No. 677,223. Patented June 25, 1901.

J. Y. JOHNSTON.

PRINTING, EMBOSSING, OR PRINTING AND EMBOSSING PRESS.

(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 1.

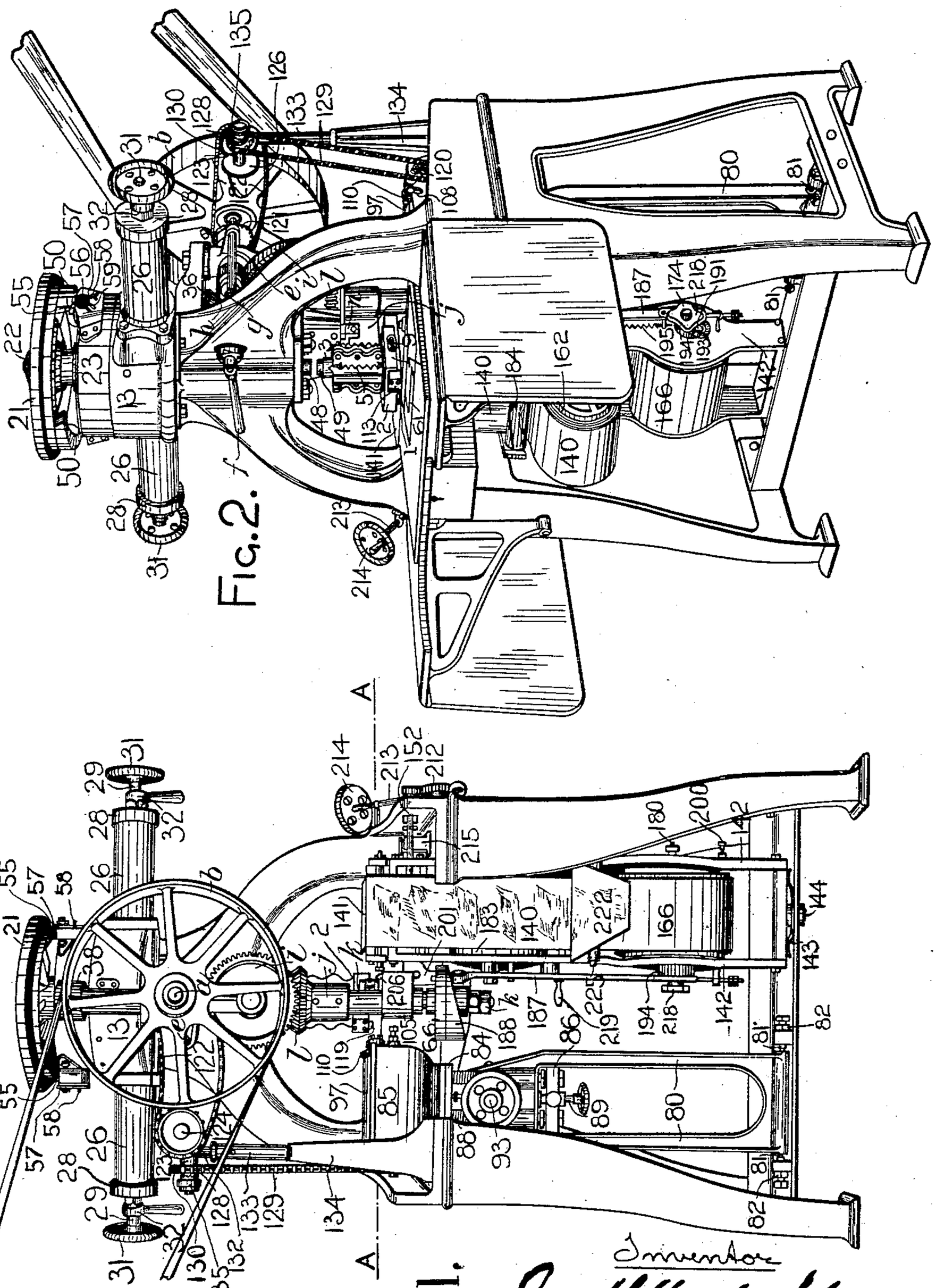

FIG. 1.

Witnesses
Arthur Wosmaer
William Henry Simms

Inventor
Joseph Yardley Johnston

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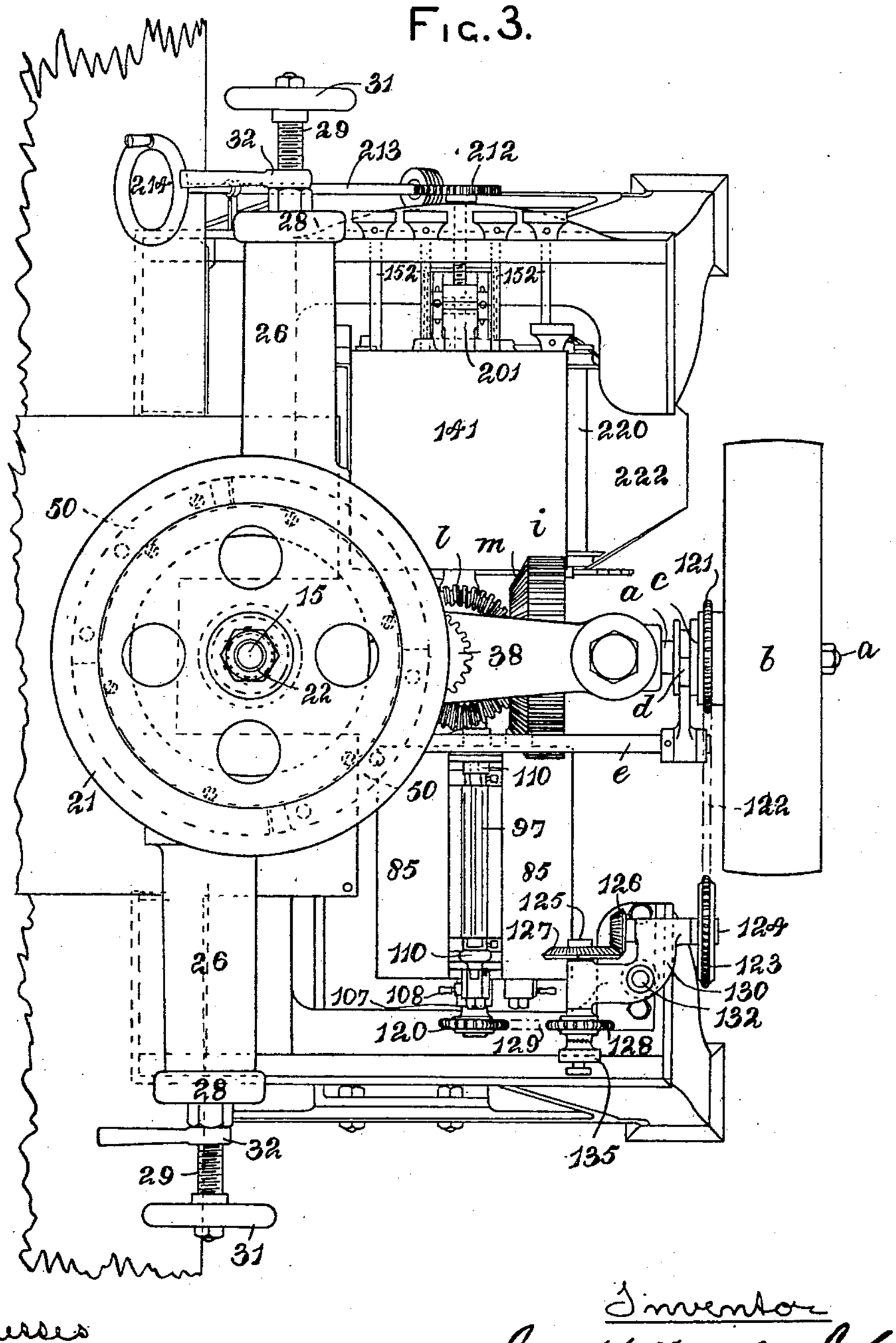
(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 2.

FIG. 3.



Witnesses
Arthur Woodcock
William Henry Simms

Inventor
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J. Y. JOHNSTON.

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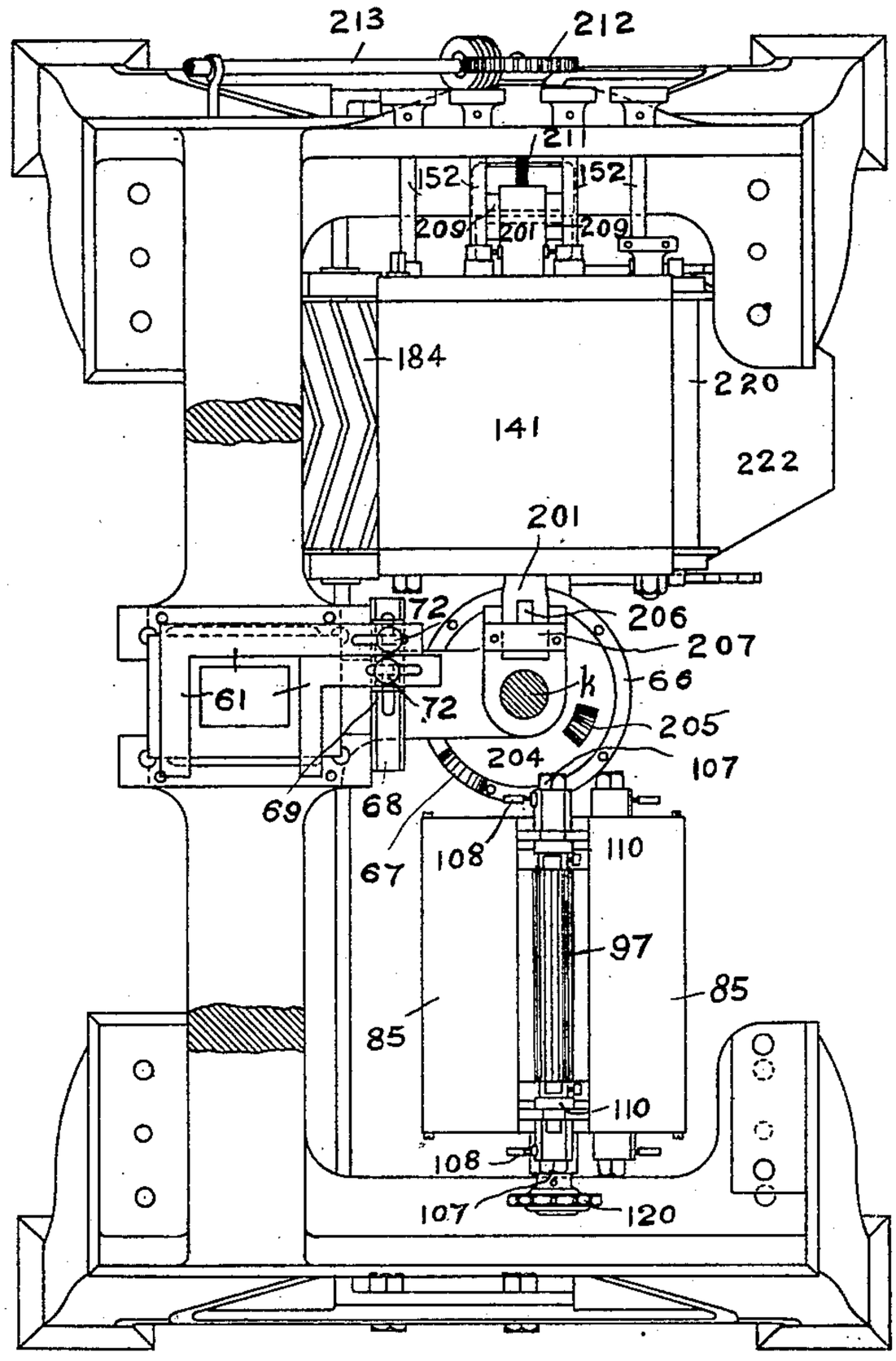
(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 3.

FIG. 4.



Witnesses
Arthur Vosseau
William Henry Simms

Inventor
Joseph Yardley Johnston

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(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 4.

FIG. 8.

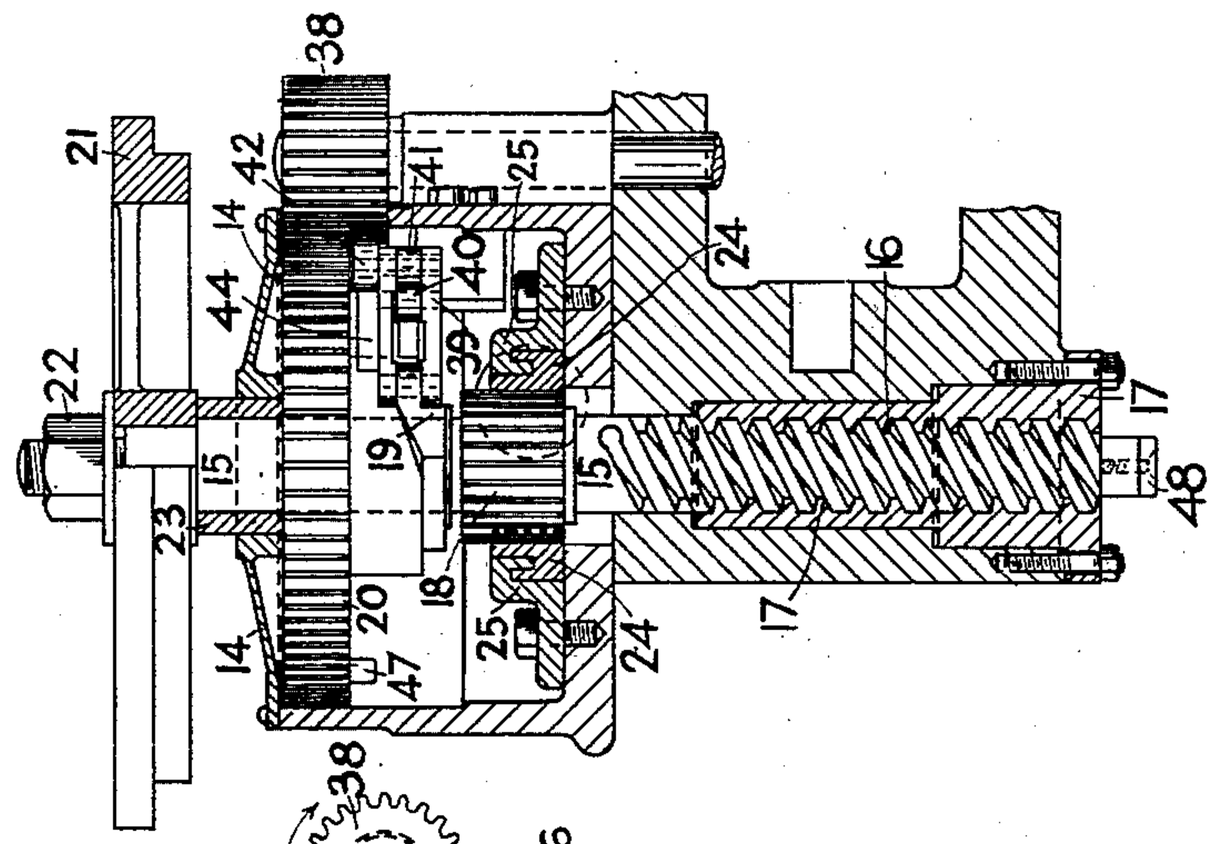
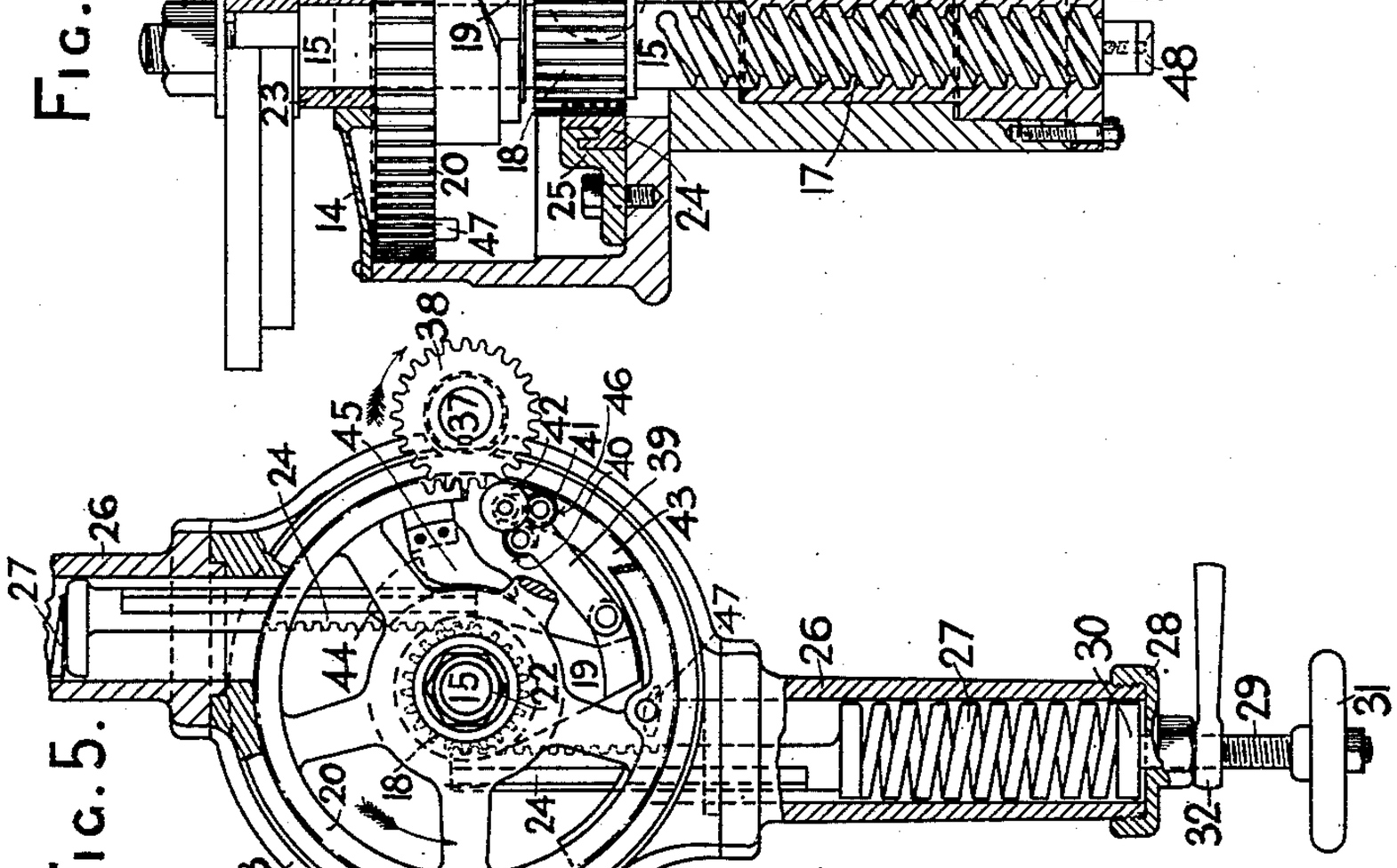


FIG. 5.



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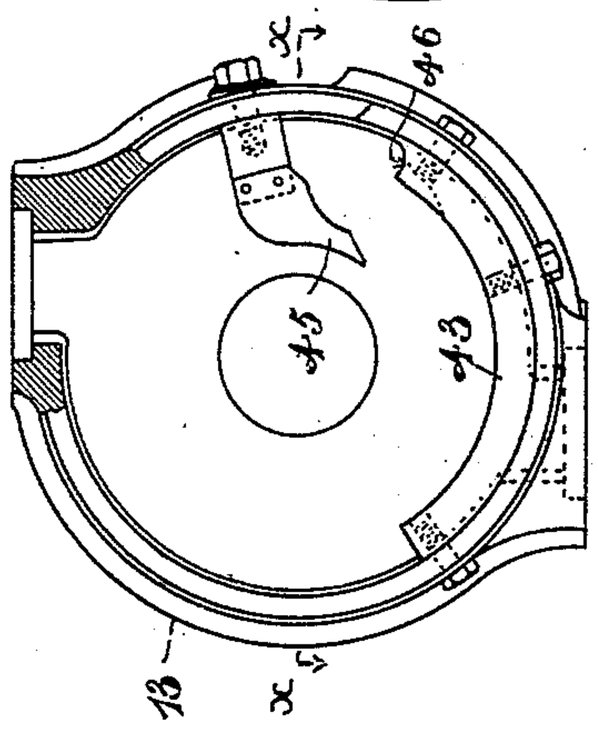
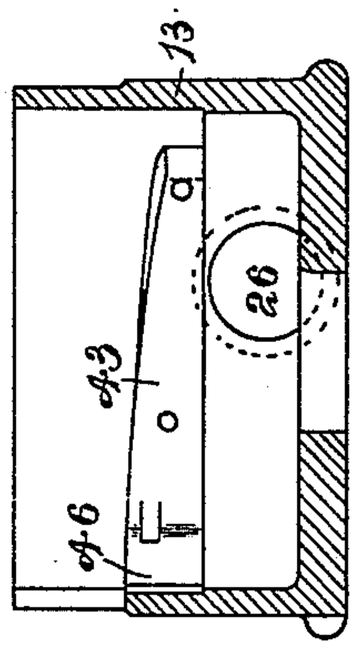


FIG. 10.



Witnesses
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William Henry Simms

Inventor
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(No Model.) 24 Sheets—Sheet 5.

Fig. 6.

