W. C. HUEBNER.

MACHINE FOR COATING PLATES OR STONES.

APPLICATION FILED MAR. 11, 1908.

907,365.

Patented Dec. 22, 1908.

4 SHEETS—SHEET 1.

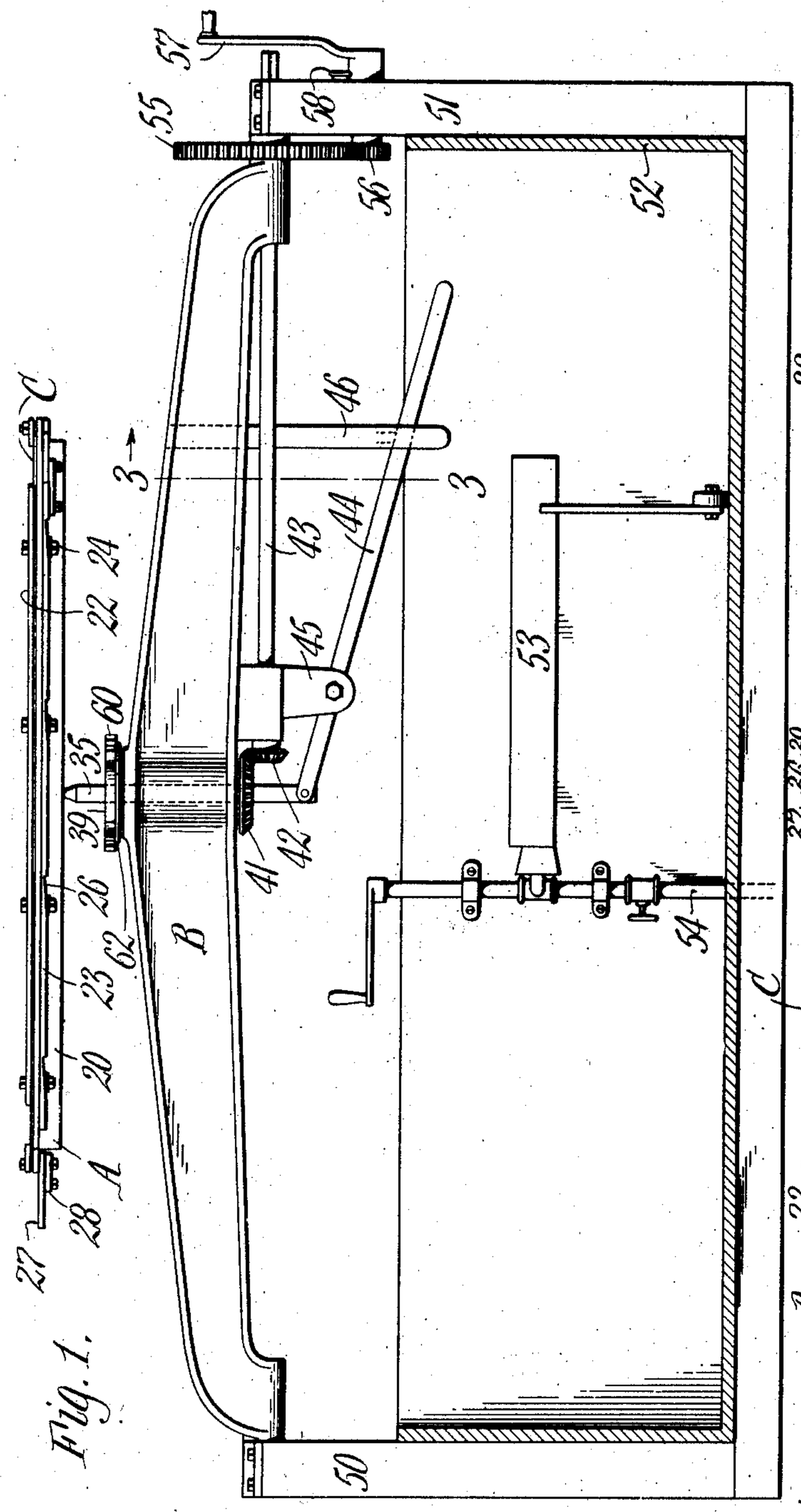

Fig. 1.

