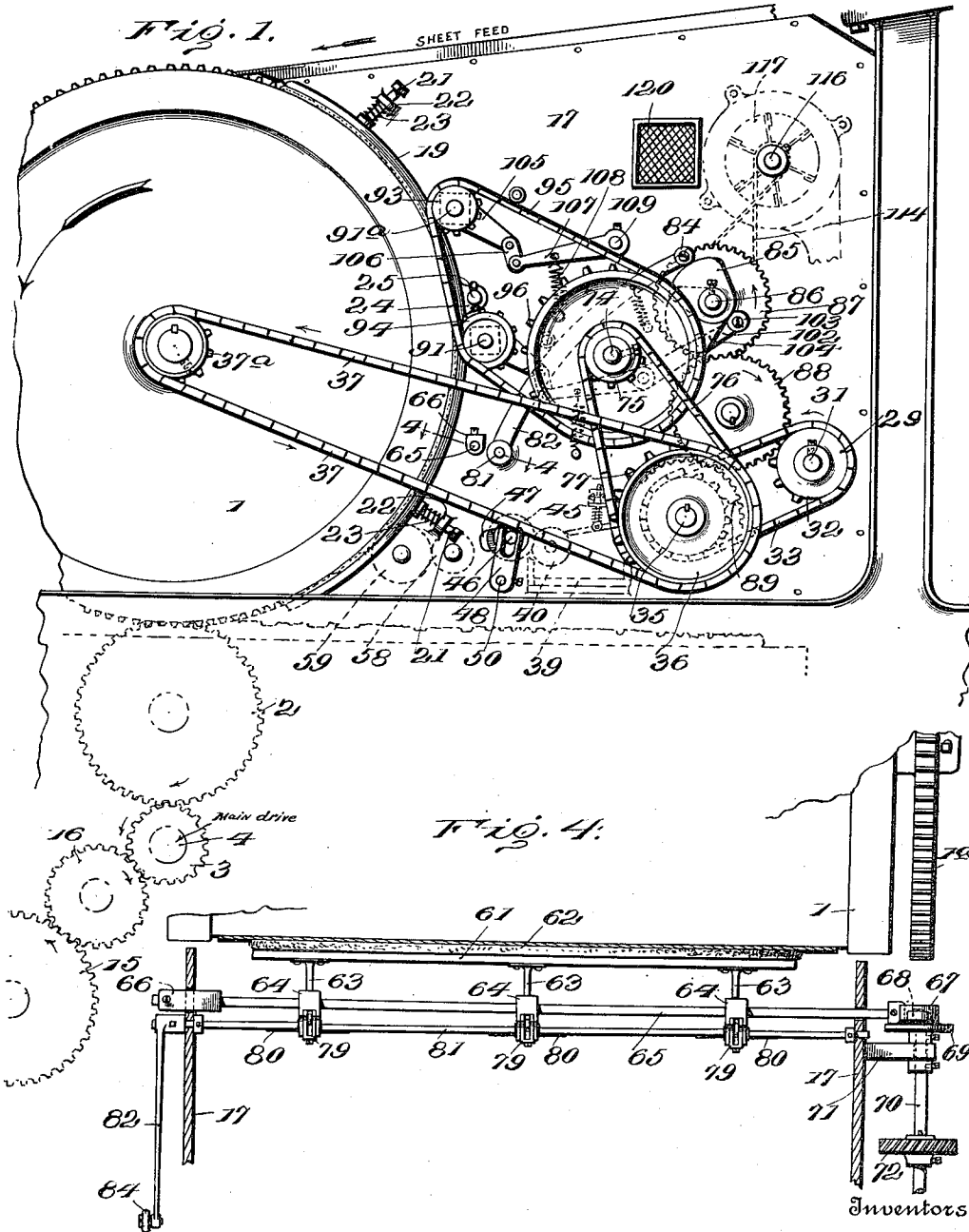


W. F. & H. C. WEIKEL & F. E. PUGH.
BRONZING ATTACHMENT FOR LABEL PRINTING MACHINES.
APPLICATION FILED NOV. 13, 1911.

1,179,689.

Patented Apr. 18, 1916.

6 SHEETS—SHEET 1.



Witnesses

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6 SHEETS—SHEET 2.

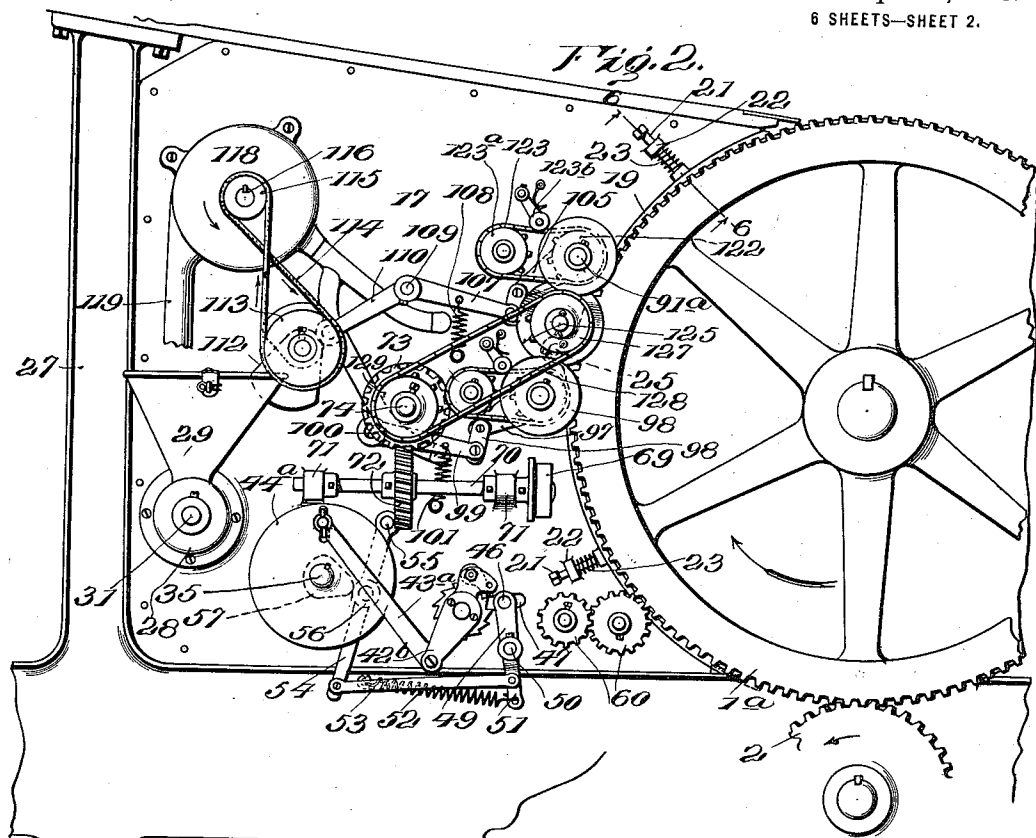


Fig. 6.

