Jan. 21, 1930. F. R. BELLUCHE 1,744,608

BRONZING MACHINE

Filed June 13, 1928 2 Sheets-Sheet 1

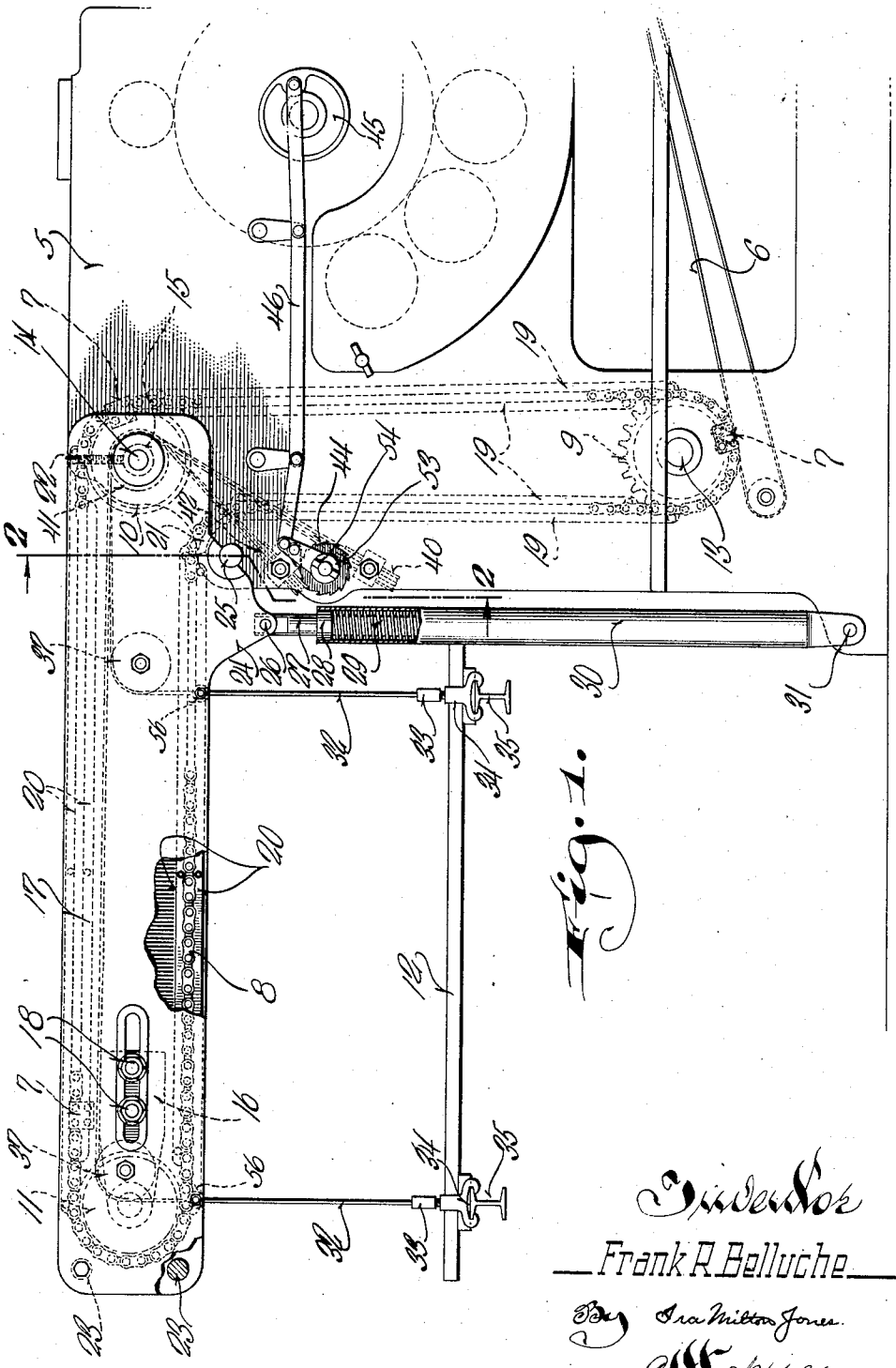


Fig. 1.

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Fig. 2.

