

No. 677,221.

Patented June 25, 1901.

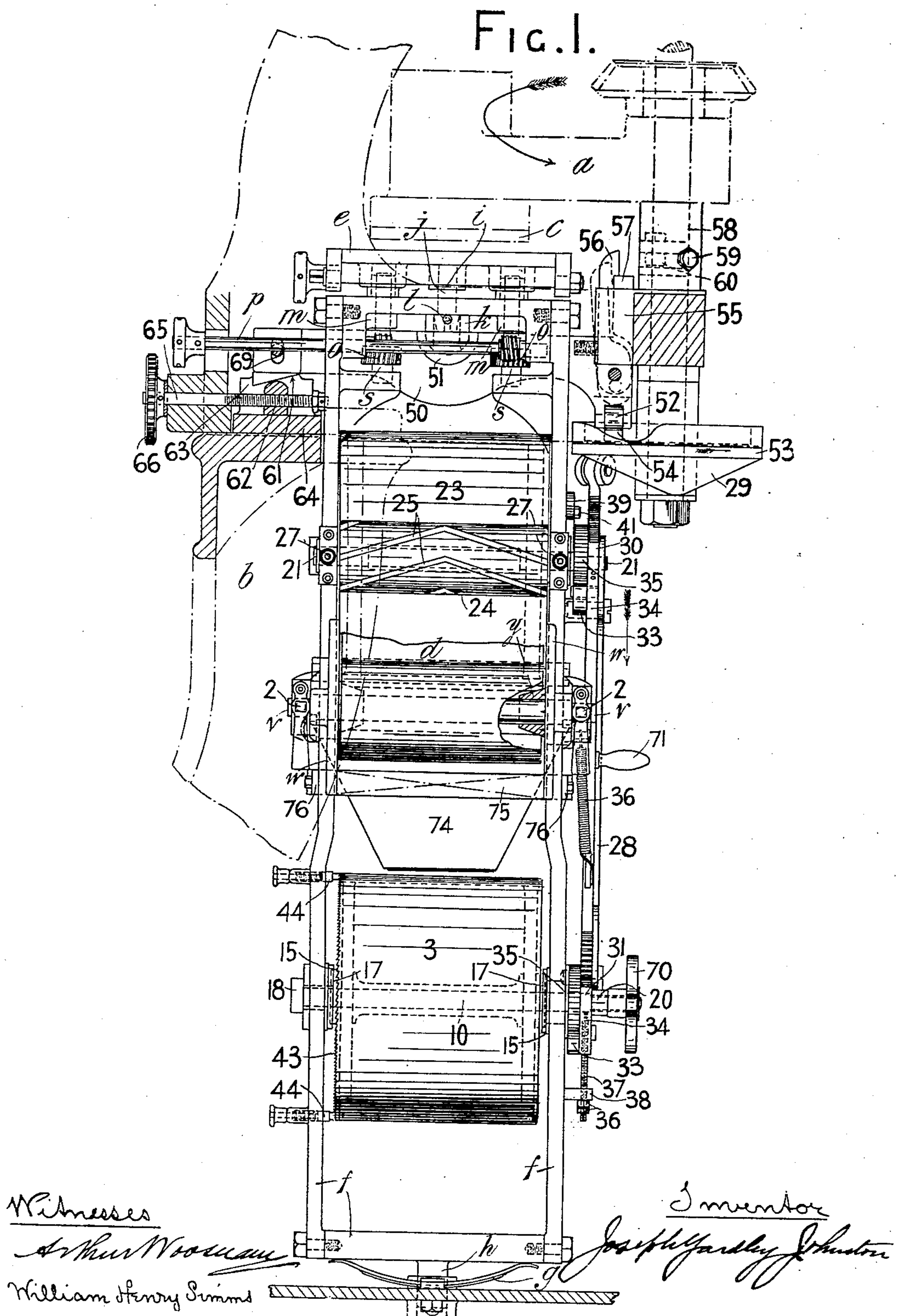
J. Y. JOHNSTON.

WIPING MECHANISM FOR PRINTING PRESSES.

(No Model.)

(Application filed Jan. 23, 1900.)

