TENNIS BALL COVER CLOTH

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ABSTRACT OF THE DISCLOSURE

A tennis ball covering cloth incorporating therein a percentage of fibers or filaments formed of an olefin, such as polypropylene, which is heat treated within a predetermined temperature range to lock the olefin fibers into position with respect to the remaining fibers in the cloth.

BACKGROUND OF THE INVENTION

A tennis ball consists of a spherical rubber core covered with a cloth having a felted or treated surface. The surface of the cloth offers wind resistance in flight and frictional contact with a tennis racquet in the hand of a contestant so that the path of the ball can be controlled. Without this control the game cannot be played satisfactorily.

The practical value of a tennis ball cover depends upon its ability to retain its surface as long as possible under conditions of play.

Various weaves, treatments and materials have been incorporated in tennis ball covers in an attempt to improve the wearability of the cover.

I have found that the use of an olefin, such as polypropylene, in the manufacture of tennis felts in a specific manner provides a greatly improved tennis ball covering cloth. The olefin has a characteristic which tends to lubricate the covering cloth as it is being exposed to abrasive wear on a tennis ball thus adding to the effective life of the ball. Additionally, the high tensile strength of the material when incorporated in the covering cloth in accordance with my invention results in strength in the covering cloth and provides long wear.

SUMMARY OF THE INVENTION

A tennis ball covering cloth comprising a woven, fulled and heat treated fabric having warp and filler yarns; the warp being formed of cotton and providing substantially the backing of the fabric, and the filler being formed of composite yarns comprising fibers of wool and olefin and having the preponderance thereof exposed on the surface of the fabric; and the olefin fibers being locked to the remaining fibers by exposure to heat.

DESCRIPTION OF THE DRAWINGS

In the accompanying drawings:

FIGS. 1–12 are transverse cross-sectional views of a cloth, between adjacent filling yarns, illustrating one type of weave incorporating my invention in a distorted and enlarged scale;

FIG. 13 is an enlarged fragmentary section of a tennis ball having the cloth illustrated in FIGS. 1–12 applied thereto.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In the drawings, the numeral 20 indicates the warp yarns and the numerals 21–32, inclusive, the filler yarns. The numeral 40 indicates the rubber casing of the ball and the numeral 45 the cement or adhesive which is utilized to secure the covering cloth formed from the yarns 20 and 21, as shown in FIG. 13, to the casing 14.

By reversing the cloth so that a preponderance of the warp yarns are on the playing or wear surface, the same general result could be achieved by utilizing such a weave if the teachings of this invention as set forth below are followed. It is to be understood, therefore, that the drawings are merely illustrative of one type of weave which can be utilized and the invention is not limited to the use of a fabric having the weave shown.

By incorporating an olefin, such as polypropylene, in the cover cloth fibers or filaments the life of the ball is greatly increased without impairing its playing qualities. It is intended that the outer or wearing surface be provided by the filling and that it contain a percentage of olefin fibers, such as polypropylene. It is intended that the range, by weight, of polypropylene in the filling yarn be in the range of 10% to 40%. Lower than 10% would provide a quantity of polypropylene which would not have a significant effect upon the cover cloth properties and over 40% would detract from the desired characteristics in the end product.

It is preferred that a "one sided" cover cloth be utilized, that is, a cloth having such a caveat that a preponderance of yarns running in one direction thereon is on that side of the cloth which is adapted to form the outside or wearing surface of the cover. In the present disclosure it is contemplated that the outer surface or wearing surface be provided primarily by the filling and that the warp provide the back of the cover cloth or the side which is to be glued to the core 40.

It is contemplated, therefore, that the warp be 100% cotton fiber as this has been found to be a good surface for use with available adhesives and glues in attaching the covering cloth to the rubber ball surface 40.

The filler should contain a percentage of wool in order to allow the outer surface of the cover cloth to befulled in accordance with standard procedures.

It is contemplated, therefore, that a one-sided weave be employed having a 100% cotton fiber content warp and a filler which is a blend composed of substantially equal parts of wool fibers and 10% to 40%, by weight, of fibers formed of an olefin, such as polypropylene.

The polypropylene fibers are made to adhere to the remaining fibers in the cover cloth by subjecting the cover cloth—either before or after attachment to the rubber core 40—to heat in a temperature range of 265°F to 300°F. This results in a stiffening of the playing surface and a minimizing of the shagginess or haggard appearance which might result if the cloth was not subjected to heat in this range.

1. A tennis ball covering cloth comprising a woven, fulled and heat treated fabric having warp and filler yarns; the warp being formed of cotton and providing substantially the backing of said fabric and the filler being formed of composite yarns comprising fibers of wool and olefin and having the preponderance thereof exposed on the surface of said fabric; the olefin being by weight of the filling in the range of 10% to 40%; and the olefin fibers being locked to the remaining fibers by exposure to heat.

2. A tennis ball covering cloth comprising a woven, fulled and heat treated fabric having warp and filler yarns; the warp being formed of cotton and providing substantially the backing of said fabric, and the filler being formed of composite yarns comprising fibers of wool and polypropylene and having the preponderance thereof exposed on the surface of said fabric; the polypropylene being by weight of the filling in the range of 10% to 40%; and
the polypropylene fibers being locked to the remaining fibers by exposure to heat in the temperature range of 265° to 300° F.

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