No. 693,510. Patented Feb. 18, 1902.

W. FULLARD.

WIPING DEVICE FOR PRINTING MACHINES.

(Application filed Mar. 7, 1901.)

(No Model.) 3 Sheets—Sheet 1.

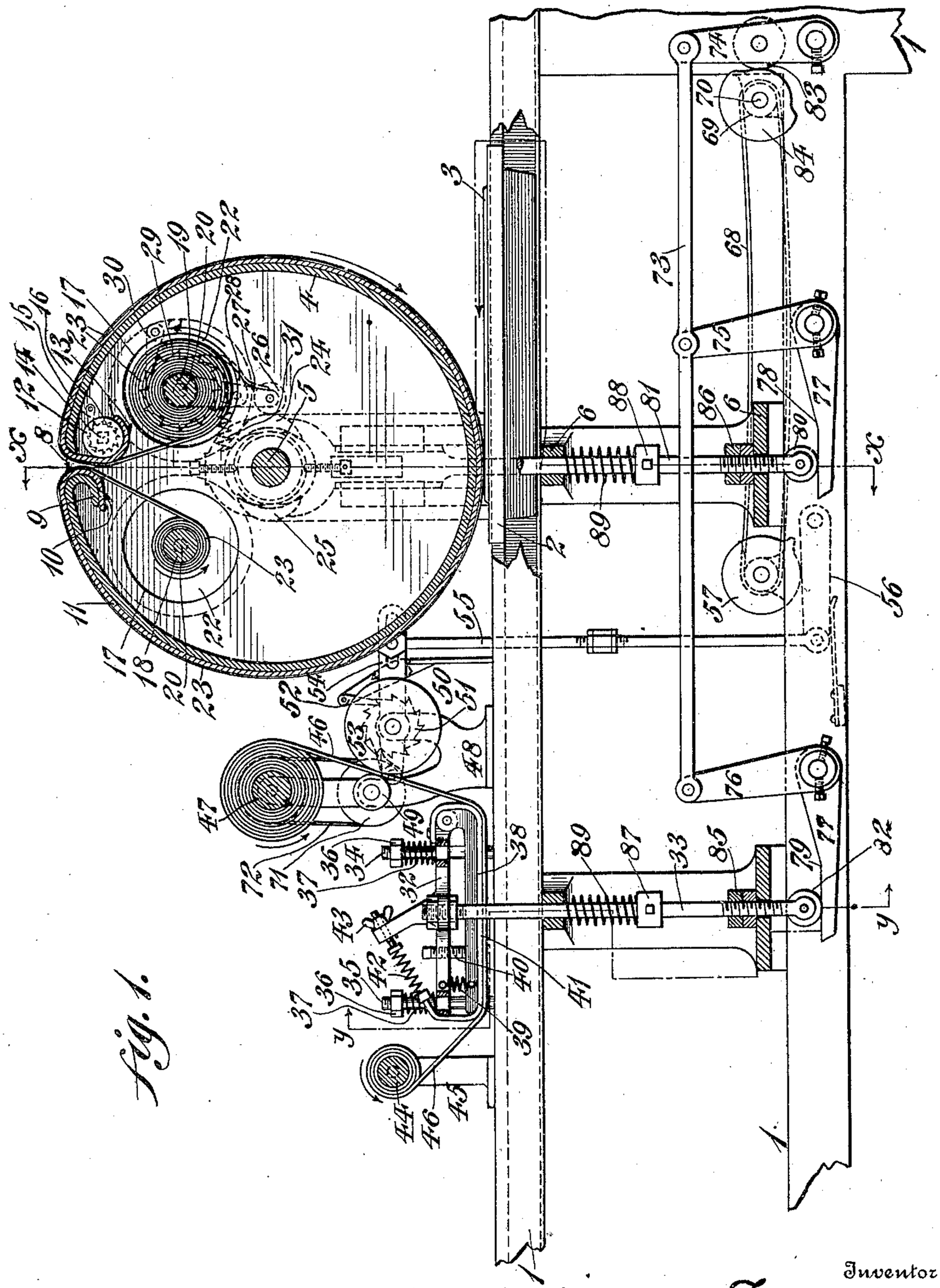

Fig. 1.