7 Sheets—Sheet 1.



Witnesses

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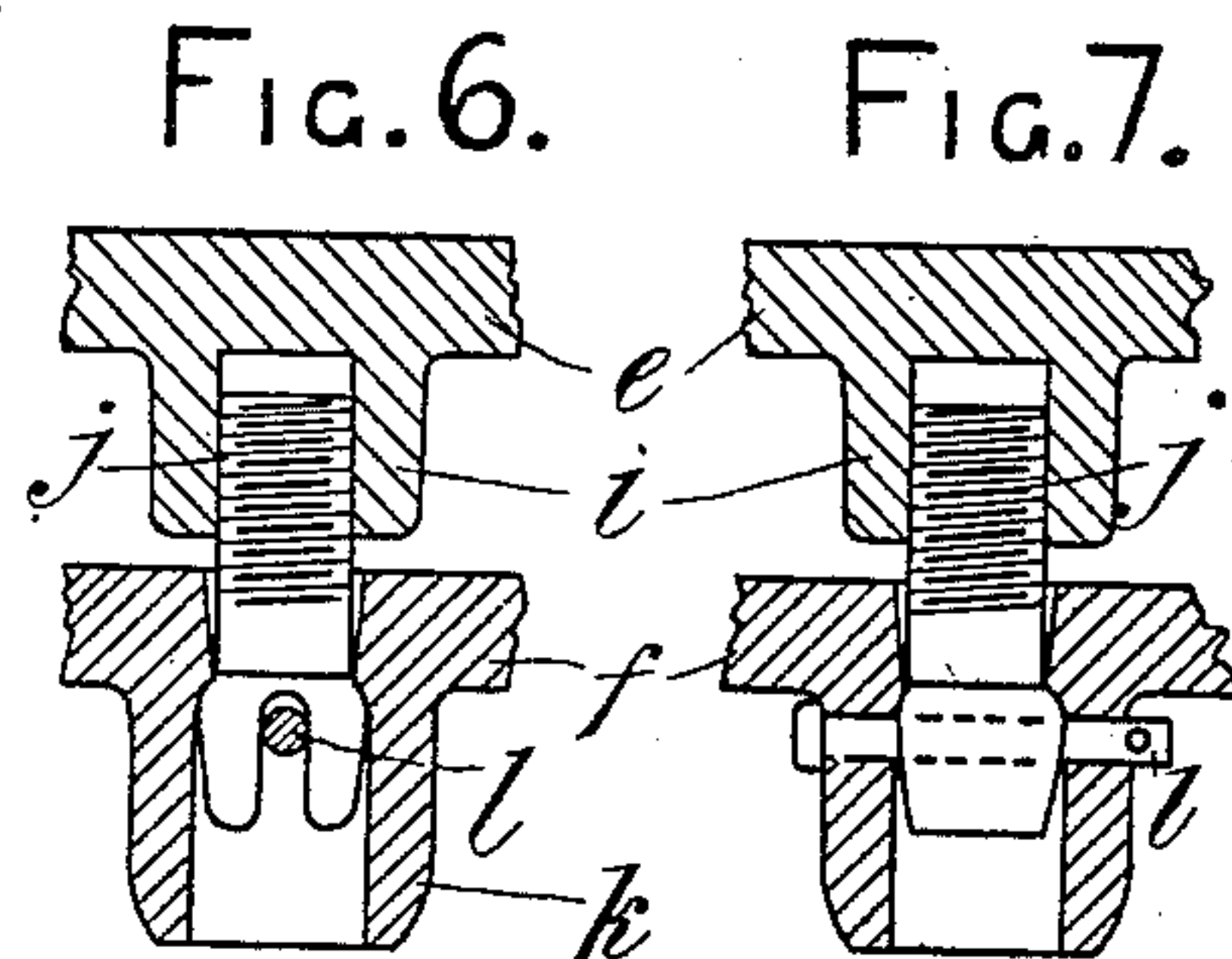
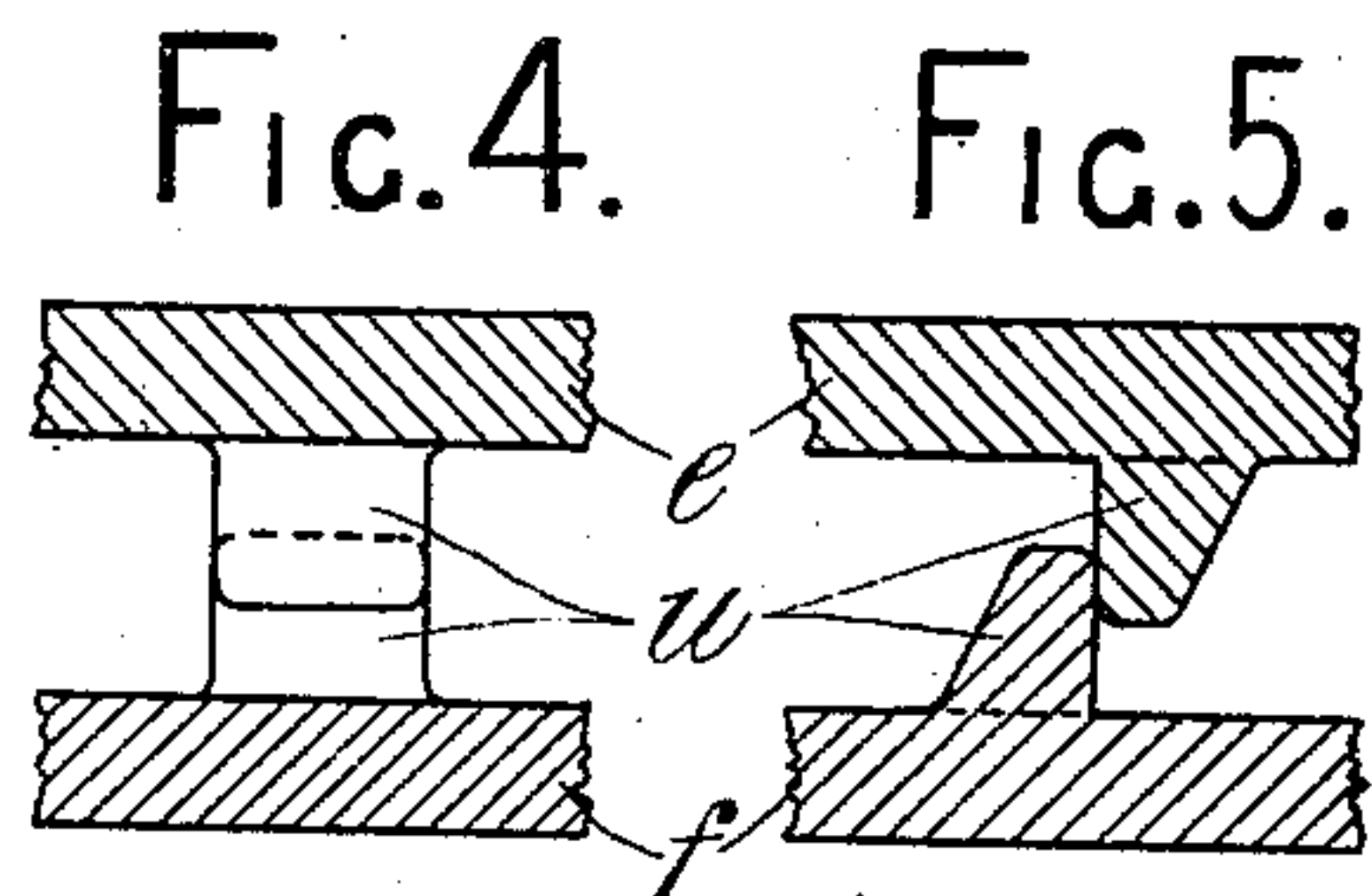
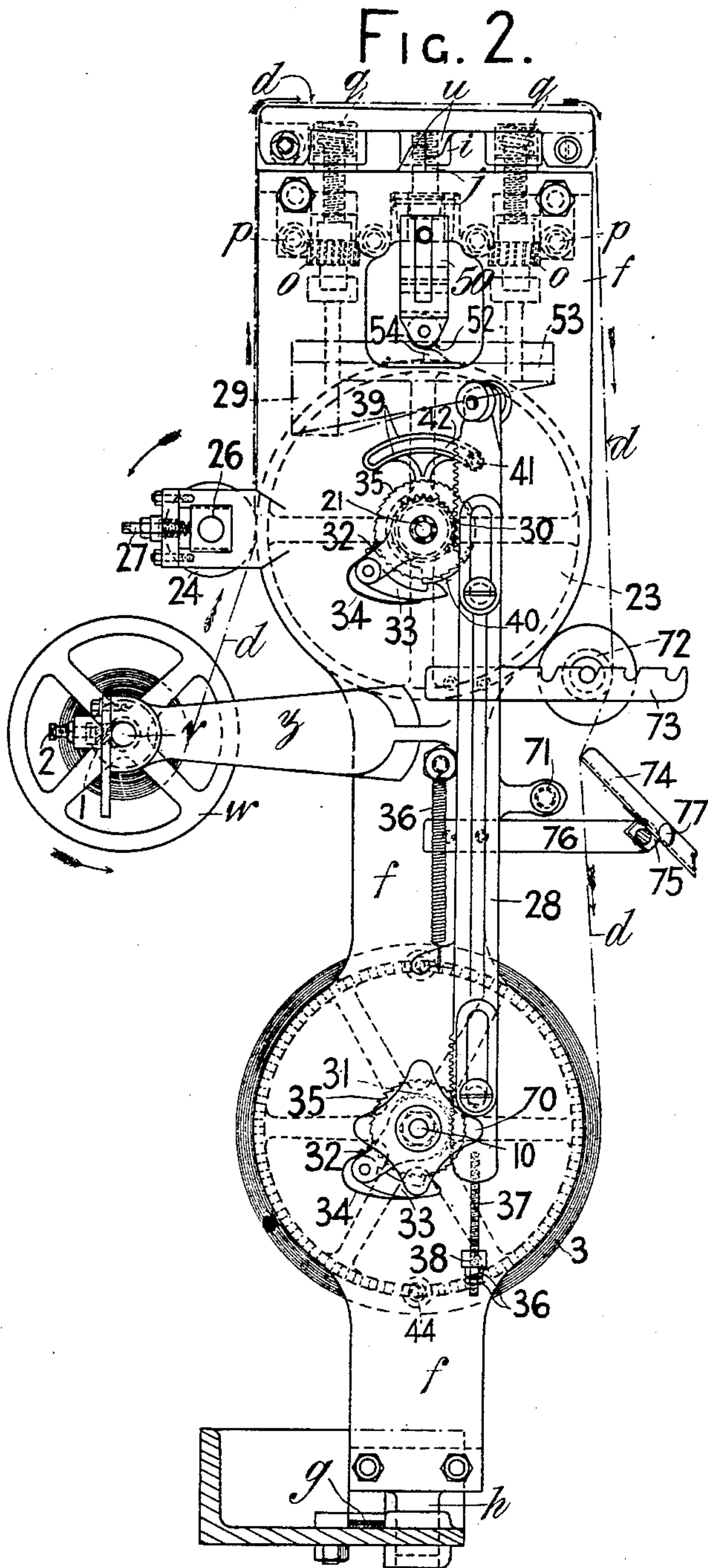
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7 Sheets—Sheet 2.



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7 Sheets—Sheet 3.

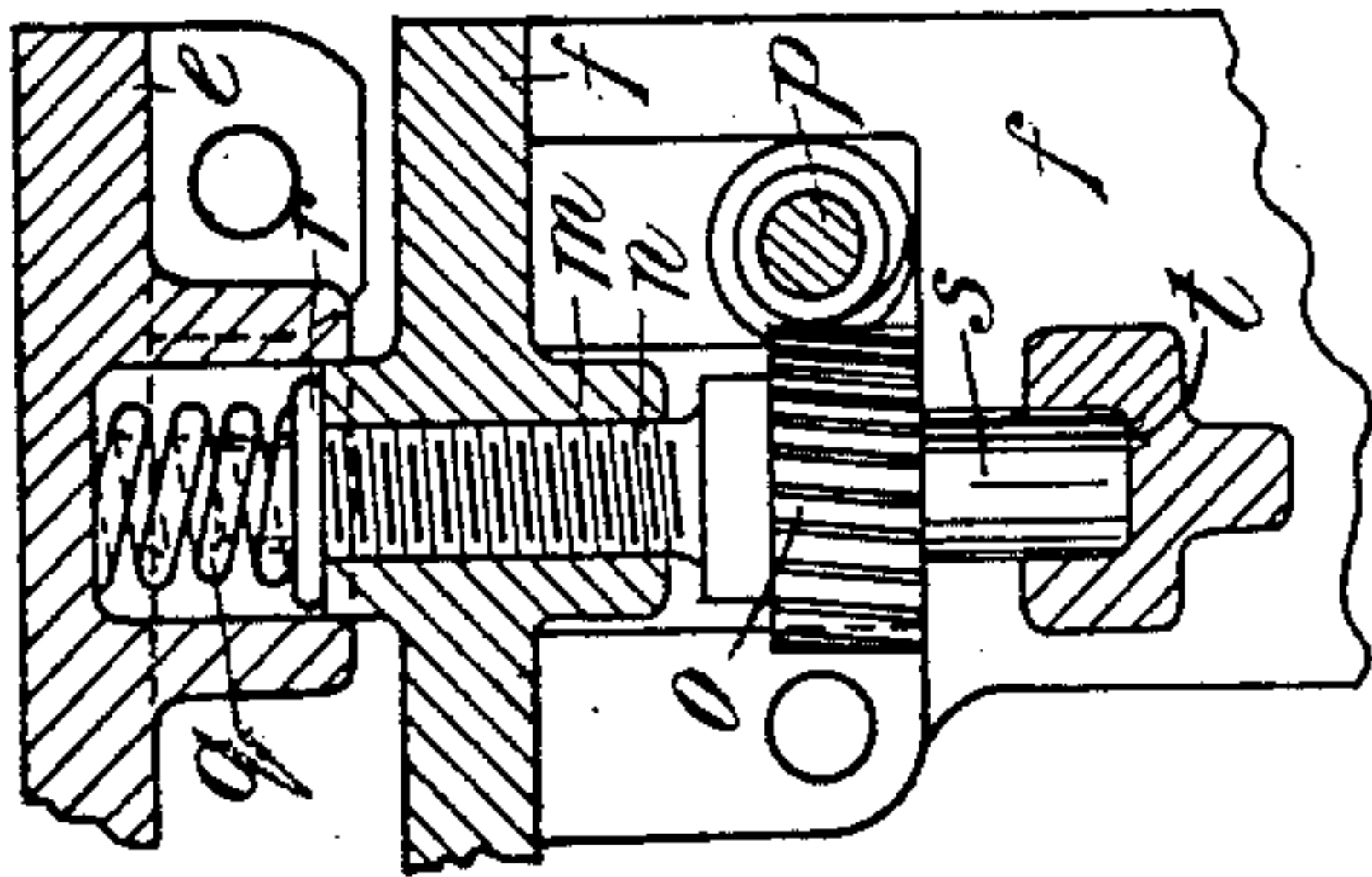


FIG. 8.

