

(No Model.)

2 Sheets—Sheet 1.

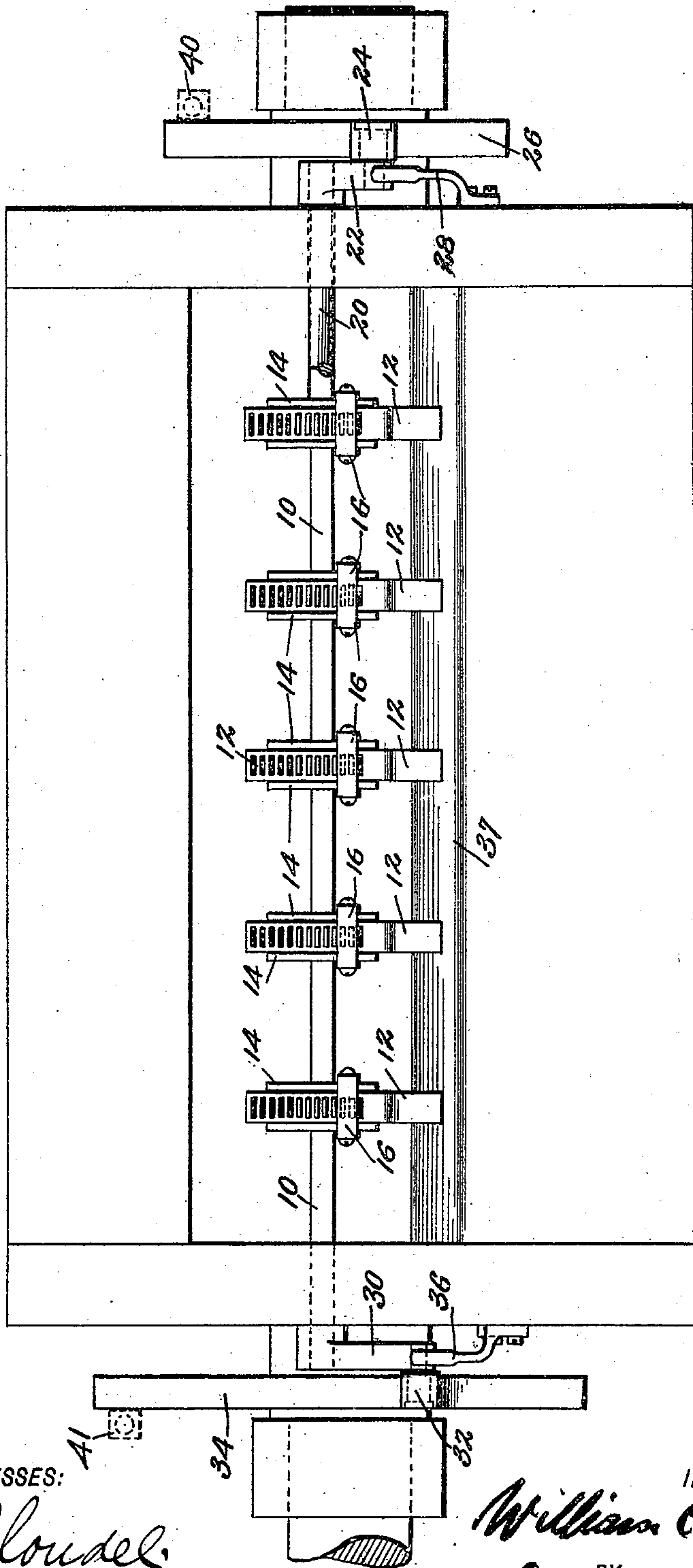
W. C. WENDTE.

GRIPPER MECHANISM FOR PRINTING PRESSES, &c.

No. 549,284.

Patented Nov. 5, 1895.

Fig. 1.



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(No Model.)

2 Sheets—Sheet 2.

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GRIPPER MECHANISM FOR PRINTING PRESSES, &c.

No. 549,284.

