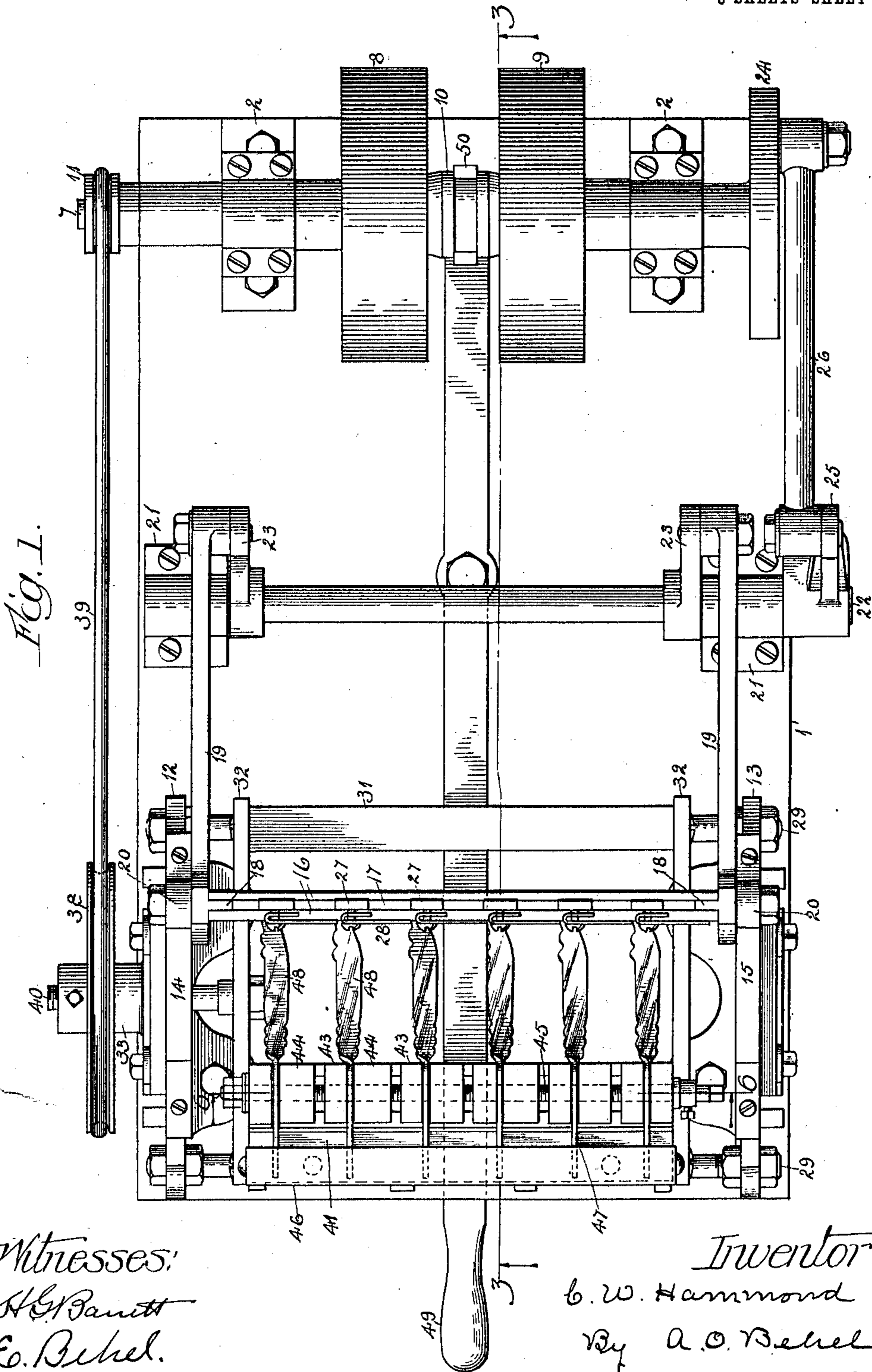


C. W. HAMMOND.
BURNISHING MACHINE.
APPLICATION FILED DEC. 4, 1909.

990,257.

Patented Apr. 25, 1911.

