

No. 762,810.

PATENTED JUNE 14, 1904.

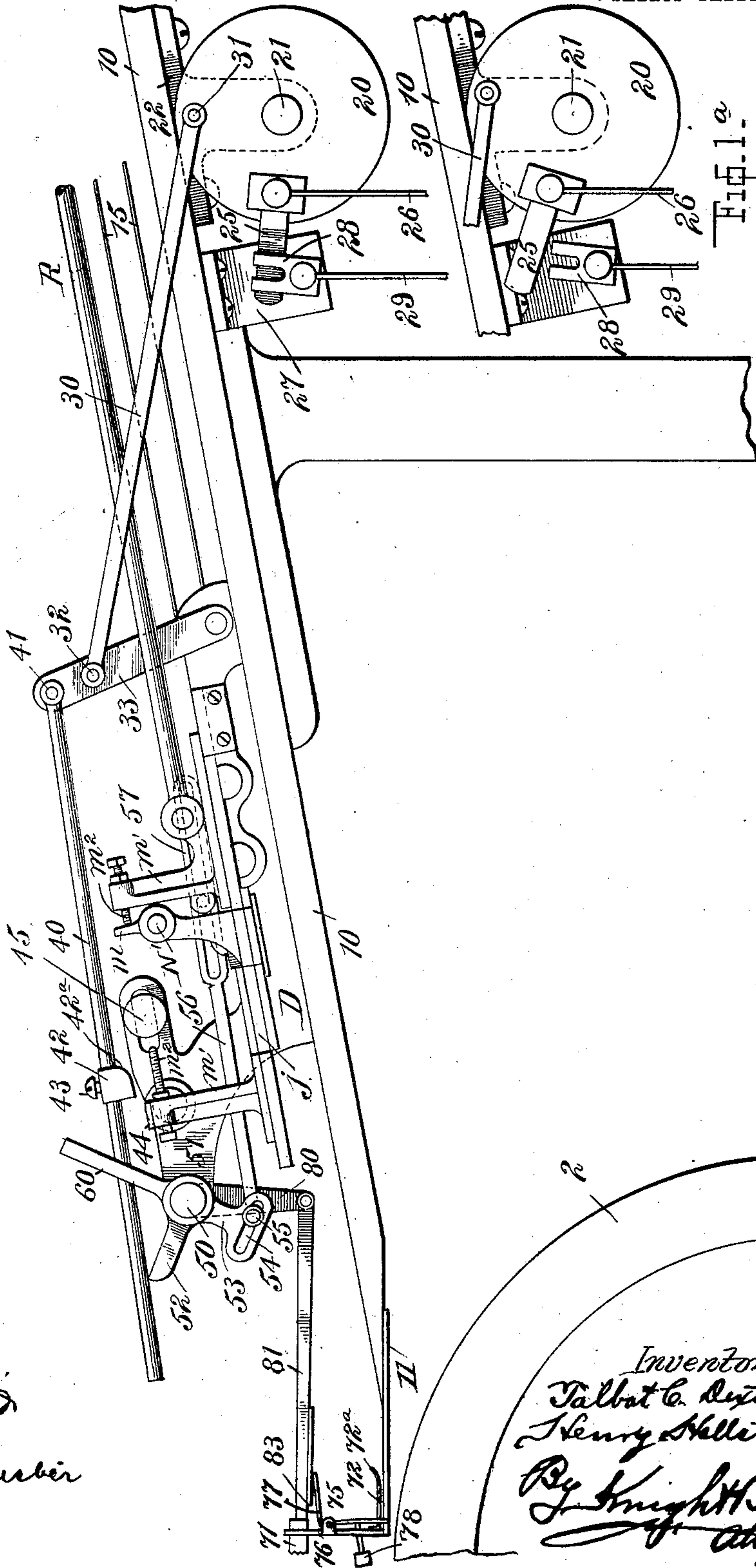
T. C. DEXTER & H. HALLSTREAM.  
THROW-OUT MECHANISM FOR PRINTING PRESSES.

APPLICATION FILED SEPT. 27, 1901.

NO MODEL.

5 SHEETS—SHEET 1.

Fig. 1.