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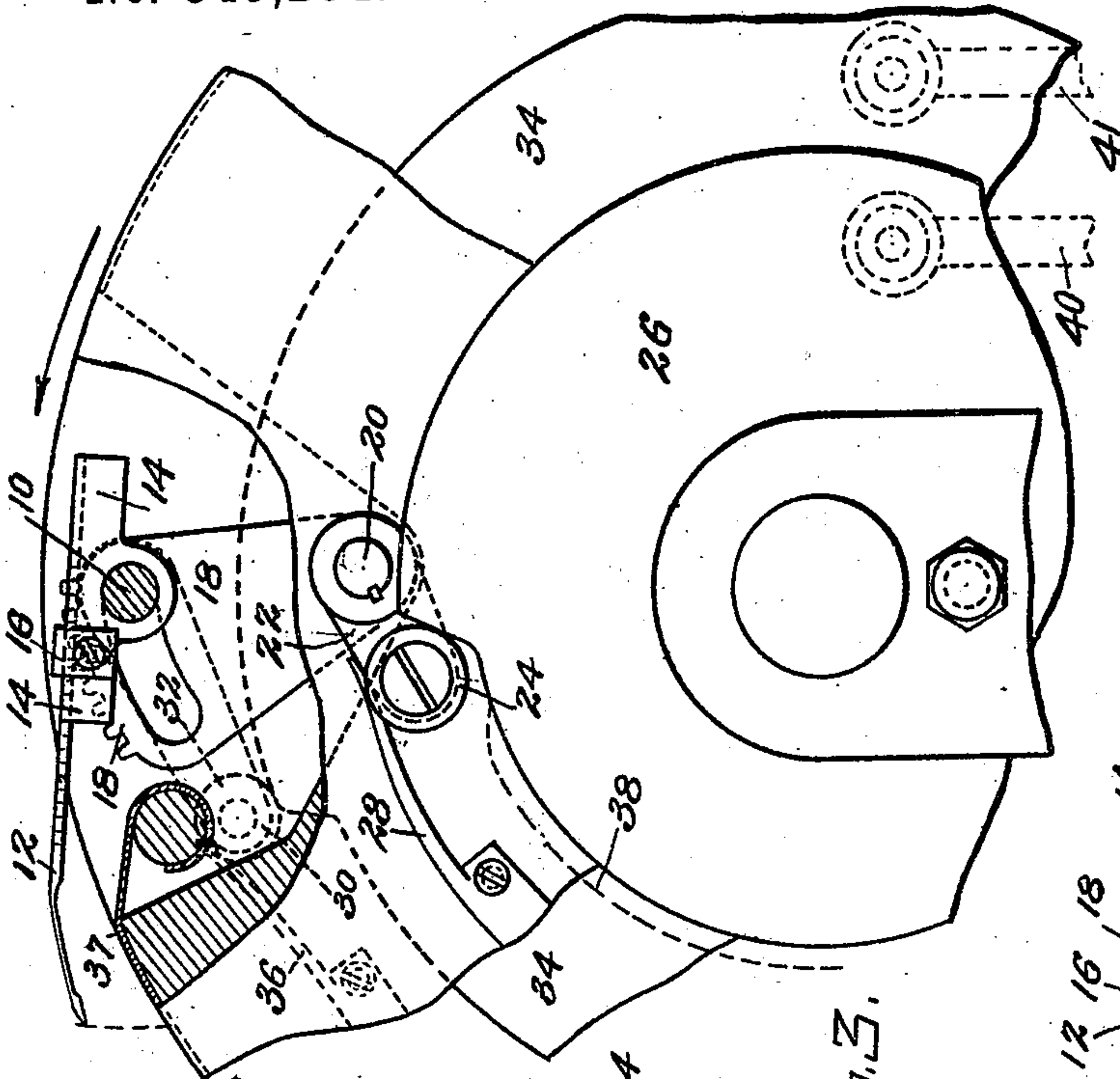


Fig. 3.