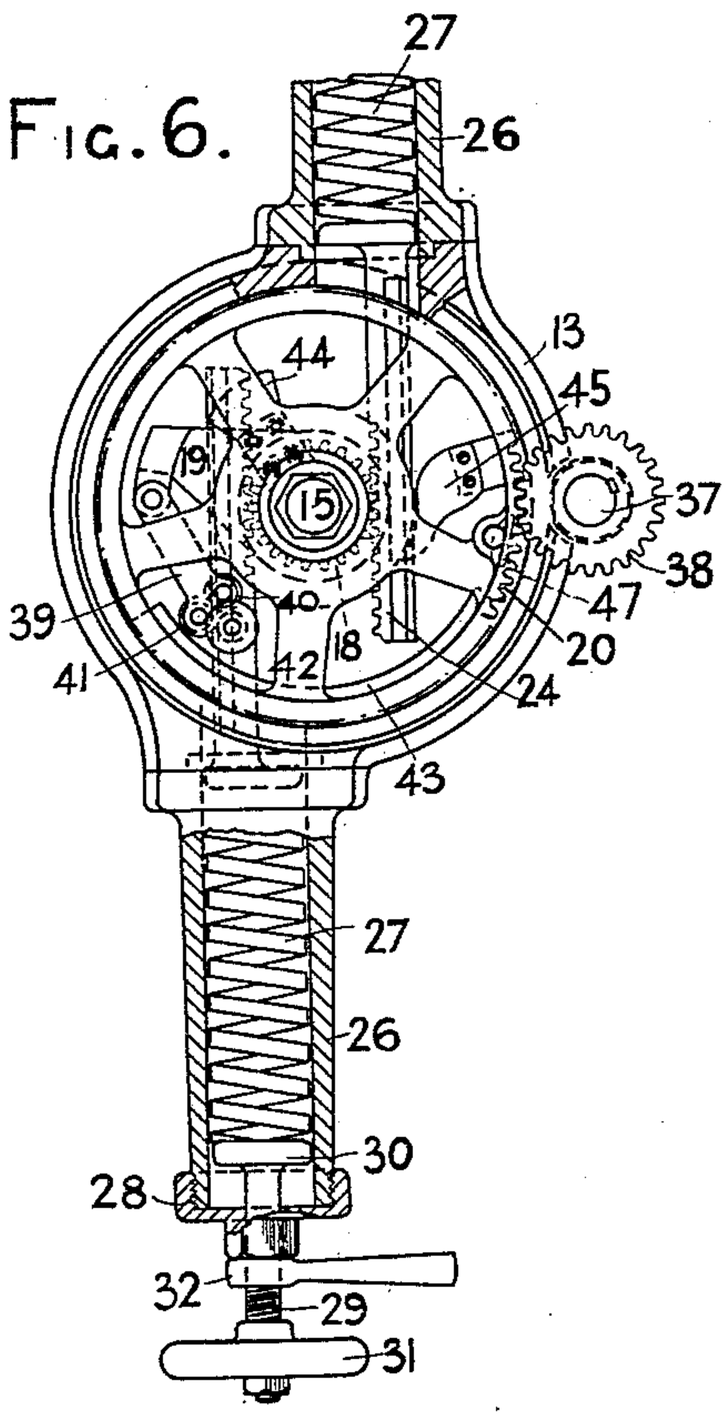
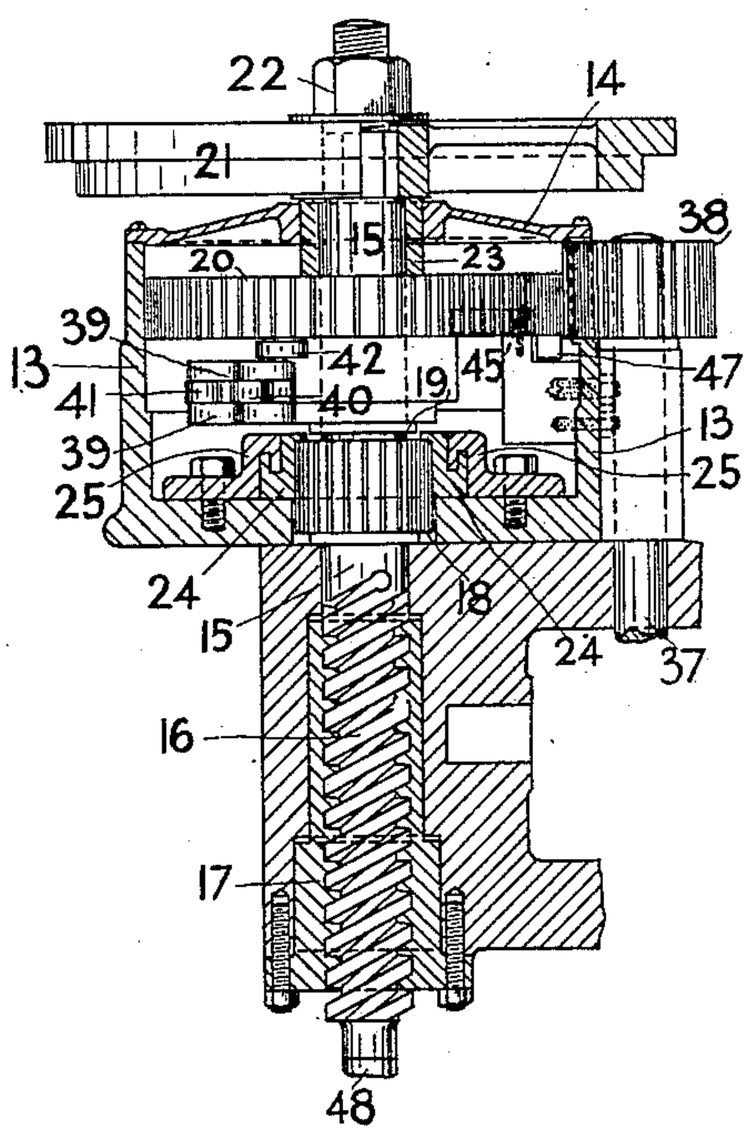


Fig. 9.



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William Henry Simms

Inventor
Joseph Yardley Johnston

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(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 6.

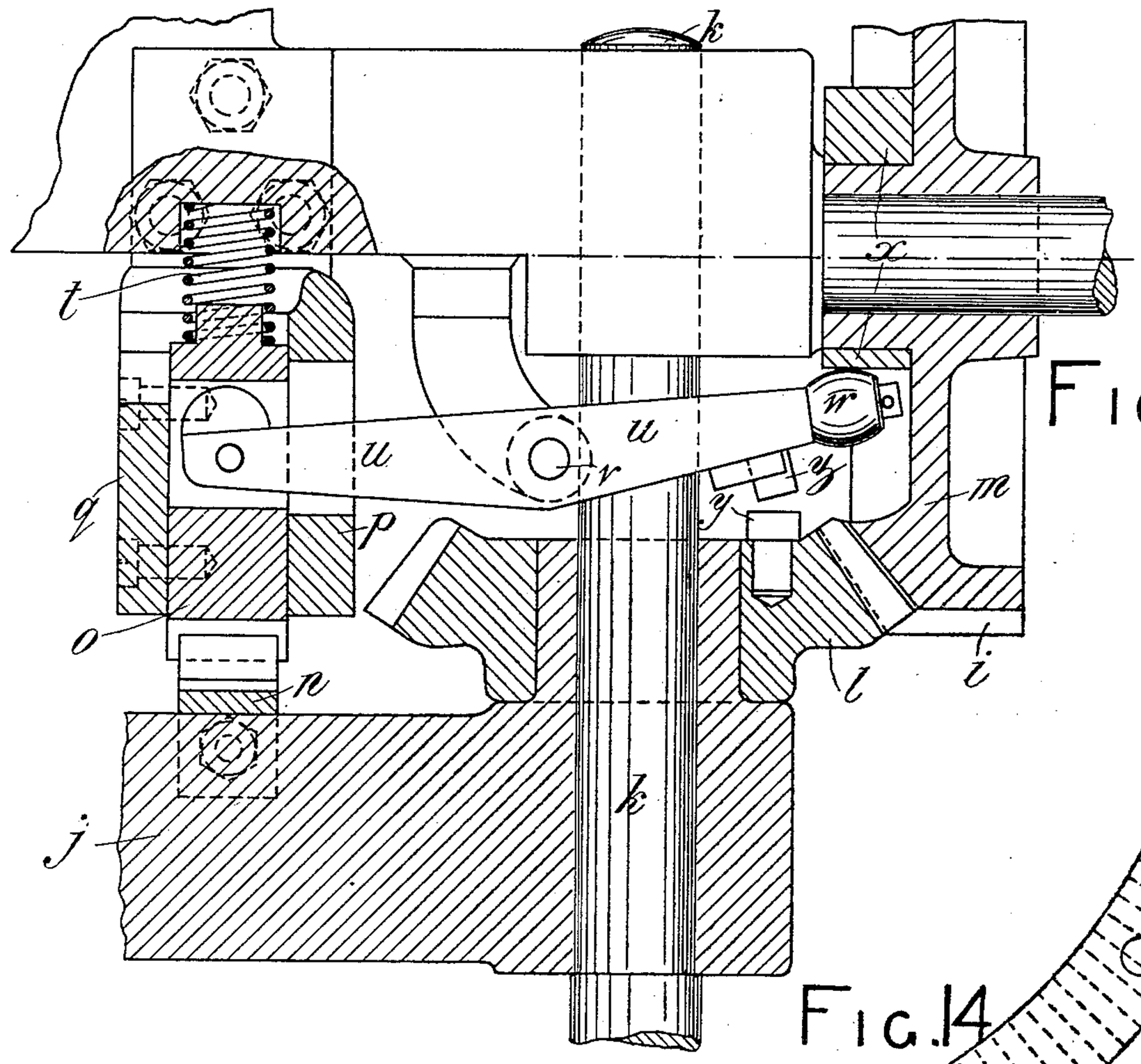

FIG. 28

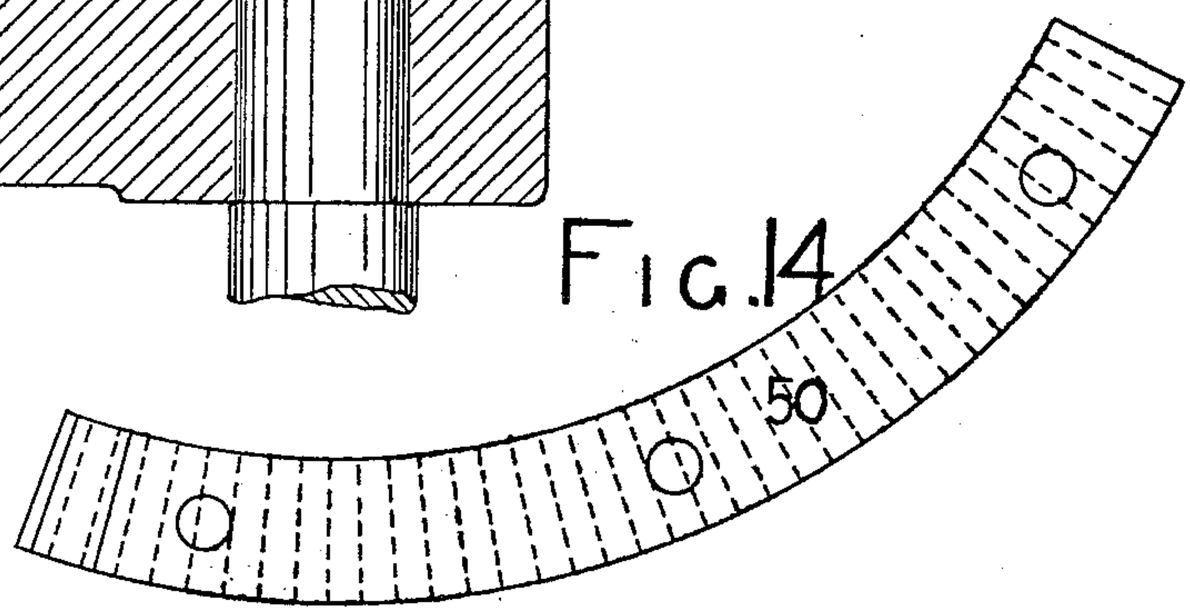

FIG. 14

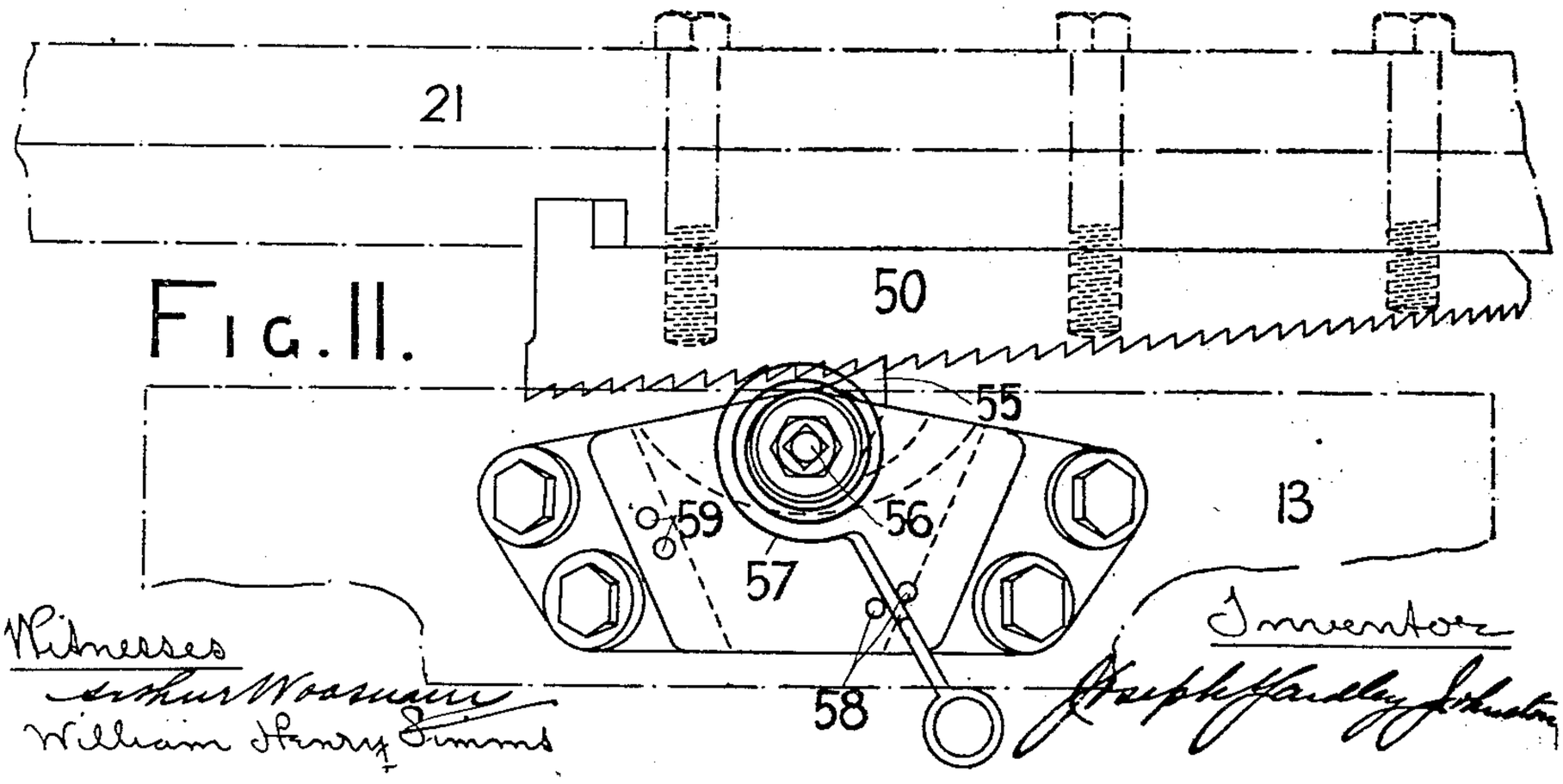

FIG. 11.

Witnesses
Arthur Woodward
William Henry Timms

Inventor
Joseph Yardley Johnston

No. 677,223. Patented June 25, 1901.

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(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 7.

FIG. 29.

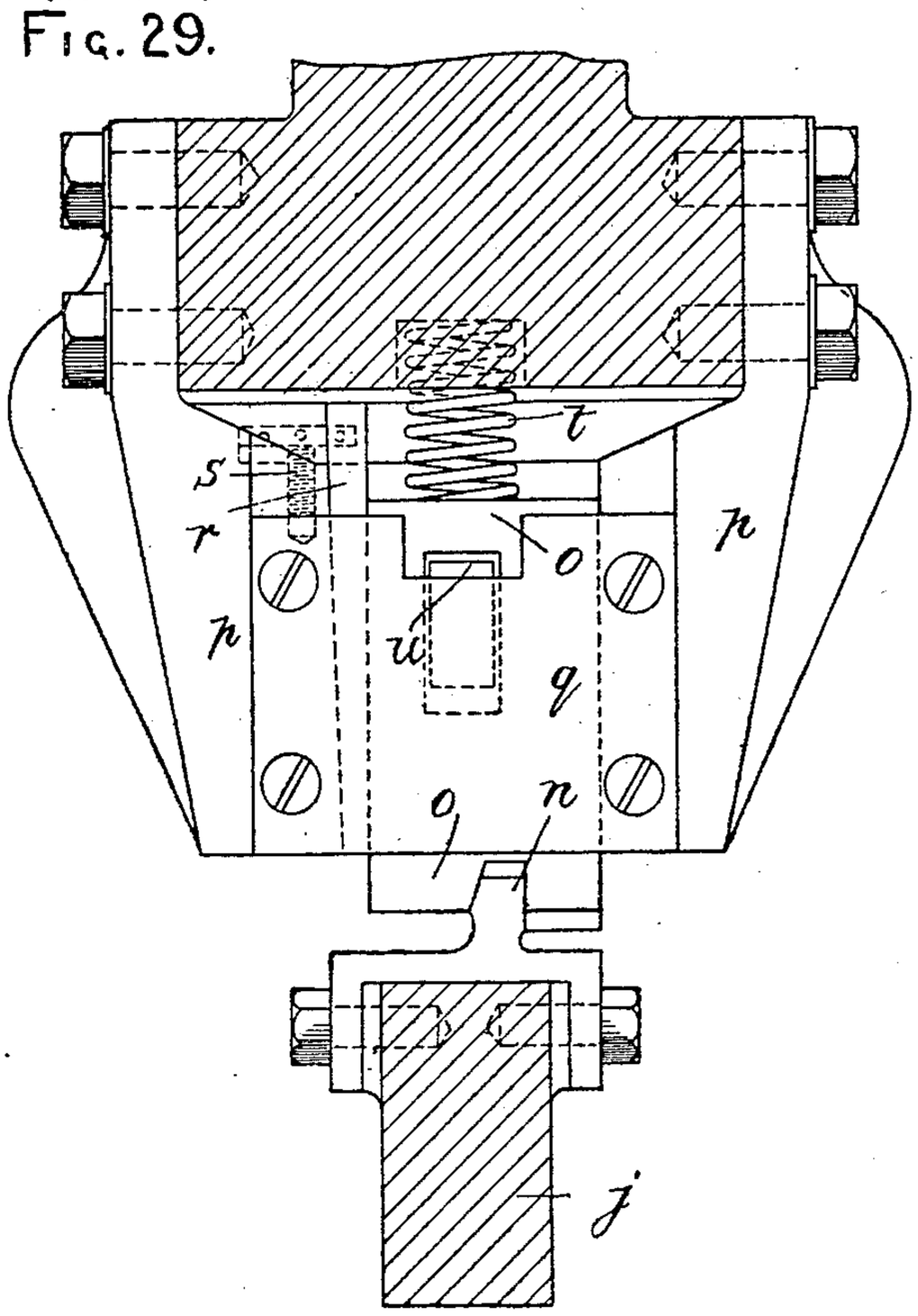
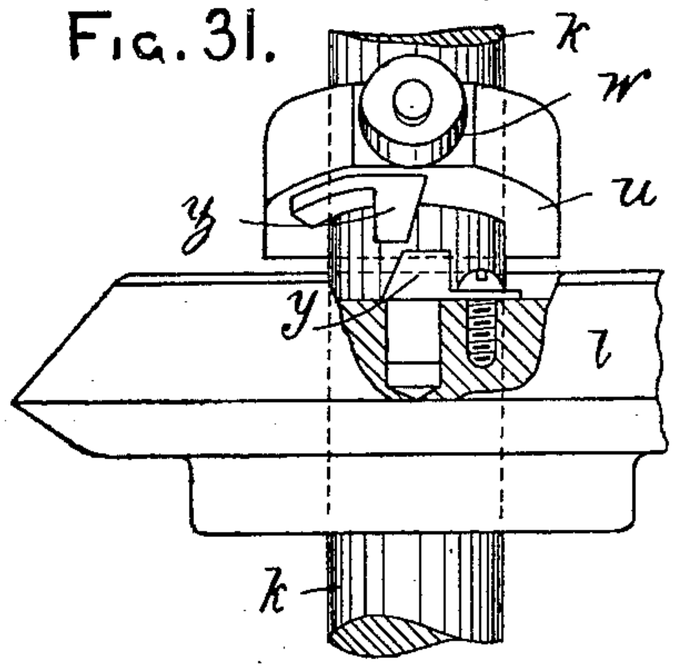


FIG. 31.



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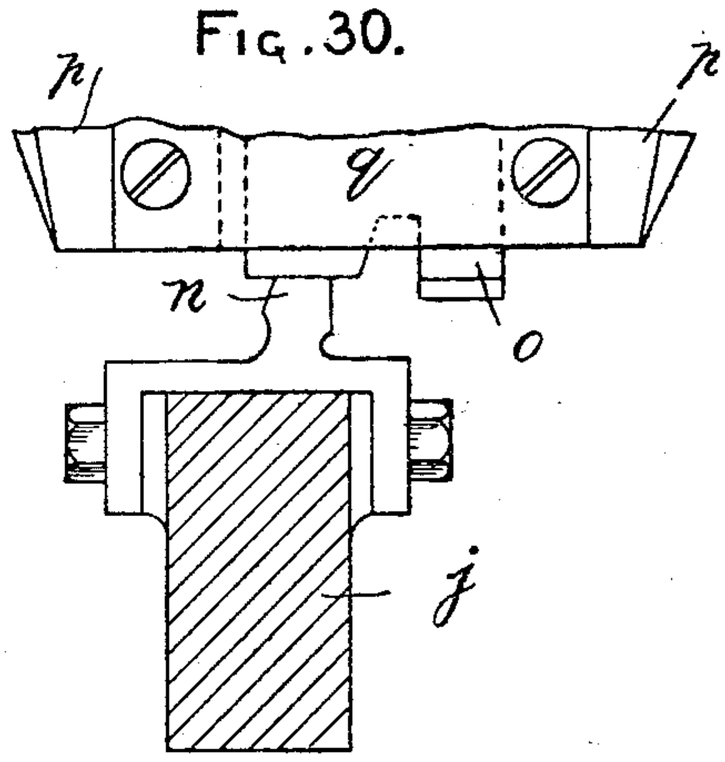

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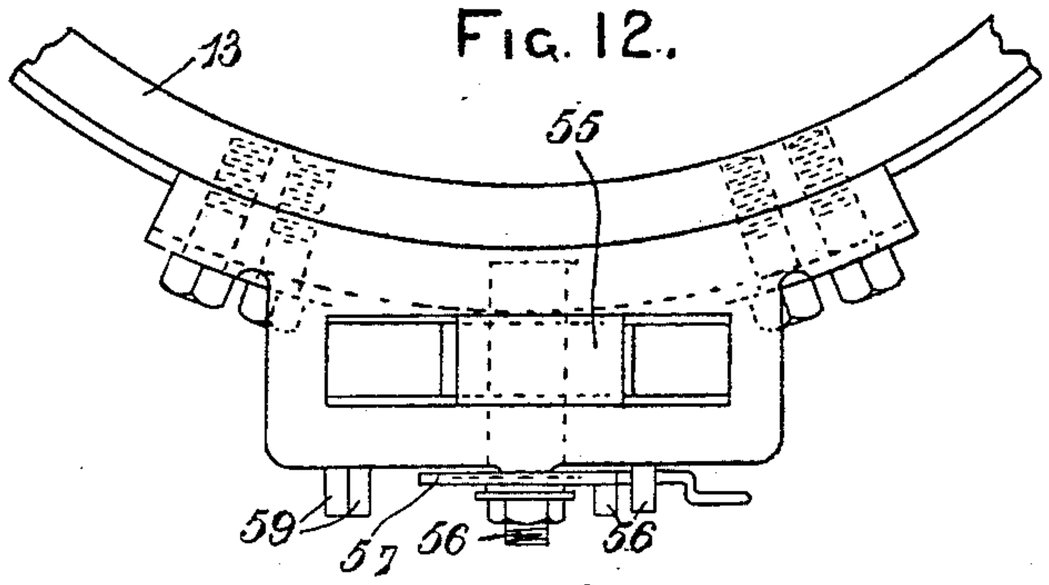
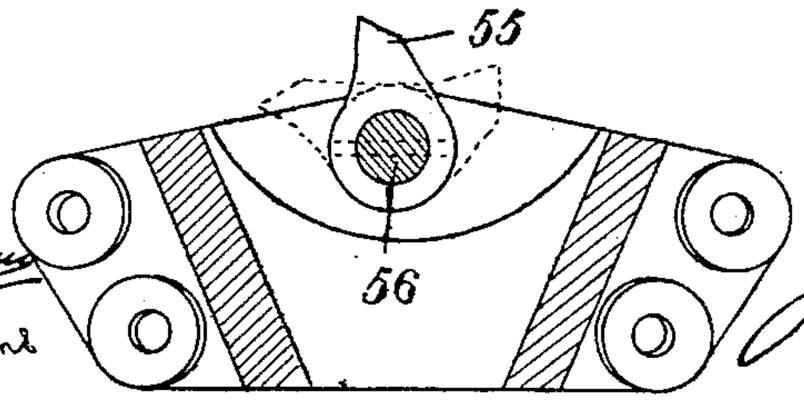


FIG 13



Witnesses
Arthur Wheeler
William Henry Simmd

Inventor
Joseph Yardley Johnston

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J. Y. JOHNSTON.

