

No. 880,170.

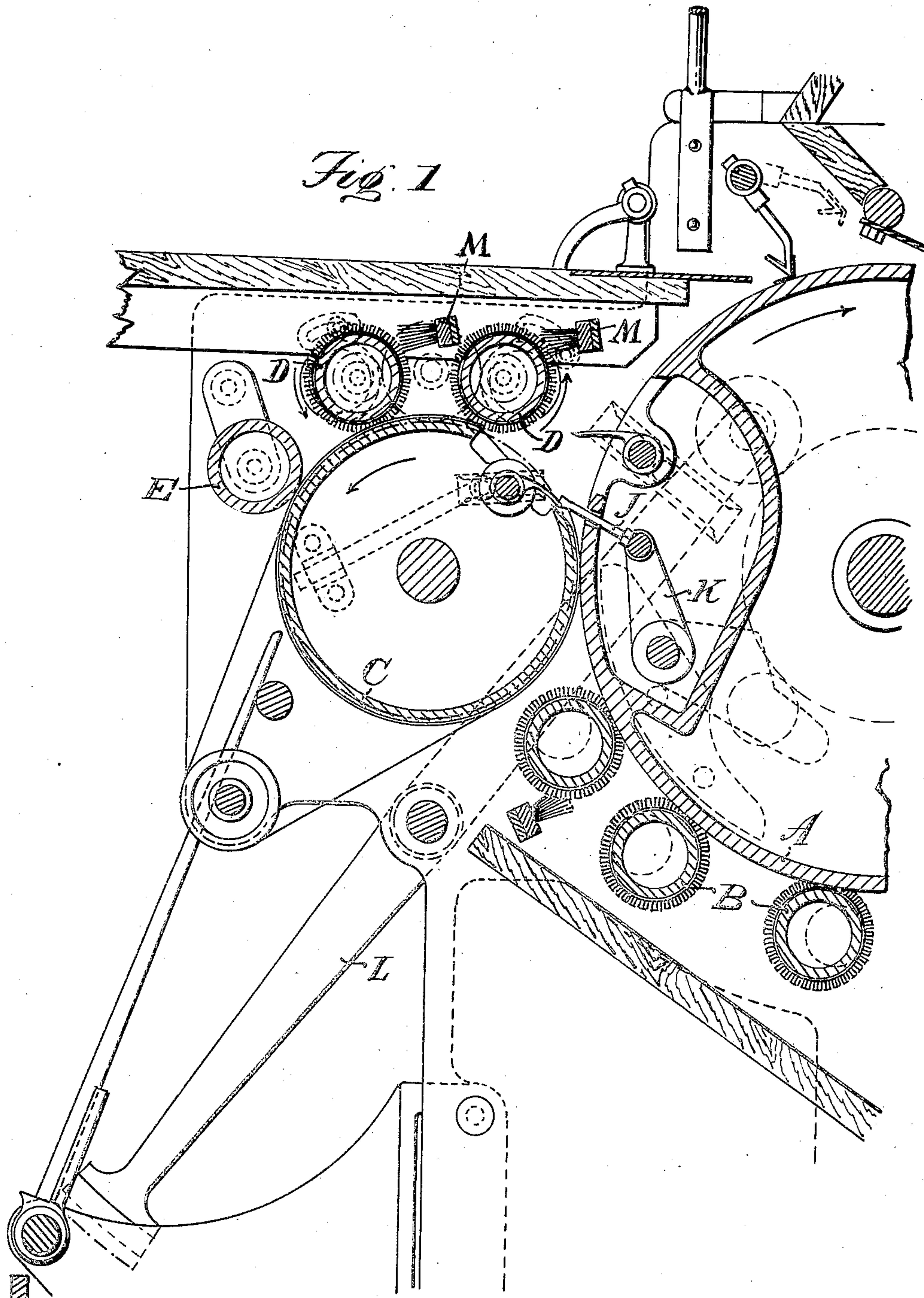
PATENTED FEB. 25, 1908.

M. SMITH.

BRONZING MACHINE.

APPLICATION FILED DEC. 9, 1905.

2 SHEETS—SHEET 1.



Witnesses:  
Haldo M. Chapin  
William Dorman Jr.

