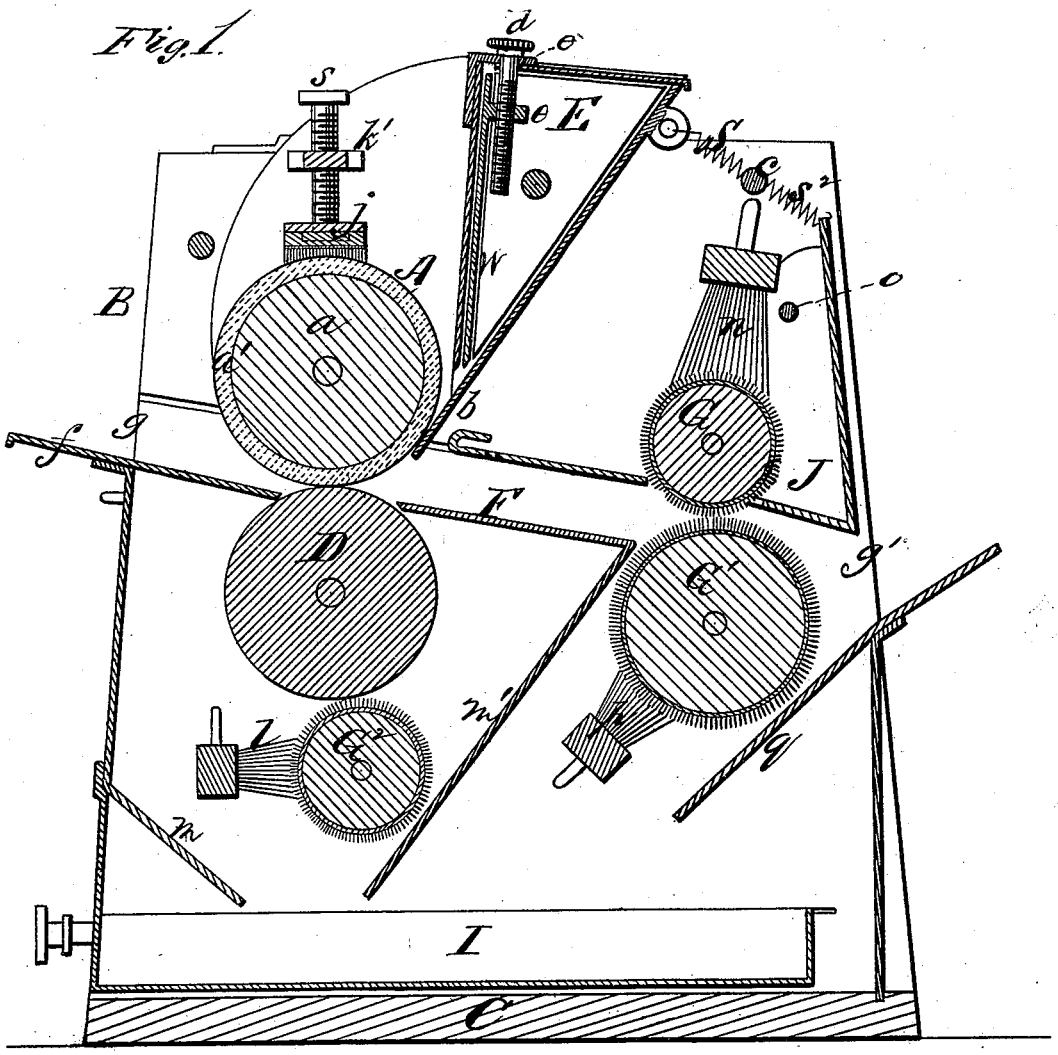
2 Sheets--Sheet 1.

D. A. WAGNER.

Bronzing-Machine.

No. 166,829. Patented Aug. 17, 1875.

Fig. 1.



WITNESSES

E. H. Bates

Francis J. Clasi

INVENTOR

D. A. Wagner,

Chipman & Fosnot & Co.,

ATTORNEYS

2 Sheets--Sheet 2.

D. A. WAGNER.

Bronzing-Machine.

No. 166,829. Patented Aug. 17, 1875.

