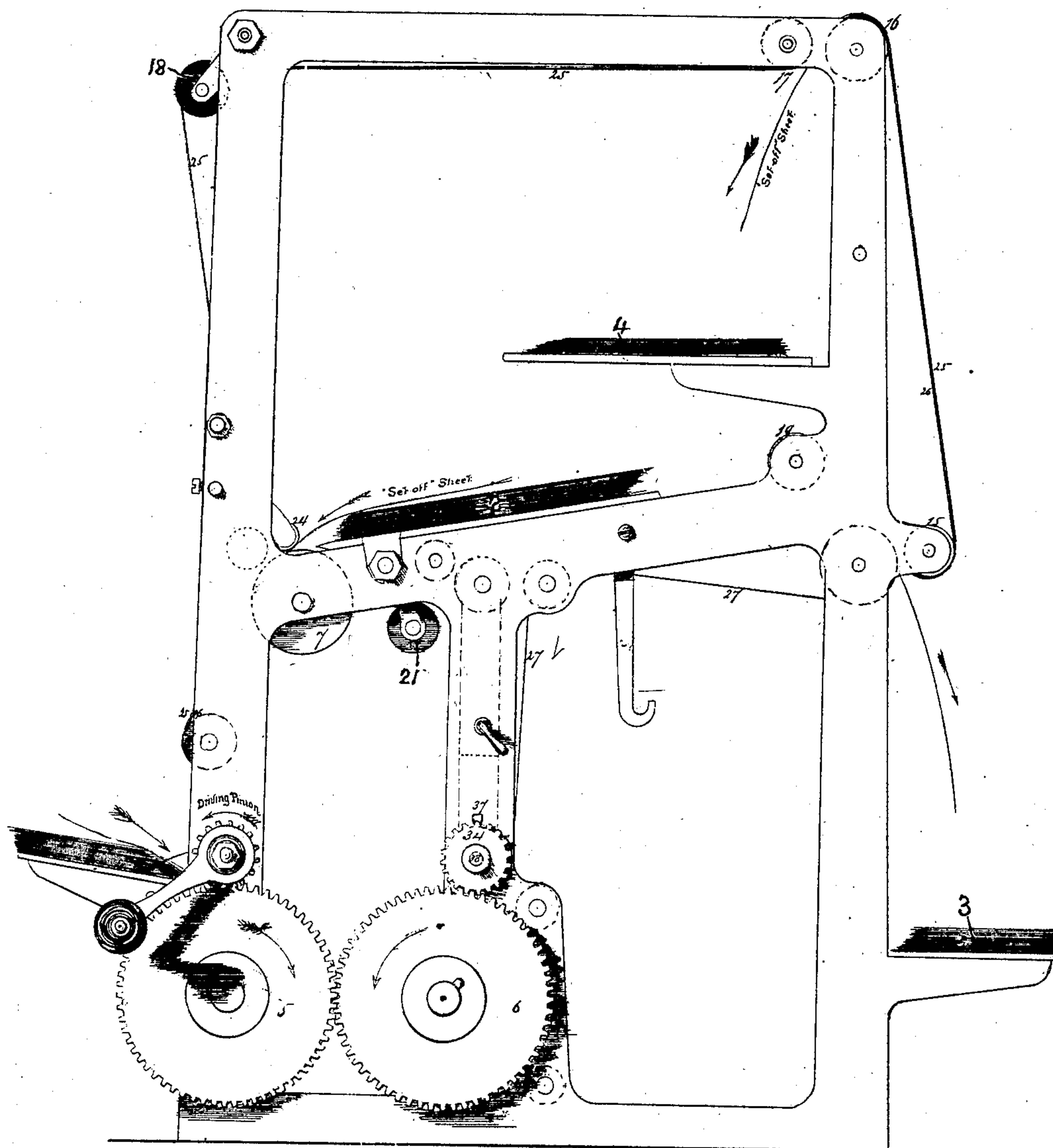


R. M. HOE.  
PRINTING PRESS.

No. 113,769.

