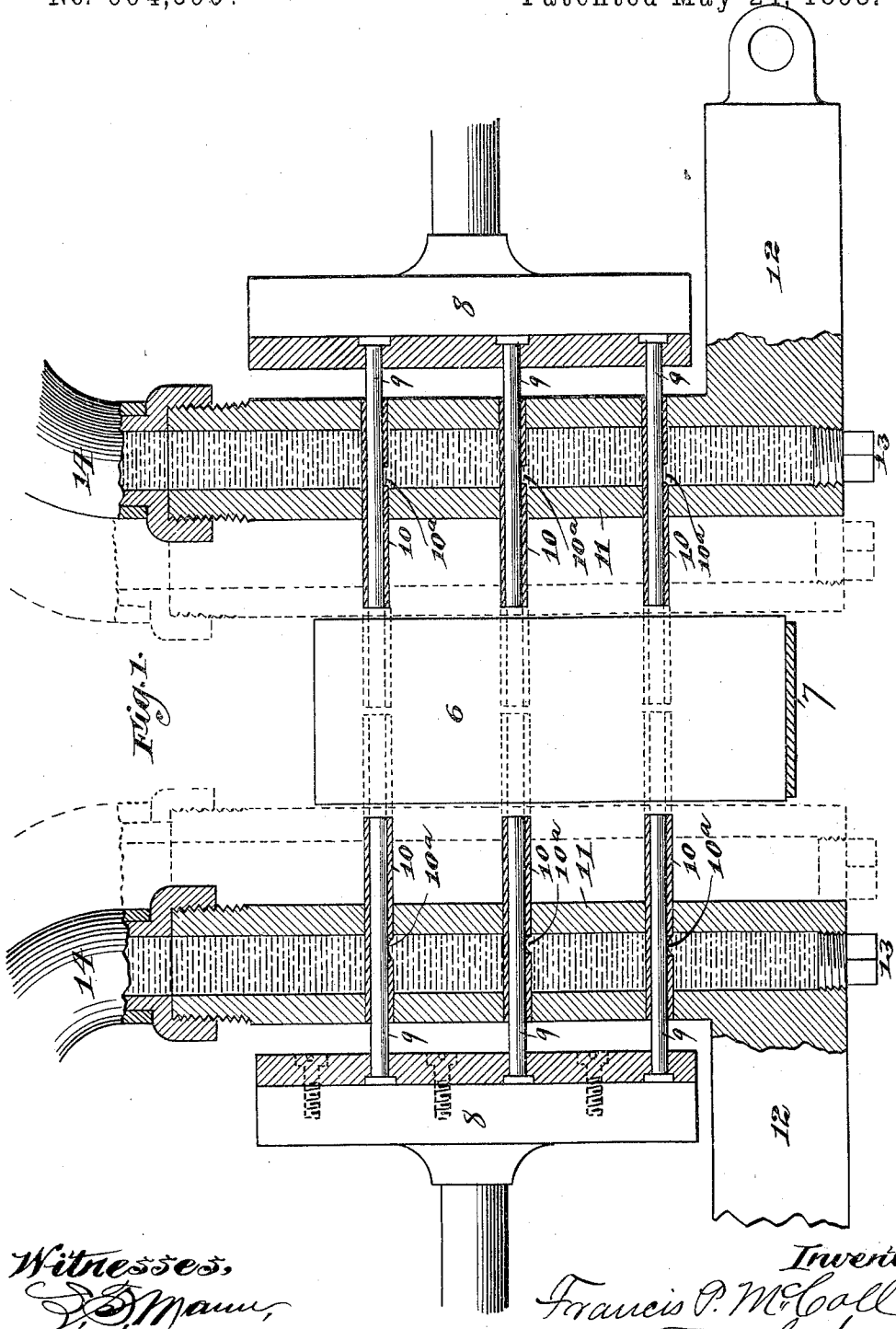
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F. P. McCOLL.

MOLD OR DIE FOR PLASTIC SUBSTANCES.

No. 604,590. Patented May 24, 1898.



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Fig. 1.

