(No Model.) 3 Sheets—Sheet 1.

E. JAECK & M. AUERBACH.

BRONZE DUSTING MACHINE.

No. 491,054. Patented Jan. 31, 1893.

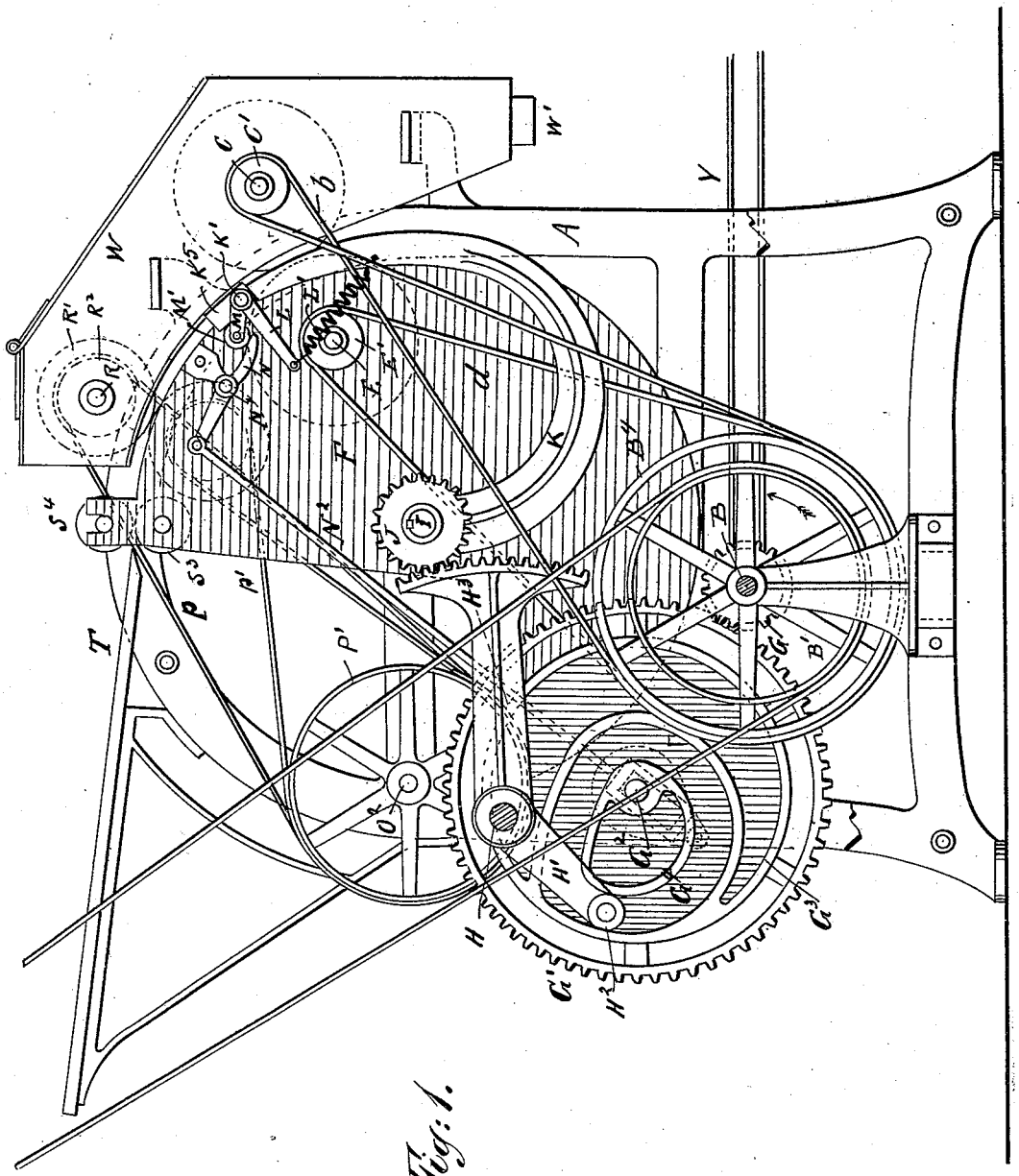