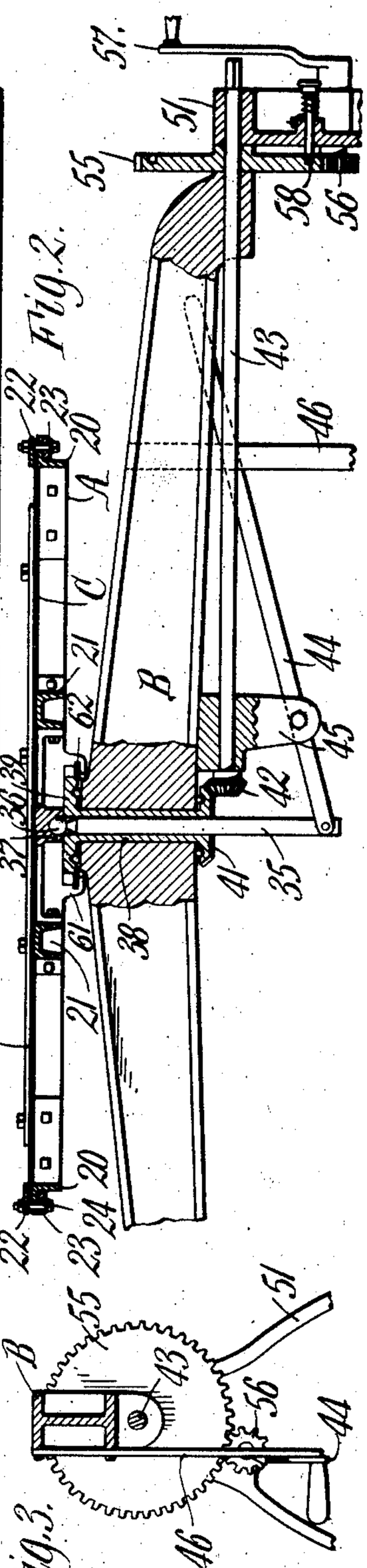

Fig. 2.

Fig. 3.

