

J. H. EMERY.
HOLLOW CASTING AND METHOD OF PRODUCING SAME.
APPLICATION FILED MAY 14, 1919.

1,373,121.

Patented Mar. 29, 1921.

Fig. I.

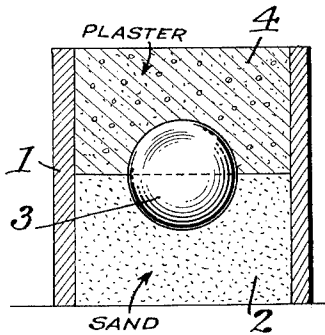


Fig. II.

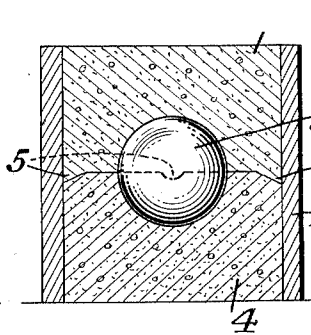


Fig. III.

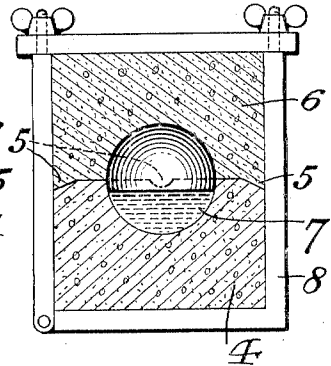


Fig. IV.

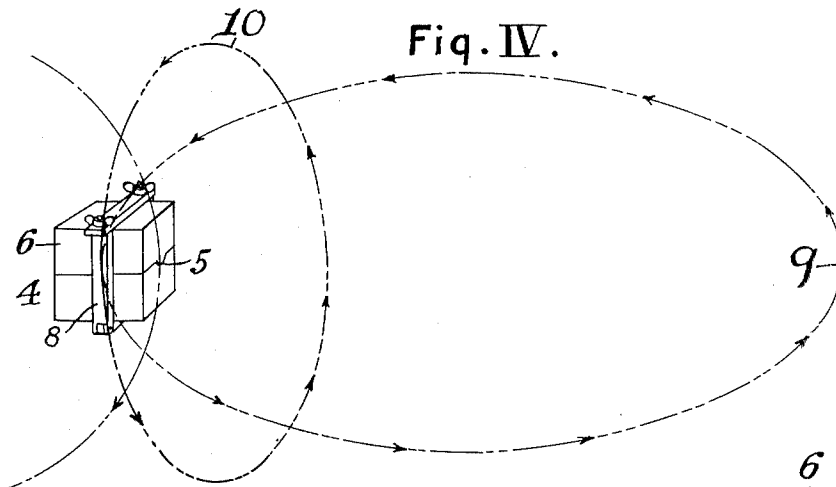


Fig. V.

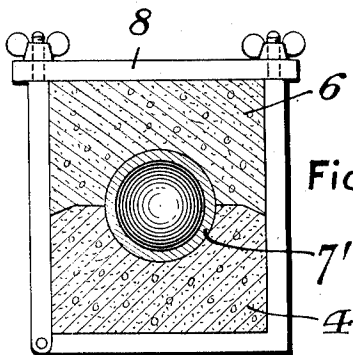
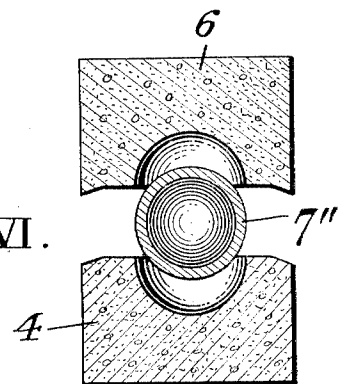


Fig. VI.



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To all whom it may concern:

Be it known that I, JAMES H. EMERY, a citizen of the United States, and a resident of Morsemere, New Jersey, have invented a new and useful Improvements in Hollow Castings and Methods of Producing Same, which invention is fully set forth in the following specification.

This invention relates primarily to the novel method of casting hollow imitation of fruits or the like, as ornaments, but obviously may be employed for the production of other hollow articles. The invention will be best understood by reference to the accompanying drawings and annexed description, which disclose a preferred specific manner of practising the invention. In these drawings:

Figure I is intended to represent a vertical section through a convenient kind of two-part mold being formed around some object to be imitated, such as a plaster-of-Paris mold around an apple or an orange;

Fig. II is a similar view of the same mold, after it has been completed;

Fig. III is a similar view of the same mold, with the aforesaid object removed, a charge of suitable temporarily-fluid composition introduced, and the two members reassembled;

Fig. IV is a perspective, intended to represent, graphically, the mold of Fig. 3 being subjected to centrifugal or gyratory motion;

Fig. V is a sectional view, showing the location assumed by the still-fluid composition during the gyratory movement indicated by Fig. IV; and

Fig. VI is a similar view, showing the casting and the two parts of the mold as separated from one another.