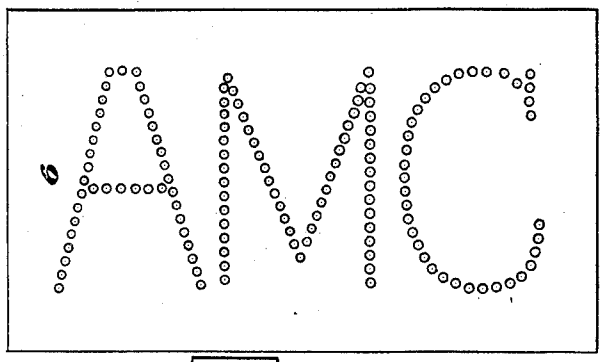
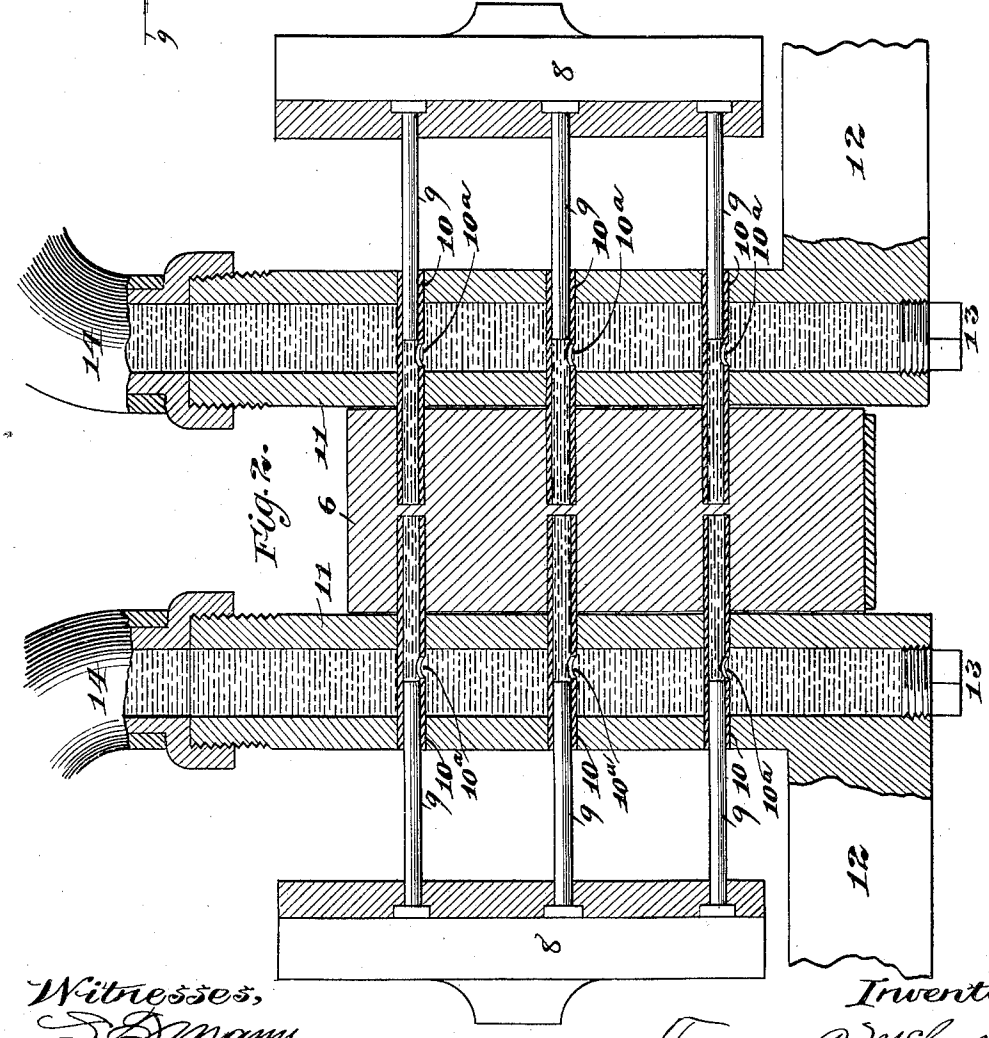


Fig. 3.



Fig. 2.