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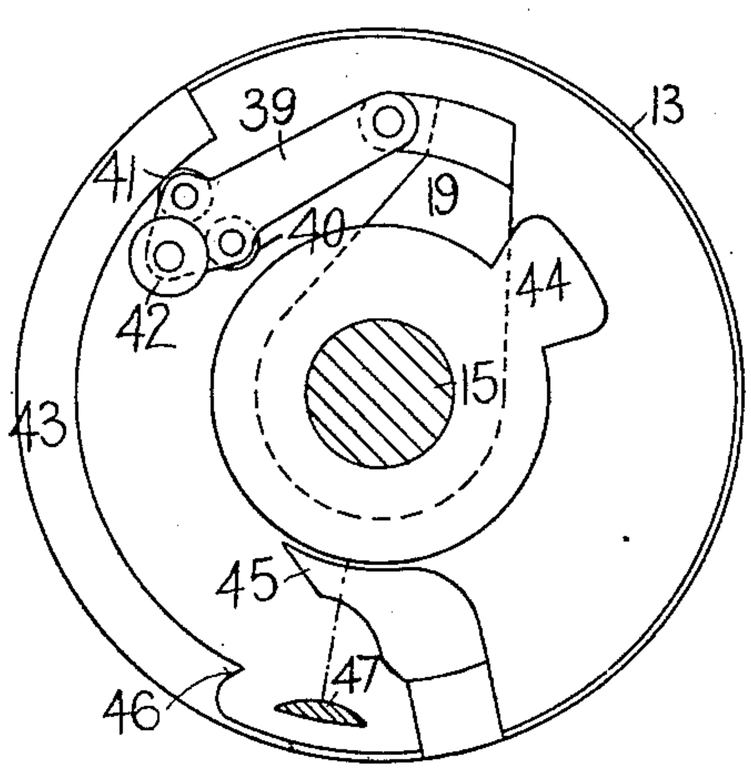
(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 8.

FIG. 15.



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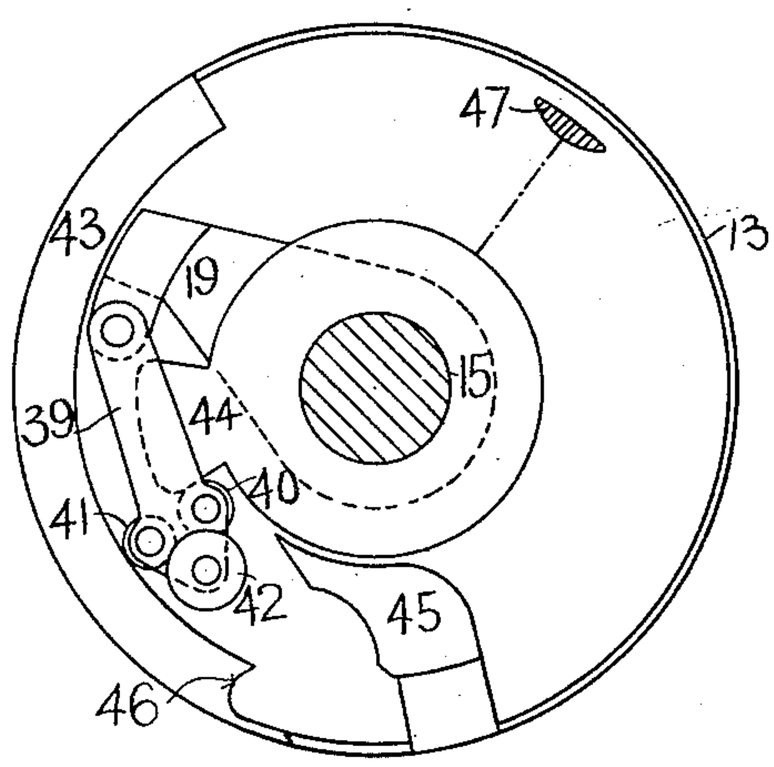
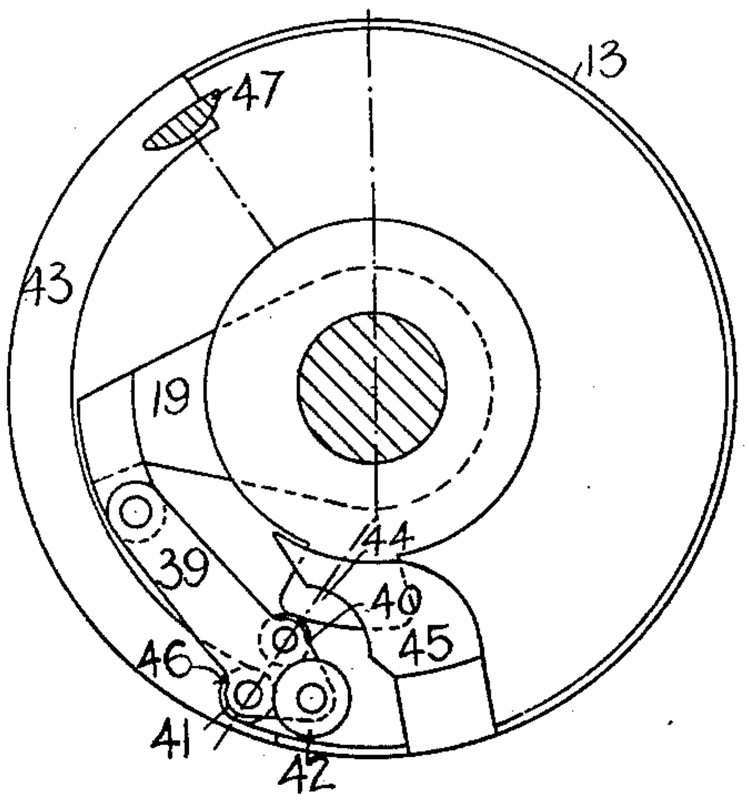


FIG. 18.



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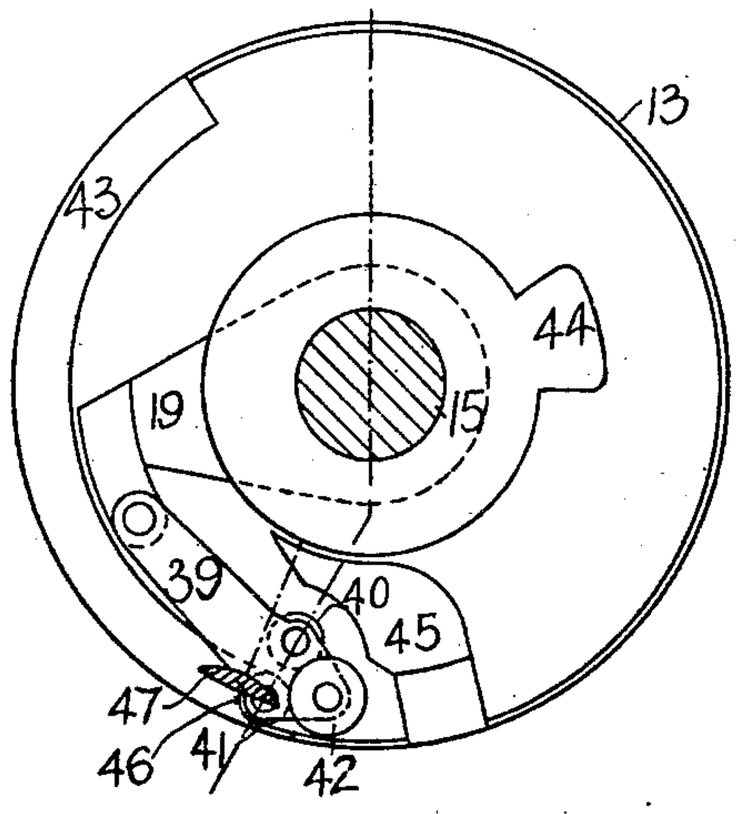

Witnesses
Arthur Woodbury
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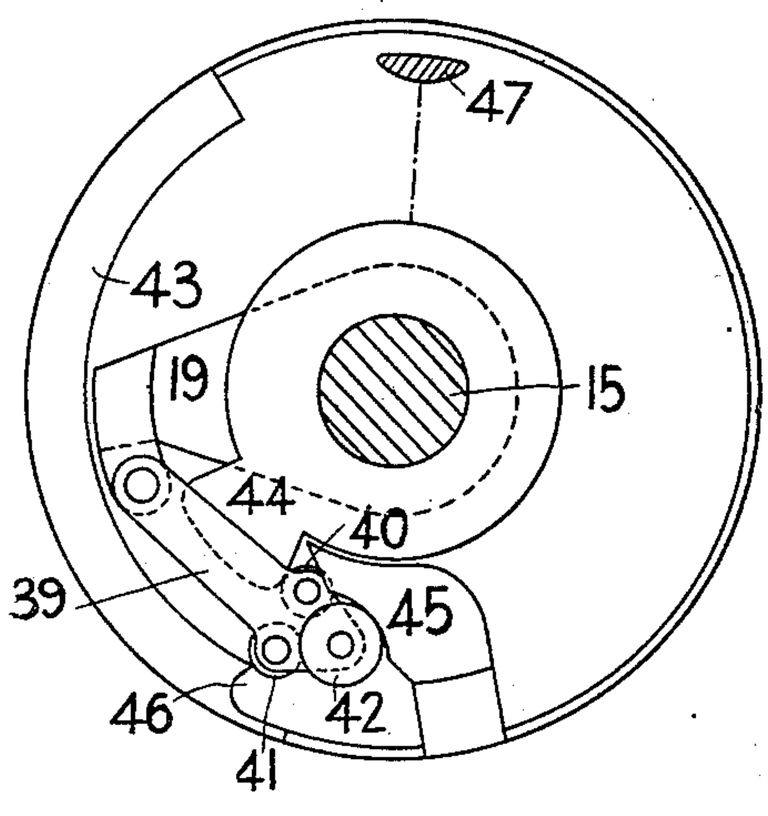
(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 9.

FIG. 17.



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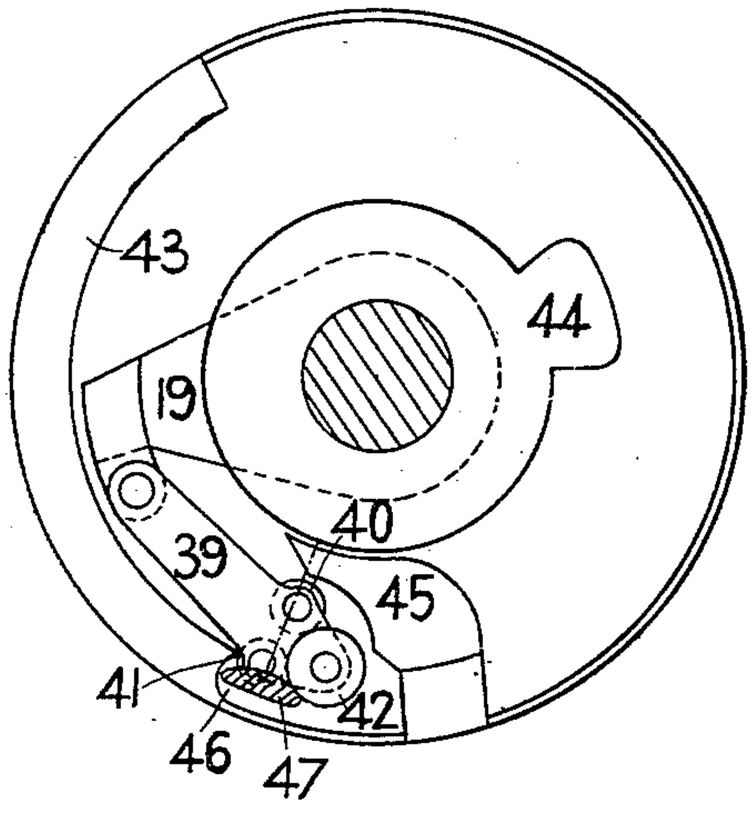

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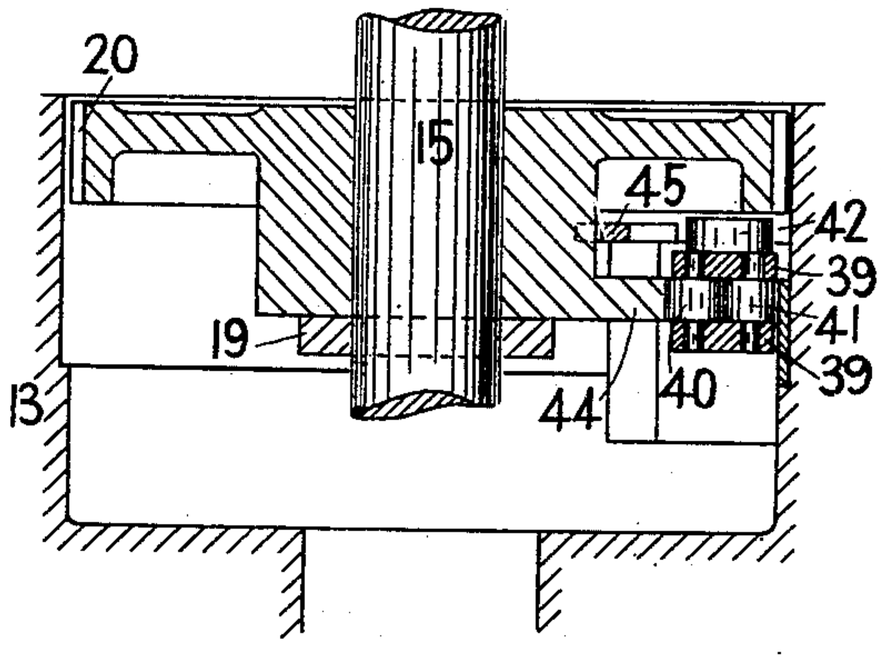
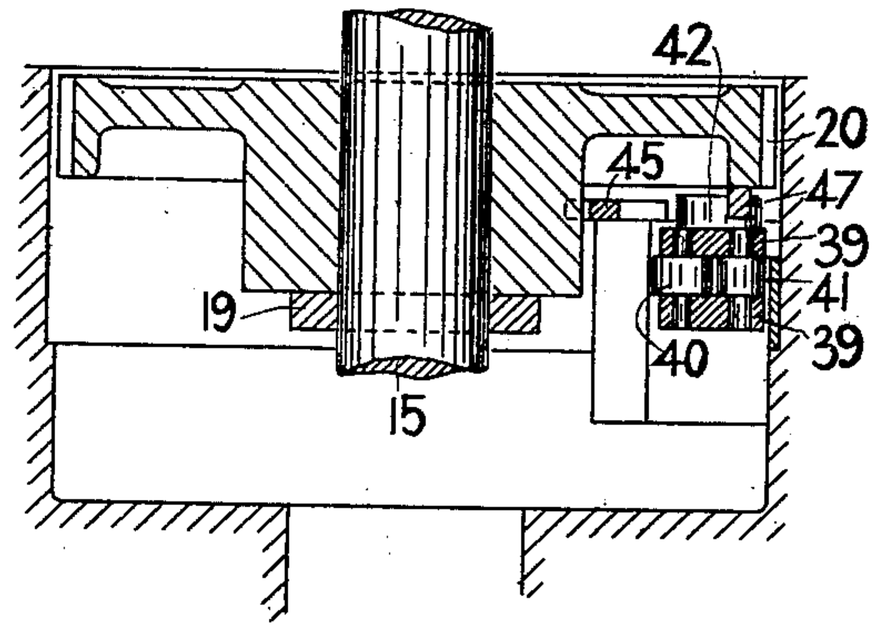


FIG. 22.



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(No Model.) 24 Sheets—Sheet 10.

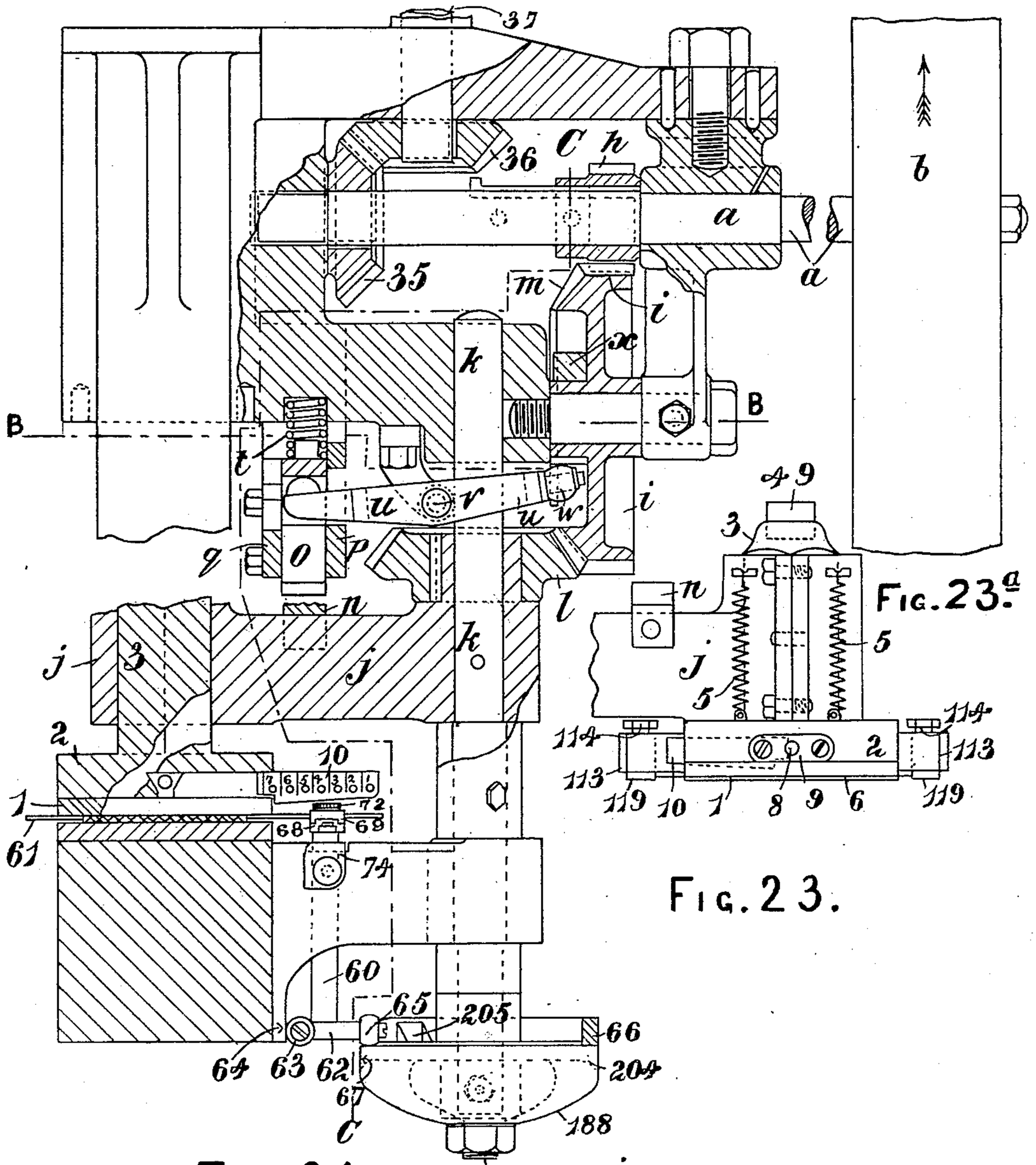
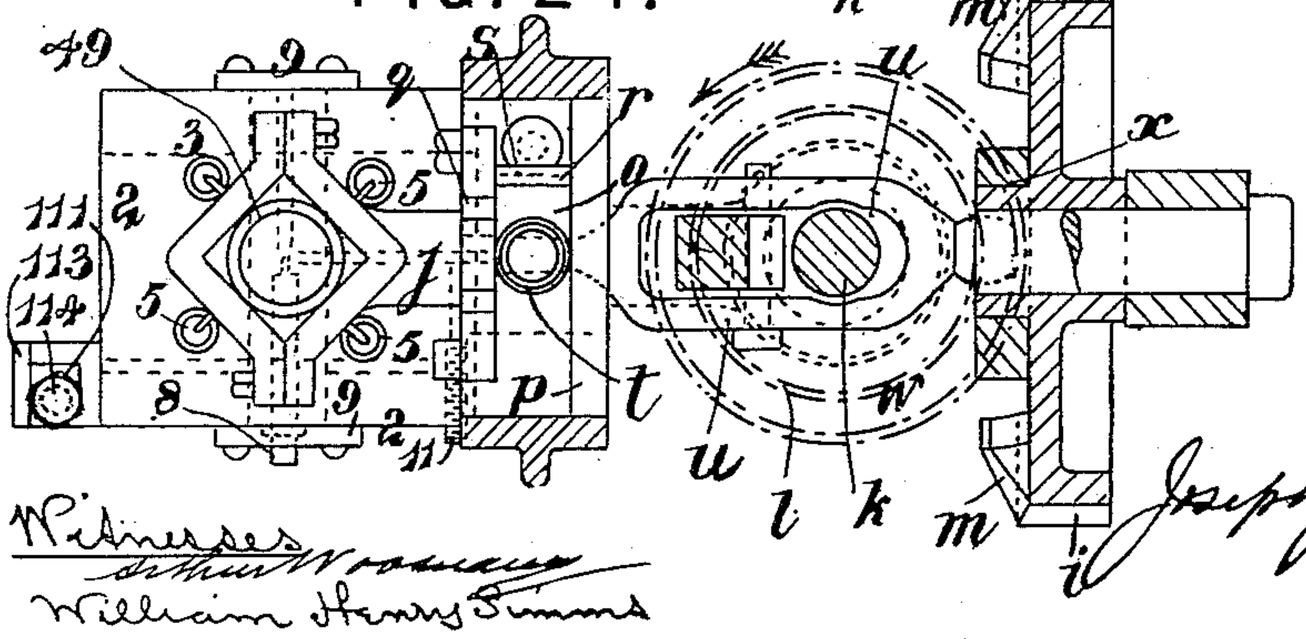


FIG. 23a.

FIG. 23.

FIG. 24.



Witnesses
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William Henry Timms

Inventor
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(No Model.) 24 Sheets—Sheet 11.

Fig. 27.

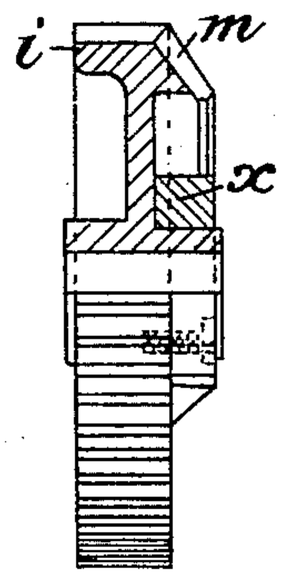


Fig. 26.