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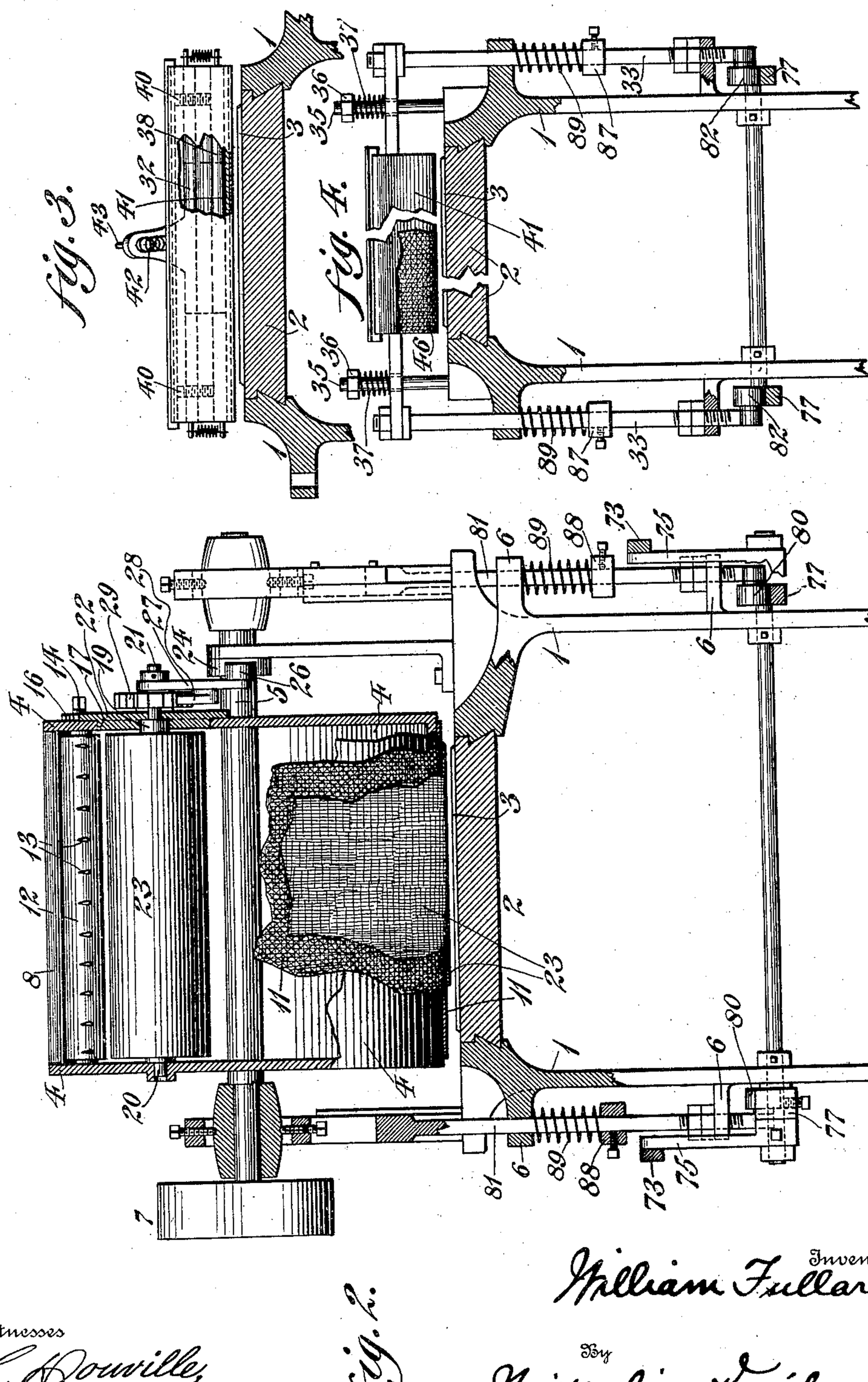
(No Model.) 3 Sheets—Sheet 2.



