(No Model.)

V. B. HUBBELL.

PROCESS OF CONSTRUCTING POOL BALLS.

No. 522,791. Patented July 10, 1894.

Fig. 1.

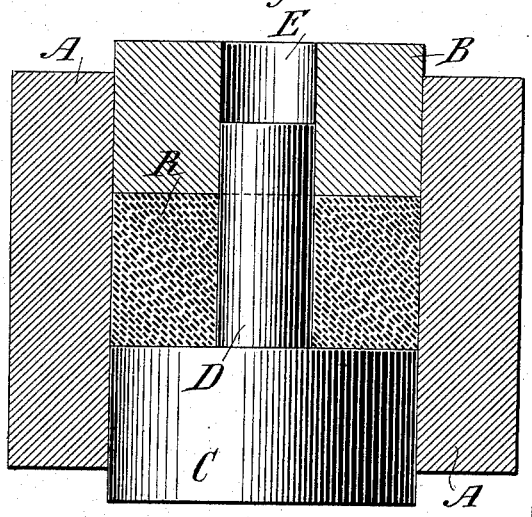


Fig. 2.

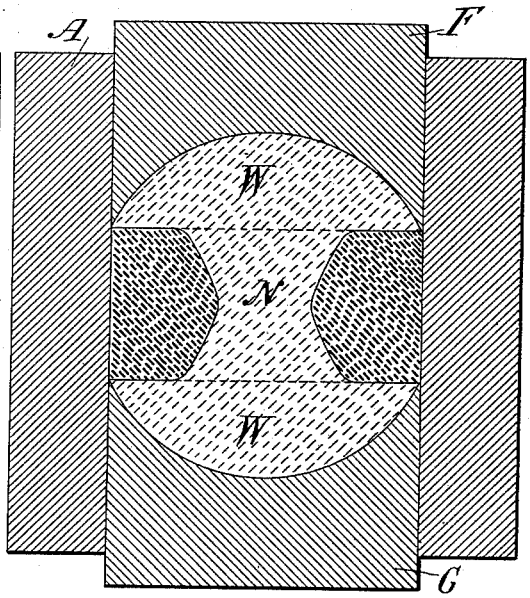


Fig. 3.

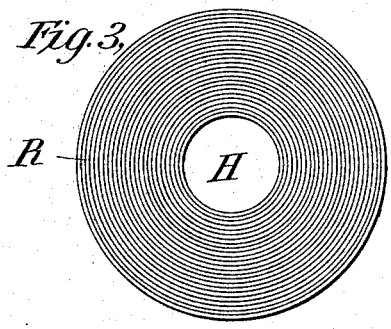


Fig. 4.

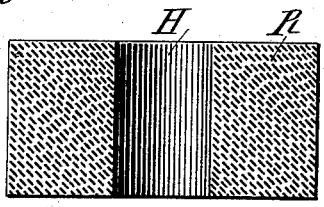


Fig. 5.

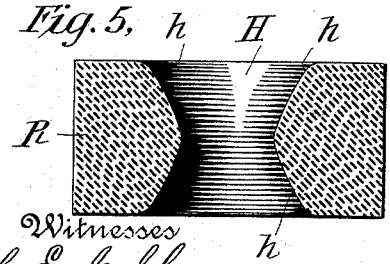


Fig. 6.

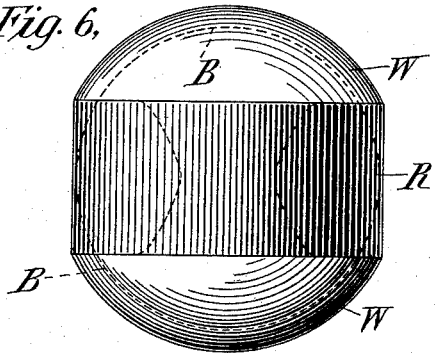
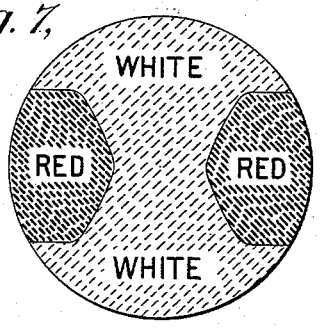


Fig. 7.



Witnesses
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UNITED STATES PATENT OFFICE.

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

PROCESS OF CONSTRUCTING POOL-BALLS.

SPECIFICATION forming part of Letters Patent No. 522,791, dated July 10, 1894.

Application filed March 28, 1894. Serial No. 505,373. (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 Improvement in Processes of Constructing Pool-Balls, of which the following is a specification.

My invention relates especially to improvements in pool balls made of plastic material, such as celluloid, and prepared by subjecting such material to high pressure, and its object is to effect in as simple a manner as possible the manufacture of such balls when constructed of different colored materials.

