(No Model.)

V. B. HUBBELL.

ART OF MANUFACTURING POOL BALLS.

No. 522,792. Patented July 10, 1894.

Fig. 1,

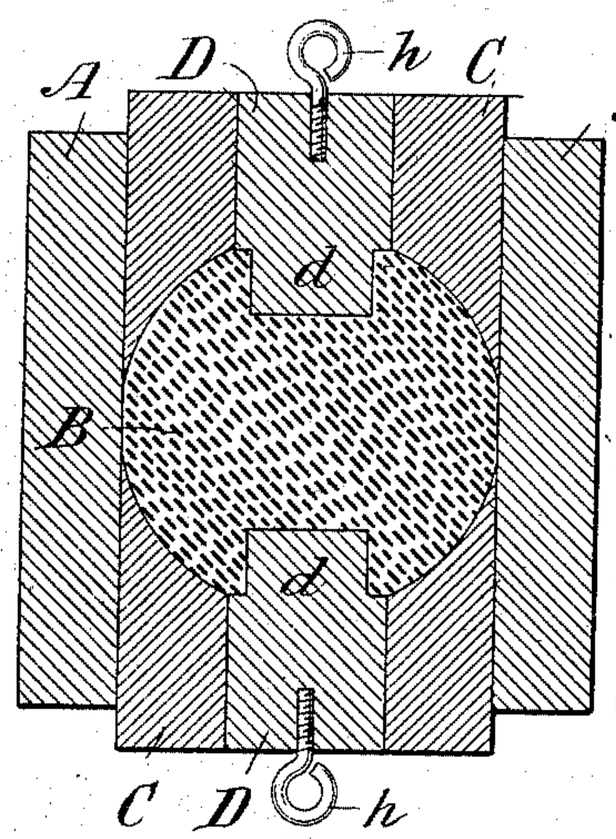


Fig. 2.

