

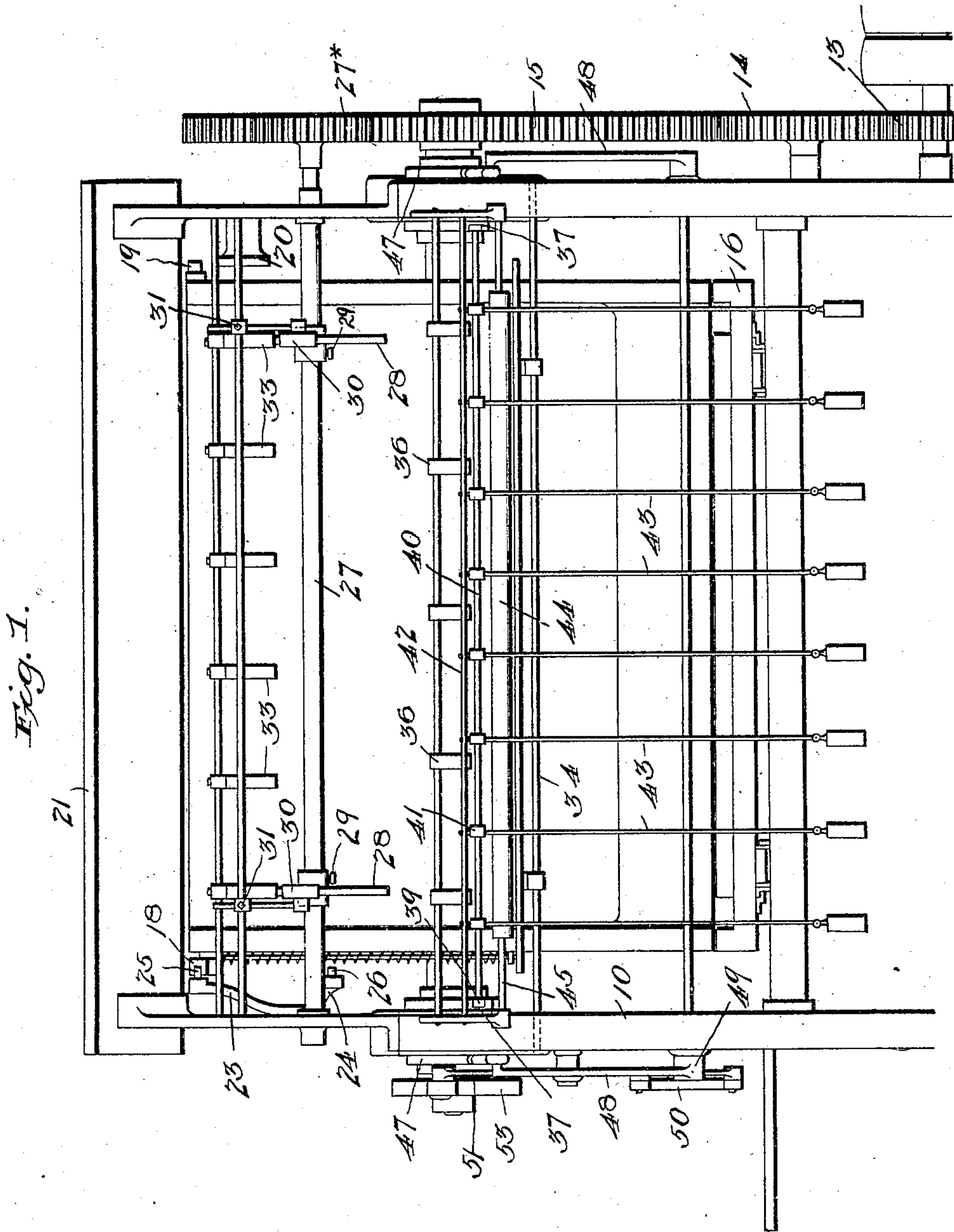
No. 879,630.

PATENTED FEB. 18, 1908.

R. J. GREENWAY, JR.
SHEET DELIVERY.

APPLICATION FILED JULY 23, 1906.

