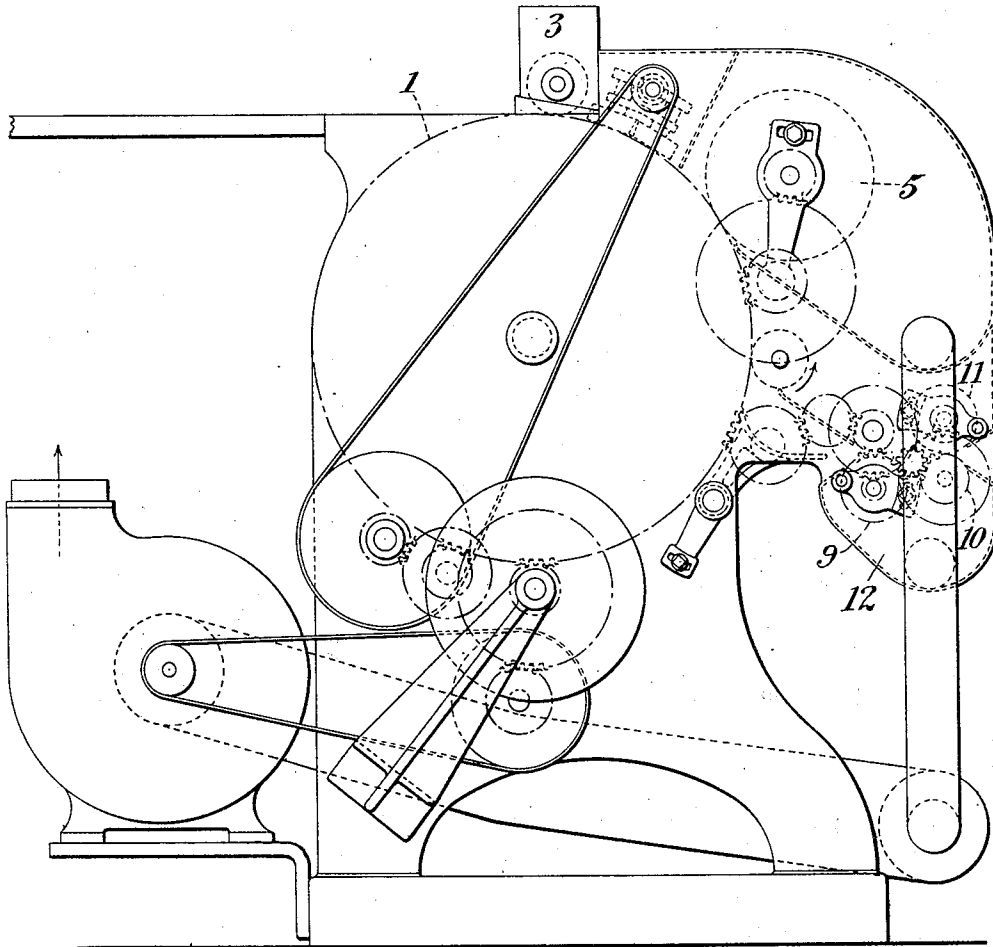


A. J. FORD.
BRONZING MACHINE.
APPLICATION FILED DEC. 3, 1908.

1,008,129.

Patented Nov. 7, 1911
2 SHEETS—SHEET 1.

Fig. 1



Witnesses:

