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J. J. MOSHER.
MECHANISM FOR PRINTING PRESSES.
APPLICATION FILED DEC. 19, 1904.

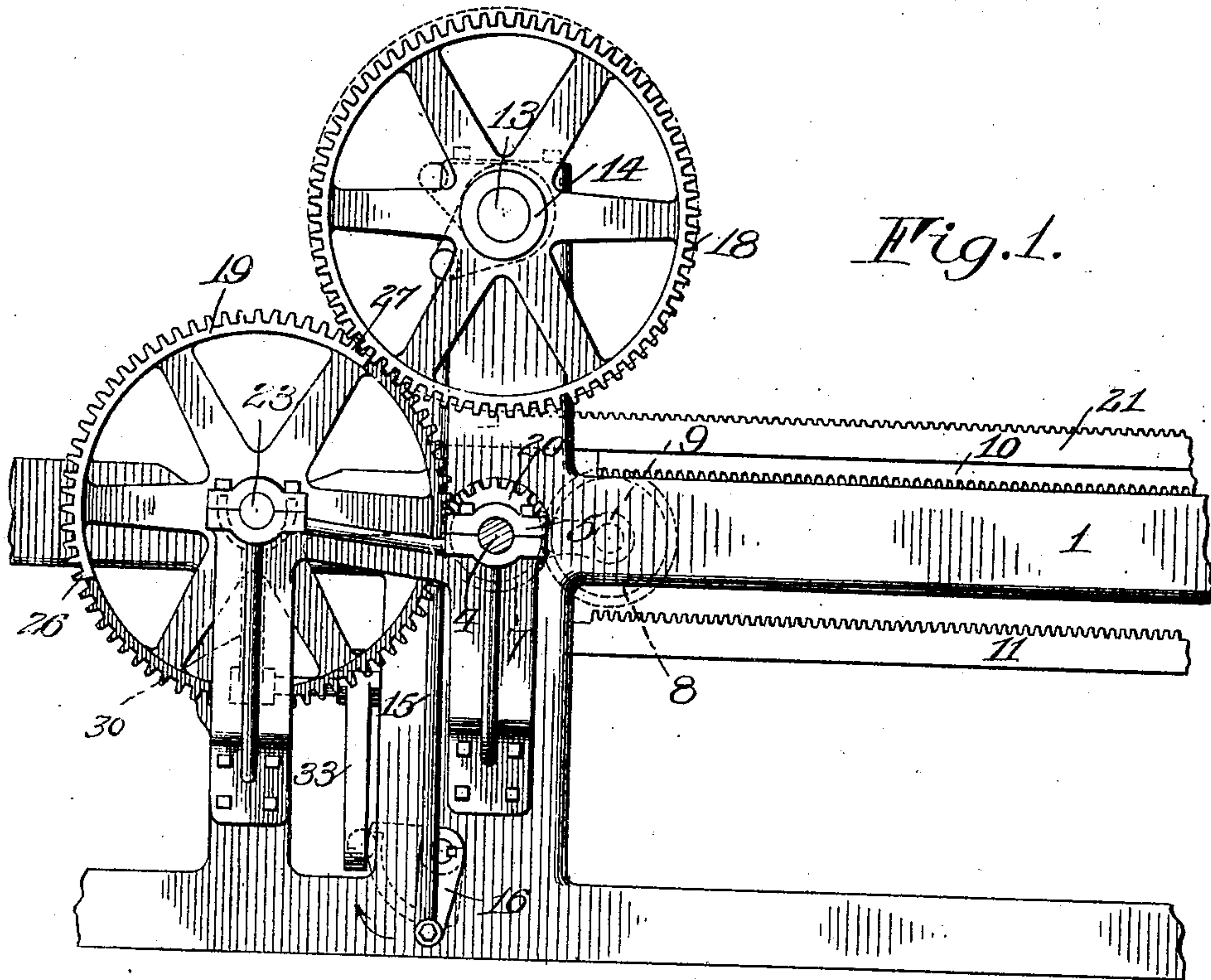


Fig. 1.

