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J. W. HARRIS & M. M. KANDLE.

PRINTER'S AND EMBOSSER'S MAKE READY.

APPLICATION FILED NOV. 18, 1905.

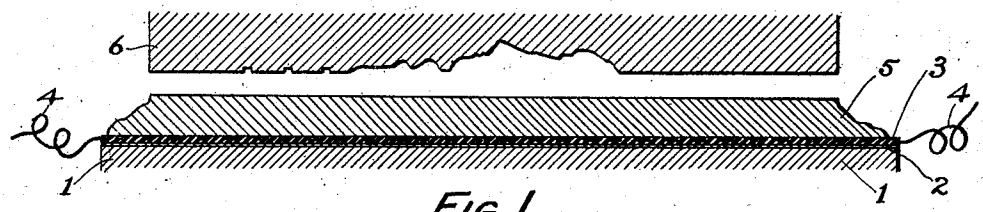


FIG. 1.

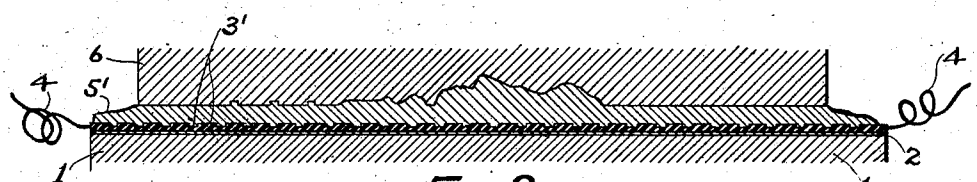


FIG. 2.

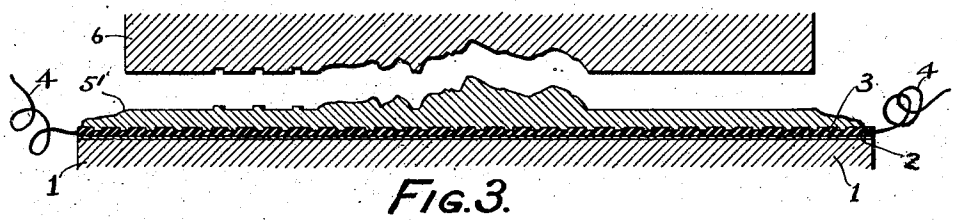


FIG. 3.

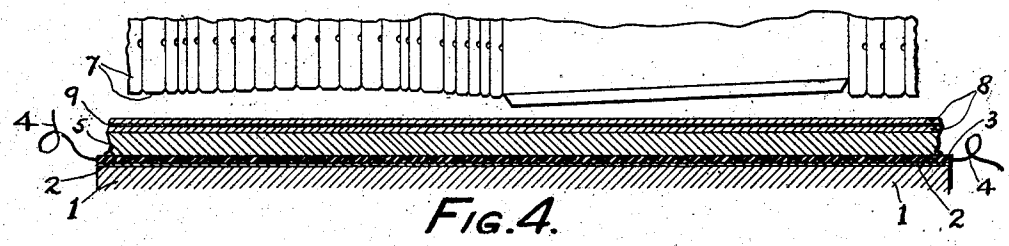


FIG. 4.

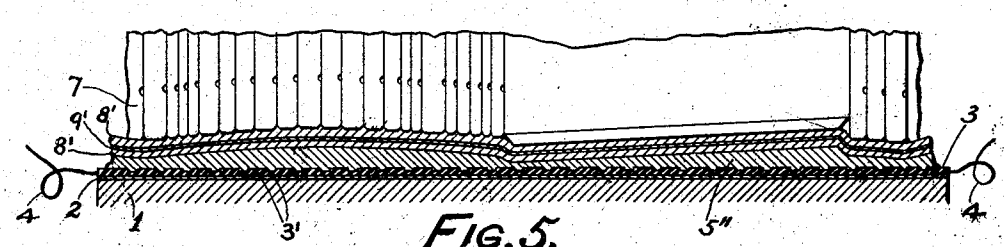


FIG. 5.

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PRINTER'S AND EMBOSSER'S MAKE-READY.

No. 827,366. Specification of Letters Patent. Patented July 31, 1906.

Application filed November 18, 1905. Serial No. 287,922.

To all whom it may concern:

Be it known that we, JOSEPH W. HARRIS, residing at Elkins Park, in the county of Montgomery, and MATTHIAS M. KANDLE, residing at Philadelphia, in the county of Philadelphia, State of Pennsylvania, have invented new and useful Improvements in Printers' and Embossers' Make-Ready, of which the following is a specification.

This invention relates to the method of constructing and construction of a foundation for supporting the material to be printed, impressed, or embossed which shall have the conformation of the printing, impressing, or embossing form and can be quickly produced at small cost.