2 SHEETS—SHEET 1.



Witnesses
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By

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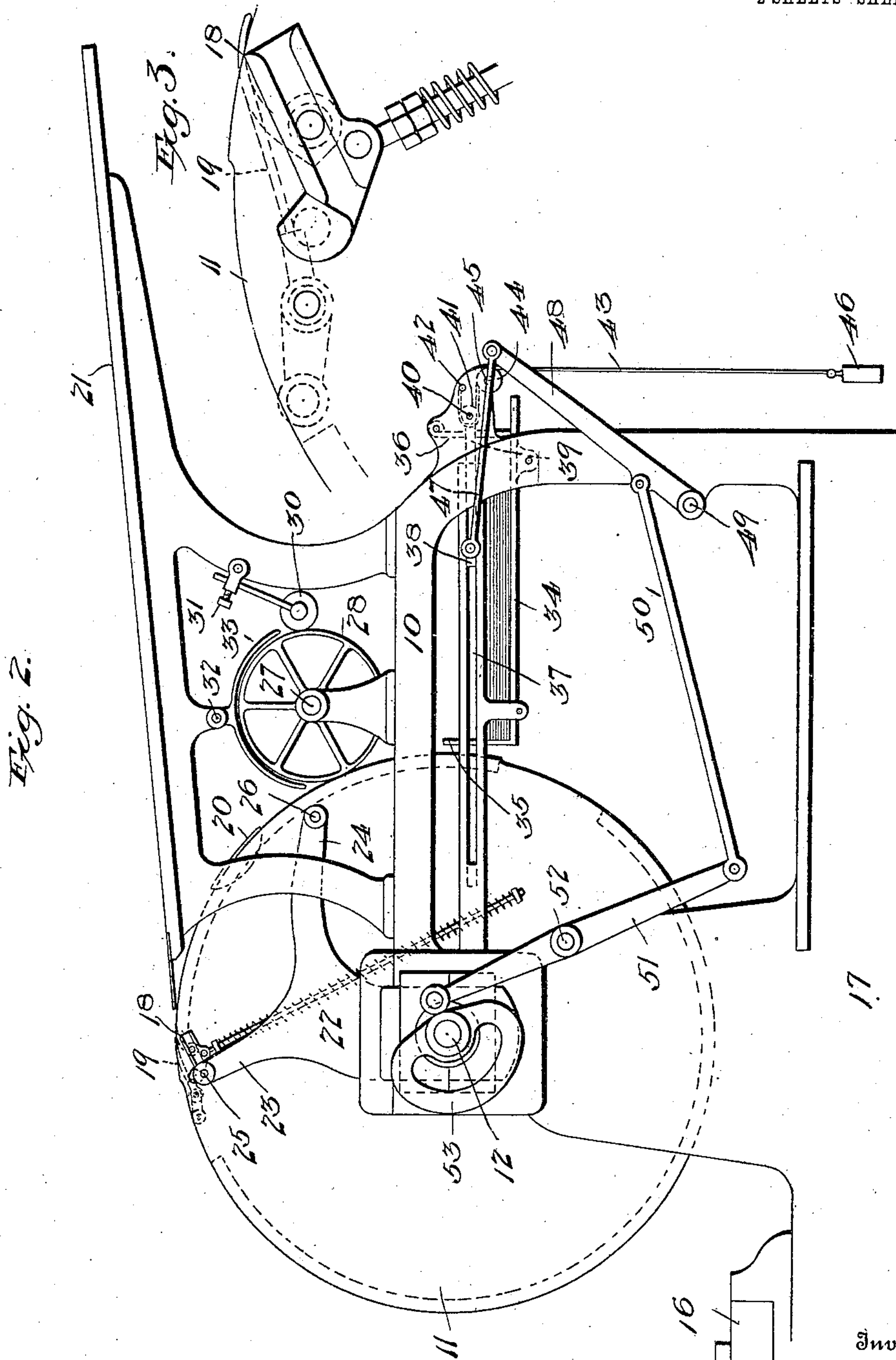
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UNITED STATES PATENT OFFICE.