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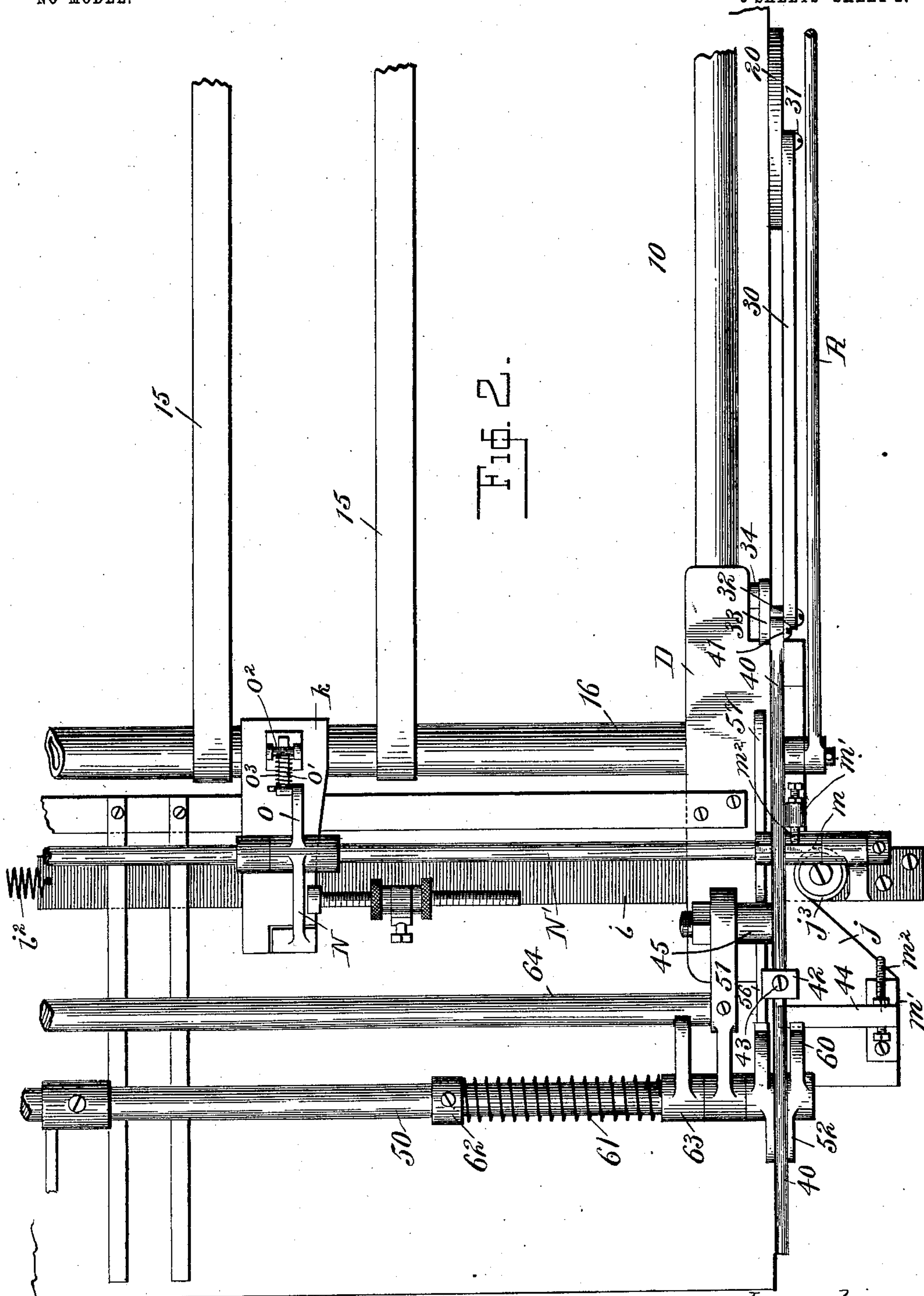


Fig. 2.

Witnesses.  
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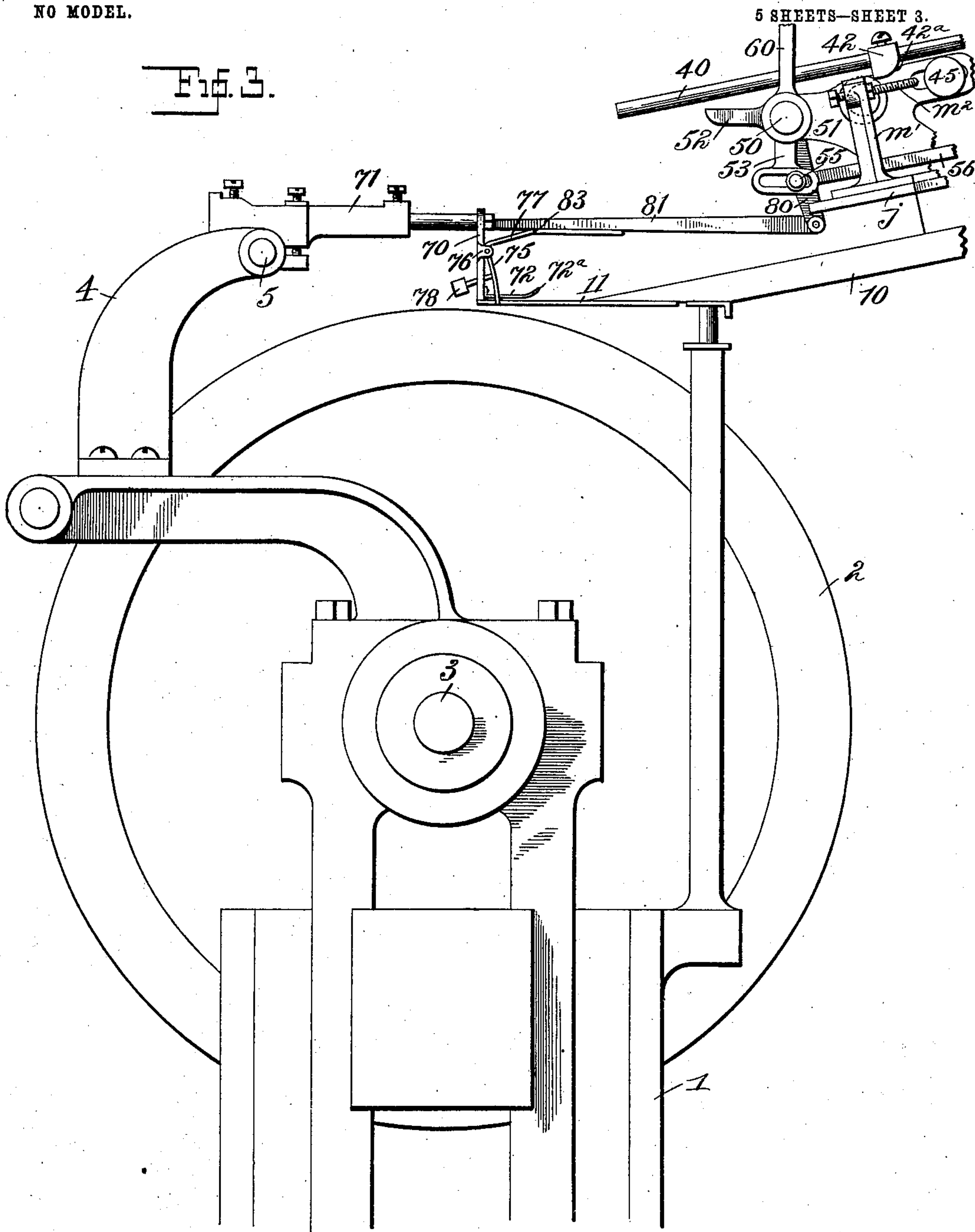
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Fig. 3.