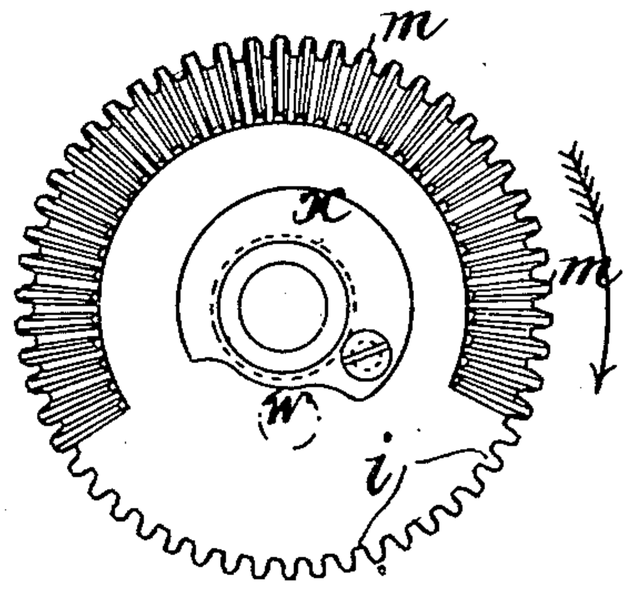
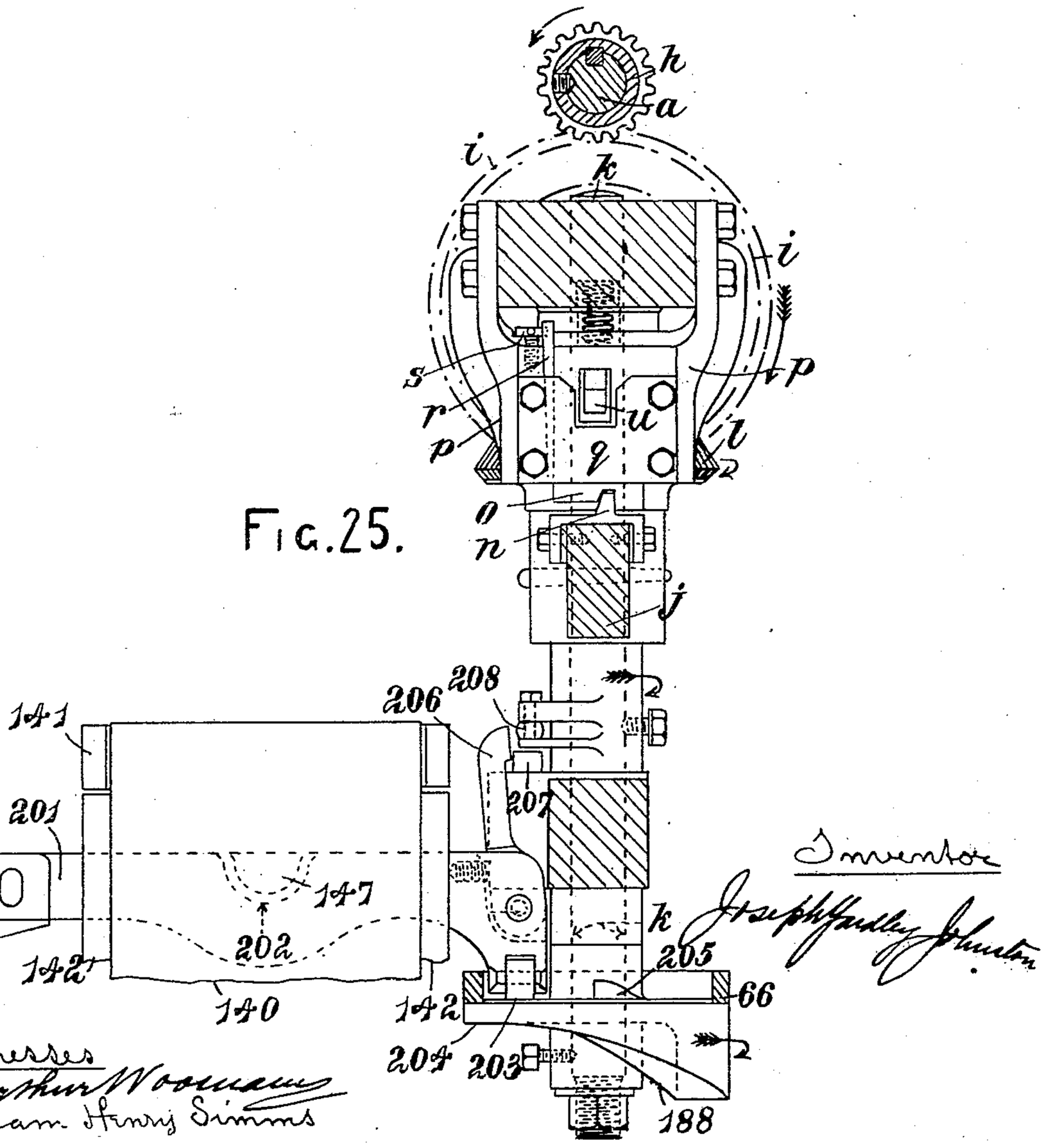


Fig. 25.



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PRINTING, EMBOSSING, OR PRINTING AND EMBOSSING PRESS.

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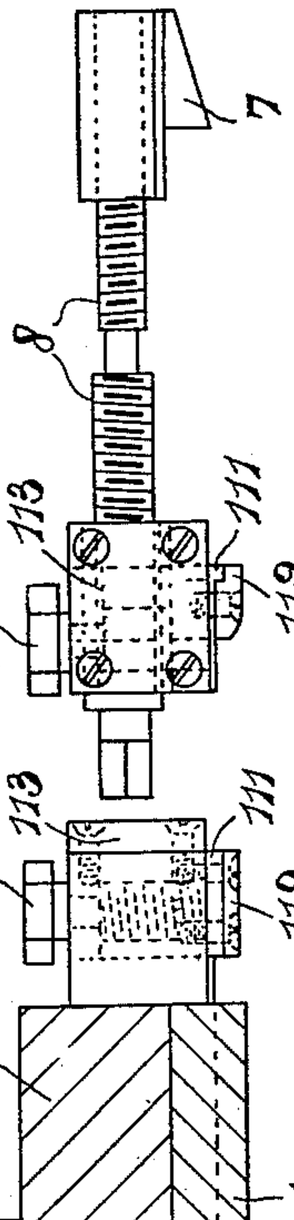
(No Model.) 24 Sheets—Sheet 12.

FIG. 33.



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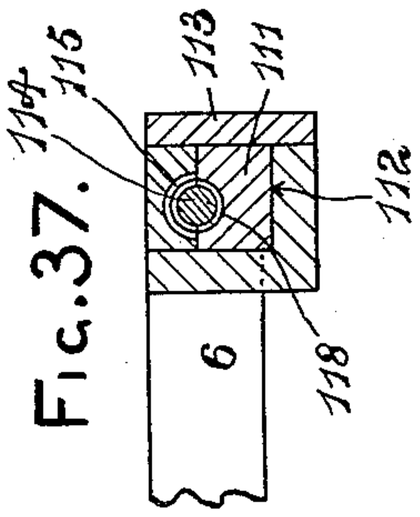

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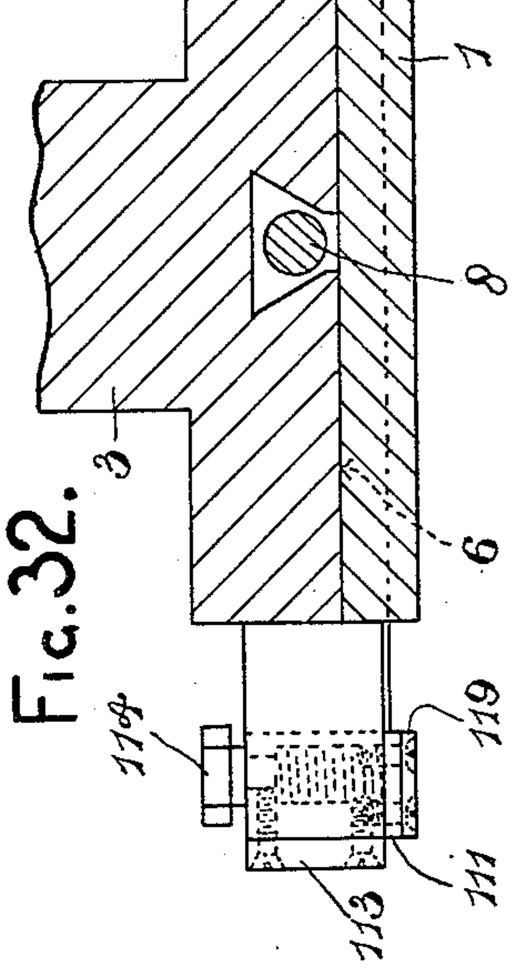
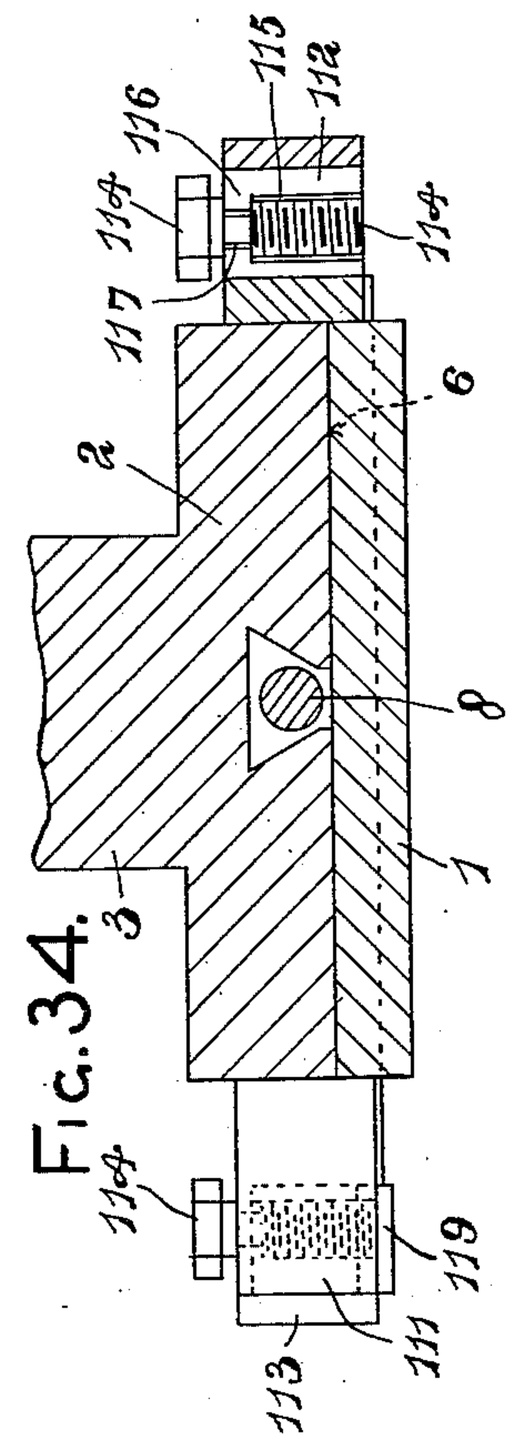


FIG. 34.



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PRINTING, EMBOSSING, OR PRINTING AND EMBOSSING PRESS.

(Application filed Jan. 23, 1900.)

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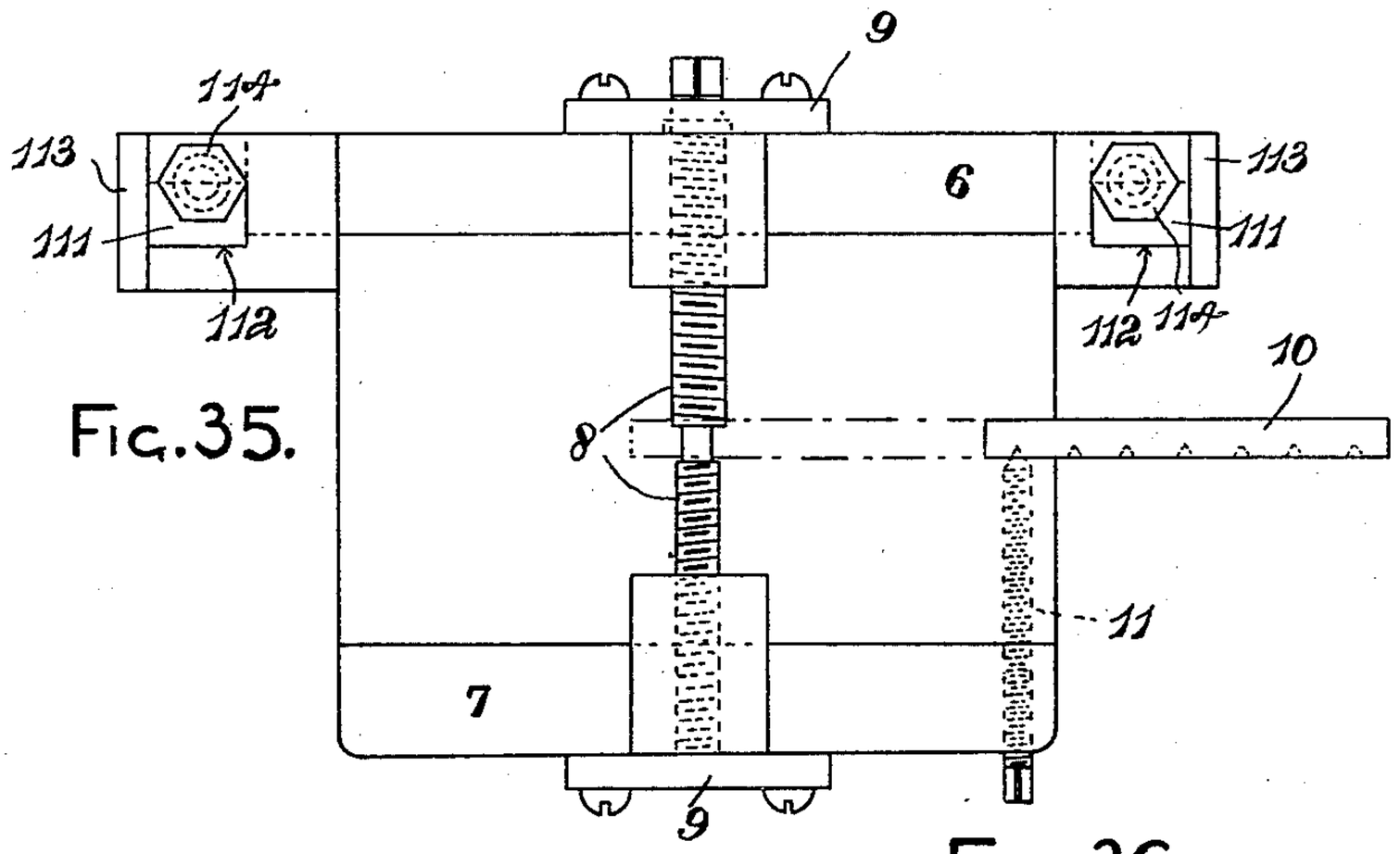
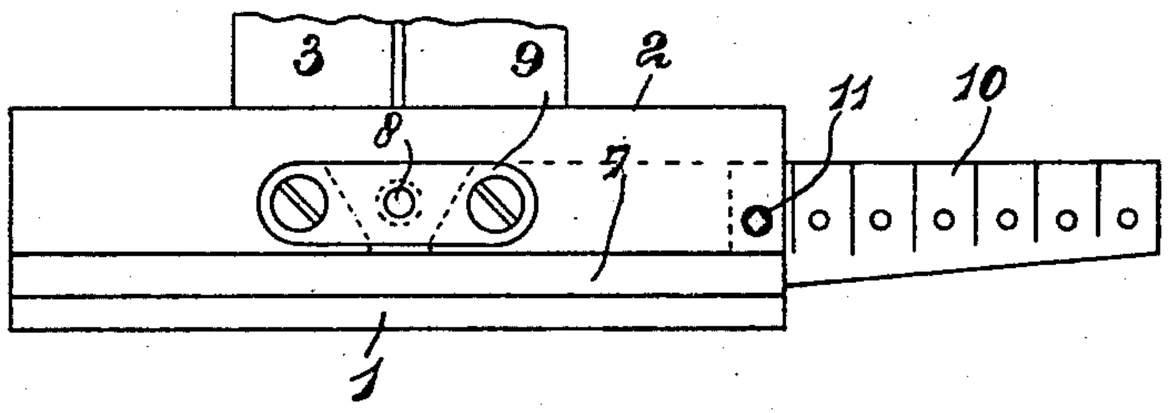


Fig. 35.

Fig. 36.



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William Henry Simms.

Inventor
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PRINTING, EMBOSSING, OR PRINTING AND EMBOSSING PRESS.

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(No Model.) 24 Sheets—Sheet 14.

Fig. 38.

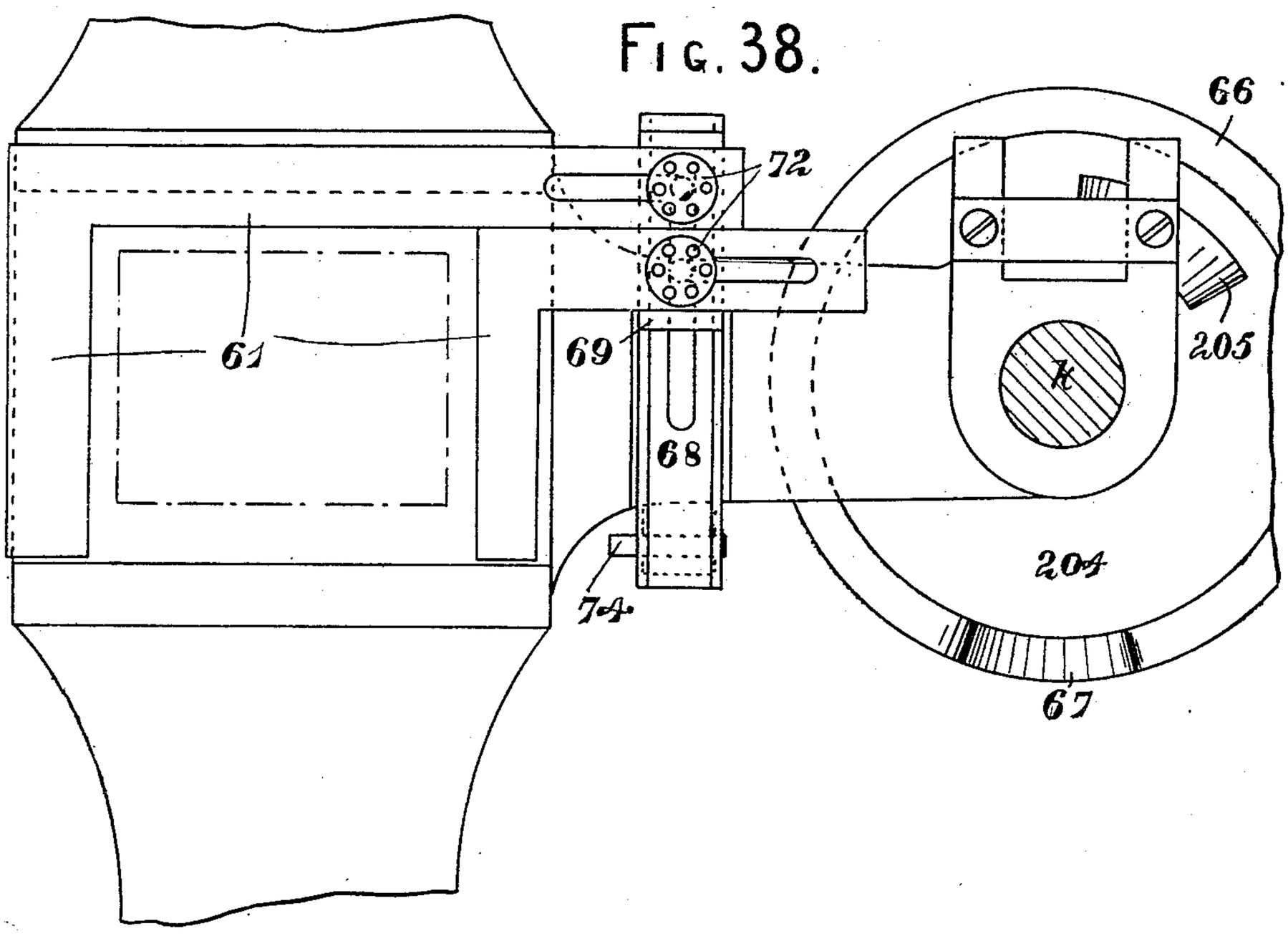
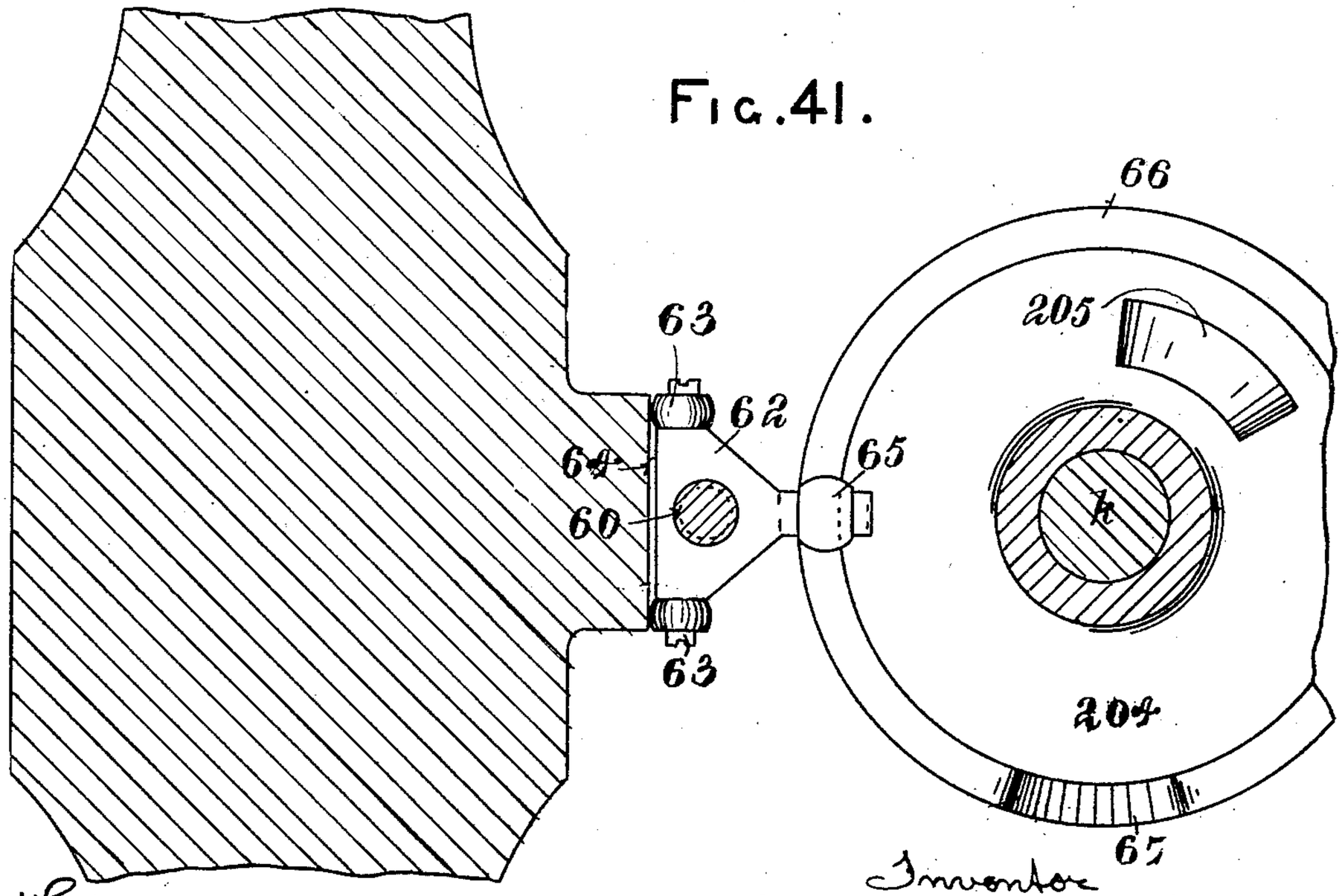


Fig. 41.



Witnesses
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William Henry Simms

Inventor
Joseph Yardley Johnston

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J. Y. JOHNSTON.

PRINTING, EMBOSSING, OR PRINTING AND EMBOSSING PRESS.

(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 15.

FIG. 39.

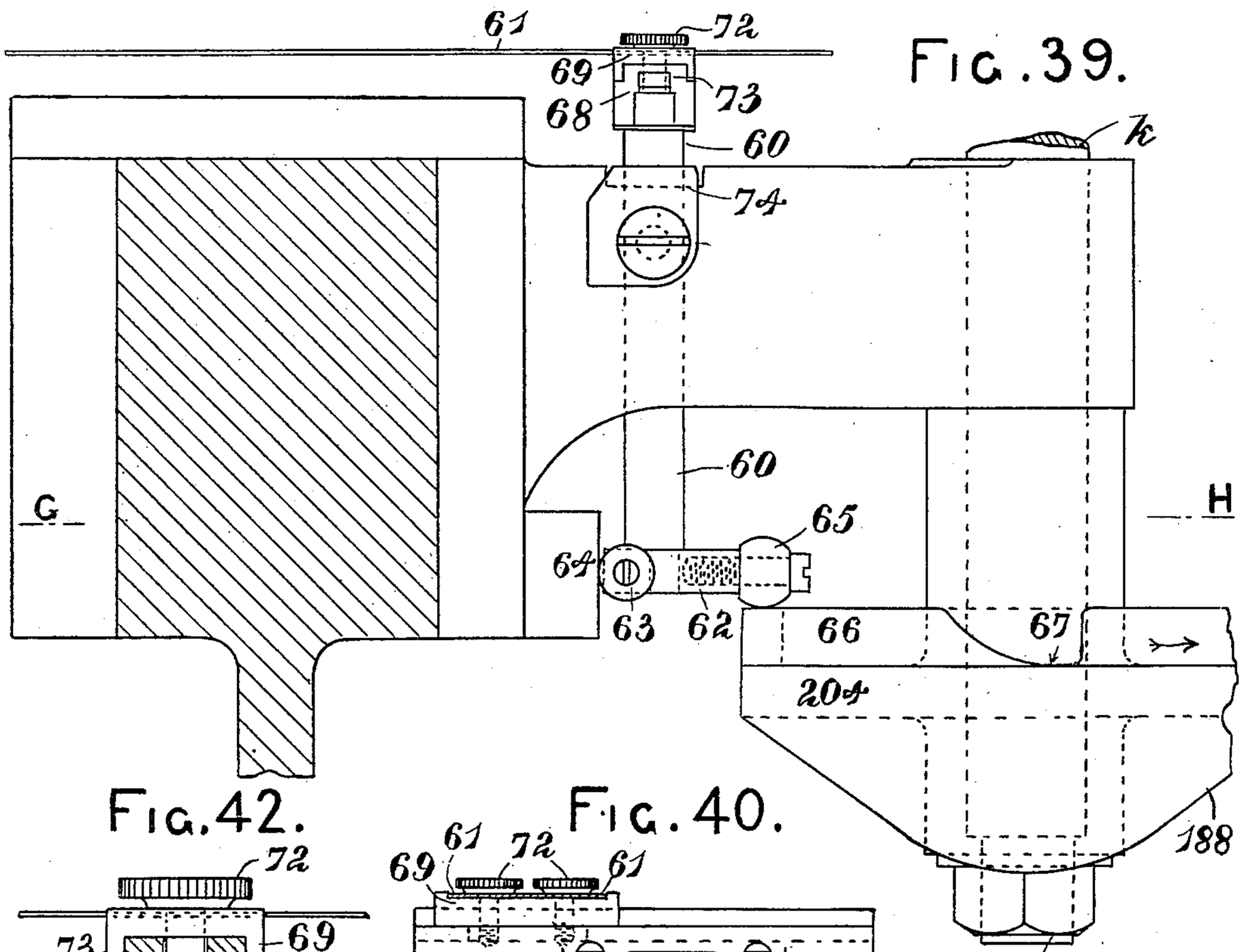


FIG. 42.