Wm. Ashley Kelly
Victor D. Bond

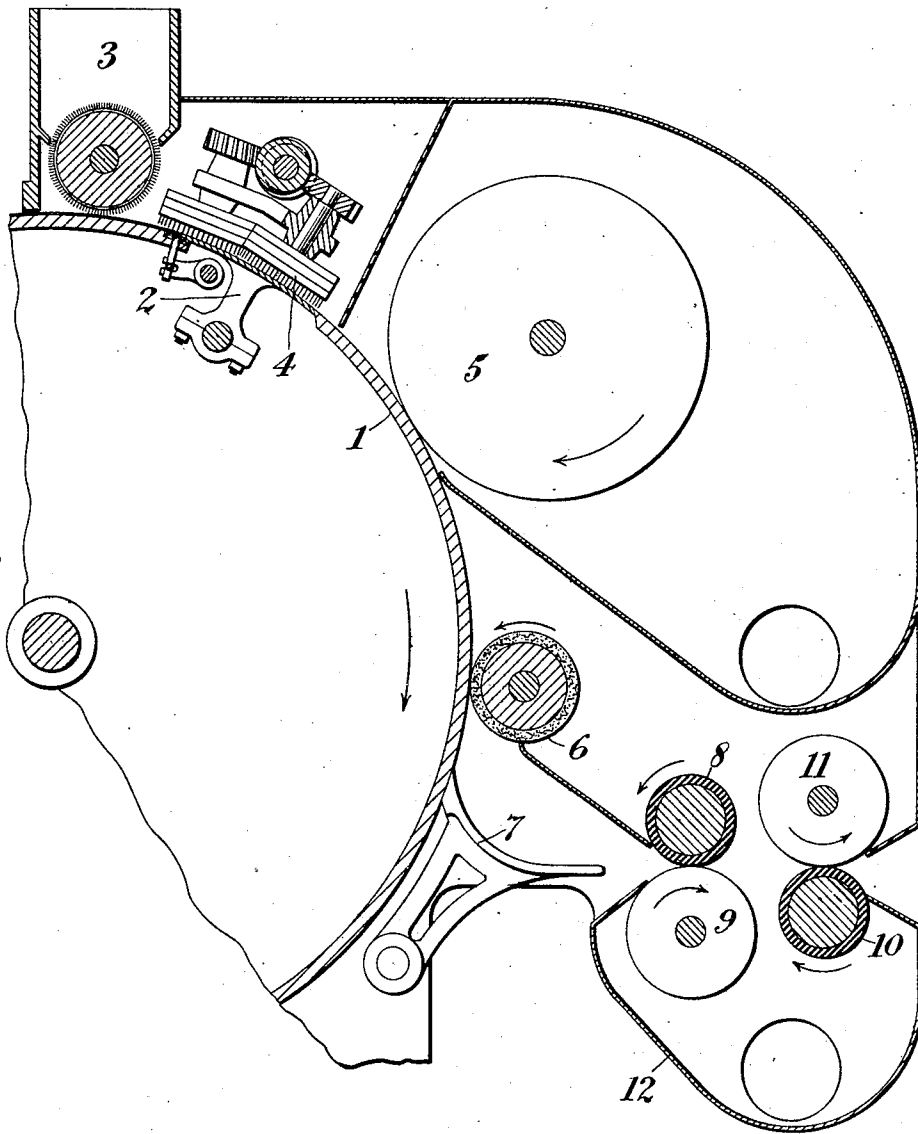
Inventor:

Albert J. Ford

by Henry B. Williams
Attorney.

1,008,129.

Fig. 2



Wm. Ashley Kelly
Victor D. Barrett

Inventor:
Albert J. Ford.
by Henry W. Williams
Attorney.

UNITED STATES PATENT OFFICE.

ALBERT J. FORD, OF NEW YORK, N. Y., ASSIGNOR TO FUCHS AND LANG MANUFACTURING COMPANY, A CORPORATION OF NEW YORK.

BRONZING-MACHINE.

1:008,129.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed December 13, 1908. Serial No. 465,805.

To all whom it may concern:

Be it known that I, ALBERT J. FORD, a citizen of the United States, residing in the borough of Manhattan, city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Bronzing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings, forming part thereof.

My invention relates to machines for applying bronze powders or similar materials to the surface of paper or other fabrics in the process of printing the same.

In using machines of the kind above referred to, it is customary to first print a sheet of paper with gum or other suitable adhesive in the required pattern, and the sheet is then passed through the bronzing machine, which applies bronze powder to the entire face of the sheet. The powder clings to the gum or size, while a dusting operation performed by the machine removes the powder from all the rest of the surface of the paper.

My invention relates particularly to the dusting operation above referred to, and one object of the invention is the complete and thorough dusting of the paper, and other objects are simplicity of construction, reliability and effectiveness of operation of the feeding and dusting devices.

Other objects will appear from the following description.

In carrying out my invention, I use, in co-operation, a dusting roll having a surface of cotton or other soft and yielding material, and a feed roll engaging the paper opposite to the dusting roll and having a surface of soft rubber. Owing to the nature of the dusting roll and of the operation performed thereby, this roll can not engage the paper with much pressure, and the engagement of the paper with the feed roll is correspondingly light, but I have found that owing to the frictional quality of the rubber it operates successfully to control the feeding of the paper under these circumstances, notwithstanding the fact that the dusting roll rotates much more rapidly and tends to expel the paper before it has been completely dusted.