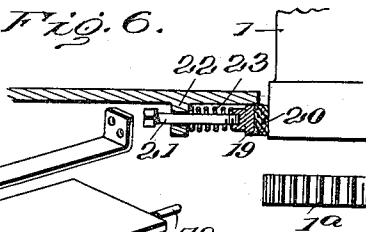
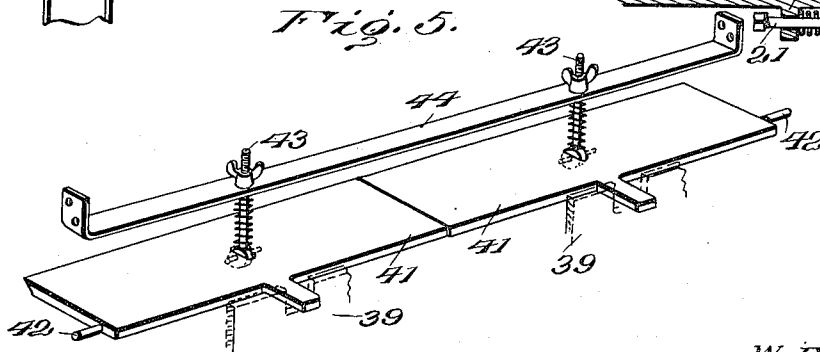


Fig. 5.



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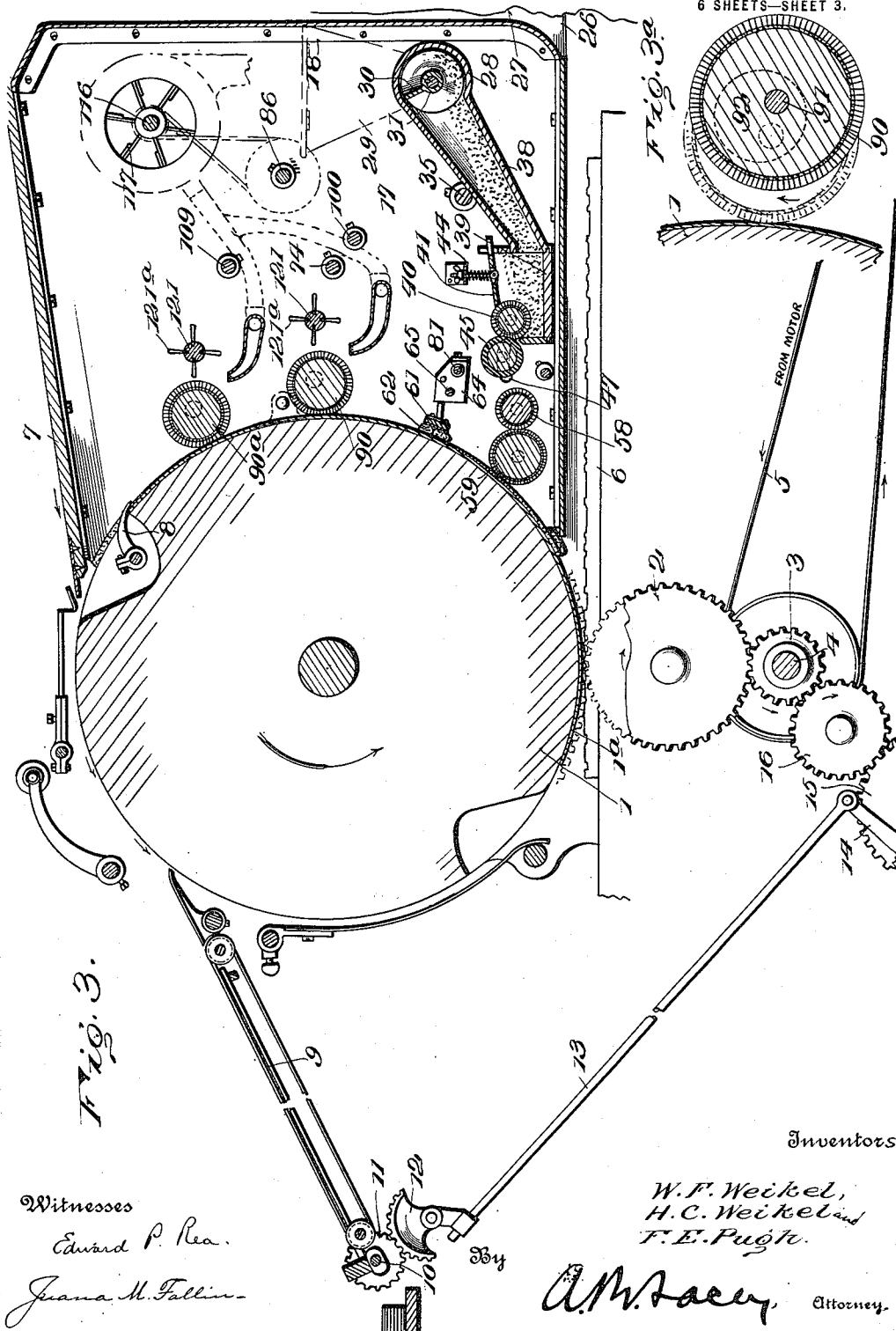
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6 SHEETS—SHEET 3.