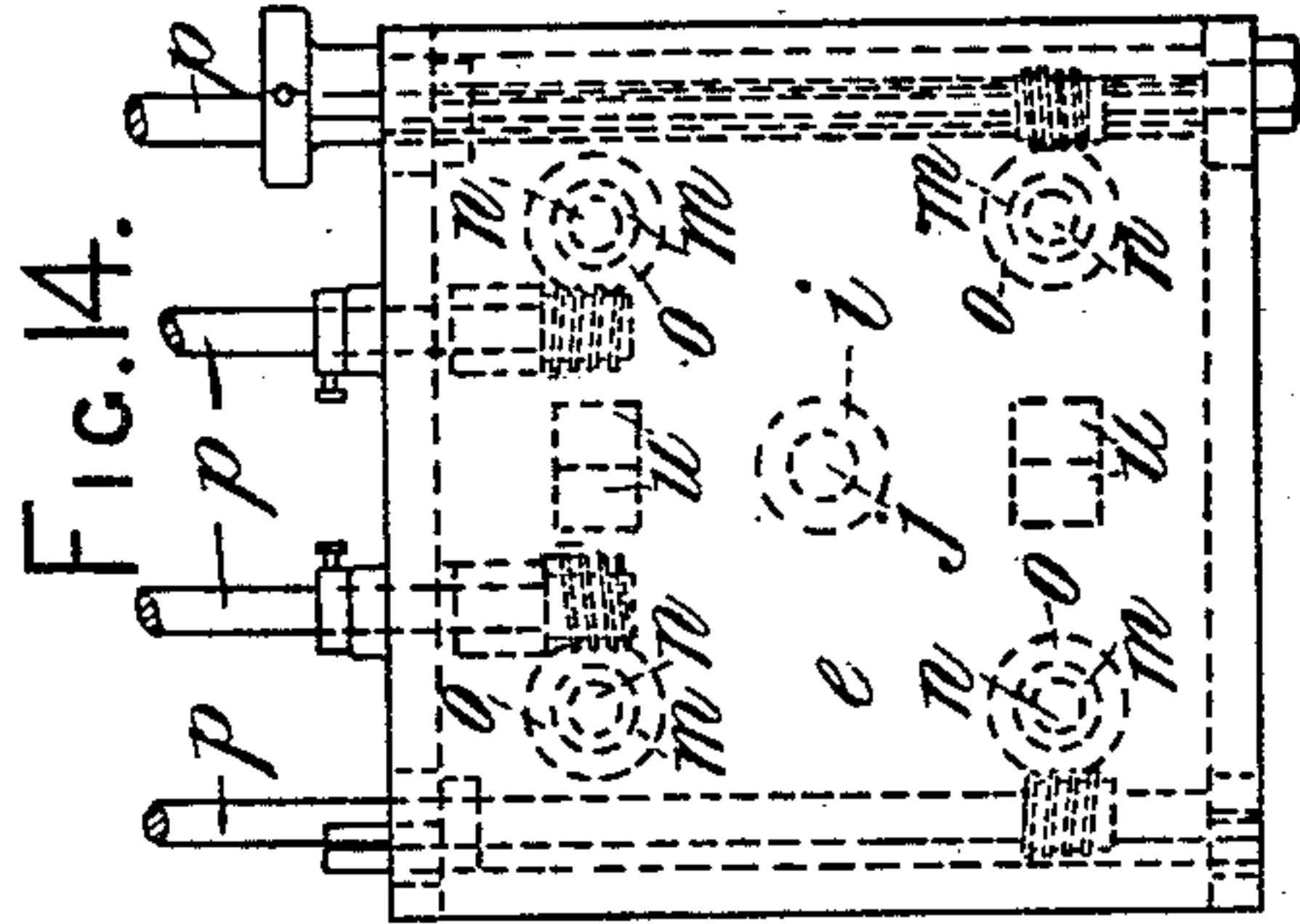


FIG. 14.

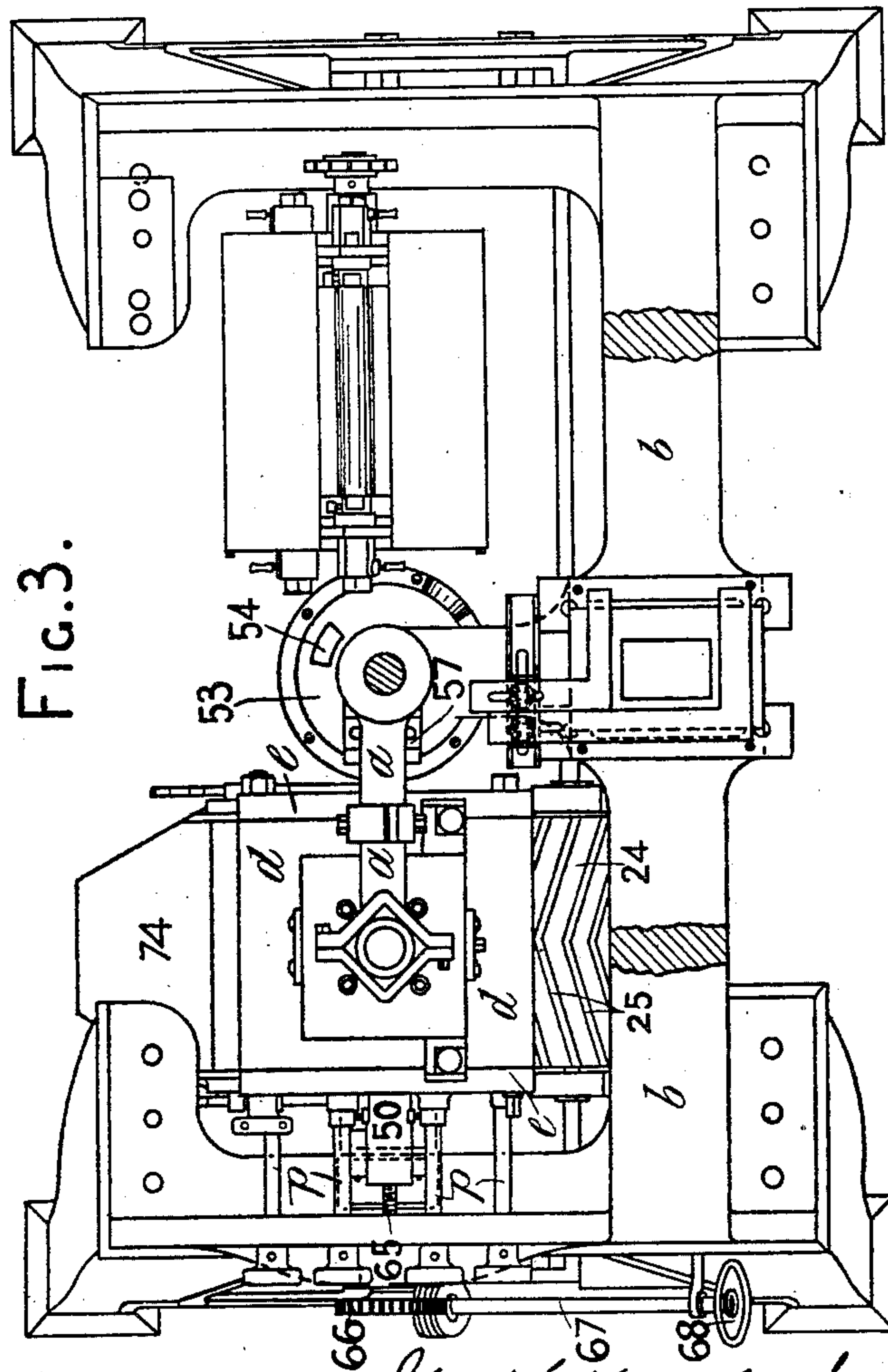


FIG. 3.

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FIG. 10.

