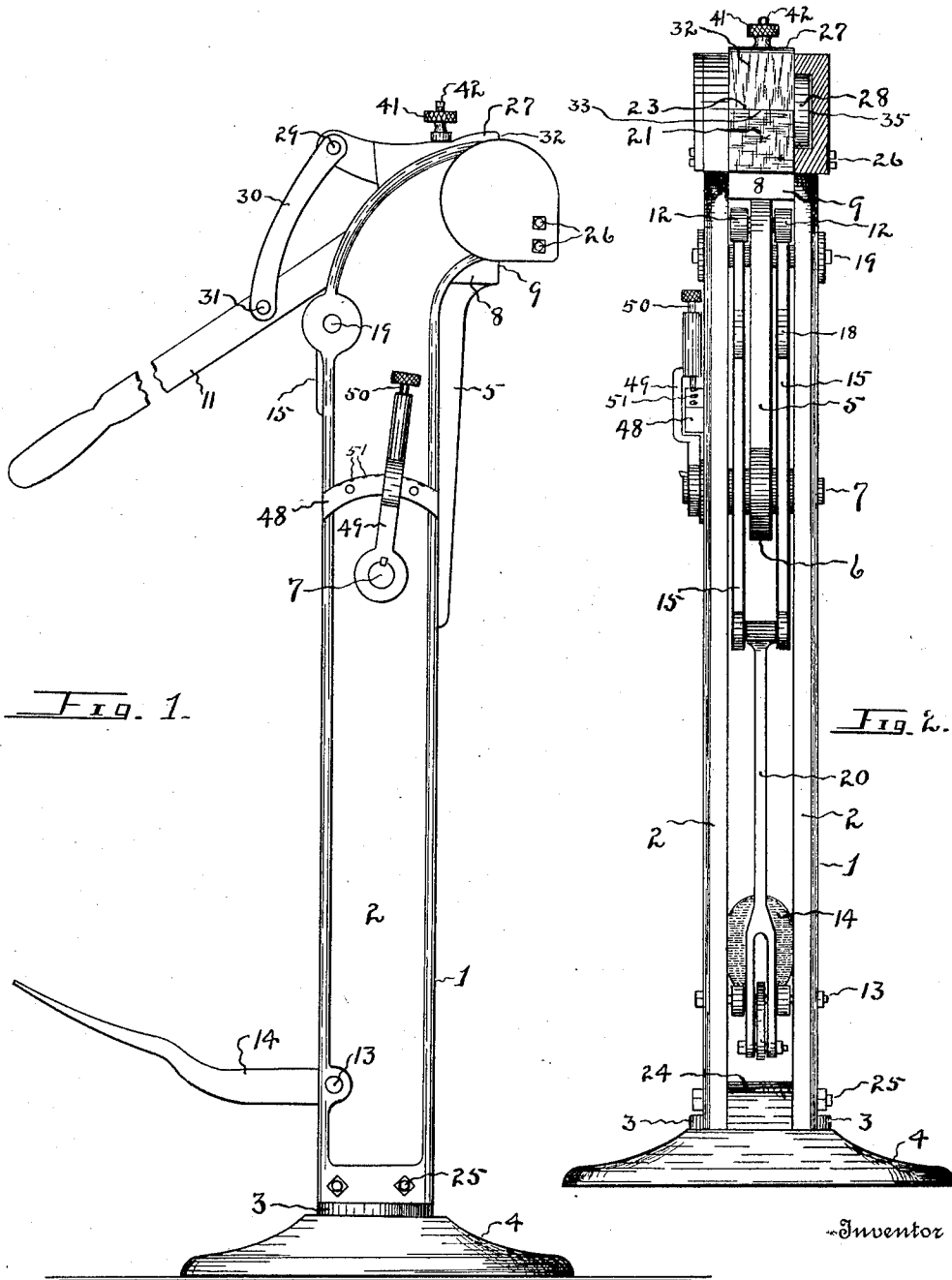


C. McMILLEN.
 CALC FORMER.
 APPLICATION FILED MAR. 20, 1911.

1,006,580.

Patented Oct. 24, 1911.