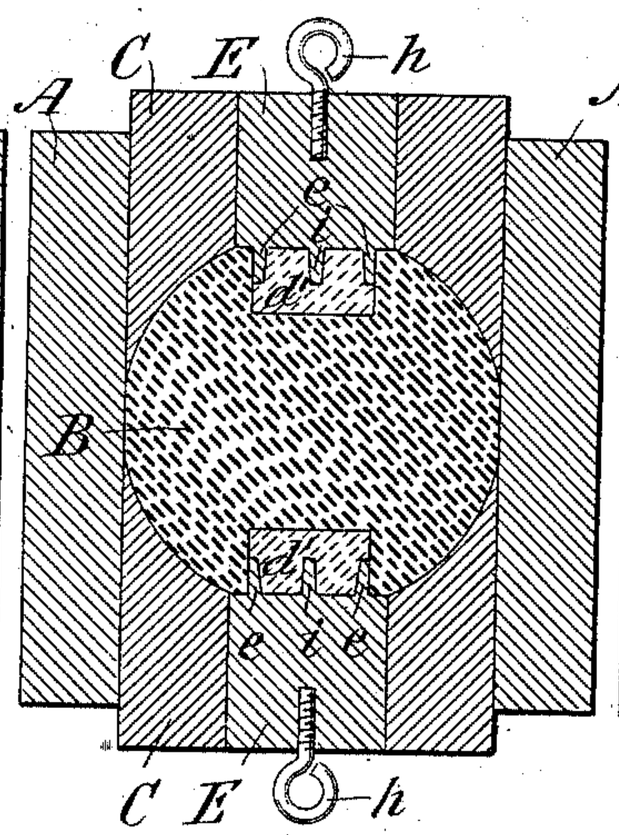


Fig. 3,

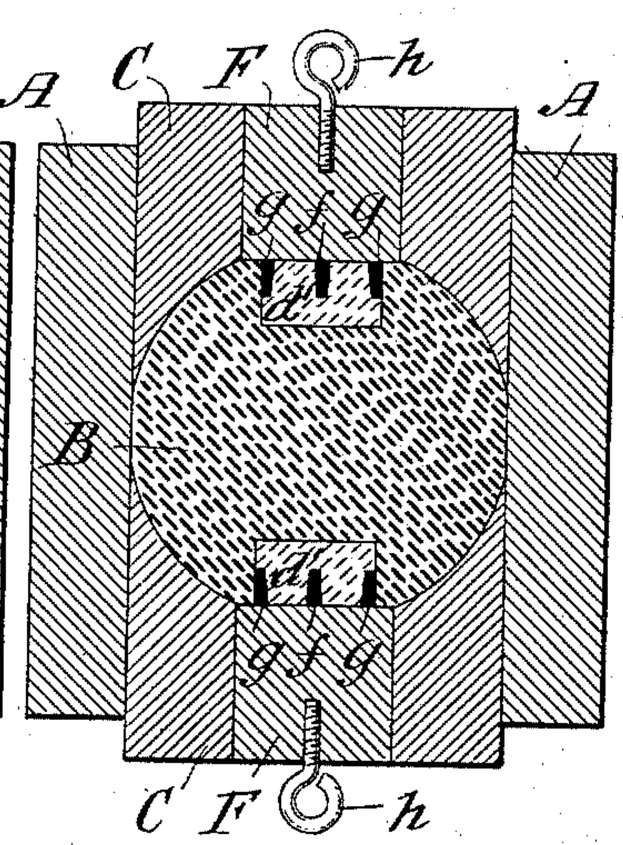


Fig. 4,

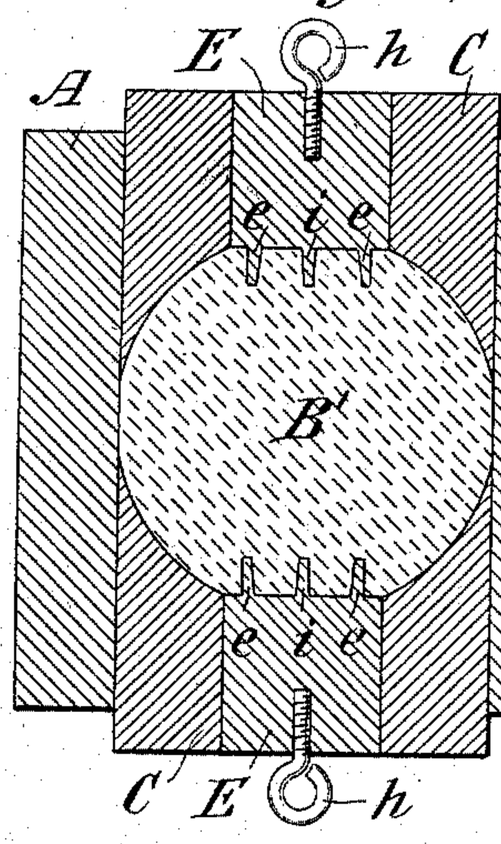


Fig. 5,

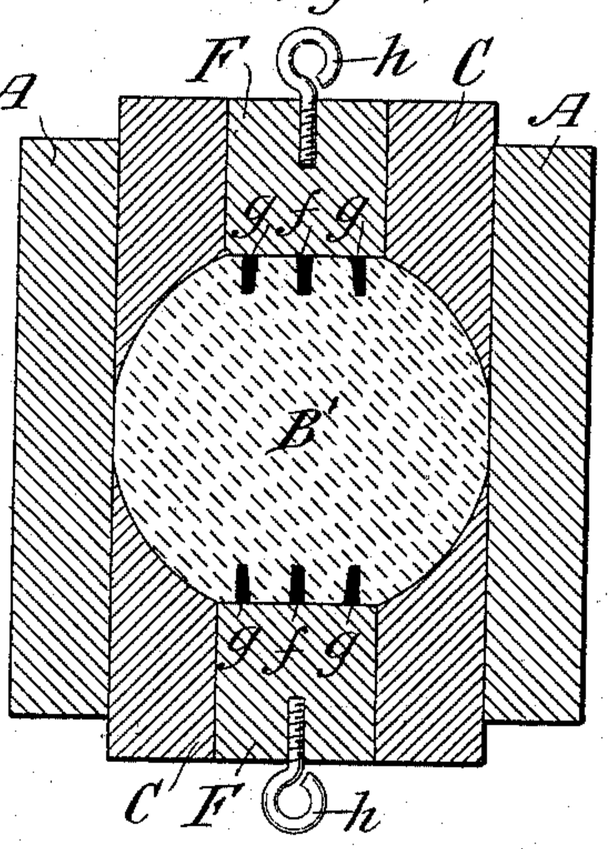


Fig. 6,

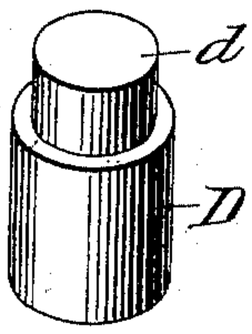


Fig. 7,

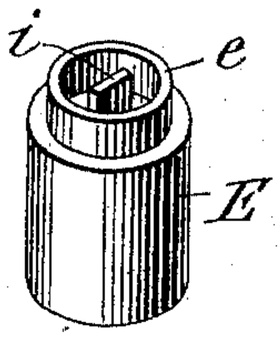


Fig. 8,

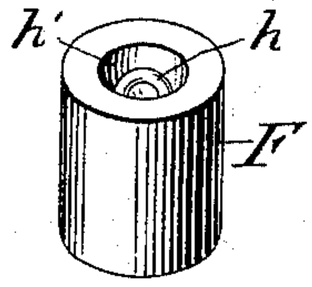
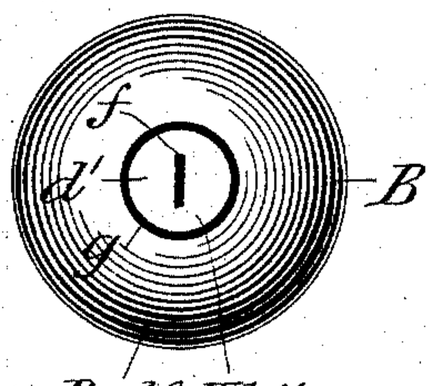
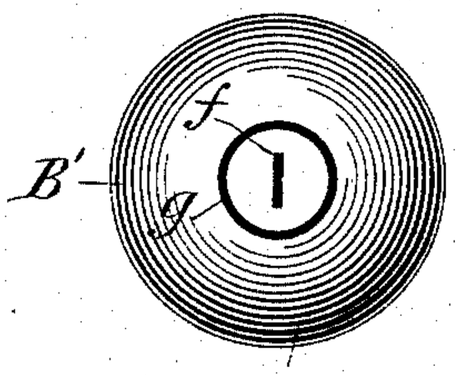


Fig. 9,



Red & White

Fig. 10,



White

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By his Attorney
Charles J. Kintner

UNITED STATES PATENT OFFICE.

VINCENT B. HUBBELL, OF NEW YORK, N. Y.

ART OF MANUFACTURING POOL-BALLS.

SPECIFICATION forming part of Letters Patent No. 522,792, dated July 10, 1894.

Application filed April 25, 1894. Serial No. 508,999. (No specimens.)

To all whom it may concern:

Be it known that I, VINCENT B. HUBBELL, a citizen of the United States, residing at New York, in the county of New York and State of New York, have made a new and useful invention in the Art of Manufacturing Pool-Balls, of which the following is a specification.

My invention is directed particularly to a novel method of and means for manufacturing and numbering pool balls from plastic material under heat and pressure, and its objects are, first, to cheapen and simplify existing methods of such manufacture, and, second, to produce a ball which will be more homogeneous than is the case with existing pool balls of the same general nature, the invention being directed to the manufacture of such balls from celluloid or analogous plastic materials.

My invention will be fully understood by referring to the accompanying drawings, in which—