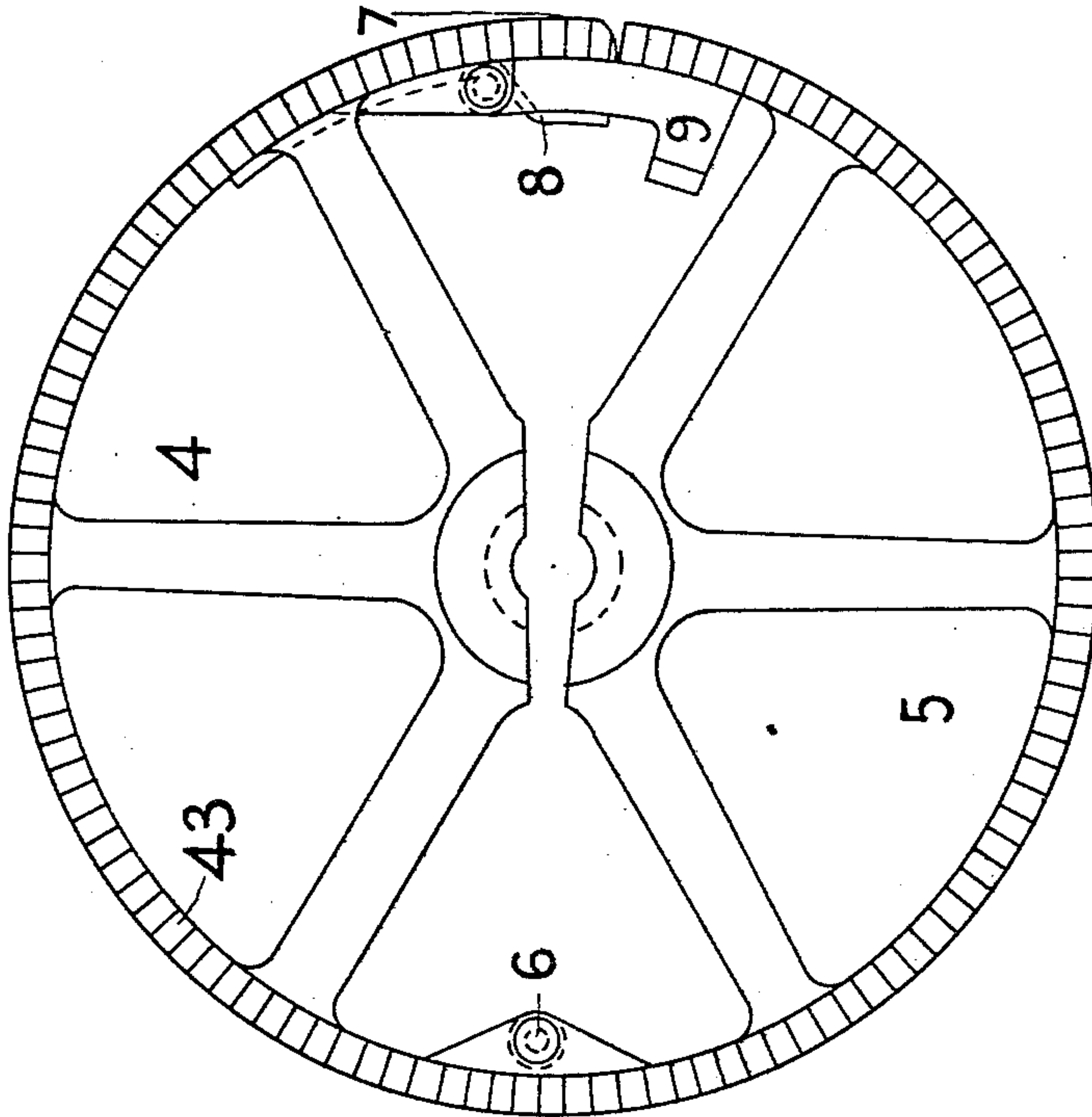
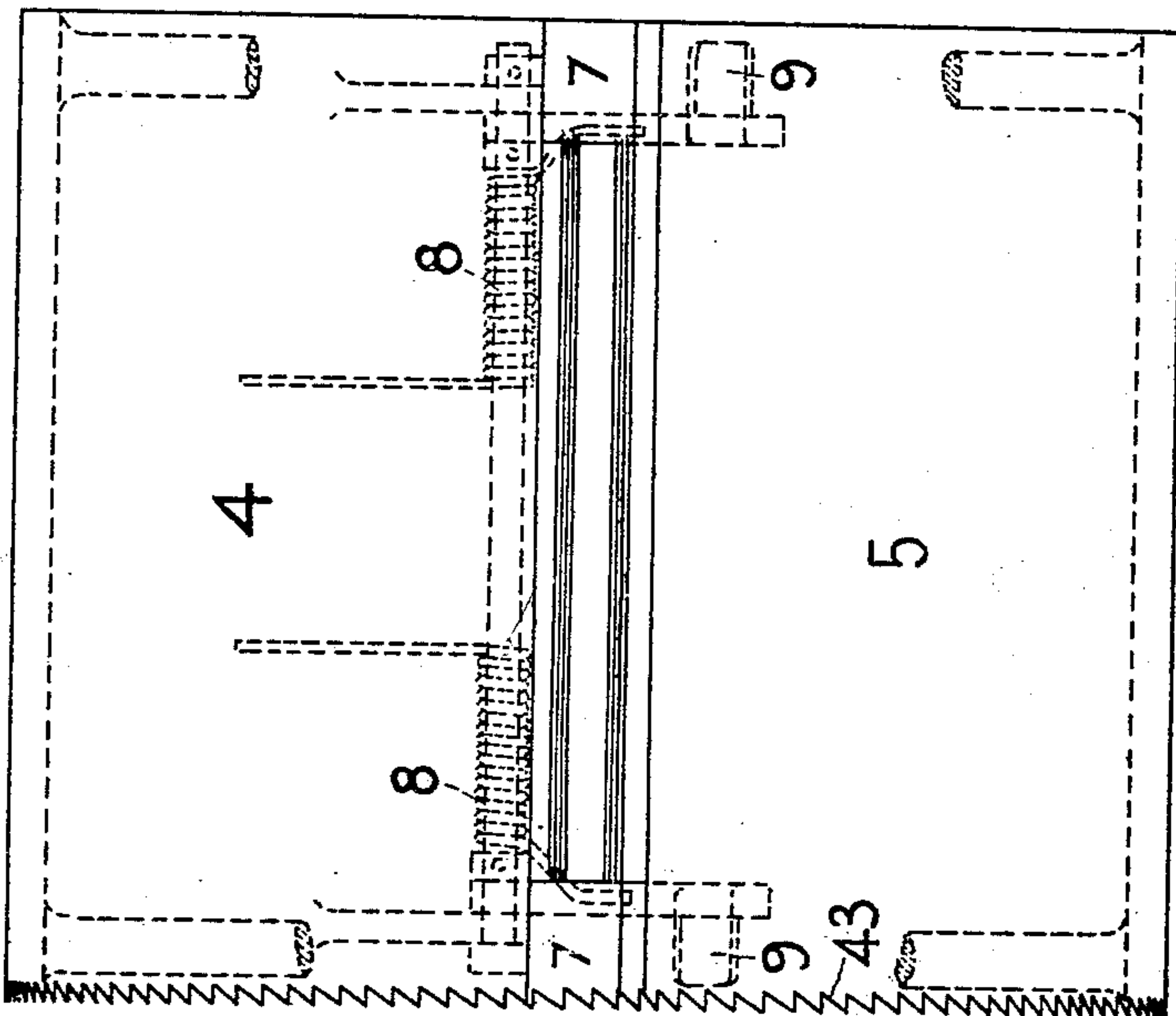


FIG. 9.



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7 Sheets—Sheet 5.

Fig. 11.

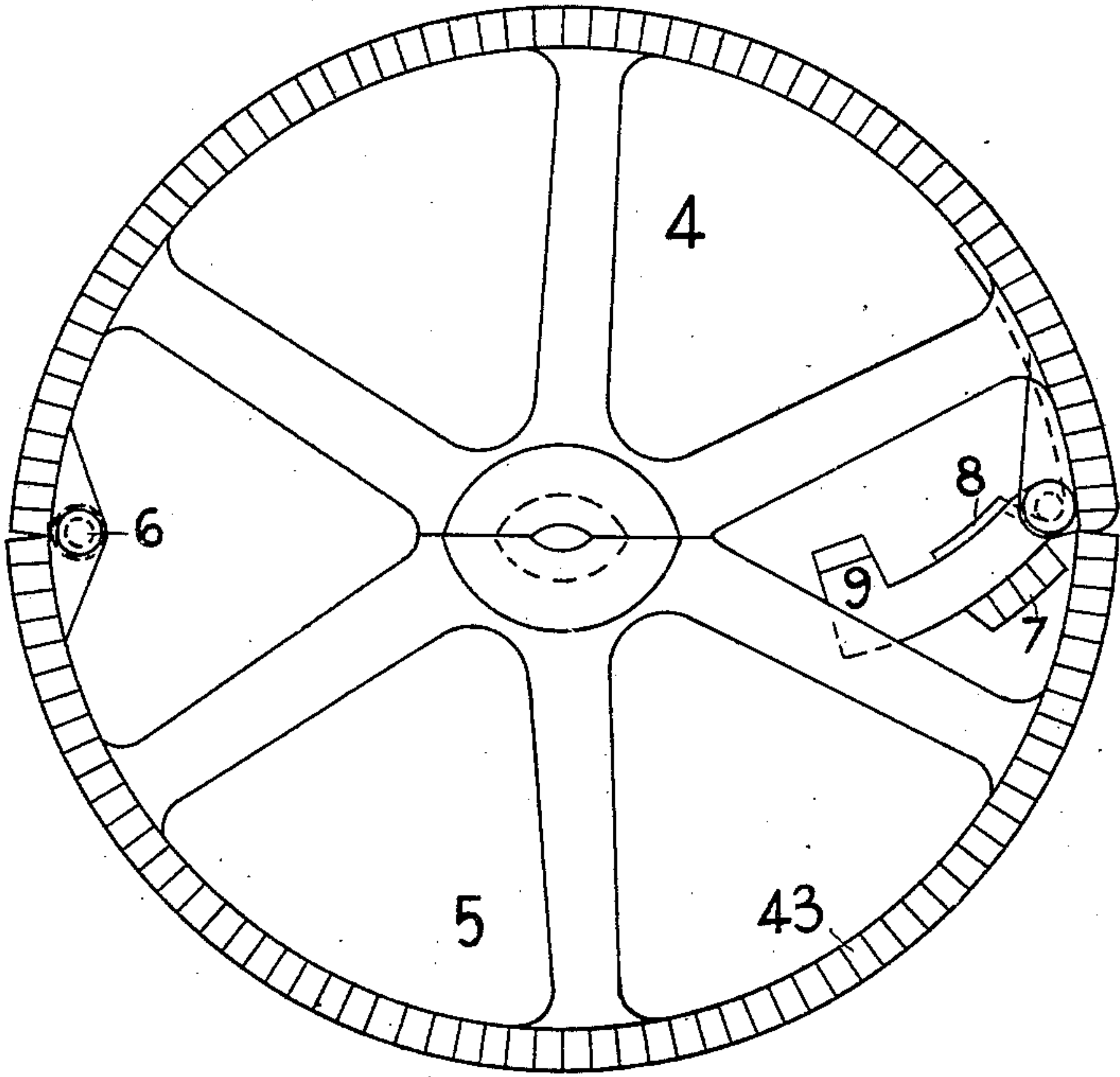
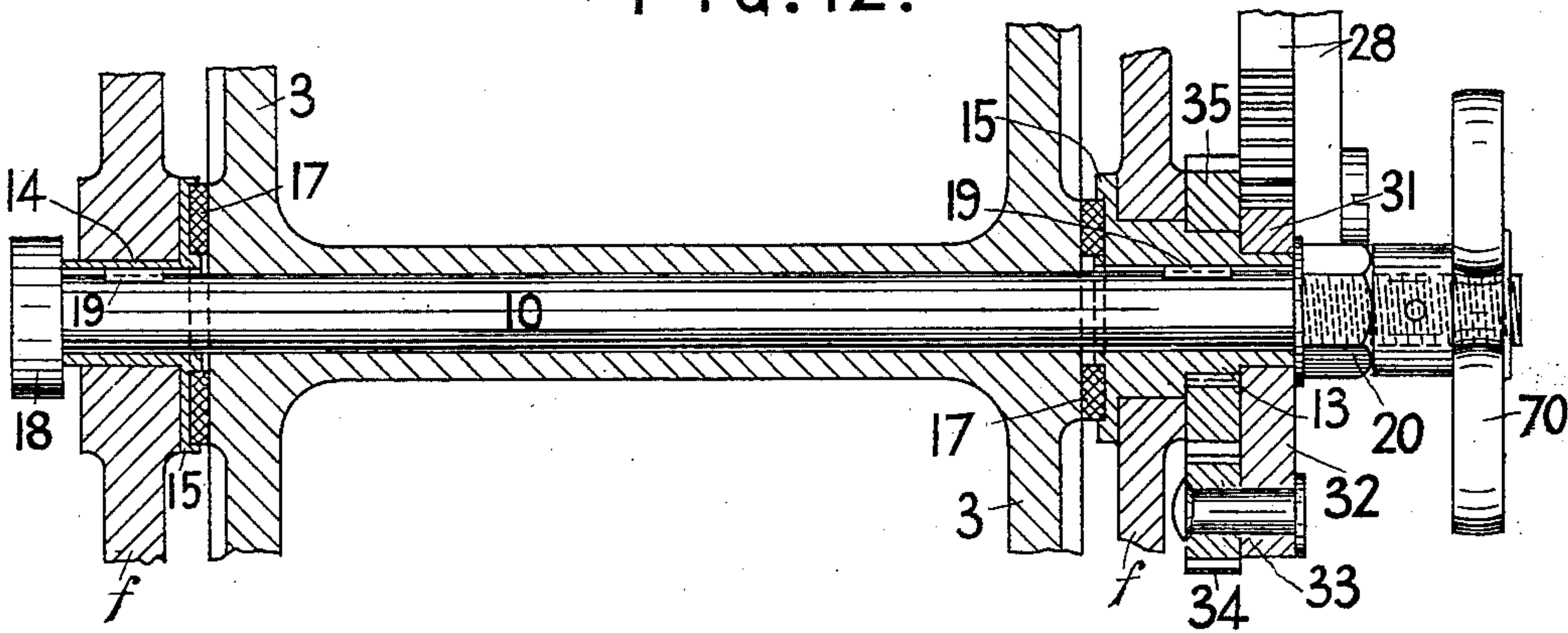


