

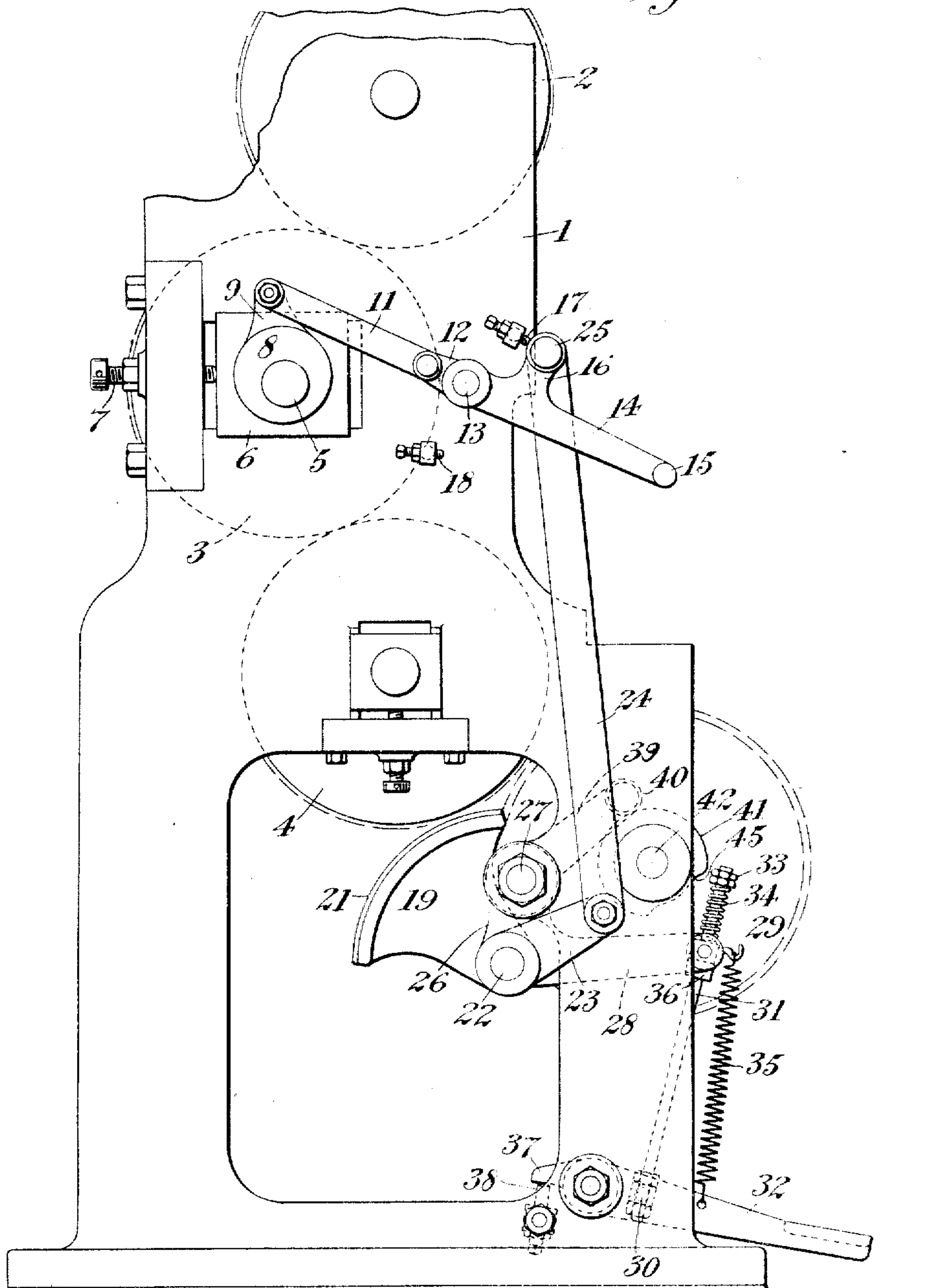
A. J. FORD.
THROW-OUT MECHANISM.
APPLICATION FILED MAR. 23, 1908.