In carrying out the invention, a two-part mold or casting or matrix of the original article is first produced, in any suitable or desired manner. Then a suitable quantity of any convenient or desired composition, in temporarily-fluid condition, is introduced into one of the mold-members and the other member united thereto, so that the temporarily-fluid composition is securely sealed within the cavity. Then the thus-charged mold is given such motion, either by hand or by suitable mechanism, as to cause the temporarily-fluid contents to spread over the entire inner surface of the inclosed cavity; and this movement is continued

until the composition, or at least the outer portion thereof, has become sufficiently solidified to retain its more or less spherical shape,—that is, the shape of the cavity itself, corresponding to the shape of the original article. It will be understood that if the charged mold were merely spun around a constant linear axis, the fluid contents would accumulate in a belt or zone around the equator, as it were, while at the two poles there would be little or none of the composition. In other words, the movement should not be a mere rotation around such linear axis, but such as to produce the desired results. Fig. IV is intended to indicate, by its arrows and broken-line circles, such composite movement, which (for want of a more apt expression) may be designated spherically-centrifugal or gyratory.

Although the two-part mold may be formed in any desired manner and of any suitable material, in the particular illustration here set forth, it is made of plaster-of-Paris, as indicated in Figs. I and II. A suitable boxing 1 is filled about half way up with wet sand 2 or the like, in which the article to be imitated, as an orange 3, is embedded about half-way; and then the rest of the frame is filled with a mass 4 of plaster-of-Paris or the like. When the half-mold 4 has become set and hardened, the frame is lifted, and the sand discharged; and the whole inverted, and the now-empty upper portion of the frame filled with plaster-of-Paris 6, as seen in Fig. II. Preferably, before applying the plaster to form the second member of the mold, recesses or angular cuts, as at 5, are produced in the upper edge of the first mold-member 4; and then the exposed upper edge of this mold-member is given suitable treatment as by an application of a mixture of kerosene and vegetable oil, to prevent the added plaster 6 from adhering to the first mold-member.

After a suitable two-part mold as 4—6 has been formed, as above set forth, or in any other suitable manner, then the two mold-members are separated, the original article 3 removed, and a sufficient quantity of a suitable temporarily-fluid composition 7 is introduced into the lower member, and the two members assembled, as indicated in Fig. III; and, preferably, one or more clamping-bands, as 8, applied to secure the members firmly together. Preferably the concave mold-surfaces should be treated to

prevent adhesion of the composition. When the mold is of plaster-of-Paris, it has been found sufficient to saturate it with water, cool or cold water is preferable because it facilitates the solidifying of the composition.

It will be understood that the invention is not limited to the use of a plaster-of-Paris mold, since an electro-deposited or any other suitable mold could be employed. After the mold, of whatever character, has been charged with temporarily fluid composition, as in Fig. III, it is then given the gyratory or spherically-centrifugal movement above referred to. This may be done by any suitable mechanism, or by hand, as graphically indicated by Fig. IV. That is, there should be not merely a simple rotary movement, as indicated by the broken-line orbit 9 (in a single plane), but also in at least one other orbit, such as 10, in another plane at an angle thereto. The purpose being to cause the still-fluid contents to assume the more or less spherical hollow form indicated at 7', in Fig. V, the operation might be defined as "sloshing around". This sloshing or gyratory movement is maintained for a sufficient time to permit the fluid contents, or at least the outer portions thereof (in contact with the mold) to become solidified and set. The time required depends upon the nature of the temporarily-fluid composition employed, and can be hastened by chilling the mold previous to introducing the composition, or during the gyrations thereof. Preferably, the initial gyrations are quite rapid (while the composition is still quite fluid), and they may become slower and slower as the composition becomes more and more viscid and gradually solidifies. After sufficient time has elapsed, the mold is opened, as indicated in Fig. 6, and the hollow casting 7" removed. This casting can then be finished by hand, as by removing any bur or fin that may have been formed by the meeting-surfaces of the two mold-members, and by applying any desired colors. The invention is not limited to any particular composition, but can be carried out by any which can be readily rendered temporarily fluid, which will become solidified without undue delay, which will not have too great a coefficient of expansion or contraction, which will not adhere to the mold, which will not result in cracks or cleavage

in solidifying, and which will remain sufficiently cohesive and durable after it has become set. A number of different compositions, of differing formulas, are available; but good results have been attained by using a mixture of ceresin, beeswax, and carnauba, and saturating the plaster-of-Paris mold-members in ice-water; in which case, the gyrations may be discontinued after say two or three minutes, but the mold should preferably be further cooled for about fifteen minutes before opening.

It will be understood that various modifications of instrumentalities and of manipulations may be resorted to, without departing from the spirit of the invention, for example, the mold may consist of more than two parts.

The invention having been thus fully described in detail what is claimed is:

1. The method of producing a hollow imitation of an object, which consists of first chilling a separable mold of such object, next charging the chilled mold with a temporarily-fluid composition, then imparting a gyratory movement thereto with initial rapidity that gradually decreases until the composition has solidified, and thereafter removing the solidified hollow casting thereby produced.

2. The method of producing a hollow imitation of an object, which consists of first chilling a separable mold of such object, next the chilled mold charging it with a molten composition, then imparting gyratory movement thereto until the composition has solidified, and thereafter removing the solidified hollow casting thereby produced.

3. The method of producing hollow castings, which consists of gyrating a separable mold containing temporarily-fluid composition, with initial rapidity that gradually decreases until the composition has become solidified, and thereafter cooling the mold and its contents and removing the solidified hollow casting thereby resulting.

4. The method of producing hollow castings, which consists of gyrating a separable chilled mold containing temporarily-fluid composition until said composition solidifies, and thereafter removing the solidified hollow casting thereby resulting.

In testimony whereof I have signed this specification.

JAMES H. EMERY.