

No. 762,811.

PATENTED JUNE 14, 1904.

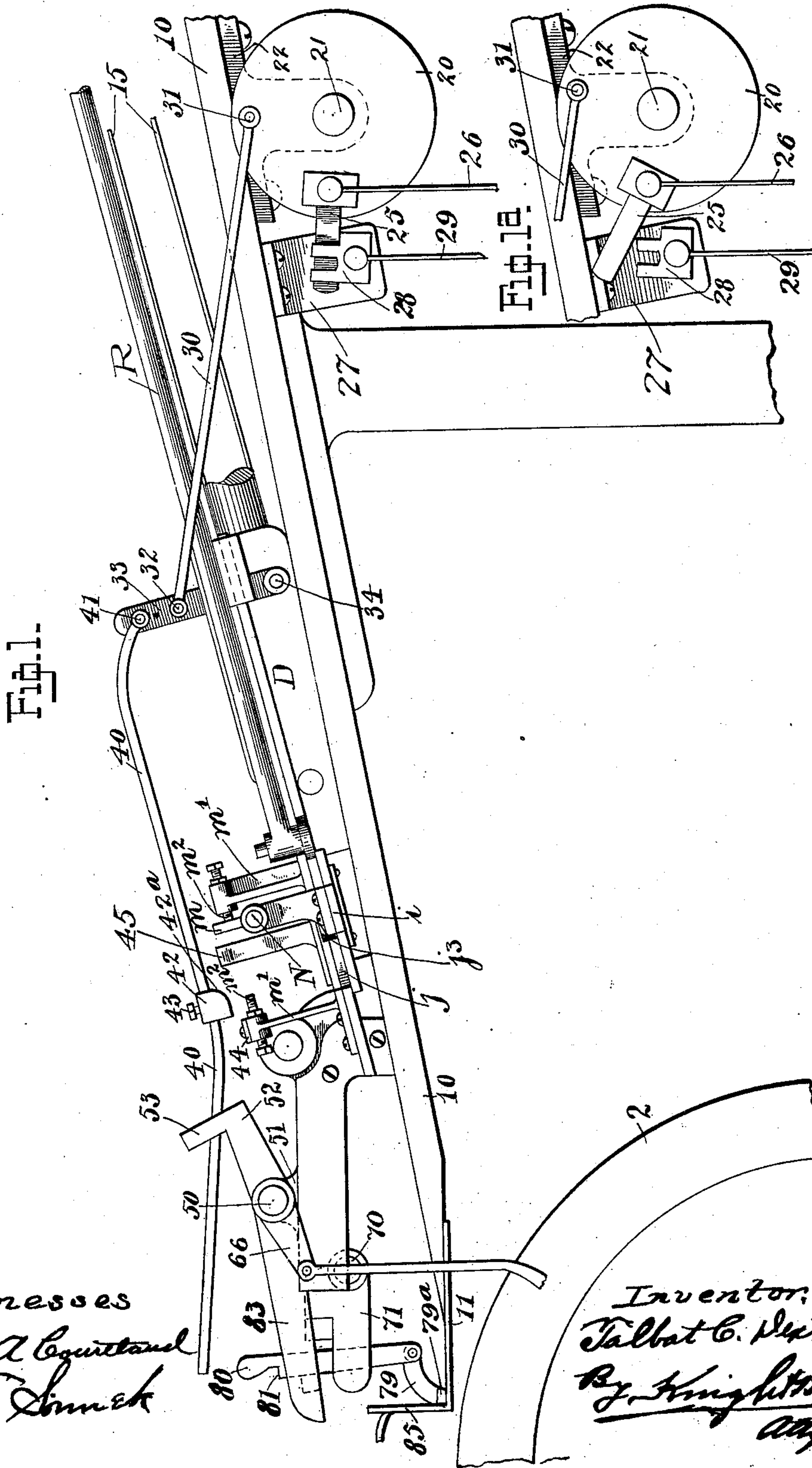
T. C. DEXTER.

THROW-OUT MECHANISM FOR PRINTING PRESSES.

NO MODEL.

APPLICATION FILED OCT. 24, 1901.