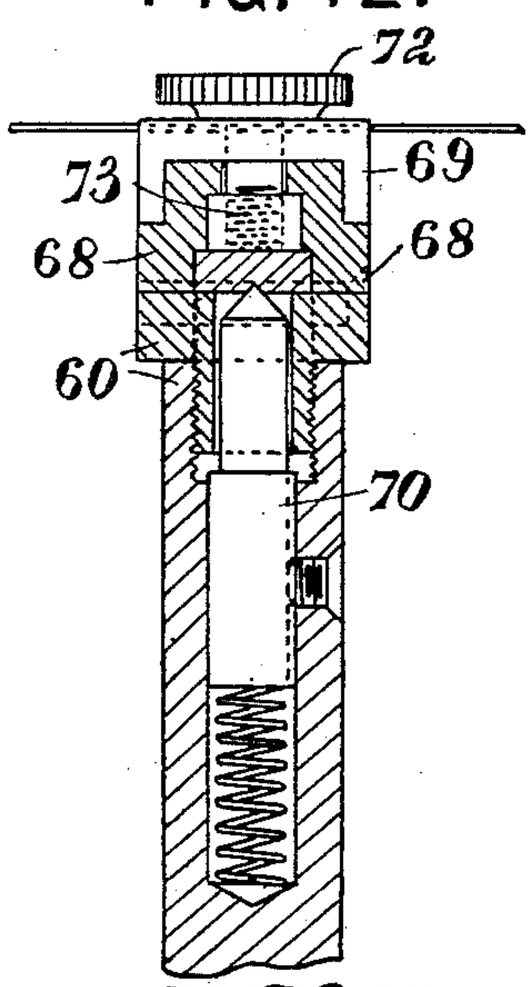
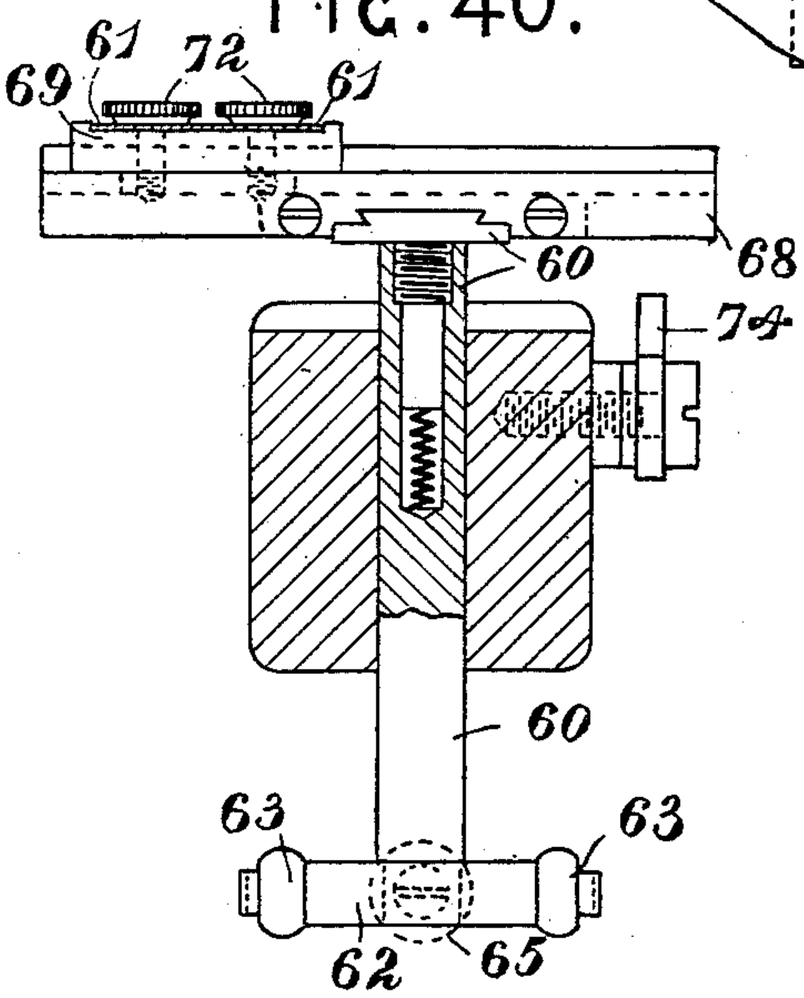


FIG. 40.



Witnesses

Arthur Woodward

William Henry Simms

Inventor

Joseph Yardley Johnston

No. 677,223. Patented June 25, 1901.

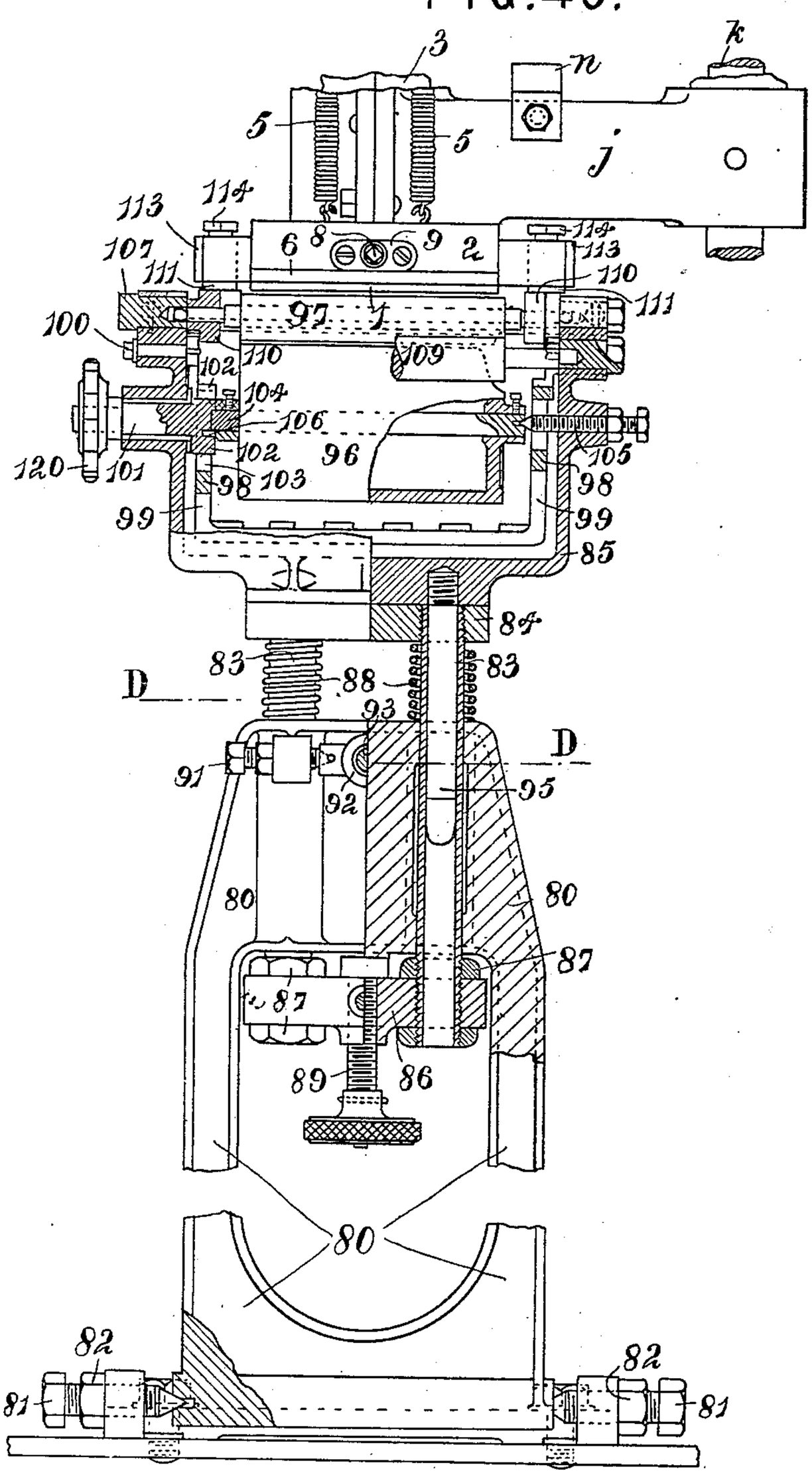
J. Y. JOHNSTON.

PRINTING, EMBOSSING, OR PRINTING AND EMBOSSING PRESS.

(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 16.

FIG. 43.



Witnesses
Arthur Woodman
William Henry Simms

Inventor
Joseph Yardley Johnston

No. 677,223. Patented June 25, 1901.

J. Y. JOHNSTON.

PRINTING, EMBOSSING, OR PRINTING AND EMBOSSING PRESS.

(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 17.

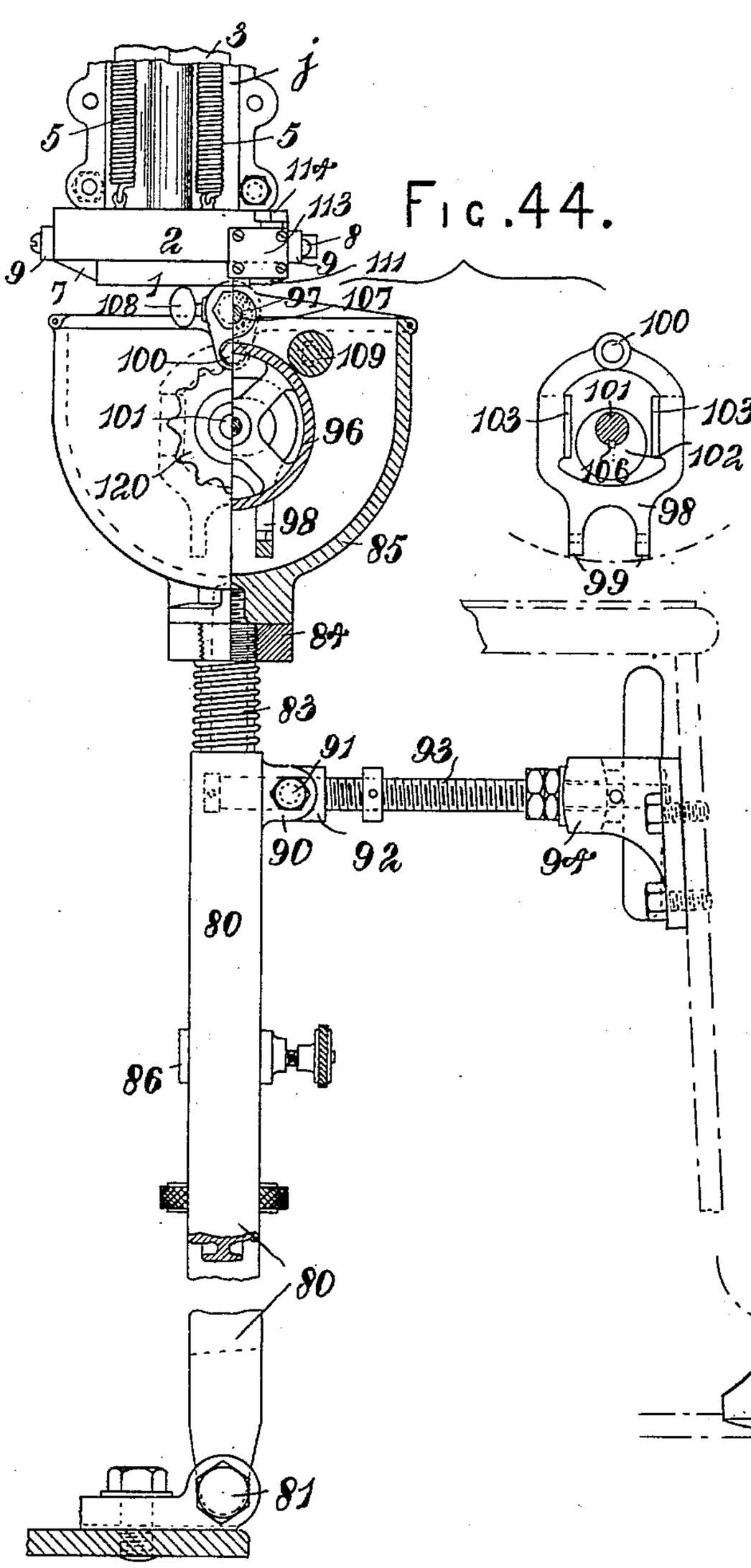


Fig. 44.

Fig. 44a.

Fig. 45.

Witnesses
Arthur Woodward
William Henry Simms.

Inventor
Joseph Yardley Johnston

No. 677,223. Patented June 25, 1901.

J. Y. JOHNSTON.

PRINTING, EMBOSSING, OR PRINTING AND EMBOSSING PRESS.

(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 18.

FIG. 46.

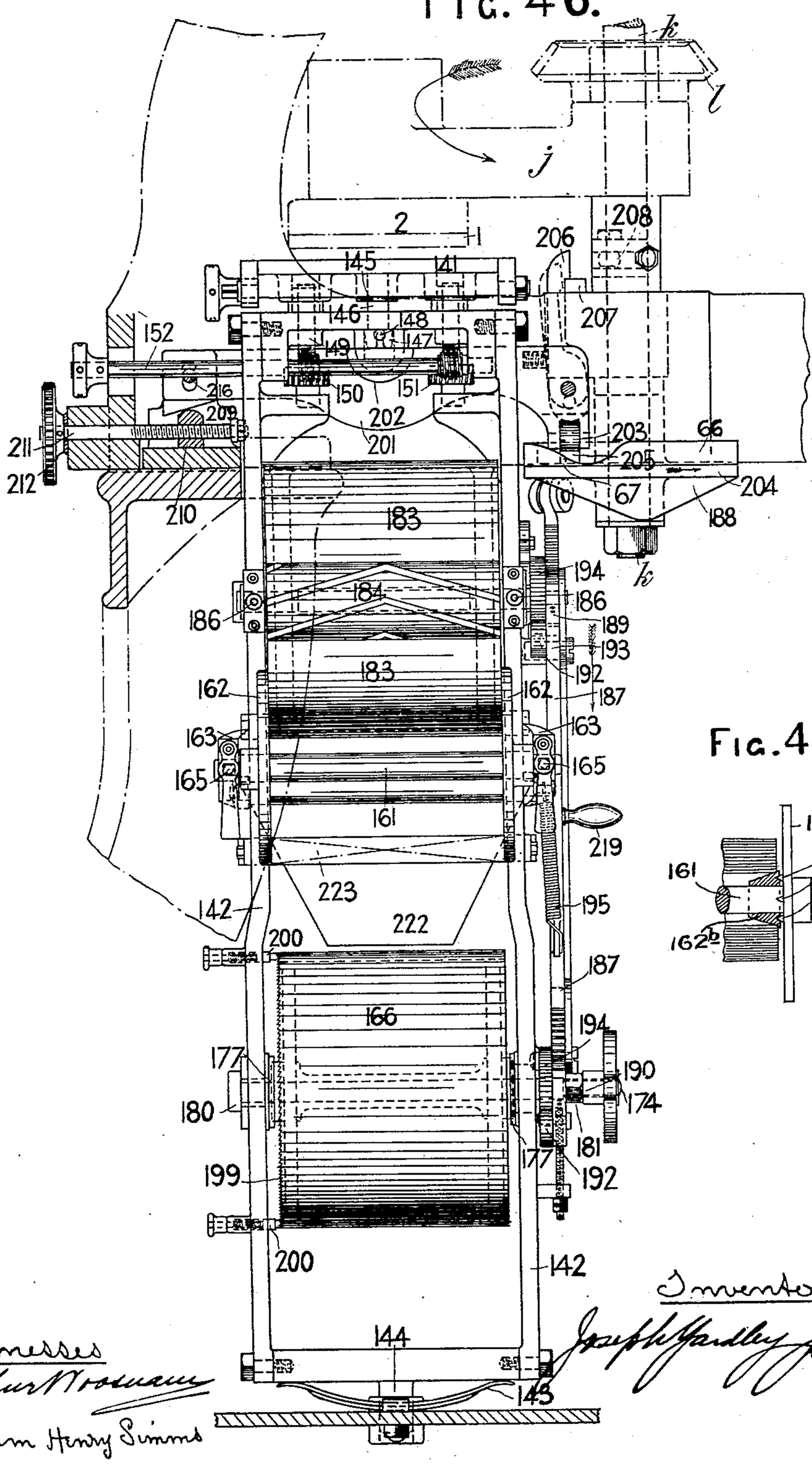


FIG. 46a.

Witnesses
Arthur Woodward
William Henry Simms

Inventor
Joseph Yardley Johnston

No. 677,223. Patented June 25, 1901.

J. Y. JOHNSTON.

PRINTING, EMBOSSING, OR PRINTING AND EMBOSSING PRESS.

(No Model.) (Application filed Jan. 23, 1900.) 24 Sheets—Sheet 19.

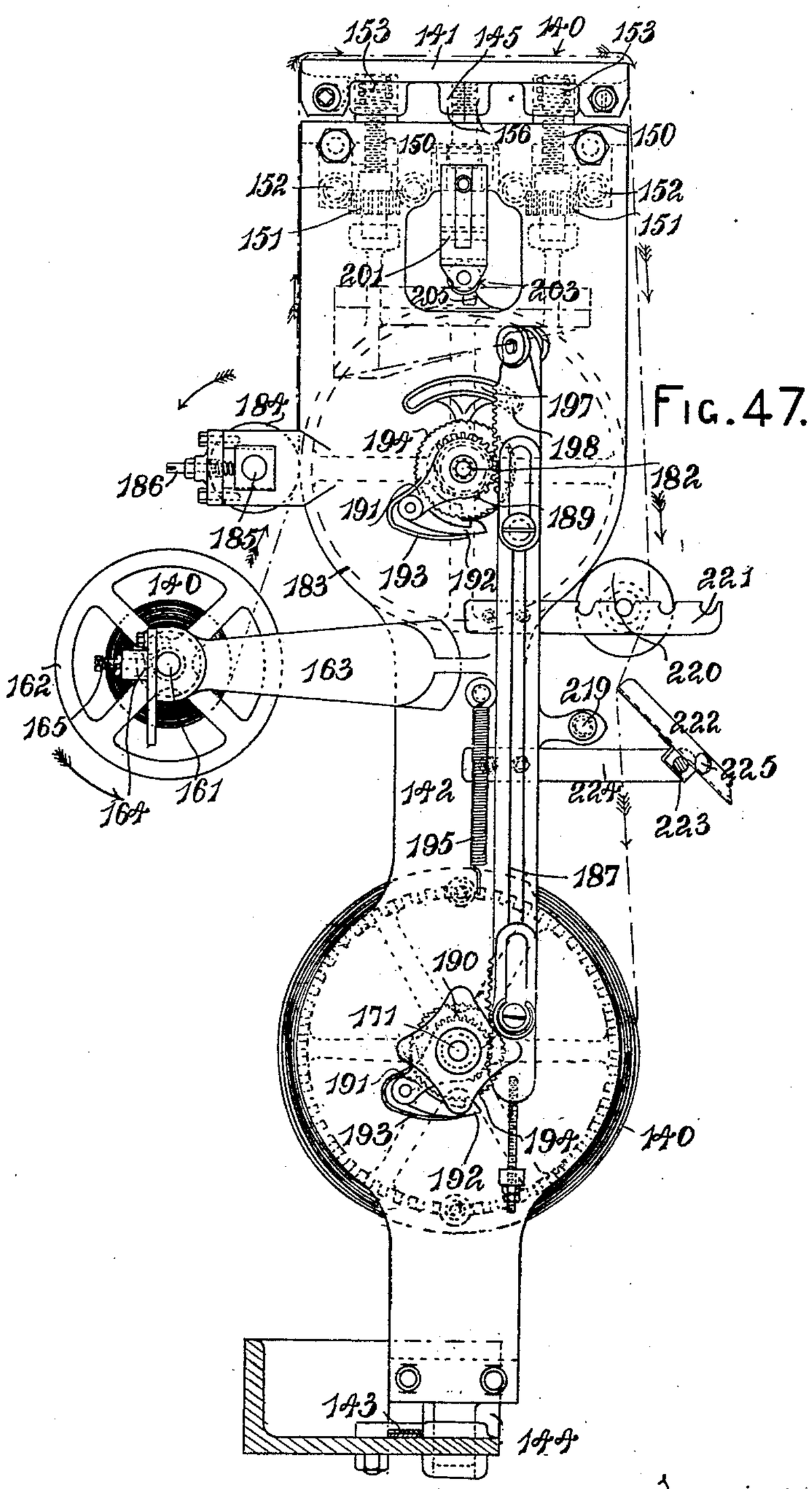


FIG. 47.

Witnesses
Arthur Woosnam
William Henry Simms

Inventor
Joseph Yeadley Johnston

No. 677,223. Patented June 25, 1901.

J. Y. JOHNSTON.

PRINTING, EMBOSSING, OR PRINTING AND EMBOSSING PRESS.

(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 20.

FIG. 48.

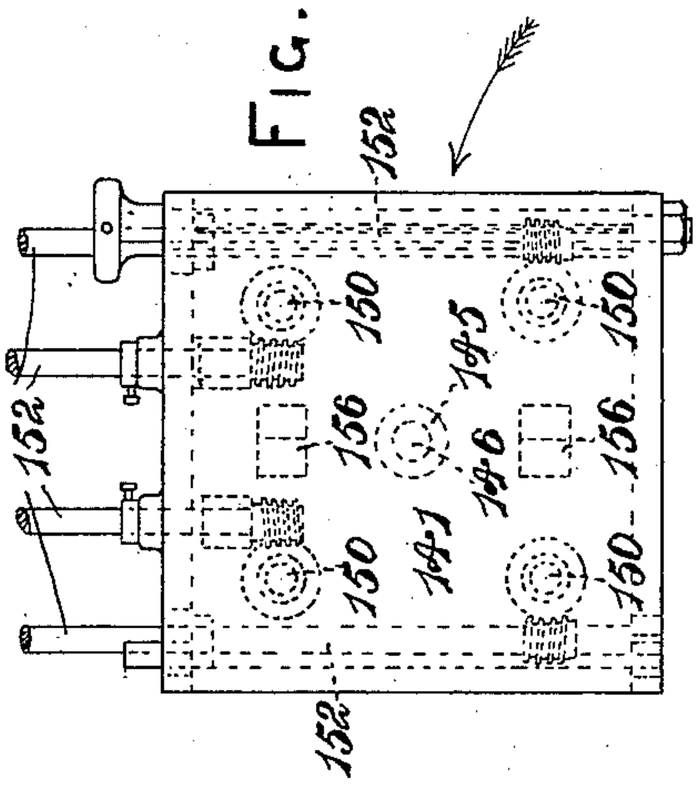


FIG. 53.