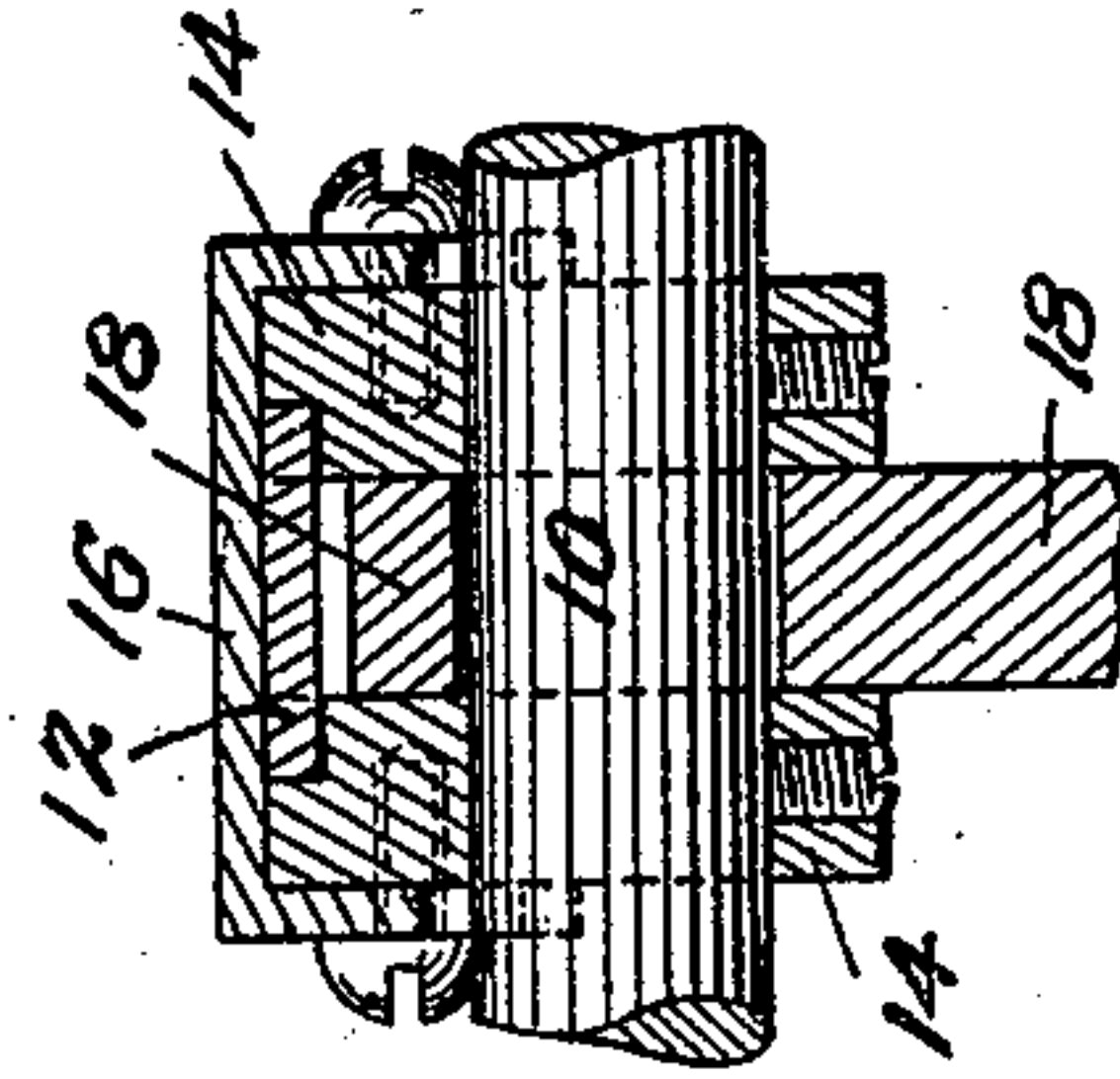


Fig. 5.



Fig. 6.

