

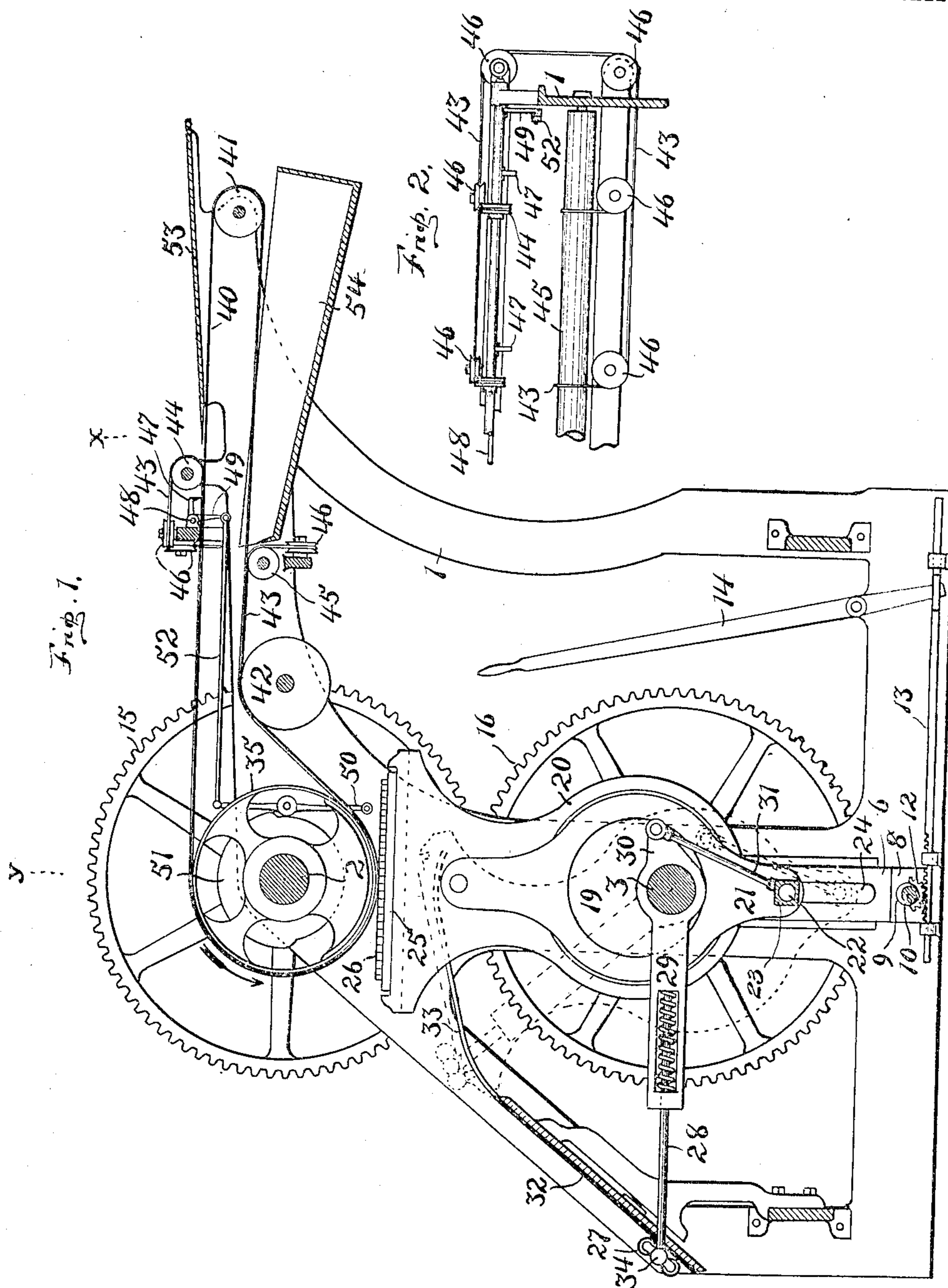
No. 875,758.