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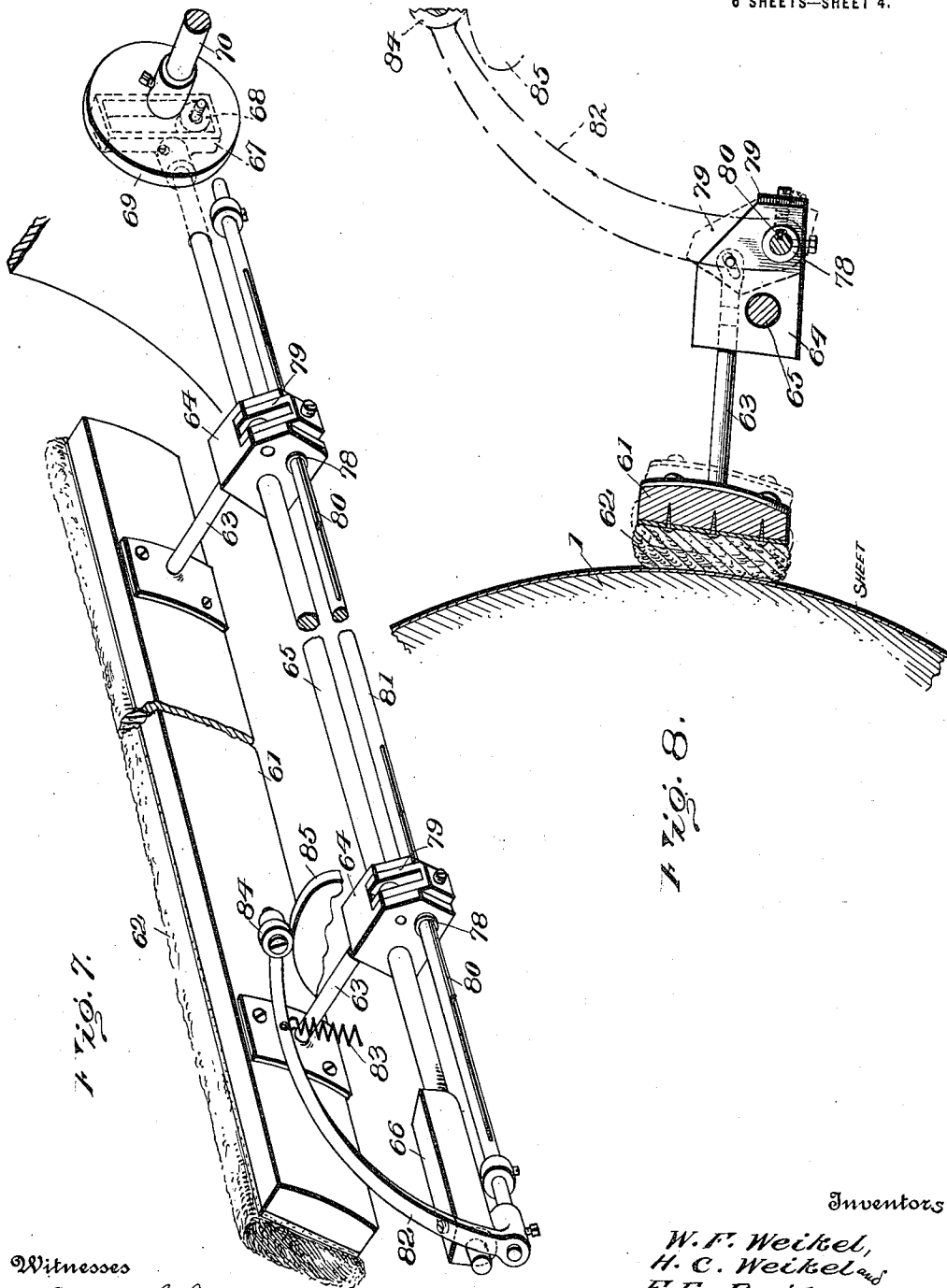
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6 SHEETS—SHEET 4.



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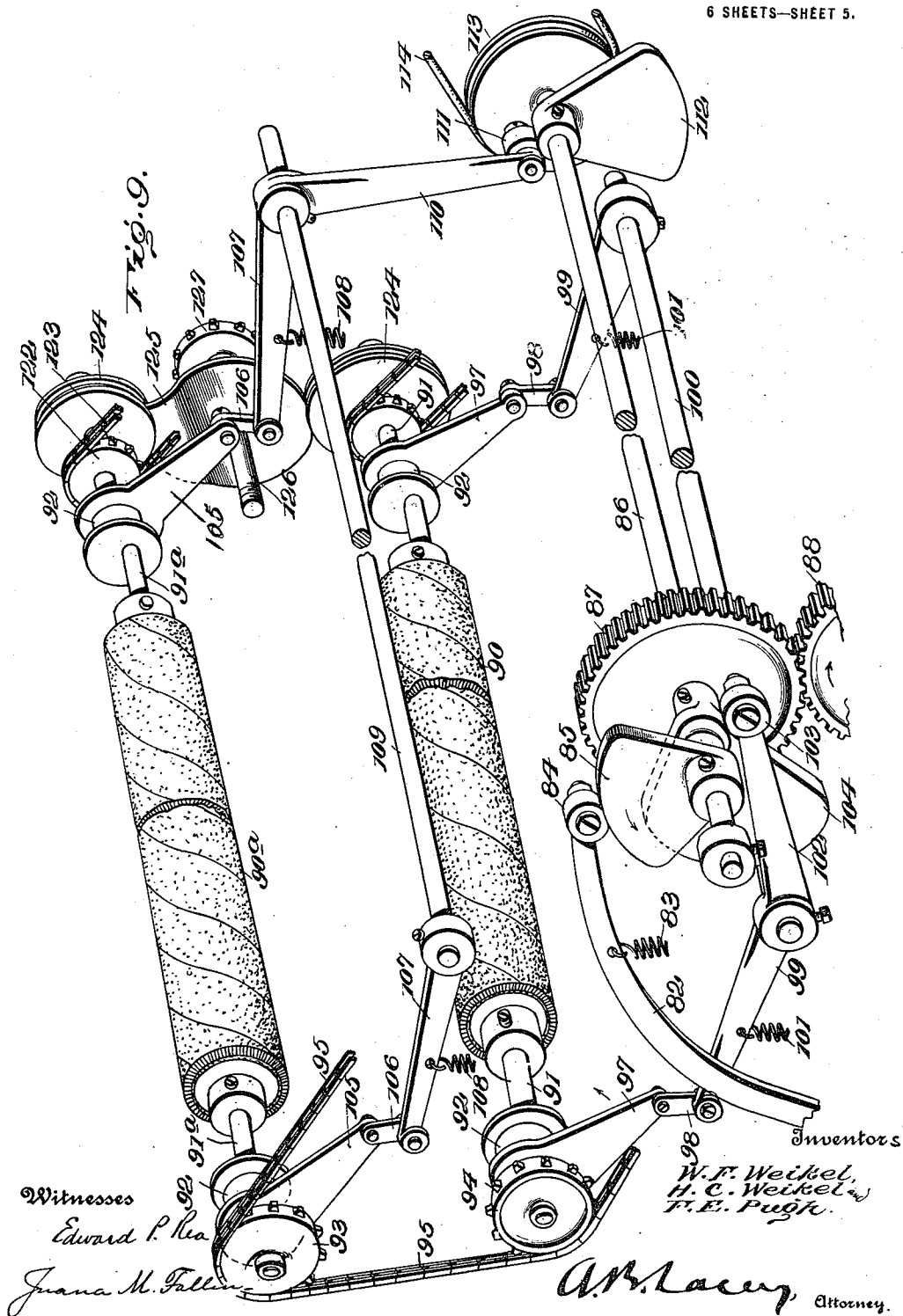
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6 SHEETS—SHEET 5.