Fig. 12.



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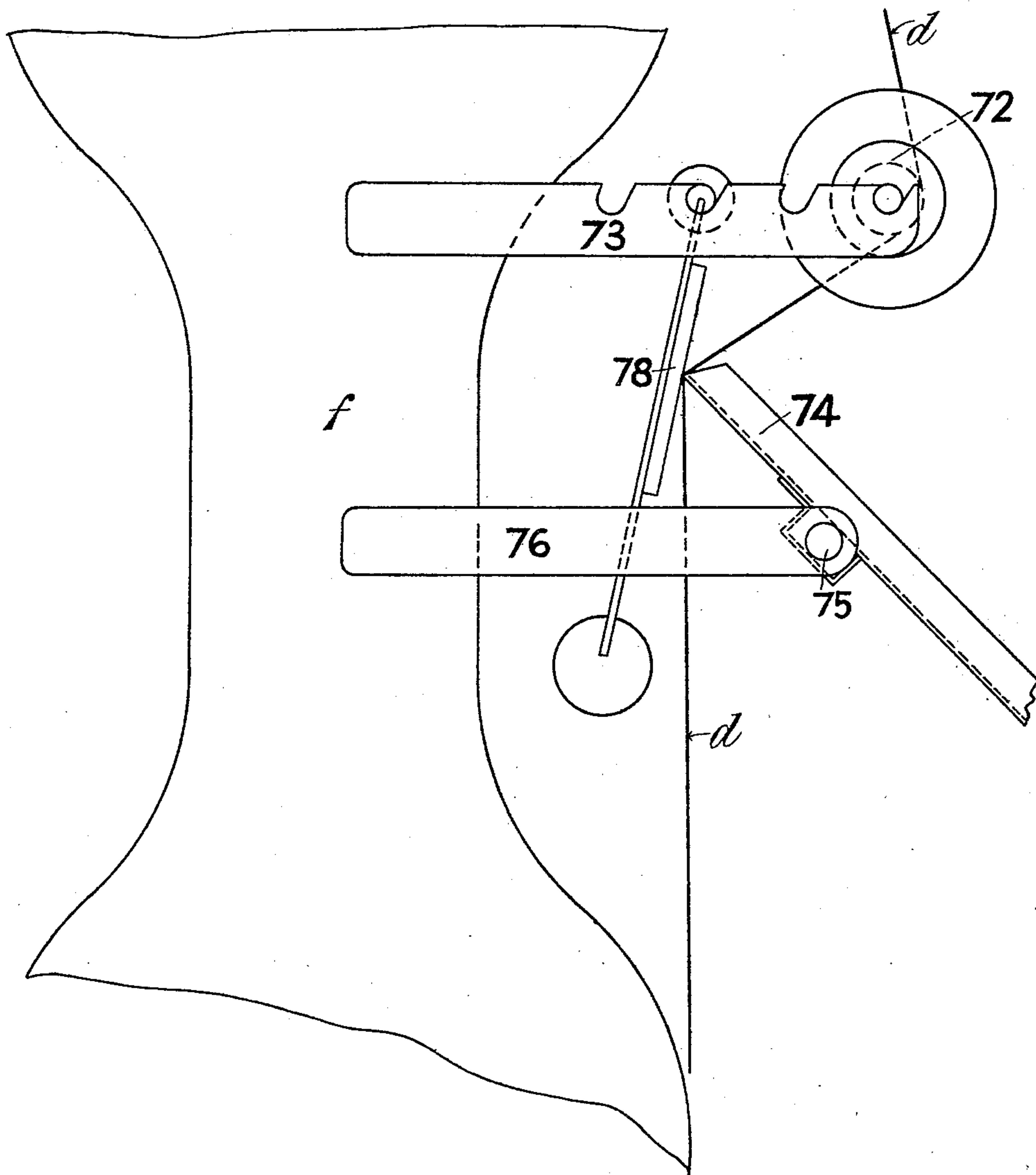
WIPING MECHANISM FOR PRINTING PRESSES,

(Application filed Jan. 23, 1900.)

(No Model.)

7 Sheets—Sheet 6.

FIG. 13.



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WIPING MECHANISM FOR PRINTING PRESSES.

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7 Sheets—Sheet 7.

Fig. 15.

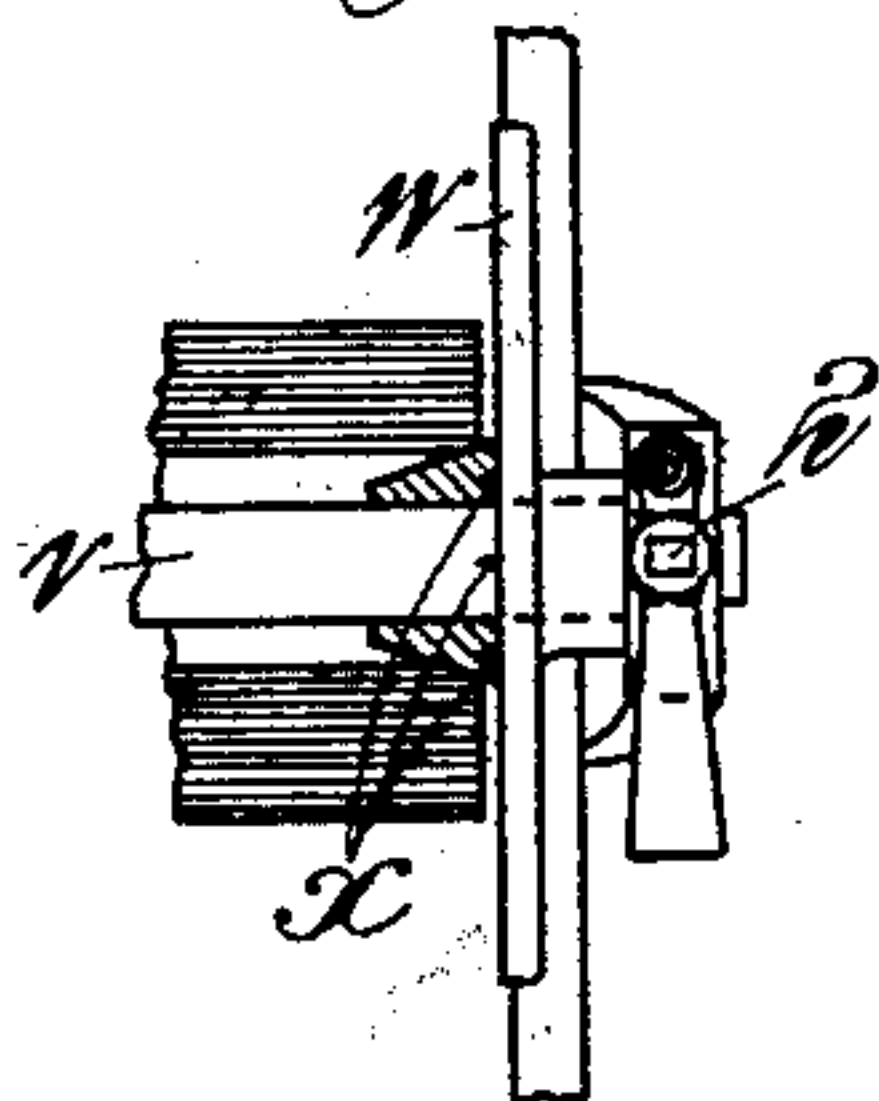


Fig. 16.

