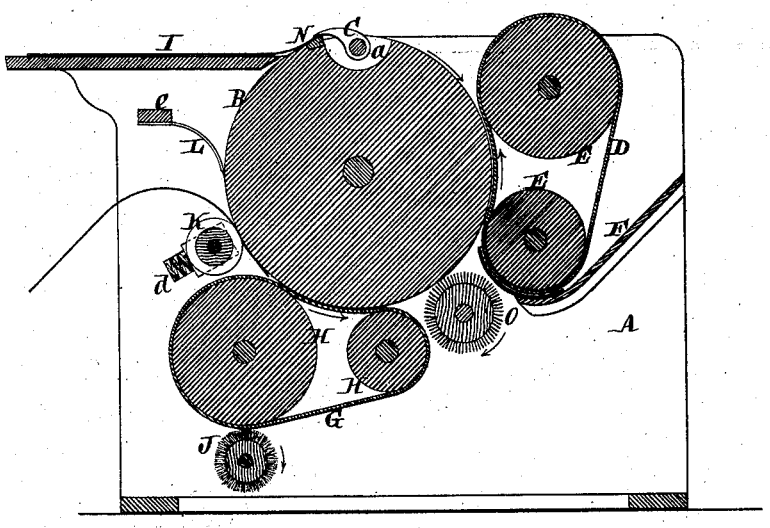
2 Sheets—Sheet 1.

# W. & J. BRAIDWOOD.

## BRONZING-MACHINE.

No. 192,223. Patented June 19, 1877.

Fig. 1.




Witnesses.

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Inventors

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2 Sheets—Sheet 2.

# W. & J. BRAIDWOOD.

## BRONZING-MACHINE.

No. 192,223. Patented June 19, 1877.

Fig. 2.

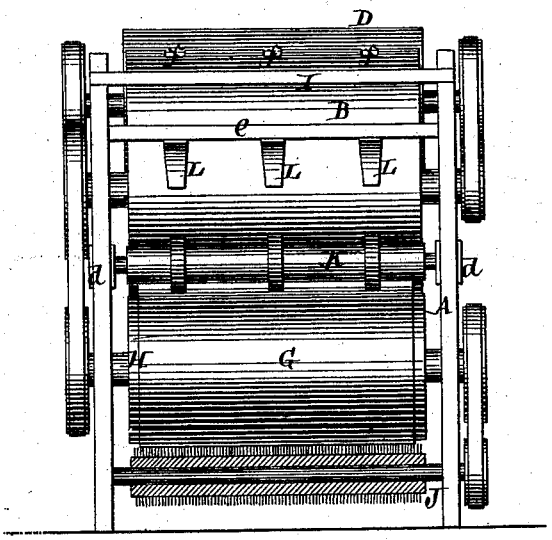
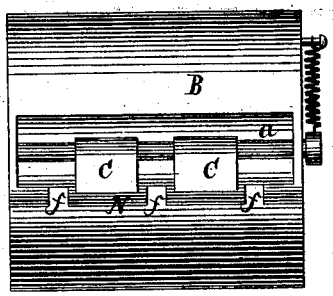



Fig. 3.

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Geo Hufeland
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William Braidwood
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# UNITED STATES PATENT OFFICE.

WILLIAM BRAIDWOOD, OF MOUNT VERNON, AND JOHN BRAIDWOOD, OF NEW YORK, N. Y.

## IMPROVEMENT IN BRONZING-MACHINES.

Specification forming part of Letters Patent No. **192,223**, dated June 19, 1877; application filed April 12, 1877.

*To all whom it may concern:*

Be it known that we, WILLIAM BRAIDWOOD, of Mount Vernon, in the county of Westchester and State of New York, and JOHN BRAIDWOOD, of the city, county, and State of New York, have invented a new and useful Improvement in Bronzing-Machines, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a vertical central section of a machine containing our improvement. Fig. 2 is an end elevation thereof. Fig. 3 is a plan or top view of the sheet-carrying cylinder detached.

Similar letters indicate corresponding parts.

Our invention relates to machines for bronzing paper and other material; and consists in combining with the sheet-carrying cylinder of such machines an endless bronzing-apron, of velvet, fur, or other similar material, for applying the bronze to the freshly-printed sheet, this apron being arranged in close proximity to the surface of the cylinder on suitable rollers, and being arranged to move in an opposite direction to the cylinder while it passes through a bronze-fountain, where its surface is coated with bronze-powder; and an endless wiping-apron of velvet, fur, or other similar material, for removing superfluous bronze from the bronzed sheet, this wiping-apron being arranged in close proximity to the surface of the cylinder on suitable rollers, and being arranged to move in an opposite direction to the cylinder; further, in combining with said sheet-carrying cylinder and with the wiping-apron a pressure-roller for discharging or withdrawing the bronzed sheet after it has been released by the gripers of the cylinder and has passed off of the wiping-apron; also, in providing the sheet-carrying cylinder with a longitudinal ridge on one edge of the recess in the cylinder containing the gripers, so that when the bronzed sheet is released by the gripers a tendency is given to the front end or edge of the sheet to turn outward or away from the cylinder, and the sheet is delivered at the proper point, the liability of the adhering of the sheet to the surface of the cylinder being obviated; further, in combining with the sheet-carrying cylinder and its longitudinal ridge, a series of strippers, which are arranged in close proximity to the cylinder, while the longitudinal ridge has openings for the passage of these strippers, so that the latter catch under the front end or edge of the sheet, which is caused to turn outward by the action of said ridge, and by this means the effect of the ridge is increased, as will be hereinafter explained.

