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HANDLE COVERING

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Fig. 1

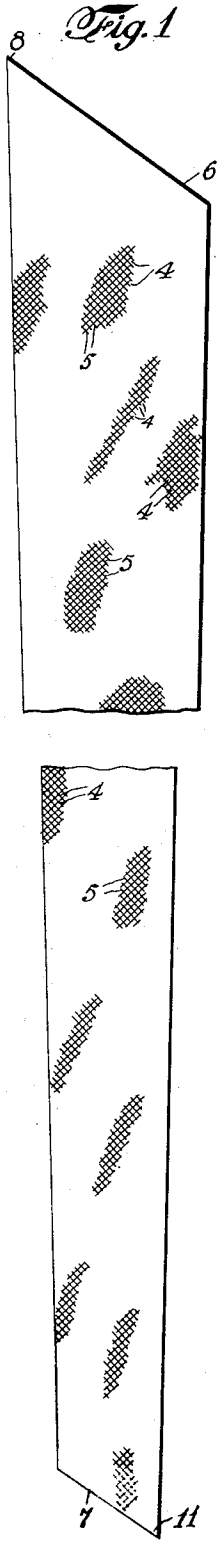
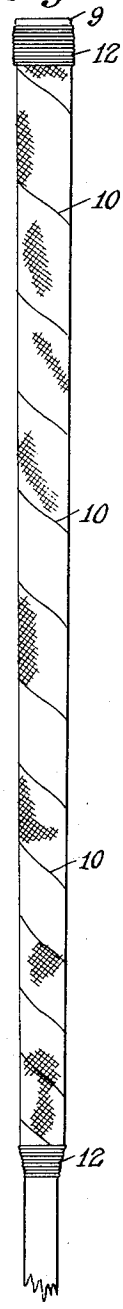


Fig. 2.



Fig. 3.



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HANDLE COVERING

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16 Claims. (Cl. 273—81)

This invention relates to coverings for handles and more particularly to coverings adapted to be spirally wrapped on golf club shafts, baseball bats, tennis rackets and the like to provide a firm, easy grip.

Prior to this invention sporting goods, such as golf clubs, baseball bats, tennis rackets and the like were provided with coverings wrapped on the portions adapted to be gripped to permit the player to firmly grasp the handle. These coverings were made either of leather or rubber. Those made of leather presented many disadvantages. Due to the fact that leather is affected to some extent by weather conditions, there resulted a drying-out in dry weather and an absorption of moisture in wet or damp weather. This usually caused the coverings to bulge and/or loosen. These coverings also absorbed the perspiration and oils exuded from the skin, thus becoming unsanitary. Since the usual cleansing agents, such as soap, alcohol, alkalis, disinfectants all injuriously affect leather, the leather coverings could not be easily cleaned or the unsanitary feature overcome.

The coverings made of rubber also had many defects. They were either too hard, thus not affording the slight yielding of the surface which is needed for comfort, or, if they were not too hard and were made yielding, they usually were made too soft. As a result, the handle turned slightly or slipped in the player's grasp, interfering with his stroke. In the rubber coverings, if sulphur were used in the curing thereof, there was usually present a quantity of free sulphur on the surface which reacted with the perspiration and/or other compound forming an acid which attacked the skin and produced sores and blisters.

In both of the coverings used prior to this invention, when a player took his stance and was ready for the play, he firmly gripped the instrument, be it golf club, tennis racket, baseball bat or the like. This firm gripping placed the wrist and forearm muscles under tension and prevented any wrist or forearm motion which is so desirable. The tension of the wrist and forearm muscles resulted in tiring and fatiguing the player in very short time.

We have found that we can overcome the above-mentioned defects and provide a covering which, when applied to handles of sporting goods or the like, will permit the player to grasp it firmly and yet not make it necessary for him to place his wrist and forearm muscles under tension. This is attained by making a handle covering comprising a rubberized bias-cut fabric, the exposed surface of the rubber coating thereof being substantially free from free sulphur, soft, resilient and having means thereon which will prevent slippage and offer a more tactile feel to the epidermis of the hand.

It is therefore an object of this invention to provide a handle covering adapted to be spirally wrapped on handles of sporting goods and the like which possesses sufficient resiliency to permit an easy, firm grasp without placing the wrist and forearm muscles under tension, whereby an easy, graceful stroke without tiring effects may be obtained.

Another object of this invention is to provide a handle covering adapted to be spirally wrapped on sporting goods and the like comprising a rubberized fabric, the surface of which contains substantially no free sulphur.

Another object of this invention is to provide a handle covering comprising a bias-cut fabric having a plurality of superposed rubber coatings of varying degrees of hardness, the uppermost coating being the softest and provided with means for preventing the slippage and offering a more tactile feel to the epidermis of the hand, said uppermost coating containing substantially no free sulphur.