In printing, the printing-form face presents an irregular surface which requires that the paper or other material to be printed shall be supported on a surface having the same conformation, so that the type shall effect a uniform impression. To provide a supporting-surface conforming to the face of the printing-form, it has been customary to build up on the press platen or cylinder what is known as the "make-ready" by packing thereon tissue or other suitable paper to provide elevations and depressions registering with similar depressions and elevations in the face of the form at a very considerable expenditure of time without always obtaining satisfactory results. In embossing there is required to be produced on the press platen or cylinder a form corresponding in reverse contour to that coacting therewith to produce the impression. As at present practiced the operations of "leveling" or providing the proper conformation between the supporting and impressing surfaces require hours and sometimes days to obtain satisfactory results, while by our improvements the desired conditions can be secured in a few minutes.

In our mode of operation we employ a substance that becomes soft when subjected to heat and hardens on cooling in providing the make-ready. As preferably practiced, the platen or cylinder of the press is covered with a heat-insulating material and thereon is placed a suitable heater. Hard rubber, celluloid, or other suitable substance is placed thereon and heated until it is sufficiently soft, when it is impressed by the printing or embossing form, the impression being retained and the desired resisting surface provided thereby through the withdrawal of the heat and the hardening of the substance. In printing, a covering consisting of the usual packing of layers of paper or other suitable material, together with a tough card, sheet metal, or the like, is placed on the bed to be made plastic and impressed, and the impression is effected through such covering to prevent the plastic material penetrating between type or other open spaces in the form's face or otherwise forming undesirable sharp irregularities which interfere with the uses of the form produced.

In the accompanying drawings, Figure 1 represents a sectional view showing the initial relation of means for practicing the invention as applied to embossing. Fig. 2 represents a second relation of the die in contact with the make-ready formed thereby. Fig. 3 represents a third relation with the die elevated in position to press upon the make-ready the material to be embossed. Fig. 4 represents a sectional view of the initial relation of means for practicing the invention as applied to printing, and Fig. 5 represents the relation between the same parts resulting from bringing them together.

As shown in Figs. 1, 2, and 3 of the drawings, the invention may be practiced by means of the press-platen 1, flat or cylindrical, having thereon the layer of asbestos 2 for supporting and insulating a suitable heater, such as a resistance-plate 3, through which an electric current is passed by means of the wires 4 to heat and soften a layer 5 thereon of rubber, celluloid, or the like to be molded to the form 5′ by a die or form 6 bearing the configuration to be embossed on paper or other suitable material, the form 5′ being suitably held in position in the usual manner or by means of irregularities 3′ in the heater-surface. The male die having been formed and hardened by cooling due to cutting off the current through the heater, the material to be embossed is placed therein and impressed with the design by the pressure of the female die thereon.

In Figs. 4 and 5, as previously described, the platen 1, flat or cylindrical, has thereon the heat and current insulator 2, the heater 3 in circuit with the wires 4, and the layer 5 of rubber, celluloid, or the like on the heater. To provide a make-ready for the form 7 that shall have the configuration of the face thereof without penetrating the open spaces, there is provided the usual layers 8 of paper pack-

ing and a sheet of flexible metal or cardboard 9 on the part 5, said sheet to occupy any relative position in packing the paper. The material 5 having been heated to plasticity, the printing-form 7 is brought into contact, the plastic material is brought to the form 5″, constituting the leveler, and the paper thereon is brought to the forms 8′ and 9′, constituting the packing, having the configurations of the face of the form. The current being cut off, the body of the make-ready thus formed sets and the surface for supporting the material to be printed is now properly level and, if desired, the layer 9′ may be removed.

It will be understood that the make-ready must be formed upon the platen, because of the practical difficulty of producing it otherwise and because the irregular character of printing-surfaces is such that it would be impracticable for the purposes of this invention to operate in any other manner.

Having described our invention, we claim—

1. The method of constructing a make-ready which consists in supporting a substance upon a platen, and there heating said substance to plasticity, molding it to the general configuration of a form used for making an impression, and hardening it by cooling.

2. A make-ready composed of a substance rendered plastic by heat and hardened by cooling, a support for said substance, a heater for softening said substance, an insulator between said support and heater, and a form for molding said substance to the configuration required for properly supporting a material to be impressed.

3. A make-ready composed of a substance rendered plastic by heat and hardened by cooling, a press platen or cylinder, a heater for softening said substance, an insulator between said platen and heater, and a form which molds said substance substantially to its own configuration and impresses a material supported on said molded form.

4. A make-ready composed of a substance softened by heat, means for heating said substance, a form for molding said substance, a packing of paper, and a sheet of stiff material to prevent soft composition flowing in open spaces between type or in the face of the form.

In testimony whereof we have hereunto set our hands, this 14th day of November, 1905, in the presence of the subscribing witnesses.

JOSEPH W. HARRIS.
MATTHIAS M. KANDLE.

Witnesses:
ROBERT JAMES EARLEY,
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