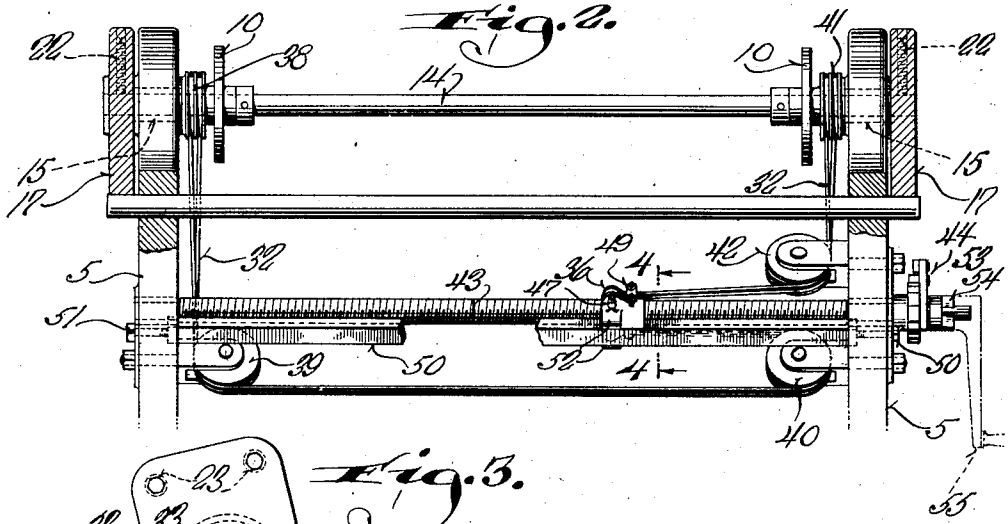


Fig. 3.

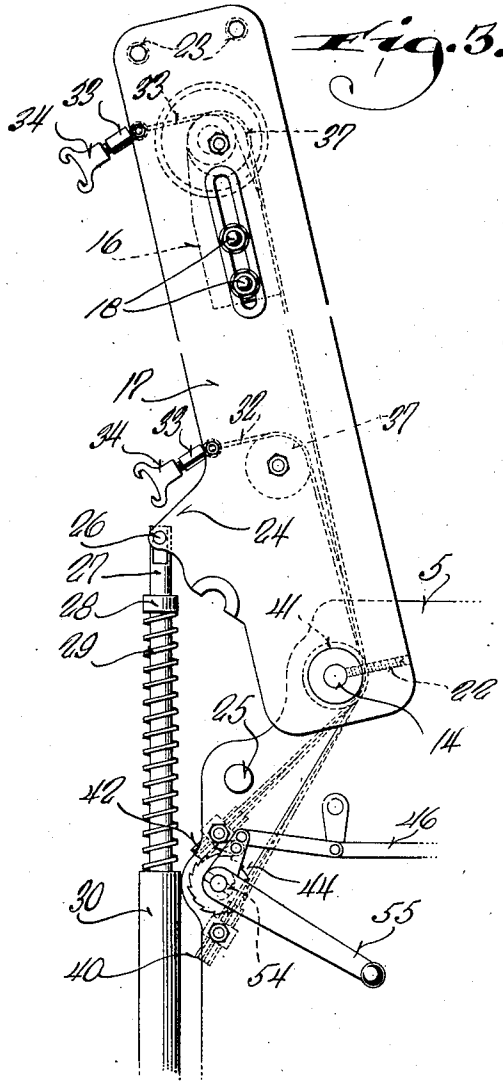


Fig. 4.

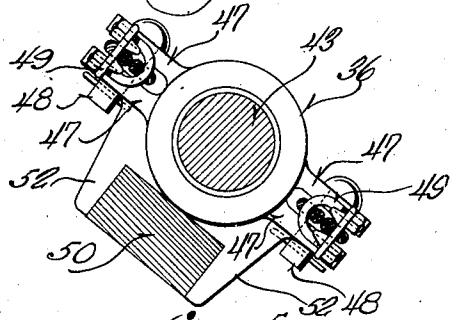
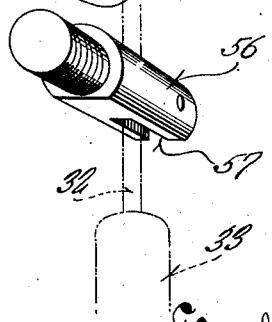


Fig. 5.



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UNITED STATES PATENT OFFICE

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BRONZING MACHINE

Application filed June 13, 1928. Serial No. 285,031.

This invention relates particularly to delivery mechanisms of bronzing machines, printing presses and the like and has as a primary object to provide means for raising the mechanism to make usable an otherwise wasted floor space when the machine is not in operation.

Another object of this invention resides in the provision of a delivery mechanism for bronzing machines, printing presses and the like in which the frame of the mechanism is pivotally connected with the frame of the machine and the means for suspending the delivery platform is utilized to elevate the delivery mechanism out of the way.

