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COMBINATION PRINTING AND BRONZING MACHINE

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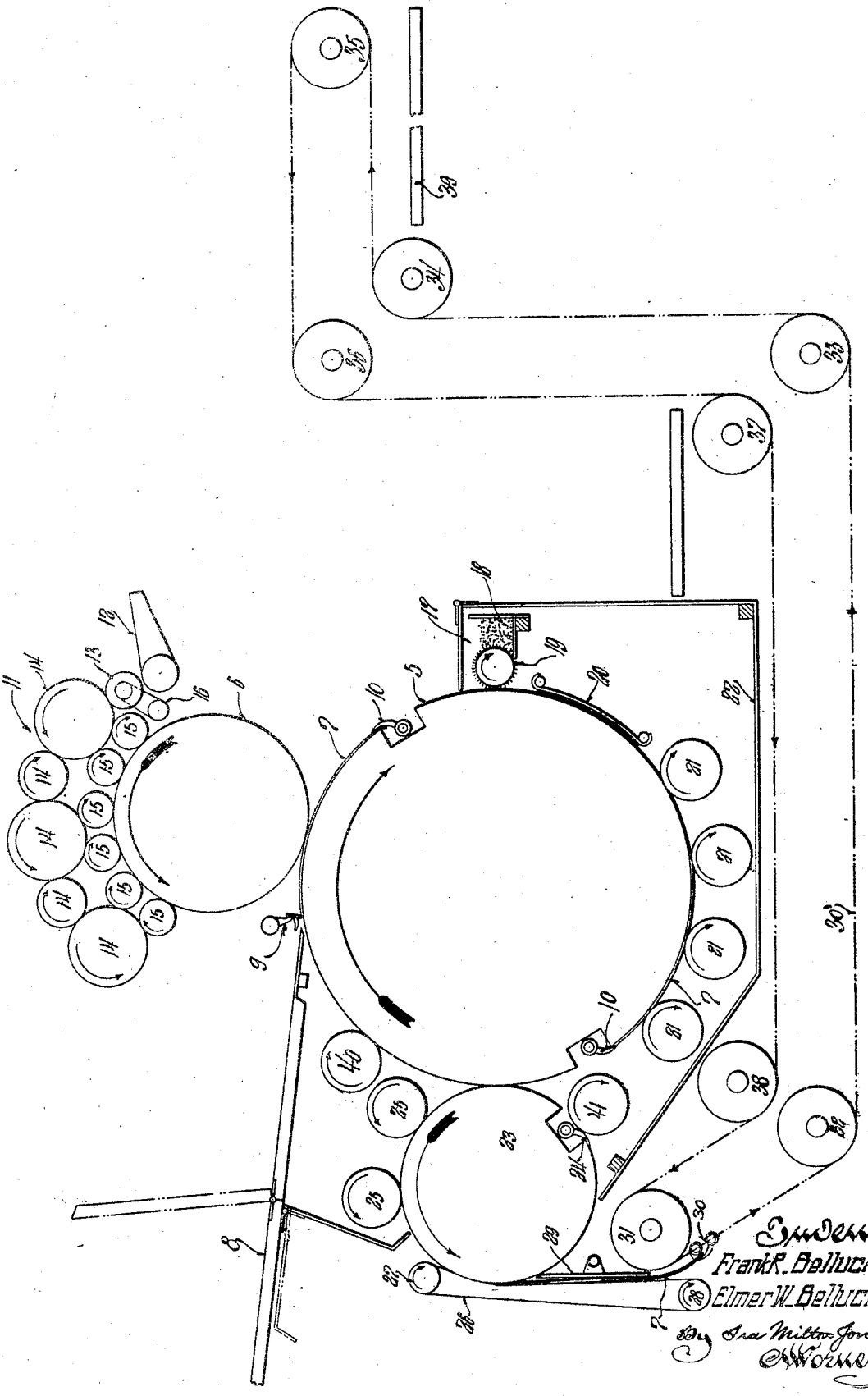

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COMBINATION PRINTING AND BRONZING MACHINE

Application filed December 8, 1928. Serial No. 324,747.

At the present time, it is customary to print or size the work to be bronzed on a conventional printing press from where it is moved to a bronzing machine where the bronze is applied. This method requires doubel handling of the work and frequently the sizing drys during the interval between the printing and bronzing operations to a state at which efficient bronzing is impossible, and, therefore, this invention has as one of its objects to provide a single machine which successively prints and bronzes the work.

A further object of this invention resides in the provision of a printing press having bronzing instrumentalities connected therewith to apply powdered bronze onto the work directly after the printing operation.

And a still further object of this invention resides in the provision of a machine of the character described having printing and bronzing instrumentalities and an impression member common to both.

With the above and other objects in view which will appear as the description proceeds, our 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 herein disclosed invention may be made as come within the scope of the claims.

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

The single figure is a diagrammatic view of a combination printing press and bronzer embodying our invention.

Referring more particularly to the accompanying drawing, the numeral 5 designates an impression member or cylinder of any desired construction, and 6 a plate member or cylinder which cooperates with the impression member to print the sheets of work 7 as they pass therebetween. In the present structure, the diameter of the plate member is one-half that of the impression member so that their ratio is two to one.