5 SHEETS—SHEET 1.



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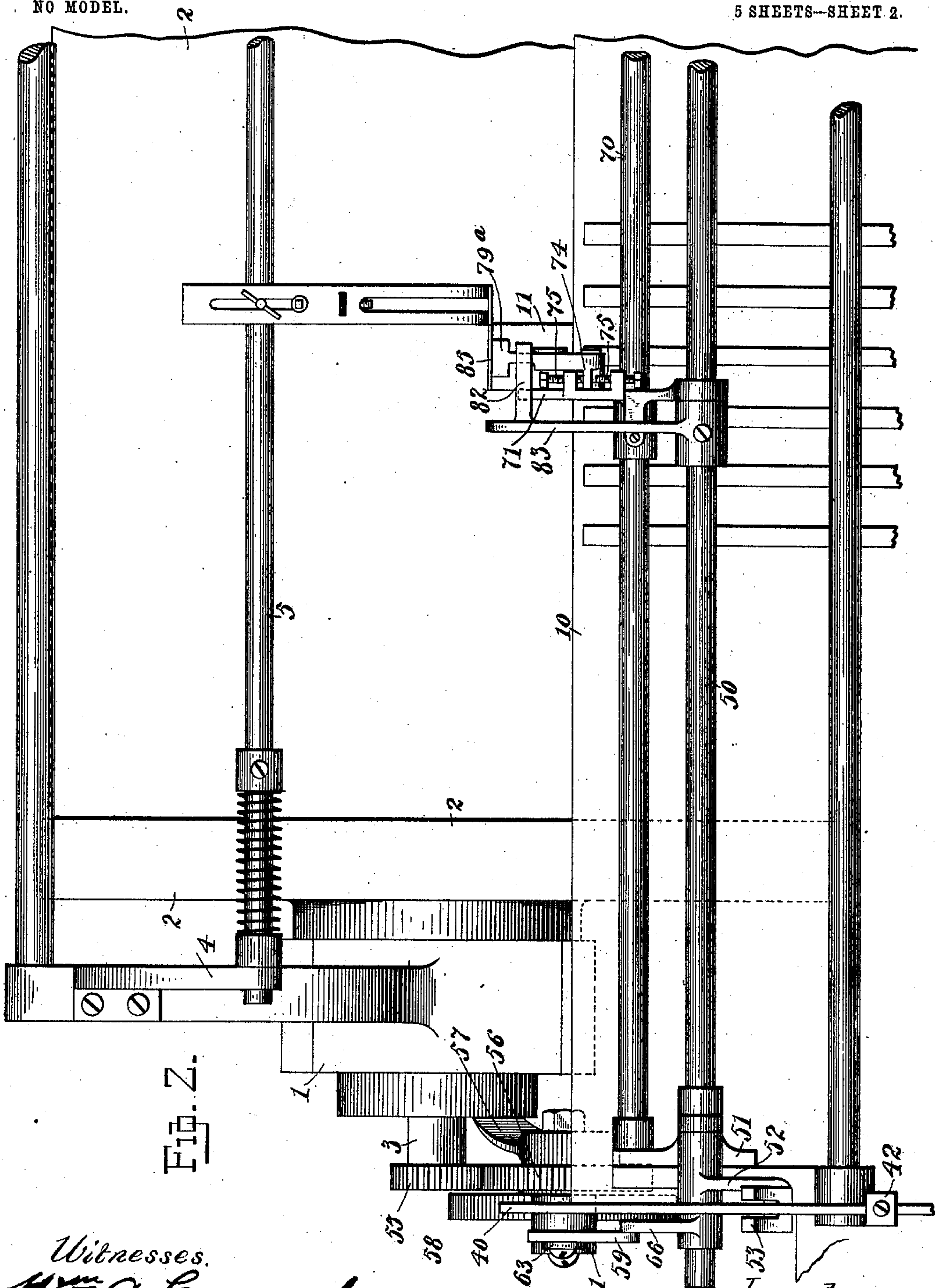
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5 SHEETS--SHEET 2.



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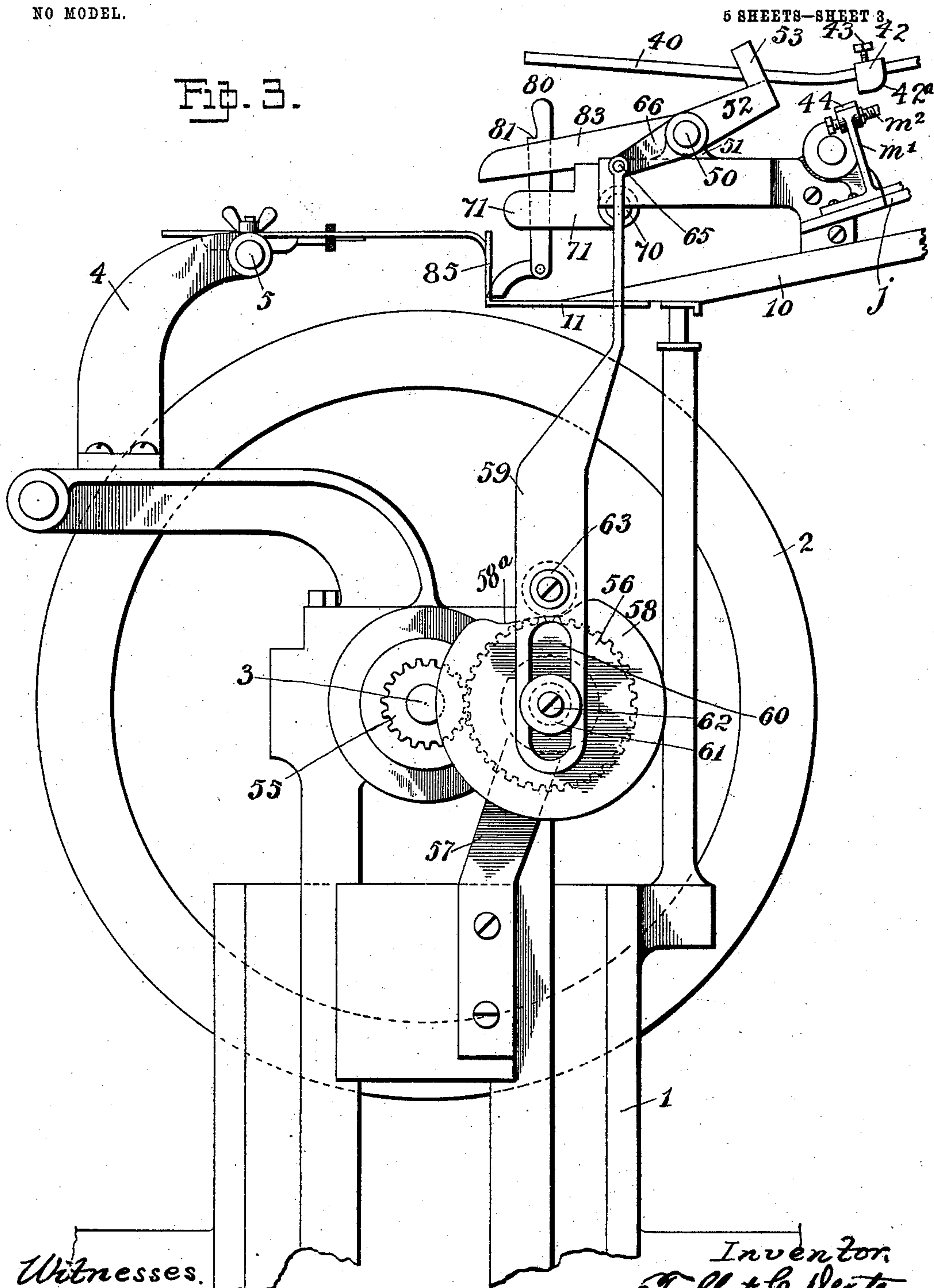
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5 SHEETS—SHEET 4.

