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METHOD FOR MAKING GOLF BALLS

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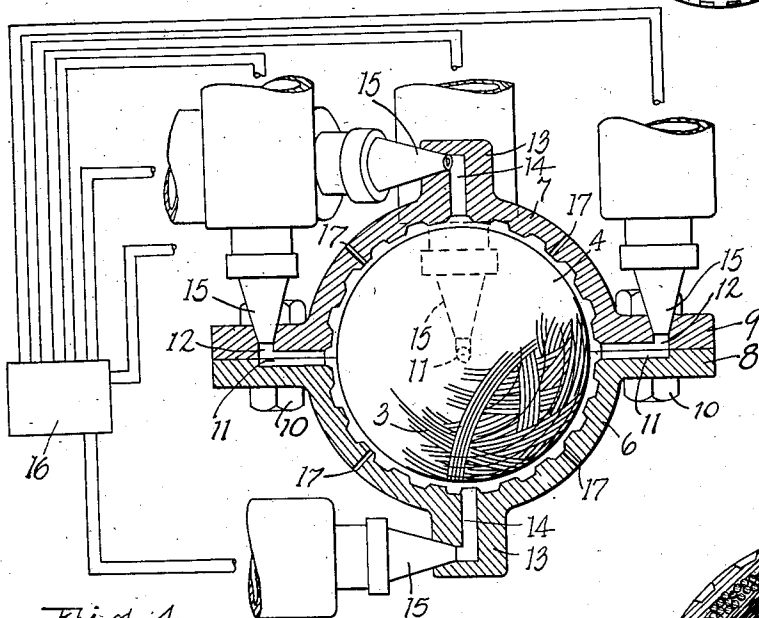
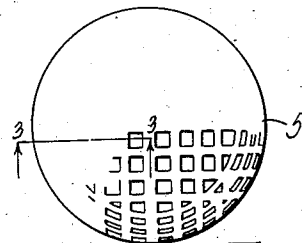
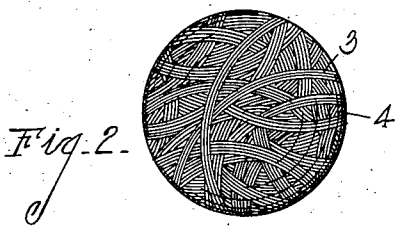


Fig. 1

Fig. 4

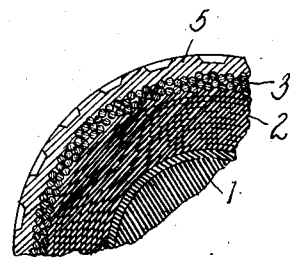


Fig. 3

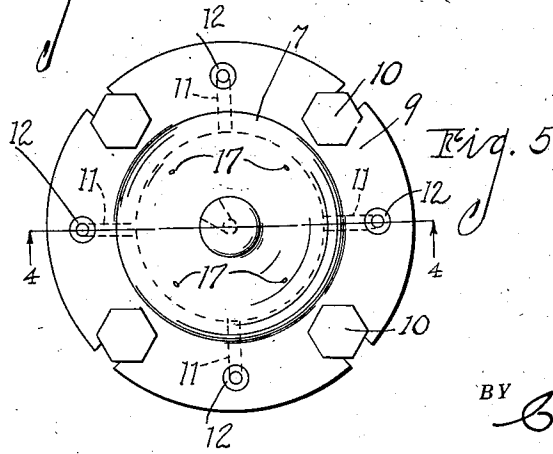


Fig. 5

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# UNITED STATES PATENT OFFICE

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## METHOD FOR MAKING GOLF BALLS

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4 Claims. (Cl. 18—59)

The main objects of this invention are:

First, to provide a method for covering golf balls by the practice of which the shell or coating may be molded upon the body as a plastic composition, being very intimately bound thereto.

Second, to provide a method of making golf balls which makes entirely practical the application of a plastic coating of uniform thickness and having a desired surface configuration.

Third, to provide an efficient apparatus for practicing the method.

Objects relating to details and economies of my invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevation of a golf ball produced by my improved method, only a fragment of the surface configuration being illustrated.

Fig. 2 is a side elevation of a golf ball body illustrating one of the steps of my method.

Fig. 3 is an enlarged fragmentary view on line 3—3 of Fig. 1, the parts being shown conventionally and without regard to exact proportions.

Fig. 4 is a fragmentary view of an apparatus for practicing my improved method partially in section on line 4—4 of Fig. 5, the source of coating composition being conventionally illustrated.

