

I. DE GOWIN.
METHOD AND APPARATUS FOR COVERING BALLS.
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1,423,838.

Patented July 25, 1922.

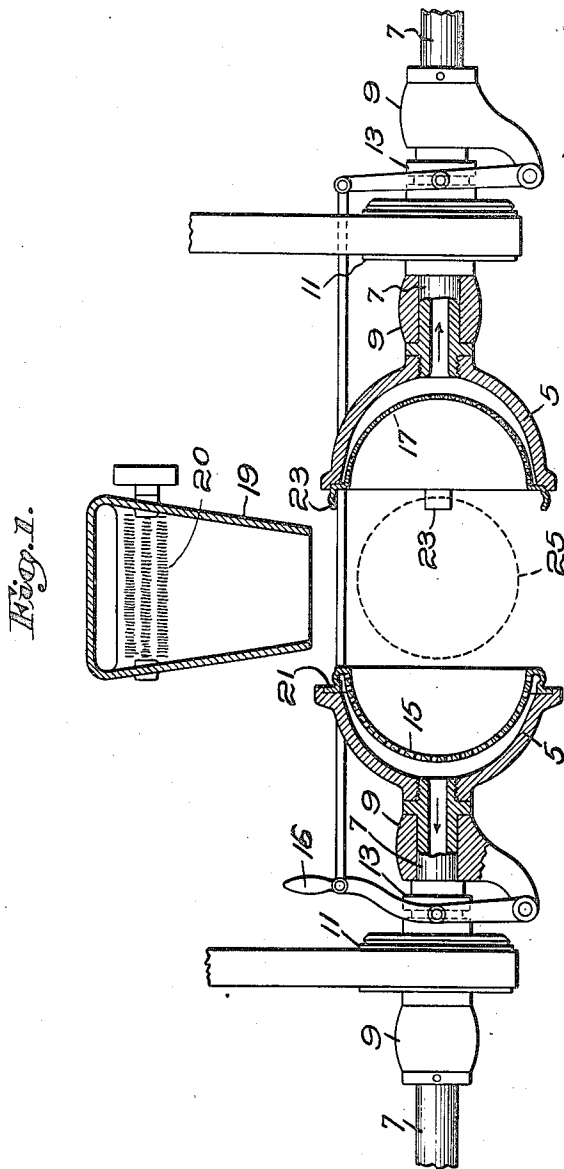


Fig. 3.

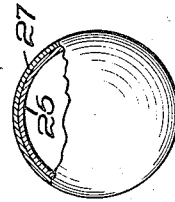
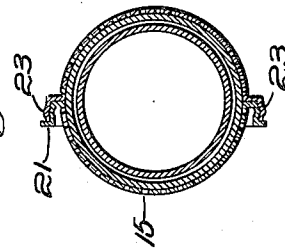


Fig. 2.



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UNITED STATES PATENT OFFICE.

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METHOD AND APPARATUS FOR COVERING BALLS.

1,423,838.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ISAAC DE GOWIN, a citizen of the United States, and a resident of New Haven, county of New Haven, and State of Connecticut, have invented an Improvement in Methods and Apparatus for Covering Balls, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to a method and apparatus for covering balls with a felt covering. Coverings of felt which have hitherto been in practice made of sections of sheet felt are used on hollow inflated balls such as tennis balls. In accordance with my invention I cover the ball with a seamless covering of felt formed in situ.

My invention will best be understood by reference to the following description of one manner of practicing the same by means of the illustrative mechanism shown by way of example in the accompanying drawings, wherein:

Fig. 1 is part plan, part section through the cover-forming mechanism;

Fig. 2 is a section of the ball center and the felt-supporting shells; and

Fig. 3 is a partly broken elevation of the completed ball.

Referring to Fig. 1, I have there shown two hollow cup-like sections 5 which may conveniently be threaded on the ends of hollow shafts 7 adapted to rotate in journal bearings 9. The hollow shafts provide conduits for exhausting air from the interior of the cup-shaped members 5 by any suitable means, not shown, as indicated by the arrows in the figure. The shafts 7 carrying the cups 5 may be rotated by any suitable means herein exemplified by the loose pulleys 11 adapted to be clutched thereto by the clutches 13 manipulated by a clutch lever 16. One or both of the shafts 7, herein the left hand shaft, is feathered in its clutch to permit the two cups to be brought toward each other from the position shown in Fig. 1.