And a further object of this invention resides in the provision of a hinged delivery mechanism for bronzing machines, printing presses and the like which is provided with means for counter balancing its weight to facilitate raising the same out of the way.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

In the accompanying drawings, I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a side elevational view, partially illustrating a bronzing machine having a delivery mechanism embodying my invention;

Figure 2 is a sectional view taken through Figure 1 on the plane of the line 2—2;

Figure 3 is a side view similar to Figure 1 of a portion of the machine illustrating the delivery mechanism in its raised position;

Figure 4 is a cross sectional view taken through the raising and lowering screw on the plane of the line 4—4 of Figure 2, and

Figure 5 is a perspective view of one of the studs which are secured to the side frame of the delivery mechanism and against which the cable ends abut to raise the same.

Referring now more particularly to the accompanying drawings in which like numerals designate like parts throughout the several views, 5 represents the side frames of a printing machine which in the present embodiment is a bronzer of the type more at length described in my copending application Serial No. 285,030.

As the particular construction of the bronzer or other machine with which the present invention is used forms no part thereof, a detailed description is not given except that in the present instance the completed work leaves the machine on delivery tapes 6 to be picked up by delivery grippers 7 of conventional design having their supporting rods, not shown, connected at each end with a pair of endless conveying chains 8 trained about drive sprockets 9 and idler wheels 10 and 11 to be deposited on a delivery platform 12 in the usual manner.

The drive sprockets 9 are secured to a shaft 13 journaled in the side frames 5 and drivingly connected with the machine in any suitable manner and the idler wheels 10 are freely rotatably mounted on a shaft 14 journaled in bearings 15 carried by the side frames 5 with its ends projected therebeyond. The wheels 11 are each carried by a bearing member 16 longitudinally adjustably secured to the side frames 17 of the delivery mechanism by a pair of studs 18 to provide means for maintaining the conveying chains taut.

As clearly illustrated in Figure 1, the side frames 17 of the delivery mechanism extend outwardly and horizontally when in position of use and the conveying chains travel in tracks formed by guides 19 secured to the side frames of the machine and in tracks formed by guides 20 secured to the side frames of the delivery mechanism, the guides 19 and 20 being at substantially right angles with each other and the outer traces of the chains having their apexes formed by the wheels 10 and the inner traces being guided at their apexes by a curved portion 21 of the innermost guide 19.

The side frames 17 of the delivery mechanism have their inner ends mounted on the projected ends of the shaft 14 being secured thereto by set screws 22 and held in their proper spaced relation at their outer ends by tie rods 23. As the shaft 14 is rotatable in its bearings, the delivery mechanism is free to pivot about the axis of the shaft and is held in its horizontal position by stops formed by projections 24 which extend downwardly from the side frames 17 to engage the projecting ends of a shaft 25 carried by the side frames 5 of the machine. It will be noted that the side frames 5 at the shaft 25 extend outwardly of the shaft 14 and as the projections 24 snugly engage the outer faces of the frames and are recessed to partially embrace the projecting ends of the shaft 25, the delivery frame is rigidly held against lateral swaying.

The extreme lower portions of the projections 24 have pivotally secured thereto, as at 26, the upper ends of spring guide rods 27 on which flanges or collars 28 are fixed adjacent their upper ends and against the lower faces of which one end of expansile springs 29 abut to act as counter balances for the delivery mechanism. The springs 29 together with their guide rods about which they are coiled are positioned within tubes 30, the lower ends of the springs resting on the closed ends of the tubes which are pivotally secured to the side frames 5, as at 31.

The delivery platform 12 upon which the completed sheets are deposited is suspended from the side frames 17 by cables 32, the ends of which are anchored in sockets 33 carried by claw members 34 which engage and suspend transverse I-beams 35 by which the platform 12 is supported. The cables 32 on each side of the machine comprise a single strand looped at a medial point to be there connected with a nut 36 in a manner and for a purpose to be later described, the cables being trained over pulleys 37 pivotally mounted to the side frames 17.

The cables on the far side with respect to Figure 1 and on the left side with respect to Figure 2 pass upwardly over the pulleys 37 and then run side by side over a double idler sheave 38 freely rotatable on the shaft 13 between the adjacent side frame and the wheel 10, and then downwardly and outwardly around another double idler sheave 39 mounted from the side frame. From the sheave 39 the cables are brought to the opposite side of the machine and around a similar idler sheave 40 and then back towards the left side of the machine, with respect to Figure 2, to its connection with the nut 36.