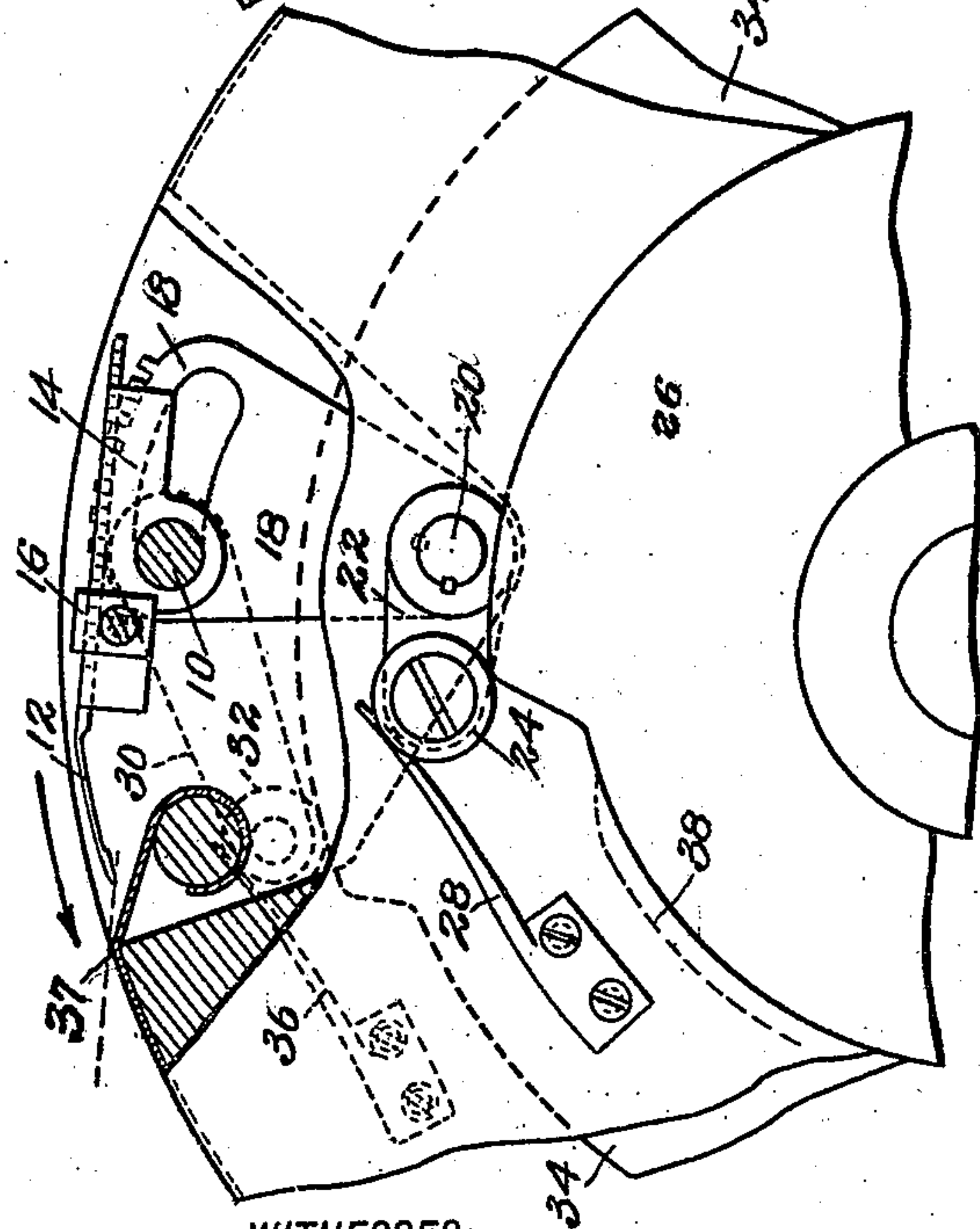


Fig. 2.

