

E. F. BENTON.

Improvement in Bronzing Machines.

No. 119,498.

Patented Oct. 3, 1871.

Fig. V.

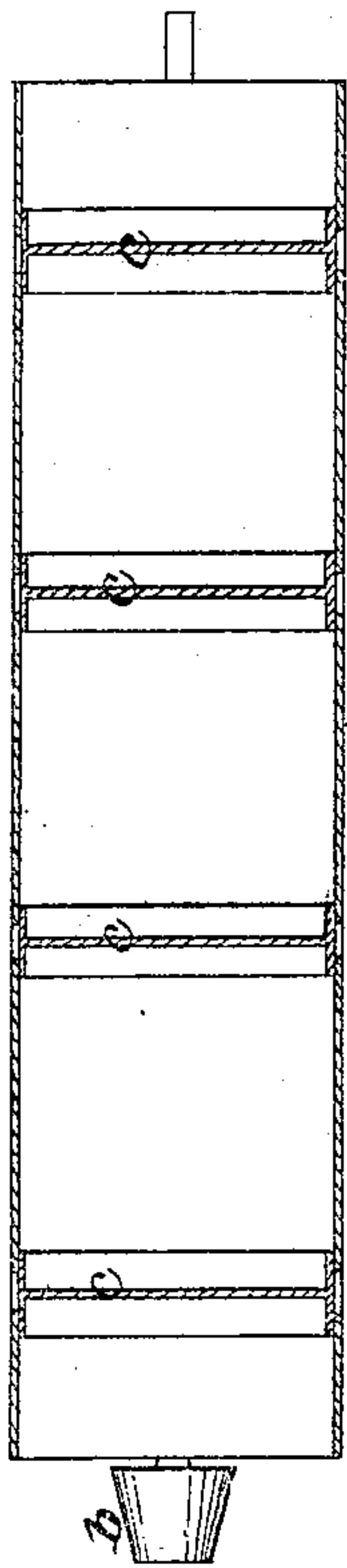


Fig. IV.

