

No. 665,415.

Patented Jan. 8, 1901.

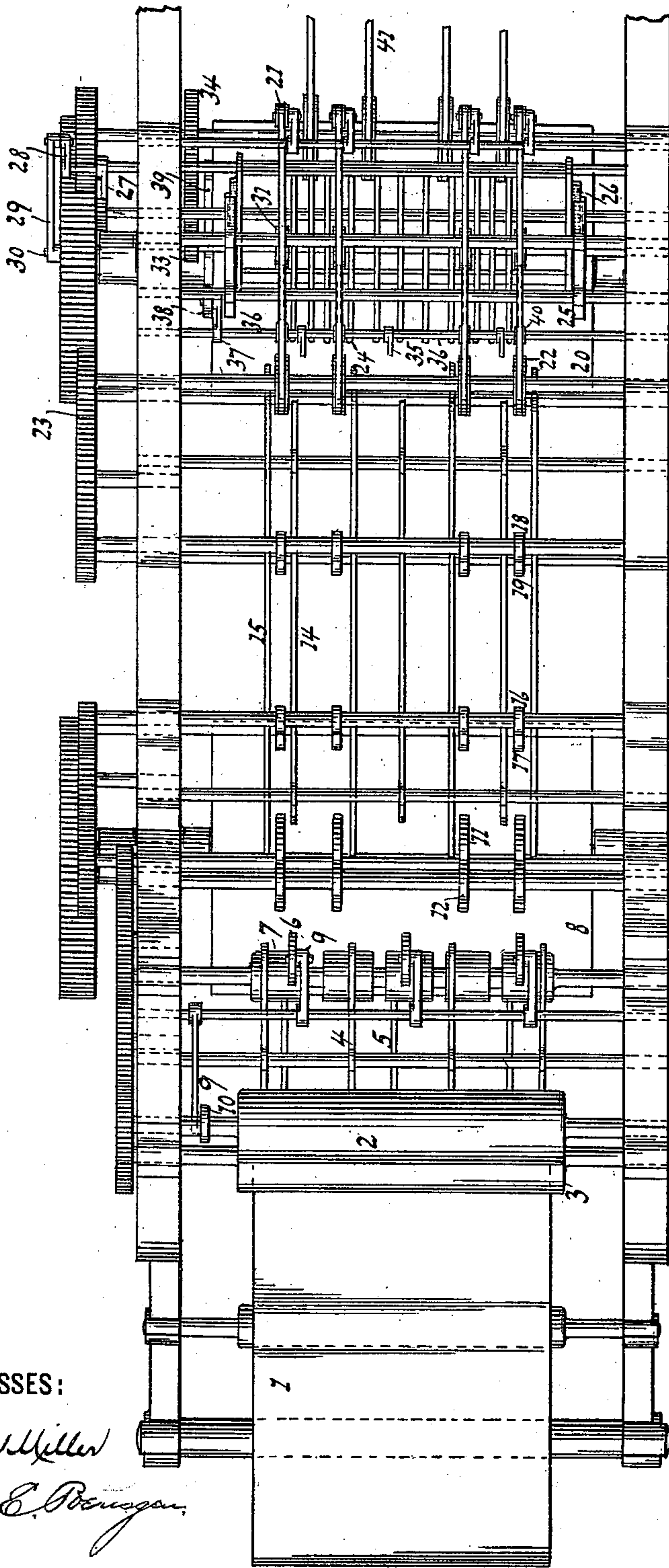
G. P. FENNER.
PERFECTING PRESS.

(Application filed Mar. 8, 1900.)

(No Model.)

5 Sheets—Sheet 1.

Fig. 1.