Other features of the invention will be set forth in connection with the description

of the embodiment of the invention illustrated in the accompanying drawings.

I will now describe the machine illustrated in the drawings and will thereafter point out my invention in claims.

Figure 1 is a side elevation of a bronzing machine embodying the present invention, and Fig. 2 is an enlarged vertical section of a portion of the machine illustrating particularly the arrangement of the dusting apparatus.

The illustrated embodiment of my invention is a bronzing machine of a type familiar to those skilled in the art, such a machine being illustrated, for example, in the patent to Emmerich and Vonderlehr, No. 613,857. It includes the usual cylinder 1, upon which the paper is carried during the bronzing operation, this cylinder being provided with the usual grippers 2. The bronze powder is applied to the paper by a feeding device 3 of ordinary or suitable form, and is rubbed in by the usual buffing pads 4. After the paper passes the buffing pads, it is dusted, as is common in such machines, by a dusting roll 5, consisting of cotton disks, which is rapidly rotated by suitable gearing. The paper then passes under a felt-covered friction or drawing roll 6 and is finally released by the grippers and is discharged from the cylinder by the usual stripper-fingers 7.

The operations peculiar to the present invention are performed after the paper has left the cylinder 1 as above described. The back of the paper is first dusted by means of two rolls through which it passes from the stripper-fingers. The upper roll 8 is a feed roll, and it rotates at substantially the same surface speed as the cylinder 1. Its surface is composed of soft rubber having a high co-efficient of friction. The lower roll 9 is a dusting roll and may consist of disks of cotton cloth or of other yielding material. This roll rotates much faster than the feed roll 8, and engages the paper with the same amount of pressure. Owing to the higher frictional co-efficient of the rubber, however, the movement of the paper is controlled by the feed roll, and not by the dusting roll, so that the paper remains under the influence of the dusting roll long enough to be thoroughly dusted on its reverse surface.

A further dusting operation is next performed upon the upper surface of the paper. This is supplementary to the operation of the dusting roll 5, and is desirable for the reason that, owing to the action of the grippers, there is a narrow line at the forward margin of the paper which is not acted upon by the dusting roll 5. The rolls 10 and 11 by which this final operation is performed are similar in character and operation to the rolls 8 and 9, except that their position is reversed, the dusting roll being above and the feed roll beneath.

The dusting rolls are all inclosed, as usual, in an air-tight casing 12 which retains the bronze powder removed by the rolls.

By the operation of my novel dusting devices the paper is discharged from the machine completely free, on both surfaces, from loose bronze powder, and thus the product of the machine is improved while economy in the use of the bronze powder is also secured.

Various modifications may be made in the embodiment of my invention hereinbefore described and illustrated in the accompanying drawings, within the nature of the invention and the scope of the following claims.

I claim:

1. A bronzing machine comprising means for applying bronze powder to a sheet of paper, a dusting roll arranged to engage and dust one side of the paper, and a rubber feed roll arranged to engage and support the paper only at a point opposite to the dusting roll and to control the movement of the paper through friction alone.

2. A bronzing machine comprising means for applying bronze powder to a sheet of paper, a dusting roll arranged to rotate rapidly in contact with one surface of the paper, and a feed roll of greater frictional co-efficient than the dusting roll arranged to engage the other surface of the paper only at a point opposite to the dusting roll and to control the movement of the paper through friction alone and to rotate more slowly than the dusting roll.

3. A bronzing machine comprising means for applying bronze powder to a sheet of paper, a rubber feed roll arranged to engage a limited portion only of one surface of the paper, such engagement being purely frictional, and a dusting roll arranged to engage the other surface of the paper opposite to the feed roll and to rotate differentially with respect to the feed roll.

4. A bronzing machine comprising a cylinder for supporting a sheet of paper, means for applying bronze powder to the paper when supported on the cylinder, a rubber feed roll receiving the paper from the cylinder, and a dusting roll engaging the paper opposite to the feed roll.

5. A bronzing machine comprising means for applying bronze powder to one surface of a sheet of paper, a feed roll arranged to receive the paper after such application and to engage the bronzed surface, a dusting roll arranged to engage and dust the reverse surface of the paper opposite to the feed roll, and to rotate more rapidly than the feed roll, a second feed roll arranged to engage the reverse surface of the paper, and a second dusting roll arranged to engage and dust the bronzed surface of the paper opposite to the second feed roll and to rotate more rapidly than the latter.