4 SHEETS-SHEET 1.



Witnesses

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By

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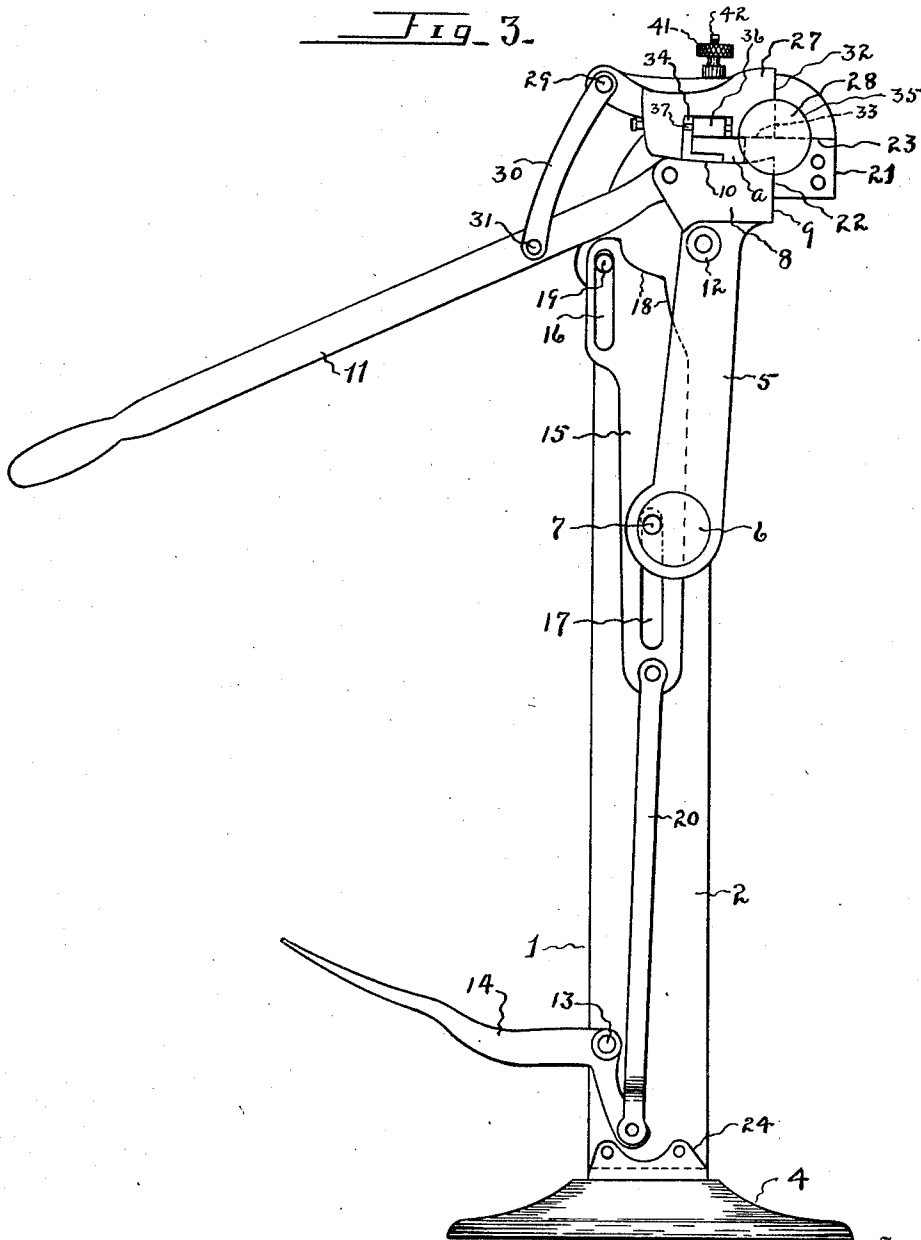
C. McMILLEN.
GALK FORMER.

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4 SHEETS-SHEET 2.