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(No Model.) 3 Sheets—Sheet 3.

Fig. 5.

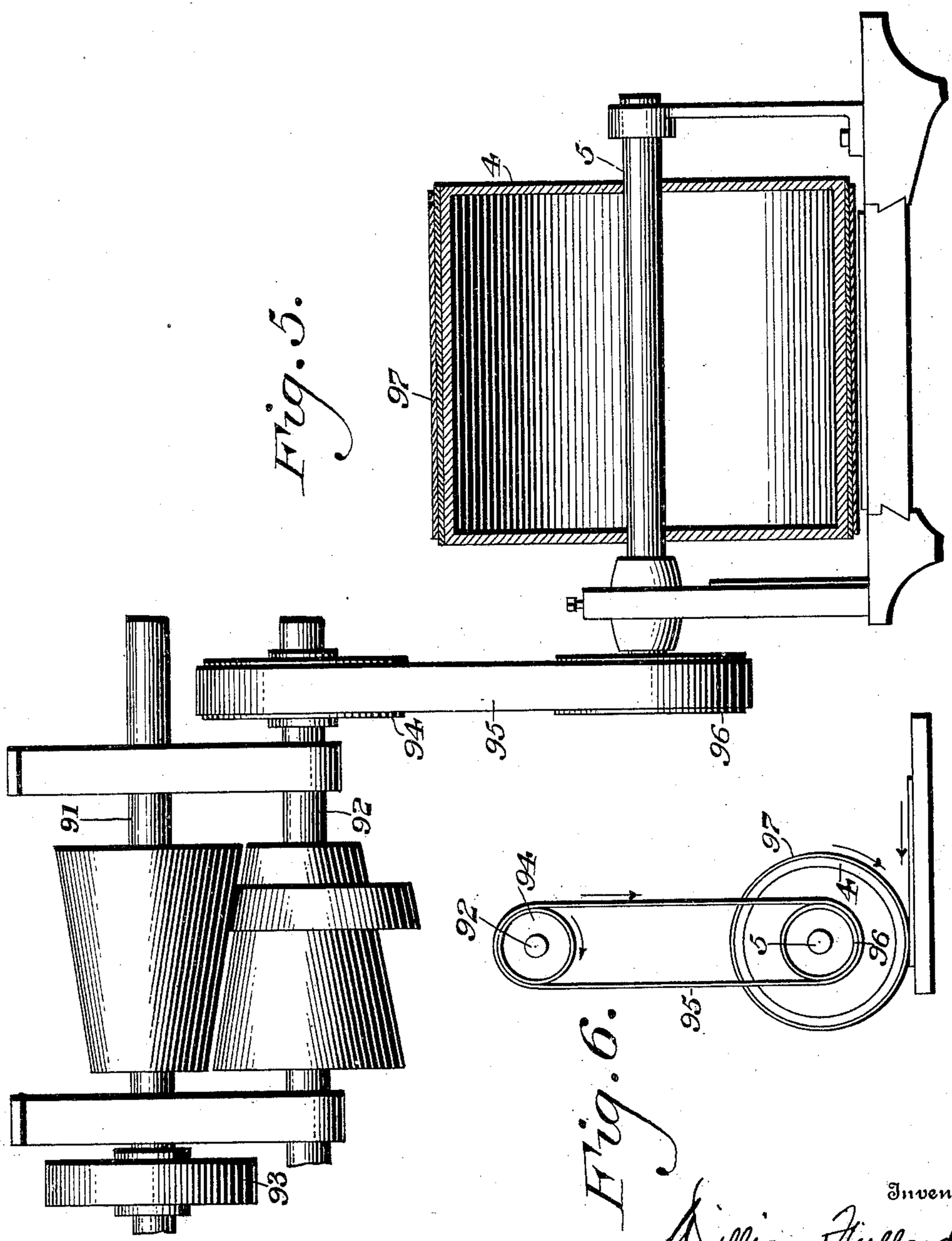

Fig. 6.

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UNITED STATES PATENT OFFICE.