In the drawing, the letter A designates a frame, which forms the bearings for the sheet-carrying cylinder B of our machine. This cylinder B is provided with gripers C, which are arranged in a recess, *a*, and with the usual means for operating the gripers.

The letter D designates an endless bronzing-apron, which is made of velvet, fur, or any other similar material, and which runs over rollers E E, having their bearings in the frame A. These rollers E E are placed in such a position relatively to the cylinder B that the bronzing-apron D is thereby brought in close proximity to the surface of the cylinder B. Immediately beneath the lowermost roller E is placed a bronze-fountain, F, the bottom of which is preferably inclined, as shown, so that if this fountain is supplied with bronze-powder it is thence taken up by the bronzing-apron D, the bronze powder having a tendency to adhere to the surface of the apron. The letter G designates an endless wiping-apron, which, like the bronzing-apron D, is made of velvet, fur, or other similar material, and which runs over rollers H H, having their bearings in the frame A. These rollers H H are also placed in such a position as to bring the wiping-apron G in close proximity to the surface of the cylinder B.

The freshly-printed sheet to be bronzed is fed to the machine from a suitable table, I, and when it is caught by the gripers C and carried round the cylinder B its surface is bronzed by the bronzing-apron D, while the superfluous bronze, or that between the printed part of the sheet, is wiped off by the wiping-apron G. The rollers of the bronzing-apron D, as well as of the wiping-apron G, are geared in such a way that both said aprons are caused to move in an opposite direction to the cylinder B, as indicated by arrows in Fig. 1.

With the wiping-apron G is combined a ro-

tary brush, J, by which the bronze is removed from said apron.

The gripers C are so arranged as to release the bronzed sheet after its front end or edge has passed off of the wiping-apron G, and for the purpose of discharging or withdrawing the sheet after it has been thus released we make use of a pressure-roller, K, which is so arranged that it is in superficial contact with the surface of the cylinder B. By the action of this pressure-roller K the bronzed sheet is discharged or withdrawn, or, in other words, is carried forward to its point of delivery after it is released by the gripers C, and passes off of the wiping-apron G. Said pressure-roller K is provided with elastic collars, (best seen in Fig. 2,) which bear against the surface of the cylinder B, and it is, moreover, mounted in yielding bearings *d*.

The cylinder B is provided with a ridge, N, on the edge of its recess *a*, where the gripers C clamp the end or edge of the sheet of paper or other material to be bronzed, said ridge being made to extend the entire length of the cylinder. By this ridge N the sheet is caused to turn outward, or away from the cylinder B when it is released by the gripers C, or is prevented from adhering to the surface of the cylinder, which it is liable to do when the ridge is not used, and the sheet is delivered at the proper point.

Said ridge N may be made of any height best adapted to the work or the material to be bronzed.

The letter L designates what we term "strippers," each consisting of a flat piece of metal or other material, and one end of which is secured to a cross-piece, *e*, of the machine-frame, while their other end is left free. These strippers are bent in such a way that their free end is in close proximity to the surface of the cylinder B, and at or near the delivery-point of the machine. Now, in case the sheet, whose front end or edge is turned outward by the ridge N, as before stated, fails to deliver itself, it is caught under its said front end or edge by the strippers L, and thereby delivered, the sheet being thereby stripped from the cylinder.

In order to permit the ridge N of the cylinder and the stripper L to pass each other, openings *f* are formed in said ridge at a point opposite to each of the strippers, (see Fig. 3,) of such a depth or level as to form a continuation of the surface of the cylinder.

It will be noticed that these openings *f* not only form a passage for the strippers L but also facilitate the catching of said strippers under the edge of the sheet.

Between the bronzing-apron D and the wiping-apron G may, if desired, be interposed a finishing-brush, O, for the purpose of distributing the powder, which is applied by the bronzing-apron D over the entire surface of the sheet; but in most cases this brush O is unnecessary, inasmuch as the purpose thereof is acccomplished by said bronzing-apron.

The bronze which is removed from the sheet by the wiping-apron G is caught in a suitable box placed beneath said apron.

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

1. In a bronzing-machine, the combination, with the single-sheet carrying-cylinder B, of an endless bronzing-apron, D, its supporting-rollers E E, and a bronze-fountain F, substantially as described.

2. In a bronzing-machine, the combination of the revolving cylinder B, provided with gripers C, the endless bronzing-apron D, passing around upper and lower rollers E E, and arranged vertically in contact with the cylinder B, the fountain F, in which said bronzing-apron revolves, and the wiping-apron G, passing around rollers H H, and arranged beneath the cylinder B, all substantially as herein shown and described.

3. The combination, with the cylinder B, the endless bronzing-apron D, arranged vertically at the side of the cylinder, the fountain F, in which the bronzing-apron revolves, and the endless revolving wiping-apron G, arranged horizontally beneath the cylinder, of the spring pressure-roller K, arranged at the side and bearing upon the surface of the cylinder, substantially as and for the purposes described.

4. The sheet-carrying cylinder B, having its periphery constructed with a longitudinal rigid raised ridge, N, in combination with the gripers C, pivoted in the recess *a* of the cylinder, the said raised ridge serving to turn the sheet away from the cylinder when released by the gripers, as and for the purpose described.

5. The combination, with the sheet-carrying cylinder B and its ridge N, of a series of strippers or knives, L, when said ridge is provided with openings for the passage of said strippers or knives, substantially as described.

In testimony that we claim the foregoing we have hereunto set our hands this 4th day of April, 1877.

WM. BRAIDWOOD.
JOHN BRAIDWOOD.

Witnesses:
W. HAUFF,
CHAS. WAHLERS.