PATENTED JAN. 7, 1908.

C. B. WHITAKER.
PRINTING PRESS.

APPLICATION FILED MAY 12, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

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M. E. Robinson.

Charles B Whitaker INVENTOR

BY *V. G. Burr*

ATTORNEY

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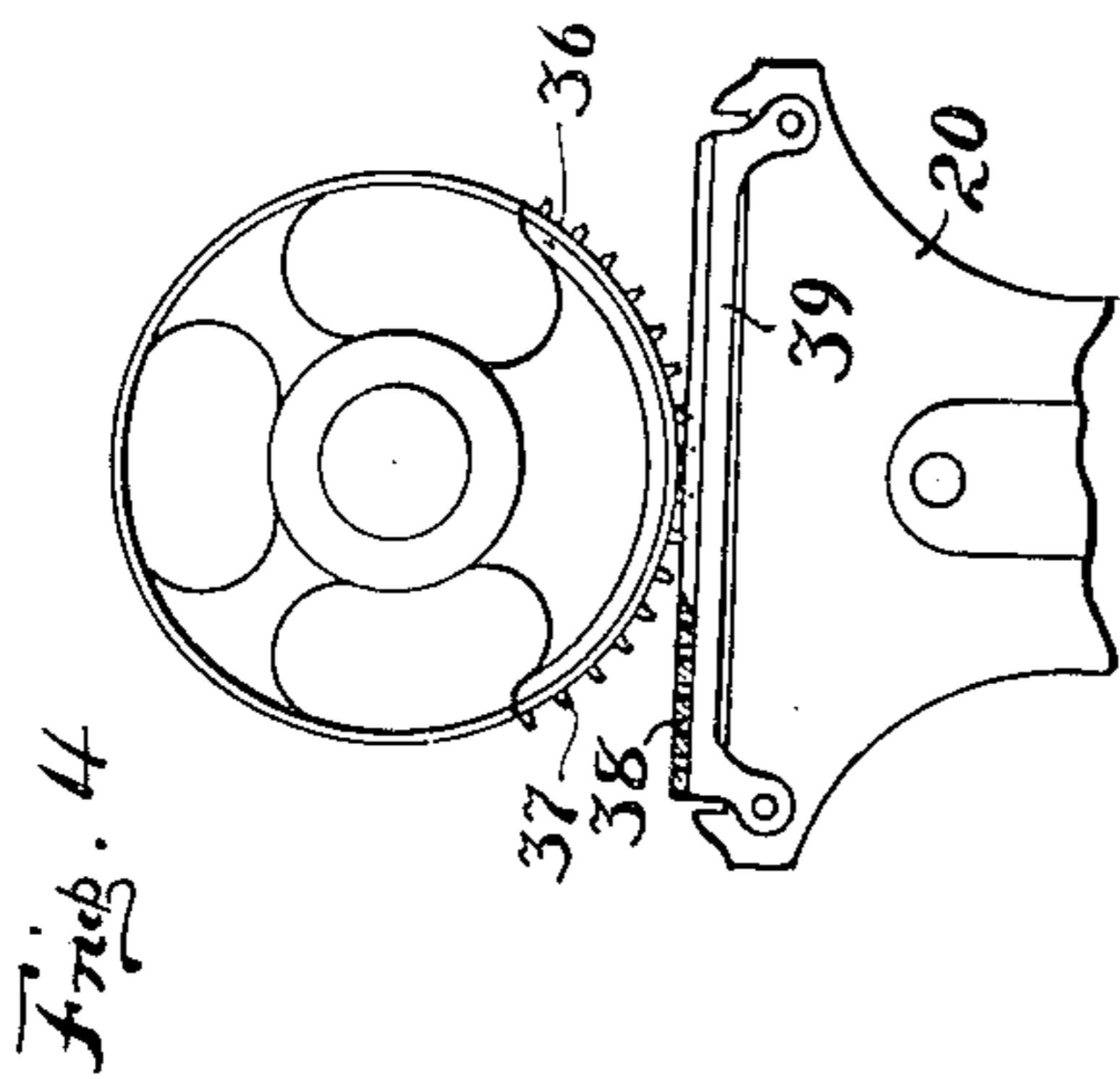
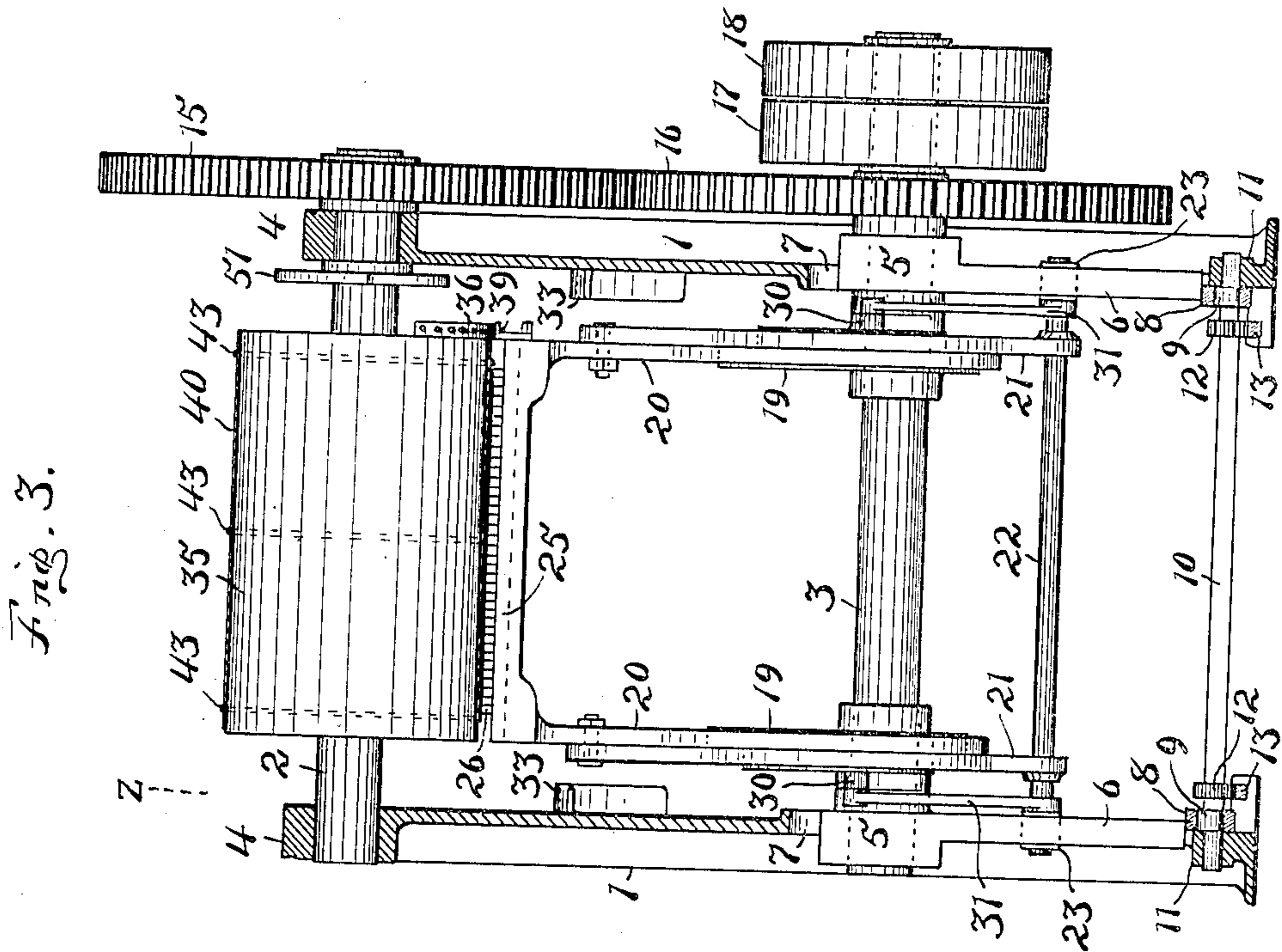
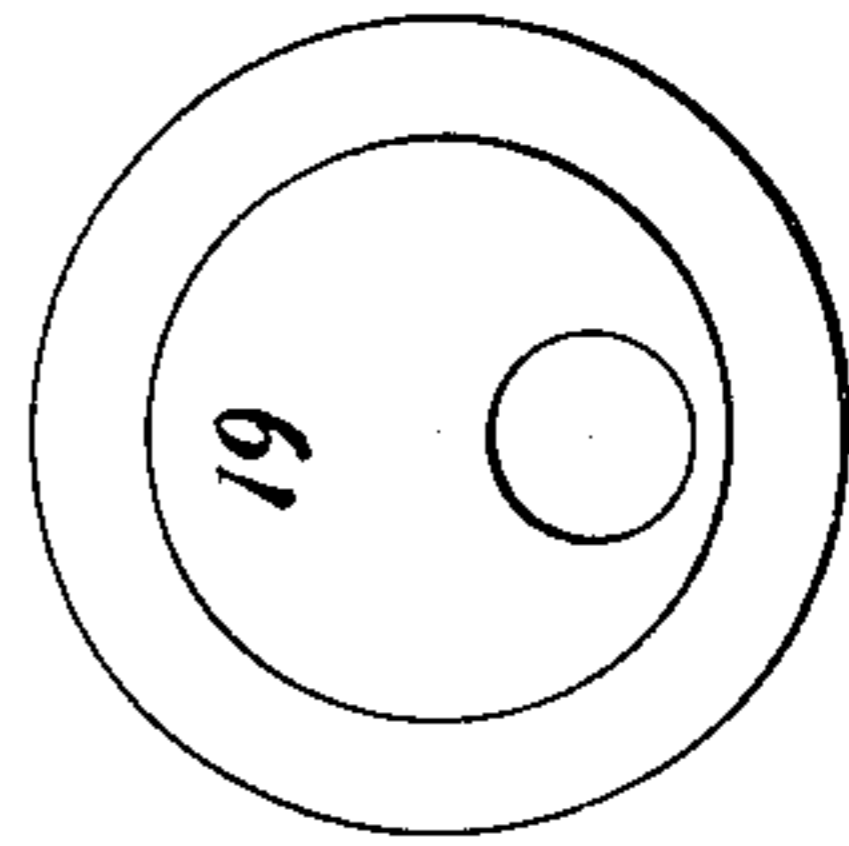