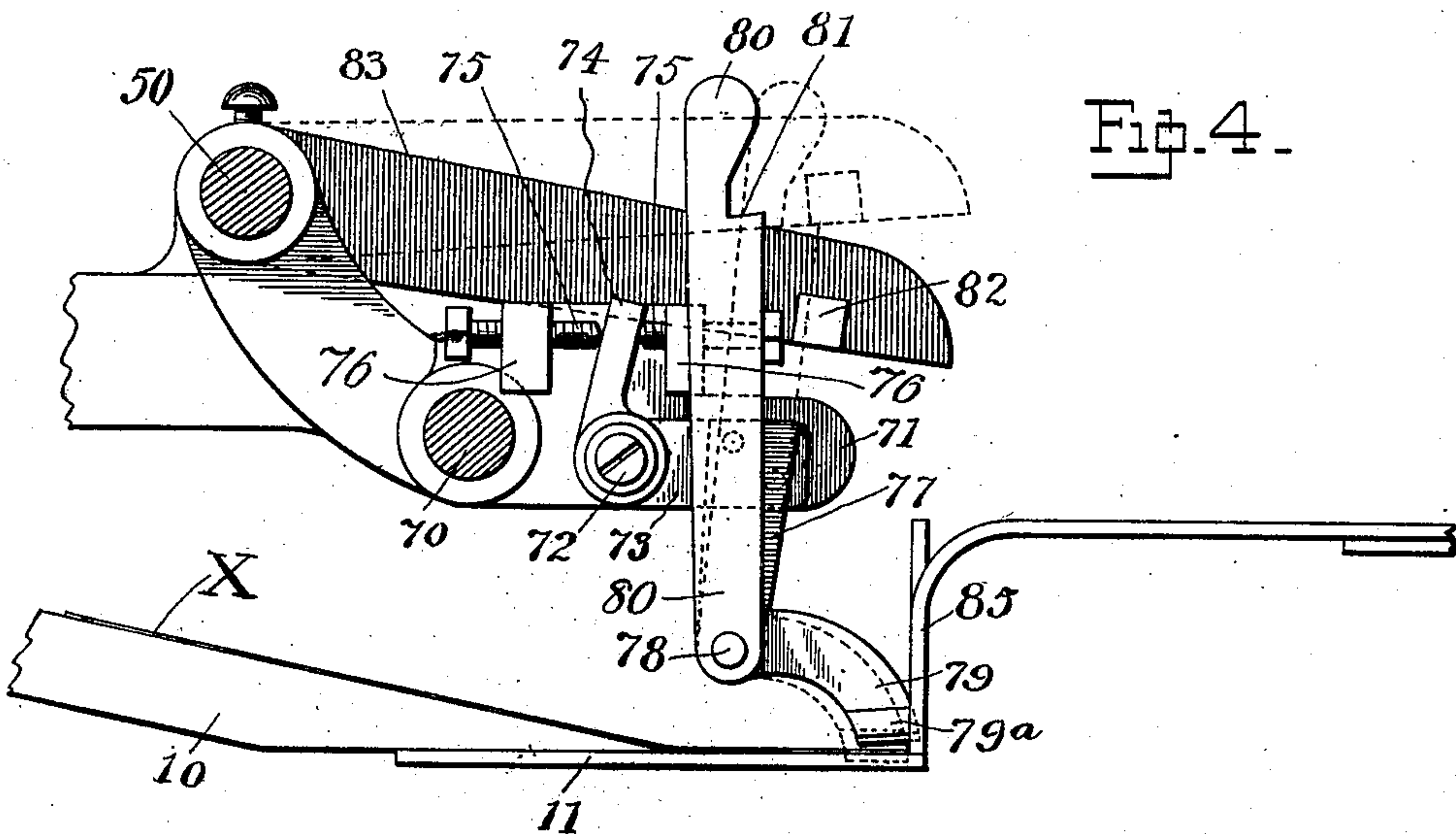
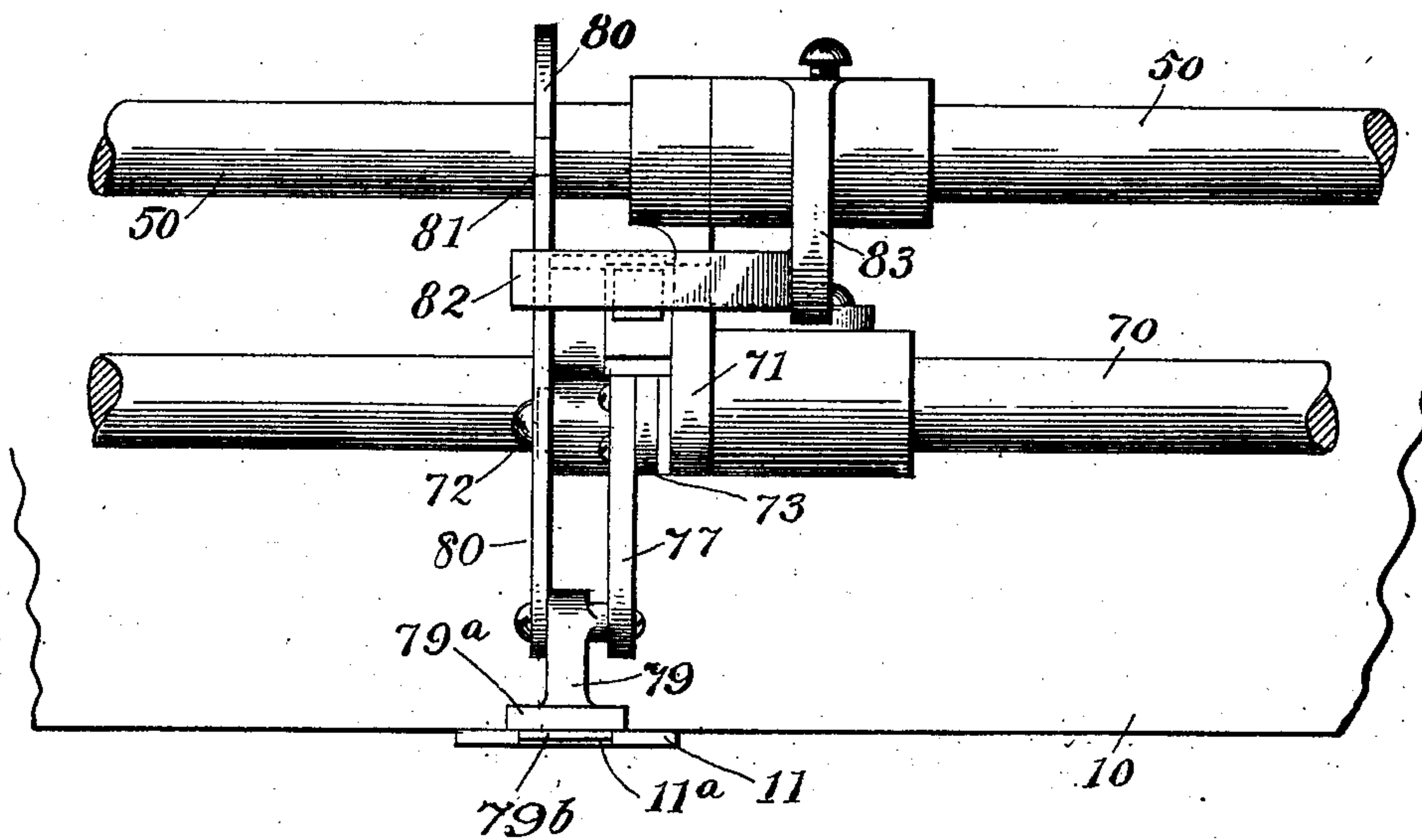