3 SHEETS—SHEET 1.

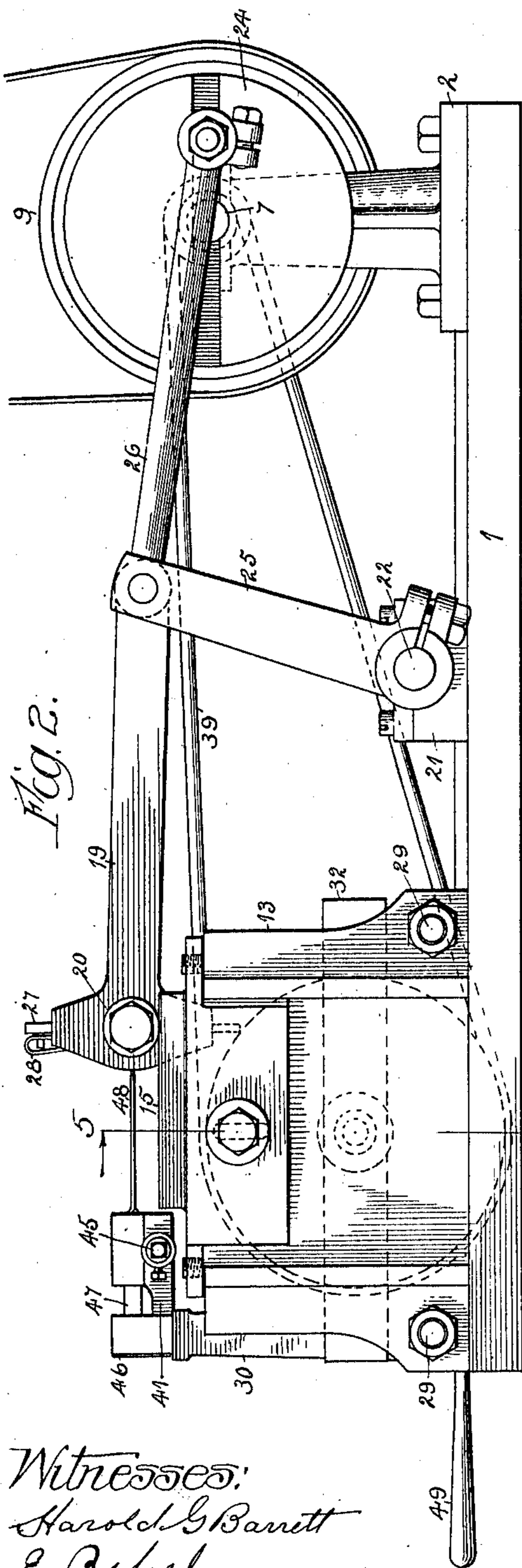


C. W. HAMMOND.
BURNISHING MACHINE.
APPLICATION FILED DEC. 4, 1909.

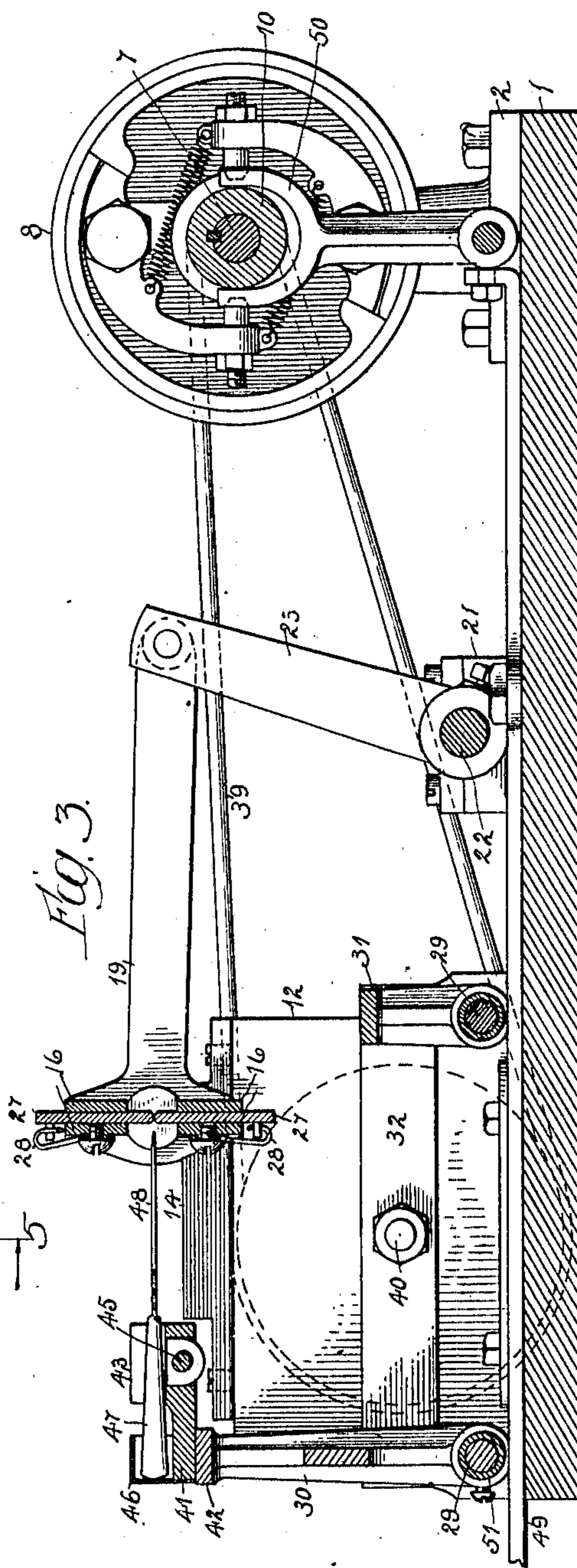
990,257.