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES BENJAMIN WHITAKER, OF UBEE, INDIANA.

PRINTING-PRESS.

No. 875,758.

Specification of Letters Patent.

Patented Jan. 7, 1908.

Application filed May 12, 1906. Serial No. 316,498.

To all whom it may concern:

Be it known that I, CHARLES BENJAMIN WHITAKER, citizen of the United States of America, and resident of Ubee, in the
5 county of Huntington and State of Indiana, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification.

This invention relates to improvements in
10 printing presses of the impression cylinder type which employ a flat form, and the object thereof is to provide a suitable mechanism for moving the type form into and out of
15 printing engagement with the cylinder by a continuous swinging movement and thus avoid serious vibration which accompanies the reversal of motion of the ordinary reciprocating flat forms if driven at accelerated
20 speed. The above object is accomplished by the construction illustrated in the accompanying drawings in which:

Figure 1 is a longitudinal section of the machine on the line z—, of Fig. 3; Fig. 2 is a
25 detail view showing the arrangement of the idlers for returning the endless cords, the frame of the machine being in section on the line x— of Fig. 1; Fig. 3 is an elevation of the machine in a plane at right angles to that
30 of Fig. 1 showing the frame in transverse section on the line Y— of Fig. 1; Fig. 4 is a detail showing an end view of the impression cylinder and type bed, provided with means for preserving alinement; and Fig. 5 is a
35 detail showing one of the eccentrics for operating the gyratory frame.