Fig. 5.



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5 SHEETS—SHEET 5.

Fig. 6.

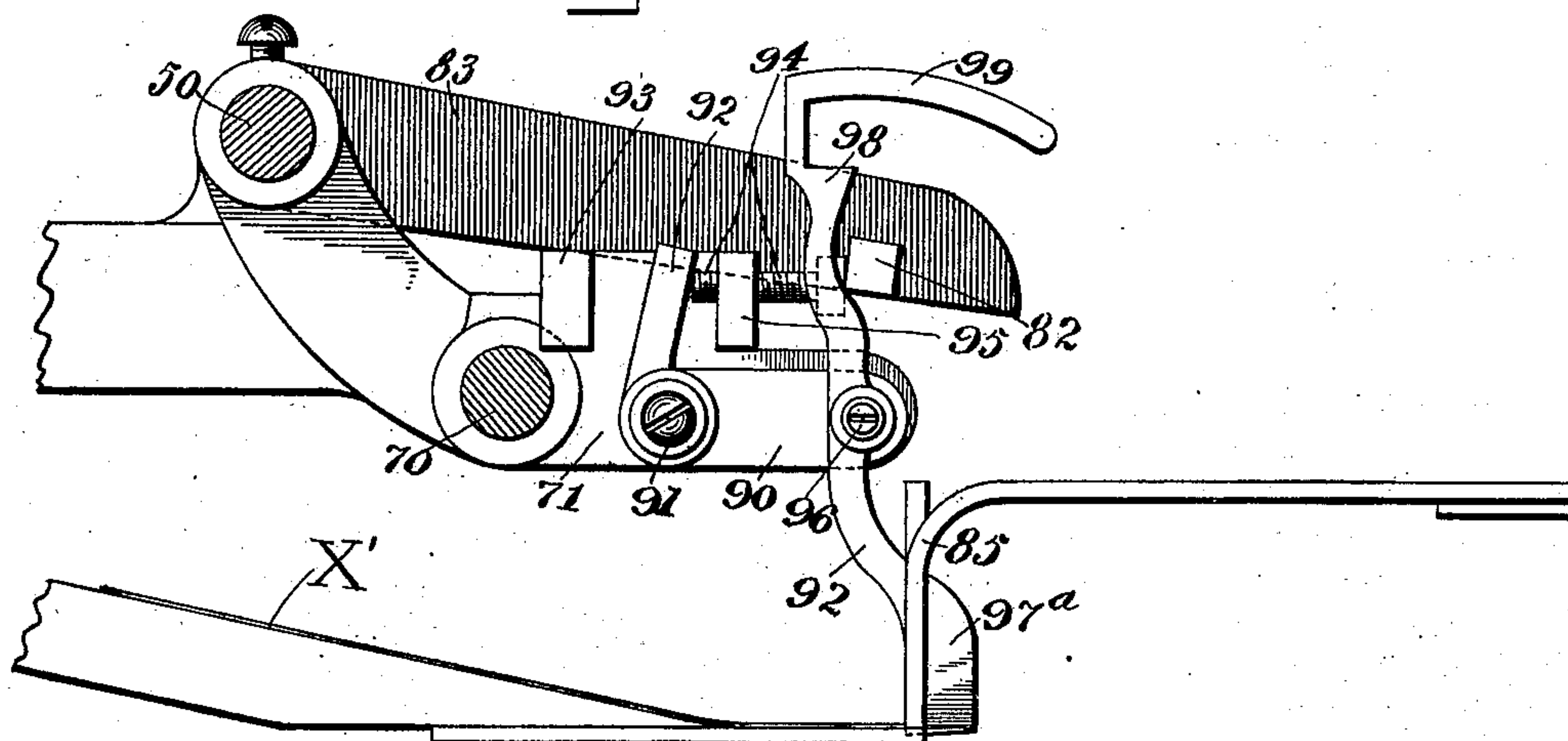
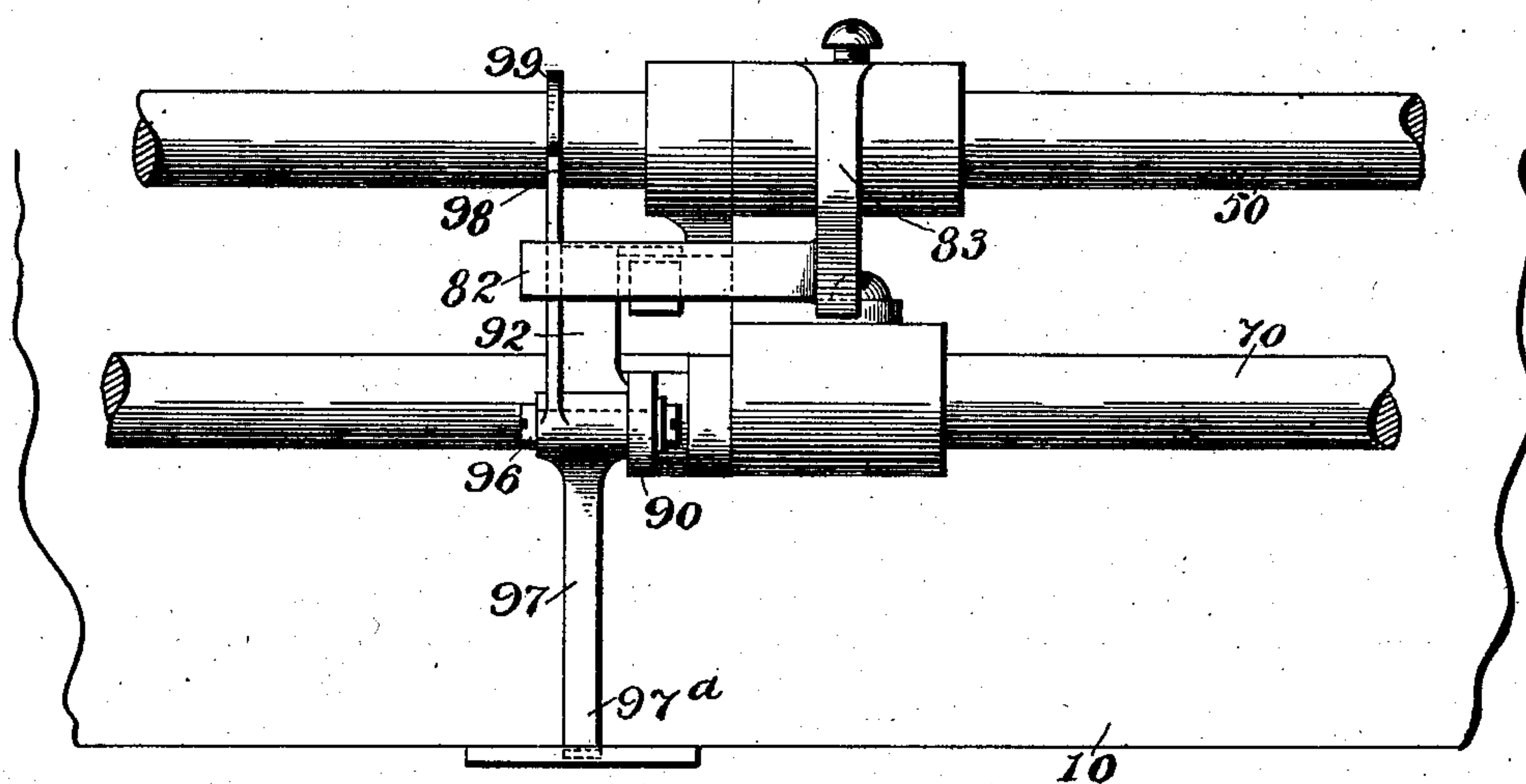


Fig. 7.



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UNITED STATES PATENT OFFICE.

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THROW-OUT MECHANISM FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 762,811, dated June 14, 1904.

Application filed October 24, 1901. Serial No. 79,867. (No model.)

To all whom it may concern:

Be it known that I, TALBOT C. DEXTER, a citizen of the United States, residing at Pearl River, in the county of Rockland and State of New York, have invented certain new and useful Improvements in Throw-Out Mechanism for Printing-Presses, of which the following is a specification.

The object of my invention is to produce a simple and effective mechanism for arresting the operation of a printing-press or other machine under the automatic control of the successive sheets of paper which are operated upon by the printing-press or other machine. In feeding sheets of paper to a printing-press or other machine the successive sheets which are to be operated upon are placed upon the feed-board of the printing-press or other machine in engagement with the front guides of the machine and then registered laterally by some suitable side-registering device to properly position the sheets with respect to the printing mechanism or other mechanism which is to operate upon the sheets.

My present invention is an improvement upon the invention covered by my application, Serial No. 76,728, filed on the 27th day of September, 1901, the improvement relating to the form of the sheet-actuated tripping device which controls the operation of the throw-out mechanism by the side-registering mechanism.