WITNESSES:

William Miller
Chas. E. Penegar

INVENTOR

George P. Fenner
BY *Hauff & Hauff*
ATTORNEYS

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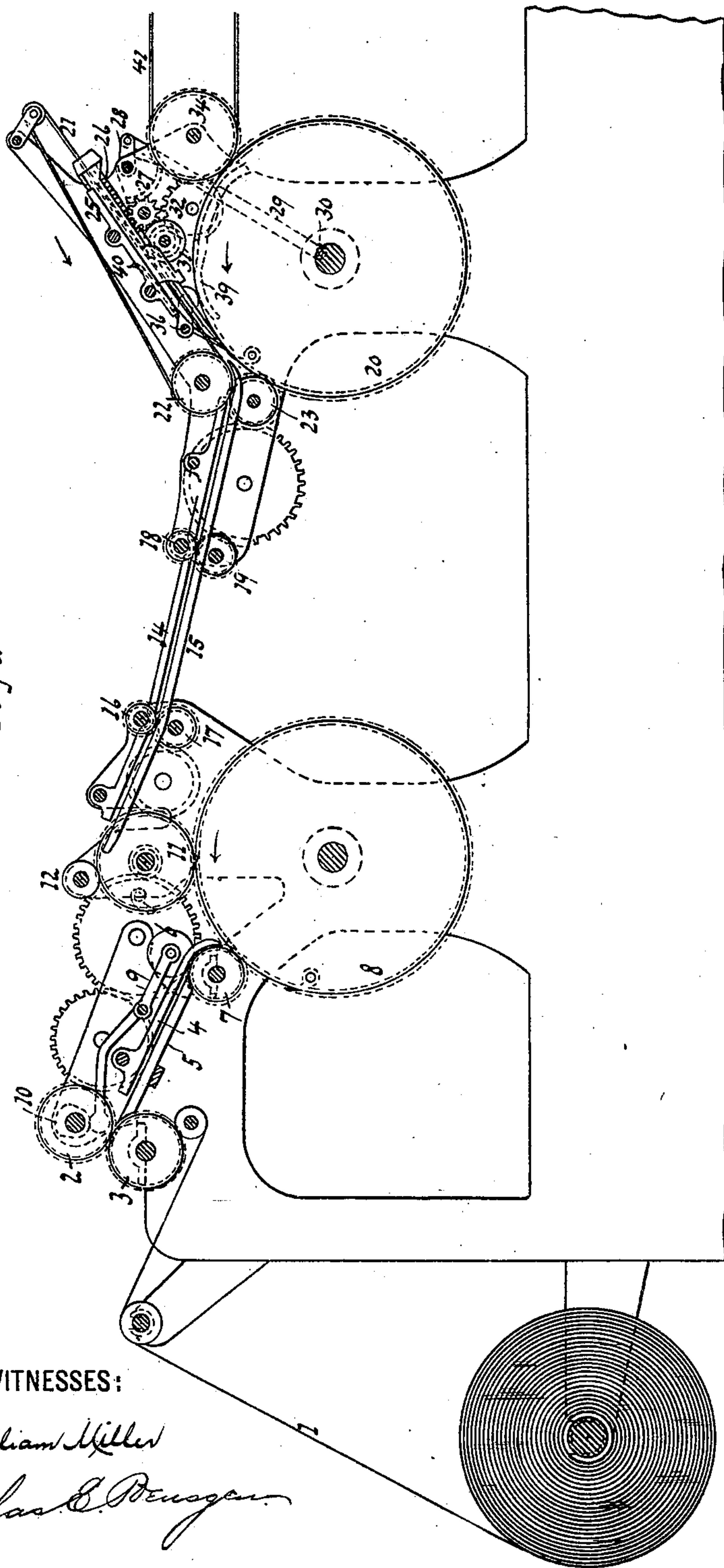
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(No Model.)

5 Sheets—Sheet 2.

Fig. 2



• WITNESSES:

William Miller
Chas. E. Deussen

INVENTOR

George P. Fenner

BY

Hauff & Hauff

ATTORNEYS

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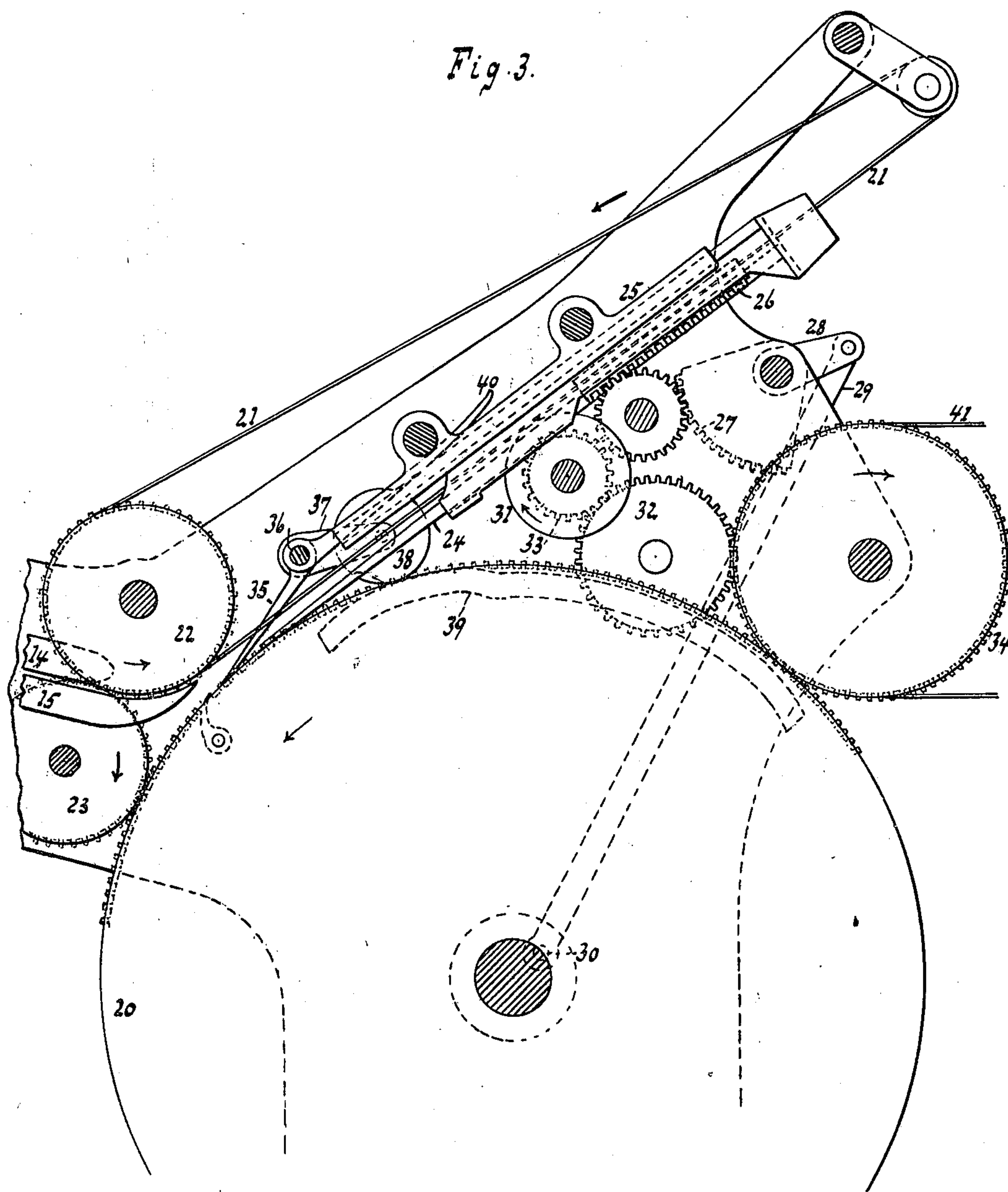
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5 Sheets—Sheet 3.

Fig. 3.



WITNESSES:

William Miller
Chas. E. Deussen

INVENTOR

George P. Fenner

BY

Hauff + Hauff

ATTORNEYS

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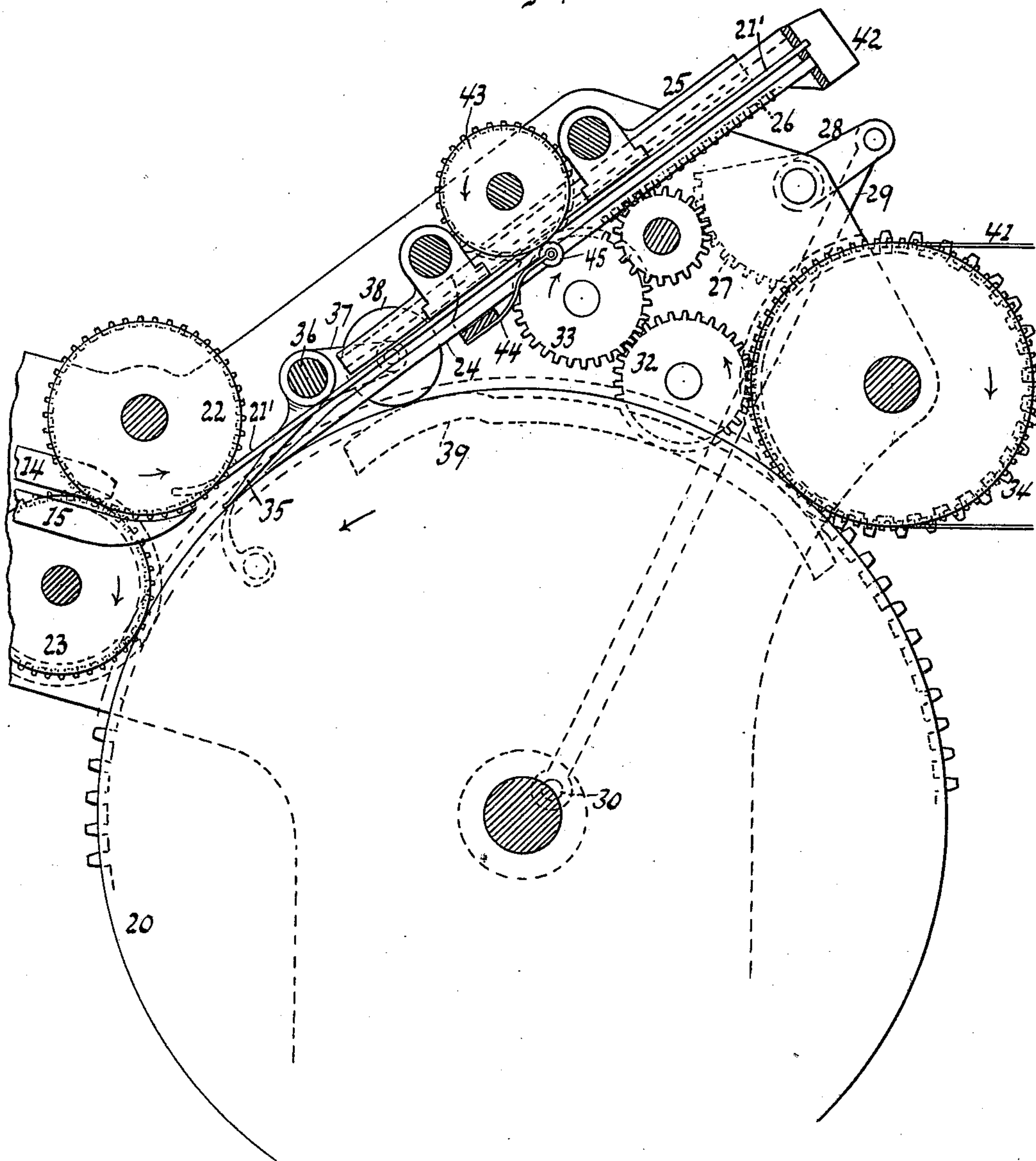
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(No Model.)

5 Sheets—Sheet 4.

Fig. 4.



WITNESSES:

William Miller
Chas. E. Pausgen

INVENTOR

George P. Fenner

BY

Hauff & Hauff

ATTORNEYS

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(Application filed Mar. 8, 1900.)

(No. Model.)

5 Sheets—Sheet 5.

Fig. 5.