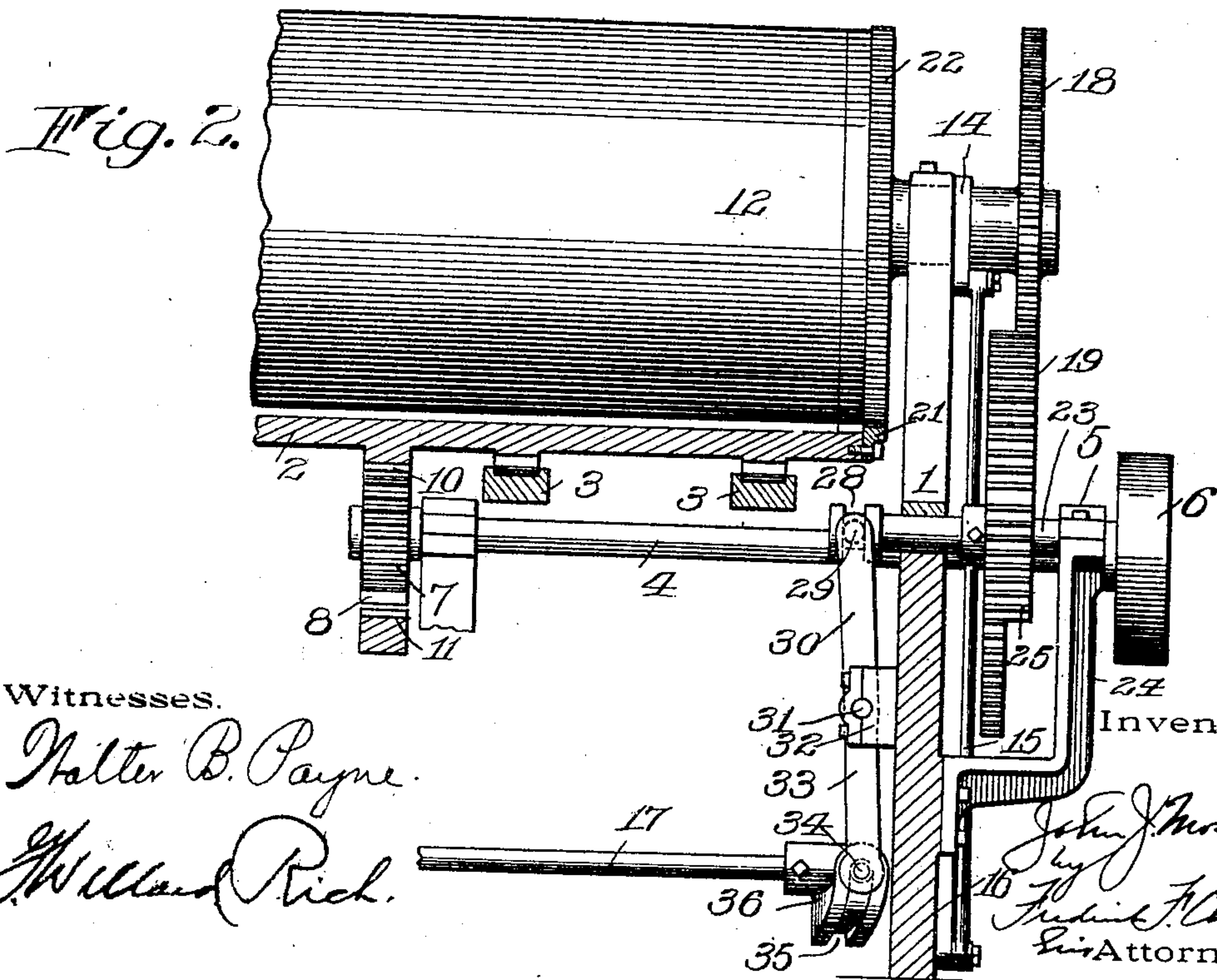


Fig. 2.

Witnesses.

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MECHANISM FOR PRINTING-PRESSES.

No. 809,004.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN J. MOSHER, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Mechanism for Printing-Presses; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My present invention relates to printing-presses, and particularly to that class embodying a reciprocatory bed and a revoluble cylinder forming the platen coöperating therewith; and it has for its object to provide improved driving devices for the latter, whereby the platen and the bed will be caused to register accurately and will be driven equally or at exactly the same speed during all parts of the impression or printing stroke.