913,119.

Patented Feb. 23, 1909.

3 SHEETS—SHEET 1.

Fig. 1



Witnesses:

Gerrard Fenn
Victor D. Borst

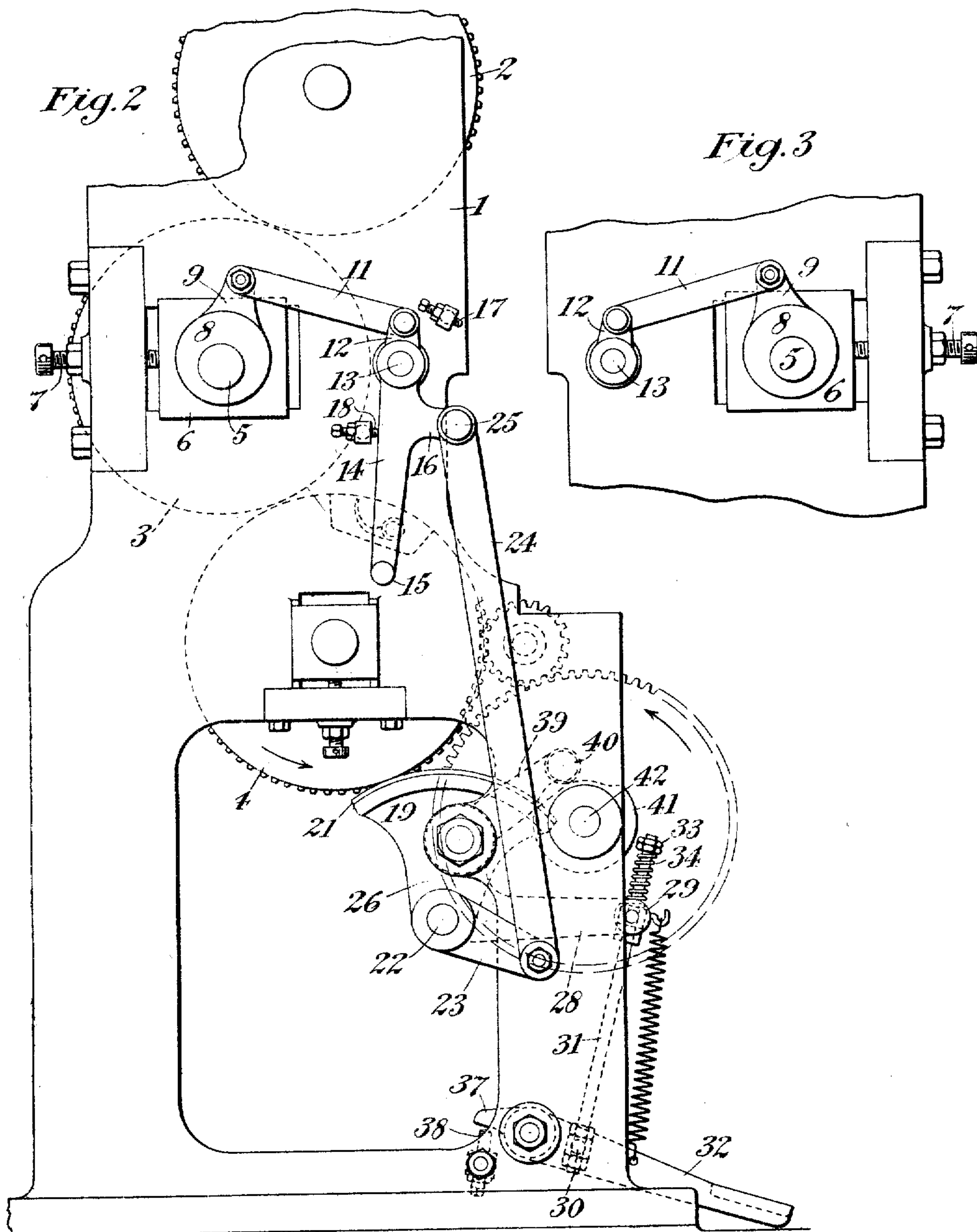
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3 SHEETS—SHEET 2.