A specific object of this invention is to provide a handle covering adapted to be spirally wrapped comprising a base of bias-cut fabric having one set of threads disposed at an angle between 5° and 40° relative to a longitudinal edge thereof and a rubber coating or plurality of rubber coatings superimposed on said base, said superimposed coatings being of varying degrees of hardness, the uppermost one being the softest, substantially free from free sulphur and provided with ridges and depressions which are adapted to mesh with the natural ridges and depressions of the skin of the hand.

Other objects will appear from the following description, appended claims and accompanying drawing forming a part of this specification and in which:

Figure 1 illustrates a broken top plan view of a covering constituting one form of this invention.

Figure 2 is a longitudinal cross-section of Figure 1.

Figure 3 illustrates the covering applied to the shaft of a golf club.

Referring to the drawing in which like reference numerals designate like parts, the reference numeral 1 designates a fabric forming the base

of the covering. This fabric may be of any suitable material. We have found that very good results can be obtained if the base 1 is formed of a resilient material such as canton flannel. In practice, the covering will be spirally wrapped on the handle. Thus it is necessary to embody in the covering certain details of construction which will permit such wrapping. With this in view the base 1 is formed of a bias-cut fabric, one set of threads thereof being disposed at an angle to the longitudinal edge thereof. It has been found that, when this angle is between 5° and 40° and preferably between 17½° and 25°, the covering will follow the contour of the handle on which it is wrapped without forming any bulges therein or substantially distorting the fabric in any manner. This angle also permits the fabric to possess a certain amount of resiliency which is necessary in applying the covering to the handle. Disposed on one surface of the base 1 is a plurality of rubber coatings or layers of varying degrees of hardness.

In the drawing and especially Figure 2, the layer or coating 2 is formed from a composition containing an excess amount of sulphur and the layer 3 is formed from a composition containing substantially no sulphur. During the vulcanization a portion of the excess sulphur in the layer 2 migrates into the layer 3, thus aiding in the vulcanization of the layer 3. The amount of sulphur which passes from the layer 2 to the layer 3 becomes substantially exhausted or spent as it reaches the surface of the layer 3.

The degree of hardness of each layer is a function of the rubber composition used in the formation thereof and therefore may be controlled. Though two layers or coatings of rubber have been specifically described, the invention is not restricted thereto and any number of coatings may be used. We have found that in cases where a plurality of layers of rubber are used, it is desirable to have the layers of progressively varying degrees of hardness, the uppermost layer being the softest and the layer adjacent the fabric the hardest. This combination of relatively hard inner layer or layers and relatively soft outer layer or layers minimizes and substantially eliminates any tendency of the handle to turn, twist or slip while it is grasped by the player and yet affords the very slight yielding necessary for comfort and for avoiding fatigue.

A composition used for the layer or coating 2 which has given satisfactory results may contain the following:

	Pounds
Blended rubber	30
Zinc oxide	5
Sulphur	2
Di-ortho-toluol-guanidine	½
Coloring matter	1
Inert filler	15

A composition used for the layer or coating 3 which has given satisfactory results may contain the following:

	Pounds
Blended rubber	30
Zinc oxide	2
Coloring matter	1
Inert filler	15
Di-ortho-toluol-guanidine	½

The above formulæ are given only to illustrate various formulæ which may be used in the production of our material. It is to be understood that these formulæ are not limitative of the invention but merely illustrative of one mode of forming a rubber coating whose surface is substantially free from free sulphur. The specific proportions and ingredients set forth in these formulæ may also be varied, depending upon the desired hardness, number of layers or, to conform to a more practical usage for economical purposes.

In order to provide the covering with a surface which will permit the player to obtain a firm grip and yet not necessitate placing the wrist and forearm muscles under tension, means are provided on the surface of said rubber for preventing slippage and offering a more tactile feel to the epidermis of the hand. This means may comprise various elements. We have found that, if the surface of the rubber coating be provided with depressions 4 and projections 5 adapted to cooperate and mesh with the natural ridges and depressions of the skin of the hand, satisfactory results will be obtained. The depressions and ridges may be of various sizes and made in many ways. Preferably, the rubber coated material is vulcanized with its exposed rubber surface in contact with means capable of producing the desired surface effects. The surface effects produced when the rubber coating is vulcanized in contact with a fabric and particularly those fabrics known as broadcloths give the desired results.

The coverings are generally applied to handles tapering in shape. Accordingly, the covering may be made to taper as shown in Figure 1 of the drawing, whereby a tight uniform wrapping may be obtained on the handle. The edges 6 and 7 may be feathered and formed at such angles that they will substantially conform to the cylindrical surface when applied. In applying the wrapping to a handle, if desired, glue may be applied to the uncoated face of the bias-cut fabric. The corner 8 of the widest portion of the covering is fastened adjacent the top of the shaft 9 in any suitable manner and the covering is then spirally wrapped as indicated in Figure 3. It is to be noted that in the wrapping of the covering the longitudinal edge of each spiral abuts the adjacent edge as clearly shown at 10 in Figure 3. After a covering has been wrapped around the shaft of a golf stick, the corner 11 is securely fastened thereto. If desired, both the top and bottom of the wrapping may be whipped as indicated in Figure 3 by the reference numeral 12.