Witnesses.  
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5 SHEETS—SHEET 4.

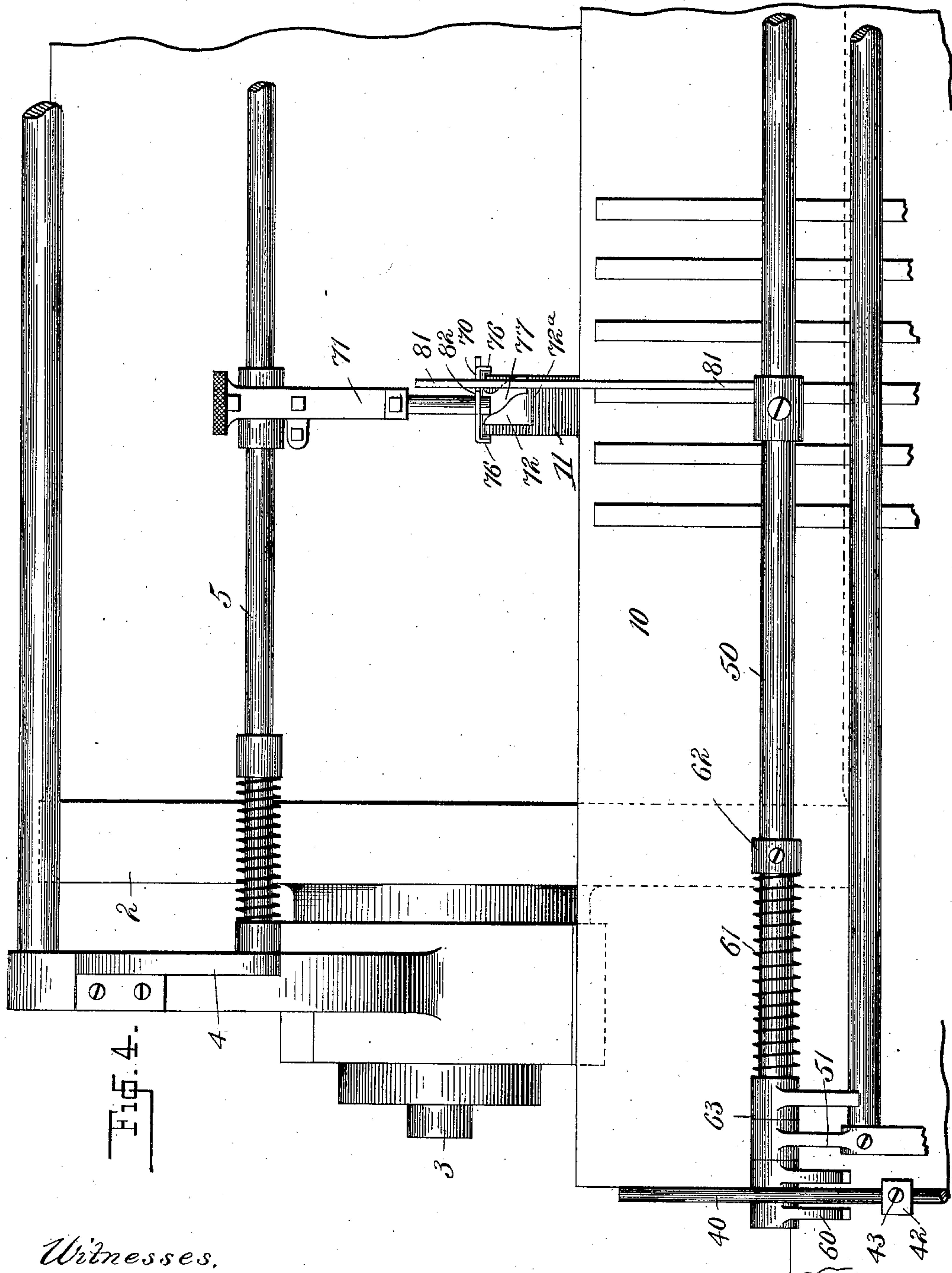


Fig. 4.