Witnesses:

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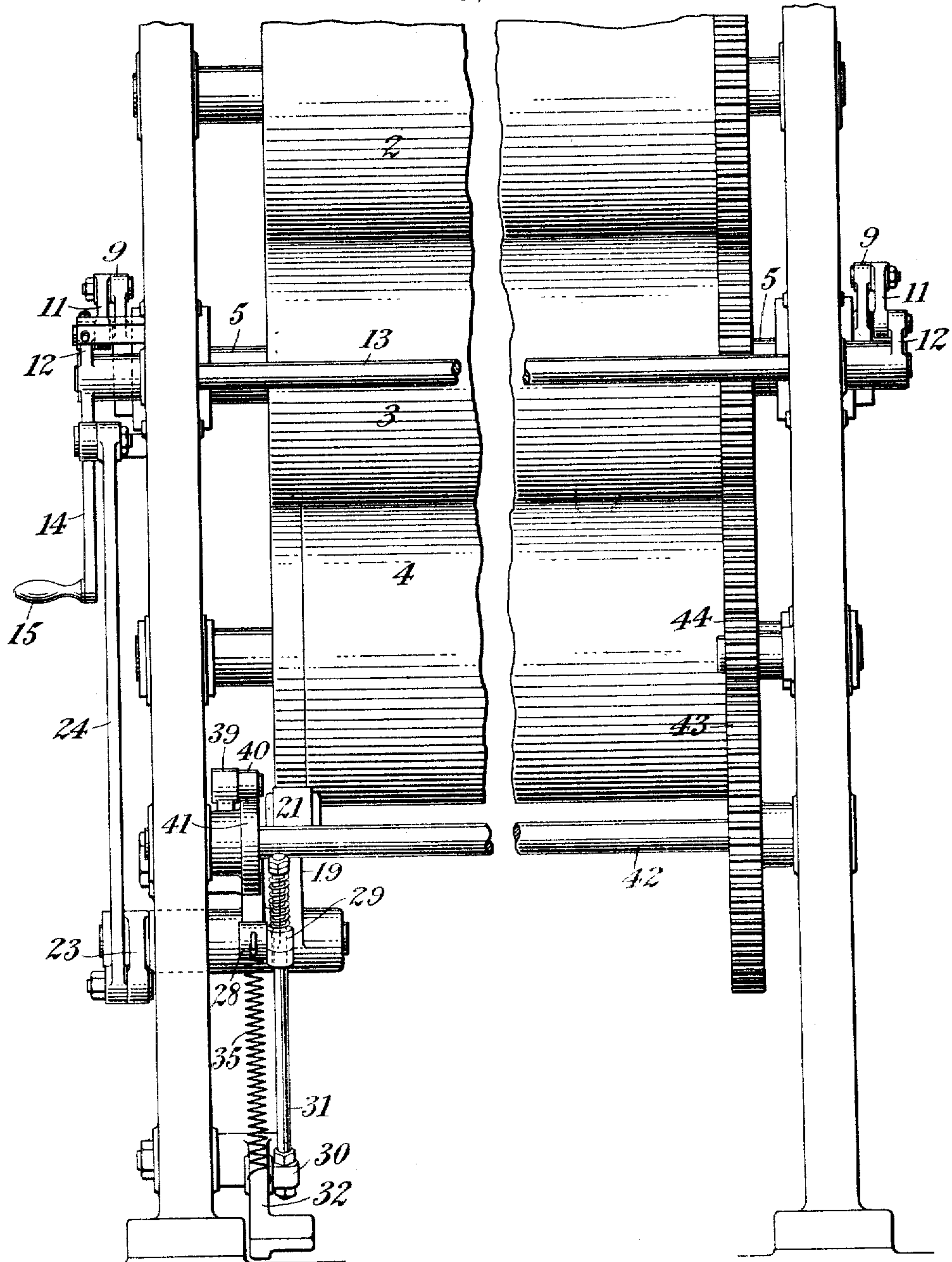
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3 SHEETS—SHEET 3.

