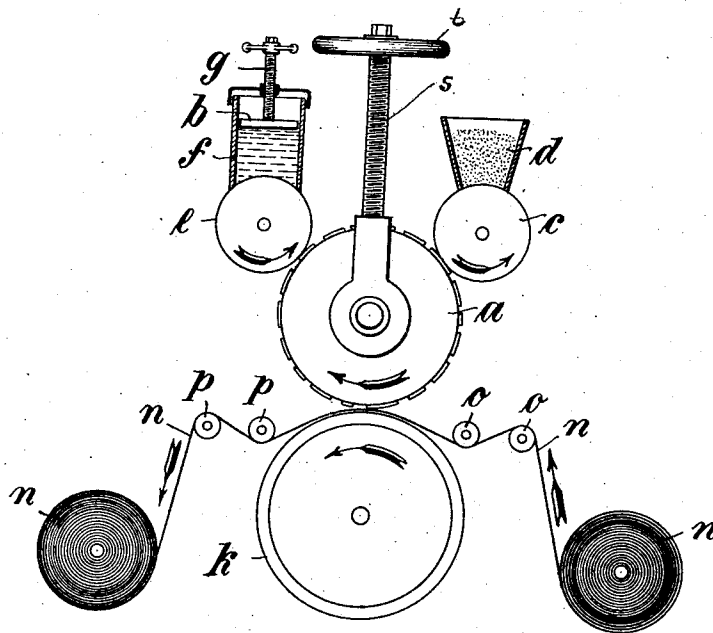


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 APPARATUS FOR HOT AND RELIEVO EMBOSSING.
 APPLICATION FILED AUG. 25, 1910.

1,009,457.

Patented Nov. 21, 1911.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR HOT AND RILIEVO EMBOSSING.

1,009,457.

Specification of Letters Patent.

Patented Nov. 21, 1911.

Application filed August 25, 1910. Serial No. 578,851.

To all whom it may concern:

Be it known that I, FRITZ CARL WICKEL, chemist, a subject of the German Emperor, and residing at 5 Rue Michel Charles, Paris, France, have invented certain new and useful Improvements in Apparatus for Hot and Rilievo Embossing, of which the following is a specification.

The present invention relates to an apparatus for carrying out hot and rilievo-embossings in gold, silver, metal and body colors or the like by means of rollers.

The invention consists in means for continuously applying to an embossing roller first a binding medium and then powdered coloring material, whereupon this embossing material is transferred by the roller to the piece of work. This piece of work may consist of a strip of material passed in a length between the embossing roller and the backing roller. The binding medium to be applied to the embossing roller consists for metallic embossing say of a hard waxen substance such as carnauba-wax with copal, beeswax or the like. For non-metallic embossing the binding medium may consist of a compound with a likewise high melting point, such as a mixture of glue, water, molasses or the like.

The advantages to be obtained by the present invention consist essentially (1) in the work coming in contact with not more bronze, powder or the like than is necessary for producing the pattern to be embossed; (2) in the apparatus for recovering the surplus bronze or cleaning the paper being unnecessary; (3) in an economic consumption of coloring material and a dust-free working; (4) in a high speed being attainable in working; (5) in the binding medium applied to the embossing roller increasing the gloss of the metallic surface and protecting it against oxidation; and (6) in that it is unnecessary to submit the material to be embossed to a preparatory treatment for it to take the bronze powder or the like.

The accompanying drawing illustrates in a diagrammatical form an apparatus for carrying out the present method.

In this drawing *a* is the embossing roller, carrying the pattern to be embossed and arranged to be heated, *k* is the backing roller. The roller *a* is in contact with a roller *e*, made of ebonite or the like, which forms the bottom of a box *f*. This box *f* contains

a binding medium, which may, as said hereinbefore, consist of a hard wax compound such as carnauba-wax with copal, beeswax or the like when metallic embossings are to be made, and of a compound of a likewise high melting point consisting of much glue, some water, molasses or the like, when non-metallic embossings are to be made. The flow of this binding medium may be increased by a lid *b* being pressed down by means of a screw spindle *g*. The roller *a* is also in contact with a roller *c*, preferably made of metal, which forms the bottom of a box *d* containing the embossing material. Roller *c* is preferably provided with a checkered surface. The pressure of the rollers *e* and *c* against the raised surface of the embossing roller *a* can be regulated in a suitable manner.

The arrangement operates in the following manner. The heated embossing roller *a* is rotated in the direction indicated by the arrow and will rotate the two rollers *e* and *c* in a suitable manner. The surface of roller *e* which will be heated by the contact will take up some binding medium while passing through box *f* and transfer it in form of a film to the raised surface of the embossing roller *a*. In the mean time, the checkered surface of roller *c* will have taken up in its recesses a quantity of powdered bronze color from the box *d*. At the point of contact between the rollers *c* and *a* the color or the like will meet the binding medium on the raised patterned surface of roller *a* and will be thus transferred by adhesion to the binding medium at the point of contact between the two rollers. The roller *a* will then transfer the thus received embossing material to the piece of work to be embossed, passing under pressure between rollers *a* and *k*, and thereby produce a rilievo-embossing on the same. The work may as an example, be a length of paper *n* running over guide rollers *o* and *p*.

The pressure of the embossing roller *a* against the backing roller *k* may be regulated in any suitable manner as by the screw *s* provided with a hand wheel *t* for that purpose.

According to the present method and with aid of the hereinbefore described arrangement very long pieces of material may be embossed at a great speed, which was hitherto not possible when hot, rilievo em-

bossing or gilding presses and the like were used which worked with leaves or sheets only.

I claim:

5 1. In an apparatus for carrying out hot and rilievo embossings in gold, silver, metal and body colors or the like, the combination of an embossing roller adapted to carry the pattern to be embossed, a backing roller, a
10 roller in operative contact with the embossing roller, a receptacle of which said roller forms the bottom adapted to contain a hard wax compound, a roller in operative contact with the embossing roller upon the opposite side of its axis, a box of which the
15 said roller forms the bottom, said box adapted to contain embossing material, said embossing roller arranged to revolve said roller, and means for passing the material to be embossed between said embossing and
20 backing rollers.

2. In an apparatus for carrying out hot and rilievo embossings in gold, silver, metal

and body colors or the like, the combination of an embossing roller adapted to carry the pattern to be embossed, a backing roller, a roller in operative contact with the embossing roller, a receptacle of which said roller forms the bottom adapted to contain a hard wax compound, a roller in operative contact with the embossing roller upon the opposite side of its axis, a box of which the said roller forms the bottom, said box adapted to contain embossing material, said embossing roller arranged to revolve said roller, means for passing the material to be embossed between said embossing and backing rollers, and means for regulating the pressure of the embossing roller against the backing roller.

In witness whereof I have hereunto signed my name this 12th day of August 1910, in the presence of two subscribing witnesses.

FRITZ CARL WICKEL.

Witnesses:

DEAN B. MASON,

GEORGE L. RICHARDS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."