Patented Apr. 25, 1911.

3 SHEETS—SHEET 2.



Witnesses:
Harold G. Barnett
E. Belhel.



Inventor:
C. W. Hammond
By A. O. Belhel
Atty.

APPLICATION FILED DEC. 4, 1909.

Patented Apr. 25, 1911.

3 SHEETS—SHEET 3.

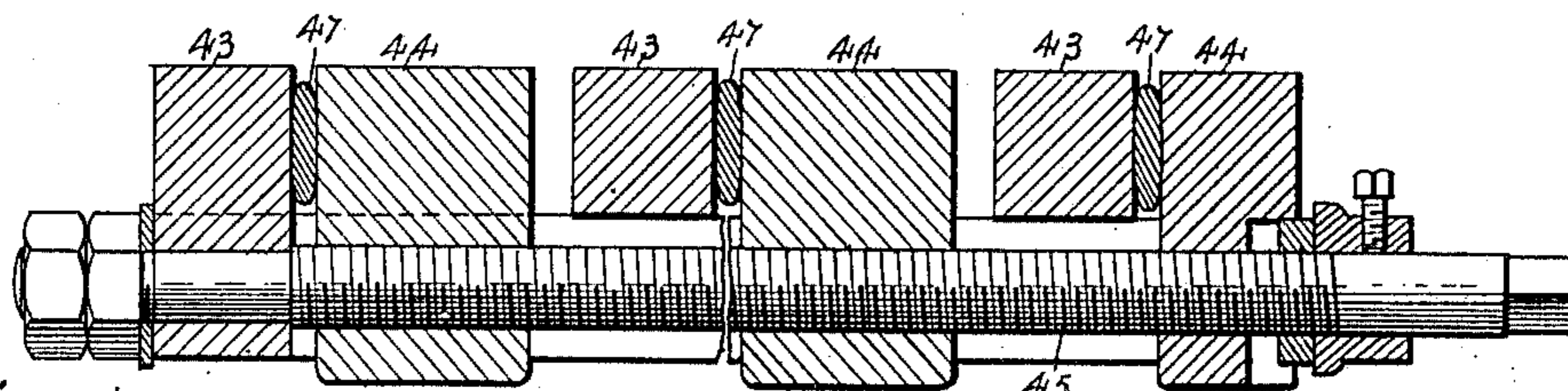


Fig. 6

Inventor:
G. W. Hammond.
By A. O. Behel
Atty.

UNITED STATES PATENT OFFICE.

CHRISTOPHER W. HAMMOND, OF ROCKFORD, ILLINOIS, ASSIGNOR TO ROCKFORD SILVER PLATE COMPANY, OF ROCKFORD, ILLINOIS, A CORPORATION OF ILLINOIS.

BURNISHING-MACHINE.

990,257.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed December 4, 1909. Serial No. 531,439.

To all whom it may concern:

Be it known that I, CHRISTOPHER W. HAMMOND, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Burnishing-Machines, of which the following is a specification.

The object of this invention is to construct a machine for polishing, especially the blades of cutlery, and in this instance fruit knives.

In the accompanying drawings, Figure 1 is a plan view of my improved polishing machine. Fig. 2 is a side elevation. Fig. 3 is a vertical lengthwise section on dotted line 3 3 Fig. 1. Fig. 4 is an elevation showing the feed end of the machine. Fig. 5 is a transverse vertical section on dotted line 5 5 Fig. 2. Fig. 6 is a section on dotted line 6 6 Fig. 1.