A feed board 8 directs the sheets of work to the impression member where they are stopped by a front guide 9 which, by suitable driving means, not shown, moves out of the path of the sheet the instant one of the series of impression cylinder grippers 10 aligns with the forward edge thereof to permit the sheet to advance between the grippers and the periphery of the cylinder to be gripped and carried past the plate cylinder.

The plate cylinder, which may be of conventional design, has the plates, not shown, mounted thereon in the usual manner which are inked by an inking mechanism 11 positioned thereabove. The inking mechanism includes an ink fountain 12, a transfer roll 13, spreading rolls 14 and inking rolls 15, the transfer roll 13 being carried by suitable bracket arms 16 by which it may be moved from engagement with the adjacent spreading roll 14 to the roll carried by the ink fountain and vice versa.

After a sheet has passed beneath the plate cylinder where it is printed, it is carried past a bronze fountain 17 containing powdered bronzing material 18 which is sprayed or dusted thereon by a bronze fountain roll 19. The bronze thus deposited on the moist, freshly printed surface of the sheet is rubbed in by a bronzing pad 20 as the work moves beneath it.

A plurality of high speed dust rolls 21 revolving in a direction opposite to that of the impression cylinder remove excess bronzing material from the work to be received by a housing 22 which substantially encloses all of the bronzing instrumentalities, from where it is removed by suitable suction means, not shown.

Passing the high speed dust rolls 21, the work is carried to a point at which the impression cylinder is tangent with a delivery member or cylinder 23 of a diameter equal to that of the plate cylinder or one-half that of the impression cylinder. Gripper fingers 24 are carried by the delivery cylinder to align with the impression cylinder grippers 10 as the cylinders revolve and, through

transfer mechanism not shown, work carried by the impression cylinder grippers is picked up by the grippers 24 to carry the same away from the impression cylinder. As the work 7 is taken up by the delivery cylinder, it is carried beneath a pair of dust rolls 25 which clean the back thereof prior to its discharge from the machine. The detailed operation of the bronzing instrumentalities is more at length described and illustrated in a copending application, Serial No. 285,030.

The discharge of the finished work is effected through a plurality of conveyer tapes 26 trained about pulleys 27 and 28 and having their inner stretches engaging the delivery cylinder so as to receive the sheets being carried thereby and convey them downwardly and outwardly of the machine. The grippers 24 are opened in the usual manner at a point adjacent the engagement of the tapes 26 with the delivery cylinder and stripper fingers 29 cause the sheet to follow the tapes 26 and not the delivery cylinder.

As the sheets are brought downwardly by the tapes 26 they are picked up by grippers 30 carried by delivery chains 30' trained about sprockets 31, 32, 33, 34, 35, 36, 37 and 38 which carry the same to a delivery table 39 upon which they are stacked. The speed of the delivery chains is coordinated with the machine and the grippers 30 are spaced apart a distance corresponding to the diameter of the delivery cylinder so that a gripper is present to receive each sheet as it leaves the tapes 26.

To insure a clean surface for the impression and delivery cylinders prior to receiving a new sheet of work, cleaning rolls 40 and 41, respectively, are provided. The roll 40 engages the surface of the impression cylinder at a point between its tangency with the delivery cylinder and the front stop 9 where a new sheet is received and the roll 41 cleans the surface of the delivery cylinder just before it receives the work from the impression cylinder.

While the drawing does not show means for moving the bronzing instrumentalities out of engagement with the impression cylinder, it is obvious that this can be readily done to permit the machine to be used only for printing.

From the foregoing description taken in connection with the accompanying drawing, it will be readily apparent to those skilled in the art to which an invention of the character described appertains that we provide a new and novel printing machine which prints or sizes and bronzes work being passed therethrough in rapid succession and one in which the overall size of the machine is not greatly increased or its structure complicated by the combining of the printing and bronzing instrumentalities in a single unitary device.

What we claim as our invention is:

1. In a machine of the character described, an impression cylinder, a plate cylinder mounted above the impression cylinder and cooperating therewith to print sheets passed therebetween, grippers carried by the impression cylinder for carrying the sheets between it and the plate cylinder to be printed, bronzing instrumentalities engaging the underside of the impression cylinder and past which the sheet is carried after being printed, a delivery roll, grippers carried by the delivery roll and adapted to carry the sheet away from the impression cylinder, and delivery mechanism for receiving the sheet from the delivery roll to carry the same out of the machine.

2. In a machine of the character described, an impression cylinder, means for feeding sheets of work to the impression cylinder, grippers on the impression cylinder for carrying the sheets with the impression cylinder, a plate cylinder mounted above the impression cylinder and cooperating therewith to print the sheets as they are carried therebeneath by the impression cylinder, bronzing instrumentalities engaging the under-side of the impression cylinder and past which the sheets are carried after they are printed by the plate cylinder, said bronzing instrumentalities including cleaning rolls for removing the excess bronze from the sheets, a delivery roll, grippers carried by the delivery roll and adapted to convey the sheet away from the impression cylinder, cleaning rolls cooperating with the delivery roll for cleaning the underside of the printed and bronzed sheet, and delivery mechanism for conveying the sheet from the delivery roll outwardly of the machine.

In testimony whereof we have hereunto affixed our signatures.

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