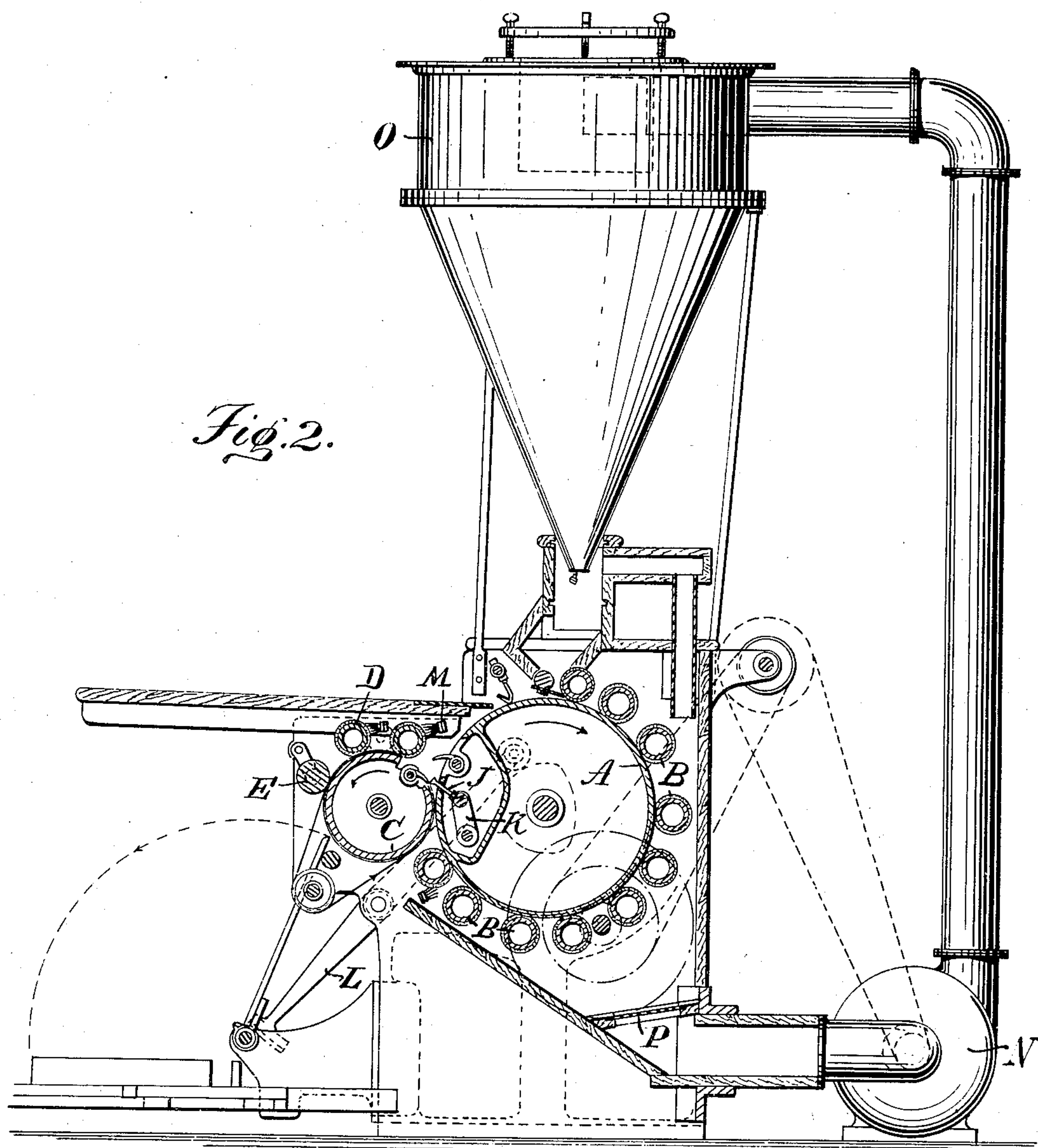
Inventor:  
Mark Smith.  
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2 SHEETS—SHEET 2.



Witnesses:  
Walter M. Chapin  
William Dorman Jr.

Inventor:  
Mark Smith.  
by Rosenbaum & Son, Attys.



# UNITED STATES PATENT OFFICE.

MARK SMITH, OF SOUTH REDDISH, NEAR MANCHESTER, ENGLAND.

## BRONZING-MACHINE.

No. 880,170.

Specification of Letters Patent.

Patented Feb. 25, 1908.

Application filed December 9, 1905. Serial No. 291,082

*To all whom it may concern:*

Be it known that I, MARK SMITH, a subject of the King of Great Britain and Ireland, and a resident of South Reddish, near Manchester, in the county of Lancaster, England, have invented new and useful Improvements in Bronzing-Machines, of which the following is a specification.

This invention relates to machines in which bronze or equivalent powder or dust is applied to sheets of paper or other fabric having adhesive designs, characters or the like impressed or formed upon them, the powder or dust adhering to such adhesive designs or characters. In such machines and especially when thick or stiff sheets of paper have been used there has been a tendency for the edges of such paper, especially the leading or rear edges, not to lie very closely to the bronzing cylinder and thus the back of the sheet of paper has had bronze dust deposited upon it.