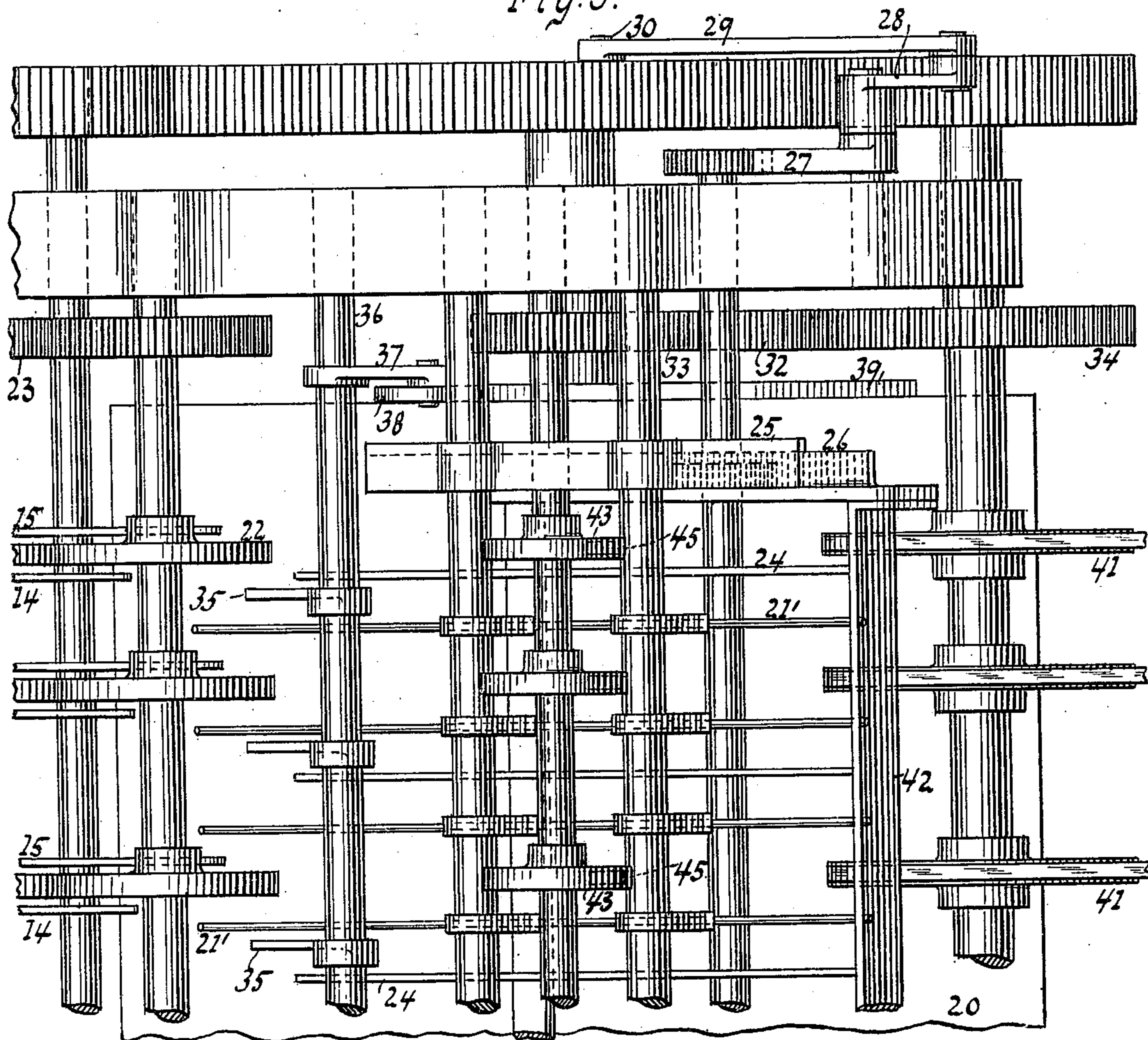