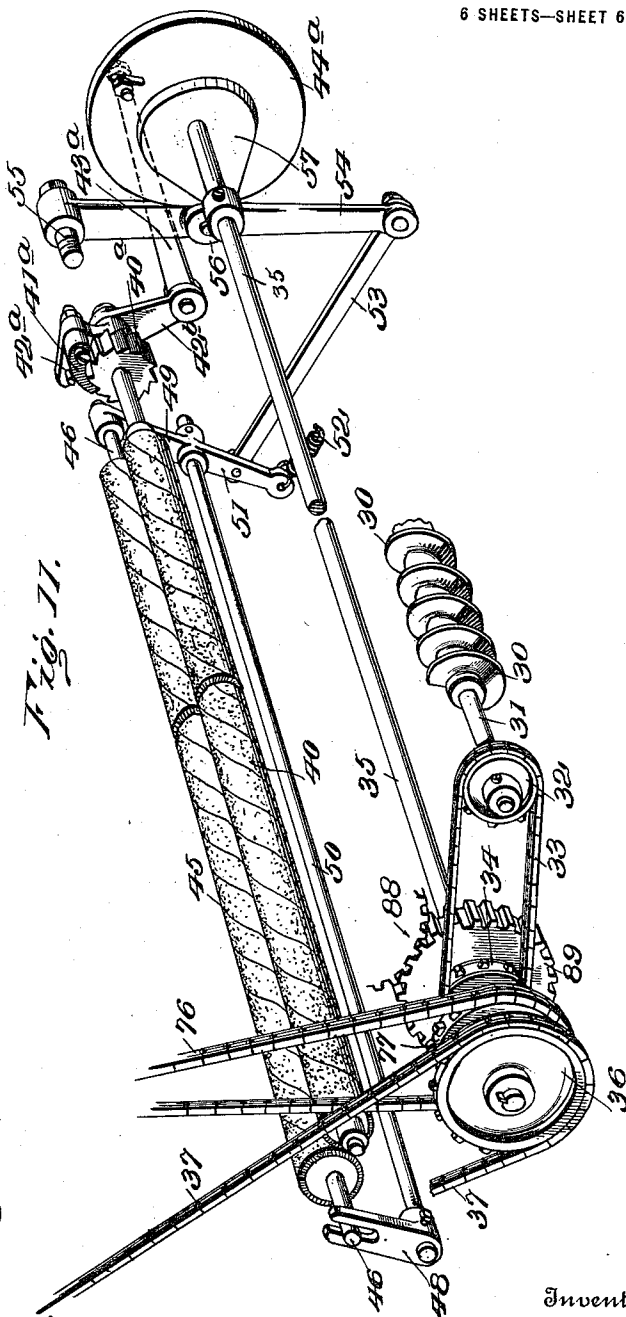
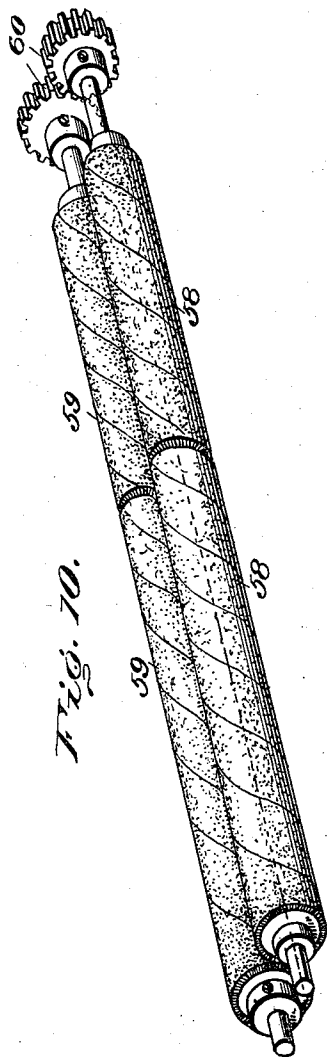


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6 SHEETS—SHEET 6.



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UNITED STATES PATENT OFFICE.

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BRONZING ATTACHMENT FOR LABEL-PRINTING MACHINES.

1,179,689.

Specification of Letters Patent.

Patented Apr. 18, 1916.

Application filed November 13, 1911. Serial No. 680,140.

To all whom it may concern:

Be it known that we, WILLIAM F. WEIKEL, HENRY CHRISTIAN WEIKEL, and FRANK E. PUGH, citizens of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Bronzing Attachments for Label-Printing Machines, of which the following is a specification.

This invention relates to the art of printing, and comprehends certain new and useful improvements in means for applying bronze to lettering, figures, borders and the like, of labels that have been previously passed through a press and been prepared for the bronze by an impression of sizing as a basis of adhesion.

To those familiar with the art to which this invention appertains, it is well known that heretofore in the trade the labels have been passed by hand or by automatic conveyers to a bronzing machine distinct and more or less remote from the multi-color or other printing press of the bed and cylinder type, with the result that the labels are at least partially dry when received in the bronzing machine, thereby preventing the bronze powder from properly adhering thereto while at the same time, either the services of attendants are required in transferring the labels from the press to the bronzing apparatus, or a very expensive and complicated system of mechanical transfer is employed which not only is liable to get out of order, but is troublesome to maintain. With a knowledge of these conditions as they exist today in the trade thus far developed, the primary object of our invention is to provide a bronzing attachment for bed and cylinder multi-color printing presses which is so constructed and arranged that it may receive the sheets directly from the cylinder of the press and effectively apply bronze immediately after they have been prepared by the sizing, so that the sheets will be treated before the sizing shall have had time to dry to any extent.

Another object of our invention is an improved bronzing attachment of the character set forth which will be of simple and durable construction, easy to maintain and not liable to get out of order, capable of being

applied to any conventional form of press of the type hereinbefore mentioned, and efficient in operation to economize in the use of the bronze powder, in addition to possessing the characteristic of applying the powder to the best possible advantage, *i. e.*, immediately after the sheet has been sized.

Another object of the invention is an attachment of this character which, while being applied directly to or at the cylinder of the press, is so arranged that the devices which rub the sheet to cause the effective adhesion of the bronze powder are automatically backed away from the cylinder at predetermined intervals and in predetermined order, so that they will be entirely out of the way of the gripping fingers and adjoining open parts of the cylinder when the fingers and such parts are passing said devices, the rubbing devices being then automatically and in predetermined order moved forwardly into operative position where they will contact with the passing sheet. And the invention also aims to generally improve and simplify bronzing apparatus so as to effect economies in the trade.