The object of my present invention is to provide means for removing such bronze dust from the backs of the sheets of paper. These means or devices comprise a gripper cylinder or positive transferring device which takes the bronzed sheet of paper from the bronzing cylinder. This gripper delivery cylinder, against whose surface the properly bronzed face of the sheet is placed, draws or carries the bronzed sheet so that its back is subjected to a brushing action to remove the superfluous and undesired bronze powder. This brushing may be effected by one, two, or more plush covered or similar rollers rotating in contact with the back of the sheet and having a direction of travel at the point or points of contact opposite to the direction of travel of the sheet of paper.

The accompanying drawings illustrate the improved devices, Figure 1 being a section across the bronzing cylinder and the gripper transferring cylinder and brushing rollers on a fairly large scale, while Fig. 2 is a similar section on a smaller scale and illustrates the application of the present improved devices to a bronzing machine in which an inward current of air is induced to prevent bronze powder escaping into the work room. The new devices may, however, be used with any convenient form of bronzing machine.

A is the bronzing cylinder of the usual construction which carries the sheet of paper around with it under the bronzing brushing rollers B. On the taking-off side of the

bronzing cylinder and rotating in unison therewith is a gripper cylinder C which takes the bronzed sheet from the bronzing cylinder and carries it round with it the "grippers" of the two cylinders being operated in any of the well known ways common to printing machines. The gripper cylinder C carries the paper around with its printed side laid on the cylinder, so that the back of the sheet is exposed. Thus as the cylinder C rotates it carries with it the sheet of paper it has received from the bronzing machine cylinder and carries it under and against the rollers D which are covered with plush or equivalent brushing material. The rollers rotate in the direction indicated by the arrows and in a direction opposite to the paper at their points of contact. The back of the sheet of paper is thus efficiently brushed by the rollers. The cylinder C continues to rotate, and after it has fed the paper in between itself and the taking-off roller E so that it is firmly nipped, the gripper is released and the sheet is delivered to the fliers or to other equivalent delivery device. The cylinder C then takes another sheet from the bronzing cylinder when its gripper has arrived in the proper position.

The preferred method of driving the rollers is by means of a pinion which engages with a toothed wheel fixed on the shaft of the cylinder C and gears with other wheels or pinions on the ends of the brushing roller shafts, but other methods and devices may be employed.

J indicates one of a series of fingers which are mounted on a crank arm K and project, at times, and as illustrated, through openings in the bronzing cylinder. With the parts about in the position shown in Fig. 2 the paper is just being taken up by the gripper cylinder and the crank arm has been operated by a stop, cam surface, or equivalent so that the fingers project through the substance of the wall of the cylinder as shown and positively push the sheet of paper in the jaws of the gripper cylinder. During the remainder of the rotation of the bronzing cylinder the fingers are withdrawn so that they do not project above the surface of the cylinder.

L is a rock lever as is well known for operating the fliers.

If desired fixed brushes may be employed as at M in combination with the roller brushes to assist in removing therefrom the



dust or powder which is taken up from the backs of the printed sheets.

In the machine shown in Fig. 2 air is drawn into the machine and withdrawn from the machine with the floating dust or powder by means of the fan N. The mingled dust and air is then discharged into a centrifugal separator as at O where the air escapes and the dust or powder is collected and returned direct to the machine for re-use if desired. To enable this withdrawal of air to be properly accomplished the machine is partly incased, and the suction is sufficient to prevent any air or dust leaving the machine except through the passage leading to the pump. This suction is also sufficient to draw into the machine the dust or powder raised at or by the brushing rollers and there is thus no escape of dust or powder into the work-room.

P is a sieve by means of which foreign matter which may gain access to the bronzing chamber is prevented from getting into the air and dust circulation.

What I do claim as my invention and desire to secure by Letters Patent is:—

1. In a bronzing machine, the combination of a gripper cylinder for delivering the bronzed sheet, a brushing roller or brushing rollers arranged to rotate against the rotation of the gripper cylinder, to brush the back of a sheet borne by such gripper cylinder and a taking-off roller, rotating in nip-

ping conjunction with such gripper cylinder substantially as described.

2. In a bronzing machine, the combination of a gripper cylinder for delivering the bronzed sheet, a brushing roller arranged to rotate against the rotation of the gripper cylinder to brush the back of a sheet borne by such gripper cylinder, a taking off roller rotating in nipping conjunction with such gripper cylinder and a clearing brush to engage with such brushing roller, as herein specified.

3. In a bronzing machine, the combination of a gripper delivery cylinder for delivering the bronzed sheet, a brushing roller arranged to rotate against the rotation of the gripper cylinder to brush the back of a sheet borne by such cylinder, a taking off roller rotating in nipping conjunction with such gripper cylinder a casing containing the bronzing devices, a fan for drawing air into the casing past the brushing roller, a separator where the suspended bronze dust is separated from the so drawn air, and pipes connecting the casing, the fan and the separator, as herein specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARK SMITH.

Witnesses:

WILLIAM GEO. HEYS  
I. O. CONNELL.