Similar numerals of reference indicate corresponding parts throughout the several views and referring now to the same:

1 is the supporting frame of the machine,
40 and 2 and 3 are rotary shafts. The former shaft is mounted in bearings 4 in the upper part of the frame; and the latter shaft is mounted in bearings 5 which are in connection with the corresponding vertically
45 movable slides 6. The said slides are mounted in slots 7 which are made in the frame 1, and their lower ends rest respectively upon blocks 8 which are mounted upon
50 eccentrics 9, the latter being fixed upon the transverse shaft 10 which is rotatively mounted in bearings 11 in the lower part of the frame. It is the intention that when the shaft 10 is turned, the blocks 8 will become moved by the corresponding eccentrics
55 and thereby said slides 6 will become lowered

or elevated accordingly. The shaft 10 has fixed thereon one or more pinions 12 with a corresponding rack-bar 13 in engagement therewith whereby the shaft is turned by
60 shifting the rack-bar to and fro; an operating lever 14 is pivoted to the frame and has connection at its lower end with one or the other of the rack-bars 13 as desired, so that the operating lever may be made convenient to
65 one side of the machine or the other.

Upon each of the shafts 2 and 3 is mounted a corresponding gear 15 and 16 respectively, the one gear meshing with the other, and upon the extending end of the driving shaft
70 3 are mounted tight and loose pulleys 17 and 18, respectively, suitable for belt drive.

Upon the driving shaft 3, at points thereon within the frame 1 are mounted two eccentrics 19, and fitted upon said eccentrics is a
75 movable frame 20 which is adapted to be actuated thereby. The movable frame 20 has depending arms 21 with a transverse shaft 22 fixed in their lower ends, and the extending ends of said shaft each have a block 23
80 mounted thereon and the latter fit in vertical slots 24 in the corresponding slides 6 and are guided thereby. It should appear that the lower end of the frame will be guided to move
85 vertically by the slots 24, and that the eccentrics 19 will impart a gyratory movement to the frame 20 when the driving shaft is rotated.

The frame 20 has at its top a bed 25 upon which is mounted a form 26, and a series of
90 ink rollers 27 is arranged to move over the form while the frame 20 is in its lower positions. The ink rollers 27 are mounted at the outer ends of sliding rods 28, the latter being mounted in swinging arms 29 which are
95 loosely mounted upon the driving shaft 3. Each arm 29 has a rearward projection 30 which has connection with the shaft 22 by a corresponding bar 31. When the gyratory
100 frame is in action, the shaft 22 will be moved thereby successively upward and downward, and because of the connection between the shaft 22 and swinging arms 29, the latter will be accordingly oscillated upon the shaft 3,
105 consequently the ink rollers will be moved over the ink plate 32 onto the form 26 and then returned when the frame 20 is raised to its uppermost position. Guides 33 project
110 from the inner faces of the frame 1 and are adapted to support the ink-rollers when the latter are being moved over onto the form.

This is done by the engagement of rollers 34 which project from the sliding rods 28 beyond the ends of the ink rollers 27.

An impression cylinder 35 is fixed upon the shaft 2 and a curved plate 36 which conforms with the contour of the cylinder projects from one end thereof and has a series of projecting pins 37 which are adapted to engage in corresponding perforations 38 in the flat plate 39 which is attached at one end of the frame 20. The purpose of the pin row and perforated plate is to preserve alinement between the cylinder and form during the contact of the latter with the former.

A tympan 40 in the form of a belt, is trained upon the cylinder 35 and an idler 41, the latter being mounted in the rear upper part of the frame 1, and another idler 42, also mounted in the frame 1, supports the lower part of the tympan. A series of cords 43 are trained over idle pulleys 44 and a roller 45, and extend over that portion of the tympan from said pulleys, over the cylinder and back to the roller 45. From the roller 45 the cords are trained over a series of return pulleys 46 onto the pulleys 44. The cords being endless, and trained upon the pulleys and roller as described will move continuously with the tympan upon the outer surface thereof as it passes over the cylinder 35.