Patented Apr. 18, 1871



Witnesses. *Edward E. Osborn*  
*Robert H. Wanner*

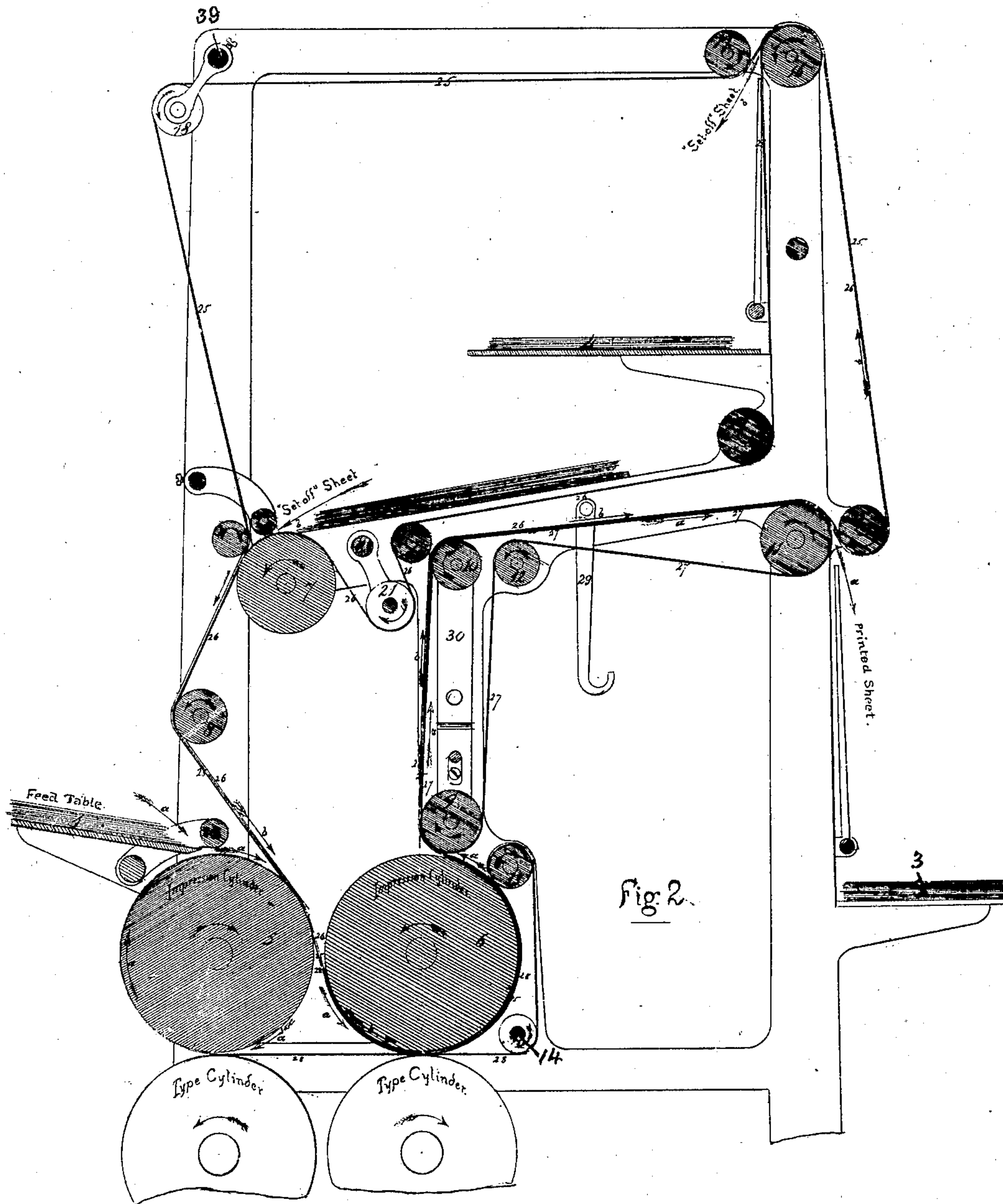
Fig. 1

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*By