WILLIAM FULLARD, OF COLWYN, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO WILLIAM E. WEBER, OF WYNCOTE, PENNSYLVANIA.

WIPING DEVICE FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 693,510, dated February 18, 1902.

Application filed March 7, 1901. Serial No. 50,165. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FULLARD, a citizen of the United States, residing at Colwyn, in the county of Delaware, State of Pennsylvania, have invented a new and useful Improvement in Wiping Devices for Printing-Machines, of which the following is a specification.

My invention relates to plate-printing and embossing machines; and it consists of a new and novel wiping device therefor.

It further consists of novel details of construction, all as will be hereinafter fully set forth, and particularly pointed out in the claims.

Figure 1 represents a partial side elevation and partial sectional view of a portion of a printing-machine, showing the wiping device attached thereto. Fig. 2 represents a sectional view on line *x x*, Fig. 1. Fig. 3 represents a partial sectional view and partial end elevation of a portion thereof. Fig. 4 represents an irregular sectional view on line *y y*, Fig. 1. Fig. 5 represents a view of one form of mechanism for operating the wiping device. Fig. 6 represents an end view thereof on a smaller scale.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates a portion of the frame of a printing-machine which carries the holder 2 for the plate 3, which are operated in the usual manner.

4 designates a drum, which is suitably supported on an axis 5, the latter being carried by rods 81, guided in the supports 6 in suitable journals, said axis 5 having power applied thereto and carrying a pulley or gear 7 therefor.

8 designates a slot or opening in said drum, one end 9 of the wall of the latter being turned downwardly and inwardly and being provided with pins 10, to which is attached one end of a felt or other suitable cushioning material 11, the latter being passed around the exterior of said drum and down through the opening 8 and having its opposite end secured to a roller 12 by means of pins 13, it being noticed that said roller is provided with a squared end 14 on the exterior of the drum and also carrying a pawl 15 and ratchet 16, so that after the material 11 engages with said pins the said roll 12 can be turned until the material is tight upon the exterior of the drum.

17 designates openings in one end of said drum, through which are adapted to be inserted the rolls 18 and 19, said rolls having one end inserted through or suitably supported by journals 20 in the opposite end of said drum and being supported by journals 21 in plates 22, which are adapted to close the openings 17 in said drum and be secured thereto. One of said rolls—for example, 18—when inserted in said drum carries a suitable material 23, such as cloth, while the opposite roll 19 is placed in the drum empty. The free end of the material 23 is passed up through the opening 8 and around the exterior of the material 11 and is passed down through the opening again and suitably secured to the roller 19. On the exterior of the drum, and carried by a suitable standard 90, are the cams 24 and 25, against which is adapted to bear at suitable intervals the roller 26, carried by the arm 27, having a spring-actuated pawl 28, which engages with a ratchet 29, carried by the roll 19. A second pawl 30, being secured to a suitable point, also engages with the ratchet 29, a spring 31 being adapted to hold the roller 26 against the cams 24 and 25 in their rotation.

32 designates a frame suitably supported by rods 33 and having the posts 34 and 35 passing therethrough, with nuts 36 thereon, between which and the frame are the springs 37, said frame having pivoted thereto at one end a plate 38, between which and the frame is a spring 39, and against said arm a screw 40 bears for adjusting the position therebetween, said plate having cushioning material 41 beneath the same, the tension of which is automatically preserved or regulated by means of a spring 42 and thumb-screw 43.

44 designates a roll carried by supports 45, said roll being adapted to carry a suitable material 46, such as cloth or paper, thereon, which latter is passed beneath the material 41 and secured to a roll 47, which latter is carried by a support 48, having a tension-roll 49 thereon, between which and the tension-roll 50 the material 46 is adapted to pass, said roll 50 having a ratchet 51 thereon, with which

engages a pawl 52, secured at any suitable point, and a second pawl 53, which latter is carried by a lever 54, having a rod connection 55, to the lower end of which is attached a spring-actuated bar 56, against which it is adapted to contact at a suitable time with a cam 57, which latter is driven by a belt or sprocket-chain 68, to which motion is imparted through a pulley 69, mounted on a shaft 70, which reserves power from a suitable source, it being seen that motion is imparted to the roll 47 by means of a pulley 71 and belt 72, it being noticed that the mechanism just described acts as a second wiping device.

