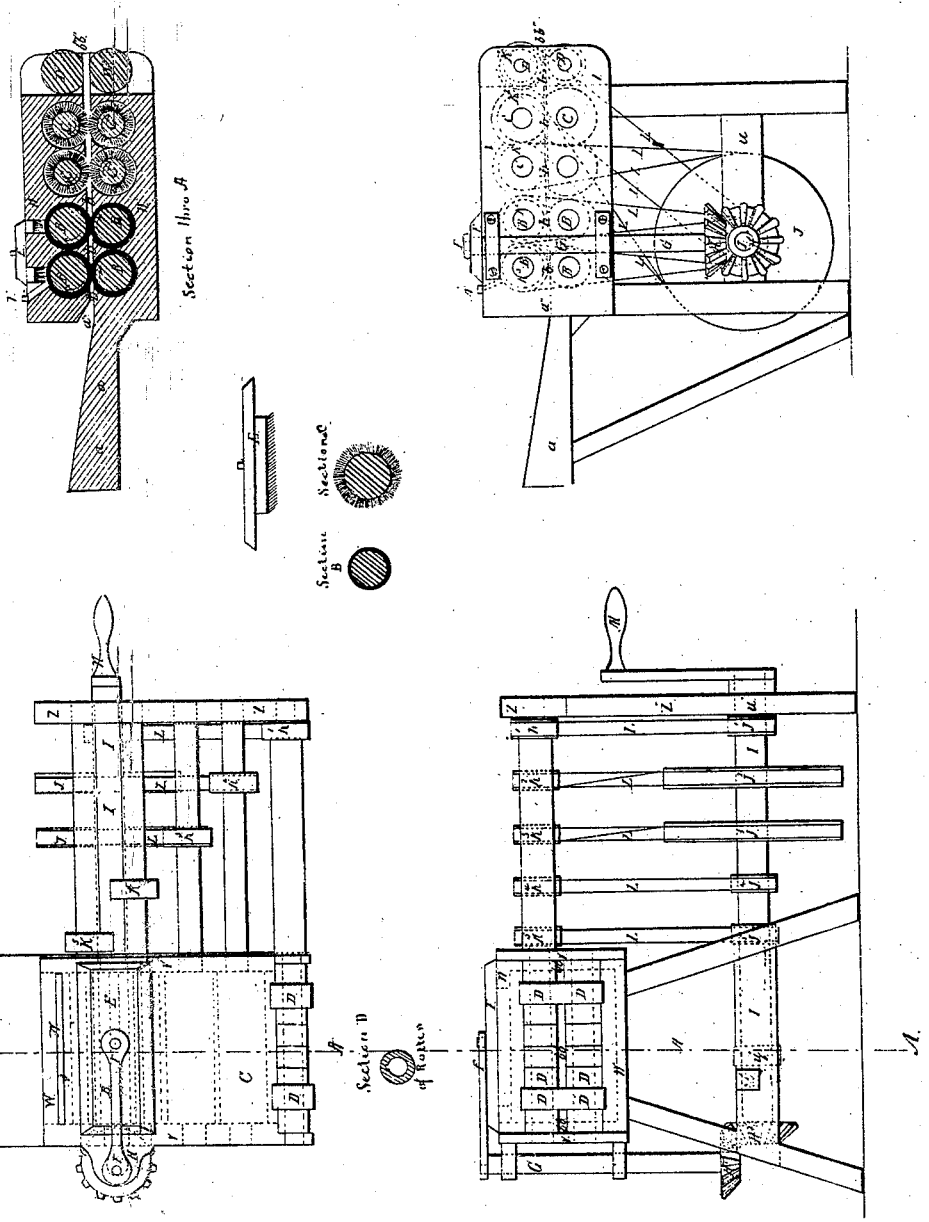
I. L. G. Rice,

Bronzing Mach.

No. 111,973. Patented Feb. 21. 1871.



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ISRAEL L. G. RICE, OF CAMBRIDGE, MASSACHUSETTS.

Letters Patent No. 111,973, dated February 21, 1871.

IMPROVEMENT IN MACHINES FOR BRONZING.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ISRAEL L. G. RICE, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a certain new and useful Improvement in Bronzing-Machines; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings forming a part thereof, and in which, by the several figures indicated thereon under their proper headings, is illustrated my invention.

This invention relates to bronzing-machines in which the paper or article to be bronzed is passed between two series of rollers covered with velvet or other suitable material or covering, to receive and retain the bronzing-powder, supplied to them from a suitably-located reservoir and spout dependent from the latter, the powder or bronze being equally distributed upon the entire surfaces or peripheries of the said rollers with which the bronze is applied to the article to be bronzed, by means of a reciprocating brush, and in which is employed a casing of peculiar construction for enveloping a portion of the above-described devices, as hereinafter set forth.

Similar letters of reference in the several figures of the accompanying drawings indicate corresponding parts of my invention.

In the said drawings—

A represents a block or casing, having cut transversely through it a series of cylindrical holes or chambers, within which are located the bronzing-rollers B B and dusting or cleaning-brushes C C, and extending through its entire length, and nearly its whole width, a receptacle, *b*, of sufficient size to allow the paper or article to be bronzed to pass through it while being operated upon.

