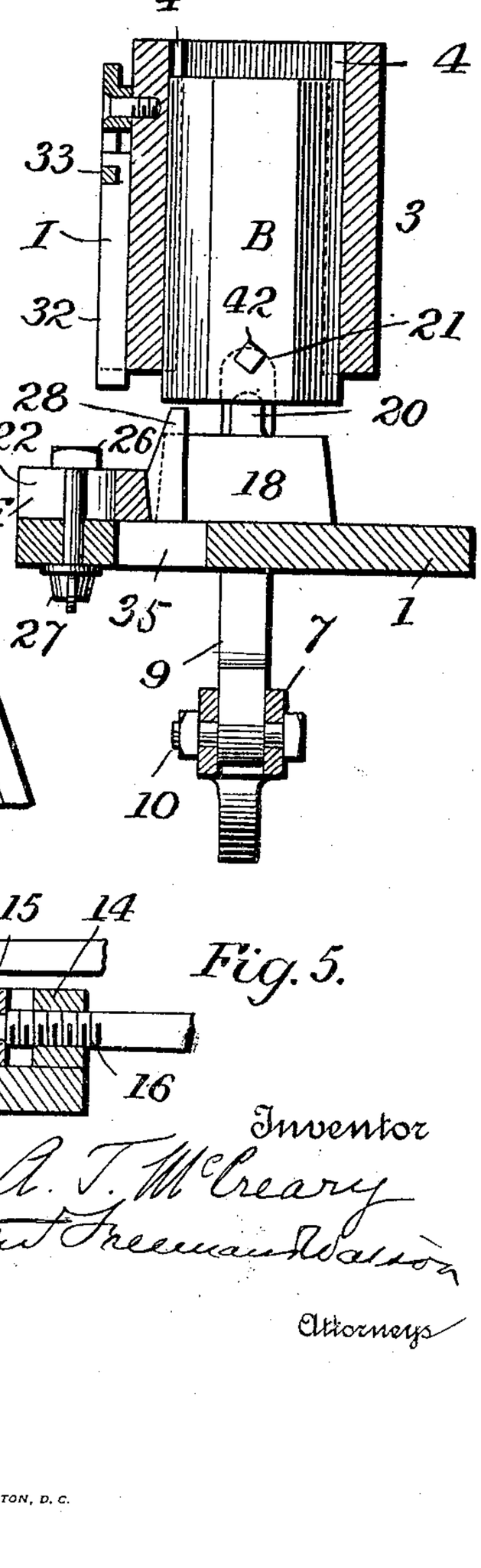

Fig. 5.

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ABRAM T. McCREARY, OF FORTYFORT, PENNSYLVANIA.

HORSESHOE CALKING AND WELDING APPARATUS.

No. 887,956. Specification of Letters Patent. Patented May 19, 1908.

Application filed July 29, 1905. Serial No. 271,789.

To all whom it may concern:

Be it known that I, ABRAM T. McCREARY, a citizen of the United States, and resident of Fortyfort, Luzerne county, State of Pennsylvania, have invented certain new and useful Improvements in Horseshoe Calking and Welding Apparatus, of which the following is a specification.

This invention relates to machines for securing calks to horse shoes and has for its object the provision of improvements in apparatus of the character described as will be hereinafter set forth.

Referring to the accompanying drawings, Figure 1 is a side elevation of a calking machine; Fig. 2 is a section on the line *a*—*b* of Fig. 1; Fig. 3 is a vertical part section on the line *c*—*d* of Fig. 2; Fig. 4 is a vertical part section on the line *e*—*f* of Fig. 2 showing the centering gage in position; Fig. 5 is a vertical part section on the line *c*—*d* of Fig. 2 showing the manner of welding a toe calk upon a shoe; Fig. 6 is a view of a toe calk ready for attachment to the shoe.

Referring to the drawings, it will be seen that the apparatus comprises a table A above which is mounted a suitable plunger B adapted to be operated by means of levers C located beneath the table. Also upon the table is mounted a means D for securing the toe calk in position, while within guides E slides the centering gage F for centering the shoe so that the toe clip will be turned up at the proper point. The toe calk 35 is formed with the usual tang 36 which is driven into the heated shoe to hold the calk in position until it is welded. A means I is provided for securing a shoe in position to have the heel calks formed.

Having thus generally described the apparatus, the construction shown will now be described in detail.

The table A may consist of a plane surface 1 supported in any suitable manner as by legs 2. Extending above the table is a guide 3 having vertical grooves 4 in which the plunger B is adapted to slide. Vertical movement is imparted to the plunger by the system of levers C which comprises a lever 5 pivoted at the rear of the table and extending beyond the front thereof so that it may be conveniently grasped by an operator standing in front of the apparatus. By means of the adjustable link 6 the lever 5 is pivotally connected to the lever 7 which is pivoted near to the front of the table 8. A link 9 pivoted to the lever 7 at 10 is pivoted at its upper end to the plunger B at 11 so that as the forward end of the lever 5 is raised the plunger will be raised, while the lowering of the forward end of the lever 5 will cause a lowering of the plunger. It is further to be noted that a series of holes 12 and 13 are provided in the levers 7 and 5 respectively, whereby the leverages of the levers 5 and 7 may be changed.