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4 SHEETS—SHEET 2

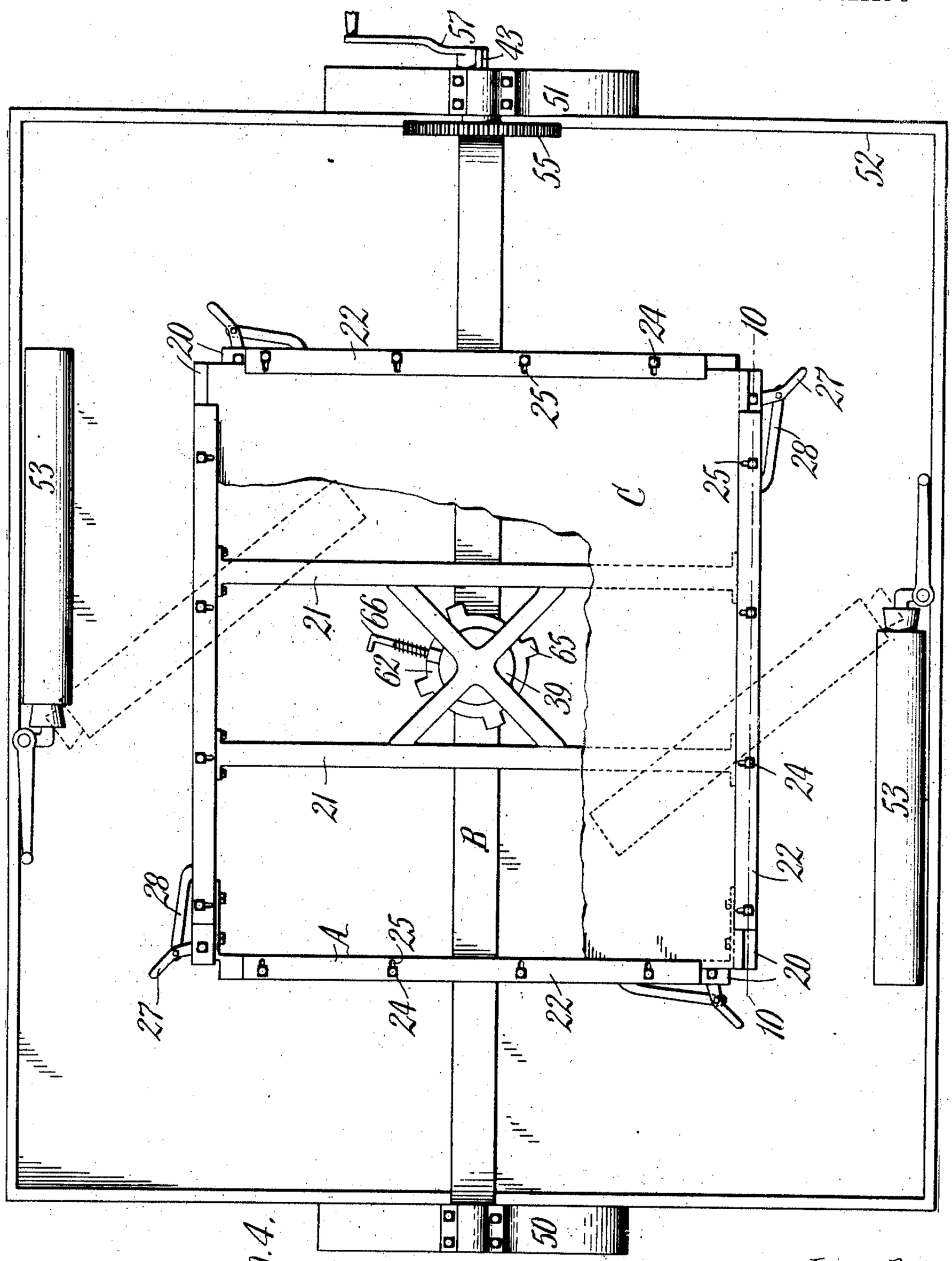

Fig. 4.

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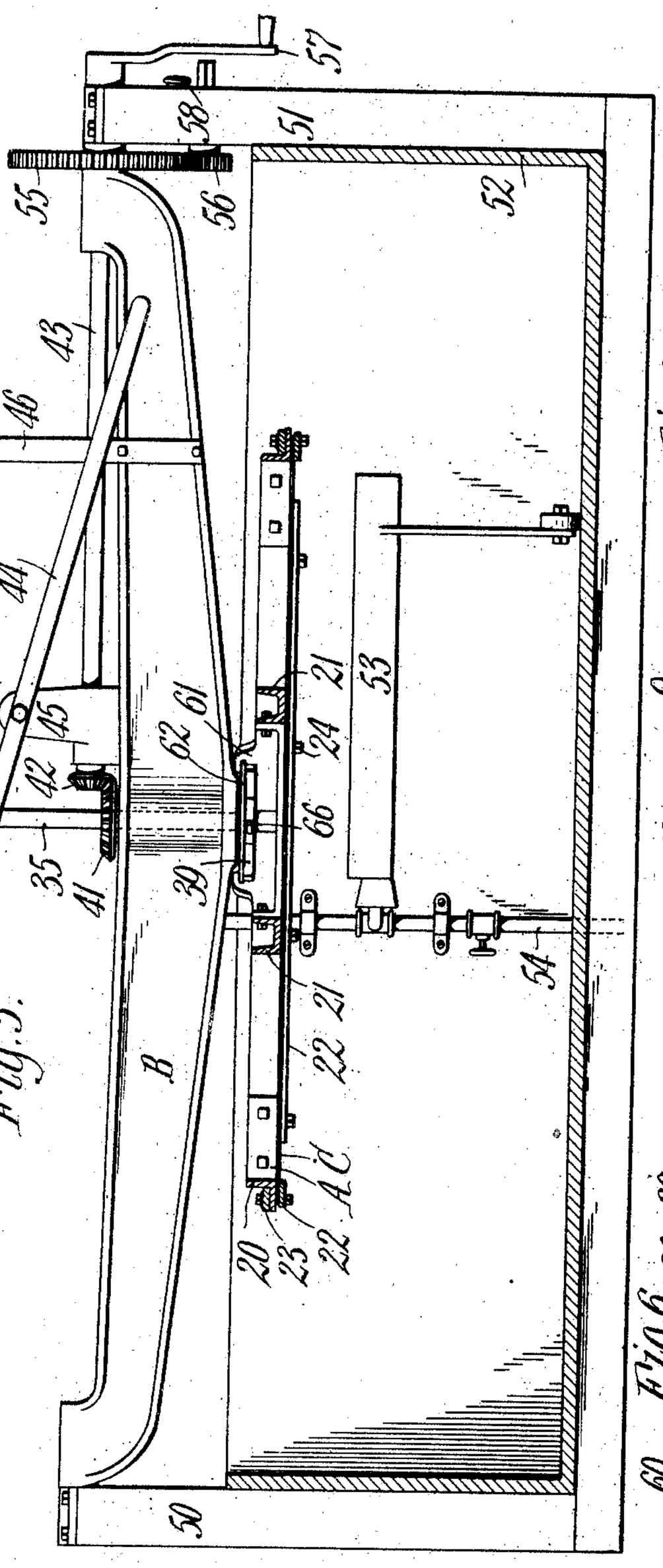

Fig. 5.