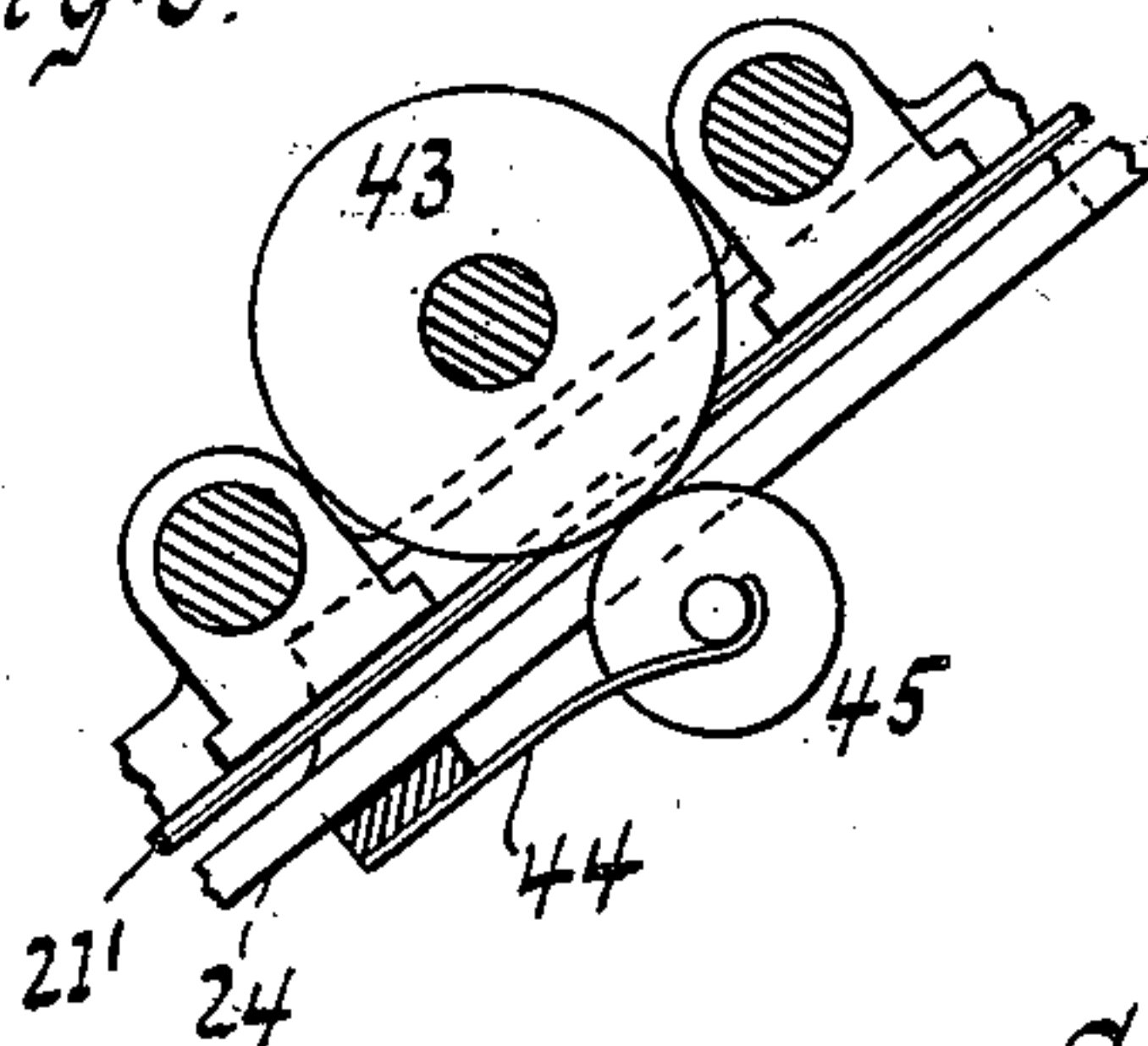