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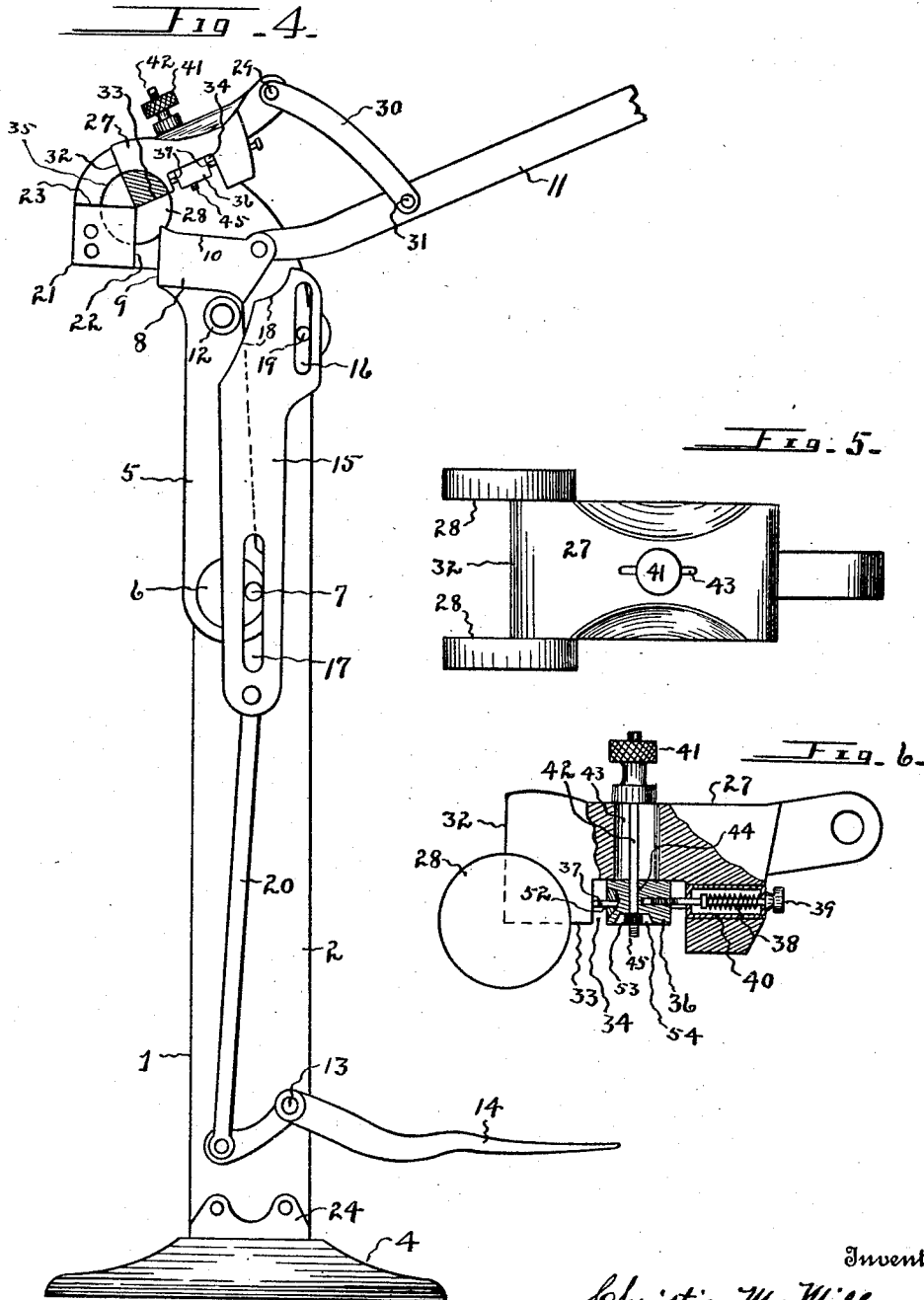
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4 SHEETS-SHEET 4.