The operative parts are mounted on a base plate 1, and to this base plate are secured bearings 2 which support a shaft 7. On this shaft are loosely mounted two pulleys 8 and 9 which are driven in opposite directions by a belt connection with a suitable prime mover. To the shaft 7 is splined a clutch section 10, which is capable of a sliding movement in connection with the shaft. This clutch section is capable of being moved into engagement with either of the pulleys 8 and 9 in order that the shaft 7 may be rotated in opposite directions according to which pulley is driving the shaft. To one end of the shaft 7 is secured a grooved faced pulley 11.

To the base plate 1 are secured two uprights 12 and 13, and to the upper edges of these uprights are secured tracks 14 and 15 respectively.

The frame for supporting the burnishers comprises two heads each composed of two bars 16 held separated by spacing blocks 17 and the projections 18 extending from the end bars 19. The heads are also held separated, one located above the other. To each end bar 19 is secured a roller 20 which is mounted on the tracks 14 and 15.

To the base plate are secured bearings 21 which support a rocker shaft 22. To this rocker shaft are fixedly connected two arms 23, having their free ends connected to the arms 19. To the shaft 7 is secured a crank head 24, and to the rocker shaft 22 is

clamped an arm 25. A link 26 has one end connected to the arm 25, and its other end is connected to the crank-head 24.

Each of the heads support a plurality of burnishers 27 in a manner to permit the burnishers to slide lengthwise. The burnishers of one head are located opposite the burnishers of the other head, and a spring 28 for each burnisher serves to hold them yielding in contact. The contacting ends of the burnishers are rounded.

As the shaft 7 is rotated, the heads carrying the burnishers will be moved bodily along the tracks 14 and 15.

Rods 29 are connected to the uprights 12 and 13, and are held stationary. These rods form guide-ways for a carrier supporting the articles to be burnished. This carrier comprises two frames 30 and 31 supported by the rods 29 and slidable thereon. These frames 30 and 31 are connected by the end plates 32.

To the upright 12 is secured a sleeve 33. This sleeve is provided with a cylindrical opening 34 having one end provided with an enlargement 35. A bushing 36 is located in the cylindrical opening 34, and has an enlarged head 37 which is located in the enlargement 35. This bushing extends beyond the sleeve 33, and has a grooved faced pulley 38 fixedly connected to it. A belt 39 connects the grooved faced pulleys 11 and 38.

A screw 40 has a fixed connection with one of the end plates 32, and has a screw-thread connection with the bushing 36. As the screw is held against rotation, but capable of a bodily lengthwise movement, and the bushing 36 is capable of rotation, but held against bodily lengthwise movement, the rotation of the bushing by the rotation of the grooved pulley 38, will move the screw bodily lengthwise, which will move the carrier on the rods 29, back and forth as the pulley 38 is rotated in opposite directions.

The frame 30 of the carrier extends upward beyond the end plates 32, and has a top-bar 42. To this top-bar 42 is secured a plate 41 which has a plurality of stationary sections 43. A plurality of movable sections 44 are located between two of the stationary sections, and are capable of being moved toward and away from the stationary sections. A screw 45 is held against lengthwise movement, but is capable of being

turned axially. One end of this shaft is squared to receive a wrench by which the shaft is turned. This shaft has a screw thread connection with the movable sections 44, and as the shaft is rotated, the movable sections will be moved toward or from the stationary sections 43. An angle iron plate 46 is supported by the plate 41.

The handles 47 of the knives to be burnished are clamped between the movable sections 44 and stationary sections 43, the blades 48 of the knives lie flat in a horizontal plane, one knife for each pair of burnishers as shown at Fig. 1.

A shipping lever 49 has a pivotal connection with the base plate 1, and one end supports a yoke 50 which engages the clutch section 10. By means of this shipping lever, the clutch section can be moved into engagement with either of the pulleys 8 and 9 for the purpose of imparting a rotary movement to the shaft 7 in opposite directions.

The frame 30 has a sleeve 51 surrounding one of the rods 29. To this sleeve are connected two collars 52 and 53 by set screws, in order that they may be adjusted along the sleeve. The shipping lever 49 is located between the collars 52 and 53, so that, as the carrier is moved, one of the collars will contact with the shipping lever and disengage the clutch section from its engagement with one of the pulleys 8 and 9, thereby stopping the action of the burnishers, and the movement of the knife carrier.