Witnesses,  
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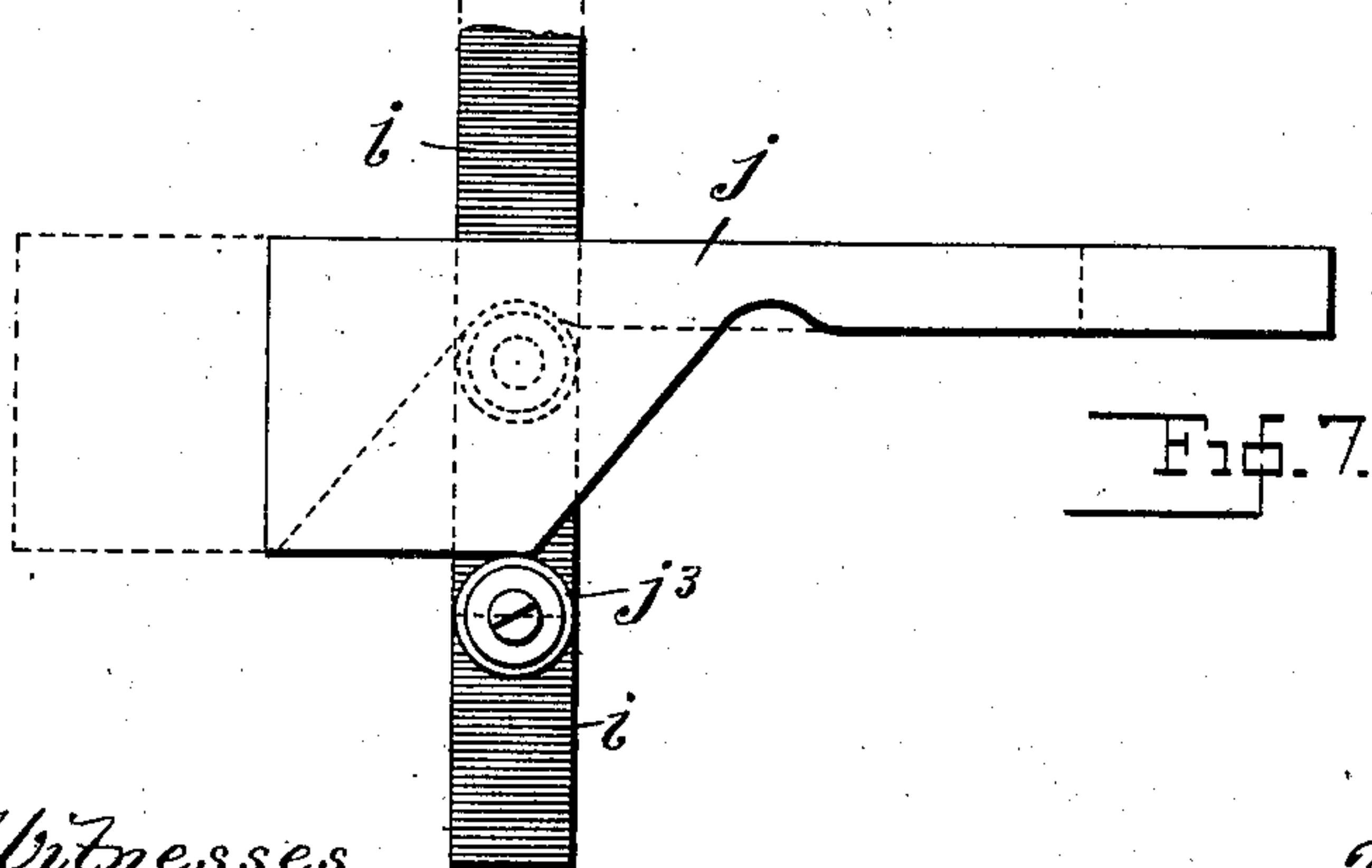
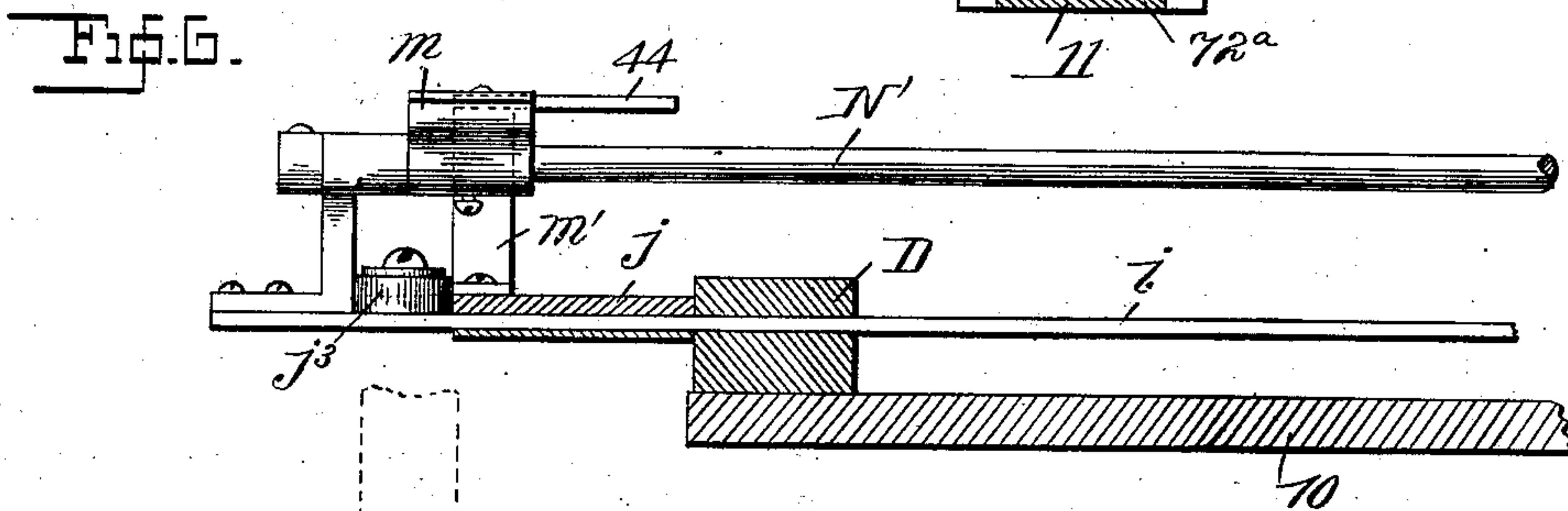