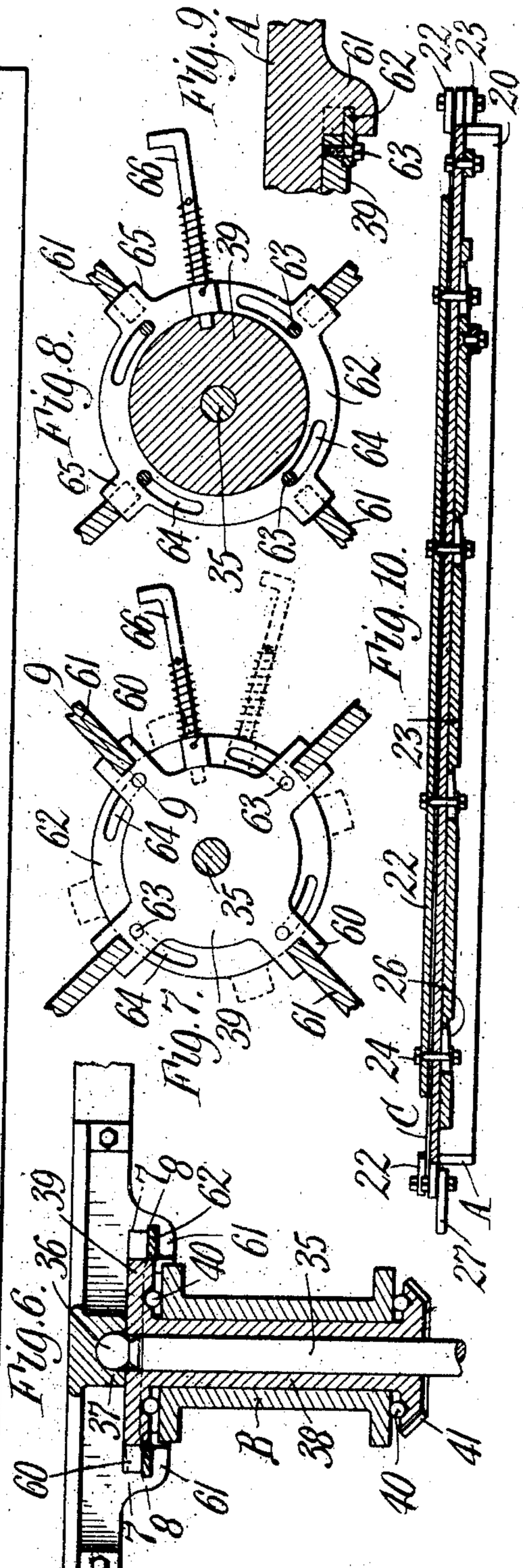

Fig. 9.

Fig. 8.

Fig. 10.

Fig. 7.

Fig. 6.