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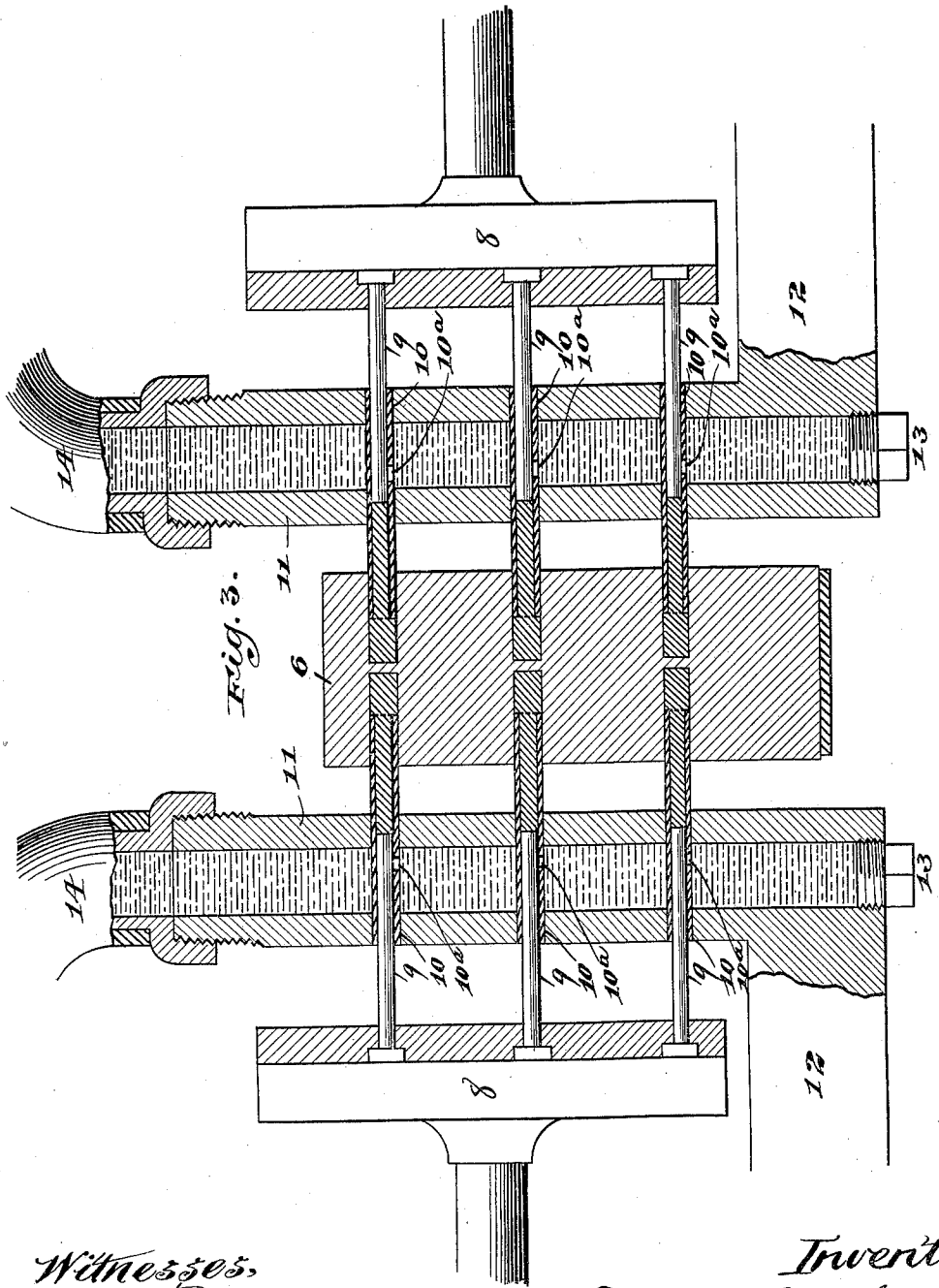


Fig. 3.

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UNITED STATES PATENT OFFICE.

FRANCIS P. McCOLL, OF BROOKLYN, NEW YORK.

MOLD OR DIE FOR PLASTIC SUBSTANCES.

SPECIFICATION forming part of Letters Patent No. 604,590, dated May 24, 1898.

Application filed May 3, 1897. Serial No. 634,882. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS P. McCOLL, of Brooklyn, New York, have invented certain new and useful Improvements in Molds or Dies for Plastic Substances, of which the following is a specification.

This invention relates to a novel construction of molds or dies for operating upon plastic substances; and the principal object of the invention is to provide means whereby a plastic substance may have a different material or the same material, but of a different color or texture, incorporated therewith, so as to give a parti-colored or variegated effect to the article. Thus by the aid of my invention a solid, such as soap, may be molded into cakes or bars and have incorporated therewith soap of a different color arranged in such manner as to form letters, symbols, or characters for the purpose of ornamentation or advertisement.

As my invention relates only to the dies or molds, I will not herein show or describe the other parts of a soap mold, press, or machine.

In the drawings, Figures 1, 2, and 3 are broken sectional views of the molds or dies. Fig. 4 is a plan view of the solid after the molds are withdrawn, and Fig. 5 is a view of one of the plungers full size.