C. A. D. Orin* atty

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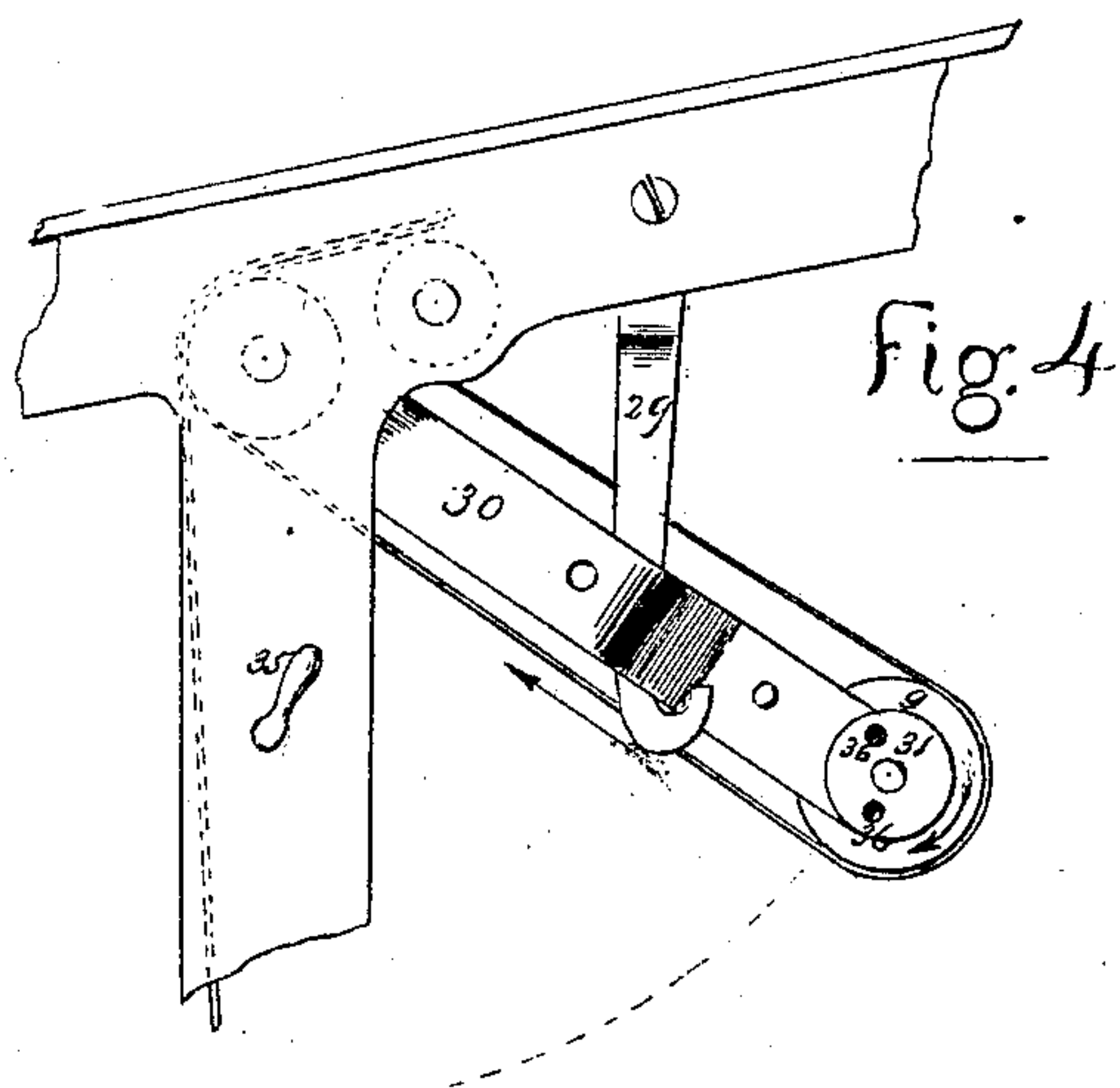
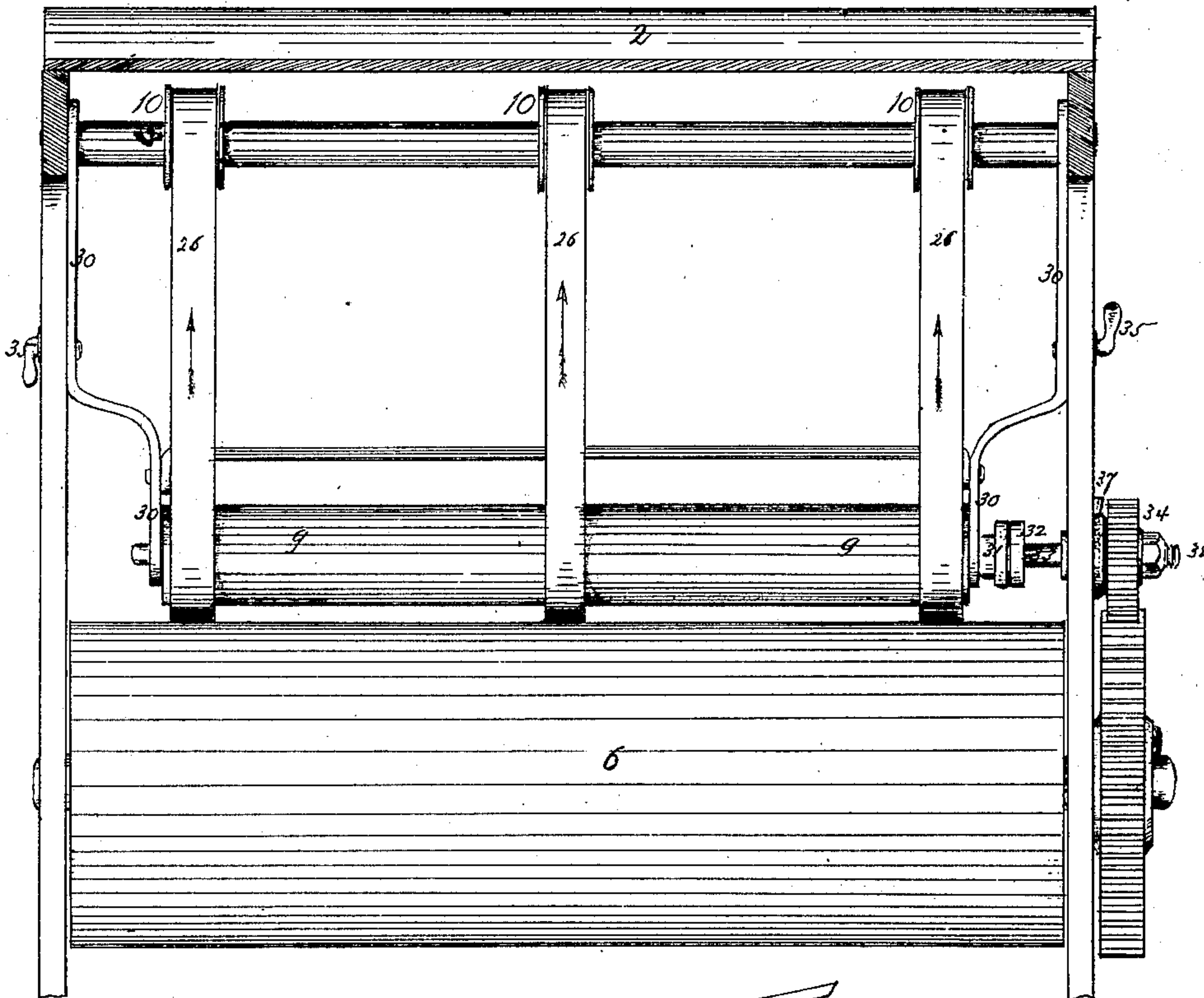