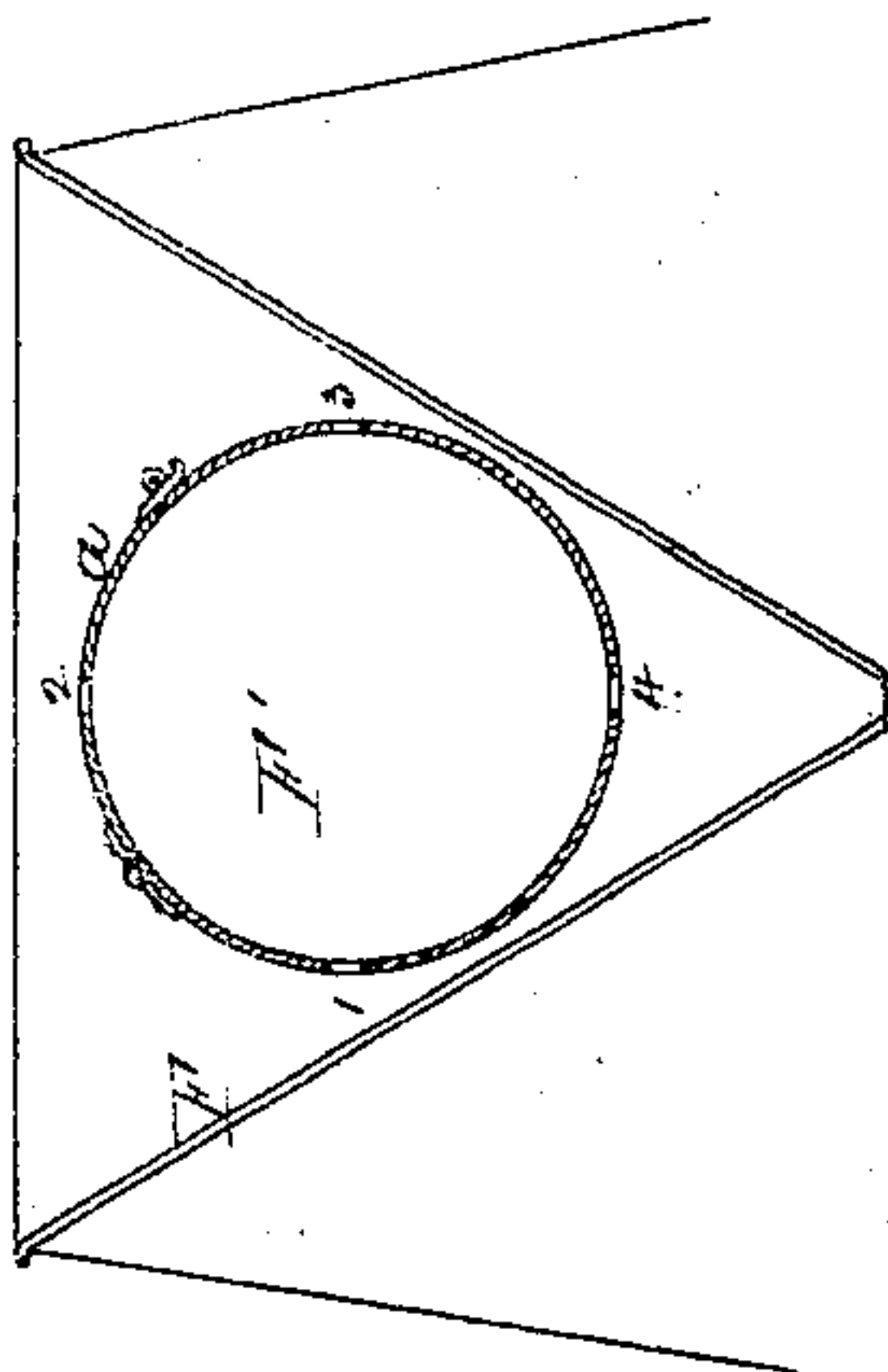
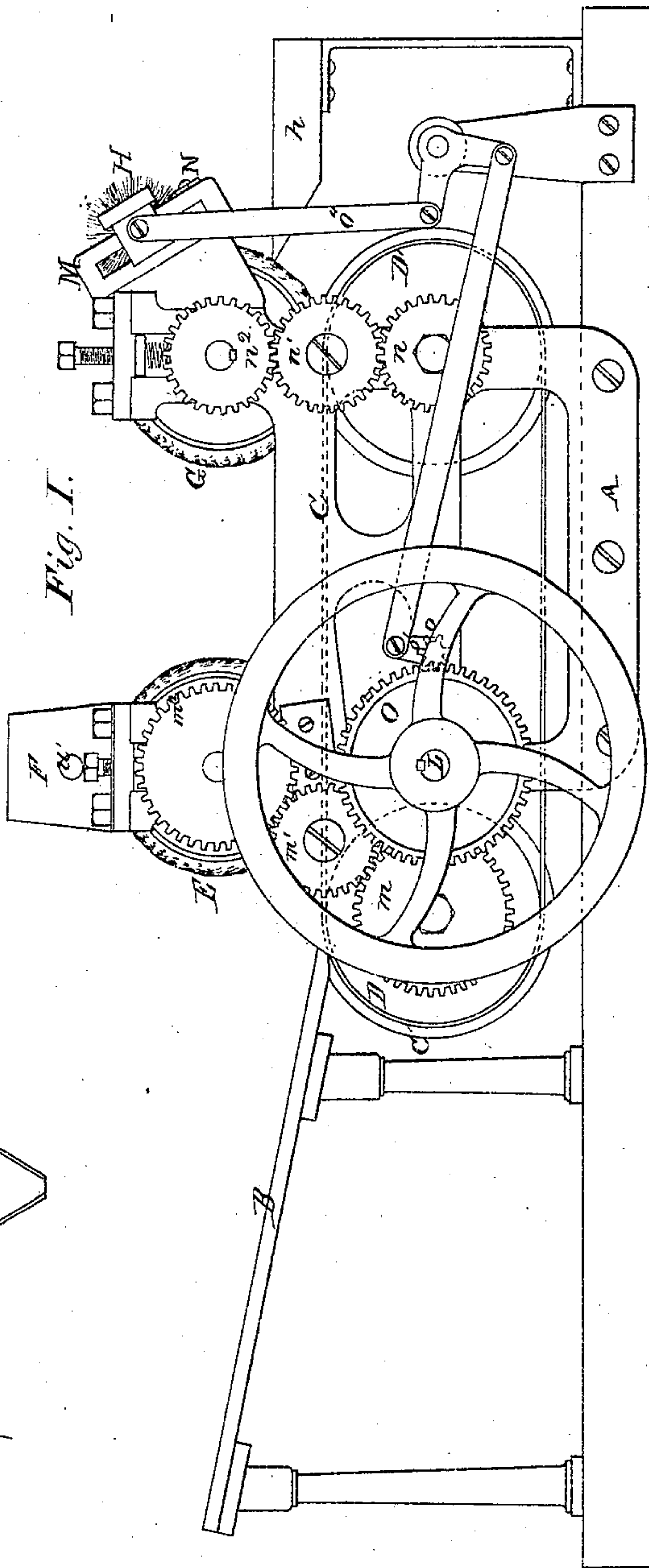


Fig. I.