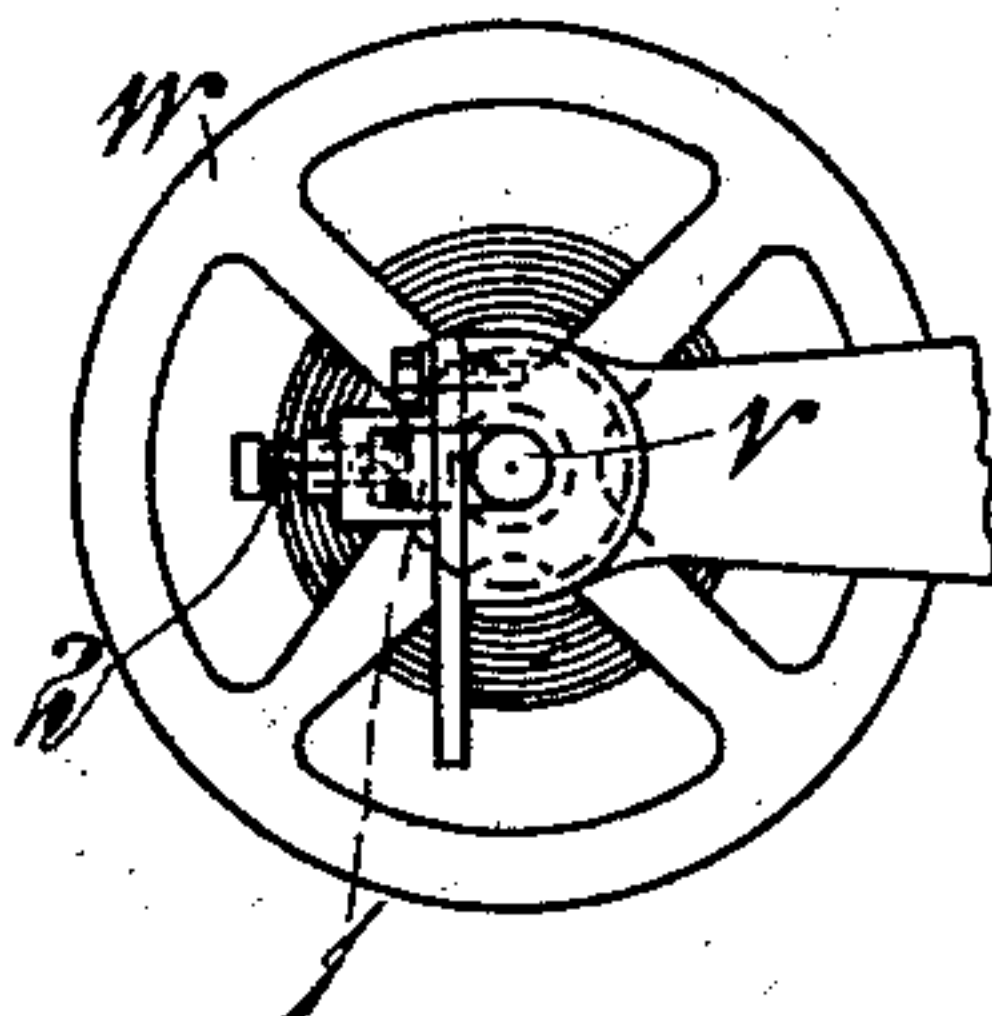
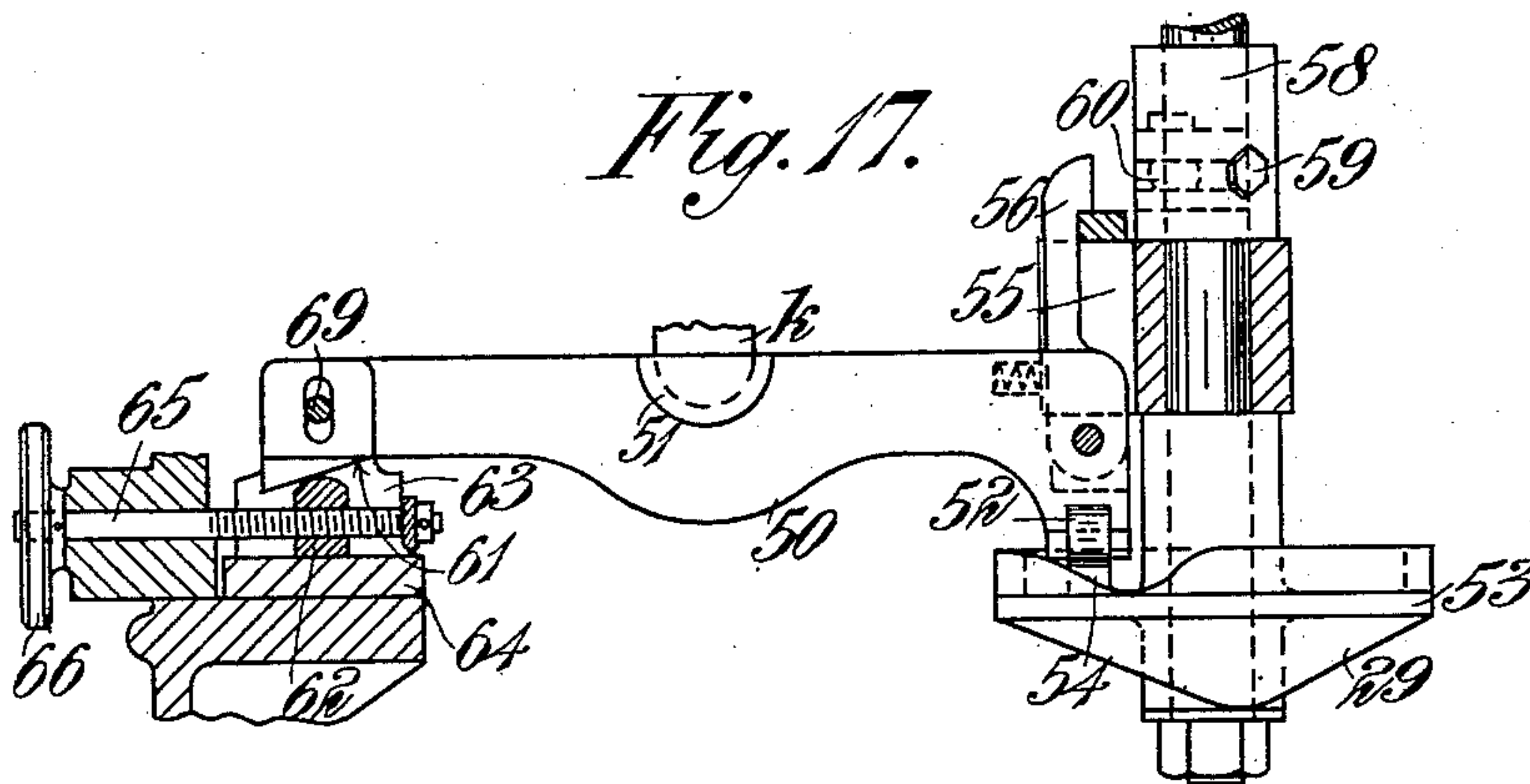


Fig. 17.



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UNITED STATES PATENT OFFICE.

JOSEPH YARDLEY JOHNSTON, OF LONDON, ENGLAND, ASSIGNOR TO THE
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WIPING MECHANISM FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 677,221, dated June 25, 1901.

Application filed January 23, 1900. Serial No. 2,451. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH YARDLEY JOHNSTON, a citizen of the United States of America, residing at the city of London, England, have
5 invented Improvements in Wiping Mechanism for Printing-Presses, of which the following is a specification.

This invention has reference to improvements in means for wiping or removing superfluous ink from the dies or other printing or
10 printing and embossing surfaces (hereinafter referred to as "dies") of printing or printing and embossing presses whereby this operation may be effected more efficiently than has
15 heretofore been usual, which improvements may be employed in presses of various kinds.

The accompanying drawings illustrate wiping apparatus embodying my improvements and designed for use in a press of the kind
20 in which a die-carrying arm revolving in a horizontal plane first passes over an apparatus which inks the die, then over the apparatus illustrated, and is then brought to rest and locked over a device adapted to resist the im-
25 pression-blow which is then given by the descent of a screw-plunger onto the top of the die.