Fig. 7-

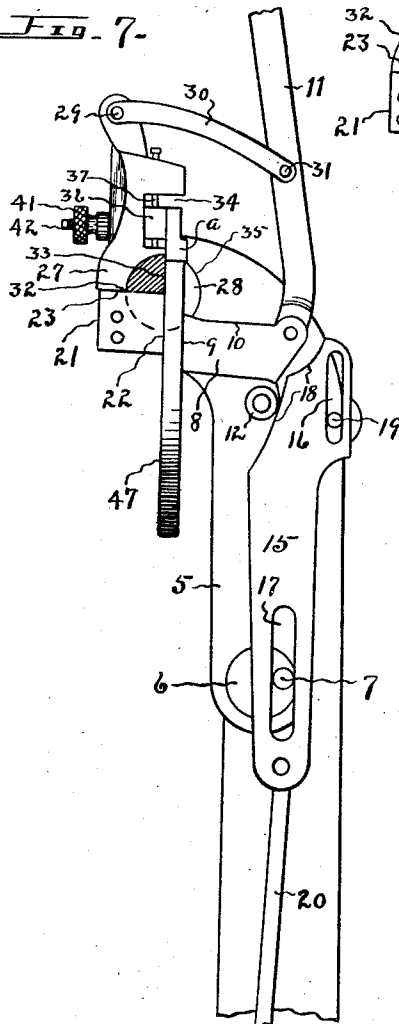


Fig. 8-

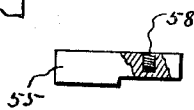
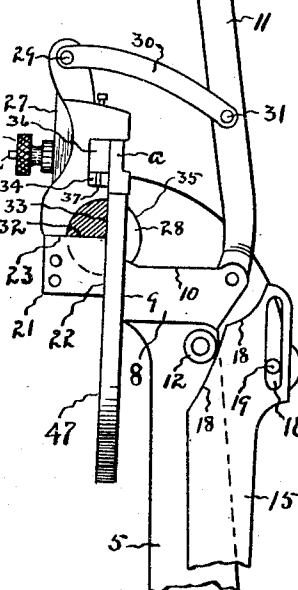
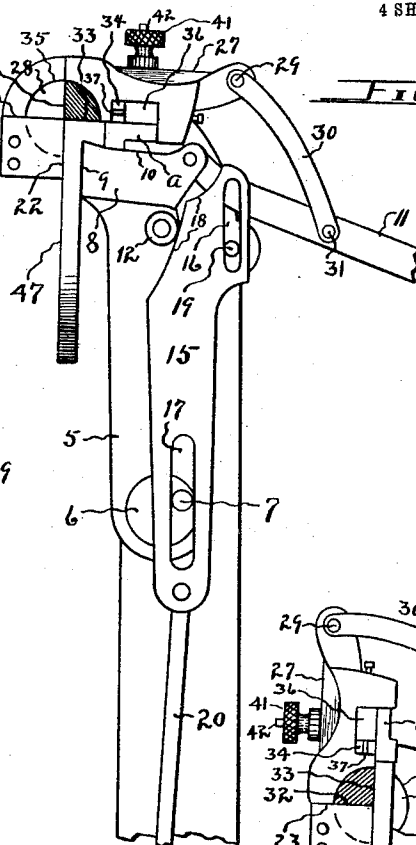


Fig. 10-



Fig. 11-

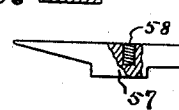


Fig. 12-

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UNITED STATES PATENT OFFICE.

CHRISTIE McMILLEN, OF PERRY, IOWA.

CALK-FORMER.

1,006,580.

Specification of Letters Patent.

Patented Oct. 24, 1911.

Application filed March 20, 1911. Serial No. 615,687.

To all whom it may concern:

Be it known that I, CHRISTIE McMILLEN, a citizen of the United States, residing at Perry, in the county of Dallas and State of Iowa, have invented certain new and useful Improvements in Calk-Formers, of which the following is a specification.

This invention relates to improvements in calk formers, or an implement used to form the heel calks of horseshoes. These implements have been used to advantage since calks may be formed with a greater thickness than the body of the shoe by bending and compressing the ends of the stock in a forming chamber while at a welding heat; also by the use of certain adjustable features, heel calks of various lengths and degrees of sharpness may be formed upon horse shoes; and as is required in some instances, the lengths of the calks may be different upon the same shoe, all of which results in a great saving of labor and expense, compared with hand-labor, as by use of hammer and anvil.

One of the objects of the invention is to provide a novel means found to be convenient in operation for moving the plunger for wardly and maintaining its head reliably in contact with the body of the shoe, at the time the calk is formed.

Another object is to provide a construction whereby the frame of the implement may be utilized for a mounting of the disks of the folder-member or compression head, this being important so that an adequate or strong mounting may be provided for sustaining the stresses imparted thereto when the calk is formed, and thereby avoiding the use of yokes. Where yokes have been employed they provide a mounting for the disks and also for the head of the plunger; on account of this double use and the consequent strains incurred, said yokes frequently become broken.

Another object is to provide certain features of adjustment relating to the compression head, whereby the forming-blocks for producing the various shapes and sizes of the calks may be disposed and mounted to advantage and with greater facility.

Still another object is to provide an eccentric mounting for the plunger for making an adjustment of its altitude, and the provision of a quadrant and convenient index used in combination with the eccentric, when

determining the thickness of the calks to be formed.

