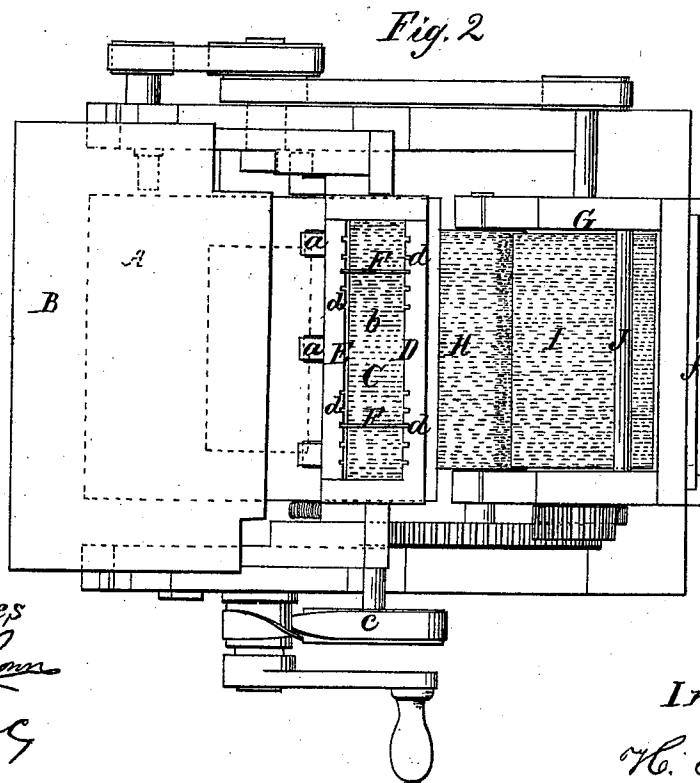
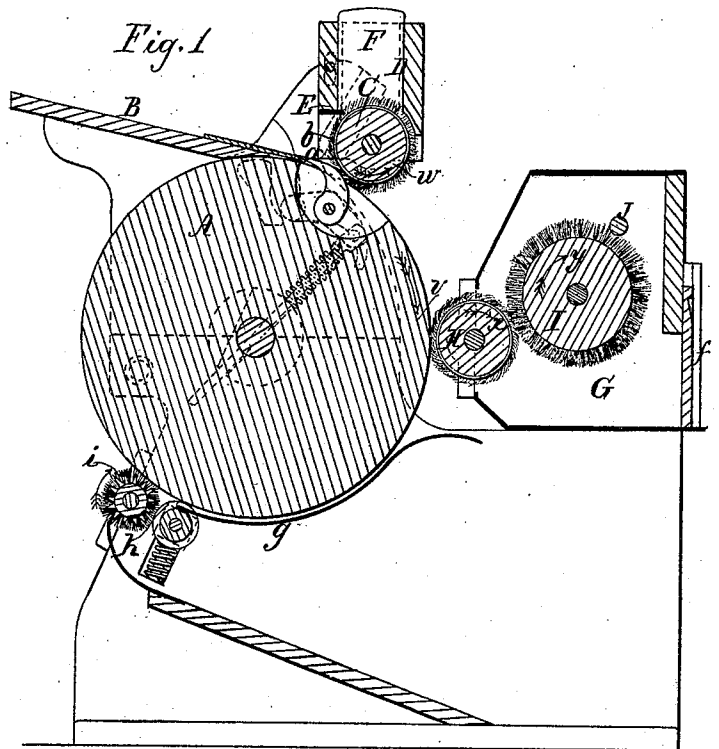


H. Skidmore

Bronzing Machine.

N^o 86,875.

Patented Feb. 9, 1869.



Witnesses
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HENRY SKIDMORE, OF MOUNT VERNON, NEW YORK.

BRONZING-MACHINE.

Specification forming part of Letters Patent No. **86,875**, dated February 9, 1869.