Figures 1 and 2 are respectively a front elevation and side elevation of the apparatus for
30 automatically wiping the die after the inking operation. Fig. 3 is a sectional plan of a press comprising such wiping apparatus. Figs. 4, 5, 6, 7, and 8 are detail views, to an enlarged scale, of parts of the said wiping apparatus.
35 Figs. 9 and 10 are respectively a front elevation and an end elevation of a collapsible waste-paper wheel forming part of said wiping apparatus, the wheel being shown expanded. Fig. 11 is a similar view to Fig. 10, showing
40 the said wheel collapsed. Fig. 12 is a sectional detail view of the said wheel-spindle and its driving-gear. Fig. 13 is a detail view of a device for scraping the ink off the waste paper, said device being a modified form of
45 that shown in Figs. 1 and 2. Fig. 14 is a detail plan view. Figs. 15, 16, and 17 are detail views of certain parts of the mechanism.

a is the die-arm of the press, the frame of which is marked *b*. The die-arm is intermit-

tently revolved, so that it first passes over
50 the inking apparatus of the press and then brings the die *c* over, but not in contact with, a strip *d* of hard smooth paper or other suitable wiping material (hereinafter called "paper") stretched over a comparatively soft and
55 elastic pad (which may be composed of pieces of felt and cardboard) carried on a table *e*. The entire wiping apparatus is carried by a frame *f*, resting on a spring *g*, which may be secured to a part of the press-frame, through
60 a hole in which a stud *h* on the bottom of the frame *f* slides.

The table *e* has a central boss *i*, (see Figs. 6 and 7,) into which screws a stud *j*, that extends through a hole in the top of the frame *f*
65 and has a rounded head located within a tubular boss *k* on the under side of the frame-top, between which and the table it forms an adjustable connection, which is prevented from turning after adjustment by a pin *l*,
70 passed through a slot in its head and through the wall of the boss *k*. The hole in the top of the support tapers or decreases in diameter toward the lower part. (See Figs. 6 and 7.)

Screwed through a tapped boss *m* near each
75 corner of the frame-top is a stud *n*, Fig. 8, having a worm-wheel *o* gearing with one of four parallel worm-spindles *p* with conveniently-situated heads, by operating which the compression of springs, contained in tubu-
80 lar bosses on the under side of the table and bearing on loose disks *r*, resting on the ends of the studs *n*, can be varied, as required, to adjust the position of the table to any irregularity or want of truth in the die-surface
85 or to concentrate the pressure of wiping at any particular part of the die. The springs form an elastic support to the table, and as the central screw-stud *j* has a rounded head and passes through a tapering hole in the top
90 of the frame *f* the table will be capable of tilting and automatically adapting itself to the die-face. A loose plug *s* is inserted in a cavity *t* in the press-frame under each of the screw-studs *n* to limit the extent of down-
95 ward motion of the said studs. By inserting plugs of varying lengths the extent of movement can be adjusted. In order to prevent

the table being carried forward by the action of the die as it passes across the wiping-paper, oppositely-arranged lugs *u*, (see Figs. 4 and 5,) formed on the table and the frame-top, engage with each other, so as to prevent forward movement and consequent jamming of the parts of the table and the frame-top which are in contact, while allowing any part of the table to be forced down against the action of the springs or to yield to the pressure of the die.

The wiping-paper consists of a long strip *d*, wound into a roll carried on a spindle *v*, having flanges *w*, both of which are adjustable thereon and can be fixed thereto by set-screws to suit varying widths of paper. Lateral spikes *x* (see Figs. 1 and 15) on the inner sides of the flanges *w* enter and grip oppositely-arranged conical wooden sleeves *y*, which slide upon the spindle *v* and are forced into the ends of the paper-roll, so that the said spindle is held firmly therein. The spindle *v* is journaled in the forked ends of arms *z*. Blocks 1 (see Fig. 16) are provided, which can be pressed by screws 2 with any desired degree of friction against the journals of the spindle *v*, the said blocks and screws being carried by latches, upon turning which the spindle *s* can be removed.

The paper passes upward over the pad on the table *e* and then down to a waste-paper roller 3, on which it is wound up as used. This waste-paper roller (see Figs. 9, 10, and 11) is made in two approximately semicylindrical parts 4 5, hinged together at 6 on one side, but with a gap left between the edges on the other side, which gap is filled by hinged pieces 7 7, held in place by springs 8 and provided with thumb-pieces 9, so as to be readily displaceable to allow the roller to collapse. The hub of the roller is also formed with a gap, as shown. The waste-paper roller has a spindle 10, (see Fig. 12,) fitted with bushes 13 14, journaled in the side plates of the frame *f*. These bushes have recessed flanges 15, in which are seated friction-washers 17, bearing against the hub ends of the roller 3.

The spindle 10 has a head 18 bearing against the outer end of the bush 14, and the bushes, which slide on feathers 19 on the spindle, are forced against the ends of the hub of the roller 3 by a nut 20, so that when the spindle is rotated the roller is rotated by the frictional contact of the washers 17, which may conveniently be of vulcanized fiber.

Journaled in the frame *f* above the waste-paper roller 3 is a spindle 21, having a feed-roller 23 secured thereon, against which the paper *d* is pressed by a friction-roll 24, having grooves formed on the surface, which converge toward the middle of the roll and in which are embedded strips 25 of felt or other suitable material which will give the necessary grip on the paper and tend to prevent its creasing or gathering. By this arrangement there will always be contact between some portions of a strip or strips and the paper.

The spindle ends of the roll 24 are carried in spring-pressed bearings 26, movable longitudinally in arms extending from the frame *f*, screws 27 being provided to enable the compression of the springs and the pressure of the friction-roller to be adjusted.

The rollers 23 and 3 are simultaneously partially rotated, so as to draw the paper over the pad on the table *e*, by means of a rack-bar 28, operated in a downward direction by a cam 29 on the die-arm shaft and engaging with partial spur-pinions 30 and 31, loosely mounted on the spindle 21 and the bush 13, respectively, and provided with arms 32, carrying pawls 33, which are kept in contact by springs 34 with ratchet-wheels 35, fixed to the spindle 21 and the bush 13, respectively. The rack-bar 23 is after making its operative stroke moved in an upward direction by a spring 36. During this upward movement the pawls 33 slip over the ratchet-teeth; but when said bar is depressed by the cam 29 they engage with the wheels 35 and simultaneously rotate the rollers 23 and 3, thus feeding the wiping-paper *d* forward. The upward movement of the rack-bar is limited by nuts 36 upon a screw 37, forming an extension of said bar and working through an eye 38 on the frame *f*. 39 is a slotted quadrant pivoted on the boss of the frame *f*, in which the spindle 21 rotates and having a guard-plate 40 partly covering the ratchet-wheel 35 on said spindle. The guard can be fixed in any required position by a clamping-screw 41, screwed through the curved slot 42 in the quadrant into the frame *f*. The feed of the paper can thus be regulated according to the size of the die by exposing a greater or lesser number of teeth to the action of the pawl. The movement given to spindle of the waste-paper roller always corresponds to the largest possible movement of the paper-feed roller 23, and the action of the roller 3 is such that it will only take up the slack paper fed by the feed-roller 23, the tension on the paper caused by the spring-pressed roller 24 compelling the roller 3 to slip on its spindle when there is no slack to take up. The pressure of the washers 17 against the roller-hub can be so regulated by the nut 20 as to just permit the necessary slip and yet insure the roller taking up the waste paper and holding it taut on the wiping-pad. To prevent backlash or rotation in the wrong direction, one edge of the roller 3 is cut with ratchet-teeth 43, and two spring-catches 44 in the frame *f* engage therewith.

When the roller 3 is full, the spindle 10 is withdrawn from the frame after releasing the nut 20, and the parts 7 having been pressed inward the roller is collapsed, whereupon the roller 3 can be readily drawn out of the roll of paper.

The entire wiping apparatus is lifted to press the paper against the die by means of a lever 50, (see Fig. 17,) pivoted at its outer end and having a semicircular cavity 51 on its upper side, in which the boss *k* rests. The

downwardly-bent inner end of the lever carries a roller 52 and extends over a disk 53, fixed on a vertical shaft, which in the example illustrated is the die-arm shaft. The disk 5 is formed with a cam 54, which comes under the roller 52 and so lifts the entire wiper.

The inner end of the lever 50 is suitably guided between jaws 55, formed on the press-frame, and when raised is held by a spring-pressed hook 56, Figs. 1 and 17, which is pivoted to it and slips over and engages with a bar 57, fixed upon the jaws 55. An adjustable sleeve 58 is fixed by a set-screw 59 in the required position on the die-arm shaft and carries a roller 60, which at the right time pushes the hook 56 off the bar 57 and allows the wiping apparatus to drop, the cam 54 having meanwhile cleared the roller 52. The springs *g* act as buffers to check the fall of the wiping apparatus.

As it is necessary to be able to regulate with great delicacy and precision the height to which the wiper shall rise, so as to suit variations in the thickness of dies or of the wiping-pad or to vary the pressure against the die according to its size or the amount or nature of the work on it, the outer end of the lever 50 is formed with an incline 61 on its under side, which rests upon a fulcrum-piece 62, which can be slid between jaws 63, projecting from the bed-piece 64, by a screw 65, provided with a worm-wheel 66, engaged by a worm on a shaft 67, which extends to a convenient part of the press, where it is provided with a hand-wheel 68. By rotating this hand-wheel the fulcrum-piece 62 can be very finely adjusted along the incline 61 of the lever 50, the end of which is thus raised or lowered, and the vertical position of the wiping apparatus is thus regulated as required. Lateral and endwise movements of the lever 50 are prevented by the jaws 63 and by a pin 69, passing through said jaws and a vertical slot in the lever end.

For the purpose of enabling the wiping-paper to be fed forward over the table by hand, as may be required, a hand-wheel 70 is secured to the spindle 10, and another similar hand-wheel (not shown) is secured to the spindle of the friction-roller 24, so that either can be operated independently of the other by hand. Upon the rack-bar 28 is a handle 71, whereby the feed and waste-paper rollers can be operated simultaneously.