Witnesses:

John Exler  
J. C. Brecht

E. F. Benton, Inventor:  
By J. M. Cruikshank, atty.

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Fig. II.

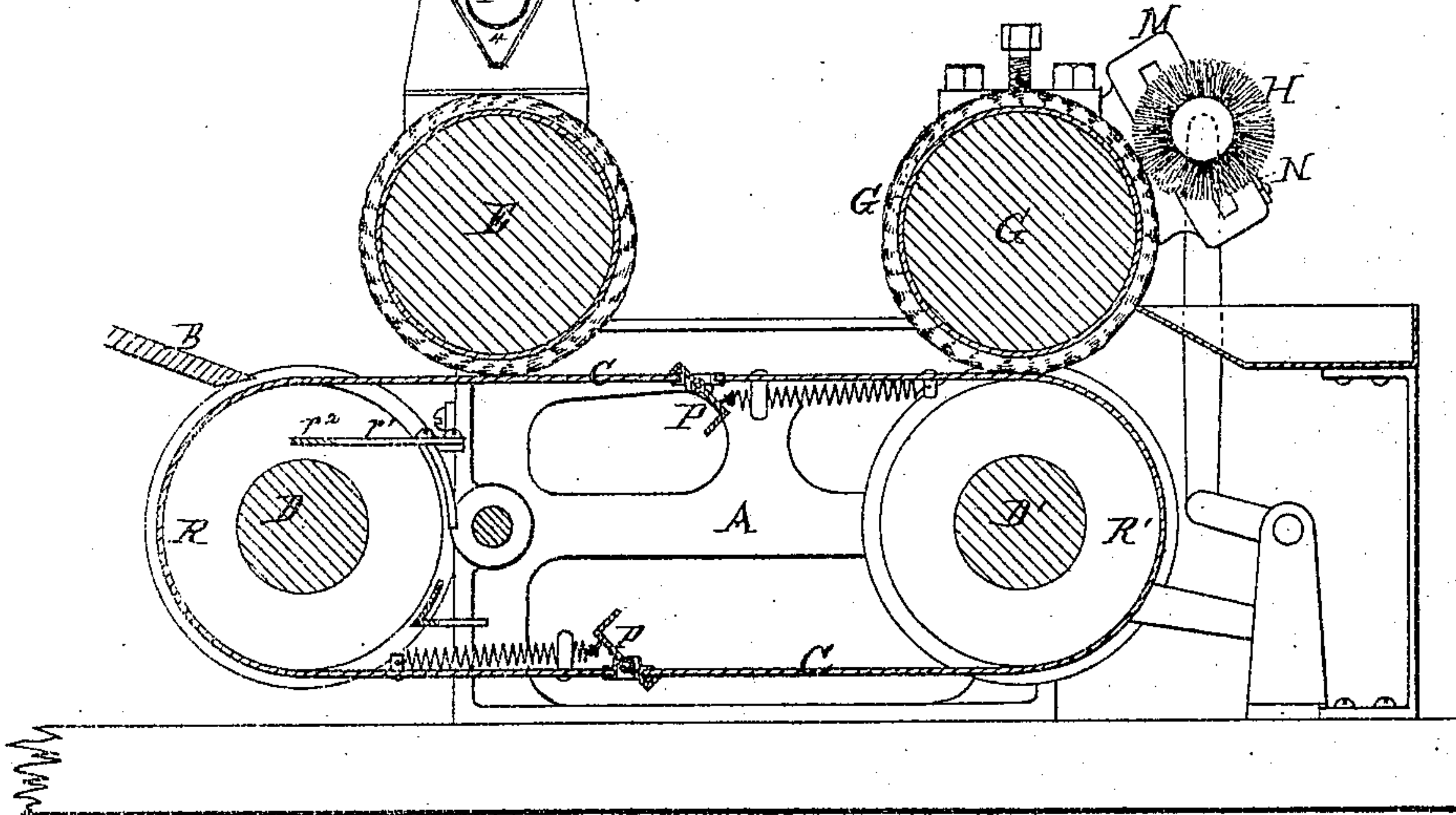
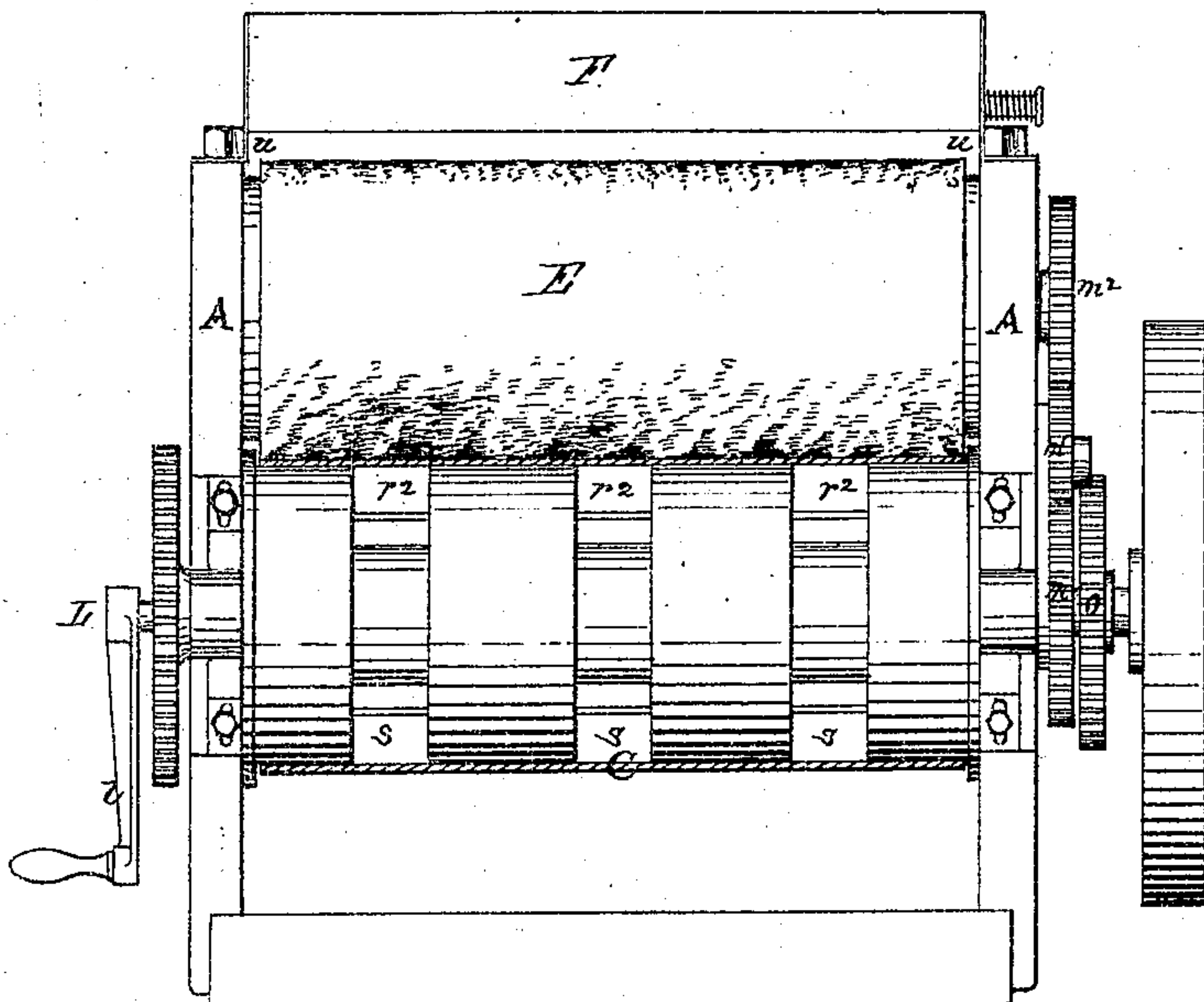


