No. 791,337. PATENTED MAY 30, 1905.

M. FRITSCHE.

BRONZING MACHINE.

APPLICATION FILED JULY 26, 1904.

2 SHEETS—SHEET 1.

Fig. 1

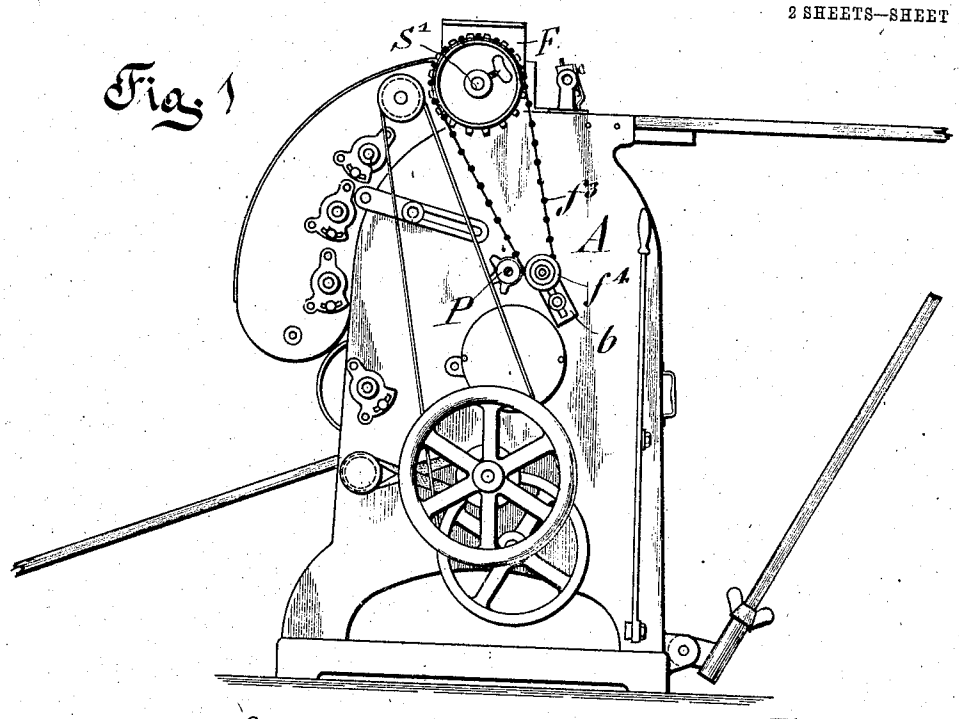



Fig. 2

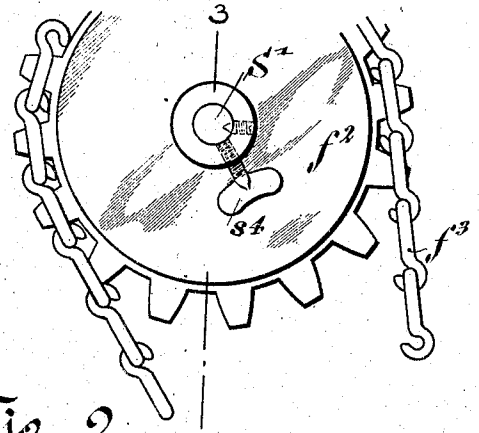



Fig. 3

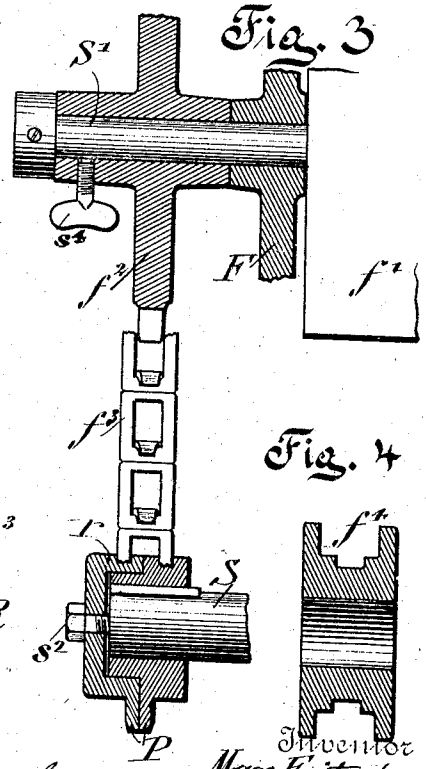
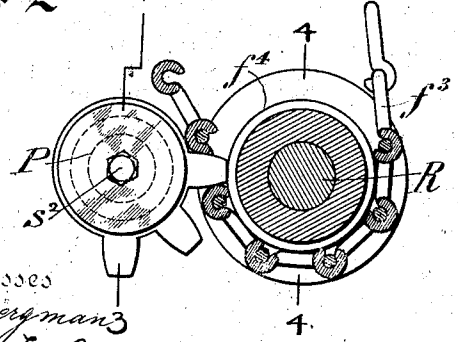



Fig. 4




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2 SHEETS—SHEET 2.