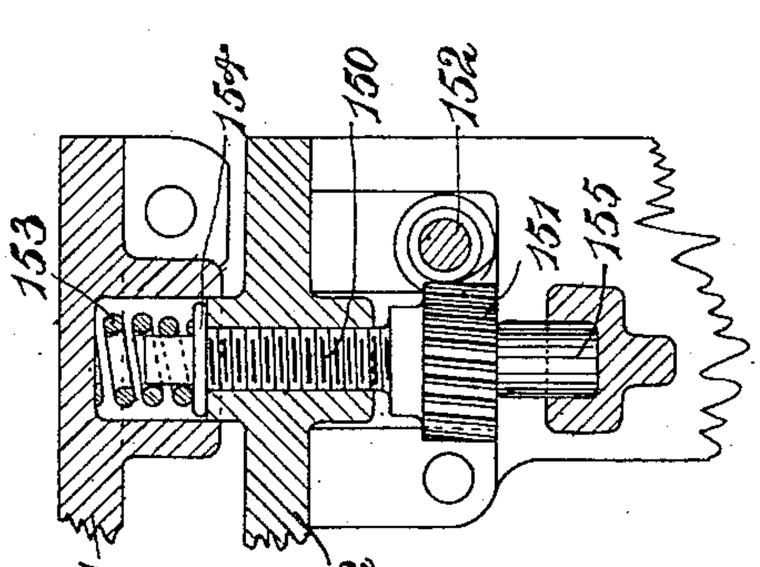


FIG. 52.

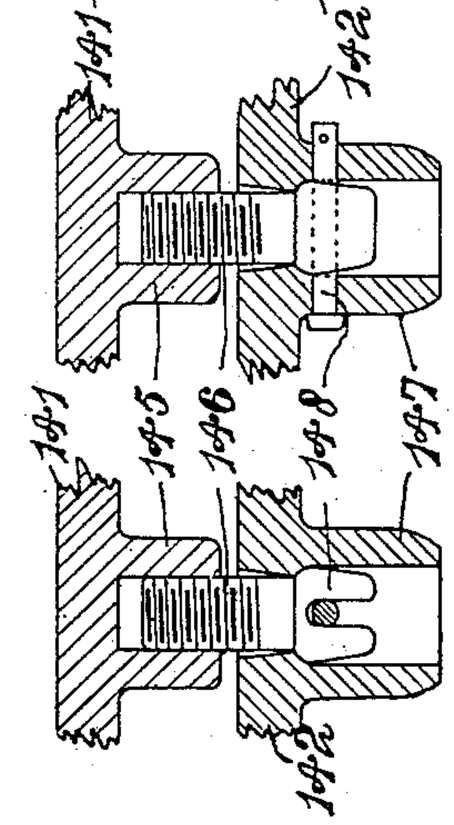


FIG. 51.

FIG. 50.

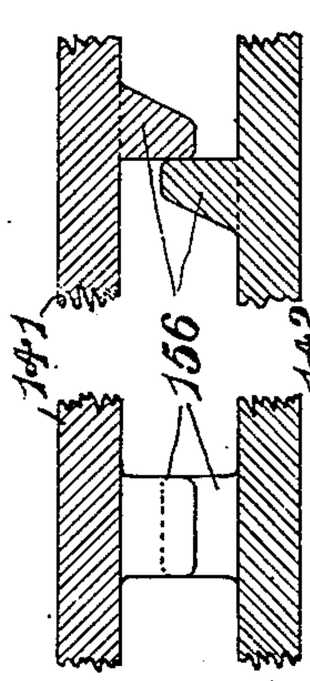


FIG. 49.

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No. 677,223. Patented June 25, 1901.

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PRINTING, EMBOSSING, OR PRINTING AND EMBOSSING PRESS.

(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 21.

FIG. 59.

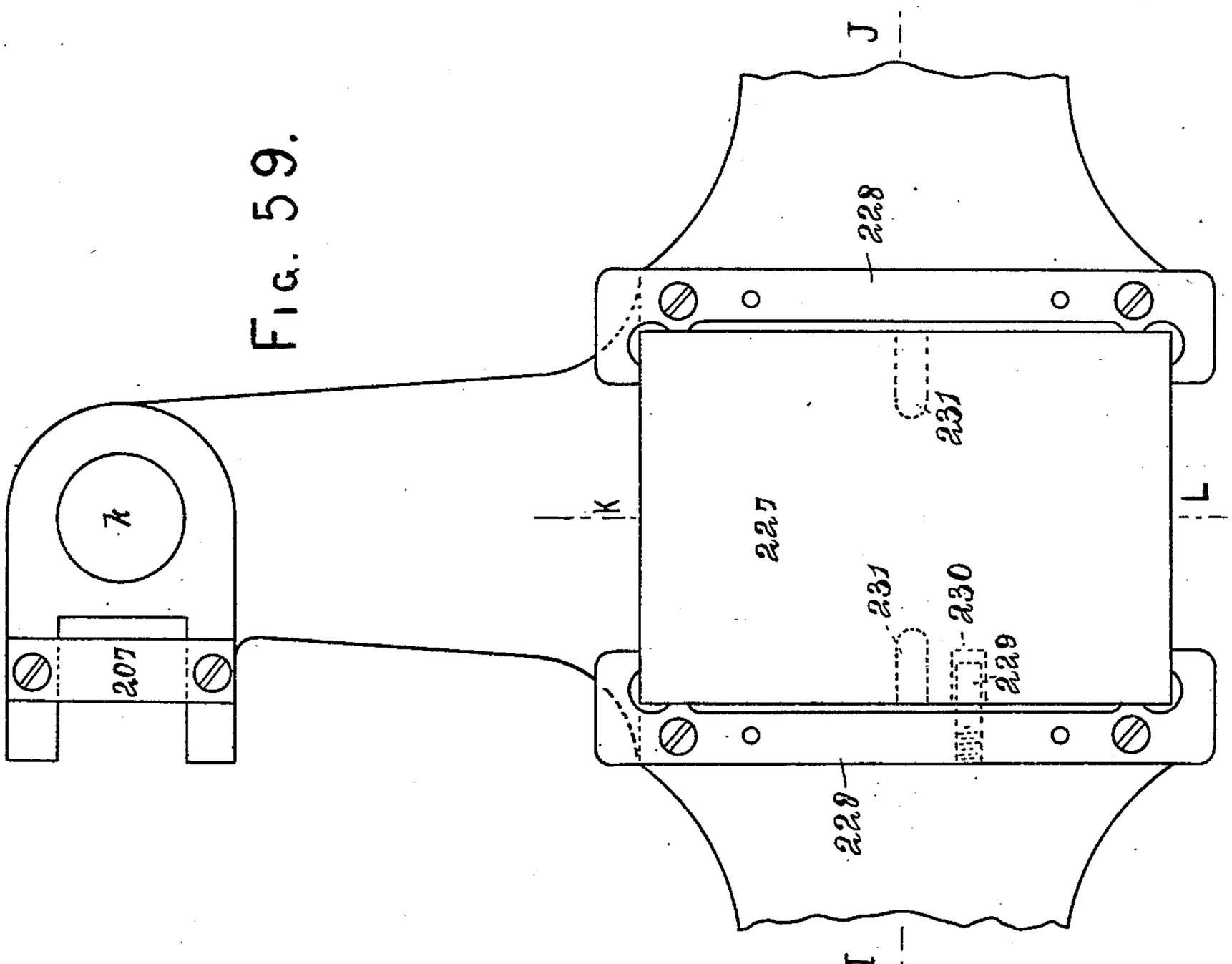
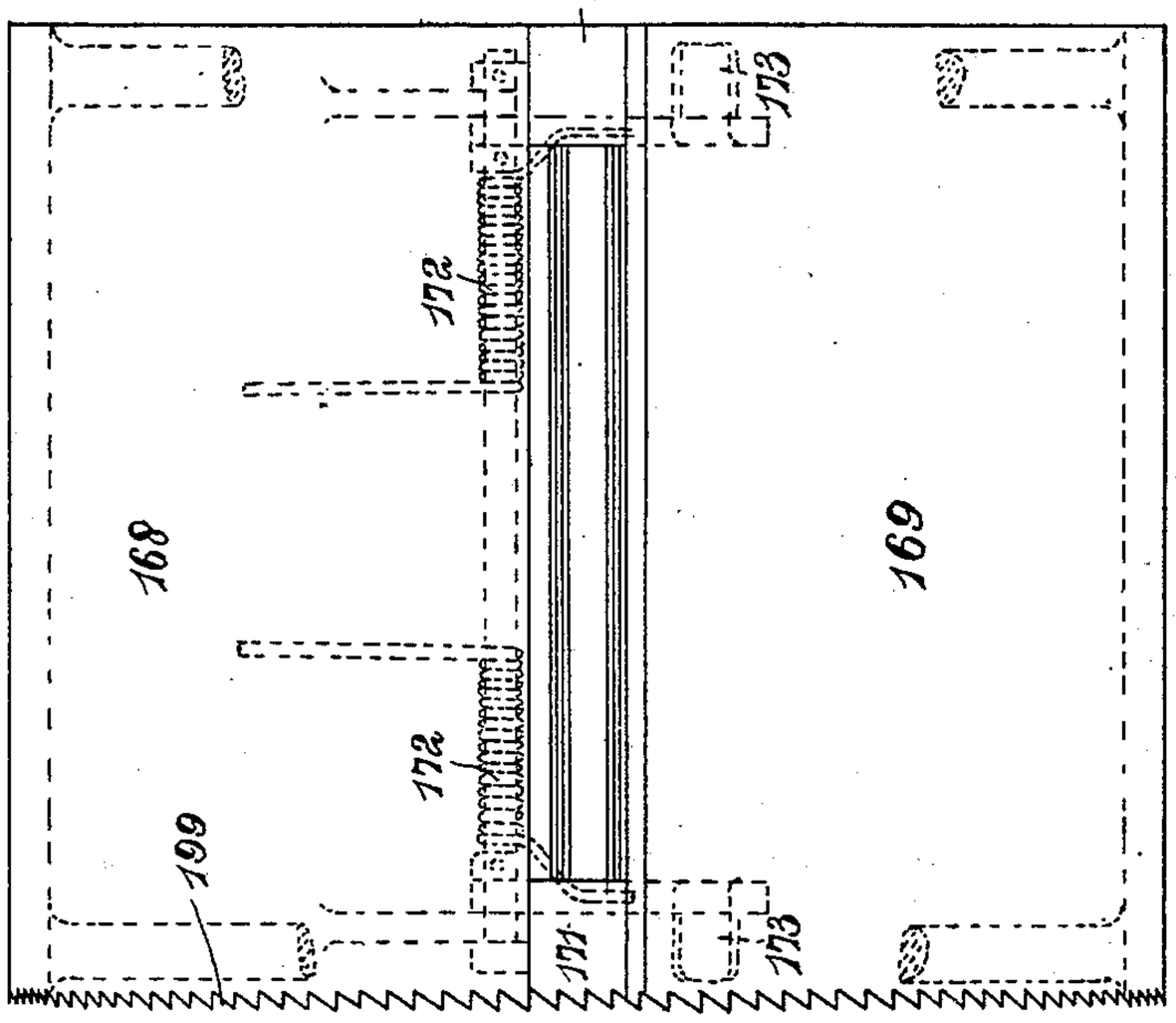


FIG. 54.



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PRINTING, EMBOSSING, OR PRINTING AND EMBOSSING PRESS.

(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 22.

FIG. 56.

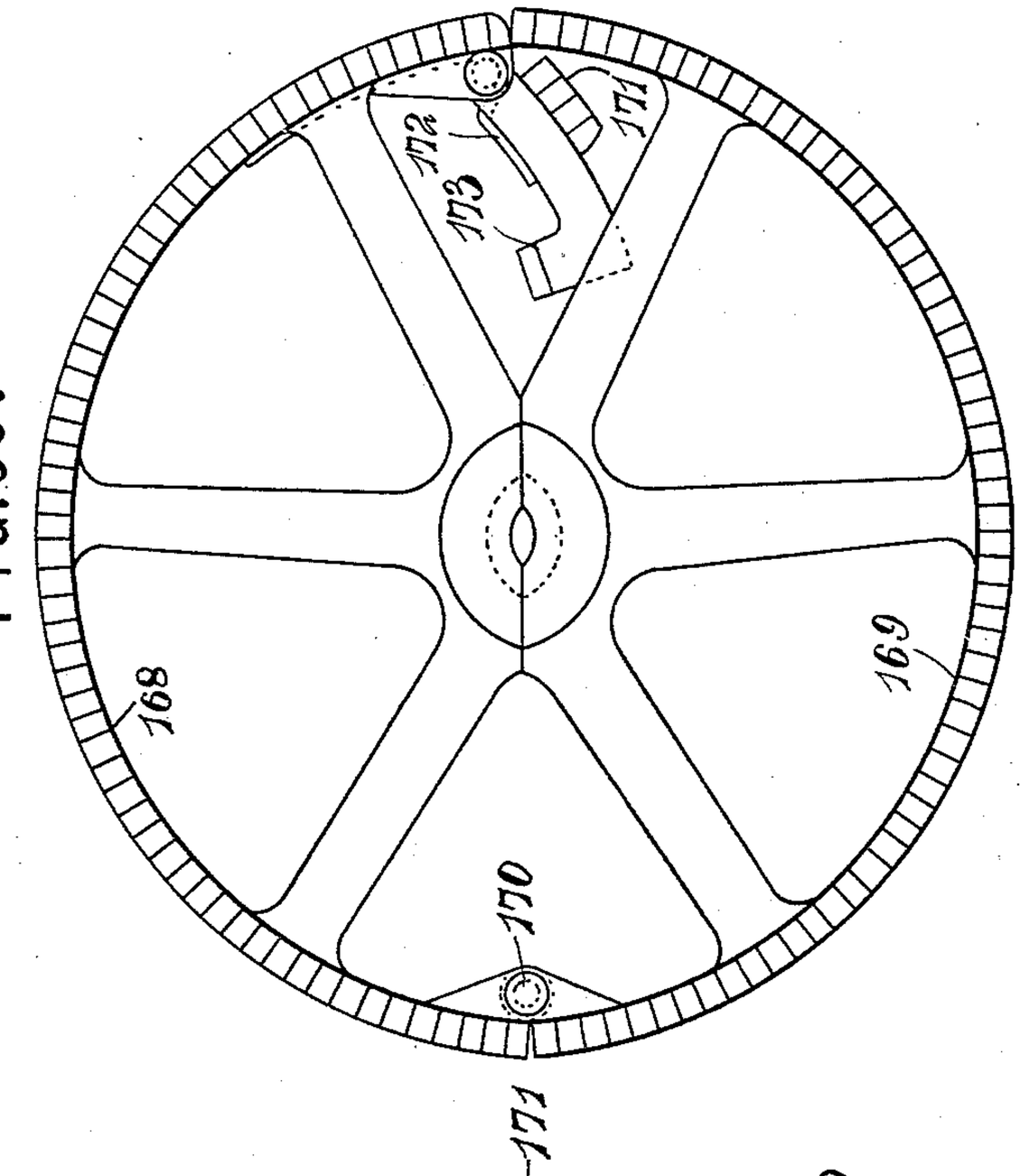
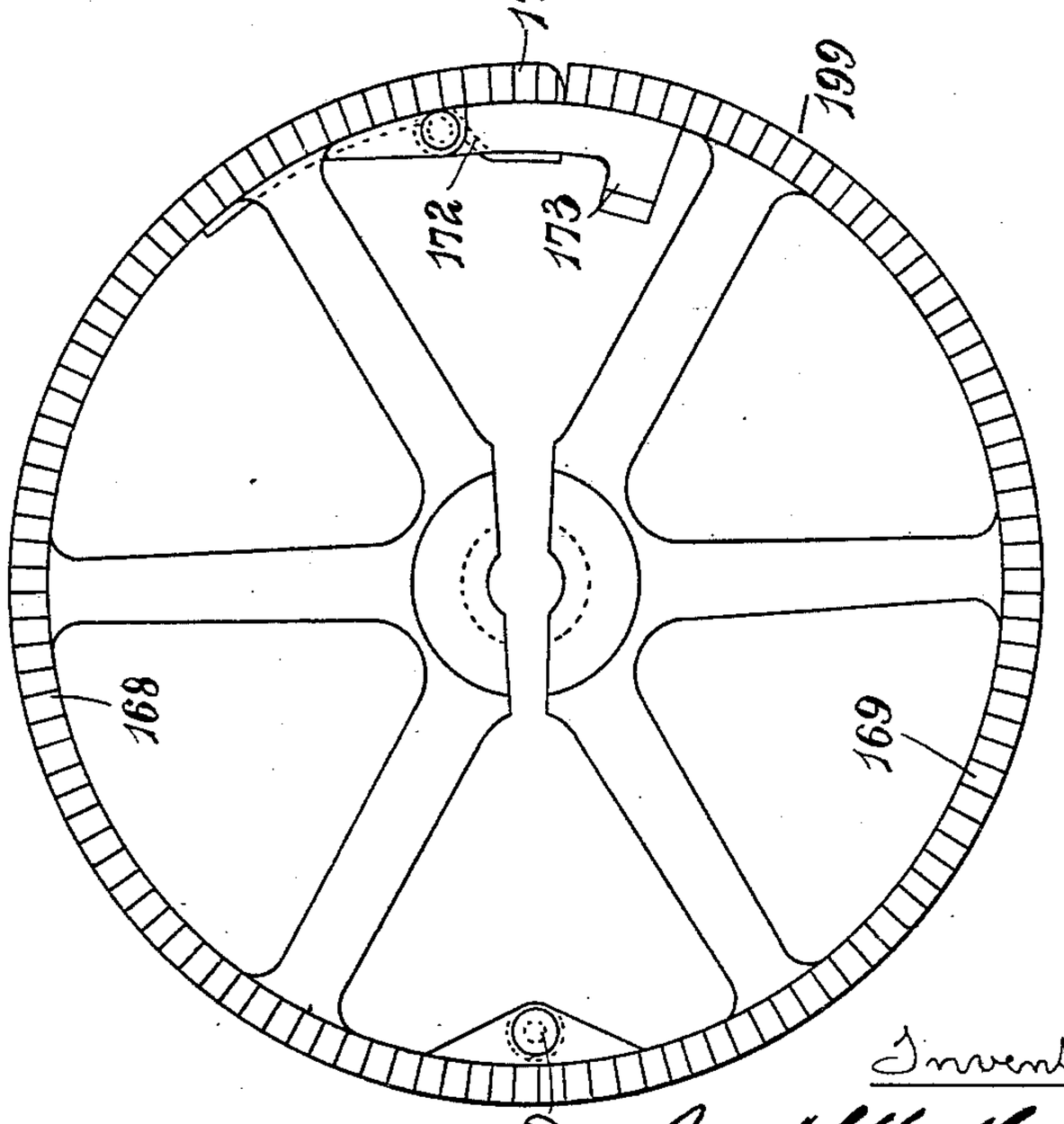


FIG. 55.



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(Application filed Jan. 23, 1900.)

No Model.) 24 Sheets—Sheet 23.

FIG. 57.

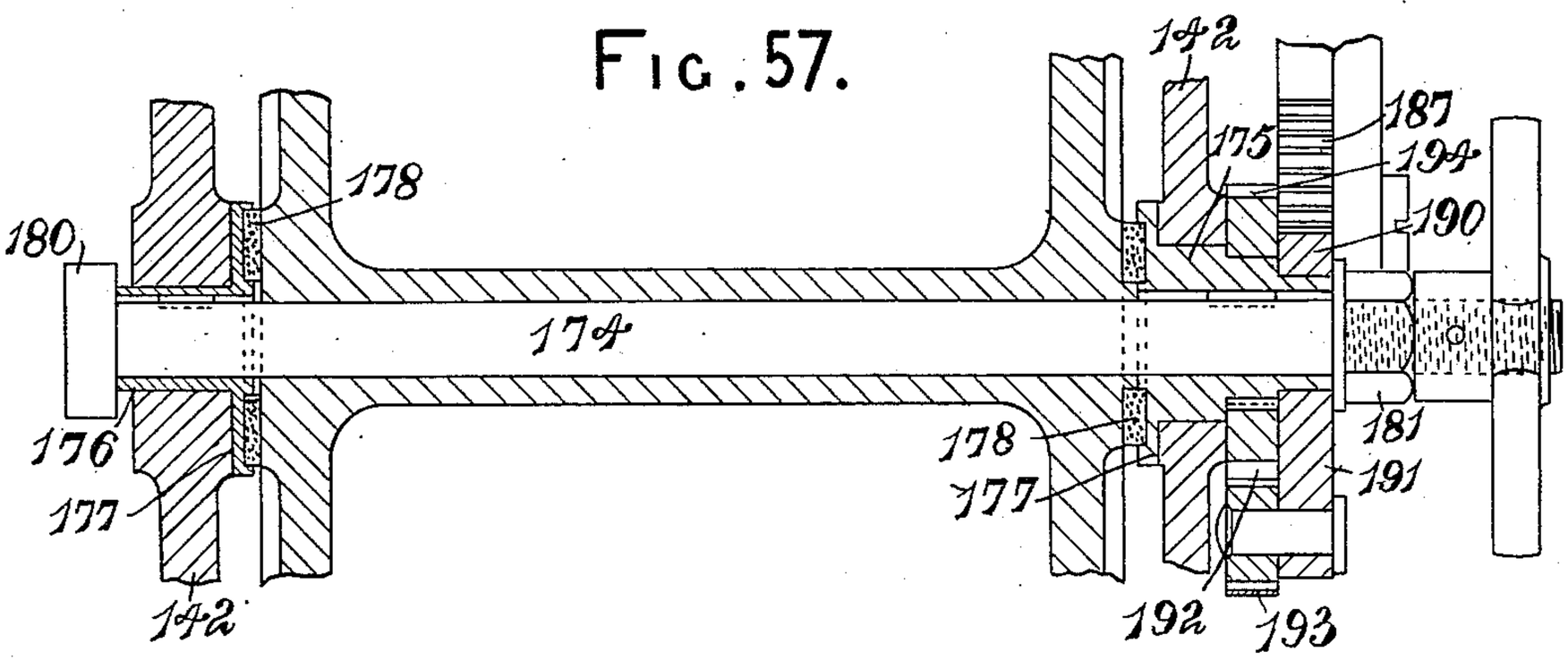
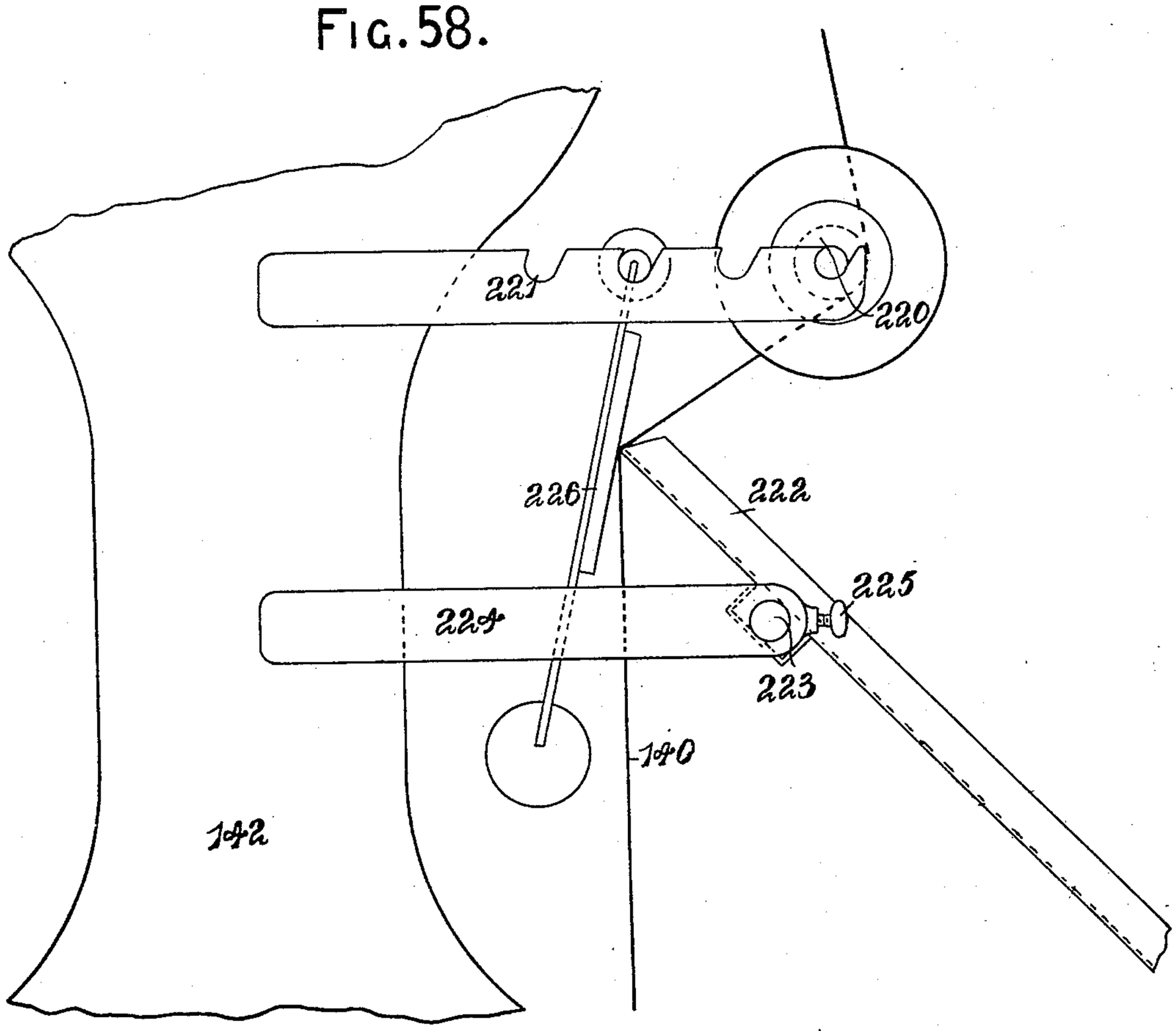


FIG. 58.