Figures 1, 2, 3, 4, and 5 are sectional views illustrating my improved pool ball molds and the manner of using them so as to produce a complete numbered ball. Figs. 6, 7 and 8 are perspective views of those portions of the apparatus which are utilized in preparing the number spots and numbers upon the balls. Figs. 9 and 10 are perspective views of two complete pool balls with number spots and numbers thereon, Fig. 9 representing a red ball with a white number spot and a black number and black number ring separating the spot from the ball and Fig. 10 a white ball with a white number spot and black number ring and number.

Referring now to the drawings in detail: A represents the main or cylindrical portion of the mold and C and C the movable parts thereof fitting accurately in the former and having an interior contour adapted to give to the plastic material B a spherical conformation when pressure is applied in the usual manner at the opposite ends of said movable parts. These movable parts C C have cylindrical openings through their axial centers in which fit in turn corresponding movable parts D D, E E and F F shown in Figs. 6, 7 and 8, according to the nature of the ball to be constructed. The part D, Fig. 6, has an extension *d*, while the part E, Fig. 7, has a similar but hollow extension *e* and an internal extension *i* which is of the contour of the number it is desired to have appear upon the number spot of the ball, the number illustrated in this instance being one, it being customary to number pool balls from one to fifteen inclusive. The part F, Fig. 8, is of substantially cylindrical form, *h* being a screw threaded eye which is preferably countersunk as shown at *h'* in the base so as to be below the level thereof, there being a corresponding hook or eye *h* in the outer faces of each of the parts D and E, the function of these eyes *h* being to remove the parts D, E and F by a hook or equivalent tool when desired.