With these objects in view the invention presents a novel construction, combination and arrangement of parts, as described herein and claimed, and as illustrated in the accompanying drawing, wherein,—

Figure 1 is a side elevation of the calk-forming implement. Fig. 2 is a front view, partly in section, of the same. Fig. 3 is a side view of the implement, one of the standards, and one of the adjusting plates being removed. Fig. 4 is a vertical side view of the implement, one of the standards, the forming plate and one of the disks being removed; the view also shows the folder or compression head and the adjusting plates partly elevated. Fig. 5 is a plan view of the folder or compression head, and Fig. 6 is a view of the same in longitudinal section. Fig. 7 is a view of the upper part of the implement, one of the disks being removed, and showing the stock or body of a horse shoe held or engaged to form the calk. Fig. 8 is a view somewhat similar to that shown in Fig. 7, the calk being formed. Fig. 9 is a detail relating to Fig. 7, showing the forming-block and sliding block elevated, before the shoe-calk is formed. Fig. 10 is a side view of a forming block. Fig. 11 is a longitudinal, sectional view of the same, and Fig. 12 is a side view of one of the forming blocks used for producing sharpened calks.

Referring now to the drawing for a more particular description, numeral 1 indicates an upright support consisting of two adjacent, parallel side plates or standards 2, each having a flange 3 at its bottom; the standards are mounted upon base 4 and are formed with upper, curved, forwardly extending terminals which overhang the base, and between these standards are mounted nearly all of the devices employed to form the calks.

At 5 is indicated a movable bar or plunger having its lower end mounted upon disk 6, said disk being provided with trunnions 7 mounted in the standards midway between their ends. Since the trunnions are not disposed at the center of the disk, the plunger is eccentrically mounted. The head of the plunger is indicated at 8, the same being formed with a vertical contact facet 9 and a horizontal contact facet 10 preferably having an upwardly inclined part near the ver-

tical facet; upon the rear end of head 8 is pivotally mounted the hand lever 11, and mounted below the head and upon the sides of the plunger, are provided rollers 12. Pivotally mounted in the standards at 13, near their lower ends is treadle 14.

At 15, disposed at the sides of the plunger are indicated adjusting plates, each being provided near its upper and lower ends with slots respectively indicated at 16 and 17; and at 18 upon the inner edges and near the upper ends of these plates are indicated inclined bearing surfaces. The adjusting plates are adapted to have a sliding movement, trunnions 7 engaging within slots 17, and bolt 19 is mounted upon and extends between standards 2 for engagement within slots 16 of the adjusting plates.

At 20 is indicated a link having its upper end pivotally mounted upon the lower end of the adjusting plates as plainly shown in the drawing, its lower end being connected with the treadle.

At 21 is indicated a spacing block formed with a vertical contact facet 22 and a horizontal bearing facet 23; the spacing block has a length substantially equal to the thickness of the head of the plunger. The base 4 is preferably provided with an anchor block 24, at its middle, and by use of bolts 25 the lower ends of the standards may be rigidly secured to said base.

At 26 are indicated bolts by means of which the upper ends of the standards may be secured to the spacing block, whereby the standards are rigidly supported, trunnions 7 having suitable bearings therein.

The plunger may have a limited rocking movement upon disk 6, and it will be seen that if this disk is rotated, the plunger may have a vertical movement equal to the distance between the center of trunnion 7 and the center of the disk. By referring to the drawing it will be seen that an upward movement of the adjusting plates may be caused by operating the treadle, and during this movement the inclined surfaces of said plates may have bearings upon rollers 12, to cause a forward swinging movement of the plunger, and any stress occasioned by a resistance to the forward movement of the plunger will be wholly sustained by the trunnions and bolt 19.

At 27 is indicated an elongated compression-block, folder-member or head. Upon its sides, at its forward end are provided annular projections, disks or bosses 28, its opposite end being pivotally mounted, as indicated at 29 upon the pair of links 30, the opposite end of links 30 being pivotally mounted at 31 upon the hand lever.

The compression head, at its forward end, is formed with the bearing facet 32 and at right angles to facet 32, is formed thereon the contact facet 33 having a straight edge,

and midway between the ends of the compression head is provided the transverse recess or containing chamber 34 opening upon its lower side, adjacent to facet 33. The disks or bosses 28, preferably, are constructed integral with the compression head, and said disks are disposed with their centers co-incident with the meeting edges of facets 32 and 33.

At 35, formed in the inner sides of the upper terminals of standards 2, are indicated annular recesses having diameters to correspond with the diameters of disks 28, and having depths corresponding substantially to the thickness of said disks. Compression head 27 has a width corresponding to the width of head 8 of the plunger, and when the parts are assembled, disks 28 being seated in recesses 35, the compression head and the head of the plunger may have bearings upon the inner sides of the standards, and the movements of the hand lever will control the swinging movements of the compression head; and it will be seen that the stresses occasioned by a resistance by the downward swinging movement of the compression head will be sustained principally by the pivotal mounting of the disks; since this pivotal mounting is upon the standards or frame of the implement, a very strong construction therefor may be provided.