6. A bronzing machine comprising a cylinder for supporting a sheet of paper, means for applying bronze powder to a sheet of paper on the cylinder, and means for dusting the paper after such application comprising a plurality of rubber feed rolls engaging opposite surfaces of the paper, and a plurality of dusting rolls arranged to engage and dust the paper opposite to the feed rolls and to rotate more rapidly than the latter.

7. A bronzing machine comprising a cylinder for supporting a sheet of paper, means for applying bronze powder to a sheet of paper on the cylinder, a drawing roll coöperating with the cylinder, a feed roll arranged to engage the paper after its passage between the cylinder and the drawing roll and having a surface of soft rubber, a dusting roll arranged to engage the paper opposite to the feed roll and to press it lightly against the latter, and means for rotating the feed roll and the dusting roll arranged to rotate the latter more rapidly than the feed roll.

8. A bronzing machine comprising a cylinder for supporting a sheet of paper, means for applying bronze powder to a sheet of paper on the cylinder, a drawing roll coöperating with the cylinder, a feed roll provided with a soft rubber surface and arranged to engage the back of the sheet after its delivery from the cylinder, and a dusting roll of yielding material arranged to engage the bronzed surface of the sheet opposite to the feed roll and to press the sheet lightly against the feed roll.

9. A bronzing machine comprising means for applying bronze powder to a sheet of paper, a dusting roll arranged to engage and dust one side of the paper, and a feed roll of greater frictional coefficient than the dusting roll and arranged to engage and support the paper only at a point opposite to the dusting roll and to control the movement of the paper through friction alone.

10. A bronzing machine comprising means for applying bronze powder to a sheet of paper, a dusting roll arranged to rotate in contact with one surface of the paper, and a feed roll of greater frictional co-

efficient than the dusting roll and arranged to engage the other surface of the paper only at a point opposite to the dusting roll and to control the movement of the paper through friction alone and to rotate differentially with respect to the dusting roll.

11. A bronzing machine comprising means for applying bronze powder to one surface of a sheet of paper, a feed roll arranged to receive the paper after such application and to engage the bronzed surface, a dusting roll arranged to engage and dust the reverse surface of the paper opposite to the feed roll and to rotate differentially with respect to the feed roll, a second feed roll arranged to engage the reverse surface of the paper, and a second dusting roll arranged to engage and dust the bronzed surface of the paper opposite to the second feed roll and to rotate differentially with respect to the latter.

12. A bronzing machine comprising a cylinder for supporting a sheet of paper, means for applying bronze powder to a sheet of paper on the cylinder, and means for dusting the paper after such application comprising a plurality of feed rolls having a high frictional coefficient and engaging opposite surfaces of the paper, and a plurality of dusting rolls having a lower frictional coefficient than the feed rolls and arranged to engage and dust the paper opposite to the respective feed rolls and to rotate differentially with respect to the latter, so that the movement of the paper is frictionally controlled by the feed rolls.

13. A bronzing machine comprising a cyl-

inder for supporting a sheet of paper, means for applying bronze powder to a sheet of paper on the cylinder, a drawing roll cooperating with the cylinder, a feed roll having a high frictional coefficient and arranged to engage the paper after its passage between the cylinder and the drawing roll, a dusting roll having a lower frictional coefficient than the feed roll and arranged to engage the paper opposite to the feed roll and to press it lightly against the latter, and means for rotating the feed roll and the dusting roll at differential rates of rotation to frictionally control the movement of the paper by the feed roll while it is dusted by the dusting roll after leaving the cylinder.

14. A bronzing machine comprising a cylinder for supporting a sheet of paper, means for applying bronze powder to a sheet of paper on the cylinder, a drawing roll cooperating with the cylinder, a feed roll having a high frictional coefficient and arranged to engage the back of the sheet after its delivery from the cylinder, and a dusting roll having a lower frictional coefficient than the feed roll and arranged to engage the bronzed surface of the sheet opposite to the feed roll and to press the sheet lightly against the feed roll, so that the bronzed side of the sheet will be dusted after the sheet leaves the cylinder and while it is controlled by the feed roll.

In testimony whereof I have affixed my signature in presence of two witnesses.

ALBERT J. FORD.

Witnesses:

A. W. HUDSON,
WILLIAM A. DEEGAN.