The means D for securing the toe calk and shoe in position comprises a guide piece 14 within which is mounted a member 15 movable to and fro along the surface of the table by means of a screw 16 and crank 17 and also a slotted member 18 which is adjustable along the table top and may be secured in any desired position by means of a bolt and nut 19. The toe calk is entered and clamped between the opposing faces of the two members 15 and 18. The calk is so placed that it is held clear of the table by the members 15 and 18 and extends above the members so that when the welding operation takes place the upper portion of the calk will be flattened out upon the upper surfaces of the members so that a large welding area will be presented to the shoe and a secure weld insured. The manner of thus forming the weld, and the relative positions of the several parts during the welding operation, are most clearly illustrated in Fig. 5. Referring to said figure it will be seen that the toe calk is so supported by the clamp that its sharpened edge is clear of the table or bed plate and out of contact with any part of the apparatus. Prior to effecting a weld the clamp members 15, 18, are so adjusted that the space separating them is of less width than the thickness of the base or widest portion of the calk and therefore when the latter is placed between said members it will extend a considerable distance above the upper faces thereof, as shown in Fig. 5, and when the plunger is depressed such projecting section of the calk is expanded or flattened out over the upper ends of the clamp members and a relatively large welding surface is provided between the calk and shoe. During the welding operation the sharpened edge of the calk is thus held clear of contact with the table or clamps and there is no danger of its being dulled as is the case

when the welding operation is carried on while the calk is inserted, or forced, into a die.

Upon the member 18 is mounted a projection 20 adapted to be received within a recess 21 in the plunger. This projection in coöperation with the recess operates to form the toe clip of the shoe and the thickness of this clip may be determined by adjusting the member 18 and thereby regulating the clearance of the projection 20 in its recess 21. The centering gage F which has a slotted base 22 is adapted to slide in the guide E which may comprise ribs 24 and 25 secured to the top of the table and is adapted to be secured in proper operating position with relation to the plunger by means of a bolt 26 and thumb nut 27. In addition to its base portion the centering gage also comprises an upwardly projecting portion 28.

The means I for securing the shoe in position to have the heel calk formed may comprise guides 31 within which slides the vertically reciprocating member 32 which is adapted to be operated by means of the cam 33 actuated by the handle 34. A hole 40 is formed in the plunger for the reception of the punch M which may be secured by a set screw 42. A hole 35 is formed in the table so that scale and hot portions of the iron may fall through and out of the way.

The operation of the apparatus may be described as follows. The centering gage having been properly adjusted in position and the member 18 having been adjusted to such position that a suitable clearness between the projection 20 and the plunger will be obtained, the heated shoe, to which the toe calk has been attached temporarily in any well known manner, as by driving the tang into the hot shoe, is placed beneath the plunger which has been raised to its uppermost position by means of the lever and the calk lies between the members 15 and 18 and against the gage. The member 15 is then moved towards the member 18 until the toe calk is gripped, the calk being so placed as to extend beyond the upper faces of the members 15 and 18 and to be clear of the table. The plunger is then caused to descend by depressing the lever 5 when the calk and shoe will be firmly pressed together forming a perfect weld, and as the upper faces of the members 15 and 18 form suitable welding faces as shown, the metal of the calk will be flattened out on those faces thereby increasing the area and security of the weld. The descent of the plunger also has the effect of forcing a portion of the material of the forward part of the shoe upwardly into the recess between the projection 20 and the plunger thereby forming the clip 21.

Without being limited to the precise construction shown and described, what I claim is,

1. The combination with a table adapted to support a horse shoe and calk, of means adjustable on said table for engaging the calk, a plunger mounted above the table, and a suitable lever mechanism arranged below the table and connected with the plunger for moving it toward and from the table.

2. In a machine for welding calks to horse shoes, the combination of a bed, a clamp on said bed adapted to support a horse shoe and calk, the members of said clamp when in use being separated a distance less than the width of the base of the calk, whereby a portion of the calk will project above the clamp, and means for applying pressure to the shoe opposite said calk holding clamp and expanding said projecting portion of the calk between the upper surface of the clamp and the shoe while welding the calk and shoe.

3. In a machine for welding calks to horse shoes, the combination of a bed, a clamp on said bed adapted to support a horse shoe and calk, the members of said clamp being separated a distance less than the width of the base of the calk, whereby the calk cannot pass entirely into the clamp and the clamp being so proportioned that the sharpened edge of the calk engaged thereby will be held clear of the bed, a plunger mounted to reciprocate to and from said clamp, a hand lever, and connections between said lever and plunger, the pressure exerted by said plunger when moved against the shoe acting to expand the projecting section of the calk over the outer face of the clamp and weld such expanded portion to the shoe.

4. In a machine for welding calks to horse shoes, the combination of a bed, a clamp on said bed adapted to support a horse shoe and calk, and hold the sharpened edge of the calk out of contact with the bed, one member of said clamp being provided with an upwardly extending projection 20, a plunger mounted to reciprocate to and from said clamp and provided at its lower end with a recess adapted to receive said projection 20 on the clamp, and means for reciprocating said plunger.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ABRAM T. McCREARY.

Witnesses:
W. L. Raeder,
A. J. Mulhall.