To all whom it may concern:

Be it known that I, HENRY SKIDMORE, of Mount Vernon, in the county of Westchester and State of New York, have invented a new and useful Improvement in Bronzing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents a sectional elevation of a bronzing-machine constructed in accordance with my improvement, and Fig. 2 a plan of the same with the lid or cover to the surplus-bronze box removed.

Similar letters of reference indicate corresponding parts in both figures.

The machine which is the subject of this specification is more especially designed for bronzing printed sheets of paper, foil, or other material, the printing on said sheets either being letters or any fanciful design.

The invention consists, first, in a combination, with an endless sheet-carrier or revolving cylinder, of a bronzing-roll, clothed with fur or other suitable material, and knife for regulating the supply of bronze-powder to said roll, and serving to smoothen the furred or soft clothing to the latter, while the sheet-carrying cylinder, or sheet thereon, which travels at a higher velocity than the bronzing-roll, but, as regards its contiguous surface, in the same direction, operates to roughen the fur or clothing, and to detach the powdered bronze held by the same, and to cause it to be laid on the printed sheet.

The invention also embraces, in combination with fur or soft clothed bronzing-roll, removable partitions or slides to the hopper which supplies the bronze-powder to the roll, said slides being of concave shape at their lower ends, corresponding to the periphery of the roll, and being arranged to fit any of a series of grooves made in the hopper, for the purpose of restricting the supply of bronze-powder to the roll, according to the width of the sheet or location of the printed matter thereon to be bronzed.

Likewise, the invention includes a combination of a fur or soft clothed roll with the sheet-carrying cylinder, so arranged and operating in relation to the latter as to take up the surplus powdered bronze from the printed sheet, and to burnish or polish the bronzed

surfaces, said roll being furthermore arranged to project into a surplus-bronze receptacle, where it is relieved of the powdered bronze held by it, or clogging of the same prevented, by the action of a revolving brush, and the latter in its turn kept free, and the surplus powdered bronze collected in the receptacle by means of a bar or striker, which the bristles of the brush, in the revolving of the latter, catch against, and thereby spurt or detach the powdered bronze.

The parts of the machine, too, are so arranged as that every facility is afforded for examining the condition of the work as it passes from under the bronzing-roll, and for ascertaining whether said roll has been properly adjusted for the performance of its work.

To enable others skilled in the art to which this my improvement relates to make and use the same, I will now proceed to describe the same with reference to the accompanying drawing.

A represents the sheet-cylinder, which revolves or is driven in the direction indicated by arrow *v* in bearings made in side frames to the machine.

B is the feed-board, that serves to supply or feed in the printed sheets, which, as the cylinder is rotated, are caught by fingers *a*, and carried round by the cylinder to a point or place of delivery. These fingers, means for operating them, and means of detaching or freeing the sheets from the cylinder after performance of the work, are or may be similar to those employed in printing-presses, and, being no part of the present invention, need no minute description here.

Over the cylinder A, and preferably a little in front of it, is arranged a roll, C, driven to rotate in direction of the arrow *w*, and covered or clothed with fur *b*, or other soft and suitable material of tolerably even thickness, but preferably fur. This roll C has its fur surface or periphery supplied with bronze-powder from a box or hopper, D, under which said roll works, and in the ends of which it has its bearings. Said box or hopper D is or should be made vertically adjustable by a slotted connection of it with the side frames of the machine, for the purpose of allowing said hopper to be set closer and harder or lighter on the roller C, to regulate the pressure under which the sheets receive the bronze. The printed

surfaces of the sheets are bronzed by the passage of the latter, through means of the carrying-cylinder A, under and past the bronzing-roll C.

Attached to the one side or front of the hopper D is a knife, E, arranged to project within the hopper, so as to rest or press upon the fur *b*, the side piece of the hopper to which the knife is attached being adjustable up or down to regulate such pressure. This knife E serves to regulate the amount of bronze on the roller C, and to lay it thereon by the smoothening of the fur *b*, said roll C turning at a comparatively slow velocity to the cylinder A, or periphery thereof, on which the sheet is carried. The motion from the cylinder A to the roll C may be communicated from pulleys by a belt, *c*, or otherwise.