Fig. III.



Witnesses:

J. C. Brecht.  
John. Tyler

Inventor:

E. F. Benton.  
By atty Wm. Crutcher



# UNITED STATES PATENT OFFICE.

EDWARD F. BENTON, OF BUFFALO, NEW YORK.

## IMPROVEMENT IN BRONZING-MACHINES.

Specification forming part of Letters Patent No. 119,498, dated October 3, 1871.

*To all whom it may concern:*

Be it known that I, EDWARD F. BENTON, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Bronzing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making a part of this application.

My invention relates to that class of machines by which powdered bronze or other analogous material is applied to freshly-painted or sized surfaces of paper or other material; and my invention consists: First, in combining with the flanged drums or belt-carriers an endless sheet-metal belt. Secondly, in the peculiar construction of the hopper, whereby the bronze is dropped automatically and in the proper quantity upon the bronzing-roller. Thirdly, in combining with the cleaning-brush a comb for combing the bronze therefrom into a suitable receptacle.

To enable those skilled to make and use my improved bronzing-machine, I will proceed to describe the same, referring by letters to the accompanying drawing, in which—

Figure 1 is a longitudinal elevation of a bronzing-machine embracing my improvements. Fig. 2 is a sectional elevation, showing the table broken off. Fig. 3 is a front elevation with the table removed; and Figs. 4 and 5 are detached plan views of the hopper and bronze-cylinder located therein.

Similar letters denote like parts in the different figures.

A represents the frame of the machine; B, the feed-table; C, the endless belt or carrier, made of sheet metal, (preferably brass,) arranged to revolve around the two horizontal flanged rollers, D D'. E is a bronzing-roller, located over the front end of the endless carrier, and covered with fur or equivalent material for applying and distributing the powdered bronze or its equivalent. F is the bronze-hopper located above the bronzing-roller E. This hopper has a longitudinal opening at its bottom through which the bronze is dusted onto the fur-roller beneath. Arranged horizontally within this hopper, and having its bearings in each end thereof, is a revolving hollow cylinder, F', provided with four or more rows of holes, 1 2 3 4, in its periphery, parallel with each other and in lines parallel with the axis of

said cylinder. A lid or opening for the admission of the bronze is seen at *a*, adapted to be tightly closed and fastened in place. The top of the box or hopper proper has a corresponding opening. On the end of the central shaft of the cylinder F' is arranged a cone-pulley, *b*, by means of which the revolution of the cylinder is accelerated or retarded at will, and within the cylinder are arranged sliding partitions *c c c c* to assist in regulating the discharge of bronze. At the rear end of the machine is mounted, above the belt or carrier, another roll, G, which is covered with plush, velvet, or its equivalent, and is designed to dust or polish the surface which has been bronzed at the other end by the bronzing-roller E, and remove any superfluity remaining thereon. H is a revolving cleaning-brush, arranged to impinge against the periphery of the polishing-brush G and take therefrom the superfluous bronze it has taken from the sheet, which is in turn combed from said brush H by the comb N into a receptacle, *h*, located at the rear end of the machine. L is the driving-shaft, rotated by a crank or otherwise, and connected by proper gearing to the endless carrier-roll D, which in turn is connected by a proper train of gear-wheels to the bronzing-roller E; and the other carrier-roll D', receiving motion through the medium of the belt C, transmits it to the polishing-roller G through a proper gear-connection. The cleaning-brush H has the proper motion imparted to it by the means fully set forth in Letters Patent granted to me July 11, 1871, No. 116,918, (reference to which is also made for a more perfect description of the frame and driving parts of this machine.) Mounted upon the frame M is a comb, N, arranged to comb out from the brush the excess of bronze picked off the polishing-roller. All the parts of this machine lettered in the drawing and not referred to are so lettered to establish the relation and similarity between this and the machine covered by the said Letters Patent before mentioned, the features differing in this application being the construction of the hopper, the employment of a metal belt or carrier, the combination with the cleaning-brush of a comb for freeing it from bronze and recovering the same, and the consequent general arrangement of the parts.

I have found by experience that the leather carrier, which is the best at present used, will stretch and contract unevenly under varying in-



fluences, and consequently fail to carry the sheet with perfect accuracy, such failure producing imperfect registry in the work, and the product is necessarily an inferior one. By the use of the metal belt or carrier I have found all these troubles vanish, and hence the importance of this kind of carrier.

It will be observed that the peculiar construction of the hopper insures a given supply of bronze (said supply being under control) being dropped automatically into the outer casing, and then in a vertical line it is again dropped directly upon the bronzing-roller. This movement of the bronze is calculated to disintegrate it and prevent its falling in lumps. It will also be appreciated that it is important to keep the cleaning-rollers free from any superfluous amount of bronze, and hence the advantage of the comb.

The operation of this machine being the same

as that covered by the hereinbefore-named Letters Patent, reference for the same is made thereto.

Having described the construction and advantage of my improvements, what I claim as new, and desire to secure by Letters Patent, is—

1. In a bronzing-machine, an endless sheet-metal belt or carrier, as and for the purposes set forth.

2. The hopper F, provided with a revolving cylinder, F', constructed as described, and arranged to operate as set forth.

3. The combination and arrangement of the polishing-roller G, cleaning-brush H, and comb N, substantially as and for the purposes set forth.

In testimony whereof I have hereunto set my hand this 11th day of August, 1871.

Witnesses: EDWARD F. BENTON.

R. O. BENTON,

GEO. L. MARVIN.