

No. 631,398.

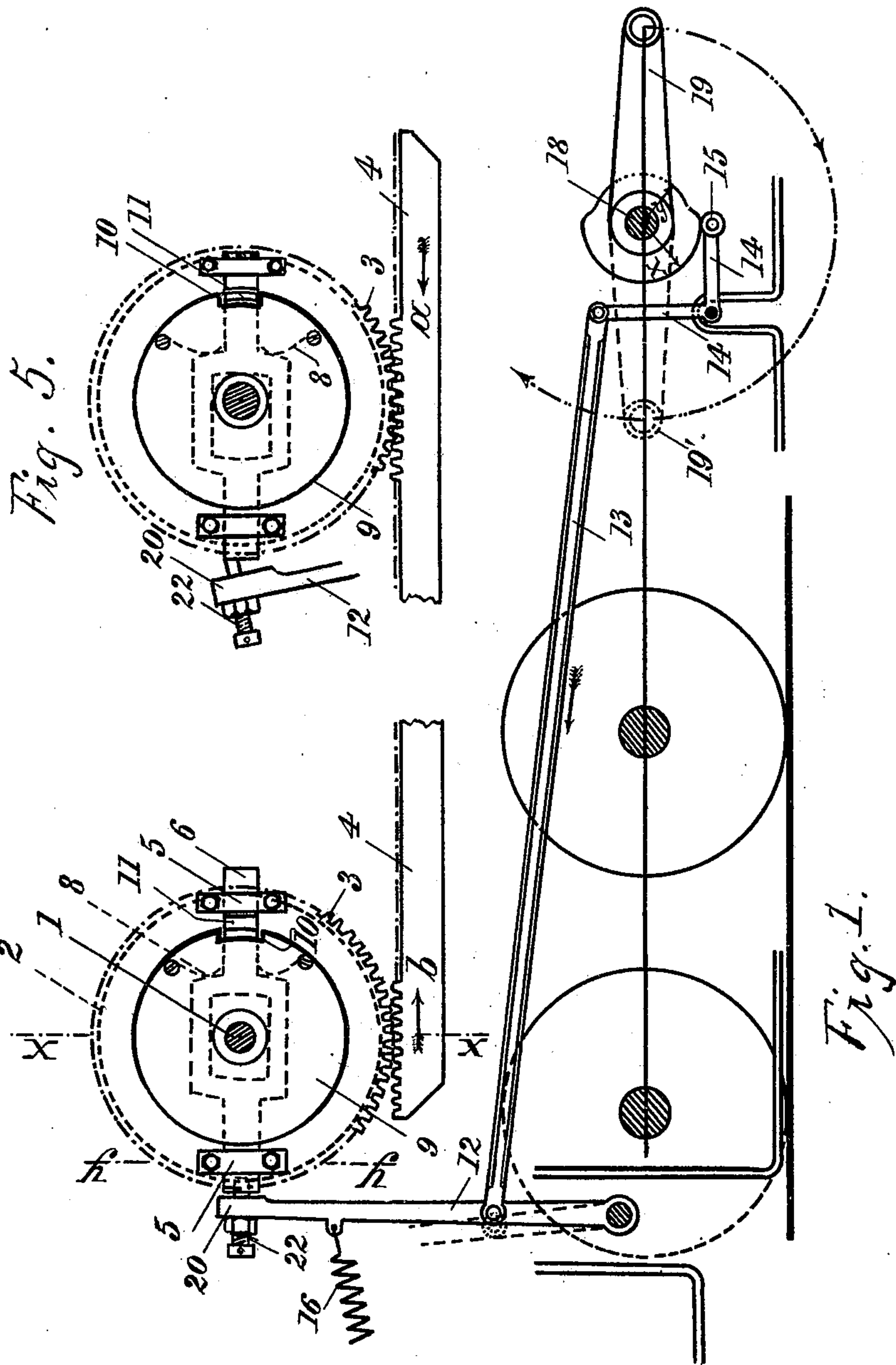
Patented Aug. 22, 1899.