I will first describe the construction of a pool ball which is of red material and has a white number spot with the number thereon as shown in Fig. 9. The plastic material B is placed in the mold A with the movable parts C and C and the interior movable parts D and D in position. These movable parts are then subjected to hydraulic or other enormous pressure in a manner well understood, said parts resting between the pressure piston and bed-plate of a hydraulic press and a high degree of heat applied in a manner well understood by those skilled in the art. Under this condition of affairs the first step in the process of manufacturing the ball B, Fig. 9, is had. The pressure is now removed and without disturbing the ball in the mold a hook or other tool is inserted in the hooks or eyes *h h* and the movable parts D D removed. The entire cavities in the parts C and the ball B resulting from the removal of the parts D D and their extensions *d d* are now filled with white material and two movable parts E E substituted for the parts D D and all again subjected to high pressure until the parts assume the position shown in Fig. 2, so that the extensions *e* and *i* will leave rings or cavities between the red and the white material and number spots or cavities in the white material, which latter now constitutes the number spot. The pressure is again removed and the parts E E withdrawn in the same manner as were the parts D D and a different colored material as black now inserted in their stead, after which the movable parts F F are inserted and the pressure is again applied until the

mass assumes substantially the appearance shown in Fig. 3. All of the parts are now removed and the ball ejected after which it is placed in a lathe and turned down to its true size, the number spot *d'* of white material and the ring *g* and number *f* of black material and the ball B of red material appearing as shown in Fig. 9.

It will thus be seen that I am enabled by this method of procedure to manufacture a numbered pool ball without removing the ball from the mold and that by reason of the fact that the number spots and numbers are pressed into position in the body of the ball during the time that it, the ball, is being pressed these parts and the body of the ball will therefore assume a homogeneous character, thus affording a ball which will be more perfect in its structure than it has been possible heretofore to construct.

Suppose it is now desired to manufacture a numbered ball from pure white material, such as is shown in Fig. 10. In this event the number spot will be white while the ring *g* which separates the number spot from the ball and the number *f* itself will be black. The first step in the manufacture of this form of ball is indicated in Fig. 4 in which the ball B' is formed by the movable parts C C and the interior movable parts E E as described in connection with Fig. 2, the insertion of the parts D shown in Figs. 1 and 6 having in this instance been omitted so that when the parts E E are removed rings or cavities for the number spots and depressions or cavities for the numbers only remain, after which the openings in the ends C C are partially filled with black material and the parts F F inserted and subjected to pressure in the same manner as was described and illustrated in connection with Fig. 3, the parts assuming the position shown in Fig. 5. The ball is now ejected and turned down upon a lathe as before, the completed ball being shown in Fig. 10.

I do not limit myself to the special details of construction herein shown for effecting the manufacture of a numbered pool ball during the time that it remains in a mold. I believe it is broadly new with me to so construct a numbered pool ball and without relation to any special form of apparatus. Nor do I limit myself to the manufacture of a complete pool ball and its numbers and number spots while in the mold, as it will be readily understood by those skilled in the art that in the construction of a variable colored pool ball in which the middle section of the ball is, say red, and the outer sections, say white, I might construct the central section in the mold and simultaneously form the number spots and numbers in a manner entirely analogous to to that herein shown and described, by compressing the number spots and numbers in the outer faces of the central section and afterward compress the outer sections upon the sides of the flattened ring in substantially the same manner as is now done in the manufacture of sectional pool balls of variable colors, my invention being directed broadly to the simultaneous production of either a whole or part of a pool ball, the number spots and numbers thereof and this without regard to any special means for producing such result.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The described method of numbering a pool ball which consists in compressing a cavity in the face of the ball then compressing a material of different color into said cavity, then compressing a groove and a depression in the material last named and finally compressing a material of different color into the groove and depression thus made.

2. The described method of manufacturing a completed numbered pool ball, consisting in first subjecting the material from which it is formed to heat and pressure in a mold, then forming one or more depressions of the contour of the numbers in the face of the ball, then filling these depressions under pressure with material of a different color from that of the body of the ball and finally turning the whole mass into a spherical form.

3. A mold for forming and numbering pool balls, consisting of a stationary and two or more compound movable parts one of which gives spherical conformation to the ball and the other forms one or more depressions for the number and number spot.

4. A mold for simultaneously forming and numbering pool balls, consisting of a stationary part, one or more movable parts each adapted to give semi-spherical shape to one side of the ball, and a second movable part having movement within the first named movable part and adapted to form a depression in the face of the ball for the number.

5. A mold for forming and simultaneously numbering pool balls, consisting of a stationary part, one or more movable parts adapted to give spherical conformation to the material, one or more movable parts adapted to form depressions in the surface of the ball and one or more additional movable parts adapted to press material of a different color into the first named depressions, substantially as described.

In testimony whereof I have hereunto subscribed my name this 24th day of April, 1894.

VINCENT B. HUBBELL.

Witnesses:
C. J. KINTNER,
M. M. ROBINSON.