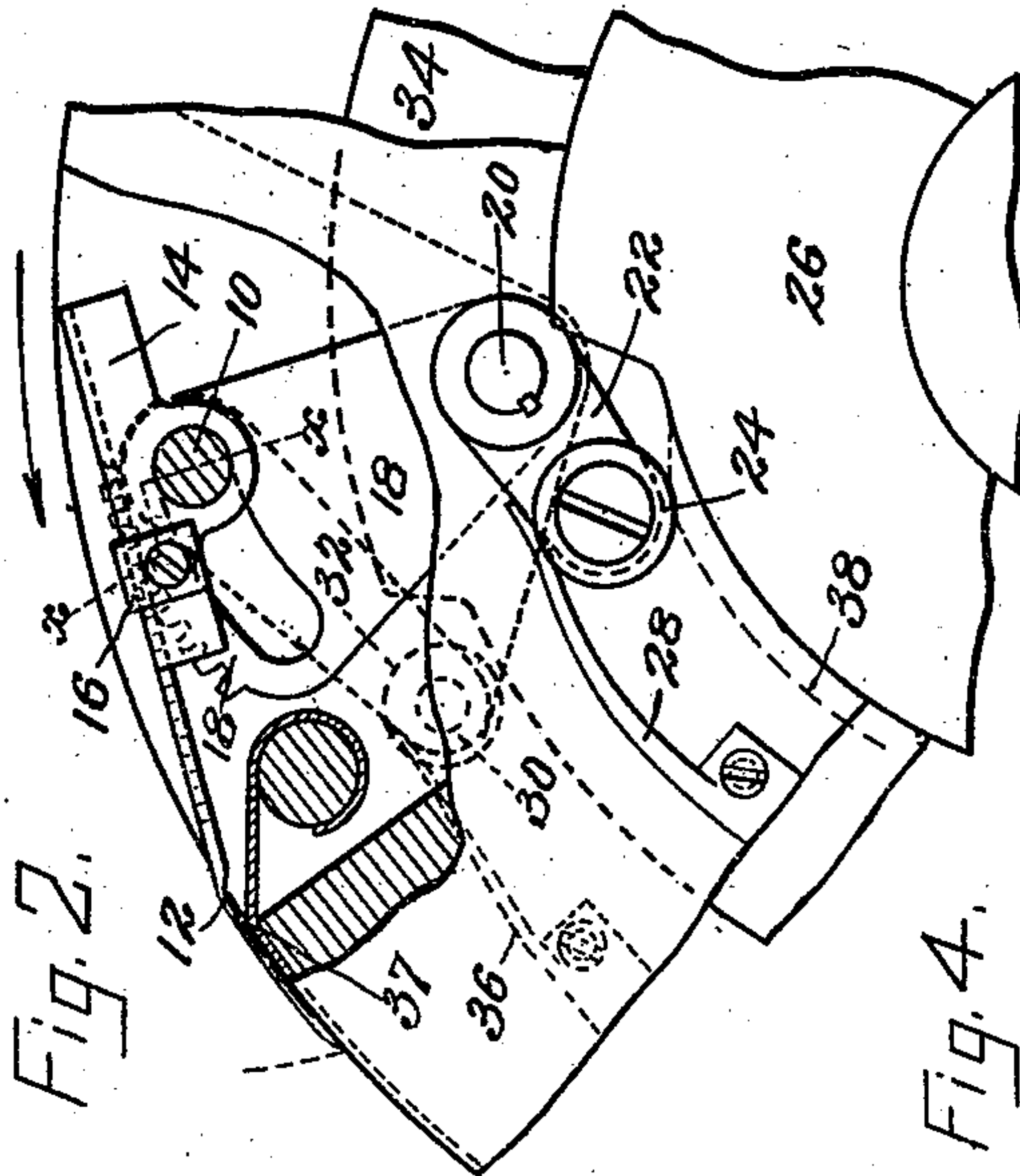


Fig. 4.

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GRIPPER MECHANISM FOR PRINTING-PRESSES, &c.

SPECIFICATION forming part of Letters Patent No. 549,284, dated November 5, 1895.

Application filed July 24, 1895. Serial No. 557,026. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. WENDTÉ, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented a Gripper Mechanism for Printing-Presses and Like Machines, (Case L,) of which the following is a specification.

My invention belongs to a class of devices for conducting and holding sheets of paper or like material, and it is especially designed for seizing and holding the tail of a sheet after the same has lapped the cylinder completely.

It is common in the construction of printing-presses to erect guards consisting of curved steel blades and like devices to hinder the injury done by the flapping of the loose end of the sheet; but in many cases, especially when presses consist of several cylinders for color-printing or perfecting purposes, it is almost impossible to place guards of any kind in certain cramped localities or otherwise protect the loose tail of the sheet, and the designer of the machine is limited in consequence. In my invention I do away with any evil from this cause by providing a gripper mechanism the fingers of which start from a suitable gap and close upon the tail margin of the sheet which is being wound about the cylinder, so as to retain it where it falls until it is printed and removed from its position.