In the drawings let 6 represent a block or cake of a plastic material, such as soap, resting upon a suitable support, as 7. Upon opposite sides of said block are shown reciprocating die-stocks 8, carrying plungers 9. Said plungers are shown in exaggerated size in Figs. 1, 2, and 3, the actual size being delineated in Fig. 5. These plungers are mounted so as to reciprocate through the hollow needles 10, which are carried by the filling-reservoir 11, said reservoir having cylinders carried by the sliding heads 12 and provided at their lower ends with the removable plugs 13 and adapted for connection at their upper ends with the supply-pipes 14. The hollow needles 10 extend transversely through the cylinders and have the apertures 10^a therein. A semifluid material—such as soap-stock, liquid soap, or any other material in similar condition which it is desired to incorporate into the solid body 6—will be charged into the filling-reservoir 11 through the supply-pipe 14. The plunger 9, fitting accurately within the hollow needles 10, will prevent the liquid soap from finding its way out through the needles so long as the parts are in position so that the apertures in the needles are covered by the plungers, this being the position shown in Fig. 1. When the parts are moved to the position shown by the dotted lines in Fig. 1, the needles will be caused to penetrate the body 6 from opposite sides thereof. This movement brings the sides of the reservoir in contact or nearly in contact with the sides of the bar of soap, and then the stocks are moved back, as shown in Fig. 2, withdrawing the plungers and uncovering the apertures 10^a. The liquid soap or filling material being under suitable pressure from a pump or otherwise is thereby caused to flow through the filling-apertures into the hollow needles, thereby filling them with the liquid or semiliquid material. By the next movement the needles are withdrawn and the stocks carrying the plungers are simultaneously advanced, thus covering the apertures 10^a in the hollow needles, forcing the column of semiliquid material into the cavities left by the needles, and subjecting the injected material to such pressure as to cause it to adhere to the material of the body in which the cavities are formed. Any suitable means may be used for holding the liquid under pressure and thereby forcing the material out.

The needles and plungers may be arranged in any desired manner upon the head-stock and thus be made to produce any desired design, inscription, or figure in a different color or material from that of the body itself. Thus in Fig. 4 I have shown needles arranged so as to form the letters "A M C." The incorporated portions appear upon the surface in circular form, as indicated at 15, and they may be arranged in any desired sequence or series.

By the aid of my invention there may be incorporated with any solid, such as soap, a material differing from such solid either in form, texture, substance, or color, thus affording a means whereby such solid may be permanently marked, the incorporated material extending through or almost through the solid body and showing upon the surface thereof as the latter is worn away.

Obviously many modifications may be

made in the structural details of this invention—as, for example, the reservoir is shown as being movable, but it may be stationary, and the solid may be moved with reference thereto. Again, the hollow needles are shown as extending through the reservoir, but they need not be so extended transversely through the containing-space of the reservoir. Furthermore, I have shown a die or mold for each side of the block or plastic body, whereas only one need be used. These and other modifications which will readily suggest themselves, being considered within the domain of mechanical skill, constitute no essential part of my invention when considered in its broadest scope, although the peculiar structure which I have described is new and useful and is therefore claimed as a part of my invention.

I claim—

1. The herein-described apparatus for impregnating a solid or semisolid body with material having a distinguishing characteristic comprising in combination a reservoir to contain the impregnating material, a hollow needle in communication with the reservoir and receiving impregnating material therefrom, means for imparting relative movement of the needle and the solid or semisolid body, whereby to cause the needle to penetrate the body, and a plunger contained and reciprocating within the needle whereby the impregnating material is ejected and caused to enter the openings in the body produced by the penetration of the needle, substantially as described.

2. The herein-described apparatus for impregnating a solid or semisolid body with material having a distinguishing characteristic comprising in combination a reservoir adapted to contain the impregnating material under pressure and having a series of needles affixed thereto and communicating therewith, the reservoir and needles and the body to be impregnated having relative movement to cause the needles to penetrate the body, a reciprocating stock and a series of plungers carrying the said stock, substantially as described.

3. A mold or die of the class described, comprising in combination a movable reservoir, hollow needles connected thereto, and plungers reciprocating within said needles, and said reservoir being adapted for pressure connection, substantially as described.

4. An apparatus of the class described, comprising in combination oppositely-movable reservoirs or holders adapted to hold a fluid or semifluid material under pressure, hollow needles carried by said holders and extending across the interiors thereof with apertures communicating with said interiors, reciprocating stocks having plungers slidably mounted within said needles and means for reciprocating said holders or reservoirs with their needles and said stocks with their plungers both simultaneously and independently, substantially as described.

FRANCIS P. McCOLL.

Witnesses:
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