With these and other objects in view, as will more fully appear as the description proceeds, the invention consists essentially in a bronzing attachment for multi-color printing presses of the cylinder and bed type, which may be readily secured to a press close up to the cylinder thereof, so as to apply and "rub in" the bronze immediately after the sizing operation, without the necessity of passing the sheets either manually or by mechanical means from the press to a separate and distinct bronzing machine more or less remote from the press. And the invention also consists in certain constructions, arrangements and combination of parts, that we shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a side elevation of our improved bronzing attachment, the same being shown in operative position relative to the cylinder of the press; Fig. 2 is a

similar view of the other side of the attachment; Fig. 3 is a transverse sectional view of the apparatus; Fig. 3^a is a section in the nature of a diagram. Fig. 4 is a horizontal section on the line 4—4 of Fig. 1; Fig. 5 is a detail perspective view of a cut-off for the bronze fountain; Fig. 6 is a detail sectional view on the line 6—6 of Fig. 2; Fig. 7 is a perspective view of one of the "rubbing in" devices; Fig. 8 is a transverse sectional view through such device; Fig. 9 is a detached perspective view of the rubbing rollers employed in connection with the devices illustrated in Figs. 7 and 8, and also a view of some of the actuating and retracting devices for such rollers; Fig. 10 is a detail perspective view of the distributing and applying or feeding rollers, and Fig. 11 is a perspective view of the fountain and doctor rollers and their actuating devices, together with a portion of the screw conveyor which is designed to feed the bronze to the fountain.

Corresponding and like parts are designated by similar characters of reference throughout the several views.

Referring to the drawings, the numeral 1 designates the cylinder of a multi-color printing press, driven in any desired way, as it is to be understood that our invention comprehends an attachment which may be easily applied to any bed and cylinder press without altering the construction of the press and without interfering in any way with its ordinary functions. In the present instance, for the purposes of illustration, the cylinder 1 is shown as provided with a gear wheel 1^a meshing with an idler pinion 2 that in turn meshes with a pinion 3 on the drive or power shaft 4, the latter receiving its motion in any desired way, as from an electric motor (not shown) through the instrumentality of a driving belt 5.

6 designates the bed of the press.

The cylinder 1 carries the ordinary internally actuated sheet gripping fingers 8 designed to engage the sheets as they pass down the feed table 7, the sheets after being treated being finally deposited on the usual slatted frame 9 secured to a shaft 10 which is oscillated at predetermined intervals by the pinion 11, rack segment 12, connecting rod 13, lever 14, and pinion 15, which latter is geared to the pinion 3 through the interposed spur pinion 16.

The supporting frame or casing of our improved bronzing attachment may be of any desired construction and design, so long as it is capable of supporting and housing the various elements of the mechanism, said casing being preferably shut in or inclosed on all sides except where it faces the cylinder 1, so as to prevent the bronze from flying about and being wasted. In the present embodiment of the invention, this casing in-

cludes side plates 17 that are curved on their forward edges in the arc of a circle corresponding to the periphery of the cylinder 1 and a back 18 which may be secured to the side plates in any desired way, and which may be removable, if desired, so as to gain access to the interior of the casing whenever required without removing the entire attachment from the press. Curved bands 19 are disposed on the outer sides of the plates 17 at the forward curved edges thereof, said bands preferably carrying felt linings 20 designed to lie against the periphery of the cylinder 1 at the ends thereof so as to prevent the bronze from sifting out at these points, said bands being secured at the top and bottom to relatively short rods or bolts 21 working in apertured lugs 22 formed on the side plates 17. These bolts 21 are encircled by expansion springs 23 bearing against the lugs and the ends of the bands, and each band is formed at its middle with an apertured ear 24 designed to receive a pin 25 projecting outwardly from the adjoining side plate, this construction and arrangement of parts permitting the bands 19 to yieldingly rock and thereby compensate for the slight upward movement which is intermittently imparted to the cylinder 1, without any opening of the joints between said cylinder and the casing. The casing is supported in its operative relation to the cylinder 1 on the ledges 26 of the main framework 27 of the press, being slid inwardly on these ledges and so mounted that it may be easily backed away from the cylinder whenever required.

The bronze is fed from a trough 28 extending longitudinally of the casing within the latter, and is fed into said trough from a hopper 29, the bronze being preferably continuously fed from the trough 28 by means of a spiral conveyor 30 secured to a shaft 31, said shaft being provided at one end with a sprocket wheel 32 over which a chain 33 passes. This chain also passes around a sprocket wheel 34 on a longitudinally extending shaft 35 journaled in the side plates 17, said shaft carrying a sprocket wheel 36 connected by a sprocket chain 37 to a sprocket wheel 37^a on the shaft of the cylinder 1, the sprocket wheels 36 and 37^a being preferably so proportioned that the latter will make two revolutions to one revolution of the former. As the bronze leaves the trough 28, it passes into and through a downwardly inclined laterally elongated spout 38, from whence it passes by gravity into a fountain 39, which extends from one side plate 17 to the other, at the bottom of the casing. A fountain roller 40 is mounted in the fountain 39, and is engaged by a cut-off 41 which, as best illustrated in Fig. 5, is constructed in two parts or sections, although it is to be understood that the in-

vention is not limited in this regard, said cut-off being formed at its ends with trunnions 42 by which it is journaled, and the sections being provided with any desired number of tensioning bolts 43 working through a bar 44 extending longitudinally of the casing and secured at its ends to the side plates 17 thereof. By adjusting the tension of the bolts 43, the amount of bronze passed out by the fountain roller 40 may be regulated. The fountain roller 40 is intermittently actuated, the shaft of said roller having a ratchet wheel 40^a secured to it at one end, said ratchet being engaged by a pivoted pawl 41^a carried by the arm 42^a loose on the roller shaft, and a crank 42^b is secured to said arm 42^a, said crank being connected by a pitman 43^a to an eccentric disk 44^a secured to one end of the shaft 35. (See Fig. 11.)