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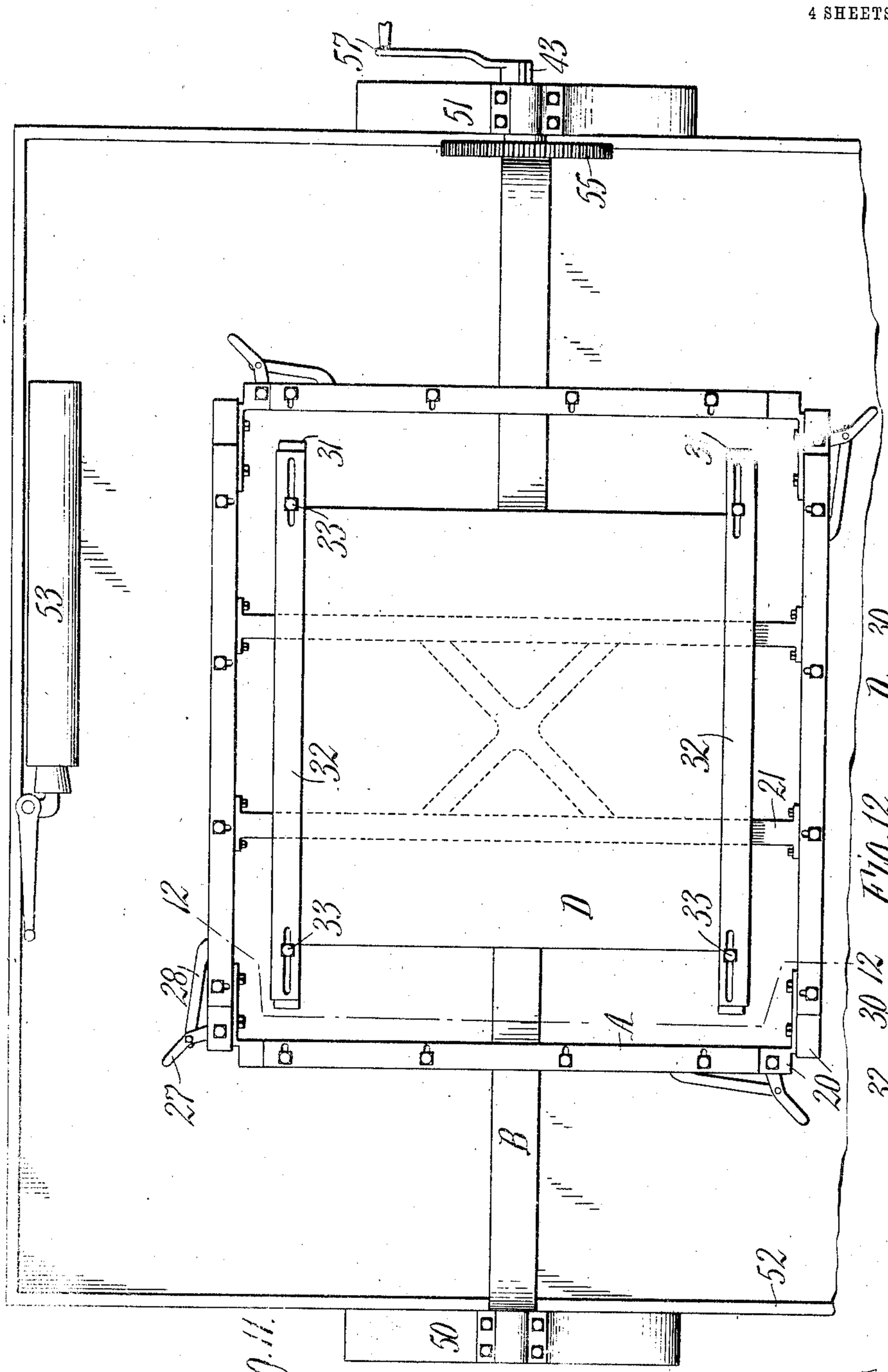

Fig. 11.

Fig. 12.

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UNITED STATES PATENT OFFICE.

WILLIAM C. HUEBNER, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO GEORGE BLEISTEIN, OF BUFFALO, NEW YORK.

MACHINE FOR COATING PLATES OR STONES.

No. 907,365. Specification of Letters Patent. Patented Dec. 22, 1908.

Application filed March 11, 1908. Serial No. 420,397.

To all whom it may concern:

Be it known that I, WILLIAM C. HUEBNER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Machines for Coating Plates or Stones, of which the following is a specification.

This invention relates to coating machines which are employed more particularly for applying sensitizing liquid to metallic photographic printing plates or to lithographic stones and which are provided with means for rotating the holder for the plate or stone in order to distribute the liquid over the plate and remove the excess of liquid therefrom, and with means for inverting the holder for placing the coated surface over a heater in order to dry the same.

The object of this invention is to provide the machine with means for enabling the rotatable holder to be tilted or tipped for distributing the liquid uniformly over the plate, and to render the machine more convenient and efficient in use.

In the accompanying drawings, consisting of four sheets: Figure 1 is an elevation of this coating machine, partly in section, showing the holder elevated. Fig. 2 is a fragmentary sectional elevation, showing the holder lowered upon and secured to the means for rotating the same. Fig. 3 is a side elevation in line 3—3, Fig. 1. Fig. 4 is a top plan view. Fig. 5 is an elevation, partly in section, showing the holder and its support inverted. Fig. 6 is a sectional elevation of the rotary head and connecting parts, on an enlarged scale. Figs. 7 and 8 are horizontal sections in lines 7—7 and 8—8, Fig. 6, respectively. Fig. 9 is a vertical section in line 9—9, Fig. 7. Fig. 10 is a longitudinal section through the holder in line 10—10, Fig. 4, on an enlarged scale. Fig. 11 is a fragmentary top plan, showing a lithographic stone secured to the holder. Fig. 12 is a vertical section in line 12—12, Fig. 11.