Fig. 5

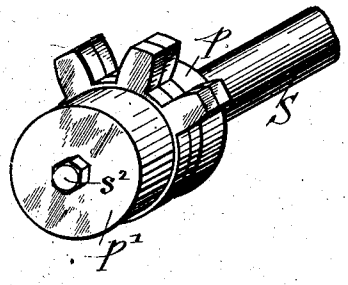



Fig. 6

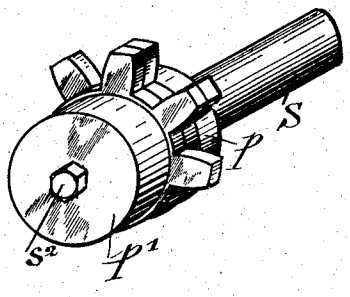



Fig. 7

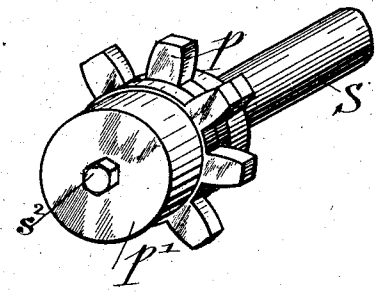



Fig. 8

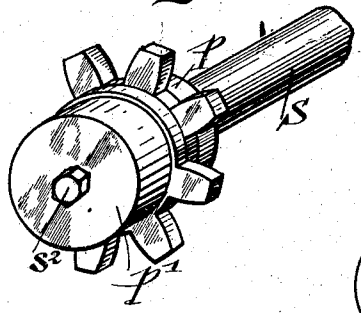



Fig. 9

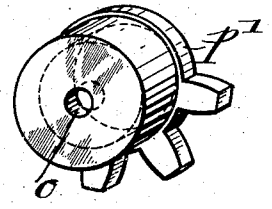
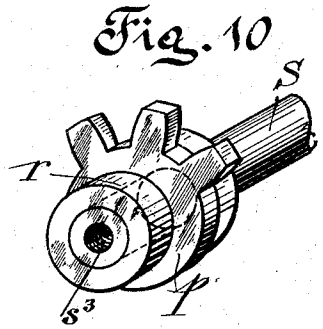



Fig. 10




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No. 791,337. Patented May 30, 1905.

# UNITED STATES PATENT OFFICE.

MAX FRITSCHE, OF HOBOKEN, NEW JERSEY, ASSIGNOR TO ROBERT MAYER & CO., OF NEW YORK, N. Y., A FIRM.

## BRONZING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 791,337, dated May 30, 1905.

Application filed July 26, 1904. Serial No. 218,281.

*To all whom it may concern:*

Be it known that I, MAX FRITSCHE, a citizen of the United States, residing in Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Bronzing-Machines, of which the following is a specification.

This invention relates to certain improvements in bronzing-machines, and more especially to an improved mechanism for operating the supply-roller of the bronze-fountain, so that it is rotated for different periods of time, according to the size of the sheet to be bronzed; and for this purpose the invention consists of a motion-transmitting mechanism connecting the shaft of the sheet-carrying cylinder with the shaft of the feed-roller, said mechanism consisting of a chain-and-sprocket-wheel transmission that is actuated by a sprocket-wheel on the shaft of the sheet-carrying cylinder, said sprocket-wheel comprising mutilated sections which are capable of being adjusted angularly relative to each other, so as to bring greater or smaller number of teeth into mesh with the motion-transmitting sprocket-chain.

The invention consists, further, of certain additional details of construction, which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved bronzing-machine. Fig. 2 is a side elevation of the mechanism by which motion is transmitted to the bronze-powder-feeding roller from the shaft of the sheet-carrying cylinder. Fig. 3 is a vertical transverse section on line 3 3, Fig. 2. Fig. 4 is a detail vertical transverse section of the guide-pulley of the sprocket-chain on line 4 4, Fig. 3. Figs. 5 to 8 are detail perspective views showing the different relative adjustments between the two sections of the motion-transmitting mutilated sprocket-wheel sections, and Figs. 9 and 10 are perspective views of the two sprocket-wheel sections shown as detached from each other.

Similar letters of reference indicate corresponding parts.

In the bronzing-machine for which Letters Patent were granted to me on April 5, 1904, No. 756,786, the feed-roller of the bronze-fountain was intermittently rotated by means of a cam-operated pawl-and-ratchet mechanism. It has been found that the adjustment of this lever-actuated pawl-and-ratchet mechanism for the different lengths of sheets to be bronzed is accompanied by considerable loss of time and inconvenience, and the present mechanism by which the bronze-powder-feed roller is operated has been substituted. The machine is otherwise constructed with the same outlines as described in said patent to which reference is made.