The cables of the inner side, with respect to Figure 1, and the right side, with respect to Figure 2, extend upwardly from their connection with the sockets 32, pass over the pulleys 37 on that side of the machine and then extend side by side to be trained about a double idler sheave 41 similar to sheave 37, likewise mounted on the shaft 13 between the adjacent side frame 5 and the wheel 10. From the sheave 41 the cables extend downwardly and outwardly around an idler 42 similar to the idler 40 and then towards the other side of the machine to be likewise secured to the nut 36.

As is customary in delivery mechanisms for bronzing machines, printing presses and the like, the delivery platform is automatically lowered as the pile of completed sheets placed thereon increases and in the present instance the lowering of the platform is obtained by a screw shaft 43 which extends across the machine and has its ends rotatably journaled in the side frames 5, the screw shaft having the nut 36 threaded thereon so that rotation of the shaft either moves the nut to the right or to the left with respect to Figure 2. Rotation of the screw shaft may be obtained by a pawl and ratchet structure 44 actuated by a crank wheel 45 through a link 46 which is so arranged to rotate the shaft in a counter-clockwise direction with respect to Figure 1 which in turn moves the nut towards the right with respect to Figure 2 and lowers the platform.

The nut 36 is provided with two pairs of opposed ears or lugs 47 which are apertured to receive a stud 48 about which the cables are looped, the cables being secured against displacement with respect to the studs by clamps 49 of usual design. A transverse bar 50 anchored at its ends in the side frames 5 and secured by screws 51 or the like cooperates with a pair of spaced arms 52 extended from the nut to maintain the same against rotation but permit longitudinal movement.

The screw shaft has its one end extended outwardly of the ratchet structure 44 and has a member 53 secured thereon having a flattened projection 54 which is engaged by a correspondingly shaped recess in a crank arm 55 detachably connectable therewith to permit manual actuation of the screw shaft in either direction to raise or lower the platform. Studs 56 are secured to the side frame 17 in line with the cables and have grooves 57 in which the cables travel, the studs forming stops against which the sockets 33 abut when the cables are sufficiently shortened.

When it is desired to move the delivery mechanism frame to its raised position illustrated in Figure 3, the clamping studs 18 securing the bearings 16 in position are loosened to permit the conveying chain to become lax and the platform 12 together with the I-beams 35 are removed from the ends of the cables. The crank 55 is then rotated to move the nut 36 towards the left, (Figure 2) and inasmuch as the sockets 33 engage the studs 56 which are carried by the delivery frame, further shortening of the cables causes the frame to tilt or

pivot about the axis of shaft 14, the springs 29 assisting in raising the delivery frame.

From the foregoing description, taken in connection with the accompanying drawings, it will be readily apparent to those skilled in the art to which an invention of the character described appertains, that I have provided an improved delivery mechanism for bronzing machines, printing presses and the like which is so mounted that it may be readily swung to a raised position and in which the usual means for raising and lowering the delivery platform is utilized to raise the delivery frame.

What I claim as my invention is:

1. In combination with a printing machine, a delivery mechanism having a delivery platform, means for raising the platform, and means whereby the raising means may be utilized to raise the delivery mechanism.

2. In combination with a printing machine, a delivery mechanism including a frame, means pivotally connecting the frame with the printing machine, a delivery platform, means for raising the platform, and means whereby said raising means may be employed to raise the delivery mechanism to a substantially vertical position.

3. In combination with a printing machine, a delivery mechanism including a frame, means pivotally connecting the frame with the printing machine, means supporting the frame in a substantially horizontal position, means for raising the frame to a substantially vertical position, and means for counterbalancing the weight of the frame.

4. In combination with a printing machine, a delivery mechanism including a frame, means pivotally mounting the frame from the printing machine, means for supporting the frame in a substantially horizontal position, a delivery platform, means for suspending the platform from the delivery frame, means for raising and lowering the platform, and means whereby said suspending means may be employed to raise the frame to substantially vertical position.

5. In a delivery mechanism for printing machines, a frame member pivotally mounted, means for supporting the frame member in substantially horizontal position, a delivery platform suspended from the frame member, a screw shaft, means connecting the suspending means of the delivery platform with the screw shaft whereby rotation of the shaft either raises or lowers the platform, and means whereby rotation of the shaft beyond a predetermined degree raises the delivery platform to substantially vertical position.

In testimony whereof I have hereunto affixed my signature.

FRANK R. BELLUCHE.