Supported within the cups are hemispherical shells 15 and 17 which are smaller than the cups to provide air chambers in the bottom of the latter and beneath the shells. These shells 15 and 17 are provided with numerous perforations so that air will

be drawn from the inner concave faces thereof out through the shafts 7. In the operation of the mechanism, the shells 15 being in position, the shafts rotating and the air exhaust turned on, suitable felting fibers are supplied to the space between the shells 15 and 17 conveniently through tunnel 19 in which rotates brush 20, as illustrated diagrammatically in the figure. The fibers will be sucked against the inner surface of the shells 15 and 17 which will thus be covered with a layer or bat of felted fibers.

These sections, which are conveniently larger in diameter than the ball center which is to be covered in order to allow for fulling about the same, may be applied to the same while they are supported exteriorly by the shells 15 and 17. For this purpose the shells 15 and 17 are made removable from the cups 5 and may be provided with suitable means for locking them together. Herein (see Fig. 2) the shell 15 is provided with a circumferential marginal flange 21 over which are adapted to snap projecting spring tongues 23 on the shell 17, thus locking the two shells together in the form of a hollow foraminous sphere. The ball center 25 (indicated in dotted lines in Fig. 1) preferably coated with a suitable cement is introduced between the two shells 15 and 17 and the rotation thereof being stopped, the left hand cup section is slid along its feather until the two sections 15 and 17 are locked about the ball center. The center enclosed in the felted layers of fibers supported about it by the two shells may then be removed bodily. The felt covering is then subjected to a suitable fulling operation to compact the two bats into a coherent felted mass about the ball center 25, forming a seamless covering 27 therefor as shown in Fig. 3. For this purpose the sections enclosing the ball center and the bats may be immersed in hot soapy water or other suitable fulling liquid, the perforations of the shells 15 and 17 permitting the liquid to penetrate to the bats to shrink them about the ball. After this process has partly proceeded the locked together shells may be mechanically agitated to rub and press on the felt as it is being fulling to hasten the thickening and shrinking thereof.

After the two bats have been shrunk into contact with the ball center as described, the process may, if it is desired, be repeated to

provide a thicker covering on the ball. In this case the line where the two bats are felted together is preferably placed crossing the line where the previous two bats were
 5 felted together.

Having thus described one particular form of apparatus, as shown in the accompanying drawings, and the manner of its use to carry out the method of my invention, the novel
 10 features exemplified thereby which I desire to secure by Letters Patent I shall express in the following claims.

Claims—

1. The method of covering balls comprising forming shell sections of felting fibers, supporting them externally, introducing a ball center between them and felting them
 15 about the same.

2. The method of covering balls comprising coating concave shell sections interiorly with felting fibers, placing them about the ball center and consolidating the fibers there-
 20 about as a consistent body of felt.

3. The method of covering balls comprising coating pervious concave shell sections interiorly with felting fibers, placing them
 25 about the ball center and immersing the

whole in fulling liquor to consolidate the fibers about the center.

4. Apparatus for covering balls comprising complementary shells, means for depositing fibers on the interior thereof and means for locking the shells about a ball
 30 center.

5. Apparatus for covering balls comprising complementary foraminous shells, rotary supporting means for the same, means to exhaust air from the interior of the shells, means to supply fibers thereto and means for
 35 holding the shells together about a ball center.

6. Apparatus for covering balls comprising a hemispherical foraminous shell, means for supporting and rotating the same and means to draw air through the rotating shell
 40 from the interior thereof, said shell having means for interlocking with a similar shell.

7. Apparatus for covering balls comprising a rotary cup, means for exhausting air from the interior thereof and a removable
 45 foraminous shell received by the cup.

In testimony whereof, I have signed my name to this specification.

ISAAC DE GOWIN.