Fig. 5 is a plan view with the coating injecting nozzles omitted.

In the accompanying drawing, see particularly Figs. 2 and 3, 1 represents the center, 2 the body winding of elastic strands under tension, and 3 a winding of fibrous strands resulting in a body designated generally by the numeral 4. The shell or coating 5 is molded upon this body, this body illustrated being that shown in the application of Leonard A. Young, Serial No. 677,471, filed June 24, 1933. It should be understood, however, that my method and apparatus is adapted for coating or covering golf ball bodies which do not have the feature of the fibrous non-elastic strand winding 3, it being the common commercial practice at the present time to apply the pre-molded shell directly to the elastic strand winding of the body.

The apparatus shown in Figs. 4 and 5 comprises a mold consisting of the complementary hemi-spherical sections 6 and 7 having coating flanges 8 and 9 respectively, detachably secured together by means of the bolts 10. These flanges have coating grooves in their meeting faces providing sprue passages 11, the sprue passages hav-

ing inlet portions 12 in the flange 9 of the section 7. These sprue passages 10 are disposed in 90° angular relation so that they are in diametrically opposed pairs. The sections 6 and 7 have central bosses 13. These bosses 13 have sprue passages 14 therein with lateral inlet openings, the sprue passages 14 being disposed at 180° angular relation to each other and at 90° angular relation relative to the sprue passages 11. These sprue passages have conical mouths adapted to receive the conical nozzles 15 which are all preferably connected to a common source of coating composition in plastic condition and under pressure, designated conventionally at 16. The mold is provided with a plurality of small vent openings 17 located at 90° angular relation relative to each other and centrally relative to the adjacent sprue openings.

The body is placed within the spherical mold loosely; that is, it is free to center itself therein under the action of the coating composition which is introduced simultaneously through all the sprue holes, and this and the venting causes the body to properly center itself so that the coating is of uniform thickness. I thus avoid the use of centering means within the mold such as are disclosed in the method of the said Young application with the practice of which I am familiar.

The coating composition is preferably of a character that does not require the application of heat after it is introduced into the mold, but it will be understood that it is introduced into the mold in uniform plastic condition and under substantial pressure so that it flows into all the interstices in the covering and in the mold which is provided with suitable interior configuration to provide the desired configuration of the ball as is indicated in the drawing.

My improved method results in golf balls of long and accurate flight. The coating composition may be of uniform color; that is, the composition is of the desired color. Various coating compositions may be used.

I have used certain types of resinous compositions as disclosed in the said application of Young and also balata compositions of the general type of those now used in pre-formed or molded golf ball shells which are commonly applied to the bodies in pre-formed condition by means of molding under heat and pressure.

I have not illustrated the mold as provided with heating means. It will be understood that with certain compositions heating of the mold is of advantage and that the mold may be heated

by various means, such as steam or electricity, for example, but as such heating means forms no part of the invention I have not illustrated the same herein. It should also be understood that certain coating compositions are rendered fluid by heat and at present I prefer such a composition rather than one which is rendered fluid or plastic by solvents as the presence of solvents introduces a problem of evaporating the solvents without injury to the coating. The plasticity or fluidity of the coating composition should be such that under pressure it may be introduced into the mold and forced by the pressure into close binding engagement and adhesion with the surface strands of the body, and when the body is wound with fibrous strands there is a measure of penetrating engagement.

I have not attempted to illustrate certain modifications in the apparatus which I contemplate as it is believed that this disclosure will enable those skilled in the art to efficiently practice my invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. The method of making golf balls consisting of placing a spherical body within a spherical

mold, the body being free to float within the mold, and simultaneously injecting a coating composition through a plurality of pairs of opposed sprue holes, the mold having a plurality of vent openings uniformly spaced relative to the sprue holes.

2. The method of making golf balls consisting of placing a spherical body within a spherical mold. The body being free to float within the mold, and simultaneously injecting a coating composition through a plurality of pairs of opposed sprue holes.

3. The method of making golf balls consisting of forming a spherical body, placing the body in a sectional spherical mold having a plurality of opposed pairs of sprue holes and a plurality of vent openings, the body being free to center itself within the mold, and simultaneously injecting into the sprue holes a shell or coating composition in plastic condition.

4. The method of making balls which comprises the step of simultaneously injecting a coating composition through sprue holes in a mold containing a body free to center itself within the mold under the centering forces of the injected coating composition.

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