The fountain roller 40 is preferably covered with plush or the like, and co-acting with it is a doctor roller 45, preferably of composition, the shaft 46 of the roller 45 passing out through and working in slots 47 that are formed in the side plates 17. The ends of the shaft 46 are carried by the upper ends of substantially vertically disposed rocker arms 48 and 49 mounted on the outer sides of the plates 17, as best illustrated in Figs. 1 and 2, and secured to the ends of a longitudinally extending rod 50 journaled in said plates. The arm 49 is formed with a downward extension 51, to which a contractile spring 52 is connected at one end, the other end of said spring being fastened in any desired way to some stationary portion of the mechanism, whereby the spring will exert a tendency to rock the arms 48 and 49 in a direction to carry the doctor roller 45 from contact with the fountain roller 40. The roller 45 is intermittently and positively moved in the opposite direction, that is, into contact with the fountain roller 40, by means of a link 53 connected at one end to the downward extension 51 of the arm 49, and at the other end to a lever 54, pivotally connected at its upper end 55 to the adjacent side plate 17, said lever carrying a roller 56 designed for engagement by a cam 57 on the shaft 35, this positive movement of the doctor roller serving to swing it from contact with the fountain roller 40 into contact with a distributing roller 58 which is, in the present embodiment of the invention, held continuously in contact with the bronze applying roller 59. Preferably, the rollers 58 and 59 are covered with plush or some equivalent fabric, and are geared together by the pinions 60, as best illustrated in Figs. 2 and 10, the roller 59 being normally in contact with the periphery of the cylinder 1 or the sheet held thereon, such contact being only broken when, in the continuous rotation of

said cylinder, the same has imparted to it a slight upward movement, at which time the sheet gripping fingers 8 and the adjoining blank portion of the periphery of the cylinder are passing said roller.

The initial step in the process of rubbing the bronze into the sized portions of the sheet immediately after the bronze is applied thereto by the roller 59, is performed by a laterally reciprocating bar 61 having its working face covered with beaver fur 62 or some equivalent soft substance. This bar 61 is secured at its rear side to any desired number of rods 63, there being three of these rods in the present instance, as illustrated in Fig. 4. The rear ends of the rods 63 are inserted in blocks 64 that are secured by set screws or similar fastening devices to a laterally reciprocating rod 65, the rod 65 being provided at one end with a bearing block 66 working through one of the side plates 17 and being provided at its other end with an eccentric strap 67. The strap 67 accommodates an eccentric roller 68 which is carried by a disk 69 secured to the forward end of a horizontally disposed shaft 70 journaled in bearings 71 formed on the outer face of one of the side plates 17. The shaft 70 carries a spiral gear 72 meshing with a corresponding gear 73 secured to the outer end of a longitudinally extending shaft 74. The other end of the shaft 74 carries a sprocket wheel 75 connected by a chain 76 to a larger sprocket 77 carried by the shaft 35.

In order to automatically move the continuously reciprocating bar 61 back from the cylinder 1 at predetermined intervals, we have provided the following mechanism: Each of the blocks 64 has secured in it a bushing 78 and is recessed on its rear side to accommodate a recessed section 79 which operates in the nature of a crank and which is fastened to the bushing by a set screw and pivotally connected to the rear end of the rod 63, as best illustrated in Fig. 8. The bushings 78 of the blocks 64 are grooved to receive splines or feathers 80 formed on a rod 81 extending longitudinally in the framework back of the rod 65, one end of the rod 81 extending to the outside of one of the plates 17, and carrying a curved arm 82. The arm 82 is fixed on the rod 81 and is secured intermediate of its ends to one end of a contractile spring 83, the other end of said spring being secured to the adjoining side plate. A roller 84 is carried by the upper free end of the arm 83, said roller, as best illustrated in Figs. 1 and 9, being designed for engagement by a cam 85 secured to a shaft 86 journaled in the side plates, said shaft carrying a gear wheel 87 which meshes with a gear wheel 88. The gear wheel 88 in turn meshes with a gear wheel 89 on the shaft 35. By this means

the continuous rotation of the shaft 86 will, as is manifest, result in the intermittent engagement of the cam 85 with the roller 84, and arm 82 will be rocked in a direction to
 5 turn the rod 81 so as to positively carry the bar 61 forwardly and hold it with its working face against the cylinder 1 or sheet carried thereby. As soon as the cam 85 leaves the roller 84, the spring 83 will be permitted
 10 to act and it will pull the arm 82 rearwardly, this resulting in turning the rod 81 to rock the cranks 79 rearwardly so as to draw the rods 63 rearwardly in the blocks 64 and move the bar 61 away from the cylinder.
 15 This action takes place without any cessation in the reciprocating movement of the bar 61, as the blocks 64 are splined on the rod 81, as before described.

The second step in the process of rubbing
 20 the bronze into the sized portions of the sheet while it is passing through the attachment on the printing cylinder 1, is performed by a roller 90, and the final step in this operation is performed by a corresponding roller 90^a, the roller 90 being mounted
 25 above the bar 61 and the roller 90^a above the roller 90. Both of these rollers are preferably covered with beaver fur, like the operative face of the bar 61.

30 91 designates the shaft of the roller 90 and 91^a designates the shaft of the roller 90^a. Each of these shafts is journaled at its ends in eccentric bearings 92 carried by the side plates 17, whereby when a partial rotation
 35 is imparted to said bearings, the rollers will be backed away from or carried forwardly against the cylinder 1 or sheet thereon, at predetermined intervals and in succession, the movement being diagrammatically illustrated in Fig. 3^a. The rollers are, however,
 40 continuously rotated, in the present embodiment of the invention, about the shaft 91^a of the roller 90^a carrying at one end a sprocket wheel 93, and the corresponding
 45 end of the shaft 91 carrying a sprocket wheel 94. the sprocket chain 95 passing around the said wheels 93 and 94 and around a sprocket wheel 96 secured to the adjoining end of the shaft 74. To secure
 50 these automatic movements of the rollers 90 and 90^a toward and away from the cylinder 1 (referring now particularly to Fig. 9, and first to the roller 90), the bearings 92 of the shaft 91 have crank arms 97 connected
 55 to them. The arms 97 are pivotally connected by links 98 to rocker arms 99 secured to a longitudinally extending shaft 100 mounted in the side plates 17, and contractile springs 101 are secured to the rocker
 60 arms 99 and to the side plates 17, tending to move said rocker arms in such a direction that the crank arms 97 will be swung around to carry the eccentrically mounted shaft 91 away from the cylinder 1. One of the rocker
 65 arms 99 is joined to a lever 102 extending

rearwardly from the rod 100 and carrying a roller 103, said roller being designed for engagement by a cam 104 on the shaft 86, whereby as said shaft rotates, the engagement of the cam 104 with the roller 103 will
 70 result in moving the rocker arms 99 against the tension of the springs 101 so as to turn the eccentric bearings 92 in a direction to carry the roller 90 forwardly against the cylinder 1. Correspondingly, the bearings
 75 92 for the shaft 91^a have crank arms 105 secured to them, said crank arms being joined by links 106, to rocker arms 107, to which contractile springs 108 are connected. The arms 107 are secured to a rod 109 to
 80 which a lever 110 is also connected, said lever carrying a roller 111 designed for intermittent engagement by a cam 112 on the shaft 86, the cams 104 and 112 being so
 85 timed that the former will work in advance of the latter, both in engaging and leaving its corresponding roller.