At 36 within recess 34 is indicated a supporting or sliding block, the same being suitably apertured as indicated at 52 (Fig. 6) for a mounting upon guides or rods 37, said rods being rigidly mounted in the body of the compression block and extending lengthwise thereof and through said recess. Block 36 is resiliently mounted and, normally, is disposed midway between the end walls of recesses 34 by operation of spring 38, said spring being mounted in the rear end of the compression block. It is desirable to control the position of the sliding block with respect to longitudinal recess 34, and for this purpose an adjustment is provided, as screw 39, adapted to traverse sleeve 40 for a threaded connection with said block, and by operation of screw 39, block 36 may be disposed in any desired position forwardly or rearwardly within recess 34.

At 41, upon the top of the compression block is indicated the head of thumb screw 42. This screw is provided with a blank stem adapted to traverse slot 43, formed in the compression head, and to traverse aperture 44 formed in the sliding block, the stem being provided with a threaded terminal 45 projecting outwardly of said block. Screw 42 may be provided with a collar 53 adapted to have a seating in recess 54 of the sliding block. Screw 42 may be rotated, and any suitable forming blocks

as indicated at 55, 56 or 57 may be mounted upon or removed from the sliding block, the outwardly projecting threaded terminal 45 engaging the threaded apertures 58 formed in the upper sides of said forming blocks. As thus described, the sole function discharged by the thumb screw of the compression head is to connect or disconnect the forming block and the sliding block. When a forming block is mounted upon the sliding block, the rear ends of these blocks will be disposed flush. When an adjustment is made by use of screw 39, the forming block while thus mounted upon the sliding block may be disposed normally, nearer to or farther from the disks, as may be desired, and this is the function discharged by said adjusting screw 39.

In operation, to form heel calks of horse shoes, the compression head is swung forwardly by use of the hand lever until its bearing facet 32 makes contact with the bearing facet 23 of the spacing block, at which time the contact facet 22 of the spacing block will be in alinement with contact facet 33 of the compression head. At the time the hand lever is elevated, the head of the plunger will be drawn outwardly from the spacing block. At 47 is indicated the body of a horse shoe of uniform thickness; the end of the shoe being at a welding heat, is thrust between the spacing block and the head of the plunger, and between the upright standards. As the shoe is moved upwardly, its upper end will be disposed in contact with the end of the forming block *a* as clearly shown in Fig. 7. The operator by use of the treadle, causes the adjusting plates to move upwardly. In their upward movement the inclined bearing surfaces of said plates will make contact with the rollers of the plunger and will cause it to swing forward, thereby holding the horse-shoe as in a vise between facet 22 of the spacing block and the part 9 of the head of the plunger. The operator then, by a downward movement of the hand lever may cause the horse-shoe to be bent transversely near its terminal, and to be molded; and when the calk is formed it will have a thickness greater than the body of the horse-shoe, since at the time the calk is formed it is disposed below the plane described by the alining facets 23 and 33. During the operation of forming the calk when the shoe is held between the head of the plunger and spacing block as shown in Fig. 7, the tension of the spring will be overcome and the sliding block and forming block will be moved to the rear end of recess 34 by the material which forms the calk, at the moment of bending. The calk is formed by the contact of the material, forming the calk, with facet 33 of the compression head, the terminal of the forming block, and with the contact facet 10 of the head of the plunger. Form-

ing blocks may be employed of varied length and thickness, and they may have angular terminals or inclined terminals as may be required for forming dull or sharp calks. If a long forming block is employed a short calk will be formed, and the same block may be used for making larger or smaller calks by use of the adjustable features mentioned in connection with the adjusting screw 39 which may be operated to dispose the sliding block forwardly or rearwardly within its recess. Also in operation, the end of the shoe may be placed in the position shown in Fig. 9, before the calk is molded, if desired, the sliding block and forming block being moved to the rear end of chamber or recess 34, the result being that the calk will be formed with an increased thickness. With respect to the thickness of the heel calk, certain devices are employed when forming the same, and are now to be described. At 48, above one of the trunnions, and secured upon the side of one of the standards is indicated a quadrant. A lever 49, having a longitudinally apertured upper end-portion or handle, is mounted upon said trunnion, and a pin 50 is seated loosely in said aperture. The upper side of the quadrant, at longitudinal intervals, is provided with recesses 51. A swinging movement of lever 49 will partly rotate disk 6 and thereby will cause the plunger to be elevated or lowered. If the plunger is lowered the calk will be molded with a greater thickness, and if the plunger is elevated the calk when formed will have a less thickness; the operator, after moving lever 49, may cause pin 50 to engage within any one of apertures 51 as required, for the formation of calks of greater or lesser thickness.