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Fig. 3





# United States Patent Office.

RICHARD M. HOE, OF NEW YORK, N. Y.

Letters Patent No. 113,769, dated April 18, 1871.

## IMPROVEMENT IN PRINTING-PRESSES.

The Schedule referred to in these Letters Patent and making part of the same.

I, RICHARD M. HOE, of the city, county, and State of New York, have invented certain new and useful Improvements in Printing-Machines, of which the following is a specification.

### *Nature and Objects of the Invention.*

My invention relates to that class of printing-machines in which both sides of a sheet are printed before it issues from the press; and in which a "set-off" sheet is passed in between the sheet being printed and the second impression cylinder, so as to receive the set-off from the undried ink on the first-printed side of the sheet which would otherwise be received by the blanket of the second cylinder.

It consists in certain combinations and arrangements of parts which convey the set-off sheets, at the proper intervals, into proper position with relation to the sheets being printed, so that they will receive the set-off from the printed side, and then be carried off out of the press and laid in a pile separate from the printed sheets; and also in mechanism so arranged as to enable the rollers to be removed when desired, and supported without deranging the working mechanism of the machine.

The object of the first part of this invention is to separate and deposit the set-off sheets in piles automatically. Heretofore, these sheets issued from the press together with the printed sheets, and it was necessary to separate and deposit them by hand in separate piles.

The object of the second part of the invention is to enable the roller upon the impression-cylinder, from which the second side is printed, to be removed out of the way, so that the blanket may be "thickened up," by layers upon it, when desired to obtain a great pressure upon the sheet.

### *Description of the Drawing.*

Figure 1 is a side elevation of the upper part of a printing-machine with my improvement combined and arranged therewith.

Figure 2 is a vertical sectional view in a plane at right angles to the axis of the impression-cylinders.

Figures 3 and 4 are views, partly in section, the former an end view, and the latter a side view, of a portion of the frame and mechanism, to illustrate the manner of removing and supporting the roller 9.

### *General Description.*

The feed-table 1 on the left of the machine holds the sheets to be printed, and the table 2, above the impression-cylinders in the center of the frame, holds the set-off sheets.