Referring to the drawings, A designates the casing of the machine, and F the bronze-fountain, which is superposed thereon, a suitable feed-roller $f'$ being rotatable in said fountain. The shaft S'' of said feed-roller is provided at one end with a sprocket-wheel $f^2$, which is adjusted on said shaft by means of a set-screw $s^4$ and driven by a sprocket-chain $f^3$, guided over a grooved guide-roller $f^4$, which is rotatable on a stub-shaft R, carried by a suitable bracket $b$, said bracket being adjustable on the casing A, so as to regulate the tension of said chain. Intermittent rotary motion is transmitted to the chain $f^3$ by means of a mutilated sprocket-wheel P, keyed to and driven by the shaft S of the sheet-carrying cylinder.

The sprocket-wheel P is composed of two angularly-adjustable sections, each of which is provided on a portion only of its periphery with consecutive spaced teeth. The teeth on each of said sections are of the same size, and the two sections are placed contiguously on the shaft S, so that certain teeth thereof coincide in axial position, the sprocket-wheel being adapted to impart motion to a chain of twice the width of the teeth on each section.

The two sections of the motion-transmitting sprocket-wheel are clearly shown in Figs. 9 and 10, one section being angularly adjustable on the shaft S of the sheet-carrying cylinder, which is provided with an interiorly-threaded socket-opening $s^3$ in its end for inserting a clamping-screw $s^2$ into the same.

The inner sprocket-wheel section $p$ is provided with a circumferential recess $r$ for seating the outer sprocket-wheel section, the hub of which is made cup-shaped and provided with a central opening $o$ for the clamping-screw $s^2$, which holds the outer section tightly in position on the inner section. As each sprocket-wheel section is provided with, say, three teeth, the same can be arranged either adjacent to each other, as shown in Fig. 5, the two combined engaging the links of the sprocket-wheel chain, or one may be shifted on its axis so that one, two, or three of its teeth are set in advance of the teeth of the other sprocket-wheel section, as shown in Figs 6, 7, and 8. Four different relative adjustments of the sprocket-wheel sections can thus be made with this number of teeth, so that motions of variable duration can be transmitted to the shaft of the bronze-powder-feed roller according as the corresponding teeth of the sprocket-wheel sections are arranged angularly coincident or out of alinement with each other. The intermittent motion imparted to the feed-roller $f'$ is dependent on the length of the sheet to be bronzed—that is to say, the bronze-powder-feed roller has to be rotated a smaller period of time for shorter sheets and a longer period of time for longer sheets. The adjustment of the sprocket-wheel sections relative to each other is readily made by loosening the clamping-screw $s^2$, which is provided with a suitable head for applying a wrench, and then adjusting the outer sprocket-wheel section angularly on the shaft in advance for one, two, or more teeth of the inner sprocket-wheel section, and then tightening the clamping-screw, so that the two sections are tightly clamped together and ready for transmitting motion to the sprocket-chain.

The adjustment of the sprocket-wheel sections can readily be accomplished by the attendant and thereby the bronze-powder-feed roller rotated for the exact time required for the sheet to be bronzed. The adjustment is a positive one, corresponding to the length of each sheet and accomplished accurately, without loss of time, by a simple manipulation of the sprocket-wheel sections relatively to each other.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a bronzing-machine, the combination, with the shaft of the sheet-carrying cylinder, of a sprocket-wheel on the same, comprising two mutilated angularly-adjustable sprocket-wheel sections, a second sprocket-wheel mounted on the shaft of the feed-roller, and a chain operable by said first-named sprocket-wheel for transmitting intermittent rotary motion to said last-named sprocket-wheel.

2. In a bronzing-machine, a sprocket-wheel-and-chain transmission for imparting intermittent rotary movements of the required duration to the feed-roller, comprising a sprocket-wheel on the feed-roller shaft, a guide-roller on the casing of the machine, a chain connecting said sprocket-wheel and guide-roller, and a changeable-tooth sprocket-wheel on the shaft of the sheet-carrying cylinder for transmitting motion to said chain.

3. In a bronzing-machine, a sprocket-wheel-and-chain transmission between the shaft of the sheet-carrying cylinder and the shaft of the feed-roller, consisting of a sprocket-wheel on said feed-roller shaft, a guide-roller attached to the machine-casing, a sprocket-chain connecting said sprocket-wheel and said guide-roller, a sprocket-wheel on said cylinder-shaft consisting of two angularly-adjustable mutilated sections for transmitting intermittent movements of the required duration to said chain, and means for interclamping said sprocket-wheel sections after adjustment.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

MAX FRITSCHE.

Witnesses:
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HENRY J. SUHRBIER.