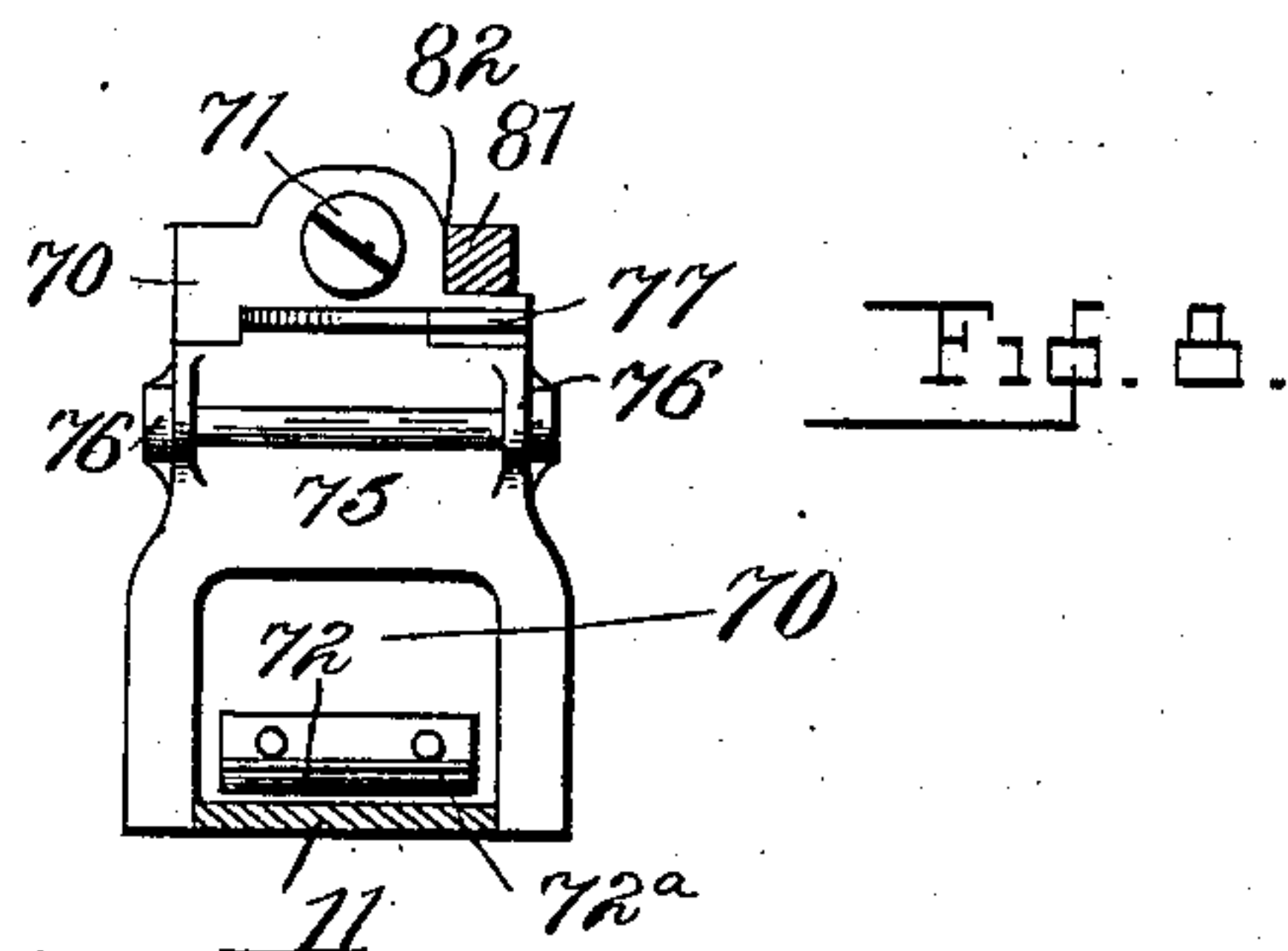
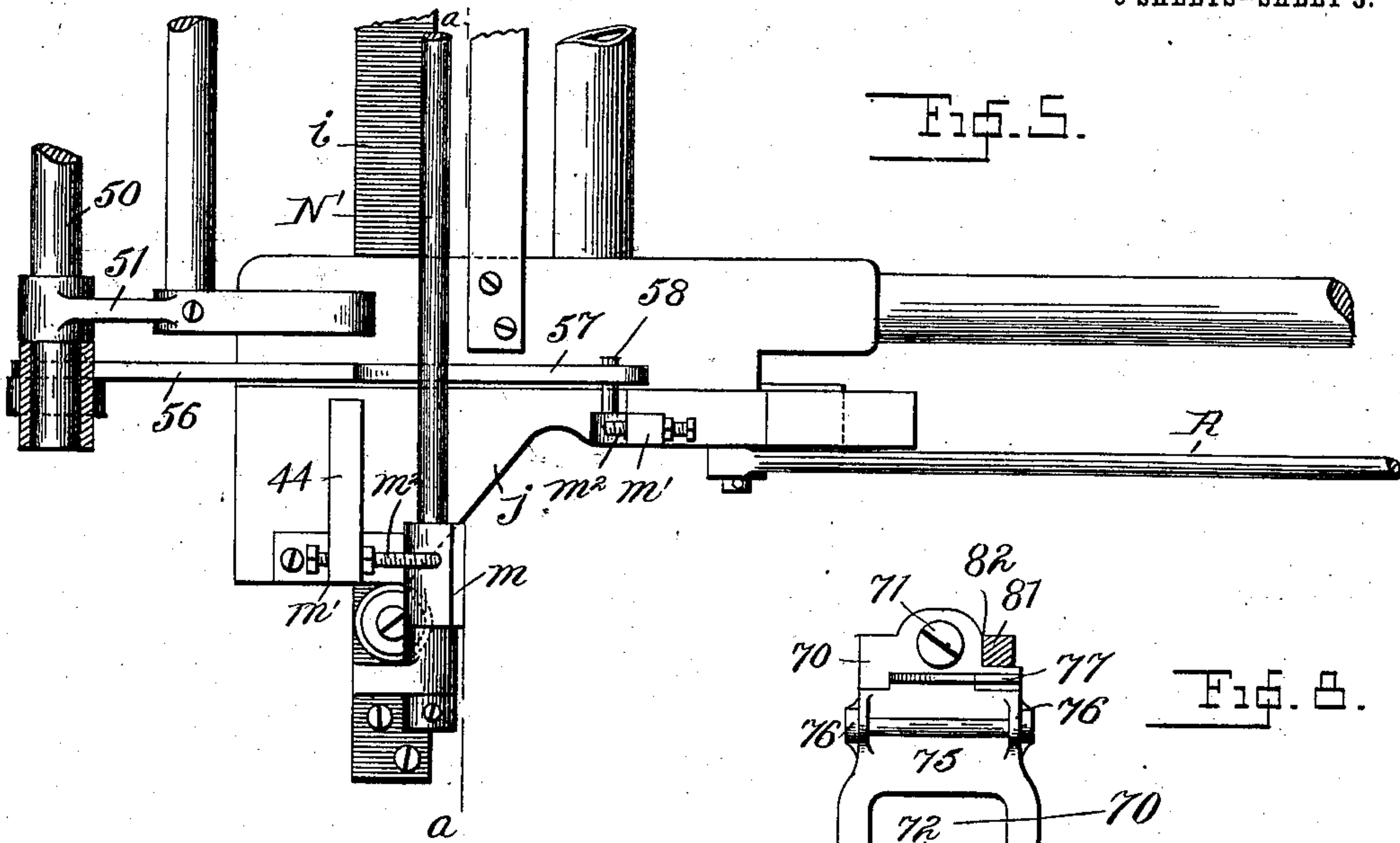
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NO MODEL.