In order that my invention may be fully understood, I will first describe the same with reference to the accompanying drawings and afterward point out the novelty with more particularity in the annexed claims.

In the accompanying drawings, Figure 1 is a detail side elevation of my improved automatically-controlled throw-out mechanism applied to the feed-board of a printing-press. Fig. 1^a is a detail side elevation of the controller-disk, showing it in shifted position with the electric circuit broken. Fig. 2 is a detail plan view of parts of the mechanism shown in Fig. 1. Fig. 3 is a detail side elevation of part of the mechanism shown in Fig. 1, representing the operating connection between the tripping device and impression-cylinder of the press. Fig. 4 is an enlarged

detail side elevation of the main parts of my improved mechanism. Fig. 5 is a front elevation of the same. Fig. 6 is a view similar to Fig. 4, showing a modification. Fig. 7 is a front elevation of the same.

1 is part of one of the side frames of a printing-press of any suitable construction.

2 represents the impression-cylinder of the press, journaled in the side frames 1 upon the trunnions 3.

Journaled in the bracket-arms 4, extending up from the side frames 1 of the press, is a rock-shaft 5, upon which are mounted the front guides 85 of the press. Any suitable device may be employed for rocking the shaft 5 for the purpose of throwing the front guides 85 down into gaging position and raising them into inoperative position at proper points in the operation of the press. This mechanism is very common and well understood in the art and has not been illustrated. The front guides and coöperating devices will be hereinafter referred to.

I have shown my improvements applied to a two-revolution press; but it will be clear to those skilled in the art that my invention is applicable to any form of printing-press or other machine designed to operate upon successive sheets of paper in which it is desired to control the operation of the machine by the correct positioning of the successive sheets.

10 is a feed-board of ordinary construction suitably mounted in proper relation to the impression-cylinder 2 of the printing-press. Projecting forwardly from the inner end of the feed-board 10 are the under guide-fingers 11, which will be hereinafter more fully referred to. A series of conveyer bands or tapes 15, passing around a suitable roller journaled above the upper face of the feed-board 10, are arranged to convey successive sheets of paper from an automatic feeding-machine (not shown) to the printing-press. These bands or tapes 15 deposit the sheet upon the feed-board with its forward edge in contact with the printing-press front guides in readiness for the operation of the side-registering mechanism. This latter mechanism will now be described.

The specific construction of the side-regis-

tering mechanism forms no part of my present invention, and any suitable side-registering mechanism may be employed in combination with the other devices hereinafter referred to. For the purpose of illustrating my invention I have shown in the drawings and will now describe in a general way the side-registering mechanism covered by my Patent No. 669,724, granted March 12, 1901, for improvements in sheet-conveyer frames. The mechanism set forth in this patent comprises two laterally-operating paper-shifting grippers disposed in reverse positions in relation to each other and adjacent to the opposite sides of the feed-board. The operating devices are constructed so that either one of the side-registering grippers may be employed, so that the sheets can be registered from either side. I have shown parts only of but one of the side-registering devices. *i* is one of the reciprocating transverse bars, having a suitable spring for moving it inwardly and supported in suitable guides. The outward movement of the bar *i* is effected by means of a longitudinally-movable cam-plate *j*, mounted in suitable guides. The cam-plate *j* is adapted to engage a roller *j*³, carried by the bar *i*, for moving the bar *i* outwardly. A rod *R* is connected with the cam-plate *j* and reciprocated by any suitable cam mechanism (not shown) which may be operated from the feeding-machine. A side-registering gripper of suitable construction is adjustably mounted upon the bar *i* in any suitable manner, such as set forth in my above-named patent, No. 669,734. The gripper-finger (not shown) is fastened to a transverse rock-shaft *N*, suitably journaled in brackets mounted upon the bar *i*. To the other end of the shaft *N* is rigidly secured a radially-projecting lug *m*, and in front and rear of said lug *m* are posts *m*¹, projecting up from the face of the cam-plate *j*, in which are adjustably mounted studs or tappets *m*², disposed to strike the lug *m* alternately upon opposite sides during the reciprocating movement of the cam-plate *j*. The operation of this side-registering mechanism will be more clearly understood after referring to my above-named patent, No. 669,734, the corresponding parts of the structure, as far as shown, being indicated in my present case by the same reference characters that are used in said patent.

20 is a controller-disk journaled at 21 upon a suitable bracket 22, secured beneath the feed-board 10. The controller-disk 20 carries an electric contact-arm 25, from which extends a circuit-wire 26. Mounted upon a bracket 27 is a spring-contact 28, from which extends another circuit-wire, 29. The contacts 25 and 28 constitute an electric switch which controls the electric circuit of any suitable electric motor, which operates the printing-press or other machine which is to be controlled, or, if pre-

ferred, the electric switch may control any suitable electric device which is independent of the motive power of the press or other machine and serves the purpose solely of throwing the press or other machine into and out of operation. The specific form of the controlling mechanism is immaterial to my present invention, and, in fact, it is not essential whether the controlling mechanism is mechanical or electrical, it being well understood in the art that the controller-disk 20 may be connected in various ways, either electrically or mechanically, with any suitable controlling mechanism for producing the desired result.

A rod 30 is journaled at 31 to the controller-disk 20 and at 32 to a rock-arm 33, which is in turn journaled at 34 to the bracket *D*. By rocking the arm 33 rearwardly and forwardly the controller-disk 20 is rotated upon its journal 21 to break and make the contact of the electric circuit for arresting and starting the operation of the machine.