F. FRISCH.
BED AND CYLINDER PRINTING PRESS.

(Application filed Jan. 7, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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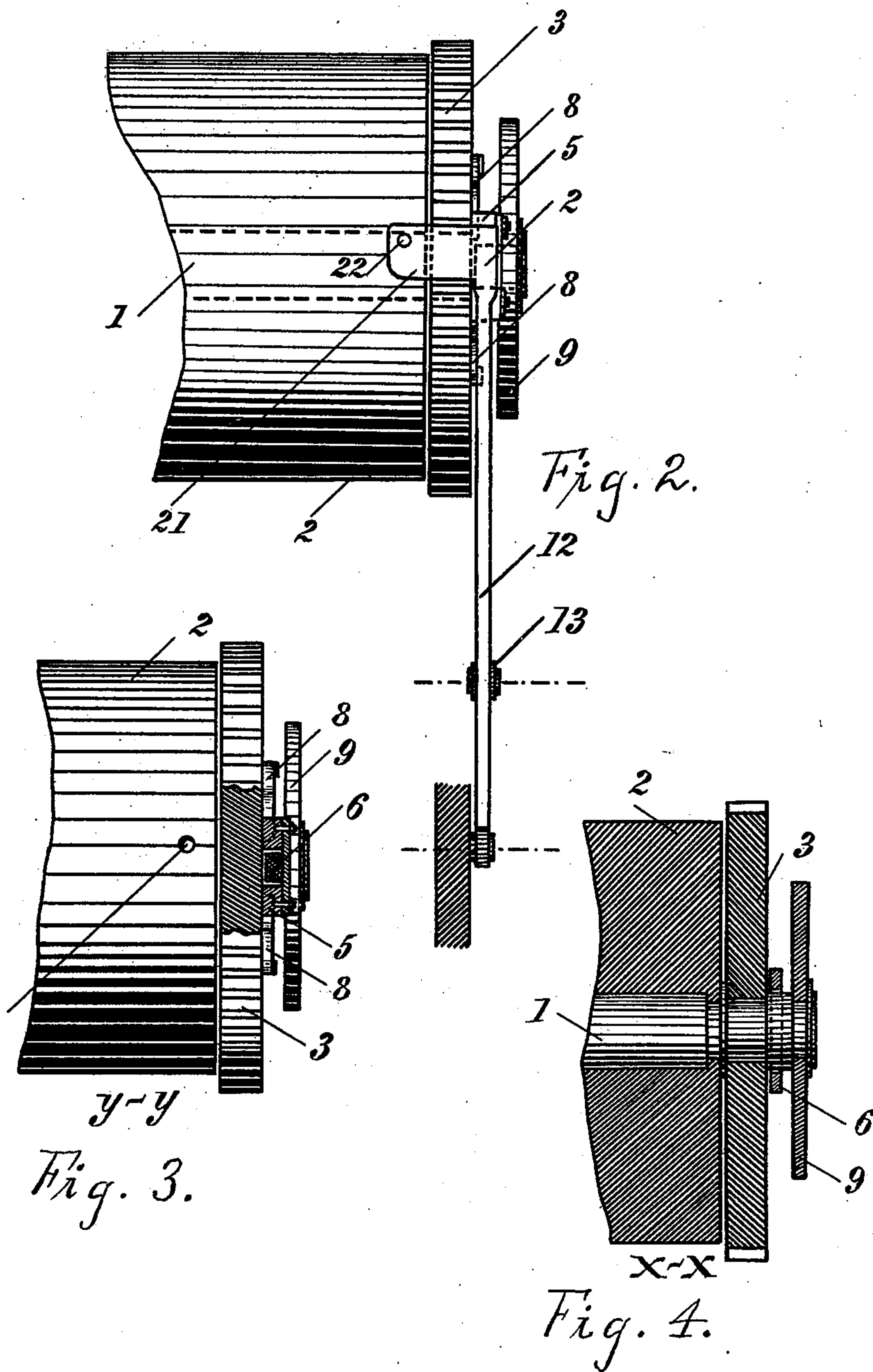
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UNITED STATES PATENT OFFICE.

FRITZ FRISCH, OF BUDA-PESTH, AUSTRIA-HUNGARY.

BED-AND-CYLINDER PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 631,398, dated August 22, 1899.

Application filed January 7, 1899. Serial No. 701,512. (No model.)

To all whom it may concern:

Be it known that I, FRITZ FRISCH, mechanical engineer, of Buda-Pesth, in the Empire of Austria-Hungary, have invented an Improvement in Bed-and-Cylinder Printing-Presses, of which the following is a specification.

In the accompanying drawings, Figure 1 is a side elevation of the parts of a printing-press to which this invention relates. Fig. 2 is a rear elevation of the same. Fig. 3 is a section on line *y y*, Fig. 1, illustrating the arresting device, but omitting the intercepting-lever and the mechanism controlling it. Fig. 4 is a section on line *x x*, Fig. 1. Fig. 5 shows the immediate parts for controlling the action of the cylinder, said parts being in a different position from Fig. 1.