5 SHEETS—SHEET 5.



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# UNITED STATES PATENT OFFICE.

TALBOT C. DEXTER AND HENRY HALLSTREAM, OF PEARL RIVER, NEW YORK; SAID HALLSTREAM ASSIGNOR TO SAID DEXTER.

## THROW-OUT MECHANISM FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 762,810, dated June 14, 1904.

Application filed September 27, 1901. Serial No. 76,729. (No model.)

*To all whom it may concern:*

Be it known that we, TALBOT C. DEXTER and HENRY HALLSTREAM, citizens 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 our 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.

The present invention is an improvement upon the invention covered by an application of Talbot C. Dexter, 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 our invention may be fully understood, we 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 part of a printing-press having a throw-out mechanism and our improved sheet-actuated tripping device applied to the feed-board thereof. Fig. 1<sup>a</sup> 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 the throw-out mechanism shown in Fig. 1. Fig. 3 is a detail side elevation of part of the mechanism shown in Fig. 1, rep-

resenting a different position of the parts. Fig. 4 is a detail plan view of the parts shown in Fig. 3. Fig. 5 is a detail sectional plan view representing part of the side-registering mechanism and the connection with the throw-out mechanism. Fig. 6 is a detail transverse sectional view taken on the line *aa* of Fig. 5. Fig. 7 is a detail plan view of parts of the side-registering device and its operating cam-bar. Fig. 8 is a sectional face-view of one of the front guides equipped with the sheet-actuated tripping device.

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 of the press. Any suitable device may be employed for rocking the shaft 5 for the purpose of throwing the front guides 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 cooperating devices will be hereinafter referred to.

We have shown our improvements applied to a two-revolution press; but it will be clear to those skilled in the art that the 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 usual under guide-fingers 11, which will be hereinafter more fully referred to. A series of conveyer bands or tapes 15, passing over a roller 16, suitably 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-registering mechanism forms no part of the 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 the invention we have shown in the drawings and will now describe in a general way the side-registering mechanism covered by Patent No. 669,724, granted March 12, 1901, to Talbot C. Dexter for improvements in sheet-conveyor 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.

We have shown but one of the side-registering devices.  $i$  is one of the reciprocating transverse bars, having a spring  $i^2$  for moving it inwardly and supported in suitable guides on the brackets D. The outward movement of the bar  $i$  is effected by means of a longitudinally-movable cam-plate  $j$ , mounted in suitable guides on the bracket D. 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, which may be operated from the feeding-machine.

$k$  denotes the gripper-shoe, which is formed with a longitudinal passage to receive the marginal portion of the sheet of paper. This gripper-shoe is adjustably mounted upon the bar  $i$  in any suitable manner, such as set forth in the above-named Patent No. 669,734.

N denotes the gripper-finger, which is fastened to a transverse shaft N', suitably journaled upon top of the gripper-shoe and in a bracket 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 portion of said shafts are posts  $m'$ , projecting up from the face of the cam-plate  $j$ , to which are adjustably connected 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 gripper-finger N has a rearwardly-extending arm O, and pivotally connected to the free end of said arm is a rod O', which passes diametrically through a barrel O<sup>2</sup>, pivotally supported upon the gripper-shoe  $k$ . A

spring O<sup>3</sup>, surrounding the rod O', bears with its opposite ends on the arm O and barrel O<sup>2</sup> to cause the gripper-finger to be thrown quickly past the center of its motion to produce a snap action, so as to quickly and firmly grip the paper in the shoe or quickly release the paper. The operation of this side-registering mechanism will be more clearly understood after referring to the above-named Patent No. 669,734, the corresponding parts of the structure being indicated in the present case by the same reference-letters 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 preferred, 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 the 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<sup>a</sup> 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  $m'$ , 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. A stud 45 is adjustably 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  
 5 tappet 42, engaged by plate 44, is forced rearwardly for operating the throw-out mechanism, the cam-face 42<sup>a</sup> engages stud 45 and lifts the tappet 42 out of engagement with the plate 44, thereby stopping the movement of bar 40  
 10 and allowing cam-plate *j* to complete its stroke.