To these and other ends the invention consists in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings, Figure 1 is a side elevation of a printing-press, showing a mechanism constructed in accordance with my invention applied thereto; and Fig. 2 is a detail sectional view thereof.

Similar reference-numerals in both figures indicate similar parts.

In illustrating my invention I have shown it applied to a printing-press of that type commonly known as "two-revolution cylinder-presses," embodying generally a reciprocatory bed, on which the type-form is carried, and a revoluble cylinder, forming a platen, which is given two complete revolutions for one backward-and-forward movement of the bed. As my invention relates particularly to the mechanism for causing the registering of the cylinder or platen with the printing-bed, other portions of the printing-press have been omitted from the drawings, only those parts being illustrated which operate in conjunction therewith.

The frame of the machine is indicated by 1, and arranged thereon is the bed 2, movably supported in a horizontal position upon the tracks 3. Extending half-way across the press and located beneath the bed is a

driving-shaft 4, the outer end of which is supported in a bracket 5 and provided with a pulley 6, adapted to receive a driving-belt operated by any suitable form of motor device. At the inner end of the shaft is a gear-wheel 7, with which meshes a gear-wheel 8, the shaft or journal therefor being carried on arms 9, journaled on the shaft 4, as shown in dotted lines in Fig. 1. This gear-wheel 8 co-operates alternately with the upper and lower rack-bars 10 and 11, respectively, formed upon a frame attached to the lower side of the bed 2, said gear being alternately raised and lowered into engagement with one or the other of said rack-bars to cause the forward or rearward movement of the bed, as is usual in this class of machines.

The revoluble cylinder or impression-surface 12 is located above the bed 2, and the shafts or journals 13 at the ends thereof pass through eccentric bushings 14, journaled in the frame, as shown in Fig. 2 and in dotted lines in Fig. 1. Each of the said bushings is provided with a short arm 14, connected to a rod 15, the lower end of which is attached to a short crank-arm 16, carried on a shaft 17, which is oscillated at proper intervals of time by the usual or any preferred form of mechanism whereby the impression cylinder or surface 12 will be raised to clear the bed during its rearward or retrograde movement and will be lowered to engage it during its forward movement. To one end of the cylinder-shaft 13 is attached a gear-wheel 18, and engaging therewith is a similar gear-wheel 19, forming an idler which is rotated continuously by a pinion 20, secured to the driving-shaft 4.

As it is the purpose of my invention to provide a mechanism whereby the cylinder or impression-surface may be driven from the bed during the forward or printing movement of the latter, I provide direct driving connections between the bed 2 and the cylinder 12, operating conjointly with other means for rotating the cylinder, which are actuated from the driving-shaft 4 and are brought into operative position before the first-mentioned driving connections are disengaged. To this end I provide the bed 2 at one or, if desired, at both sides with a rack 21, with which when the cylinder is lowered engages the teeth of a circumferential gear 22, mounted on the cylinder. The driven gear-wheel 19

is rigidly connected to a shaft 23, which is movable longitudinally in its bearings formed in the frame 1 and an arm 24 on the side thereof. This gear-wheel is provided through-
 5 out one portion of its periphery with a laterally-extending portion forming a broadened face 25, the forward end 26 of which is positioned to take up with the teeth of the gear 18 when the bed 2 has completed its forward
 10 movement and the impression-surface is being elevated out of engagement therewith to separate the gear 22 from the rack 21 and its rear end 27 terminates at such a point that it passes out of engagement with the gear-
 15 wheel 18 at the moment the impression-surface is lowered into engagement with the bed. This engagement and disengagement of the face 25 with the gear 18 occurs upon the alternate revolutions of these gear-wheels,
 20 and as the cylinder makes a complete revolution during the retrograde movement of the bed I provide means for shifting the driven gear-wheel 19 so that the cylinder 12 is rotated positively and continuously in one
 25 direction and in perfect unison with the reciprocation of the bed. At the inner end of the shaft 23 is a hub having an annular groove 28, into which projects diametrically-arranged pins 29, supported upon the bifur-
 30 cated end of an arm 30, rigidly connected to a shaft 31. The latter is supported in a bearing 32 on the frame 1 and also carries an arm 33, the end of which is provided with a pin 34, projecting into a cam-slot 35 on a segmental
 35 hub 36, rigidly connected to the shaft 17. It will be seen that when the shaft 17 is oscillated in the direction indicated by the arrow in Fig. 1 the rod 15 will be moved upwardly to rotate the eccentric bearing or sleeve 14,
 40 as shown in dotted lines in Fig. 1, to elevate the impression-cylinder out of contact with the bed and that the rotation of the hub 36, mounted on the shaft, will rock the levers 33 and 30 and move the gear-wheel 19 out-
 45 wardly to the position shown in dotted lines in Fig. 2.