Projecting forwardly from the rock-arm 33 is a rod 40, which is journaled to the rock-arm at 41 and carries an adjustable block or tappet 42, formed with a rear curved or cam face 42^a, and secured in the desired adjusted position upon the rod 40 by any suitable means, such as a set-screw 43. The rod 40 is controlled by the mechanism presently to be described. When the rod is in its lowermost position and the cam-plate *j* is moved rearwardly, a plate 44, projecting from the forward post *m*¹, will engage the tappet 42, forcing the rock-arm 33 rearwardly to operate the controller-disk 20 and cause it to break the electric circuit. If, on the other hand, the rod 40 is in its raised position, the tappet 42 will not be engaged by the plate 44, and the controlling mechanism will therefore not be operated.

An upright post 45 is mounted on a stationary part of the frame to one side of the line of travel of end of plate 44 and in the path of tappet 42. When the tappet 42, engaged by plate 44, is forced rearwardly for operating the throw-out mechanism, the cam-face 42^a engages the post 45 and lifts the tappet 42 out of engagement with the plate 44, thereby stopping the movement of bar 40 and allowing cam-plate *j* to complete its stroke. (See my above-named application, Serial No. 76,728.)

50 is a rock-shaft journaled in suitable brackets 51 and extending transversely of the machine above the forward end of the feed-bar 10. This rock-shaft 50 carries a rock-arm 52, formed with a bifurcated angular extension 53, in the bifurcation of which rests the forward end of the rod 40. The rod 40 is supported and guided by said rock-arm 52 and is raised and lowered thereby to move the tappet 42 into and out of operative relation with the plate 44, carried by the post *m*¹.

Keyed to the trunnion 3 of the impression-

cylinder 2 of the press is a gear-wheel 55, which is in mesh with a gear 56, journaled in a bracket-arm 57, secured to the press side frame. The gears 55 and 56 are in the proportion of one to two, so that the gear 56 will rotate once for every two revolutions of the impression-cylinder. A cam 58 is mounted upon the axle of the gear 56, so as to rotate with it. The cam 58 has a cut-out or low portion 58^a. 59 is a link formed with a slotted lower end 60, through which extends the journal of the gear 56 and cam 58. A washer 61 and screw 62 confine the slotted end of link 59 against the face of cam 58. An antifriction-roller 63 is journaled upon the link 59 in position to operate upon the periphery of the cam 58, so that the link 59 will be held normally elevated and will be dropped a short distance for a moment during every revolution of the cam 58. The upper end of the link 59 is journaled at 65 to a rock-arm 66, keyed to and projecting forwardly from the rock-shaft 50. The weight of the link 59 is sufficient to cause the antifriction-roller 63 to closely follow the periphery of cam 58, so that in the normal position of the link the rock-arm 52 will be in lowered position to allow tappet 42 to remain in the path of the operating-plate 44, and when the antifriction-roller 63 drops into the cut-out portion 58^a of the controlling-cam the rock-shaft 50 will be rocked for raising the rock-arm 52 and elevating the tappet 42 to a point out of reach of the plate 44.

The arrangement of the parts so far described is such that the antifriction-roller 63 will drop into and be raised out of the cut-out portion of the cam 58 just prior to the moment when the operating cam-plate of the side-registering mechanism moves rearwardly, so that the tappet 42 will normally be held out of the path of the operating-plate 44.

To cause the operation of the throw-out mechanism above described, I employ a sheet-actuated tripping and controlling device of peculiar construction, which is so arranged with respect to the other mechanism that when a sheet fails to reach registered position upon the feed-board the said tripping and controlling mechanism will prevent the rocking of shaft 50, and thereby retain the rod 40 in lowered position, so that the tappet 42 will be engaged by the plate 44 and the press will be thrown out of operation. I will now describe one of these sheet-actuated tripping and controlling devices, the structure of which constitutes the novelty in my present invention.

Mounted upon a transverse bar 70 is an auxiliary frame 71. Journaled at 72 upon the auxiliary frame-piece 71 is an adjustable arm 73, formed with a heel 74, which rests between two oppositely-presented adjusting-screws 75, threaded through blocks 76 upon the frame-piece 71. By the adjustment of screws 75 the location of the arm 73 and the

tripping-finger supported thereby can be regulated to a nicety. The arm 73 has rigidly secured to it and depending from it an arm 77, in the lower end of which is journaled at 78 the curved tripping-finger 79. The tripping-finger 79 is formed with a broad sheet-engaging face 79^a and a tongue or rib 79^b in its lower face. The tongue or rib 79^b is adapted to rest in a slot 11^a, cut in the under guide 11, which projects from the forward end of the feed-bar 10. Secured to the tripping-finger 79 and projecting upwardly therefrom is a latching-arm 80, formed with a locking-shoulder 81, which is adapted to engage a bar 82, projecting laterally from a rock-arm 83, keyed to the rock-shaft 50.

85 represents the usual front guides mounted upon the rock-shaft 5, as above referred to.

Referring particularly to Fig. 4 of the drawings, it will be observed that when a sheet passes down upon the feed-bar 10 and the under guides 11 its forward edge will impinge against the tripping-finger 79 and rock it forwardly upon its journal 78, causing the latching-arm 80 to be moved rearwardly, so that the shoulder 81 will be out of the line of travel of the bar 82 upon rock-arm 83. When the sheet engages this tripping-finger 79, it is moved from the position shown in dotted lines in Fig. 4 into position shown in full lines in said figure, the tripping-finger moving slightly forward into the cut-out portion of the front guide 85 and upwardly away from the under guide 11 to allow the front edge of the sheet to get into registered engagement with the front guide. Immediately after the sheet has reached registering position the controlling-cam 58 allows the link 59 to drop, causing the rock-arm 52 to be raised for lifting tappet 42 out of the path of plate 44. As the rock-shaft 50 is rocked by this movement, the rock-arm 83 will drop into the position shown in full lines in Fig. 4. If the sheet fails to reach registered position, as just explained, the tripping-finger 79 and attached latching-arm 80 will remain in the position indicated in dotted lines in Fig. 4, and this will retain the latching-shoulder 81 directly beneath the bar 82 of rock-arm 83, so that when the controlling-cam 58 releases the weight of the link 59 the latched rock-arm 83 will hold the rock-shaft 50 against movement, and the operating-rod 40 will therefore not be elevated, and the tappet 42 will consequently remain in the path of the operating-plate 44, so that the throw-out mechanism will be operated by the rearward movement of the cam-plate *j*, which operates the side-registering mechanism.