From the above it is clear that we have provided a handle covering which may be easily applied to its intended position without any substantial distortion or bulging. The exposed rubber coating is provided with means whereby a firm grip may be obtained without placing the wrist and forearm muscles under tension. Its surface is substantially free from any substances which will affect the skin. Furthermore, due to the progressively varying degrees of hardness of the layer, there is afforded the slight yielding necessary to comfort and for avoiding fatigue.

We claim:

1. A grip covering adapted to be spirally wound on a handle comprising a base of bias-cut fabric having one set of threads disposed at an angle between 5° and 40° relative to the longitudinal edge thereof, and a rubber coating disposed on said base, said rubber coating containing no free sulphur in its exposed surface.

2. A grip covering adapted to be spirally

wound on a handle comprising a base of bias-cut fabric having one set of the threads disposed at an angle between 5° and 40° relative to the longitudinal edge thereof, and a rubber coating disposed on said base, said rubber coating having means on its exposed surface preventing slippage and offering a more tactile feel to the hand and containing no free sulphur in said exposed surface.

3. A grip covering adapted to be spirally wound on a handle comprising a base of bias-cut fabric having one set of threads disposed at an angle between 5° and 40° relative to the longitudinal edge thereof and a plurality of superposed rubber coatings of progressively varying degrees of hardness.

4. A grip covering adapted to be spirally wound on a handle comprising a base of bias-cut fabric having one set of threads disposed at an angle between 5° and 40° relative to the longitudinal edge thereof and a plurality of superposed rubber coatings, the uppermost coating being the softest and most resilient.

5. A grip covering adapted to be spirally wound on a handle comprising a base of bias-cut fabric having one set of threads disposed at an angle between 5° and 40° relative to the longitudinal edge thereof and a plurality of superposed rubber coatings, the uppermost coating being the softest and most resilient and having means preventing slippage and offering a more tactile feel to the hand.

6. A grip covering adapted to be spirally wound on a handle comprising a base of bias-cut fabric having one set of threads disposed at an angle between 5° and 40° relative to the longitudinal edge thereof and a plurality of superposed rubber coatings, the uppermost coating being the softest and most resilient and containing no free sulphur in its exposed surface.

7. A grip covering adapted to be spirally wound on a handle comprising a base of bias-cut fabric having one set of threads disposed at an angle between 5° and 40° relative to the longitudinal edge thereof and a plurality of superposed rubber coatings, the uppermost coating being the softest and most resilient, said uppermost coating having means preventing slippage and offering a more tactile feel to the hand and containing no free sulphur in its exposed surface.

8. A grip covering adapted to be spirally wound on a handle comprising a base of bias-cut fabric having one set of threads disposed at an angle between 5° and 40° relative to the longitudinal edge thereof and a plurality of superposed rubber coatings, the uppermost coating being the softest and most resilient, said uppermost coating having depressions and projections adapted to mesh with the natural ridges and depressions of the skin of the hand and containing no free sulphur in its exposed surface.

9. A grip covering adapted to be spirally wound on a handle comprising a base of fabric having a rubber coating, the surface of said coating being provided with projections and depressions adapted to mesh with the natural ridges and depressions of the skin of the hand and containing no free sulphur.

10. A grip covering adapted to be spirally wound on a handle comprising a base of bias-cut fabric having a rubber coating, the surface of said coating being provided with projections and depressions adapted to mesh with the natural ridges and depressions of the skin of the hand and containing no free sulphur.

11. A grip covering adapted to be spirally wound on a handle comprising a base of bias-cut fabric having a plurality of superposed rubber coatings of progressively varying degrees of hardness, the uppermost coating being the softest and having depressions and projections adapted to mesh with the natural ridges and depressions of the skin of the hand.

12. A grip covering adapted to be spirally wound on a handle comprising a base of bias-cut fabric having a plurality of superposed rubber coatings of progressively varying degrees of hardness, the uppermost coating being the softest and having depressions and projections adapted to mesh with the natural ridges and depressions of the skin of the hand and containing no free sulphur in its exposed surface.

13. A grip covering adapted to be spirally wound on a handle comprising a base of bias-cut fabric having disposed thereon a rubber coating, a rubber coating softer than said first-named coating on said first-named coating, the exposed surface of said last-named rubber coating containing no free sulphur.

14. A grip covering adapted to be spirally wound on a handle comprising a base of bias-cut fabric having disposed thereon a rubber coating, a rubber coating softer than said first-named coating on said first-named coating, the exposed surface of said last-named rubber coating containing no free sulphur and having depressions and projections adapted to mesh with the natural ridges and depressions of the skin of the hand.

15. A grip covering adapted to be spirally wound on a handle comprising a base of bias-cut fabric having a rubber coating, the surface of said rubber coating having surface effects similar to that of a broadcloth fabric and containing no free sulphur.

16. A grip covering adapted to be spirally wound on a handle comprising a bias-cut base fabric having a rubber coating, the surface of said coating containing no free sulphur.

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