50 is a rock-shaft journaled in a bracket 51 and carrying a finger 52, which rests directly beneath the forward portion of the rod 40. The rock-shaft 50 also carries an arm 53,  
 15 formed with a lateral slot 54, in which is adjustably mounted a pin 55, carried by a link 56. The pin 55 can be clamped in any desired adjusted position upon arm 53. The link 56 is formed at its opposite end with an elongated  
 20 slotted yoke 57, in the slot of which engages a pin or stud 58, mounted upon the rear post *m'* of the cam-plate *j*.

60 is a forked or bifurcated arm mounted upon the rock-shaft 50 and straddling the rod  
 25 40 for holding it against lateral displacement. A spiral spring 61 surrounds the rock-shaft 50 and engages an adjustable collar 62 at one end and at its other end an arm 63, which loosely surrounds the shaft 50 and engages a  
 30 stationary tie-rod 64. The collar 62 is adjustable upon the shaft 50 for the purpose of regulating the tension of spring 61. The spring 61 tends to rotate shaft 50 to throw the finger 52 into engagement with rod 40 for raising  
 35 the rod and holding the tappet 42 out of the path of the post *m'*.

70 represents the front guides of the printing-press adjustably mounted upon the arms  
 40 71, which are secured upon the rock-shaft 5, above referred to. Each front guide has projected from its sheet-engaging face a plate, formed with an upturned end 72<sup>a</sup>. This plate 72 rests above and parallel with the under  
 45 guide 11 of the feed-board when the front guide is down in operative position for the purpose of confining the forward edge of the sheet between the under guide and the plate to prevent the sheet from buckling at its forward edge.

50 75 is a tripping-plate pivoted to the face of the front guide 70 between the ears 76 and formed with a bifurcated lower end, the legs of which straddle the plate 72 and the under  
 55 guide-finger 11. Formed integral with and projecting rearwardly and laterally from the plate 75 is an arm or dog 77. A counterbalance-weight 78 is attached to the rear face of the plate 75 for holding the plate 75 and attached arm 77 in normal operative position.

60 Rock-shaft 50 carries a depending rock-arm 80, to the lower end of which is pivoted a reciprocatory rod 81, which rests and slides in a notch 82, cut in the upper edge of the front guide 70. This rod 81 is formed on its  
 65 lower face with a shoulder 83, which is adapted

under certain circumstances to engage the arm or dog 77 of the sheet-actuated tripping-plate 75.

The operation of the improved throw-out mechanism will be clear from the following  
 70 explanation: When the sheet is fed to the press by the automatic feeding-machine, its forward edge comes in contact with the front guides of the press and is arrested in this position. After the sheet reaches the proper  
 75 registered position against the front guides it will be clear that the tripping-plates 75 will be pushed inwardly against the front guides 70, which will depress the arms or dogs 77 to a position below the path of the shoulders 83.  
 80 Immediately following this the cam-plate *j* moves forwardly and allows the spring 61 to rock the shaft 50 to cause the finger 52 to raise the rod 40. When the cam-plate *j* reaches the end of its forward movement, the  
 85 gripper N will engage the sheet, and immediately after this the cam-plate *j* will move rearwardly, throwing the side registering-gripper laterally to register the sheet, and at the end of this stroke the stud 58 will engage the  
 90 outer end of the slot in the yoke 57 of rod 56 to rock the shaft 50 against the action of its spring to depress the finger 52 and throw rearwardly the rod 81 in readiness for the operation upon a second sheet. If the sheet fails  
 95 to reach the proper position against the front guides 70, the arms or dogs 77 will not be depressed, and upon the return of the cam-plate *j* one of said dogs 77 will engage shoulder 83 on the rod 81 and prevent the spring 61 moving  
 100 the shaft 50 back to raise the finger 52. The result of this will be that the rod 40 will remain in its lowered position and the tappet 42 will rest in the path of the plate 44 on post *m'*, so that when the cam-plate *j* returns to  
 105 register the sheet laterally the rod 40 will be forced rearwardly, causing the arm 33 to rock upon its bearings 34 and move the controller-plate 20 upon its bearing, with the result that the circuit will be broken at contacts 25 and  
 110 28 and the machine will be thrown out of operation, as above explained.

It will be observed that the pivotal connection of rod 81 with rock-arm 80 and the  
 115 sliding engagement of the rod with the front guide will allow the front guides to move up and down freely into and out of gaging position.

While we have shown in the drawings and specifically described one of the sheet-actuated tripping devices for controlling the  
 120 throw-out mechanism, we would have it understood that two of such devices are employed, one at each side of the line of feed of the sheets in the vertical planes of the usual under guides  
 125 and front guides with which printing-presses are equipped. Both of these tripping devices control the throw-out mechanism, so that the press will be tripped when the sheet fails to reach registered position at either side.  
 130



Thus when a sheet is fed at an angle to the front guides only one of the tripping devices would be actuated and the press would be thrown out.

5 We do not claim the arrangement whereby the throw-out mechanism is operated by the side registering mechanism, as this is the sole invention of Talbot C. Dexter and has been  
10 broadly covered in the above-named application filed by him, Serial No. 76,728.

We desire to make it clear that the structure set forth in our present case is subject to some of the claims of the above-named application of Talbot C. Dexter, Serial No. 76,728.  
15 In said application of Dexter he has claimed, broadly, the throw-out mechanism, including two relatively movable coacting members, a yieldingly-actuated device or rock-arm engaging one of the coacting members for hold-  
20 ing it out of engagement with the other coacting member, and means controlled by the sheet for regulating the operation of said yieldingly-actuated device to determine whether the throw-out mechanism shall oper-  
25 ate. Our present application is distinguishable from said sole application of Dexter by the operation of the controlling rock-arm through a connection with the throw-out-operating mechanism and by the different construction of sheet-actuated tripping device  
30 which controls the operation of said rock-arm.