I have now described the means for performing the wiping, and in order to raise the wipers and prevent the same from coming in contact with the plate on its return movement to receive another charge of ink I employ rods 73, which are carried by the bars 74, 75, and 76.

The bar 74 carries the pulley 83, with which contacts a suitable cam 84, carried on the shaft 70, so that the cam moves said bar 74 at the proper time—say to the right—and carries with it the rod 73, which also moves the bars 75 and 76, both of which carry the levers 77, having the inclined faces 78 and 79, it being seen that the face 78 engages with the roller 80, carried by the rod 81, which latter supports the drum 4 and which is elevated thereby, while the inclined face 79 engages with a roll or roller 82, carried by the rod 33, which is elevated and carries with it the frame 32 and connected parts, whereby the plate can return without coming in contact with the wiping devices. In order to adjust these various parts, I have shown suitable springs and nuts for this purpose, it being evident that the adjustability of the positions of the wiping devices is very important, and to this end I employ screw-threads on the rods 81 and 83 and have shown nuts 85 and 86, so that in all positions these wiping devices can be adjusted according to the requirements of the various thicknesses of the plates employed, and in order to adjust the return movement of said wiping devices I have shown collars 87 and 88 with suitable springs 89, said collars being adjustable on the rods 31 and 81, respectively.

Referring to Figs. 5 and 6, I have shown one form of mechanism which can operate the wiping device and turn it in the same direction as the line of movement of the plate during the wiping operation, in which I have the counter-shafts 91 and 92, to which power can be applied in any suitable manner—for example, through the medium of the pulley 93—said counter-shafts being suitably supported. Connected with the counter-shaft 92 is a pulley 94, around which passes the belt 95, which also passes around the pulley 96, suitably connected with the axis 5 of the drum 4, it being seen that by the proper connection of the parts the drum 4 is caused to turn or move in the direction of the line of movement of the plate during the wiping operation, as will be best understood from Fig. 6, as indicated by the arrows, and it will be further understood that I do not desire to limit myself to the construction just described, but have merely shown and described this form as one that may be employed in order to carry out my invention. In these figures I have shown a drum on which the wiping material 97 passes entirely around the periphery thereof; but it is to be understood that I do not desire to be limited in this respect.

I desire to call particular attention to the fact that the drum 4 is revolved in the same direction as the line of movement of the plate and is turned more rapidly than the latter, it being evident that by this method I prevent the wiping up of too much of the ink, at the same time securing the desired results—that is, by turning the wiping device in the same direction as the line of movement of the plate during the wiping operation surplus ink is removed and a full supply of ink is pressed into the lines of the plate. I also desire to call attention to the adjustability of the plate 38, which can be regulated and placed at an angle, if desired, with respect to the frame or adjusted in a vertical plane, which may be accomplished by reason of the tension-screw, the pivoting of the plate to the frame, and the set-screw employed, the operation of which is evident.

It will be evident to those skilled in the art that under certain circumstances I may make the drum without the opening and have the cloth 23 pass entirely around the drum without the same being adjustable on said drum, it being evident that the operation of the parts is the same as before and that the wiping is effective, owing to a different speed with which the drum is operated with respect to the movement of the plate.

The operation is as follows: After the various parts are in position and the plate 3 receives a charge of ink the same moves in the direction indicated by the arrow in Fig. 1, motion being also imparted to the drum 4 in the direction indicated by the arrow, Fig. 1, and the plate is wiped, it being seen that motion being imparted to the axis 5 in the rotation of the drum a suitable cam, either 24 or 25, will come in contact with the roller 26, which is forced out and turns the roll 19 the distance of a tooth and until the pawl 30 engages with the next adjacent tooth and prevents the return movement of said roll, it being seen that by this movement the material 23 is wound a certain distance upon the roll 19, and a fresh surface is ready to be presented to the next plate. As the plate 3 moves still farther forward the same is still further wiped by the second wiping device, and motion being imparted to the cam 67 and the lever 56 being depressed it carries down the lever 54, and through the medium of the pawl 53 the ratchet 51 is turned a distance of a tooth, the pawl 52 engaging with