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SHEET-DELIVERY.

No. 879,630.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed July 23, 1906. Serial No. 327,429.

To all whom it may concern:

Be it known that I, RICHARD J. GREENWAY, Jr., a citizen of the United States, residing at Westerly, in the county of Washington and State of Rhode Island, have invented certain new and useful Improvements in Sheet-Deliveries; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to printing presses. Its object is to avoid smutting the printed sheet. To this end I provide mechanism which will dispense with the ordinary delivery reels, and will take the printed sheet directly from the impression cylinder and transfer it to a tape carrier, or similar means, without touching the printed parts of the sheet, and I also provide a sheet-receiving mechanism comprising a tape carrier adapted to receive the sheet printed side up from the initial delivery mechanism.

In the illustrated example of my invention I have provided between the impression cylinder and what may be termed the final sheet delivery mechanism or the sheet receiving mechanism an intermediate sheet delivery mechanism comprising rotary guides and stationary guides between which the sheet is fed from the impression cylinder. Or, more specifically referring to the example illustrated, I have provided a series of guide pulleys which rotate in contact with the impression cylinder at points which correspond with the margins or unprinted parts of the sheet, and above these guide pulleys a series of semi-circular segments or stationary guides whose inner peripheries are in a plane sufficiently above the outer peripheries of the guide pulleys to provide a passage for the sheet being taken from the impression cylinder. Below this initial delivery mechanism I have provided a sheet receiving table in which reciprocates a tape carrier frame operating weighted strips of tape, the tape strips being made to first run out under the sheet to receive it and then to retreat from the sheet, leaving it printed side up on the receiving table. By this invention and construction I am enabled to take the sheet from the impression cylinder directly, that is, with the printed side down but without touching any of the printed part of the sheet, and drop it upon the tape carrier with the printed side

up, thus avoiding any possibility of smutting the printed sheet. I also have provided a compact mechanism in which the guides and the tape-carrier are immediately beneath the feed-board and close to the impression cylinder, and I, especially secure economy of space and operation by having the sheet reversed by the guides and then carried in toward the impression cylinder.

In the accompanying drawings Figure 1 is a rear elevation; Fig. 2 is a side elevation; and Fig. 3 is a detail.

10 represents the frame and 11 an impression cylinder journaled on a shaft 12, driven in the usual manner by gears 13, 14, 15, and traveling on the type-bed 16, which in turn travels, in a familiar manner upon the foundation bed 17. The impression cylinder carries grippers 18 of familiar form with the usual cam-path, spring arm and tripping finger, and also the familiar lifters 19 which are operated by the cam 20.

21 is the usual feed-board, and it, of course, is to be understood that any of the customary adjuncts of a press of this character are to be employed.

22 represents a bracket secured to one side of the frame and having two arms 23, 24 which carry the pins 25, 26, which respectively and in order close and open the grippers 18.

Upon a shaft 27 driven by a gear-wheel 27* at any desired intervals and in any desired numbers are a series of guide pulleys 28. These pulleys are, as indicated at 29, adjustably secured to the shaft with which they rotate. Corresponding with the guide pulleys and running in contact with them are a series of feed rollers 30 adjustably secured as indicated at 31 to the frame. Adjustably secured to a rod 32 extending across the frame are a series of semi-circular guides or segments 33, whose inner peripheries are in a plane sufficiently above the outer peripheries of the guide pulleys 28 to form a channel for the passage of the sheet. These stationary guides 33 are so arranged that one end projects above and slightly beyond the contact point of the guide pulleys and the impression cylinder.