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

35 1. In combination with a machine designed to operate upon sheets of paper passed through it, and stop mechanism adapted to automatically arrest the action of said machine, means for operating said stop mechanism, including  
40 relatively movable coacting members adapted to connect and disconnect the stop mechanism and its operating means, a rock-arm actuated by the operating means and engaging one of said coacting members and adapted to inter-  
45 mittently move it into and out of operative relation with the other coacting member, and sheet-actuated means controlling the operation of said rock-arm to determine whether said coacting members shall connect and the  
50 throw-out mechanism shall operate, 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  
55 arrest the action of said machine, means for operating said stop mechanism, a part connected with the stop mechanism and adapted to be engaged and operated by the operating means, means for moving said part into and  
60 out of operative relation with the operating means, a rod or bar suitably connected with said moving means, and formed with a shoulder, and a sheet-actuated tripper having a dog which is adapted to engage the shoulder of  
65 said rod or bar, substantially as set forth.

3. 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, a part con- 70  
nected with the stop mechanism and adapted to be engaged and operated by the operating means, a device adapted to move said part out of operative relation with the operating means and hold it normally in said position, means 75  
for operating said device to cause said part of the stop mechanism to move into operative relation with the operating means, a rod or bar suitably connected with said device and formed with a shoulder, and a sheet-actuated tripper 80  
having a dog which is adapted to engage the shoulder of said rod or bar, substantially as set forth.

4. In combination with a machine designed to operate upon sheets of paper passed through 85  
it, stop mechanism adapted to automatically arrest the action of said machine, means for operating said stop mechanism, a part connected with the stop mechanism and adapted to be engaged and operated by the operating 90  
means, a spring-actuated device adapted to move said part out of operative relation with the operating means and hold it normally in said position, means for operating said spring-actuated device to cause said part of the stop 95  
mechanism to move into operative relation with the operating means, a rod or bar suitably connected with said spring-actuated device and formed with a shoulder, and a sheet-actuated tripper having a dog which is adapted 100  
to engage the shoulder of said rod or bar, 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 105  
arrest the action of said machine, means for operating the stop mechanism, a part connected with the stop mechanism and adapted to be engaged and operated by the said operating means, a spring-actuated device adapted 110  
to intermittently move said part out of operative relation with the operating means and hold it normally in said position, a suitable connection between the spring-actuated device and the said operating means for operating 115  
said spring-actuated device to cause said part of the stop mechanism to move into operative relation with the operating means, and a sheet-actuated tripping device arranged to normally prevent the operation of said spring-actuated 120  
device and cause the operation of the stop mechanism, substantially as set forth.

6. In a mechanism of the character described, the combination of suitable throw-out mechanism including a normally stationary 125  
pivotally-mounted reciprocatory bar for operating the throw-out mechanism, a reciprocating slide adapted to engage and actuate the throw-out operating-bar, a device for inter-  
mittently moving said throw-out operating- 130



bar out of operative relation to the reciprocating slide, a connection between said device and the reciprocating slide for causing the throw-out bar to be intermittently thrown into position to be engaged by the reciprocating slide, and a sheet-actuated tripping device adapted to hold the throw-out bar in position to be engaged by the slide, substantially as set forth.

7. In combination with a machine designed to operate upon sheets of paper passed through it, and stop mechanism adapted to automatically arrest the action of said machine, means for operating the said stop mechanism, a spring-actuated rock-shaft carrying an arm which is adapted to engage a part connected with the stop mechanism for moving said part out of operative relation with its operating means, a slotted rod or link suitably connected with said rock-shaft, a pin carried by the operating means and engaging said slotted rod or link, and sheet-actuated means for controlling the operation of the throw-out mechanism, substantially as set forth.

8. In combination with a machine designed to operate upon sheets of paper passed through it, and stop mechanism adapted to automatically arrest the action of said machine, a reciprocating slide having means for operating it, a spring-actuated rock-shaft carrying a rock-arm, a slotted link pivotally connected with said rock-arm, a pin upon said slide engaging said slotted link, a rod suitably connected with the stop mechanism and adapted to move into and out of operative relation with said reciprocating slide, a second arm carried by said spring-actuated rock-shaft adapted to engage said rod and move it into and out of operative relation with said slide, and sheet-actuated mechanism controlling the operation of the stop mechanism, substantially as set forth.

9. In combination with a machine designed to operate upon sheets of paper passed through it, and stop mechanism adapted to automatically arrest the action of said machine, a reciprocating slide having means for operating it, a rod or bar connected with the stop mechanism

and adapted to be operated by said reciprocating slide, a rock-shaft which is adapted to move said rod or bar into and out of its operative position, a controlling-rod suitably connected with said rock-shaft, a shoulder formed on said rod, and a sheet-actuated tripping device carrying a dog which is adapted to engage said shoulder upon the controlling-rod, substantially as set forth.

10. In combination with a machine designed to operate upon sheets of paper passed through it, and stop mechanism adapted to automatically arrest the action of said machine, means for operating said stop mechanism, means for moving a part of said stop mechanism into and out of operative relation with its operating means, a front guide or gage for the machine through which the sheets are fed, a controlling-bar having a bearing upon said front guide or gage and suitably connected with and controlling the means for moving the part of the stop mechanism into and out of operative relation with its operating means, a shoulder formed on said controlling-bar, a sheet-actuated tripping-plate journaled upon said front guide or gage, and an arm or dog carried by said tripping-plate and adapted to engage the shoulder of the controlling-bar, substantially as set forth.

11. 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 means for operating said stop mechanism, with a front guide or gage for registering sheets, a sheet-actuated tripping-plate movably mounted upon the front guide or gage, a bar controlling the operation of the stop mechanism, and a part carried by the tripping-plate adapted to engage said controlling-bar, substantially as set forth.

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