Drop guides 47 are mounted upon an oscillating shaft 48, the latter being supported at its ends by the frame 1. An arm 49 is also connected to the shaft 48 and has connection with a swinging lever 50 which is actuated by a cam 51 mounted upon the shaft 2, and when so actuated the drop-guides thereby become lifted. The connection between the arm 49 and lever 50 is made by a rod 52.

A feed board 53 is mounted upon the frame 1 over the rearward position of the tympan and with its forward edge arranged at a point adjacent the pulleys 44, and a receiving box 54 is mounted between the sides of the frame beneath the rearward part of the tympan and with its receiving end adjacent the roller 45.

In the operation of this invention the driving shaft is rotated continuously, and thereby the shaft 2 will rotate because of the engagement of the gears 15 and 16. The cylinder 35 will revolve in the direction indicated by the arrow, and the tympan and cords will be driven accordingly by said cylinder. Paper is then fed from the feed board in cut sheets, the forward edge of each sheet being inserted beneath the pulleys 44 so that the cords passing over said pulleys will press the sheet into contact with the tympan. The drop guides 47 engage the front edge of the sheet when the former are in normal position and prevent further movement of the sheet until they are raised as before described. When the sheet is released by the raising of the drop guides it is carried forward between the cords and tympan and passes over the cylinder

when the form carried by the gyratory frame comes into contact therewith and makes an impression thereon. The sheet is retained between the cords and tympan until it passes the roller 45 where the cords are carried downward over the pulleys 46. The sheet, thus released, passes into the receiving box.

When the machine is running idle the driving shaft 3 is lowered by manipulating the lever 14 and thereby the gyratory frame 20 will accordingly be lowered and then the form 26 will not come into contact with the tympan, but the downward movement of the shaft 3 is not sufficient to cause the disengagement of the gears 15 and 16.

Having described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a machine of the class described a frame; a driving shaft; bearings for said shaft in adjustable relation with the frame and means to raise and lower the same; a gyratory frame adapted to carry a form, and having relation with the driving shaft to be actuated thereby; a rotative cylinder having a tympan thereon and being adapted to operate in connection with the form during the gyration of the frame; and suitable mechanism for inking the form.

2. In mechanism of the class described a supporting frame; a movable form suitably supported and mechanism in connection therewith to operate the same; a rotative cylinder mounted in the frame; a supporting idler mounted in the rear upper part of the frame; a tympan in the form of a belt operating over the idler and said cylinder and driven by the latter; a series of endless cords operating over and with the forward portion of the tympan; a series of return idlers for conducting said cords from the lower part of the tympan to the upper part thereof; and drop guides, operating above the tympan and between the cords, and mechanism in connection to periodically actuate the same.

3. In mechanism of the class described a supporting frame having vertical slots in the respective sides thereof; a slide working in each of said slots, each slide having a vertical guide slot therein; suitable mechanism for adjusting said slides vertically; a driving shaft having bearings in said slides; eccentrics mounted on said shaft; a gyratory frame mounted upon said eccentrics and having connection with the guide slots in said slides, and a rotative cylinder mounted in the supporting frame and a tympan thereon adapted to operate in contact with the form on the gyratory frame during part of the movement of the latter.

4. In mechanism of the class described a supporting frame; a driving shaft mounted in adjustable relation with the frame; a gyratory frame mounted in connection with the driving shaft to be actuated thereby; swing-

ing arms loosely mounted upon the driving shaft, each having a rearward extension which has connection with the lower part of the gyratory frame to swing said arm by the
5 movement of the latter; and suitable ink rollers having supported connection with the swinging arms to be actuated thereby.

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

CHARLES BENJAMIN WHITAKER.

Witnesses:

M. METTLER,
W. G. BURNS.