In Fig. 3 I have illustrated the relation of the grippers and lifters, the lifter being arranged to certainly lift the leading edge of the sheet and direct it into the path between the stationary guides and the rotary guides

on the instant the grippers 18 are opened. When the grippers release the sheet the guide pulleys turning in contact with the impression cylinder feed the leading edge of the sheet forward into the space between the correlative guides 28, 33. At the opposite side, the open ends of the stationary guides direct the sheet between the guide pulleys 28 and the feed rollers 30 so that it may either be directed slightly inward to the tape carrier and receiving table mechanism. In practice it will be found advantageous to have, as shown, a greater number of the stationary guides 33 than of the guide-pulleys 28. I have illustrated two guide pulleys and five stationary guides. The two guide pulleys correspond with the usual margins of the printed sheet. In case of thin paper it may be expedient to use an additional roller, or additional rollers, which may be arranged in accordance with the purpose of the mechanism to practically avoid the printed matter. Beneath the initial sheet delivery mechanism is a pile receiving table 34 having a front stop 35 and a rear stop 36. Secured to each side of the table is a grooved slideway 37. In these slideways play blocks 38 having a horizontal bar 39 attached to them and carrying at the outer end a rod 40 on which turn tape-rollers 41. These parts, with any desired additional strengthening parts, constitute the frame of the tape-carrier. To the frame of the machine at 42 are secured one end of each of a series of tapes 43, each tape passing over a roller 41 and thence outward and downward over a long roller 44 turning on a rod 45, and each tape being held taut by a weight 46. To the tape frame is secured a connecting rod 47 pivoted to a lever-arm 48, which in turn is pivoted to the frame at 49. The lever-arm 48 and the connecting arm 47 are operated by means of a connecting rod 50 pivoted to a lever-arm 51 in turn pivoted to the frame at 52 and operated by a cam 53 secured to the shaft of the impression cylinder.

In operation a sheet is taken from the feeding board, brought around to receive the impression from the bed and then brought up to the contact point of the guide pulleys 28 with the impression cylinder. At this point the grippers 18 release the sheet, the lifters or shoo-fly fingers lift the leading edge from the impression cylinder and the leading edge is fed forward between the outer peripheries of the guide pulleys 28 and the inner peripheries of the stationary guides 33, curving around between the rotary guides and the movable guides until the leading edge takes in between the guide pulleys and the feed rollers 30, which direct it toward the tape carrier below. As the leading edge of the sheet drops toward the tape carrier the tape carrier frame 38, 39 is reciprocated,

drawing in the rod 40 and the rollers 41 and with them the tape strips, so that the unprinted side of the sheet is engaged or pushed by rollers 41, by which its leading edge is carried out toward and against front stop 35, finally dropping when released by guide pulleys 28 and feed rollers 30 entirely upon the tapes, which by that time have reached their furthest throw toward the impression cylinder. The tape carrier then runs back, the tape strips rolling out from under the sheet leaving the sheet delivered upon the pile and lying between the strips 35 and 36.

Having fully described my invention, what I claim is:—

1. In a printing-press, the combination of an impression cylinder, guides for receiving and directing the sheet away from the cylinder, a receiving table immediately beneath the guides having its forward end adjacent to the cylinder and a carrier which receives and carries the sheet towards the cylinder to deposit it upon the receiving table beneath the guides.

2. In a printing-press, the combination with an impression cylinder of a rotating guide about which the printed sheet is curved to reverse it, and a tape-carrier which moves towards and from the cylinder, receives the sheet as it comes from the guide and lays out the sheet as the carrier moves towards the cylinder.

3. In a printing-press, the combination of an impression cylinder, a feed-board, rotary guides and curved stationary guides immediately beneath the feed-board to receive and curve the sheet, and a tape-carrier immediately below the guides to receive and direct the depending sheet.

4. In a printing-press, the combination of an impression cylinder, guides for receiving the leading edge of the sheet and curving the sheet to reverse it, and a reciprocating carrier which meets the falling leading edge of the sheet, travels forward with it and then withdraws from beneath it.

5. In a printing-press, the combination of a sheet-receiving table, guide-ways on opposite sides of the table, a tape-carrier frame traveling in the guide-ways, rollers in one end of the tape-frame, and tape-strips fixed at one end, weighted at the other and running over the tape-frame rollers.

6. In a printing-press, a tape-carrier comprising a reciprocating frame carrying at one end tape-rollers, and tape-strips fixed at one end, weighted at the other and running over the tape-rollers.

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

RICHARD J. GREENWAY, JR.

Witnesses:

A. R. STILLMAN,
B. S. DRAKE.