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

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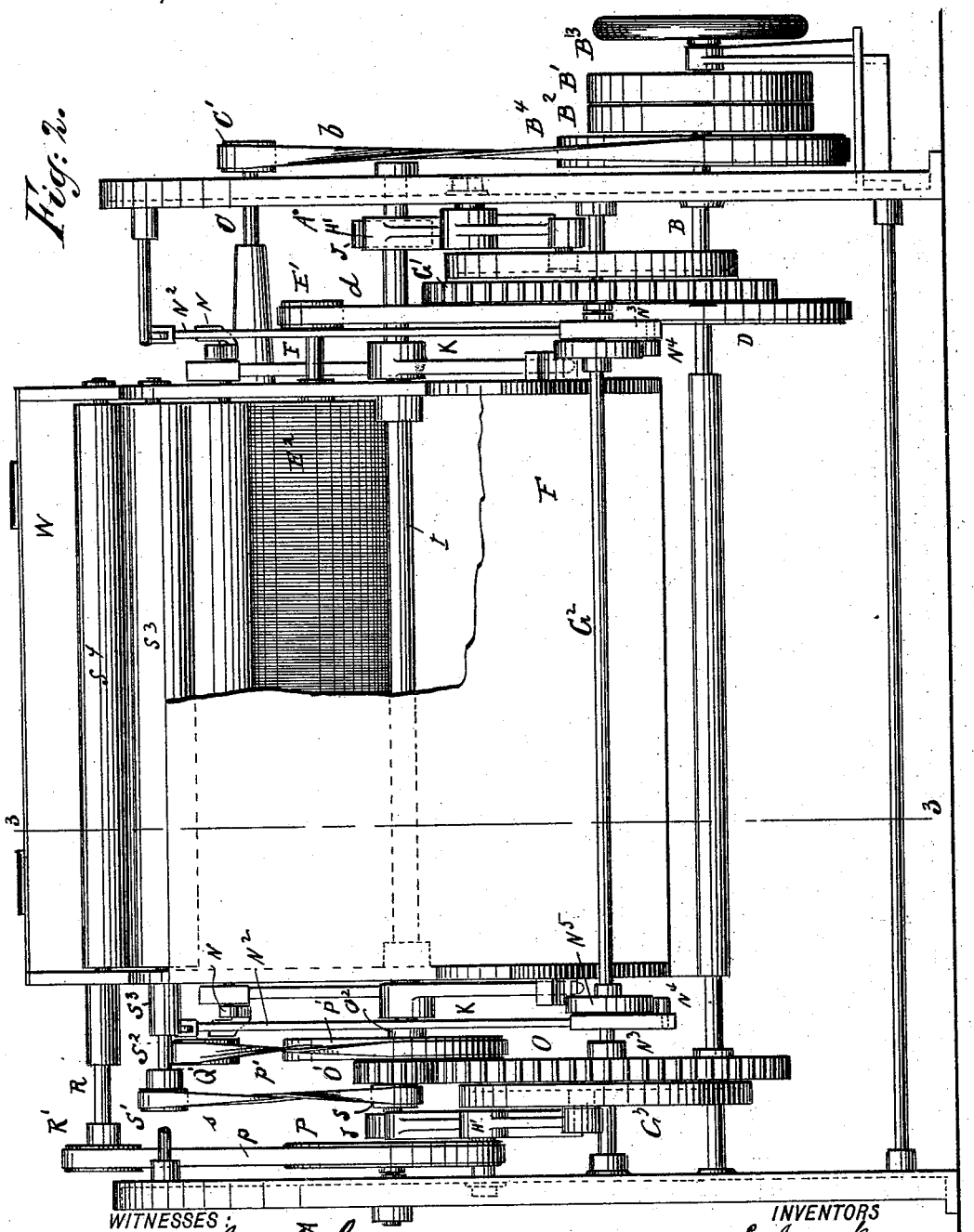
Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