In the drawings that form part of this specification, Figure 1 represents a plan view of my gripper as seen from above. Fig. 2 shows the gap and mechanism partly in section and partly in elevation. In Fig. 3 the fingers are protruded, while in Fig. 4 they are dropped upon the sheet. Fig. 5 is a partial section on the line xx of Fig. 2, and Fig. 6 is a plan view of a finger alone.

In the figures, 10 represents the gripper-shaft journaled in the ends of the cylinder-gap and passing through one of them. This shaft carries the fingers 12, movably attached to fixed slides 14, which are made fast to the shaft 10 at intervals, two slides for each finger. Fig. 5 shows on a large scale a section of such an arrangement with the finger in place, and also a section of the clip or cap 16, which holds the finger in place and at the

same time permits of its sliding freely on the finger-supports under it. The use of the cap 16 for this purpose—namely, that of holding the finger in place and against the upward thrust when the contact end of the finger is on the cylinder—I believe to be most satisfactory; but the same restraint for the sliding blade can obviously be secured in other ways. A plan of the finger 12 disengaged from the shaft is shown in Fig. 6. It will be seen that along part of it a number of rectangular holes are cut at regular distances apart, giving rise to a slotted rack in the thin blade, into which are meshed the teeth from a segment-gear 18—one for each finger—which vibrates to and fro on the rock-shaft 20, the necessary effect of which arrangement will be to protrude from or retract into the gap the gripper-finger so constructed. The rock-shaft 20 is journaled in the ends of the gap and passes through one of them. Outside it has upon it an arm 22, which, carrying the antifriction-roller 24, traverses the face of the cam 26, fast to the press-frame, against which the roller is held by the stiff spring 28. The segment-gears which are oscillated by this arrangement of parts have oblong openings in their outer and wider ends, through which the gripper-shaft passes without interference. The gripper-shaft 10, at the end where it, passes out of the gap, has an arm 30 upon it which carries the roller 32, held in contact with the fixed cam 34 by the spring 36, whereby it is oscillated at the proper times.

In Fig. 2 the gripper-finger 12 is retracted into the gap and is entirely below the surface of the cylinder.

In Fig. 3, the arm 22 having descended the incline on the cam 26, the finger is projected outward in the direction of the oblique line joining the contact-points of the fingers, as placed in Fig. 2, with the adjacent edge of the gap at 37. By this movement the contact ends of the fingers are raised over the paper on which they are to close. This position being reached, the roller 32 runs down the incline on the cam 34, and the partial rotation of the gripper-shaft which follows closes the fingers on the tail of the sheet, as may be clearly seen in Fig. 4.

The fingers for this gripper mechanism are so bent and adapted to the curve of the cyl-

inder on which they are fitted that when depressed their contact extremities bear upon the paper; but inasmuch as sheets of different lengths are generally printed on the same press, some adjustment is necessary as to the reach of the fingers employed. This may be accomplished in any particular case by removing the cap 16 and remeshing the finger-rack to suit the new conditions, or by substituting another finger of different length to suit a certain length of sheet, or by shifting the segment-gear 18 angularly on the rock-shaft 20, provision being made therefor by giving sufficient extra length to the curved slot in the end of said gear.

At 38 the dotted line shows a modification of the cam 26, that accomplishes a further perfecting of my invention, which may be used when the greatest accuracy is desired. The effect of altering the cam-face as there shown will be to draw back the fingers slightly after they have fallen and caught the paper, and the tendency of that movement will be to strain the sheet tightly on the cylinder, a condition favorable for good printing and perfect register.