Like reference characters refer to like parts in the several figures.

A represents the holder for the plate or stone and B the support for the holder which is mounted on horizontal pivots so that it can be swung with the holder to present the latter either upwardly, as represented in Figs. 1 and 2, or downwardly, as represented in Fig. 5. The holder is presented upwardly for applying the coating liquid to the plate or stone and downwardly for drying the same.

The holder A comprises a frame of square or other suitable shape, formed of angle bars 20 which are preferably connected by intermediate channel bars 21.

C represents a metallic photographic printing plate which is secured upon the holder A by any suitable means, preferably by clamping devices, as shown. These devices each comprise on each of the four sides a clamping plate 22 which bears upon the adjacent edge portion of the plate C, and a wedge bar 23 which bears against the under side of the frame bar 20 and is longitudinally movable thereon. This wedge bar is connected with the clamping plate by bolts 24 which pass through longitudinal slots 25 in the wedge bar and are engaged by inclines 26 on the under side thereof, Fig. 10. The wedge bar is moved lengthwise by a hand lever 27 pivoted to the frame of the holder and connected with the bar by a link 28.

In Figs. 11 and 12 a lithographic stone D is secured to the holder by means of underlying wooden strips 30, to prevent slipping, channel bars 31 arranged against the under sides of the intermediate frame bars 21, angle bars 32 applied to opposite edges of the stone, and bolts 33 connecting the bars 31 and 32.

The holder is mounted on an upright spindle 35 which has a spherical head 36 entering a spherical socket 37 in the holder. This spindle is arranged in an upright rotary sleeve or tubular shaft 38 journaled in the support B of the holder and provided at its upper end, above said support, with a head or top flange 39 to which the holder can be coupled so as to rotate with the sleeve. Anti-friction balls 40, Fig. 6, are preferably interposed between the ends of the sleeve and the support B. The sleeve is provided at its lower end with a bevel wheel 41 which meshes with a pinion 42 on the inner end of a horizontal shaft 43 by which the sleeve can be rotated.

The spindle 35 can be raised or lowered in the sleeve by means of a hand lever 44 which is pivoted to a lug 45 on the support B and can be locked to a bar 46 on the support, Figs. 1, 2 and 3, for holding the holder in the raised position, shown in Fig. 1. In this po-

sition of the spindle and holder the latter can be tipped or tilted in any direction on the spherical head of the spindle, as may be necessary to properly distribute the coating liquid over the plate or stone.

The support B for the holder is represented as a bridge tree which is mounted by horizontal journals on standards 50 51 and extends over a vat or receptacle 52 which contains heating appliances 53 of any suitable kind for drying the coating liquid applied to the plate or stone. The heating appliances shown in the drawings are heated by gas which is supplied by pipes 54 and are movable so that they can be placed underneath the holder, as represented by dotted lines in Fig. 4, or out of the way against the sides of the vat, as represented by full lines.

One of the journals of the support B is preferably formed by the horizontal shaft 43, as shown in Fig. 2. A gear wheel 55 is secured to the pivotal portion of the support B, between the latter and the adjacent standard 51, and this wheel is engaged by a pinion 56 secured to a shaft which is journaled in the standard 51. A hand crank 57 can be applied to this shaft for turning the support on its journals so as to present the holder either upwardly or downwardly. A spring locking bolt 58 is preferably provided in the standard 51 for locking the support and holder in either position, the bolt engaging in openings in the side of the wheel 55 for that purpose.

Upon placing the hand crank 57 on the shaft 43, the sleeve 38 can be rotated and when the holder is coupled to the sleeve the rotation of the sleeve causes the rotation of the holder.