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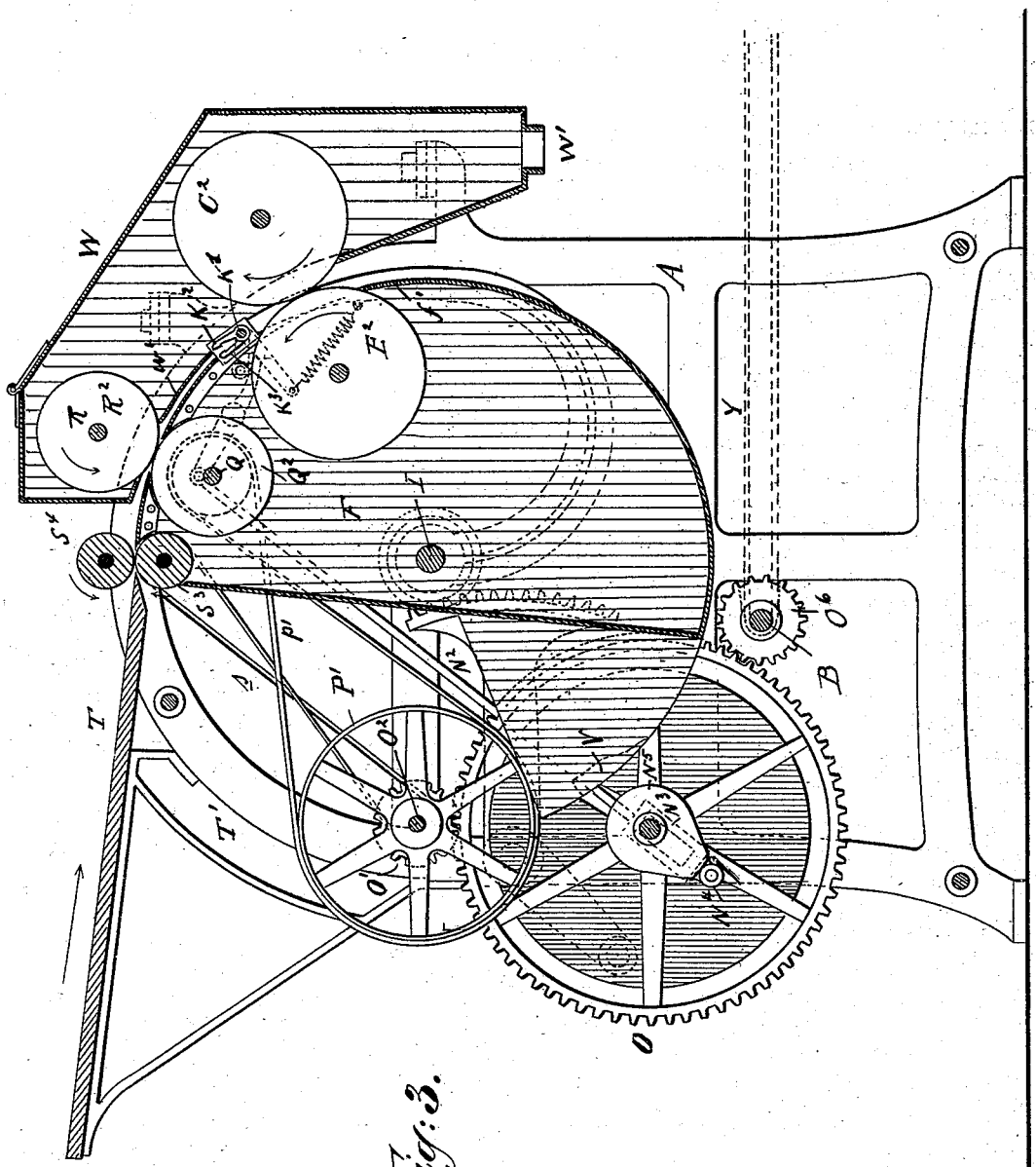

Fig. 3.