72 is a waste-paper guide-roller carried by arms 73, fixed to the frame *f*. 74 is a scraper-plate fixed to a bar 75, pivoted in arms 76, and so fixed, by means of punching-screws 77, that its upper edge bears against the paper just below the roller 72 and scrapes the ink off the paper as it is drawn down by the waste-paper roller 3. The ink which flows down the plate is received in a receptacle, whence it is returned to the ink-reservoir, a considerable waste of ink being thereby obviated. In the modification shown in Fig. 13 the paper *d* is shown passing between the

edge of the scraper-plate 74 and a weighted plate 78, faced with felt and suspended from the arms 73. This arrangement is preferred, 70 as with it, although the roller 3 may be drawing in slack paper, the plate 78 insures its being drawn across the edge of the plate 74 and the ink removed.

With the aid of wiping apparatus such as 75 above described much finer work can be produced than has heretofore been possible, as the adjusting devices enable the wiper to be pressed against the printing-surface with the exact pressure required, one result of the 80 described construction being that when desired a much harder and smoother wiping-paper can be used than has heretofore been usual and yet a perfectly-clean wipe of the face of the die obtained. This is a very im- 85 portant result in practice, as the comparatively soft papers hitherto used for this purpose are apt to enter the female parts of the die, particularly if such parts are wide as well as deep, and to wipe some of the ink out 90 of such parts instead of leaving them filled flush with the face of the die with ink, the result being that in such cases the depth of the embossed portions of the paper and the thickness or depth of the ink deposited upon 95 such embossed portions do not bear a constant proportion throughout.

What I claim is—

1. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply roll, a collapsible waste-wiping-paper roll frictionally connected to its spindle which is positively driven a given distance intermittently, means for feeding wiping-paper from one roll 105 to the other across said pad and means for scraping from said paper ink wiped from the printing-surface of the press, as set forth.

2. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply roll, a waste-wiping-paper roll frictionally connected to its spindle which is positively driven a given distance intermittently, means for feeding wiping-paper from one roll to the other across said pad, means for scraping from said paper ink wiped from the printing-surface of the press and a movable frame adapted to support all said previously-mentioned parts as set forth. 120

3. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply roll, a waste-wiping-paper roll frictionally connected to its spindle which is positively driven 125 a given distance intermittently, means for feeding wiping-paper from one roll to the other across said pad, means for scraping from said paper ink wiped from the printing-surface of the press, a movable frame adapted to support all said previously-mentioned parts, and means whereby said frame and parts are raised at the required times, as set forth. 130

4. In wiping apparatus, the combination of

a support, a table mounted thereon, a pad carried by said table, springs interposed between said table and support and abutments carried by said table and support respectively which

5 abutments do not connect them and are adapted to prevent forward movement of said table relatively to said support as set forth.

5. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, springs interposed between

10 said table and support, and lugs formed respectively upon the table and support, and adapted to abut against each other and prevent forward movement of said table rela-

15 tively to said support, as set forth.

6. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply roll, a waste-wiping-paper roll, means for feeding

20 wiping-paper from one roll to the other across said pad, means for scraping from said paper ink wiped from the printing-surface of the die, a movable frame adapted to support said previously-mentioned parts, a lever on which

25 said frame rests and the fulcrum end of which is formed with an incline on its under side, a movable fulcrum-piece on which said incline rests and means for adjusting the position of said fulcrum-piece, as set forth.

7. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply roll, a waste-wiping-paper roll, means for feeding

35 said pad, means for scraping from said paper ink wiped from the printing-surface of the die, a movable frame adapted to support said previously-mentioned parts, a lever on which said frame rests and the fulcrum end of which

40 is formed with an incline on its under side, a movable fulcrum-piece on which said incline rests, a longitudinally-fixed screw passing through said fulcrum-piece, and means for rotating said screw, as set forth.

8. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply roll, a waste-wiping-paper roll, means for feeding

50 wiping-paper from one roll to the other across said pad, means for scraping from said paper ink wiped from the printing-surface of the die, a movable frame adapted to support said previously-mentioned parts, a lever on which said frame rests and the fulcrum end

55 of which is formed with an incline on its under side, a movable fulcrum-piece on which said incline rests, a longitudinally-fixed screw passing through said fulcrum-piece, a worm-wheel fixed to said screw, a rotatable spindle

60 with accessible hand-wheel and a worm gearing with said worm-wheel as set forth.

9. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a central adjustable

65 connection between said table and support, screw-studs extending upwardly through said

support, springs resting between said studs and table, worm-wheels fixed to said studs and worm-spindles gearing therewith as set forth.

10. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a central adjustable connection between said table and support,

75 screw-studs extending upwardly through said support, springs resting between said studs and table, worm-wheels fixed to said studs, worm-spindles gearing therewith and removable abutments carried by the support and adapted to limit the movement of the screw-

80 studs, as set forth.

11. In wiping apparatus, the combination of a support, springs carried by said support, a table resting on said springs, a central boss upon the under side of said table, a boss upon

85 the under side of the support and formed with a hole of decreasing diameter toward the lower part and a screw-stud having a rounded head and adapted to be passed through said hole and screwed into the boss on the table,

90 as set forth.

12. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply roll, conical wooden sleeves each adjustable

95 along the spindle of said supply-roll, adjustable flanges, means for fixing each flange to said spindle, lateral projections on said flanges adapted to engage with said wooden sleeves, a waste-wiping-paper roll and means

100 for feeding wiping-paper from one roll to the other across said pad, as set forth.

13. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply roll, adjustable friction-blocks adapted to

105 bear against the journals of the spindle of said roll, screws for adjusting said blocks, latches carrying said blocks and screws, a waste-wiping-paper roll and means for feeding

110 wiping-paper from one roll to the other across said pad, as set forth.

14. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply roll, and means for feeding wiping-paper from

115 one roll to the other across said pad, the roller on which said waste wiping-paper is wound comprising parts hinged together and having a gap between their free edges when ex-

120 panded, displaceable pieces adapted to occupy said gap and yielding means for holding said pieces in position, as set forth.

15. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply roll, and means for feeding wiping-paper from

125 one roll to the other across said pad, bushes capable of sliding on but keyed to the spindle of the waste-roller and extending through

130 the frame of the apparatus, friction-washers arranged between said bushes and the respec-

tive ends of the roller-hub and means for drawing said bushes toward each other along said spindle as set forth.

16. In wiping apparatus, the combination of
5 a die, a wiping-paper-supply roll, a feed-roller, a friction-roller pressed toward said feed-roller so as to grip paper passing between said feed and friction rollers, a yielding pad across which the wiping-paper is fed, a waste-
10 wiping-paper roll, means for scraping ink from the waste paper as it passes to the waste-paper roller, means for causing the rotation of said feed-roller and waste-paper roller so as to feed the wiping-paper across said pad,
15 a movable frame in which all said parts are mounted, and means for raising the said frame toward the level of the die and then allowing it to drop below the same, as set forth.

17. In wiping apparatus the combination
20 with a frame movable toward and from said printing-surface of a wiping-paper-supply roll, a feed-roller, a friction-roller pressed toward said feed-roller so as to grip paper passing between said feed and friction rollers, a
25 yielding pad across which the wiping-paper is fed, a waste-wiping-paper roll, ratchet-wheels secured to the spindles of the feed-roller and waste-wiping-paper roller respectively, spring-pressed pawls adapted to engage therewith,
30 partial spur-pinions loosely mounted to rotate about said spindles, a rack-bar engaging with said spur-pinions, means for causing a to-and-fro movement of said bar and for limiting said movement as set forth.

35 18. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply roll, a waste-wiping-paper roll frictionally connected to its spindle which is positively
40 driven a given distance intermittently, means for feeding wiping-paper from one roll to the other across said pad, a movable frame in which all said parts are mounted, ratchet-teeth upon said waste-paper roller itself and
45 spring-catches upon said frame and adapted to engage with said teeth, as set forth.

19. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply
50 roll, a feed-roller, a friction-roller, a waste-wiping-paper roll, means for rotating said feed

and waste-paper rollers simultaneously by hand, and means for rotating said friction and waste-paper rollers independently by hand, as set forth.

20. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply roll, a waste-wiping-paper roll, means for feeding wiping-paper from one roll to the
60 other across said pad, a fixed scraper-plate adapted to bear against the inked surface of the wiping-paper at an angle thereto, and a weighted plate so suspended as to bear against the uninked surface of the paper so
65 as to press the inked surface against the edge of the scraper-plate as set forth.

21. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply
70 roll, a waste-wiping-paper roll, means for feeding wiping-paper from one roll to the other across said pad, a guide-roller over which the wiping-paper passes on its way from the pad to the waste-paper roller, a fixed
75 scraper-plate adapted to bear against the inked surface of the wiping-paper at an angle thereto, and a weighted plate so suspended as to bear against the uninked surface of the paper so as to press the inked surface against
80 the edge of the scraper-plate as set forth.

22. In wiping apparatus, the combination of a support, a table mounted thereon, a pad carried by said table, a wiping-paper-supply roll, a waste-wiping-paper roll, means for
85 feeding wiping-paper from one roll to the other across said pad, a guide-roller over which the wiping-paper passes on its way from the pad to the waste-paper roller, a fixed scraper-plate adapted to bear against the
90 inked surface of the wiping-paper at an angle thereto, and a weighted plate faced with felt and so suspended as to bear against the uninked surface of the paper so as to press the inked surface against the edge of the scraper-
95 plate as set forth.

Signed at 22 Bride Lane, London, England, this 12th day of January, 1900.

JOSEPH YARDLEY JOHNSTON.

Witnesses:

WILLIAM MCLEOD,
ARTHUR WOOSNAM.