Any suitable devices may be employed for coupling the holder to the sleeve. The coupling devices which are shown in the drawings, particularly Figs. 6–9, are constructed as follows: The head or top flange 39 of the sleeve 37 is provided with bifurcated or notched coupling jaws 60 adapted to receive radial coupling lugs 61 formed on the under side of the holder A. These lugs enter the notches or bifurcations of the jaws when the holder is lowered upon the head 39, as represented in Figs. 6, 7 and 9. In order to secure the holder in this position to the head of the sleeve, a horizontal locking ring 62 is provided which is capable of circumferential adjustment on the head 39 and which is attached to the under side of the head by screws or bolts 63 secured to the head and passing through segmental slots 64 in the ring. The latter is provided with outwardly projecting locking lugs 65 which enter recesses in the inner portions of the coupling lugs 61 of the holder when these coupling lugs have entered the notches or recesses of the coupling jaws 60, as shown in Figs. 6–9. The locking ring is secured in this position by a spring bolt 66 which is arranged on the ring and enters a recess in the head 39. In Fig. 7 the ring is shown in full lines in the locking position in which its lugs 65 engage in the recesses of the coupling lugs 61, and in dotted lines in the position in which the locking lugs 65 of the ring have been moved out of line with the coupling lugs 61 of the holder. In this position of the ring the holder can be raised from the rotary sleeve to the position shown in Fig. 1.

In using this machine for coating with sensitizing liquid a plate or stone which is secured to the holder, the latter is raised to the position shown in Fig. 1, and secured in this elevated position, the liquid is poured upon the plate or stone on the holder, and the latter is tilted or tipped in various directions, as may be necessary to distribute the liquid uniformly over the plate or stone. The holder is then lowered upon the rotatable sleeve, as represented in Fig. 2, and coupled therewith. The support B carrying the holder is next inverted so as to present the holder and the plate or stone thereon downwardly, as represented in Fig. 5. The hand crank is now applied to the horizontal shaft 43 and this shaft is rotated, thereby rotating the sleeve 38 and the holder coupled thereto, whereby the surplus liquid is thrown off from the plate or stone on the holder, such surplus liquid being collected in the vat. The heating apparatus is next placed underneath the holder and the plate or stone is exposed to the heat preferably while being rotated until properly dried. The holder support is then swung up to present the holder upwardly and the plate or stone is removed.

I claim as my invention:

1. The combination of a holder for a plate or stone to be coated, means for rotating said holder, means for detachably connecting said holder with said rotating means, and means for tipping said holder when disconnected from said rotating means, substantially as set forth.

2. The combination of a holder for a plate or stone to be coated, means for rotating said holder, a reversible support for said holder and said rotating means by which said holder can be presented upwardly or downwardly, means for detachably connecting said holder with said rotating means, and means for tipping said holder when disconnected from said rotating means, substantially as set forth.

3. The combination of a holder for a plate or stone to be coated, a support for said holder, a rotatable sleeve journaled in said support and adapted to be coupled with said holder, a longitudinally movable spindle arranged in said sleeve, and a universal joint connecting the holder with said spindle, substantially as set forth.

4. The combination of a holder for a plate or stone to be coated, a support for said holder, which support is reversible about a horizontal axis, an upright rotatable sleeve journaled in said support, a vertically movable spindle arranged in said sleeve and connected at its upper end with said holder, whereby said holder can be raised from or lowered to said sleeve, and means for coupling said holder in its lowered position to said sleeve, substantially as set forth.

5. The combination of a holder for a plate or stone to be coated, a support for said holder, which support is reversible about a horizontal axis, an upright rotatable sleeve journaled in said support and adapted to be coupled to said holder, a vertically movable spindle arranged in said sleeve and connected at its upper end with said holder, a horizontal shaft mounted in said reversible support, and gears connecting said shaft with said sleeve for rotating the same, substantially as set forth.

6. The combination of a holder for a plate or stone to be coated, said holder being provided with one or more coupling lugs, a support for said holder, a rotatable sleeve journaled in said support and provided with one or more coupling jaws adapted to receive said lugs, and means for raising said holder from said sleeve or lowering said holder upon said sleeve, thereby disengaging said lugs from said jaws or engaging said lugs with said jaws, substantially as set forth.

7. The combination of a holder for a plate or stone to be coated, said holder being provided with one or more coupling lugs, a support for said holder, a rotatable sleeve journaled in said support and provided with one or more coupling jaws adapted to receive said lugs, and a circumferentially movable locking device on said sleeve adapted to engage said lugs when the latter have been engaged with said coupling jaws, substantially as set forth.

Witness my hand in the presence of two subscribing witnesses.

WILLIAM C. HUEBNER.

Witnesses:
EDWARD WILHELM,
C. B. HORNBECK.