the next adjacent tooth and preventing the return movement thereof, and through the medium of the pulley 71 and belt 72 the roll 47 is turned sufficiently to take up more of the material 46 from the roll 44, so that a fresh surface is presented for the next passage of the plate. When the plate is to return for a fresh charge of ink, the connection of the bar 73 is so timed that the rods 81 and 33 are elevated and with them the two wiping devices, so that the plate can pass thereunder without attaching said wiping devices, the parts being ready for the next operation.

It will be apparent that changes may be made by those skilled in the art which will come within the scope of my invention, and I do not, therefore, desire to be limited in every instance to the exact construction as herein shown and described.

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

1. In a plate-printing machine, a wiping device, and means for turning the device in the same direction as the line of movement of the plate during the wiping operation, whereby the surplus ink is removed and a full supply of ink is pressed into the lines of the plate.

2. In a plate-printing machine, a wiping device, means for turning the same in the same direction as the line of movement of the plate during the wiping operation, and at a different speed from the movement of the plate, and means for presenting a new surface at each wiping.

3. In a printing-machine, a wiping device, means for turning the device in the same direction as the line of movement of the plate during the wiping operation, whereby the surplus ink is removed and a full supply of ink is pressed into the lines of the plate and a second wiping device which is stationary.

4. In a printing-machine, a wiping device, means for turning the same in the same direction as the line of movement of the plate during the wiping operation, whereby surplus ink is removed and a full supply of ink is pressed into the lines of the plate, a suitable material on the exterior of said wiping device, means for moving said material thereon in order to present a new surface at each wiping, a second wiping device, suitable material thereon, and means for moving the material on the second wiping in order to present a new surface.

5. In a printing-machine, a wiping device, means for turning the same, suitable material passed around the exterior of said wiping device, a roll carrying said material, and a second roll adapted to receive the material from the first-mentioned roll, and means for intermittently operating said rolls.

6. In a printing-machine, a wiping device, and means for turning the device in the same direction as the line of movement of the plate during the wiping operation, whereby surplus ink is removed and a full supply of ink is pressed into the lines of the plate, and at a different speed from the movement of the plate.

7. In a wiping device for a plate-printing machine, a frame, a plate pivotally attached at one end thereto, means for adjusting the free end of said plate with respect to said frame, and means for holding said free end of said plate and said frame together.

8. In a wiping device for a printing-machine, a frame, a plate secured thereto, cushioning material on the face of said plate, and means for automatically preserving the tension of said cushioning material.

9. In a printing-machine, a wiping device consisting of a frame, arms pivoted thereto, means for adjusting said arms with respect to said frame, cushioning material on said arms, and means for automatically preserving the tension of said cushioning material.

10. In a printing-machine, a drum, suitable wiping material thereon, rods supporting said drum, a second wiping device, rods supporting the same, bars adapted to contact with said rod, a rod common to said arms and means for operating said rod to move said arms, whereby the said drum and second wiping device are raised and lowered.

11. In a printing-machine, a drum, cushioning material thereon, suitable wiping material adapted to pass beneath said cushioning material, rolls engaging with said wiping material, a ratchet suitably connected with one of said rolls, a pawl engaging with said ratchet and connected with a lever, a roll secured to said lever and a cam adapted to operate said roll to move said pawl.

12. In a plate-printing machine, a wiping device and means for moving the same in the same direction as the line of movement of the plate during the wiping operation, whereby the surplus ink is removed and a full supply of ink is pressed into the lines of the plate.

13. In a printing-machine, a wiping device consisting of a frame, arms pivoted thereto, means for adjusting said arms with respect to said frame, cushioning material on said arms, and a yielding device for automatically preserving the tension of the cushioning material.

14. In a plate-printing machine, a wiping device, means for turning the same in the same direction as the line of movement of the plate during the wiping operation, and at a different speed from the movement of the plate.

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