At the point where the article or matter is introduced into the chamber or receptacle *b* for bronzing is cut a mouth, *a''*, made as seen in transverse section of block A, for facilitating the introduction of the said matter in said chamber.

The lower portion of block A is constructed or formed with a leaf, *a*, the upper surface of which is slightly inclined and forms a continuation of the lower surface or bottom of chamber *b*. Upon this leaf the matter to be gilded or bronzed is placed preparatory to being introduced into *b* of block A.

The block A and the outer end of leaf *a*, forming a part of the same, are supported upon legs or uprights suitably secured thereto, the supports or legs of the block A being held together by the transverse pieces *u u'*, in which the shaft I has its bearings.

The bronzing-rollers, or the ones between which the matter to be bronzed is inserted, are covered with velvet or any other material having sufficient elasticity to yield to different thicknesses of paper or the matter to be operated upon, and are composed of an upper and a lower set of rollers supplied with shafts, the shafts of the lower set consisting of cylindrical shoulders or projections formed on the ends thereof and having their bearings in apertures cut in the side pieces V V', nailed or otherwise secured to the sides of the block A, the said shoulders having been allowed to first pass through apertures cut in the said block before entering the holes or bearings in the pieces V V'.

The shafts of the upper set of the bronzing-rollers have one end entering apertures in the side pieces or supports V V, and the other end extending through the block A and bearings or supports, V' V', a suitable distance therefrom, where they are supported and have their bearings upon a cross-piece, Z, secured to the upper end of a pair of legs.

N is a reservoir or receptacle containing the bronze, located upon the block A and having an aperture or spout leading from it to the chamber of one of the bronzing-rollers, through which the bronze is fed to the said rollers.

E is a brush, having the lower side of its top resting flush with the upper side or top of the block, and the bristles or hair portion thereof entering an opening in the block and coming in contact with the peripheries of the upper rollers B B, upon which the bronze is poured.

A reciprocating motion is imparted to this brush through the connecting-rod F, pivoted at one end to its center and at the other end supplied with an aperture of an eccentric shape, into which works a pin or headed projection formed on the right-angular shaft G, having its bearings in pieces secured to the block A, and operated by means of the driving-shaft I through the bevel-gearing H H, attached respectively to the shaft G and shaft I and handle M on the shaft last named.

The object of giving a reciprocating motion to the brush E, constructed as plainly shown in a detached view in the drawing, is to cause it to come in contact with the entire surface of the peripheries of the bronzing-rollers while being revolved, in order to equally distribute the bronzing-powder upon said rollers with which said powder is applied to the article to be bronzed.

The revolving brushes C C, placed one above the other, are located upon shafts similar to the roller-shafts B B, and are for the purpose of removing superfluous bronze from the article after having passed between the rollers B B.

D D are the delivery-rollers, covered with cloth or rubber and arranged in relation to one another similar to the rollers B B, and upon shafts similar to those of the rollers just mentioned, but having their bearings in jaws or projections formed on the outside of block A, and not inside of the said block. These rollers seize

the article that has been bronzed, after having been cleaned or dusted by the brushes C C, and carry it out of the block A at the point marked by the letters *b b*.

Motion is imparted to the rollers B B, brushes C C, and rollers D D by means of the belts L L, which pass around and receive motion from the pulleys J^1 J^2 J^3 J^4 J^5, located upon the shaft I, and thence around pulleys K^1 K^2 K^3 K^4 K^5, situated upon the shafts of the said rollers and brushes.

The motion imparted to the dusting-brushes C C is contrary to that of the rollers B B, their belts being twisted or arranged in such a manner as to obtain said motion for the purpose of throwing the superfluous bronze back onto the bronzing-rollers B B, removed from the article after having been bronzed, thereby economizing in the use of the bronzing-powder, which is very costly.

It will be remarked that, in order to cause the rollers D D to seize the paper upon its margins as it leaves the dusting-brushes C C, so as to avoid defacing or disfiguring the printed portion thereof, their shafts are supplied with collars or washers of less diameters than themselves, (the rollers,) located upon the shafts between the rollers, keeping the latter the required distance apart. The rollers and their collars are both removable and can be keyed to their shafts by means of the ordinary key used for that purpose, when it is desired they should revolve with their shafts.

Having thus described my invention,

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

1. The table or block A, constructed with the leaf *a*, chamber or receptacle *b a''*, chambers for the reception of the rollers B B and cleaning-brushes C C, aperture or spout for feeding the bronze to the bronzing-rollers, and receptacle for the brush E, substantially as and for the purpose set forth.

2. The velvet or other suitably-covered bronzing-rollers B B, in combination with the receptacle or reservoir N, with its spout and reciprocating brush E, for equalizing the distribution of the bronze upon said rollers B B, all constructed and arranged substantially as set forth.

3. The casing or block A, constructed as described, in combination with the brush E, receptacle N, rollers B and D, revolving brushes C C, shafts G and I, pulleys K^1 K^2 K^3 K^4 K^5 and J^1 J^2 J^3 J^4 J^5, belts L, and connecting-rod F, all constructed and arranged substantially as and for the purpose set forth.

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