Heel calks of horse shoes may be formed very readily by use of the herein described implement only a slight force being required therefor. The body of horse shoes may have any required thickness, and the implement is operative for forming calks upon horse shoes regardless of their thickness, and calks may be of any required length.

Having fully described my invention, what I claim and desire to secure by Letters Patent is,—

1. A calk forming implement, comprising, in combination with a suitable base, a pair of upright standards rigidly mounted upon the base, a spacing block having a contact facet formed with a straight edge and mounted between the standards, a plunger bar mounted to swing upon the standards and provided with a head disposed adjacent to the spacing block, a compression head formed with a contact facet, said compression head being disposed between and having a pivotal mounting upon the standards co-incident with the straight edge of the contact facet

of the spacing block; a pair of longitudinally movable adjusting plates disposed between and mounted upon the standards for controlling one of the swinging movements of the plunger bar, and an arrangement of levers for moving the compression head upon its pivotal mounting to dispose its contact facet substantially at right angles to the contact facet of the spacing block.

2. A calk former comprising a pair of upright, annularly recessed standards disposed substantially parallel with their recesses adjacent; a spacing block mounted between and having a contact facet formed with a straight edge disposed in alinement with the centers of said annular recesses; a plunger bar mounted to swing upon the standards and provided with a head disposed adjacent to the spacing block; a folder-member disposed between the standards, said member being provided with disks upon its sides in engagement with the annular recesses of the standards and formed with a contact facet having a straight edge disposed co-incident with the axes of the disks; a pair of longitudinally movable adjusting plates disposed between and mounted upon the standards for a control of one of the swinging movements of the plunger bar; and an arrangement of levers for moving the folder-member to dispose its contact facet transversely with reference to the contact facet of the spacing block.

3. A calk forming implement, comprising, in combination with a suitable base, a pair of upright standards rigidly mounted upon the base, a rotatable disk disposed between and eccentrically mounted upon the standards; a spacing block having a contact facet formed with a straight edge and mounted between the standards, a plunger-bar provided with a terminal head, said plunger-bar being disposed with its head adjacent to the spacing block, its opposite terminal being mounted upon said eccentrically mounted disk; a compression head formed with a contact facet, said compression head being disposed between and having a pivotal mounting upon the standards co-incident with the straight edge of the contact facet of the spacing block; adjusting plates disposed between and mounted upon the standards, said plates being formed with inclined bearing-surfaces; a treadle connected with and adapted to move the adjusting plates upwardly for causing an engagement of their inclined bearing-surfaces with the plunger bar; and an arrangement of levers for moving the compression head upon its pivotal mounting to dispose its contact facet in alinement or transversely with reference to the contact facet of the spacing block.

4. A calk former comprising a pair of upright, annularly recessed standards disposed

substantially parallel, with their recesses adjacent; a spacing block mounted between and having a contact facet formed with a straight edge disposed in alinement with the centers of said annular recesses; an eccentrically mounted rotatable disk, a plunger bar mounted thereon and provided with a head disposed adjacent to the spacing block; a folder-member disposed between the standards, said member being provided with disks upon its sides engaging within the annular recesses of the standards and formed with a contact facet having a straight edge disposed co-incident with the axes of the disks; a treadle mounted upon the standards; a pair of adjusting plates formed with inclined bearing-surfaces, said plates being movable by the treadle for engagement of their inclined bearing surfaces with said plunger bar, and an arrangement of levers for moving the folder-member to dispose its contact facet transversely or in alinement with reference to the contact facet of the spacing block.

5. A calk forming implement comprising an upright support, a spacing block mounted rigidly thereon and formed with a contact facet with a straight edge; a plunger bar movable upon the support and provided with a terminal head disposed adjacent to the spacing block; a folder-member formed with a contact facet; said member being provided with a recess and with guide rods extending through said recess; a supporting block mounted slidably upon said guide rods; a screw-member mounted upon said folder-member to traverse the supporting-block and having a threaded part disposed outwardly of the supporting-block; said folder-member being disposed between and having a pivotal mounting upon the support co-incident with the straight edge of the contact facet of the spacing block; a pair of adjusting plates movable parallel with the support for a control of one of the movements of the plunger bar, and means connecting the folder member and plunger bar for disposing the contact facet of said folder member in alinement or transversely with reference to the contact facet of said spacing block.