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(Application filed Jan. 23, 1900.)

(No Model.) 24 Sheets—Sheet 24.

Fig. 61.

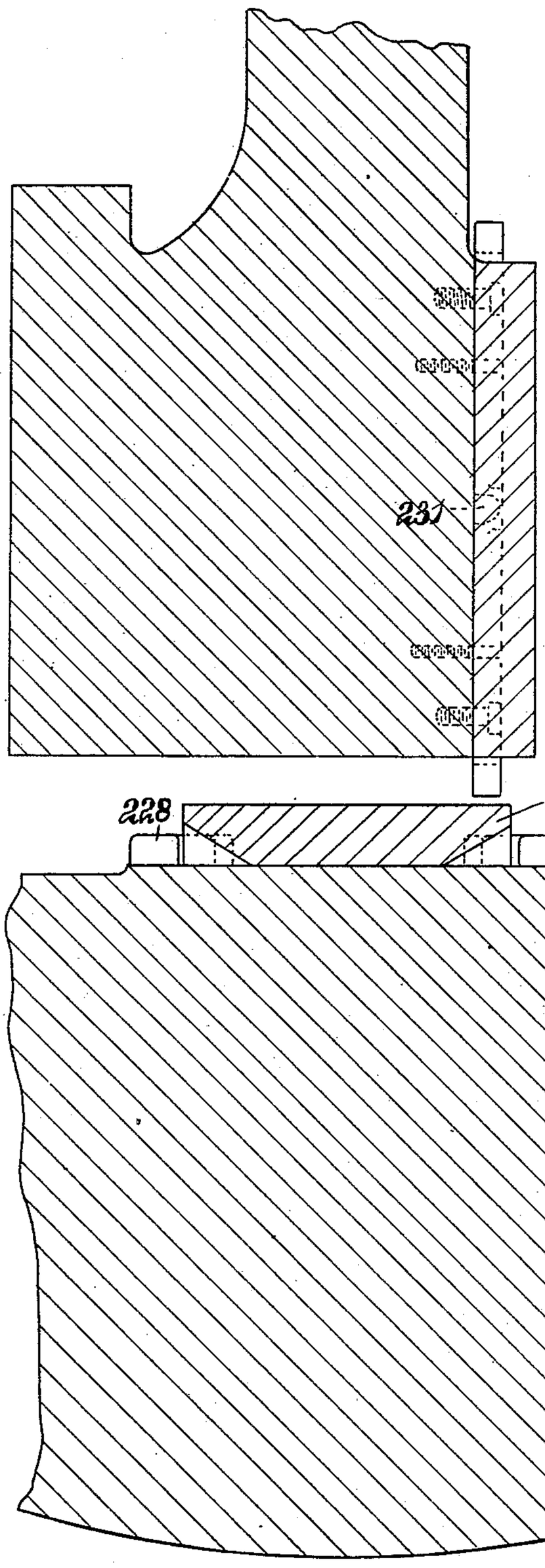

Fig. 62.

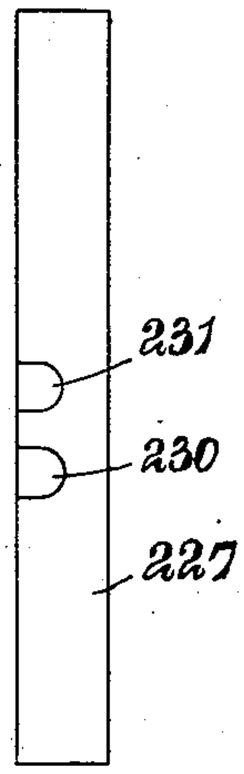

Fig. 60.

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UNITED STATES PATENT OFFICE.

JOSEPH YARDLEY JOHNSTON, OF LONDON, ENGLAND, ASSIGNOR TO THE JOHNSTON NORTH AMERICAN PATENTS COMPANY, LIMITED, OF SAME PLACE.

PRINTING, EMBOSSING, OR PRINTING AND EMBOSSING PRESS.

SPECIFICATION forming part of Letters Patent No. 677,223, dated June 25, 1901.

Application filed January 23, 1900. Serial No. 2,454. (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 invented Improvements in Printing, Embossing, or Printing and Embossing Presses, of which the following is a specification.

My invention has reference to a press of the kind in which an arm adapted to revolve in a horizontal plane and carrying the device for effecting the printing or embossing, first passes over an apparatus which charges the said device with ink, then over a wiping apparatus which removes all superfluous ink, and is then brought to rest and locked over a counter, force, male plate, or other apparatus or material which is to resist the impression-blow and is located underneath the paper or material to be treated, the impression being then struck by a blow given by the descent of a spring or otherwise actuated weighted screw-plunger, which is automatically released at the required time after having been raised and locked during the foregoing operations. After the impression, the said arm is again started into motion and the above cycle of operations is repeated, the whole being automatically performed, the attendant having only to place the paper or other material, upon which the impression is to be received, in position on the counter, force, male plate, or other apparatus or material which is to resist the impression-blow, and to remove it therefrom after the impression.

With a press of this type constructed according to this invention printing in color or otherwise printing and embossing or embossing may be performed by means of engraved dies, steel or copper plates, or any suitable kind of female or intaglio plates, whether engraved or otherwise produced, (hereinafter called "dies,") in such a manner that according to the desire of the operator the depth of the ink in the die may be regulated by the means of the inking and wiping devices, so as to bear a definite proportion to the depth of the female parts of the die, the proportion of depth of ink to depth of embossing produced being made regular throughout or being made variable—that is to say, the depth of the ink may be the same no matter what depth the embossing may be.

Referring to the accompanying drawings, Figure 1 is a perspective back view; Fig. 2, a perspective view showing the front and right side, and Fig. 3 a plan of the complete press. Fig. 4 is a sectional plan through A A in Fig. 1. Fig. 5 is a sectional plan of the mechanism actuating the screw-plunger which gives the impression-blow, the said plunger being raised; and Fig. 6 is a similar plan, the said plunger being down. Fig. 7 is a sectional plan illustrating certain parts of the said mechanism, other parts being removed. Fig. 8 is a sectional elevation of the said mechanism, showing the plunger raised; and Fig. 9 is a similar view showing the said plunger down. Fig. 10 is a section through *x x*, Fig. 7. Figs. 11, 12, 13, and 14 are detail views showing the arrangement for locking the said screw-plunger on its rebound after delivering the impression-blow. Figs. 15, 16, 17, 18, 19, and 20 are diagrammatic plans, and Figs. 21 and 22 are diagrammatic sections, through Figs. 18 and 19, respectively, illustrating the action of certain parts of the mechanism for raising, locking, and releasing the screw-plunger. Fig. 23 is a side sectional elevation through the upper part of the press, illustrating the main operating-gear, the die-arm being shown in two positions. Fig. 23ª shows part of the die-arm in a different position to that shown in Fig. 23. Fig. 24 is a sectional plan through B B, Fig. 23. Fig. 25 is a sectional elevation through C C, Fig. 23. Fig. 26 is a front elevation, and Fig. 27 a side elevation, partly in section, showing a mutilated gear-wheel and cam forming part of the said operating-gear. Fig. 28 is a sectional elevation of the mechanism for stopping and locking the die-arm in register for printing and for starting the die-arm into motion after the impression-blow has been struck. Fig. 29 is a sectional elevation at right angles thereto, certain parts being omitted. Fig. 30 is a detail view showing the lower part of Fig. 29 with the parts in different positions. Fig. 31 shows certain parts shown in Fig. 28 viewed at right angles thereto. Figs. 32, 33, 34, 35, 36, and 37 are detail views illustrating the means for securing the die in place. Figs. 38, 39, and

40 are respectively a plan, a side elevation, and a front sectional elevation, of lay-over mechanism. Fig. 41 is a section on the line G H, Fig. 39; and Fig. 42 is a detail sectional view to an enlarged scale. Figs. 43 and 44 are respectively a back elevation and an end elevation, both partly in section. Fig. 44ª is a detail view, and Fig. 45 is a sectional plan through D D, Fig. 43, of the apparatus for automatically inking the die, the said die being shown in position in Figs. 43 and 44. Figs. 46, 47, and 48 are respectively a front elevation, a side elevation, and a plan of the apparatus for automatically wiping the die after the inking operation; and Fig. 46ª is a detail view. Figs. 49, 50, 51, 52, and 53 are detail views, to an enlarged scale, of parts of the said wiping apparatus; and Figs. 54 and 55 are respectively a front elevation, partly in section, and an end elevation of a collapsible waste-paper wheel forming part of said wiping apparatus, the wheel being shown expanded. Fig. 56 is a similar view to Fig. 55, showing the wheel collapsed. Fig. 57 is a sectional detail view of the waste-paper-roll spindle and its driving-gear. Fig. 58 is a detail view of a modified form of device for scraping the ink off the waste paper. Fig. 59 is a plan of the counter-plate with devices for holding same in position; and Figs. 60 and 61 are sections respectively on the lines I J K L of Fig. 59. Fig. 62 is an edge view of the counter-plate.

a is the main shaft of the press, and on it a belt-pulley *b* is free to rotate, the shaft *a* being driven therefrom through a clutch *c*, Fig. 3, moved in or out by the clutch-fork *d*, actuated by a rod *e* and cam-lever *f*, Fig. 2, on turning which latter in one direction the clutch is drawn out of action, while on turning it back a spring *g* on the rod *e* forces the clutch back into engagement with the belt-pulley *b*.

Upon the main shaft *a* is a spur-pinion *h*, Fig. 23, driving a spur-wheel *i*, rotating on a stud, the wheel making one revolution to three of the pinion. The die-arm *j* is fixed to a vertical shaft *k*, and upon its hub is fixed a bevel-pinion *l*, that gears with bevel-teeth *m*, that are formed upon about two-thirds of the periphery of the front face of the spur-wheel *i* and are sufficient in number to effect a complete revolution of the pinion and the die-arm *j* during about two-thirds of each revolution of the wheel *i*, the die-arm *j* being stationary for the remaining part of the revolution, during which time the impression-blow is struck. While impression is taking place the die is held in register by the following arrangement, which is illustrated in Figs. 28 to 31, inclusive: Upon the die-arm *j* is fixed an upwardly-projecting piece *n*, having one vertical side and one inclined side, as shown, and above which when in the printing position is a block *o*, sliding vertically in a channel formed in a bracket *p*, the said block being kept in place within the channel by a plate *q*, and suitable means—such, for example, as a wedge-shaped strip *r*, adjusted by a screw *s*—are provided to take up wear, it being essential that the block *o* should work in the channel without looseness or shake. The lower end of the block is notched or fork-shaped to fit upon the upwardly-projecting piece *n*, and the right-hand portion of the fork, toward which the die-arm *j* travels and which fits against the vertical side of the said piece, is longer than the other portion, which fits against the inclined side and which is made with a flat end of considerable width. A spring *t* constantly tends to force the block into engagement with the piece *n*. One end of a lever *u*, fulcrumed on a pin *v*, extends into a slot in the block *o*, while a roller *w* on the other end bears against a cam *x*, fixed to the wheel *i*. Immediately before the last tooth *m* has left the bevel-pinion *l* the cam *x* allows the block *o* to drop, and the under surface of the shorter and wider portion of the fork then bears upon the piece *n*, (see Fig. 30,) checks the momentum of the die-arm *j*, and thus prevents the piece *n* striking with undue force the vertical face of the block, against which the inclined part of the fork then pushes the piece *n*, and thus locks the die-arm *j* in register. (See Fig. 29.) The depth of the notch in the block *o* is such that when the die-arm is locked by it a space is left above the projection *n*, thus insuring proper locking notwithstanding wear of the parts or the intrusion of dirt between them. The impression-plow is then struck, after which the cam *x* operates the lever *u*, which lifts the block *o* clear of the piece *n*, and the first tooth *m*, engaging the bevel-pinion *l*, starts the die-arm *j* on its revolution.

In order to start the die-arm *j* gradually before the teeth *m* gear with the bevel-pinion *l*, a wedge-piece *y*, Figs. 28 and 31, is arranged upon the bevel-pinion *l* so as to be capable of swiveling, the amount of its swiveling motion being limited by a slot and set-screw, and on the under side of the lever *u* is fixed another wedge-piece *z*, the two wedge-pieces being so arranged that after the lever *u* has raised the block *o* clear of the piece *n* the continued motion of the lever brings the wedge-pieces *y* and *z* into contact, and by reason of their inclined faces starts the die-arm *j* into motion just as the bevel-teeth *m* are coming into gear. The swiveling motion of the piece *y* insures the inclined faces having proper contact with each other during the time of their action, as the circular motion of the die-arm would alter the angle of contact if both pieces were fixed. The block *o*, being rectangular in cross-section and of large dimensions and sliding in an accurately-fitting channel of the same shape, cannot twist, and insures the die-arm being always rigidly held with accuracy in the registration position.

The die 1 is attached to a rectangular die-block 2, furnished with a square shank 3,

sliding in an opening formed partly in the end of the die-arm *j* and partly in a detachable cap, said block being held normally in contact with the under side of the arm by springs 5. A dovetailed groove across the under side of the block 2 receives dovetailed projections on clamp-jaws 6 and 7, Figs. 32 to 37, operated by a right and left handed screw 8, held longitudinally by plates 9 9, secured to the die-block. An index-plate 10, formed with a series of holes corresponding to the graduations of the index, is arranged to slide in a groove formed in the die-block at right angles to the dovetailed groove and to be secured in the desired position by a screw-pin 11, Fig. 24, which enters any one of the holes. The clamp-jaws 6 and 7 automatically center the die in one direction, and by pushing it against the end of the index-plate previous to clamping its correct position in the opposite direction may be insured. Thus a die can be removed by simply loosening the screw 8 and replaced exactly in its previous position, thus insuring correct register. In place of the above-described index-plate two plates or stops operated by a right and left handed screw at right angles to the aforesaid screw 8 may be employed to automatically center or locate the die longitudinally.

In place of the dovetailed arrangement above described the clamp-jaws 6 and 7 may be provided with projections at the ends to embrace and slide upon the edges of the block 2, said edges and projections being of dovetail form, if desired, or any other suitable means may be employed for this purpose.

Upon the clamp-jaw 6 which is at the leading or forward edge of the die are guards adapted to operate upon the inking-roller at the required time, the construction and action of which will be presently described.

The mechanism for giving the impression-blow is constructed as follows: Secured on the top of the press-frame is a cylindrical casting 13, fitted with a suitably-secured cover 14 and the axis of which is in line with that of the die-block shank 3 when the die-arm is in the printing position. A plunger 15, screw-threaded at its lower part 16, extends centrally through the casting 13. The screw 16 works in a long nut 17, secured within the press-frame.

18 is a spur-pinion formed on the plunger, and above it is secured an arm 19, a spur-wheel 20 being free to rotate on the plunger above said arm. A fly-wheel 21 is fixed by a nut 22 upon a tapering polygonal part of the plunger, and when it is desired to increase the force of the blow delivered by the screw-plunger one or more balance wheels or rings may be secured to the fly-wheel.

23 is a sleeve between the fly-wheel 21 and the spur-wheel 20 for preventing end motion of the latter, the said sleeve fits a central aperture in the cover 14, which forms a bearing for and tends to prevent vibration of the plunger and fly-wheel and side strain and wear between the screw and nut.

The pinion 18 gears with a pair of racks 24, sliding in guides 25 25, Figs. 8 and 9, secured in the cylinder parallel to each other. The racks 24 terminate in heads, which work in tubular boxes 26 26, bolted to the cylinder 13, as shown. These boxes contain springs 27 and are closed by cap-nuts 28 28. Each cap-nut 28 is fitted with a screw-spindle 29, having an end piece 30, a hand-wheel 31, and lock-nut 32. By screwing the spindles 29 in or out the compression of the springs 27 can be varied as desired.

When the plunger 15 is partially rotated, so as to raise it from its lowest position, the racks 24 move outward freely during the first portion of their stroke. Then their heads abut against the springs 27, which during the remainder of the stroke are compressed against the end pieces 30. On the release of the plunger 15 the springs 27 quickly start it into motion but have expanded to their full length before the racks have completed their return stroke, thus relieving them and the plunger from pressure, so that the latter may be free to rebound quickly after the impression-blow is delivered. The lower part of the plunger is formed with a number of screw-threads of coarse or great pitch, so as to allow the rebound to occur.

The raising, locking, and releasing of the plunger are accomplished as follows: On the main shaft *a* is keyed a miter-wheel 35, Fig. 23, which drives another miter-wheel 36, keyed on a shaft 37, on which is a spur-pinion 38, gearing with the spur-wheel 20, which is thus kept in continuous rotation on the plunger 15. The spur-wheel 20 is intermittently connected to the plunger 15 by means of a connector comprising a link 39, formed of a couple of connected plates (see Fig. 8) and pivoted to the arm 19 of the plunger. The link is furnished with a drag-roller 40 and a locking-roller 41, arranged at the same level, and with a larger roller 42 occupying a higher position, the three rollers being arranged triangularwise, as seen in plan, Figs. 5 and 6, the roller 42 being at the end of the link.

Secured upon a ledge within the cylinder 13 is a guide 43, and fixed to the spur-wheel 20 is a cam-arm 44, the forward edge of which comes in contact with the drag-roller 40 and so drags along with it the link 39, which is pivoted to the arm 19, fixed to the plunger, which is thus rotated and raised, the springs 27 being thereby compressed.

The action may be followed by reference to Figs. 15 and 16, which respectively show the position of the parts referred to when the plunger is at the bottom of its stroke and when the plunger has rebounded and the cam 44 has caught the roller 40. The face of the said cam is so formed that it makes contact with the roller 40 at the point at which a line passing through the axes of the roller 40 and of the pivot of the link 39 cuts the periphery of said roller. By this means as the con-

nector is dragged around the locking-roller 41 is not forced against the guide 43 until the roller 42 comes in contact with a fixed cam-plate 45, so shaped that it deflects outwardly the free end of the connector, so as to cause the roller 41 to roll into a recess 46, formed in the end of the guide 43, (see Fig. 17,) the rearward part of the cam 44 as it continues its revolution then acting upon the roller 40 and forcing the roller 41 well home in the recess 46, (see Fig. 18,) the formation of which is such that the roller 41 is retained therein after the cam 44 has passed, and the plunger 15 thus locked in the raised position, with the springs 27 compressed ready to rotate the plunger in the reverse direction—*i. e.*, the direction required to give the impression-blow. The entry to the recess 46 is curved, the curve being struck from the center of the pivot of the connector when the latter is in the locked position, Fig. 18, at which time the center of the said pivot occupies the same position as at the time the cam 44 ceases to drag the link around. Thus the roller is guided easily and without backlash into the locked position in the recess 46 by the outer surface of said cam 44, and yet is securely held in the recess by the action of the springs 27. The release of the plunger is effected by a cam or tripping-piece 47, fixed to the wheel 20 in such position that at the proper time it comes in contact with the cam-roller 42, Fig. 19, and so causes the locking-roller 41 to roll out of the recess, and thus free the plunger, Fig. 20, whereupon the springs 27 start it rotating in the direction required to cause its descent. Before the impression-blow is given the springs 27 have given out the energy stored in them, the actual blow being given by the farther descent of the fly-wheel owing to its inertia. The upward movement of the plunger is therefore not resisted by the springs 27 until a considerable part of the rebound has occurred, thereby enabling a free blow in place of a dwell blow and the quick rebound so essential to good results to be obtained.

The lower end of the plunger 15 has secured to it a hardened-steel button or disk 48, and a cavity is formed in the die-holder shank 3 to receive a loose hardened-steel cylindrical piece 49, Fig. 23. The impact and friction are borne by these parts, which are readily renewable when worn. By the use of pieces 49 of different thickness the length of stroke of the plunger can be conveniently regulated.

The descent of the plunger 15 at the moment the impression-blow is given is suddenly stopped, owing to the die coming into contact with the paper resting upon the device which resists the impression-blow, whereupon the plunger immediately rebounds upward, its screw, which is made of coarse or great pitch, so as to enable this rebound to occur, causing it to turn from the position shown in Fig. 15 to approximately that shown in Fig. 16, and as some time elapses before the cam 44 again comes into position to engage with the roller 40 the plunger would be liable to descend and give a second blow unless means were provided to prevent premature descent of the plunger. As the extent to which the plunger rebounds varies, it is necessary that the device shall be such as to hold it on the completion of the rebound, notwithstanding variation within comparatively wide limits. For this purpose fixed to opposite portions of the fly-wheel 21 are a couple of racks 50, having toothed under sides formed as parts of screw-paths of the same pitch as the screw 16, so that they are always in position to engage correctly with pawls 55, fixed to spindles 56, journaled at opposite sides of the cylinder 13. Each pawl is loaded by a coiled spring 57, one end of which is fixed to its spindle and the other end of which is held between pins 58, so that the spring tends to retain the pawl with its nose upward. As the plunger rebounds the rack-teeth depress the pawls 55 against the action of the springs and slip over them until the rebound ceases, whereupon the rack-teeth are engaged by them and the plunger thus prevented from delivering a second blow. With this arrangement the plunger cannot descend prematurely to an extent greater than corresponds to one tooth of the racks 20 no matter whether the rebound is great or little. As the raising of the plunger is completed, as previously described, the racks 50 again slip over the pawls 55 until at the moment the plunger is locked in its uppermost position by the locking-roller 41 entering the recess 46 the racks clear the pawls, which then assume a vertical attitude under the influence of the springs 57. When the plunger descends, the ends of the racks push the pawls over backward, (or to the left,) so that the rack-teeth are able to slip over them. The other ends of the racks pass the pawls before the blow is struck, thus allowing the pawls to again assume a vertical attitude, so that during the rebound the racks again depress them, and at the end of the rebound are again engaged by them and a second blow prevented. Each pawl can be turned into a position clear of the rack-teeth by releasing the end of the spring 57 from the pins 58 and inserting it between pins 59. When the pawls are thus held in their inoperative attitude, the attendant can while the press is not running form or throw up a counter quickly by operating by hand the fly-wheel, which is then free to descend. The plunger in its descent forces the die-block 2 down against the resistance of the springs 5, which lift the die 1 clear of the paper immediately the plunger rebounds and before the die-arm *j* is again started.

With the above-described impression mechanism friction and blows between the parts are minimized, and the press consequently runs with very little noise or vibrations.