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

Figure 1 illustrates partly in section and partly in elevation my improved mold, together with the material in position for constructing the central or usual red-colored segment of the ball. Fig. 2 illustrates a similar sectional view through the mold and a completed ball in place therein. Fig. 3 illustrates in plan view that portion of the ball which is shown as in the process of construction in Fig. 1. Fig. 4 is a vertical sectional view taken through Fig. 3, and Fig. 5 is a similar vertical sectional view of the same portion of the ball after its lateral faces and interior edges have been dressed or turned in a lathe. Fig. 6 illustrates my improved pool ball as it appears after removal from the mold shown in Fig. 2. Fig. 7 illustrates in sectional view a completed pool ball showing the colored portions thereof.

Referring now to the drawings in detail: A represents a mold usually of cast steel and of cylindrical form; B and C are movable parts fitting therein, the former being provided with an opening E adapted to receive a neck or extension D which is integral with the upper surface of the latter, these portions being adapted to form the first or central segment of the ball. The plastic material R for this central segment is colored preferably red and is placed in the mold A after which the movable portions B and C are inserted and the whole subjected to a high degree of heat and hydraulic or other pressure, as well understood by those skilled in the art, until the segment is compressed to the desired density. The parts B and C, together with the segment R, are then removed, said segment assuming the structure shown in Figs. 3 and 4 with a central opening H. It is then placed in a lathe and its opposite faces *h* turned to the required parallelism and the inner edges rounded off in the manner shown in Fig. 5. This segment is now placed again in the mold A in the position shown in Fig. 2 and the additional plastic material W, preferably white material, carefully packed in position in the mold after which the semi-spherical movable parts F and G are inserted, and these parts together with the material again subjected to heat and hydraulic or equivalent pressure as before, thus causing the materials to assume the relative conditions shown at W and N in Fig. 2. The pressure is now removed, the parts F and G disconnected and the ball ejected, it appearing as shown in Fig. 6. It is then placed in a turning lathe and reduced to the required size and spherical condition after which it is sand-papered and polished in the usual manner, the completed ball appearing as shown in cross section in Fig. 7, the central segment being red and the end segments being white, said white segments being united together in one integral piece by the shank N and to the central segment as shown in Figs. 2 and 7.

I am aware that pool balls having different colored segments have heretofore been constructed by compression by subjecting the central segment to pressure in a mold and afterward turning dove-tailed extensions upon the lateral faces thereof, finally compressing the white segments around these dove-tailed extensions, as disclosed in patent to Burt No. 507,880, granted October 31, 1893, and also that a pool ball has heretofore been constructed of plastic material having a colored central segment with a hole through the central portion thereof and oppositely disposed end segments which are held together by a pin extending through the central or colored segment and the whole ball afterward subjected to pressure as disclosed in patent to Burt No. 513,876, granted January 30, 1894, and I make no claim to any subject matter shown or described in either of the patents above referred to. I believe it is broadly new with me, however, to construct a pool ball

having segments of different color by first subjecting the plastic material, which forms one of the segments, to pressure and simultaneously removing a central core therefrom so as to leave an opening therethrough, and to then subject this central segment and additional plastic material of a different color to a second compression, whereby the two parts are united together in one integral mass substantially as shown in Figs. 2 and 7 of the drawings.

I believe I am the first to construct a pool ball of different colored plastic materials of two parts only, the one extending through the other whereby they are united in one integral mass, and my claims are generic in this particular. Nor do I limit myself to the construction of a pool ball having segments of two colors only, as it is obvious that in the carrying out of the process hereinbefore described, I may make several independent segments like those shown in Figs. 3, 4 and 5 either of the same or of different colored materials and then place them in a mold as in Fig. 2 with substantially equal quantities of uncompressed plastic material of the same nature but of different color, as white between them, and then subject the whole mass to heat and pressure as before after which the ball may be turned and dressed to its true form in the manner already described.

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

1. The described process of constructing a pool ball which consists in compressing a central segment and simultaneously removing a central core therefrom and finally compressing the material which forms the adjacent side segments through this central opening and causing said parts to be firmly united together.

2. The described process of constructing a pool ball which consists in first forming a central segment with an opening therethrough, and then compressing additional material through this opening and causing the parts to be integrally united together.

3. The described process of forming a pool ball having segments of different color which consists in first compressing one segment and simultaneously forming an opening therethrough and then forming the other segments by subjecting material of different color to additional pressure against the lateral faces of the first segment and through the central portion thereof.

In testimony whereof I have hereunto subscribed my name this 26th day of March, 1894.

VINCENT B. HUBBELL.

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