Fig. 6.



WITNESSES:

William Miller
Chas. E. Pennington

INVENTOR

George P. Fenner

BY

Hauff & Hauff

ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE P. FENNER, OF NEW LONDON, CONNECTICUT.

PERFECTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 665,415, dated January 8, 1901.

Application filed March 8, 1900. Serial No. 7,903. (No model.)

To all whom it may concern:

Be it known that I, GEORGE P. FENNER, a citizen of the United States, residing at New London, in the county of New London and State of Connecticut, have invented new and useful Improvements in Perfecting-Presses, of which the following is a specification.

By means of this invention a sheet can be readily or rapidly printed on one side and reversed to be printed on the opposite side, as set forth in the following specification and claims, and illustrated in the annexed drawings, in which—

Figure 1 is a plan view of a perfecting-press embodying this invention. Fig. 2 is a sectional side elevation of Fig. 1. Fig. 3 is a detail view of a type-cylinder with reversing mechanism. Figs. 4, 5, and 6 show an arrangement dispensing with tapes.

In the drawings is shown a web or endless strip 1, which passes between perforating-cylinders 2 and 3, Fig. 2, to receive the rip-line, and thence moves on between bars or guides 4 and 5 to be taken by disks 6 and 7. The guides 4 or some of them are bent or curved to lead the sheet to the first impression-cylinder 8 to be grasped by the gripper thereof. The disk 6 is shown journaled in lever 9, actuated by cam 10 on cylinder 2 or its axle. When the web has been taken by the gripper of cylinder 8, the rollers 6 and 7 are put out of action or rollers 6 are lifted by cam 10. The sheet having been taken by the gripper of cylinder or bed 8, which rotates at a greater circumferential speed than the rollers (or perforator) 2 and 3, such sheet is torn from the web at the rip-line or perforations. Such sheet is printed on one side by cylinder 8 and is then taken by grippers of disks 11 and carried between the latter and disks 12 to the bars or guides 14 and 15. The disks 16 and 17, together with disks 18 and 19, keep the sheet moving between bars 14 and 15 toward the second impression-cylinder 20. The guides 15 or some of them are shown curved upward or toward tapes 21, Fig. 3, driven by pulleys 22, actuated by gear 23, engaged by teeth secured to or driven with cylinder 20 or its shaft. The sheet coming from guides 15 passes between tapes 21 and bars or guides 24, which are hung or movable in tracks 25, so as to be capable of re-

ciprocating. The bars 24 have a rack 26, shown engaged through an intermediate gear by toothed segment 27, having arm 28, linked at 29 to eccentric-pin 30, rotated with cylinder 20, so as to reciprocate the link 29 and the guides 24. The tape 21 acts in connection with disks 31 to feed a sheet from guides 15 onto guides 24. The disks 31 are driven by gears 32 and 33, the gears 32 being driven by gears 34, which receive motion from cylinder 20. The fingers 35 are made to swing about shaft 36 and are actuated by arm 37, with roller 38 engaging cam 39, moving with cylinder 20. As the sheet runs from bars 15 between tapes 21 and bars 24, the fingers 35 are raised or swung away from cylinder 20, so that the sheet can pass between the cylinder and the fingers. In other words, the fingers are swung out of the way of the sheet coming from bars 15. After the sheet has been run along guides 24, the fingers 35 dip or swing to the cylinder 20 to move the tail edge of the sheet to such cylinder. The bars 24, being moved by gears 26 and 27 toward bars 15, will move the sheet, so that the grippers of cylinder 20 can secure proper hold of the tail of the reversed sheet for printing the reverse page or side.

In addition to fingers 35 the shaft 36 carries fingers 40, Fig. 3, corresponding to tapes 21, and while a sheet is passing from bars 15 and the fingers 35 are clear of cylinder 20 the fingers 40 press tapes 21 into contact with the sheet, so that the tapes obtain secure hold or friction on the sheet, and the latter by the action of tapes 21 and disks 31 is properly fed or placed along bars 24. The sheet when printed on both sides can be led off by tapes 41 or other suitable appliance.

In describing rollers 2 and 3 as a "perforator" it is of course understood that any suitable cutting or splitting arrangement is meant which enables a sheet to be separated from the web. These perforating-cylinders 2 and 3 lead a sheet between the bars 4 and 5.

In the arrangement shown in Figs. 4 and 5 the tapes 21 (shown in Fig. 3) are dispensed with, as also the fingers 40, used to press the tapes to the revolving disks 31. (Shown in Fig. 3.) In their place are substituted stationary rods 21'. (Shown in Fig. 4.) Holes are made in cross-bar 42 to allow these rods

to pass through, the bar 42, with the fingers 24 attached, being reciprocated, while the rods 21' are stationary. After the tail end of the sheet leaves the disks 22 said sheet is kept moving by rotary disks 43, suitably mounted on a shaft. These disks 43 are in practice provided with a rubber surface. Such rubber faces are, however, not necessary, as the disks 43 can be made to feed the sheets without such facing. Under disks 43 are springs 44. Suitable thin metal strips can be made to form such springs. As the sheet passes along the reciprocating table or bars 24 it passes between wheels 45 on the metal springs 44 and the revolving surface of the disks 43. These disks continue the motion of the sheet until its edge comes in contact with the cross bar or stop 42, at which point the sheet is arrested, and the fingers 35 press the tail of the sheet to position to be seized by the grippers on the impression-cylinder 20. By this means tape can be dispensed with.

