Jan. 1, 1924 1,479,266

A. O. TROSTEL

METHOD OF MAKING FELTED SOLIDS OF REVOLUTION

Filed June 12, 1922

FIG. 1

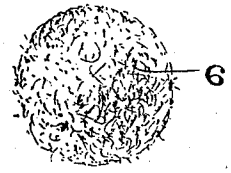


FIG. 2

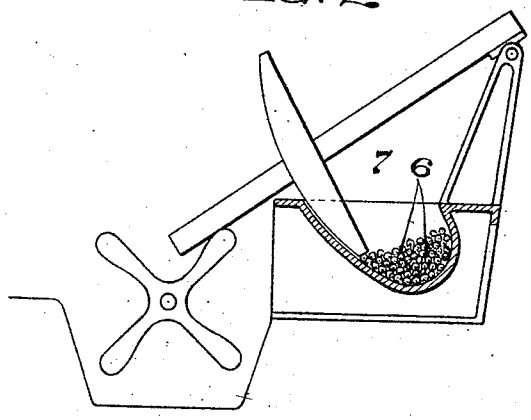


FIG. 3

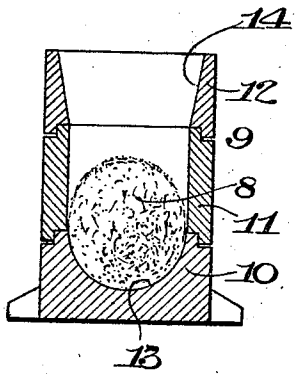


FIG. 4

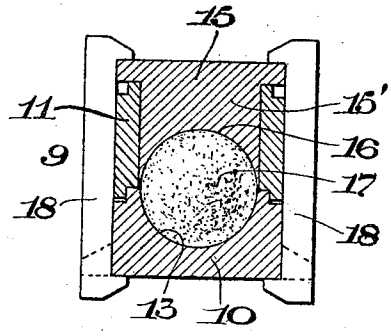
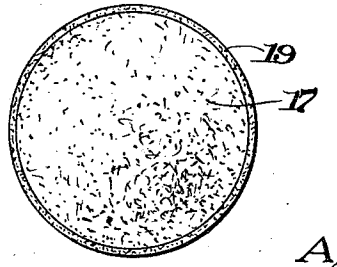


FIG. 5



WITNESSES

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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING FELTED SOLIDS OF REVOLUTION.

Application filed June 12, 1922. Serial No. 567,877.

To all whom it may concern:

Be it known that I, ALBERT O. TROSTEL, a citizen of the United States, residing in the city of Milwaukee, county of Milwaukee, and State of Wisconsin, have invented a certain new and useful Improvement in Methods of Making Felted Solids of Revolution, of which the following is a specification.

The invention relates to felted products formed into solids of revolution, such as spheres, baseballs, cylinders., etc., and more particularly to the method of making the same.

The object of the invention is to so treat material, capable of felting, such as keratoid material, as to compact a mass of the same into spherical or cylindrical or other desired shapes. More particularly the material subjected to the present process is hair that has been previously treated so as to impart wool-like characteristics to it or enhance such characteristics in accordance with the process described in my prior United States Letters Patent No. 1,371.951, dated March 15, 1921.

In the drawings the Figures 1 to 5 represent successive steps in the process of making a sphere or baseball embodying the invention.

In accordance with the present process the hair or coarse wool which has been treated as described in my prior United States Letters Patent No. 1,371,951, dated March 15, 1921, so as to make the same porous and capable of shrinking or felting under the application of heat, is felted with water in the presence of heat, and this material is then roughly formed by hand, or otherwise, into a sphere 6, as shown in Fig. 1, and for a baseball this sphere is about five inches in diameter. The spheres 6 are then placed in a fulling mill 7, of usual construction, shown diagrammatically in Fig. 2, and reduced to a spheroidal and more compact form. If the hair or wool is used as it comes from the carding machine the presence of the small amount of emulsified oil customarily used in the carding will not deleteriously affect the felting, and in some cases it will improve the result. I sometimes find it advantageous to tie up the spheres 6 with string prior to putting them in the fulling mill, or even to warp burlap or other covering around them to assist in retaining their shape during the fulling operation.

Each spheriod 8, after treatment in the fulling mill, is placed in a die 9, shown in Fig. 3. This die is preferably made in sections 10, 11 and 12. The bottom section 10 is provided with a hemispherical cavity 13. The middle section 11 is preferably of cylindrical formation and a top section 12 with an inwardly tapered inlet 14 is used in introducing the spheroidal mass of felted hair into the die and is then removed. After the section 12 is removed a movable die member 15, having a hemispherical cavity 16 formed in the bottom of its cylindrical body 15′, is fitted into the bore formed by the section 11 and then pressure is applied to move the section 10 and member 15 relatively to each other so that the felted hair within the spherical die cavity is given its finished spherical form, as shown in Fig. 4, in which the felted hair sphere 17 is shown in the die, and side clamps 18 are applied to the die to hold the parts in clamped position. With the sphere 17 preferably confined within the die, the same is subjected to a drying heat for from one-half an hour to an hour to dry out the sphere and relieve it of internal strains and allow its fibres to set. For example, after baking the article about a half-hour at a temperature such as 125 degrees to 150 degrees C., I find that there is no longer any strain on the clamps, but a longer baking or drying period may be used if necessary. The resulting product is a ball which is capable of bouncing and being subjected to the rough usage given the usual string or cord wound baseball, and if desired this ball may be provided with the usual cover 19 of leather, or other suitable material, as shown in Fig. 5, where the sphere 17 is shown on a larger scale than in Fig. 4.

Where washers or plinths are to be formed the felted material is given a rough cylindrical form, compacted in the fulling mill and then pressed and dried to finished form in a suitable die in the same manner as that described in connection with the spherical form, and then the finished plinths may be cut from the compressed cylinders thus formed or they may be punched out in the center to form washers.

What I claim as my invention is:

1. The method of forming solids of revolution, such as spheres and cylinders, from material capable of felting, which consists in felting the material with water in the presence

of heat, roughly forming the material into articles of the desired shape, subjecting the roughly formed articles to a compacting operation, then subjecting each of the compacted articles to pressure in a die to compress it to its finished shape and then drying the formed article.

2. The method of forming solid of revolution, such as spheres and cylinders, from material capable of felting, which consists in felting the material with water in the presence of heat, roughly forming the material into articles of the desired shape, treating these articles in a fulling mill to further compact them, compressing each article in a die to the finished form and then drying the formed article.

3. The method of forming solids of revolution, such as spheres and cylinders, from material capable of felting, which consists in felting the material with water in the presence of heat, roughly forming the material into articles of the desired shape, treating these articles in a fulling mill to further compact them, compressing each article in a die to the finished form and subjecting the articles while in the dies, to a drying heat to relieve internal strains and set the fibres.

4. The method of forming solids of revolution, such as spheres and cylinders, from material capable of felting, which consists in felting the material with water and oil in the presence of heat, roughly forming the material into articles of the desired shape, treating these articles in a fulling mill to further compact them, compressing each article in a die to the finished form and subjecting the articles, while in the dies, to a drying heat to relieve internal strains and set the fibres.

ALBERT O. TROSTEL.