Thus it will be seen that the printed sheet passes under the fur *b* of the roll C at a much greater speed than said bronzing-roll C runs it, which action (more or less) roughs up the fur, and so causes the sheet to take off bronze from the roller.

The sides of the hopper D are formed internally with a series of vertical grooves, *d*, into or down which fit slides F, to vary, as it were, the capacity of the hopper, by confining the bronze or bronze-powder to or over so much of the roll C as is necessary to cover the printing on the sheet, according to the work to be done, and whereby—that is, by adjusting the slides F in different grooves *d*—a surplus distribution of bronze on the roll is prevented, and much waste of the powder thereby avoided. These slides F are of concave form on their lower ends, corresponding to the rotundity of the roll C, into the fur of which they enter, to give closeness to the portion of the hopper thus partitioned off for retention of the bronze-powder.

The cylinder A, or sheet thereon, is uncovered or exposed to view for a certain distance in rear of the roll C, for the purpose of ascertaining whether said bronzing-roll has been properly adjusted relatively to the cylinder A to perform its work. This is important, for if the roll C be not set down hard enough the ink on the sheet will not be covered well by the bronze, while if set down too hard the ink will be wiped off and blurred by the bronzing-roller.

Such facility for examination is secured by a detached and relative arrangement to the cylinder A of a surplus-bronze receptacle, G, which carries wiping devices, and free or uninclosed character of said cylinder immediately in rear of the bronzing-roll C.

In the continued motion or rotation of the sheet by the cylinder A, with the loose bronze hanging, as it were, all over its printed surface or surfaces, said sheet passes under or past a wiping apparatus. This apparatus consists of a surplus-bronze receptacle or box, G, set at a suitable distance in rear of the cylinder A, and which may be adjustable relatively thereto, said box carrying on its side

next to the cylinder A, and so as to work partly within and partly outside of or through said box, a roll, H, driven to rotate as indicated by the arrow *x*, and covered with fur or other soft clothing. This roll H, traveling as indicated, serves to wipe off the bronze hanging loose on the printed sheet, and to burnish or polish the bronzed surfaces. To prevent this roll H from becoming clogged with the surplus bronze, the latter is brushed out of the fur clothing of said roll by means of a brush, I, arranged within the receptacle G, and rotating as indicated by the arrow *y*, and this brush kept free or clear by causing its bristles to come in contact with a bar, J, so as to spurt or detach the bronze. In this way the wiping apparatus is preserved clear and in working order, and all surplus bronze-powder saved or economized by its collection within the receptacle G, from which it may be drawn by opening a slide, *f*.

The printed and bronzed sheet, thus cleaned of loose bronze, is, by the continued motion of the cylinder A, carried forward to its point or place of delivery on the under side of said cylinder, and to prevent its free end from prematurely dropping it may be guided at its edges by springs *g*, and ultimately pass over a roller, *h*, and brush *i*, which latter answers to detach the sheet from the cylinder after the fingers have released hold of it, and to direct it onto a fly-board, from whence it may be taken to dry.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The combination, with an endless sheet-carrying device or cylinder, A, of a bronzing-roll, C, clothed with fur *b*, arranged to travel in relation to each other, substantially as specified.
2. The combination of the bronze box or hopper D, knife E, soft-clothed bronzing-roll C, and sheet feeding or conducting cylinder A, arranged to rotate, as regards its periphery, at a higher velocity than the roll C, and in relation thereto, essentially as herein set forth.
3. The hopper D, having grooves *d* in it, and provided with removable slides F, arranged to fit said grooves, and made concave at their lower ends, for operation in combination with a soft-clothed bronzing-roll, C, as and for the purpose or purposes described.
4. The brush-roller I, revolving in contact with the burnishing-roller H, for freeing it of the surplus bronze-powder, substantially as set forth.
5. The arrangement, essentially as specified, of the wiping apparatus and surplus-bronze receptacle G to the cylinder A and bronzing-roll C, with its box or hopper D adjustable relatively to the sheet-cylinder A, substantially as described.

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Witnesses:

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