Fig 2

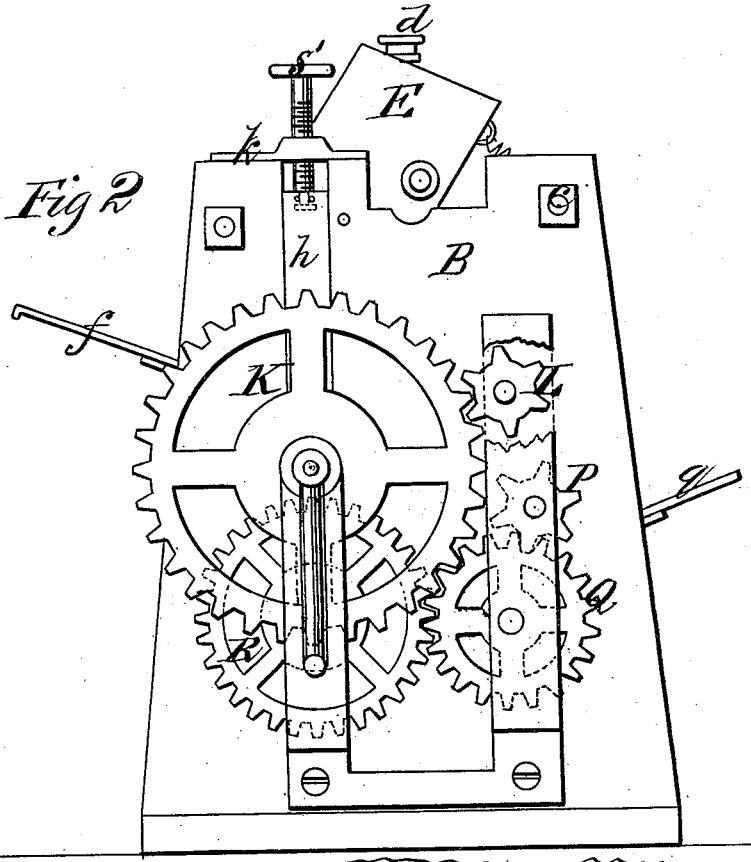
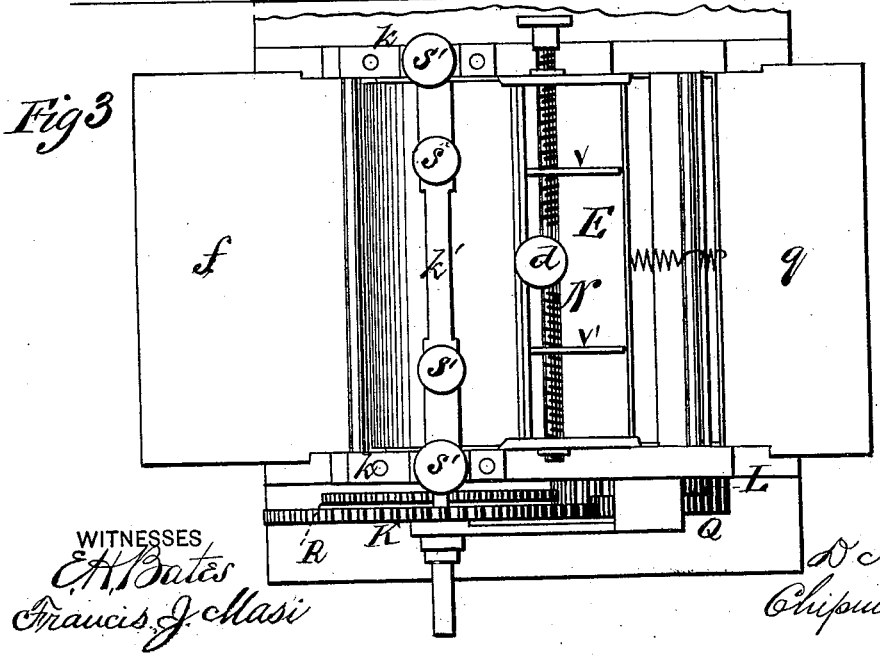


Fig 3



WITNESSES
E. H. Bates
Francis J. Masi

INVENTOR
D. A. Wagner,
Chipman Fosmire & Co
ATTORNEYS

UNITED STATES PATENT OFFICE.

DANIEL A. WAGNER, OF BUCHANAN, MICHIGAN.

IMPROVEMENT IN BRONZING-MACHINES.

Specification forming part of Letters Patent No. **166,829**, dated August 17, 1875; application filed June 19, 1875.

To all whom it may concern:

Be it known that I, DANIEL A. WAGNER, of Buchanan, in the county of Berrien and State of Michigan, have invented a new and valuable Improvement in Bronzing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a vertical section of my bronzing-machine. Fig. 2 is a side elevation of the same, and Fig. 3 is a plan view.

This invention has relation to improvements in bronzing-machines; and the nature of the invention consists in certain improvements in this class of machines, which will be hereinafter more fully set forth.