If desired, the shaft 86 may carry a pulley 113 around which is passed a driving belt 114, said belt being also passed around a
 90 pulley 115 on a shaft 116 carrying fan blades 117, the fan being mounted in a casing 118, and operated to suck the loose bronze out from the casing, whence it may be passed to the ordinary baffle box or, if desired, passed by the tube 119 to the hopper
 95 29. The side plate 17 distant from the fan may be formed with a screened opening 120.

The rollers 90 and 90^a are cleaned by means of cleaning rollers 121 that are journaled in side plates 17 contiguous to the rollers 90 and 90^a, each of the cleaning rollers 121 being formed with any desired number
 100 of kerfs or grooves disposed longitudinally therein and designed to receive and hold, by any desired means, cleaning strips which may be of any desired character but which are preferably formed of wire fabric in double
 105 lengths with the doubled edges outermost, as indicated at 121^a. The shaft of each of the rollers 121 is provided at one end with a sprocket wheel 123^a, and sprocket chains 123 pass over these sprocket wheels and over corresponding sprocket wheels 122
 110 secured to the adjoining ends of the shafts of the rollers 90 and 90^a. It will, of course, be understood that the rollers 90 and 90^a are shifted toward and away from the cylinder 1 of the press, and to provide for this so
 115 as to insure the rotation of the cleaning rollers 121 when the rollers 90 and 90^a are moved backwardly or away from the periphery of the cylinder 1, we have provided spring-pressed tension idlers 123^b, which bear upon the sprocket chains. It will be seen that in
 120 the normal operative positions of the rollers 90 and 90^a the cleaning strips of the cleaning rollers 121 will be out of engagement with the peripheries of the rollers 90 and 90^a; when said last-named rollers move back-
 125 130

wardly or away from the cylinder 1, their peripheries will come into contact with the rapidly revolving wire fabric cleaning strips, and the same will effectively clean the peripheries of the rollers 90 and 90^a of the bronze which would otherwise adhere thereto. This bronze may be readily removed as it comes off the rollers 90 and 90^a by means of suction boxes 123^c which are mounted in juxtaposition to the cleaning rollers 121 within the casing and which have pipe connections 123^d with the main fan 117, whereby said fan may not only suck the loose or excess bronze from the other parts of the casing, but will also act to directly carry the bronze from the rollers 90 and 90^a and the cleaning rollers 121 before described. The casing of the suction fan 117 is connected by means of a duct 119, shown in dotted lines in Figs. 1 and 3 and in full lines in Fig. 2, to the hopper 29 and thus returned to the font. Thus none of the fine dust of the bronze is ejected into the room or lost but a continuous circulation is kept of the bronze, the bronze being applied from the font to the paper, rubbed in, dusted therefrom by the rollers 90 and 90^a, then taken therefrom by the cleaners 121 and 121^a and thence drawn into the suction tubes 123^a and from thence passed back to the hopper again. Furthermore it will be seen that these suction tubes not only take the bronze powder from the rolls 90 and 90^a, but that they will act to draw in any loose bronze powder floating in the air inclosed within the casing of the apparatus. This not only eliminates waste, but is far more sanitary than the ordinary operation. Furthermore inasmuch as the font is located at the lower portion of the casing, the bronze as it is taken from the font does not fall down through the casing as it would be liable to do were the font located at the upper portion of the casing. It is to be understood that our invention is not limited to this construction of means for directly removing the waste, and that separate fans may be provided, if desired, for conveying the powder from the suction boxes 123^c, but we prefer the use of the single fan 117 to serve all of these functions. Preferably, the rollers 90 and 90^a are vibrated in opposite directions from each other and longitudinally of their length at the same time they are rotated. As one means for effecting this result, although it is to be understood that various other means may be employed for this purpose, one end of each shaft 91, 91^a is provided with a grooved collar 124, said collars being engaged by an interposed cam 125 which is mounted on a stub shaft 126 secured to and projecting outwardly from the adjoining side plate 17. Movable with the cam 125 is a sprocket wheel 127. A sprocket chain 128 passes over the sprocket wheel 127 and also over a

sprocket wheel 129 secured to the adjacent end of the shaft 74, whereby as said shaft rotates, the cam 125 will be rotated to impart the desired vibratory movement to the shafts 91 and 91^a and the rollers 90 and 90^a. 70

From the foregoing description in connection with the accompanying drawings, the operation of our improved bronzing attachment for multi-color or other label printing machines will be apparent, as the operations and correlated actions of the various elements of the mechanism have been described along with the details of construction and relative arrangements of the parts. But it may be stated, generally, that in the practical use of the apparatus, an intermittent movement will be imparted to the fountain roller 40 so that the latter will pass the bronze to the doctor roller 45, and said roller will, at predetermined intervals, 85 vibrate between the roller 40 and the distributing roller 58, conveying the bronze to the latter, and said roller 58 passing it to the roller 59 which will apply it to the sheet. The bronze will then be rubbed in by the laterally reciprocating bar 61 and the rollers 90 and 90^a. At predetermined intervals, the sheet gripping fingers and the adjoining open portion of the periphery of the cylinder 1 will arrive at and commence to sweep 95 past the bar 61 and rollers 90 and 90^a, and at this time the bar and said rollers will automatically move back from the periphery of the cylinder and will then in turn be positively moved forwardly again into their operative positions by the mechanism hereinbefore specifically set forth and illustrated in the accompanying drawings. 100

While the accompanying drawings illustrate what we believe to be the preferred embodiment of our invention, it is to be understood that the invention is not limited thereto, but that various changes may be made in the construction, arrangement and proportions of the parts without departing from the scope of the invention as defined in the appended claims. 105

Having thus described our invention, what is claimed is:

1. The combination with a printing press including a rotary cylinder, of a bronzing attachment disposed contiguous thereto and including a bronze applying means, means for rubbing the bronze in, said rubbing means including a roller continuously rotatable in one direction, means for intermittently moving said roller in a plane transverse to the plane of continuous movement, and a rotatable cleaning brush disposed in spaced relation to the cylinder and with which the roller contacts as it moves away from the cylinder. 115 120 125

2. The combination with a printing press including a rotary cylinder, of a bronzing attachment contiguous thereto and includ- 130

ing bronze applying means, means for rubbing the bronze in, said rubbing means including a roller continuously rotatable in one direction, means for intermittently moving said roller in a plane transverse to the plane of continuous movement, a rotary cleaning brush with which the roller engages as it moves away from the cylinder, and an exhaust duct disposed adjacent to said cleaning roller.