In Figs. 6 and 7 I have shown a modification of the sheet-actuated tripping and controlling device above described. In this form of the mechanism I do not depend upon the power of the sheet for moving the tripping-finger out of the path of the sheet, but pro-

vide means whereby the tripping-finger will be elevated sufficiently from the under guides to allow the sheet to pass to the press. 90 is an arm freely journaled at 91 to the auxiliary frame-piece 71 and formed with an upwardly-projecting heel 92, which rests between the limiting-block 93 and the limiting and adjusting screw 94, which is threaded through the block 95. Journaled at 96 upon the forward end of the arm 90 is the sheet-actuated tripping-arm 97. This arm is formed with a lower sheet-engaging end 97^a, which works in the slotted under guide 11 and in the slotted front guide 85. The arm 97 extends above its journal 96 and is formed with a locking-shoulder 98 and a curved finger 99. The rock-arm 83, having the laterally-extending bar 82, is keyed to the rock-shaft 50, as in the preferred form of the mechanism. When a sheet X' moves down into registered position in this modified form of the mechanism, the lower end of the tripping-finger 97 will be moved forwardly into the slot or cut-out portion of the front guide 85, which action will move the latching-shoulder 98 rearwardly out of the path of the latching-bar 82, thereby allowing the rock-arm 83 to move downwardly when the shaft 50 is rocked by the mechanism above explained. After the sheet is registered and before it is taken by the grippers upon the impression-cylinder the front guides 85 are raised as usual and the rock-arm 83 is elevated by its controlling-cam, causing the bar 82 to engage the finger 99 and raise the tripping-finger away from the under guide by causing the arm 90 to move upon its journal 91 until the heel 92 engages the limiting-block 93. After the sheet has entirely left the feed-board the rock-arm 83 is lowered sufficiently to bring the tripping-finger in operative position with relation to the under guides and front guides. It will of course be understood in this connection that the controlling-cam 58 for this modified form of the structure must be formed with two low portions in its periphery—that is, a main low portion for causing the elevation of the operating-rod 40 to prevent the operation of the throw-out and an auxiliary low portion of less depth to return the tripping-finger to its normal operative position.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In combination with a machine designed to operate upon sheets of paper passed through it, stop mechanism adapted to automatically arrest the action of said machine, means for operating said stop mechanism, and an arm pivotally connected with the stop mechanism adapted when in its normal position, to be engaged and operated by said operating means, with a rock-arm adapted to intermittently move said pivoted arm out of engagement

with the operating means, means for operating said rock-arm, and a sheet-actuated tripping-finger arranged to normally prevent the operation of said rock-arm, substantially as set forth.

2. In combination with a machine designed to operate upon sheets of paper passed through it, stop mechanism adapted to automatically arrest the action of said machine, means for operating said stop mechanism, and a part connected with the stop mechanism adapted, when in its normal position, to be engaged and operated by said operating means, with a rock-shaft, a rock-arm mounted upon said rock-shaft, means for rocking said shaft, a second rock-arm projecting from said shaft, and a trip-finger suspended in the path of the sheets and formed with a shoulder which is adapted to engage a part upon said second rock-arm, substantially as set forth.

3. In combination with a machine designed to operate upon sheets of paper passed through it, a stop mechanism adapted to automatically arrest the action of said machine, a rock-shaft to control the operation of the stop mechanism, and means for rocking said shaft, with a feed-board from which sheets of paper are fed to the controlled machine, under guide-fingers projecting from said feed-board and formed with slots or recesses, front guides cooperating with said under guides, sheet-actuated tripping-fingers suspended above the feed-board and formed with tongues or ribs which normally rest in the slots or recesses of the under guide-fingers, a rock-arm projecting from the controlling rock-shaft, and a latching-arm connected with the tripping-finger and adapted to engage a part upon the rock-arm, substantially as set forth.

4. In combination with a machine designed to operate upon sheets of paper passed through it, stop mechanism adapted to automatically arrest the action of said machine, and a rock-shaft controlling the operation of the stop mechanism, with a feed-board over which sheets of paper are passed to the controlled machine, a bracket supported above said feed-board, an arm adjustably mounted upon said bracket, a sheet-actuated tripping-finger journaled upon said adjustable arm and supported thereby in the path of the sheets, a latching-arm secured to the tripping-finger, and a rock-arm projecting from the rock-shaft and carrying a part which is adapted to be engaged by said latching-arm, substantially as set forth.

5. In combination with a machine designed to operate upon sheets of paper passed through it, stop mechanism adapted to automatically arrest the action of said machine, and a rock-shaft controlling the operation of the stop mechanism, with a feed-board, a bracket supported above said feed-board, an arm journaled upon said bracket and formed with a

heel 74, adjustable stops 75 engaging the opposite faces of said heel 74 for securing the arm 73 in the desired adjusted position, a tripping-finger 77 journaled upon the arm 73, a
5 latching-arm 80 secured to the tripping-finger 77 and formed with a shoulder 81, and a rock-arm 83 keyed to the said rock-shaft and car-

rying a bar 82 which is adapted to engage the shoulder 81, substantially as set forth.

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