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UNITED STATES PATENT OFFICE.

EMILE JAECK AND MORITZ AUERBACH, OF BROOKLYN, NEW YORK.

BRONZE-DUSTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 491,054, dated January 31, 1893.

Application filed September 10, 1892. Serial No. 445,504. (No model.)

To all whom it may concern:

Be it known that we, EMILE JAECK and MORITZ AUERBACH, both citizens of the United States, residing in the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Bronze-Dusting Machines, of which the following is a specification.

This invention relates to a new and improved machine for dusting bronze powder from printed sheets that have been bronzed by the application of bronze-powder.

The invention consists in a bronze-dusting machine constructed with a curved passage-way for the sheets, reciprocating arms having grippers on their ends, which move along said curved passage and means for automatically opening and closing the grippers.

The invention also consists in the construction and combination of parts and details which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is an end-view of our improved bronze-dusting machine, Fig. 2 is a front-view of the same, parts being broken out, and Fig. 3 is a vertical transverse-sectional view on the line 3 3, Fig. 2.

Similar letters of reference indicate corresponding parts.

In the frame A of the machine, the main driving-shaft B is journaled, which carries at one end the loose pulley B′, fixed pulley B^2 and the fly-wheel B^3, all arranged outside of the frame. Adjacent to the pulley B^2, the pulley B^4 is fixed on the shaft B and around the same the belt *b* passes which also passes around a pulley C′ fixed on a shaft C journaled in the upper part of the machine on which shaft the cylindrical brush C^2 is mounted, which brush may be of any desired construction and made of any suitable material, such as bristles, plush, felt, hair, &c. The belt *b* is crossed as shown in Fig. 1. On the same end of the shaft B, but within the machine frame a belt pulley D is fixed and around the same a belt *d* is passed which also passes around the pulley E′ fixed on the end of the shaft E journaled in the end-walls of a casing F, which shaft E carries a cylindrical brush E^2 within said casing. The shaft B carries a pinion G engaging a cog-wheel G′ at one end of the shaft G^2 and on said shaft G^2 two cam-disks G^3 are fixed which are each provided with a cam-groove G^4 in the side. On the shaft H of the frame angle-levers H′ are mounted and are each provided at one end with a roller H^2 traveling in the cam-groove G^4 and at the opposite end with a segmental rack H^3 engaging a pinion J fixed on a rocking shaft I journaled in the end of the casing and said shaft I is provided with curved arms K, to the free ends of which a rocking shaft K′ is mounted that is provided with swinging gripping jaws K^2, the fixed gripping jaws K^3 projecting from a cross-piece K^5 connecting the curved arms K. The shaft K′ is provided at each end with an arm L connected by a helical spring L′ with the corresponding arm K. In addition thereto the shaft K′ is provided at each end with an arm M carrying on its end a roller M′, upon which the cam-end of the levers N can act that are pivoted at N′ to the end of the casing F′, which levers N are connected by rods N^2 with slotted guide pieces N^3, through the slots of which the shaft G^2 passes, and said pieces N^3 each carry a roller N^4 on which the edges of the cams N^5 fixed on the shaft G^2 can act.

The shaft G^2 carries a cog-wheel O which is engaged by a pinion O^6 on the shaft B and which cog-wheel O engages the pinion O′ fixed on the shaft O^2 carrying the two pulleys P and P′ over which the belts P and P′ pass, the belt P′ being crossed and passing around the pulley Q′ of the shaft Q on which a cylindrical brush Q^2 is mounted within the casing F. The belt P passes around the pulley R′ of the shaft R carrying a cylindrical brush R^2. A cross-belt *s* passes around the pulley S on the shaft O^2 and also around the pulley S′ of the shaft S^2 of feed-roller S^3 and above said feed-roller S^3 and in contact therewith the feed-roller S^4 is arranged. The inclined feeding table T is supported on brackets T′ on the main-frame and its front edge is between the two rollers S^3 and S^4. The brushes R^2 and C^2 are arranged within the casing W supported on the main-frame and having an outlet neck W′ at the lower end for the bronze powder. The paper passes between the concave wall *w′* of the casing W and the convex wall *f′* of the casing F, which form a curved passage way.