Fig. 4



Witnesses:

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UNITED STATES PATENT OFFICE.

ALBERT J. FORD, OF NEW YORK, N. Y., ASSIGNOR TO FUCHS AND LANG MANUFACTURING COMPANY, A CORPORATION OF NEW YORK.

THROW-OUT MECHANISM.

No. 913,119.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Application filed March 23, 1908. Serial No. 422,820.

To all whom it may concern:

Be it known that I, ALBERT J. FORD, a citizen of the United States, residing in the borough of Manhattan, city of New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Throw-Out Mechanism, of which the following is a specification, reference being had therein to the accompanying drawings, forming part thereof.

My invention relates to throw-out mechanism for coöperatively engaging and disengaging the printing couple of a printing press.

The object of the invention is to produce a throw-out mechanism of simple and reliable construction which will operate automatically, under the control of the operator, to disengage the printing couple in timed co-operation therewith, at the completion of one impression and before the commencement of another, the power of the printing press being utilized for this purpose.

To this end the invention consists in the throw-out mechanism hereinafter described, as defined in the following claims.

I will now describe the embodiment of my invention illustrated in the accompanying drawings, and will thereafter point out my invention in claims.

In the drawings Figure 1 is a side elevation of a portion of a printing press and a throw-out mechanism embodying the present invention. Fig. 2 is a similar view, showing the parts in the positions occupied after the throwing-out operation. Fig. 3 is a detail view of a part of the throw-out mechanism seen from the opposite side of the machine. Fig. 4 is a front elevation of the mechanism.

The drawings represent a portion of the frame 1 of a printing press of the rotary type, together with the form cylinder 2, the transfer cylinder 3, and the impression cylinder 4. The transfer cylinder engages both the form cylinder and the impression cylinder, and the transfer cylinder and the impression cylinder form the printing couple. The printing couple is disengaged by moving the transfer cylinder away from the impression cylinder, and as it is desirable to disengage the transfer cylinder from the form cylinder at the same time, the transfer cylinder, in throwing it out of operation, is

moved horizontally so as to move away from both the other cylinders at once.

The transfer cylinder is mounted on a shaft 5, and the shaft is journaled in sliding blocks 6 adjustable in the frame of the press, by means of screws 7, to control the pressure between the cylinders. To provide for throwing the transfer cylinder into and out of operation, eccentrics 8 are interposed between the shaft 5 and the blocks 6, and by rotating these eccentrics through a small angle the shaft and the transfer cylinder may be moved slightly in a horizontal direction. The eccentrics are moved by means of upwardly-extending arms 9, connected, by links 11, with arms 12 fixed to a rock shaft 13 journaled in the frame 1.

The transfer cylinder, when out of engagement with the other cylinders, is thrown into operation by means of a hand lever 14 fixed to one end of the rock shaft 13 and provided with a handle 15. The movement of the hand lever is limited by the engagement of an arm 16 thereon with an adjustable stop 17 on the frame 1, the stop being adjusted to arrest the parts in the position in which the links 11 and the arms 12 are substantially in straight-line position. These links and arms have therefore a toggle action in throwing the transfer cylinder into, and maintaining it in, operative engagement with the other cylinders. The movement of the lever 14 in the opposite direction is limited by an adjustable stop 18.