As the movement of the burnishers is only in the lengthwise direction of the knife blades it is necessary that the knives move laterally in order that the burnishers may contact with all portions of the knife blade, and the springs 28 allowing for the varying thickness of the blades.

It will be noted that a slight oscillatory movement will be given to the burnishers, and this movement continuously presents a different point of each burnisher against the surface being burnished during the reciprocation of said burnishers instead of the same point all the time, as would be the case if a mere reciprocation was given the frame. In other words, the burnishers have a slight rocking movement on the surface being burnished.

While I have shown a holder for the handles of fruit knives, it is evident that the holder may be varied to hold ordinary table knives, when used in connection with my improved burnishers and the mechanism for operating them.

I claim as my invention.

1. In a burnishing machine, the combination with a base, of reciprocatory burnishing mechanism operating thereon, a main driving shaft located on the base at one side of the burnishing mechanism, a rocker shaft disposed between the burnishing mechanism

and driving shaft and disposed parallel to the latter, a crank mounted on the driving shaft, a link connection between the crank and the rocker shaft, a link connection between the rocker shaft and the burnishing mechanism, oppositely revolving pulleys mounted directly on the driving shaft at one side of its crank, and means for clutching either pulley to the shaft.

2. In a burnishing machine, the combination with a base, of reciprocatory burnishing mechanism operating thereon, a main driving shaft located on the base at one side of the burnishing mechanism, a rocker shaft disposed between the burnishing mechanism and driving shaft and disposed parallel to the latter, a crank mounted on the driving shaft, a link connection between the crank and the rocker shaft, a link connection between the rocker shaft and the burnishing mechanism, oppositely revolving pulleys mounted directly on the driving shaft at one side of its crank, a transversely movable work holder, means connected to the driving shaft for moving the work holder transversely in one direction when one of said pulleys is clutched to the shaft and in the other direction when the other pulley is clutched to the shaft, a lever having one end engaged and operated by the work holder, and means connected to the other end of the lever for clutching either pulley to the shaft.

3. In a burnishing machine, the combination with a support having spaced tracks, of spaced heads having rollers operating on the tracks, upper and lower cross bars connecting the heads, means for reciprocating the heads and cross bars, and sets of upper and lower coacting yielding burnishers slidably mounted on the upper and lower cross bars.

4. In a burnishing machine, the combination with a support, of a bushing rotatably mounted thereon and held against longitudinal displacement, means for rotating the bushing, burnishing mechanism, and a work holder movably mounted on the support and having a screw fixed thereto, said screw having a threaded engagement with the rotary bushing.

5. In a burnishing machine, the combination with a support, of a sleeve fixed to one side of the same and having an opening therethrough provided with an inner enlargement, a bushing rotatably mounted on the sleeve and having an enlarged head located in the enlargement, said bushing being internally threaded, means for rotating the bushing, burnishing mechanism, and a work holder movably mounted on the support and having a screw fixed thereto, said screw passing through and having a threaded engagement with the bushing.

6. In a burnishing machine, the combination with burnishing mechanism, of a reciprocatory work holder coacting therewith and

including a frame having a plurality of fixed clamping projections, a plurality of sliding clamping blocks cooperating therewith, and a single screw journaled on the
5 frame and held against longitudinal movement thereon, said screw having a threaded engagement with the blocks.

7. A burnishing machine, comprising burnishers, and a holder for the articles to
10 be burnished comprising a plurality of stationary sections, a plurality of movable sections, and a screw rod having a screw thread connection with the movable sections.

8. In a burnishing machine, the combination with a support, of a reciprocatory frame
15 mounted on the support, and having spaced bars, each provided with a plurality of openings that are alined with the openings of the other bar, sets of coacting burnishing elements
20 slidably mounted in the openings of both bars, springs for urging the elements of each set toward the elements of the other set, work-holding means for supporting a

plurality of articles to be burnished between the frame bars and in a position to be acted
25 on by the burnishing elements, and means for reciprocating the frame.

9. In a burnishing machine, the combination with a support, of a reciprocatory frame
mounted on the support and having a bar
30 fixed thereto and projecting therefrom, burnishing mechanism carried by the frame, means for holding work in position to be operated on by the burnishing mechanism, and means connected to the bar for reciprocating the frame and causing the said frame
35 to have an oscillatory movement during its reciprocation.

In testimony whereof I have hereunto set
my hand in presence of two subscribing witnesses.
40

CHRISTOPHER W. HAMMOND.

Witnesses:

A. O. BEHEL,
E. D. E. N. BEHEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