The gear-wheels 18 and 19 have teeth of large pitch which remain in mesh and will not be affected by the vertical movement of
 50 the impression-surface, while the teeth on the rack 21 and the cooperating gear 22 are made of a smaller pitch, and although disengaged after each forward movement of the bed they will accurately reengage each other
 55 at the next forward movement of the bed and the cylinder will be positively rotated by the bed. As the cylinder is disconnected at such times from the driving-shaft, its movement will be even and uniform with the bed
 60 during the entire printing operation. The shifting of the gear 25 occurring, as it does, when its broader portion or face 25 is in engagement with the gear-wheel 18, there is no grinding or clashing of the teeth of the two

gear-wheels and it is impossible for them to
 65 be accidentally displaced.

The mechanism embodying my invention is simple in construction and consists of few parts which may be readily applied to all
 70 kinds of multirevolution cylinder-printing presses heretofore constructed, and while I have shown one way of arranging the parts other means may be suggested to those skilled in the art without departing from the
 75 spirit of my invention.

I claim as my invention—

1. In a printing-press, the combination with a reciprocatory bed, a revoluble cylinder cooperating therewith and rotated thereby
 80 when said bed is traveling in one direction, of a gear-wheel attached to the cylinder, a second gear-wheel adapted to cooperate therewith, devices driving it independently
 85 of the bed, means for moving the last-mentioned gear-wheel into and out of engagement with the first and mechanism for driving the bed.

2. In a printing-press, the combination with a reciprocatory bed, a revoluble cylinder, a rack on the bed and a gear-wheel on
 90 the cylinder cooperating when the bed is traveling in one direction, of means for disengaging said parts when the bed is traveling in the opposite direction, another gear-wheel
 95 attached to the cylinder, a driven gear-wheel adapted to cooperate therewith, means for rotating it and separate means for operating the driven gear-wheel into and out of opera-
 100 tive engagement with the other simultaneously with the disengagement and engagement respectively of the cooperating rack and gear-wheel and means for operating the bed.

3. In a printing-press, the combination with a reciprocatory bed; a cylinder coop-
 105 erating therewith and driven thereby when moving in one direction and a gear-wheel attached to the cylinder, of a laterally-movable gear-wheel having a segmental face at one
 110 side and adapted to cooperate with the gear-wheel on the cylinder when the latter is disengaged from the bed, means for shifting the laterally-movable gear and mechanism for driving it and the bed.

4. In a printing-press, the combination
 115 with a reciprocatory bed, a cylinder cooperating therewith and driven thereby when moving in one direction and a gear-wheel attached to the cylinder, of a driven gear-wheel cooperating with the gear-wheel on the cyl-
 120 inder and having a laterally-extending segmental face, means for shifting the driven gear and causing the disengagement of the bed and cylinder and means for operating the bed and driven gear.

5. In a printing-press, the combination
 125 with a reciprocatory bed, a cylinder cooperating therewith and driven thereby when

moving in one direction and a gear-wheel at-
tached to the cylinder, of a driven gear-wheel
coöperating with the gear-wheel on the cylin-
der and having a laterally-extending seg-
5 mental face, means for causing an engage-
ment and disengagement of the bed and cyl-
inder and a shifting of the driven gear later-

ally into and out of alinement with the gear-
wheel on the cylinder when the segmental
face is in engagement therewith.

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