To prevent the die lifting the paper after

the impression has been struck, a lay-over is adapted to be automatically operated, so as press down the paper around the counter below its active surface during the impression and during the succeeding upward movement, the lay-over fingers lying outside of the engraved part of the die. For this purpose a pin 60, Figs. 38 to 42, sliding vertically in a part of the press-frame, carries lay-over plates 61 and at its lower end a plate 62, in which are mounted two rollers 63, which bear against a face 64 on the frame, and so prevent the pin turning, and also another roller 65, which rests on the rim or edge of a cam-ring 66, fixed to the shaft *k*. A depression 67 in the cam rim or edge permits the pin 60 to drop at the right moment, the plate 61 then holding the paper. After the impression-blow has been struck and about the time the die moves away the inclined side of the depression 67 raises the pin and its plates 61, which are kept raised until the depression 67 again comes under the roller 65. The pin 60 has screwed into its upper end the shank of a headpiece 60ª, that is formed with a taper dovetailed projection, and a corresponding recess is formed in the under side of a bar 68, on which is mounted a sliding carriage 69 in a transverse groove, on which the plates 61 rest. The bar 68 when in position on the pin 60 is held by a spring-bolt 70, which engages in a notch in the bar 68 in such a way as to prevent accidental dislodgment of the bar, but so as to yield sufficiently readily to allow the bar to be moved by hand. The plates 61, which are of L shape, are slotted and are fixed in position by a set-screw 72, passing through each, said screws extending through holes in the carriage 69 and through a slot in the bar 68 into tapped holes in a sliding strip 73, the arrangement being such that by slacking the set-screws the plates 61 may be so adjusted that they encircle the counter on three or more sides and rest upon the paper, so as to keep it out of contact with the edges of the die. The plates being slotted can be moved transversely on the bar, and the plate-carriage being movable longitudinally along the said bar the plates can be readily adjusted to suit various dies. An adjustable stop 74 may be provided to regulate the drop of the lay-over, according to the thickness of counter employed.

The mechanism and arrangements for inking the die are illustrated in Figs. 43, 44, and 45 and comprise a frame 80, pivoted on adjustable screw-centers 81, furnished with lock-nuts 82, and having in its upper part two parallel holes, in which slide tubes 83, fixed to a table or support 84, on which the ink-reservoir 85 rests. The tubes 83 extend downwardly through holes in a plate 86 and are secured by lock-nuts 87. Springs 88 are arranged around the tubes between the top of the frame and the table 84, the height to which it is raised by the springs being limited by a screw 89, which abuts against a part of the frame and screws through the plate 86, which is connected to the table 84 by the tubes 83. Lugs 90 on the frame 80 carry adjustable screw-centers 91, on which swivels a nut 92, through which passes a screw 93, journaled so that it cannot move endwise in a bracket 94, fixed to the frame of the press. By rotating the screw 93 the frame can be turned about its pivots 81, so as to adjust the position of the ink-reservoir and its rollers as required.

The top of the ink-reservoir is provided with hinged covers suitably secured, and the bottom is curved to a circular arc internally and so formed externally as to rest securely upon the table 84. It is provided with pins 95 95, adapted to fit the tubes 83 and having tapering ends, as shown. As will be seen, with such an arrangement the entire ink-reservoir, with its appurtenances, can be quickly removed without affecting the adjustment of its parts and be replaced or another one containing different-colored ink substituted for it, the reservoirs, &c., always occupying the same position.

96 is a roller which dips into the ink and conveys it to the inking-roller 97 above, which it drives by friction.

98 is an oscillating agitator comprising a pair of bars 99, suspended from screw-studs 100. The roller 96 and the agitator 98 are actuated by means of a short rotary spindle 101, journaled in the reservoir end and carrying an eccentric 102, which rotates between parallel faces 103 on the agitator and is formed with an axial recess adapted to receive a flange 104 on the one end of the spindle of the roller 96, the other end of which spindle is supported by a screw-center 105, provided with a lock-nut. The flange 104 is formed with a notch which fits over a stud 106, projecting into the recess in the eccentric and whereby the spindle is driven.

The ends of the spindle of the roller 97 are made partly spherical and rotate in holes formed eccentrically in plugs 107, inserted in openings in the ends of the reservoir, whereby the ends of the roller can be adjusted independently by turning the plugs, which are fixed by pinching-screws 108. 109 is an evening-roller similarly supported in adjustable plugs.

Near each end of the spindle of the inking-roller 97 is freely mounted a disk 110 of slightly larger diameter than the inking-roller 97, against which, as the die-arm *j* swings over the inking-roller, adjustable guards 111, carried by the forward jaw 6 of the die-clamp, come in contact, so as to depress the inking-roller 97, together with the reservoir, against the resistance of the springs 88 and only allow it to rise when the front edge of the die has passed, whereby the said front or leading edge of the die is prevented from becoming charged with ink and cutting into the inking-roller 97. The guards 111 (see Figs. 32 to 37) are carried by the ends of the

clamp-jaw 6, which extend beyond the die-block 2, each of said ends being formed with a rectangular opening 112, in which a guard 111 is free to slide vertically, but are confined therein by plates 113, secured to the ends of the jaw. The guards are adjusted and supported by screws 114, that extend into plain grooves 115, Fig. 37, in the wall of the openings 112, endwise motion of each screw being prevented by a semicircular collar 116, Fig. 34, at the end of the groove 115 entering an annular recess 117 beneath the screw-head, and the thread of the screw engages a half-nut 118, formed in the side of the guard 111. Each guard is provided with a hardened-steel wearing-piece 119 with inclined forward edge, as shown. The guards are so adjusted that their horizontal under surfaces are slightly above the face of the die, but that when the guards 111 are in contact with the disks 110 the inking-roller is held below the die-face. As soon as the guards clear the disks 110 the springs 88 force the reservoir and inking-roller up again, so that the latter comes in contact with the die just beyond its leading edge, and therefore no ink is delivered on the front edge of the die. The die now travels over the inking-roller, which is pressed against it by the springs 83, and becomes charged with ink.

The distance from the edge of the die to the place where the inking-roller meets its face is regulated by the adjustment of the guards. The adjustment of the guards may be effected independently, so as to suit any position of the inking-roller due to the adjustment of its eccentric bearings. The thickness of the die and the diameters of the loose disks 110 are suitably proportioned, the diameters of the said disks being increased if a thicker die is used, and vice versa.

The rear clamp-jaw 7 is inclined, as shown, Fig. 33, to prevent it making contact with the inking-roller after the die has passed the same.

By operating the screw 93 the inking-roller 97 may be adjusted for different widths of dies, so that it always meets the die parallel to its front edge, and the screw 89 serves to adjust the inking-roller vertically to suit dies of varying thickness as well as to regulate the force with which the springs 88 press the said inking-roller against the die. The screw 89 also enables the ink-reservoir and its appurtenances to be pulled down clear of the die, so that the latter can pass over the inking-roller without being inked. It will thus be seen that the adjusting-screws 93 and 89 and the adjustable guards and the adjustable eccentric bearings of the ink-roller enable the various requirements to be observed in charging the die with the necessary ink.

The driving-spindle 101 is provided with a sprocket-wheel 120, which is driven from a sprocket-wheel 121 on the belt-pulley *b* of the press. The intermediate gear (comprising chain 122, sprocket-wheel 123, spindles 124 125, bevel-wheel and pinion 126 127, a sprocket-wheel 128, and a chain 129) is supported by a bracket 130, formed with bearings for the spindles 124 and 125 and with a shank 132, fitting in a socket 133, formed at the upper part of a standard 134, attached to the press-frame. The shank 132 rests on a spring within the socket and is prevented from rotating therein.

The hub of the sprocket-wheel 128 is formed with clutch-teeth to engage with similar clutch-teeth on a ring 135, that can be slid on a feather on the spindle 125, a spring-latch pin holding it either in or out of engagement. As the inking apparatus is driven from the belt-pulley *b* when the latter is disconnected from the shaft *a* to stop the press the inking apparatus will continue in motion, the ink thus being prevented from drying on the rollers and being kept thoroughly mixed. The die having been inked, the next operation of the press is to wipe or remove from its surface all ink except that contained in the parts which give the impression. For this purpose the die-arm *j* after leaving the inking apparatus brings the die over but not in contact with a strip 140 of hard smooth paper or other suitable wiping material, hereinafter called "paper," stretched over a comparatively soft and elastic pad (which may be composed of pieces of felt and cardboard) carried on a table 141. The table is then raised, pressing the paper against the die-face and so forcing the ink thoroughly into the lines thereon. While the paper is thus pressed against the die, the continued movement of the die-arm sweeps the die over the paper in a circular path, whereby superfluous ink is removed from the die, which is then in perfect condition for giving the impression. The wiping apparatus is carried by a frame 142, resting on springs 143, secured to the press-frame, through a hole in which a stud 144 on the bottom of the frame 142 slides. The table 141 has a central boss 145, (see Figs. 51 and 52,) into which screws a stud 146, that extends through a tapering hole in the top of the frame 142 and has a rounded head located within a tubular boss 147 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 148, passed through a slot in its head and through the wall of the boss 147. Screwed into a tapped boss 149, near each corner of the frame-top, is a stud 150, having a worm-wheel 151, gearing with one of four parallel worm-spindles 152, with conveniently-situated milled heads, by operating which the compression of springs 153, contained in tubular bosses on the under side of the table 141 and bearing on loose disks 154, resting on the ends of the studs 150, can be varied, as required, to adjust the position of the table to any irregularity or want of truth in the die-surface or to concentrate the pressure of wiping at any particular part of

the die. The springs form an elastic support to the table, enabling it to move above the central screw-stud 146 as a center and automatically adapt itself to the die-face. A loose plug 155 is inserted in a cavity under each of the screw-studs 150 to limit the extent of downward motion of the said studs, which can be adjusted by inserting plugs of varying lengths. 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 156 are formed on the table and the frame-top, which while allowing the table to be forced down against the action of the springs 153 engage with each other, so as to prevent forward movement. The wiping-paper consists of a long strip, wound into a roll, carried on a spindle 161, carrying movable flanges 162, which can be fixed thereto by set-screws to suit varying widths of paper. Lateral spikes 162[a] (see Fig. 46[a]) on the flanges enter and grip conical wooden sleeves 162[b] upon the spindle, which are forced into the ends of the paper-roll, so that the said spindle is held firmly in the roll. The spindle 161 is journaled in the forked ends of arms 163, provided with blocks 164, which can be pressed by screws 165 against the journals of the spindle, so that any desired degree of friction can be put on it. The paper passes upward over the pad on the table 141 and then down to a waste-paper roller 166, on which it is wound up as used. This waste-paper roller (see Figs. 54, 55, and 56) is made in two approximately semicylindrical parts 168 169, hinged together at 170 on one side, but with a gap left between the edges on the other side, which gap is filled by hinged pieces 171 171, held in place by springs 172 and provided with thumb-pieces 173, so that they can be readily displaced when required. The hub of the roller is also formed with a gap, as shown. The waste-paper roller has a spindle 174, (see Fig. 57,) carried in bushes 175 176, journaled in the side plates of the frame 142. These bushes have recessed flanges 177, in which are seated friction-washers 178, bearing against the hub ends of the roller 166. The spindle has a head 180 bearing against the outer end of the bush 176, and the bushes, which slide on feathers on the spindle, are forced against the ends of the hub of the roller 166 by a nut 181, so that when the spindle is rotated the roller is rotated by the frictional contact of the washers. Journaled in the frame 142, above the waste-paper roller, is a spindle 182, having a feed-roller 183 secured thereon, against which the paper 140 is pressed by a friction-roll 184, having grooves formed on its surface, which converge toward the middle of the roll and in which are embedded strips of felt or other suitable material which will give the necessary grip on the paper. The spindle ends of the roll 184 are carried in spring-pressed bearings 185, adjustable longitudinally in arms extending from the frame 142 by means of screws 186, so as to give the necessary pressure. The rollers 183 and 166 are simultaneously partially rotated, so as to draw the paper over the pad on the table 141, by means of a rack-bar 187, operated by a cam 188 on the shaft *k* and engaging with partial spur-pinions 189 and 190, loosely mounted on the spindle 182 and the bush 175, respectively, and provided with arms 191, carrying pawls 192, which are kept in contact by springs 193 with ratchet-wheels 194, fixed to the spindle 182 and bush 175, respectively. When the rack-bar 187 is raised by the spring 195, the pawls 192 slip over the ratchet-teeth; but when it is depressed by the cam 188 they engage with the wheels 194 and simultaneously rotate the rollers 183 and 166, thus feeding the wiping-paper forward. The upward movement of the rack-bar is limited by nuts 187[a] upon a screw 187[b], forming an extension thereof and working through an eye on the frame 142. 197 is a quadrant pivoted on the boss of the frame 142, in which the spindle 182 rotates, and having a guard-plate partly covering the ratchet-wheel 194 on said spindle. The guard can be fixed in any required position by a set-screw 198, extending through a curved slot in the quadrant, and the feed of the paper regulated according to the size of the die by exposing more or less teeth to the action of the pawl. The movement given to the waste-paper-roller spindle always corresponds to the largest possible amount of paper-feed. For shorter feeds or to allow for the increase in diameter as the paper accumulates on the roller the friction-washers 178 allow the roller to slip on its spindle, the pressure being regulated by the nut 181 to just permit such 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 166 is cut with ratchet-teeth 199, and two spring-catches 200 in the frame 142 engage therewith. When the roller 166 is full, the paper can be readily removed from it, the spindle 174 being withdrawn from the frame after releasing the nut 181 and the roller collapsed by pressing inward the parts 171. (See Fig. 56.) The entire wiping apparatus is lifted to press the paper against the die by means of a lever 201, pivoted at its outer end and having a semicircular cavity 202 on its upper side, in which the boss 147 rests. The downwardly-bent inner end of the lever carries a roller 203, resting upon the disk 204, which carries the cam-ring 66 and the cam 188 and is fixed on the shaft *k* of the die-arm *j*. The disk is formed with a cam 205, which comes under the roller 203, and so lifts the entire wiper. The inner end of the lever is suitably guided and when raised is held by a spring-pressed hook 206, carried by it, slipping over a bar 207 upon the press-frame. An adjustable sleeve fixed by a set-screw to the shaft *k* carries a roller 208, which at the right time pushes the hook 206 off the bar and allows

the wiping apparatus to drop, the cam 205 having meanwhile cleared the roller 203, the springs 143 acting as buffers to check the fall.

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 201 is inclined on its under side and rests upon a fulcrum-piece 210, which can be slid between the jaws 209 by means of a screw 211, provided with a worm-wheel 212, engaged by a worm on a shaft 213, which extends to a convenient part of the press, where it is provided with a hand-wheel 214. By rotating this hand-wheel the fulcrum-piece 210 can be very finely adjusted along the inclined under side of the lever, the end of which, and in consequence the wiping apparatus, is thus raised or lowered, as required. Lateral and endwise movement of the lever 201 is prevented by the jaws 209, between which it works, and by a pin 216, passing through said jaws and a vertical slot in the lever end.

218 is a hand-wheel fixed upon the spindle 174, and there is another similar hand-wheel (not shown) upon the spindle 185 of the friction-roller 184. By means of these hand-wheels the paper may be fed forward by hand. Upon the rack-bar 187 is another handle 219 for the same purpose.

220 is a waste-paper-guide roller carried by arms 221, fixed to the frame 142, which roller may be rigid or be covered with rubber, plush, or other suitable elastic or flexible material.

222 is a scraper-plate fixed to a bar 223, pivoted in arms 224, and so fixed by means of pinching-screws 225 that its upper edge bears against the paper just below the roller 220 and scrapes the ink off the paper as it is drawn down by the waste-paper roller. The ink flows down the plate and is received in a receptacle, which is emptied at intervals into the ink-reservoir.

In Fig. 58 the paper 140 is shown passing between the edge of the scraper-plate 222 and a weighted plate 226, faced with felt and suspended from the arms 221. This arrangement is preferred, as although the roller 166 may be drawing in slack paper the plate 226 insures it being drawn across the edge of the plate 222.

The counter or other device which receives the impression-blow is cemented upon a loose metal counter-plate 227, resting upon an anvil formed on the press-frame. To insure the counter-plate being rigidly held and yet capable of being immediately removed and replaced exactly in its former position to insure accurate register, frames 228 are securely fastened to the anvil and are provided with projections 228^a, which bear against the edges of the counter-plate and locate its position. The faces of the said projections are accurately ground, and the surfaces and edges of the counter-plates are ground to gage to an exact fit therein, so that the counter-plates are all interchangeable in the said frames. A projecting pin 229 enters a notch 230 in the edge of the counter-plate to prevent it being laid the wrong way on the anvil, and notches 231 are formed on the under side or edge of the counter-plate 227, so that it can be readily raised from the anvil by inserting the ends of two small rods or levers therein.

The various parts of the mechanism of the press are so arranged and adjusted that the sequence of operations for printing with ink is as follows: The impression-blow having been struck, the screw-plunger 15 rebounds and is caught at the end of its rebound by the recoil-pawls 55, which engage with the racks 50, connected to the plunger. Just at the end of this rebound or thereabout the die-arm-locking block *o* is raised, the bevel-teeth *m* and die-arm pinion *l* come into gear, and the die-arm *j* moves away. It then passes over the inking apparatus and continuing its motion brings the die over the wiping apparatus, and at this moment the latter is forced into contact with the die by the cam 205, carried by the lower end of the die-arm shaft *k*. During the time of passing from the inking to the wiping apparatus the cam-arm 44 on the continuously-rotating wheel 20 will have picked up the connector-link 39, attached to the plunger 15, completed its upward motion, and locked it. The die having now passed over the wiping apparatus and been wiped, the roller carried by shaft *k* throws the hook 206 off the bar and the wiper drops. The die being now in position over the anvil, it is locked in register by the descent of the locking-block *o*, and the tripping-piece 47, carried by the wheel 20, immediately releases, and so permits the screw-plunger 15 to descend and give the impression. Shortly after the die-arm *j* starts into motion again the wiping-paper feed is given by the downwardly-projecting cam 188, carried by the die-arm shaft *k*.

When the press is used for plain embossing-work or relief-stamping without ink or color of any kind, the inking and wiping apparatus are not required, and therefore in such cases it is not necessary for the die-arm to revolve. To provide for this, the pinion *h* can slide upon the main shaft *a* a sufficient distance to clear the wheel *i* and a set-screw a' in the hub of the pinion enters either of two recesses a^2 in the said shaft, so that the pinion *h* can be fixed in or out of gear with the wheel, as required. A long feather a^3 on the shaft *a* drives the pinion, so that no strain is borne by the set-screw. When, therefore, plain embossing or relief work is to be executed, it is simply necessary to slide the pinion *h* out of gear with the wheel *i*. The die-arm *j* then remains stationary, while the mechanism for raising, locking, and releasing the screw-plunger operates as usual to give

the necessary blow. The wheel *i*, carrying cam *x*, is placed and left in such position that the die-arm-locking block *o* remains down, holding the die-arm *j* in register all the time.

To return to inkwork, the pinion *h* is slid back into gear with the wheel *i*, marks provided on the pinion *h* and wheel *i* enabling the correct teeth to be readily brought into gear, so that the motions of the screw-plunger mechanism may be in correct time with the motion of the die-arm.

What I claim is—

1. In a press the combination of a die-carrying arm, an intermittently-revolving shaft carrying said arm, a die adapted to give an impression, a device adapted to resist the impression-blow, means for causing said devices to come in contact at the required times and a lay-over device adapted to rest upon the material which is to receive the impression at the required times so as to hold it in position between said devices but out of contact with the edges of the impression device and prevent it being carried away therewith, and a cam carried by said shaft and adapted to operate said lay-over device at the required times, as set forth.

2. In a press the combination of a die-carrying arm, an intermittently-revolving shaft carrying said arm, a die, a die-inking apparatus, a die-wiping apparatus, a device adapted to resist the impression-blow, means for causing the die to give the impression-blow, a lay-over device, a cam carried by said shaft and operating the wiping apparatus and a cam also carried by said shaft and operating the lay-over device which is thereby moved above and below the active face of said resisting device, as set forth.

3. In a press the combination of a die-carrying arm, an intermittently-revolving shaft carrying said arm, a die-inking apparatus, a die-wiping apparatus, comprising a wiping-pad and a strip of paper adapted to be intermittently fed across said pad, a device adapted to receive the impression-blow, means for causing the die to give the impression-blow, a lay-over device and cams carried by said shaft and adapted to operate at the required times, the wiping apparatus and the lay-over device, and to feed the paper strip, as set forth.

4. In a press, the combination of a revolving die-carrying arm, a continuously-driven shaft, gear for causing the revolution of said arm, means for locking said arm in the printing position, and means for gradually setting said die-arm into motion independently of said gear, as set forth.

5. In a press, the combination of a die-carrying arm, a continuously-driven shaft, means for intermittently driving said arm, a rotary cam, a lever actuated by said cam, a locking-block engaged by said lever, a projection on said die-arm capable of being held by said block, a wedge-surface on said lever and another wedge-surface carried by the die-arm, as set forth.

6. In a press, the combination of a die-carrying arm, a continuously-driven shaft, means for intermittently driving said arm, a rotary cam, a lever actuated by said cam, a locking-block engaged by said lever fitting and sliding in a rectangular channel in part of the press-frame, a wear-compensating strip adjusted by a screw, and a projection on said die-arm capable of being held by said block, a wedge-surface on said lever and another wedge-surface carried by the die-arm, as set forth.

7. In a press, the combination with the press-frame of an anvil-surface, frames fixed around said anvil-surface and formed projections ground to gage and adapted to bear against the edges of a counter-plate, a fixed pin adapted to enter a recess on one side of said counter-plate, the under edges of which are recessed to receive removing-tools, as set forth.

8. In a press the combination of a die-carrying arm, a continuously-driven shaft, means for intermittently driving said arm, a die-inking apparatus, a die-wiping apparatus and means for causing the die to give an impression comprising a vertical screw-plunger carrying a weighted fly-wheel and a pinion, spring-pressed racks engaging said pinion and contained in tubular boxes provided with screw-spindles, a continuously-rotating driving part, means for intermittently connecting said plunger thereto and for locking and releasing the said parts, as set forth.

9. In a press the combination of a die-carrying arm, a continuously-driven shaft, means for intermittently driving said arm, die-wiping apparatus, means for causing the die to give an impression and an apparatus for inking the face of an impression device comprising a reservoir formed with pins or projections, an inking-roller fed with ink from said reservoir, a vertically-adjustable spring-supported table carried by the press-frame, sockets formed in said table and adapted to receive the pins or projections on the reservoir, whereby the reservoir and its appurtenances are accurately located and secured in the exact position required, as set forth.

10. In a press the combination of a die-carrying arm, a continuously-driven shaft, means for intermittently driving the arm, die-inking apparatus, means for causing the die to give an impression and apparatus for wiping the impression-surfaces comprising a frame, wiping-paper rollers carried thereby, means for operating said rollers so as to intermittently feed wiping-paper forward and present a fresh wiping-surface to the die, a table supported on springs and provided with a pad over which the paper is drawn by said rollers, a lever supporting said frame, a cam carried by the die-arm shaft and adapted to raise said lever and frame at the required times and a device for scraping ink off the wiping-paper, as set forth.

11. In a press, the combination of a die-carrying arm, a continuously-driven shaft, means for intermittently driving said arm, a die-inking apparatus, a die-wiping apparatus, means for causing the die to give an impression and a device adapted to resist the impression-blow, means for holding paper or other material while being operated upon comprising adjustable plates or fingers, means for supporting and guiding and raising above and lowering below the level of the active surface of the said resisting device at the required times said plates or fingers which when lowered, bear upon the material to be impressed around the device which is to resist the impression-blow and hold it out of contact with the edges of the die, as set forth.

12. In a press, the combination of a die-carrying arm, a continuously-driven shaft, means for intermittently driving said arm, a die-inking apparatus including a spring-supported inking-roller, a die-wiping apparatus, means for causing the die to give an impression, clamping-jaws connected to the die-block of the press and capable of being caused to grip the die and at the same time center it under the block, the forward or leading jaw of which is formed with laterally-projecting ends fitted with vertically-adjustable guards adapted to depress the spring-supported inking-roller as set forth.

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

JOSEPH YARDLEY JOHNSTON.

Witnesses:
WILLIAM B. CHILD,
ARTHUR WOOSNAM.