6. A calk forming implement comprising an upright support, a spacing block mounted rigidly thereon and formed with a contact facet with a straight edge; a plunger bar movable upon the support and provided with a terminal head disposed adjacent to the spacing block; an elongated folder-member provided with a transverse recess and formed with a contact facet; a supporting-block mounted within the recess of the folder-member and normally disposed midway between the walls thereof; adjusting devices connected with the supporting-block and folder-member for moving the support-

ing-block longitudinally of said folder-member; a screw-member mounted upon said folder-member to traverse and having a threaded part disposed outwardly of said supporting-block; said folder-member being disposed between and having a pivotal mounting upon the support co-incident with the straight edge of the contact facet of the spacing block; a pair of adjusting-plates movable parallel with the support for a control of one of the movements of the plunger bar; and means connecting the folder-member and plunger bar for disposing the contact facet of said folder-member in alignment or transversely with reference to the contact facet of said spacing block.

7. In combination with an upright support, a calk forming implement, comprising a spacing block rigidly mounted upon the support and formed with a contact facet with a straight edge; a pivotally mounted plunger bar longitudinally movable upon the support and provided with a terminal head disposed adjacent to the spacing block; an elongated folder-member formed with a contact facet and provided with a transverse recess opening upon its lower side and a longitudinal slot opening upon said recess; a resiliently mounted supporting-block within the recess of the folder-member and normally disposed midway between the walls thereof; adjusting devices connected with the supporting-block and folder-member for moving the supporting-block longitudinally of said folder-member; a screw member traversing the slot of said folder-member and supporting block and having a threaded part disposed outwardly of said supporting block; said folder-member being disposed between and having a pivotal mounting upon the support co-incident with the straight edge of the contact facet of the spacing block; a pair of adjusting plates adapted to be moved parallel with the support for a control of one of the movements of the plunger bar; and means to cause a swinging movement of said folder-member.

8. A calk former comprising a pair of upright, annularly recessed standards disposed substantially parallel, with their recesses adjacent; a spacing block mounted between and having a contact facet formed with a straight edge disposed in alinement with the centers of said annular recesses; an eccentrically mounted rotatable disk; means to control the rotatable movement of said eccentrically mounted disk; a plunger bar mounted upon said disk and provided with a head disposed adjacent to the spacing

block; a recessed folder-member disposed between the standards and provided with annular projections upon its sides engaging within the annular recesses of the standards, said folder-member being formed with a contact facet having a straight edge disposed co-incident with the axes of the disks; a supporting-block slidably mounted in the recess of the folder-member, and having a threaded keeper projecting from one of its sides; a treadle mounted upon the standards; a pair of adjusting plates formed with inclined bearing-surfaces, said plates being movable by the treadle for engagement of their inclined bearing surfaces with said plunger bar; and an arrangement of levers for causing a swinging movement of the folder member.

9. A calk forming implement, comprising, in combination with a suitable base, a pair of upright standards rigidly mounted thereon, a spacing block having a contact facet formed with a straight edge and mounted between the standards, a plunger bar adapted to be elevated or lowered and to have a swinging movement upon the standards and provided with a head disposed adjacent to the spacing block; an elongated folder-member formed with a transverse recess opening upon its bottom and sides, and a longitudinal slot opening upon its top and upon said recess; a plurality of guides disposed longitudinally of said folder-member and extending through said recess, a supporting-block within the recess and mounted upon the guides; an adjusting screw mounted upon said folder-member and engaging the supporting-block; a screw member disposed within the slot of the folder-member and having a terminal projecting outwardly of said supporting block; said folder member being formed with a contact facet, and disposed between and having a pivotal mounting upon the standards co-incident with the straight edge of the contact facet of the spacing block; a pair of longitudinally movable adjusting plates disposed between and mounted upon the standards for controlling one of the swinging movements of the plunger bar, and an arrangement of levers for moving the folder-member upon its pivotal mounting.

In testimony whereof I have affixed my signature in presence of two witnesses.

CHRISTIE McMILLEN.

Witnesses:

HIRAM A. STURGES,
E. L. HUMPHREY.