The automatic mechanism for throwing out the transfer cylinder derives its power from a segmental friction member 19 provided with a surface 21 of leather or other suitable frictional material. The frictional member is pivotally mounted on and fixed to a rock shaft 22 and stands normally in the position shown in Fig. 1, the surface 21 being close to but out of contact with, the end of the impression cylinder 4. When the friction member is raised into contact with the impression cylinder it is partially rotated thereby, together with the rock shaft, to the position of Fig. 2, owing to the rotation of the cylinder in the direction of the arrow in the figure. This movement is communicated to the transfer cylinder by connections between the rock shaft 22 and the hand lever 14, comprising an arm 23 fixed

to the rock shaft, and a link 24 connecting this arm with the hand lever. Through the operation of this mechanism the transfer cylinder is thrown out by the action of the friction member.

The friction member is thrown into operation by raising the rock shaft 22 through the action of a treadle. The rock shaft is journaled in a sleeve on a bell-crank lever 26 which is pivoted at 27 upon the frame 1. A horizontal arm 28 on the lever carries a pivoted lug 29, which receives a sliding rod 31 pivoted at its lower end 30 to a treadle lever 32 pivoted on the frame 1. Lock nuts 33 on the upper end of the rod 31 confine a compression spring 34 bearing against the lug 29. A collar 36 fixed to the rod limits the expansion of the spring. A tension spring 35 connects the end of the arm 28 with the treadle lever, being connected with the latter at a point more distant from the pivotal support of the treadle lever than the pivotal connection of the rod 31, so that it has a differential action, tending to hold the treadle lever and the arm 28 in raised position, with the friction member out of contact with the cylinder. The upward movement of the treadle lever is limited by the engagement of its rear end 37 with an adjustable stop 38 on the frame 1.

To properly coördinate the time of operation of the throw-out mechanism with that of the printing couple the throw-out mechanism is provided with a controlling device which prevents its operation, when the treadle is depressed, until the proper moment in the operation of the press. To this end an arm 39 on the bell-crank lever 26 carries a cam roll 40 adapted to engage a cam 41 fixed on a shaft 42 journaled in the frame 1. The shaft is rotated by gears 43 and 44 (Fig. 4) connecting it with the actuating mechanism of the impression cylinder. The cam roll is normally elevated slightly above the cam, so as to be out of contact therewith. When the treadle is depressed the springs 34 and 35 tend to depress the arm 28 and throw the friction member 19 into operation. The engagement of the cam roll with the surface of the cam prevents this operation, however, until a depression 45 in the cam surface permits the cam roll to fall and the bell-crank lever to rotate. This depression is so located as to permit this action to occur just after the completion of an impression by the printing couple, and the length of the depression is

such that the cam raises the cam roll and throws the friction member out of operation after the latter has remained long enough in contact with the impression cylinder to complete its operation.

After the above described operation the treadle is released by the operator, and the transfer cylinder remains in the throw-out position until its operation is restored by the hand lever 14.

It is obvious that various modifications may be made in the illustrated embodiment of my invention without departure from the nature and scope of the invention as defined in the following claims.

I claim:—

1. A throw-out mechanism for printing presses comprising, in combination with a printing couple and its actuating mechanism, manually-operable means for throwing a member of the couple into operation, and means connected with and actuated by said actuating mechanism and acting under control of the operator to throw out said member.

2. A throw-out mechanism for printing presses comprising, in combination with a printing couple, manually-operable means for throwing in one member of the couple, and power-actuated means acting, under control of the operator, in timed coöperation with the printing couple, to throw out said member.

3. A throw-out mechanism for printing presses comprising, in combination with a printing couple having a rotary member, means for throwing out one member of the couple, actuated by engagement of a friction member with said rotary member.

4. A throw-out mechanism for printing presses comprising, in combination with a printing couple having a rotary member, means for throwing out one member of the couple, a friction member for actuating said means, adapted to engage and be actuated by said rotary member, a treadle for throwing the friction member into operation, and cam-controlled means for timing the operation of the friction member in accordance with the operation of the printing couple.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT J. FORD.

Witnesses:

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JOSEPH KAUFMANN.