In the drawings I have shown the operations of projecting and retracting, on the one hand, and of closing and opening the fingers, on the other, as following each other in sequence, because the description is rendered clearer thereby; but in practice the closing should begin as soon as ever the contact ends of the fingers pass the edge of the gap and the projection forward should end completely before the fingers strike the paper, while their retraction should begin after they have commenced to rise. In this way the fingers will have a minimum elevation above the cylinder-surface while passing from the gap to their position outside the same. This is a matter of great importance, for to have practical value a tail-gripper can project but very little at any time, as will be apparent to those familiar with press construction. It is also true, and in some cases it is important, that the seizure of the tail of the sheet should be effected with great suddenness, at the instant when it first falls upon the cylinder. In other words, the motion of the gripper-fingers should be very rapid and made with great precision. This can be done by simply making the cam-face sufficiently steep at the right place; but I prefer to give the two cams 26 and 34 substantially the forms shown in the drawings, and then to accomplish their quick action by putting the cams in question not upon the press-frame, but free upon the cylinder-shaft or some other support concentric therewith. The rods 40 and 41 are attached to these cams and hold them, and at the moment when one of the antifriction-rollers 24 and 32 begin the descent upon the cam-face the incline is drawn from under it by giving a partial rotation to the cam in the direction opposed to that in which the antifriction-roller is traveling. The rods 40 and 41 for

this purpose I shall call "impulse-rods," and they may be actuated by a cam or suitable eccentric on any convenient shaft below. As this development of my invention may or may not be used, I have shown the impulse-rods in dotted lines in Figs. 1 and 3.

I do not confine myself to the precise devices herein shown and described, for it is obvious many modifications are possible without affecting the principles underlying my invention, and although I have considered my gripper so far only as adapted for use upon the tail of a sheet, yet it is clear that it could also be made to grasp and hold the leading edge, if under peculiar conditions its mode of action proved to be advantageous for a particular state of things.

What I claim is—

1. A gripper mechanism for printing presses, consisting of a gripper shaft journaled in a cylinder gap and carrying sliding fingers at right angles thereto, in combination with a cam fixed upon the press frame; with mechanism connecting the same and said fingers for projecting them out of and retracting them into the gap in the direction of their length; and with another fixed cam and mechanism connecting it with the gripper shaft; for closing and opening the contact ends of the sliding fingers on and off the sheet at the proper times; substantially as described.

2. A gripper mechanism for printing presses, consisting of a gripper shaft carrying finger-supports at right angles to its length, with gripper fingers sliding thereon; in combination with a rock-shaft carrying oscillating segments geared to said fingers; with a cam fixed to the press frame and actuating said rock-shaft; and with another cam fixed upon the press frame adapted to oscillate the gripper shaft and thereby close and open the gripper fingers above the cylinder surface; substantially as described.

3. A gripper mechanism for printing presses, consisting of an oscillating gripper shaft carrying finger-supports at right angles to its length, with gripper fingers sliding thereon; in combination with a fixed cam on the press frame; with an arm attached to the gripper shaft and traversing the cam face; and with a rock-shaft actuated in like manner by another cam upon the press frame and provided with segment gears meshing into racks on the sliding fingers and adapted to move the latter in and out of the gap in the direction of their length; substantially as described.

4. In a gripper mechanism for printing presses, a gripper shaft bearing finger-supports at right angles to it; in combination with adjustable fingers sliding on said supports in the direction of their length and adapted to fall upon and hold the edge of the sheet; and with means for retracting said fingers a definite distance while still holding and before leaving the paper, and also before the sheet is printed; substantially as described.

5. The herein described gripper finger consisting of a blade provided with a slotted rack extending along the same adapted to receive a suitable gear; substantially as described.

5 6. A gripper mechanism consisting of a gripper shaft bearing finger supports at right angles thereto in pairs, a movable finger provided with a rack sliding on each pair; and
10 actuating cam devices for oscillating the gripper shaft; in combination with a rock-shaft parallel to said gripper shaft provided with segment gears one for each finger and meshing into the racks on the latter, and with actuating cam devices for oscillating said rock-
15 shaft; substantially as described.

7. A gripper mechanism for printing presses, consisting of an oscillating gripper-shaft car-

rying finger-supports at right angles to its length, with gripper-fingers sliding thereon; 20
in combination with a rock-shaft carrying oscillating segments geared to said fingers; with two movable cams upon the cylinder shaft; with two attached impulse rods to hold and actuate said cams at proper times as de- 25
scribed; and with an outside arm on both gripper-shaft and rock-shaft provided with anti-friction rollers and adapted each to traverse the face of its respective cam and thereby control the seizure and release of a sheet 30
at proper times; substantially as described.

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Witnesses:

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