3. A bronzing attachment for the purpose specified, including a casing, bronze applying means mounted in said casing, a bar mounted in the casing and arranged for reciprocation therein and adapted to rub the bronze in, rods connected to said bar, supports for said rods and in which they are movable, a reciprocating rod carrying said supporting means, and means for automatically moving said rods in their supports at intervals in the reciprocating movement of the rod which carries said supports.

4. A bronzing attachment for the purpose specified, including a casing, bronze applying means mounted therein, a bar mounted in the casing and adapted to rub the bronze in, rods extending rearwardly from said bar, blocks in which said rods are received, a reciprocating rod to which the blocks are connected, another rod passing through said blocks and on which said blocks are splined, means for reciprocating the block supporting rod, cranks secured to the first named rods and movable with the blocks on the splined rod, and means for intermittently turning said splined rod in a direction to move the first named rods in the blocks.

5. A bronzing attachment for the purpose specified, including a casing, bronze applying means mounted in said casing, a bar also mounted in said casing and adapted to rub the bronze in, rods projecting rearwardly from said bar and connected thereto, blocks in which said rods are movable, a reciprocating rod to which said blocks are secured, another rod passing through said blocks and on which they are splined, cranks connected to the rear ends of said first-named rods and movable with said blocks but free to turn with the rod on which the blocks are splined, an arm connected to the rod just mentioned, and means operating upon said arm to move said rod in a direction to carry the first named rods forwardly and rearwardly in their supporting blocks.

6. The combination with a printing press embodying a rotary cylinder, of a bronzing attachment contiguous to said cylinder and including a transversely extending rubbing member, a rock shaft, means operatively connecting the rubbing member to the rock shaft whereby it may be shifted toward and from the cylinder, and means for reciprocating said operative connection and the rubbing member longitudinally of but in

operative engagement with said shaft at all times.

7. A bronzing attachment for the purpose specified, including a casing, bronze applying means mounted therein, a bar also mounted in said casing and adapted to rub the bronze in, rods secured to and projecting rearwardly from said bar, blocks in which said rods are movable, a reciprocating rod to which said blocks are secured, said rods being provided at one end with an eccentric strap, an eccentric co-acting with said strap to effect the reciprocating movement of said rod, and means connected to the first named rods and to the blocks for moving said rods in the blocks during the reciprocating movement of the latter.

8. A bronzing attachment for the purpose specified, including a casing, bronze applying means mounted therein, a roller mounted in said casing and adapted to rub the bronze in, eccentric bearings supporting said roller, means for rotating said roller, crank arms connected to said bearings to turn the same, rocker arms pivotally connected to the crank arms, a rod to which the rocker arms are connected, a lever also connected to said rod, a cam adapted to engage said lever, and means for actuating said cam.

9. A bronzing attachment for the purpose specified, including a casing embodying side plates, curved bands pivotally connected intermediate of their ends to said side plates at the front edges thereof, yielding connections between the ends of said bands and the said side plates, and bronze applying means mounted in said casing.

10. A bronzing attachment for the purpose specified, including a casing, a bronze fountain mounted therein, a fountain roller, means for operating said roller, bronze applying means in spaced relation to the fountain roller, a doctor roller interposed between the other rollers, rocker arms carried by said doctor roller, a rod to which said arms are connected, said rod being journaled on the casing, one of said arms being formed with an extension, a lever carried by the casing and having a link connection with said extension, means tending to move the extension in one direction, and means acting against said lever for intermittently moving the extension in the opposite direction.

11. A bronzing attachment for the purpose specified including a casing, a bronze applying roller mounted in the casing, a fountain disposed in said casing and arranged to supply the bronze applying roller, said fountain including a receptacle for the bronze, a roller rotatably mounted at one end of said receptacle, a cut-off plate pivotally mounted on and extending over said receptacle to close the same and bearing resiliently against the roller, a spring above said plate and bearing thereon to force it

against the roller, and means supported above the plate for regulating the tension of the spring.

12. A bronzing attachment for the purpose specified including a casing, a bronze applying roller mounted therein, a fountain arranged to supply the bronze applying roller, a trough mounted in the casing, a spiral conveyer disposed in the trough, a spout connection between said trough and the fountain, and a variably tensioned cut-off plate mounted upon said fountain and engaging the roller therein.

13. In a bronzing attachment, a rubbing roller, a shaft upon which the roller is mounted, journal bearings for the shaft eccentric thereto, means for rocking said journal bearings to shift the shaft and roller in a plane transverse to the shaft, means for giving continuous rotation to the shaft, a grooved wheel on the shaft, and a cam co-acting with the grooved wheel and having a relatively flat portion and a laterally deflected portion acting when in engagement with the grooved member to laterally reciprocate the shaft and roller.

14. The combination with a printing press including a rotary cylinder, of a bronzing attachment contiguous to the face of the cylinder and including rubbing rollers disposed successively to each other, a shaft for each roller, eccentric bearings for each shaft, each bearing including a radially projecting arm, means for successively oscillating said eccentric bearings so as to successively move the rollers into and out of engagement with the face of the printing cylinder, means for giving continuous rotation to both shafts, peripherally grooved disks mounted, one on each of the shafts and in alinement with

each other, and a continuously rotating cam coacting with said disks and engaging in the grooves thereof, said cam comprising a relatively flat circular portion and a laterally deflected portion, the latter acting to successively reciprocate the shafts longitudinally.

15. A bronzing attachment for cylinder printing presses including a casing open at one end, the side walls having curved edges at said open end, bronze applying, rubbing and dusting devices disposed within the casing, curved bands disposed on the outer faces of the sides of the casing, felt linings applied to said bands and designed to lie against the periphery of the cylinder, and resilient means for forcing the bands into contact with the cylinder.

16. A bronzing attachment for the purpose specified, including a casing, bronze applying means mounted therein, a bar also mounted in said casing and adapted to rub the bronze in, rods secured to and projecting rearwardly from said bar, blocks in which the rear ends of said rods are movable, the blocks being provided with rear end recesses, cranks mounted in said recesses and connected to the said rods, a rod on which said blocks are splined, means for partially rotating said splined rod, another rod to which the blocks are fixedly connected, and means for reciprocating said last-named rod.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM F. WEIKEL.	[L. S.]
HENRY CHRISTIAN WEIKEL.	[L. S.]
FRANK E. PUGH.	[L. S.]

Witnesses:

JULIUS HAAS,
MAGDALENA RUTH.