In the annexed drawings, A designates the feeding-roller, having its bearings in a suitable frame, B, erected on a platform or base, C. This roller consists of a solid core, *a*, sheathed with an india-rubber covering, *a'*, or with a covering of any other suitably elastic material, and it is mounted above a second roller, D, made of a solid substance, which latter is tangential to the first. The bronzing material is fed to roller A from a swinging hopper, E, which has its bearings in the frame B, and is provided with a lip, *b*, which is held in contact with the periphery of the said roller by means of a helical spring, S, rigidly secured to a brace-rod, *c*, extending from side to side of the machine. The discharge of bronze from the hopper is regulated by means of a vertically-adjustable door, W, which is raised or lowered, to increase or diminish the discharge of bronze, by means of adjusting-screws *d*, passing through threaded lugs *e e'*, respectively, on the box and door, as shown in Fig. 1. The prepared or printed matter or paper is fed, by means of an opening, *g*, in the end of the machine-casing, over a table, *f*, between feed-roller A and pressure-roller D, where it is covered with bronze, (at the point of tangency of the said rollers,) which is forcibly pressed into the inequalities of the paper, filling the same, and causing the superficies thereof to present an even appearance. The bronze-covered material is then conducted, by guide-table F, between two plush or velvet covered rollers, G G^1, between which and rollers A D the said table is arranged in an inclined position, where it is deprived of its surplus of material, and is polished to a very high degree, which rollers will finally discharge the perfectly-treated material through an opening, *g'*, in the end of the casing opposite feed-aperture *g*. With a view to regulating the amount of pressure to which the paper is subjected in passing between rollers A D the former has its bearings in endwise and vertically movable slides *h*, arranged in guides in the sides of the machine-casing, which slides are actuated by means of set-screws *s* passing through a threaded aperture in a plate, *k*, as shown in Fig. 3, to force the roller A more or less violently in contact with roller D, as the circumstances of the case may require. Also, with a view to freeing the feeding-roller of its surplus bronzing before the latter is applied to the prepared material, as well as to cause it to be evenly distributed over its surface, I use an adjustable plush-covered plate, *j*, arranged above the said roller, and actuated to bear with more or less force thereon by means of set-screws s^1 passing through screw-threaded perforations in a brace-rod, K', and attached in any suitable manner to the said plate, so as to have a free rotary motion in relation thereto. In practice, a certain amount of the bronzing preparation will inevitably fall upon pressure-roller D, and in order to keep it clean, so that the under side of the material may not become coated, I have mounted a third roller, G^2, below and in contact therewith. This roller, being plush or velvet covered, will keep the roller D clean, and will, in its turn, be cleared of bronze by means of a brush, *l*, which, when swept off, will fall down inclines *m m'* into a removable drawer, I, arranged in the lower part of the casing, as shown in Fig. 1. The surplus bronze gathered from the surface of the paper in its passage between plush-covered rollers G G^1 by the same will be swept off of the former by means of a brush, *n*, arranged above it into a receptacle, J, pivoted, by means of a rod, *o*, to the casing, and held in contact with the said roller by means of a spring, s^2, attached

to and compressed between rod *c* and the upper edge of the said receptacle, as shown; and any of the bronzing which may have clung to roller G′ will be swept therefrom by a brush, *p*, arranged below and slightly to one side of the said roller, upon an inclined table or plane, *q*, which will conduct it into drawer I, before alluded to. From time to time, as the bronze collects in receptacle J, its lower edge may be caused to vibrate outward on rod *o* by hand, raising up the bottom of the receptacle, and thus allowing its contents to fall on inclined table *q*, whence it will be conducted into drawer I.

The pressure to which the coated paper is subjected in passing through rollers A D causes every inequality upon its superficies to be smoothly and evenly filled up, and the bronze to be literally incorporated with the material of the paper.

The pressure-roller A is operated by means of any suitable motor, and the rotary motion imparted thereto is communicated by means of a master gear-wheel, K, to a number of gears or pinions, L P R, respectively, on the ends of the journals of plush rollers G G^1 G^2, and a pinion, Q, by means of which the roller G^1 receives motion from the said wheel K. By this means the rollers are simultaneously actuated, elastic roller A having a rotary motion given to it through the friction of solid roller D. Hopper E is provided with movable partitions *v v′*, which are adjustable to or from each other by means of a screw-threaded rod, N, which passes through registering screw-threaded perforations in the ends of the box and the said partitions. By this means the dimensions of the hopper may be adjusted in accordance with the width of the paper to be bronzed.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the roller A, of the swinging hopper E, having lip *b*, adapted to be held in contact with the said roller, substantially as specified.

2. The combination, with the hopper E, of the adjustable gate W and adjustable partitions *v v′*, substantially as specified.

3. The combination and arrangement of a removable drawer, I, with the inclines *m m′ q*, brush *l p n*, cleaning-rollers G G^1 G^2, and bronzing-rollers A D, substantially as specified.

4. The vibrating box J, in combination with the cleaning-roller G and brush *n*, substantially as specified.

5. The rigid table F *f*, in combination with the rollers D G G^1, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

DANIEL A. WAGNER.

Witnesses:
BENJ. D. HARPER,
W. D. KINGERY.