V are stops on the ends of the casing F and serve to open the gripping jaws.

Y is a conveyer for the sheets released from the grippers.

The operation is as follows:—The bronze sheets are placed upon the inclined table T and drawn by the feed rollers S^4 and S^3 in between the walls w' and f' of the casings W and F, of which feed-rollers the lower one S^3 is rotated by means of the belt s. The sheet is drawn inward by the two brushes R^2 and Q^2, which, have a greater circumferential speed than the rollers S^3 and S^4, so that the sheet is stretched and laid smooth. The arms K are swung up into the position shown in Fig. 3, and as the rollers M′ on the arms M of the rocking shaft K encounter the cam-ends of the levers N they are swung upward and outward, whereby the gripping jaws K^3 are raised and the edge of the sheet can pass in between the gripping jaws K^2 and K^3. The rods N^2 now move upward, so as to release the rollers M′ on the arms M and permit the spring L′ to close the gripping-jaws K^2 upon the edge of the sheet, whereby the sheet is held firmly and securely. The arms K now swing in downward direction and draw the sheets between the brushes E^2 C^2 which thoroughly brush off the superfluous bronze powder which collects in the casing W or in the casing F. The arms K continue to rotate in the direction of the arrow X′ and carry along the sheet until the rollers M′ strike against the projections V on the lower left hand part of the ends of the casing F, whereby the gripping jaws K^2 are moved from the gripping jaws K^3 and the sheet is released and drops upon the traveling apron or belt Y, which carries it away. The arms K now swing in upward direction and by the time they are back in the position shown in Figs. 1 and 3, the rods N^2 are again moved downward, so as to open the gripping jaws to permit them to grip the next sheet and so on.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:—

1. A bronze-dusting machine, constructed with feed-rollers, arms having a reciprocating motion, grippers supported by said arms and means for automatically opening and closing said grippers to grip and release the sheets and brushes for brushing the sheets, substantially as set forth.

2. A bronze-dusting machine, constructed with rotary brushes, a curved guide for the sheets, arms mounted to reciprocate on a curved line, grippers supported by the ends of said arms, and mechanism for automatically opening and closing the grippers, substantially as set forth.

3. In a bronze-dusting machine, the combination, with two casings, of which one has a convex face and the other a concave face, said convex and concave faces being a short distance from each other and forming a passage for the sheets arms mounted to reciprocate on a curved line, grippers supported on said arms for drawing the sheets through the above-mentioned passageway, means for automatically opening and closing said grippers, and brushes in the said casings, substantially as set forth.

4. In a machine for dusting bronze, the combination, with a casing having a convex face and a casing having a concave face, said convex and concave faces being a short distance from each other and forming a passageway for the sheets, brushes in said casings, arms mounted to reciprocate on curved lines, grippers on said arms, a spring for automatically keeping the grippers closed, cam-arms for opening said grippers, mechanism for operating said cam-arms and projections on the casings for opening the grippers at the end of the stroke and releasing the sheets, substantially as set forth.

5. In a machine for dusting bronze, the combination, with a frame, of a feed-table, feed-rollers at the ends of the same, two casings provided with brushes between which casings a passageway for the sheets is formed, reciprocating arms, grippers on said arms for gripping the sheets and mechanism for automatically closing and opening said grippers, substantially as set forth.

In testimony that we claim the foregoing as our invention we have signed our names in presence of two subscribing witnesses.

EMILE JAECK.
MORITZ AUERBACH.

Witnesses:
JOHN M. FUCHS,
CLEMENT. R. JACOBI.