By mounting a wheel or roller 45, Figs. 4 and 6, on the end of each spring 44 the friction of the paper is reduced or its travel eased, and the disk 43, which is the driving power, is enabled to readily carry the sheet by friction up or against the stop 24.

It is evident that modifications can be made without departing from the invention. For example, the bars 24 can be reciprocated and pass through bar 42, which latter can be made to remain stationary. The fingers 21' can also pass through bar 42, so that the latter may be adjusted to stop the sheet at any required point. The bar 42 can be supported in any suitable way—as, for example, by being attached to track 25.

What I claim as new, and desire to secure by Letters Patent, is—

1. An impression-cylinder 8, a gripper-disk for taking a sheet off the impression-cylinder, bars or guides 14 and 15 extended from the gripper-cylinder, feed-disks for moving a sheet along the bars, a second set of guides 24, and a second impression-cylinder for receiving a sheet from the second set of guides substantially as described.

2. A set of bars or guides 14 and 15, disks for feeding a sheet along the guides, a second set of bars 24 and tapes 21, and a cylinder 20 made to receive a sheet from the second set of bars substantially as described.

3. A set of bars or guides 14 and 15, disks for feeding a sheet along the guides, a second set of bars 24, tapes and disks for feeding a sheet along the second set of bars, and a cylinder made to receive a sheet from the second set of bars substantially as described.

4. An impression-cylinder 20, guides extended to the cylinder, and a second set of guides made to receive a sheet from the first-named guides and to deliver the same to the impression-cylinder substantially as described.

5. An impression-cylinder 20, guides extended to the cylinder, and a set of reciprocating guides made to receive a sheet from the first-named guides and to deliver the same to the impression-cylinder substantially as described.

6. An impression-cylinder, guides extended to the cylinder, a second set of guides made to receive a sheet from the first-named guides and to deliver the same to the impression-cylinder, and vibrating fingers 35 made to press the sheet tail to the cylinder substantially as described.

7. An impression-cylinder 20 combined with guides 24 and tapes 21, and a rack and gear for reciprocating the guides substantially as described.

8. An impression-cylinder 20, and guides 24 and tapes 21 made to receive a sheet for delivery to the cylinder, said guides having a rack, a gear made to engage the rack, and an eccentric-pin linked to the gear and actuated by the cylinder to reciprocate the guides substantially as described.

9. A set of bars or guides 14 and 15, disks for feeding a sheet along the guides, a second set of bars 24 and 21' and a cylinder 20 made to receive a sheet from the second set of bars substantially as described.

10. A set of bars or guides 14 and 15, mechanism substantially as described for feeding a sheet along the guides, a second set of bars, disks for feeding a sheet along the second set of bars, and springs 44 for holding the sheet to the disks substantially as described.

11. A set of bars or guides 14 and 15, mechanism substantially as described for feeding a sheet along the guides, a second set of bars, disks for feeding a sheet along the second set of bars, and springs 44 provided with rollers for holding the sheet to the disks substantially as described.

12. A set of bars or guides 14 and 15 made to guide a sheet, a second set of bars or guides to receive a sheet from the first-named guides, and a set of disks and springs 44 for feeding a sheet along the second-named guides, said disks being provided with a rubber or friction facing substantially as described.

13. An impression-cylinder having a cam 39 and an eccentric-pin, a guide 24, fingers 35 actuated by the cam, gears actuated by the eccentric-pin to reciprocate the guide, and mechanism substantially as described for feeding a sheet along the guide.

14. The combination with bars or guides having a stop 42, of disks or wheels 43 and 45 between which a sheet is made to pass along the guides to the stop, and a gripper or impression-cylinder for drawing the sheet out from between the wheels substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE P. FENNER.

Witnesses:

FRED S. ENGLISH,
WILLIAM W. IRISH.