Upon the spindle or shaft 1, Figs. 1 and 4, of the stationary printing-cylinder 2 there is loosely mounted a toothed wheel 3, which is in gear with the rack 4 of the reciprocating carriage. This wheel 3 is provided with guides 5, in which there moves a slide 6, the guide-groove 7 of which, moreover, slides upon the knob or nave of the toothed wheel, this last-mentioned guiding arrangement serving to limit the extent of its motion. The slide 6 is constantly pressed in the direction of the axis of the cylinder by springs 8, mounted upon the toothed wheel. Upon the cylinder-shaft there is keyed a cam 9, provided with a recess or notch 10, in which a tappet 11, belonging to the slide 6, is adapted to engage. The slide 6 is so operated that as the rack 4 moves in the direction of the arrow *a*—*i. e.*, at the time a sheet of paper is being printed—its tappet 11 is in engagement with the cam-notch 10, and consequently the cam 9 itself and through the medium of the shaft 1 the printing-cylinder 2 also are thus thrown into gear with the toothed wheel 3 and now perform exactly one revolution therewith. Now when the direction of motion of the rack comes to be reversed and changed to that indicated by the arrow *b* (see the full-line position in Fig. 1) the tappet 11 of the slide becomes released from the notch 10—that is to say, the cam 9 and printing-cylinder 2 are thrown out of gear—while the toothed wheel 3 runs back idle upon the cylinder-shaft 1, and at the same time the printing-cylinder is

retained by an arrangement specially provided for the purpose. The toothed wheel 3 thus constantly remains in gear with the rack 4.

The arrangement which serves to operate the coupling device mentioned above and to intercept or arrest the printing-cylinder at the moment at which the rack attains its dead-point, so that the printing-cylinder must stand still, consists of an intercepting-lever 12, pivoted to the frame of the machine, as shown in Figs. 1 and 2, which is connected by a rod or link 13 with a bell-crank lever 14, also pivoted to the frame of the machine, the roller 15 of which, owing to the action of the spring 16, engaging with the intercepting-lever 12, constantly rests against the cam 17, rigidly secured upon the crank-shaft 18.

The cam 17 is so constructed that while its larger radius *x* is in operation, which corresponds to one-half of a revolution of the crank 19, moving from the dotted position 19' into the position indicated in full lines, or to the movement of the rack in the direction of the arrow *b*, a head or stock 20 of the intercepting-lever 12 strikes the slide 12' and keeps the tappet 11 out of engagement with the notch 10, with the result that the toothed wheel 3 must run idle. When, however, the smaller radius *y* is in operation, which corresponds to that half of the revolution of the crank during which it moves from the position 19 to the position 19' or to the movement of the rack in the direction of the arrow *a*, as indicated in dotted lines in Fig. 1, then the intercepting-lever 12 releases the slide 6, which being controlled by the spring 8 springs into gear with the above-mentioned notch by means of its tappet 11, thereby effecting the coupling of the printing-cylinder in its operative position. These two movements of the intercepting-lever take place alternately, each commencing the moment the rack attains the dead-point—that is to say, when the crank 18 reverses the direction of motion of the rack 4 and also that of its carriage, the printing-cylinder being stationary at the time.

In order to retain the printing-cylinder in position while it is inoperative, the head 20 of the intercepting-lever is furthermore provided with a projection 21, extending over

the printing-cylinder, Fig. 2, such projection carrying a projection 22, which when the head 20 strikes the slide 6 simultaneously engages in a perforation 23, provided for the purpose
 5 in the printing-cylinder, which cylinder it retains in position during the return movement of the carriage after the printed sheet has been given up.

The invention described above is applicable
 10 ble both to machines operated by means of crank-handle and to those arranged for a circular motion, and it possesses this advantage in addition to those already named that the machine fitted with the normal mechanism
 15 while operating more smoothly and producing a better quality of work than the old machines of the same class have done may move at a considerably higher speed than those machines.

20 Having now particularly described and ascertained the nature of my said invention, and

in what manner the same is to be performed, I declare that what I claim is—

In combination, the rotary cylinder, the loose driving-wheel, a slide carried thereby
 25 having a portion adapted to throw the cylinder into or out of operative connection with the driving-wheel, a means for operating the slide and a pin on said means engaging an opening in the printing-cylinder for holding
 30 the same in a position of rest, the movement, when this occurs, coinciding with the "dead-point," that is to say, when the rack is about to reverse the direction of its motion, substantially as described. 35

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

FRITZ FRISCH.

Witnesses:

STEFAN ILLIS V. EDIO,
 LOUIS GERSEN.