The tapes which convey the sheets from the feed-tables to the impression-cylinders, and afterward to

the receiving-tables 3 4, consist, principally, of three series, 25, 26, and 27.

The first series, 25, passes from the pulley 18 on the left of the frame down in contact with the roller 22, around the roller 8, over the impression-cylinder 5, around and beneath the impression-cylinder 6, under the roller 9, over the rollers 10 and 11, under the roller 15, up and over the roller 16, and beneath the roller 17 to the pulley 18.

The second series of tapes, 26, runs from the roller 16 down to and under the roller 19, over the roller 20, around beneath the pulley 21, over the feed-roller 7, down and over the pulley 8, over the impression-cylinder 5, around and under the impression-cylinder 6, under the roller 9 up and over the rollers 10 and 11, and under the roller 15 up to the roller 16.

The third series of tapes, 27, passes from the roller 12 down and around the roller 9, up and over the roller 10, around the roller 11 to the roller 12.

A fourth series of tapes, 28, is shown in the drawing, which passes around the impression-cylinder 5 and over the rollers 13 and 14; but, in practice, its place will be supplied by the well-known arrangement of grippers to seize and carry the sheet around to receive the impression.

The sheets to be printed are fed in from the feed-table 1 beneath the pressure-roller 23, which holds them until they are seized by the grippers of the impression-cylinder 5.

After a sheet from this table has been passed around with the first impression-cylinder and been imprinted by the first type-cylinder, it is seized by the tapes of the second impression-cylinder; but at this time a set-off sheet, previously fed in beneath the pressure-roller 24, is carried down between the tapes 25 and 26 in between the sheet to be printed and the second impression-cylinder, and receives the set-off from the undried ink on the first-printed side of the sheet. The set-off sheet, still between the tapes 25 and 26, is conveyed up around the roller 9, over the rollers 10 and 11, around the roller 15, up and over the roller 16, where it is taken by the sheet-flyer and laid upon the table 4.

The printed sheet, in passing from the second impression-cylinder, is separated by the tapes 25 from the set-off sheet, between which and the tapes 27 it is carried up and over the rollers 10 and 11 to the place of discharge, where it is laid upon the receiving-table 3 by the sheet-flyer, in the usual manner.

In fig. 2 of the drawing the shaded arrows *b* represent the direction of motion of the set-off sheets, and the light arrows *a* that of the sheet to be printed.

This invention may also be used in connection with a traveling bed in place of the type-cylinders, the sheet, in that case, receiving its first impression from



the first form as the bed travels in one direction, and its second impression on the other side from the second form as the bed moves in the opposite direction.

The devices shown in figs. 3 and 4 are for the purpose of enabling the roller 9 upon the impression-cylinder 6 to be removed out of the way without disturbing the arrangement of the tapes or deranging the working mechanism. They consist of the brackets 30 30, hung on the shaft of the pulleys 10, and supporting the ends of the roller 9; the hooks 29, secured to the frame of the machine in such position that they will readily catch under the brackets 30 when turned up, and support them; and the two clutches 31 32, the former on the shaft of the roller 9, and the latter on the pinion-shaft 33.

The brackets are held down in place by the two screws 35 35, which work through the side frames of the machine; and the shaft 33 of the pinion 34 is kept from working back out of place by the screw 37, which works through a collar on the side of the frame and into a groove on the shaft 33.

When it is desired to remove the roller 9 from its position the screw 37 is drawn up out of contact with the shaft 33, and the latter is drawn out to separate the couplings 31 32; the screws 35 then being removed, the brackets may be raised up sufficiently

high to permit the hooks 29 to catch under them, as clearly shown in fig. 4.

In returning the roller to its place this operation is reversed.

The series of pulleys 18 and 21 is hung in brackets secured upon the shafts 38 39, so that they may be adjusted, when desired, to tighten the tapes.

#### *Claims.*

I claim as my invention—

1. Automatically separating and piling set-off sheets by means of tapes, or equivalent devices, constructed, arranged, and operating substantially in the manner and for the purpose specified.

2. The combination, with a printing-machine, of the mechanism for separating and piling the set-off sheets, substantially as described and specified.

3. Arranging the roller 9 in brackets 30, and with a clutch or coupling, 31 32, in combination with the hooks 29 for supporting the roller, substantially as described, and for the purposes specified.

RICHD. M. HOE.

Witnesses:

DAVID A. HALE,  
JOSEPH I. HEWES.