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C. F. MITCHELL
RIBBED BOWLING BALL PATCH
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3,271,031

FIG. 1

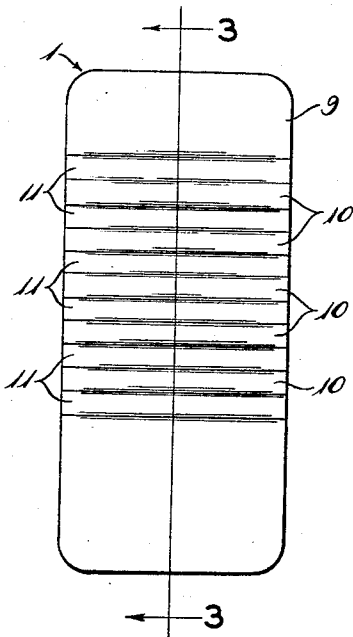
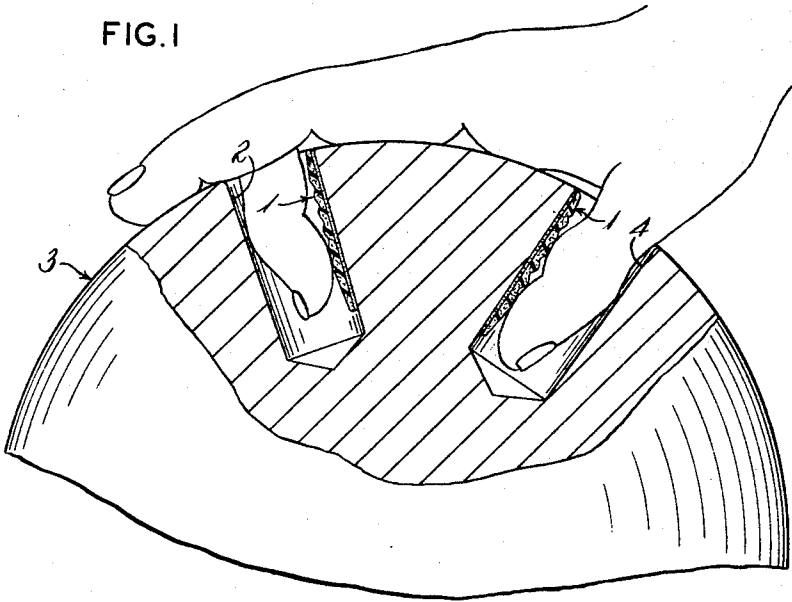


FIG. 2

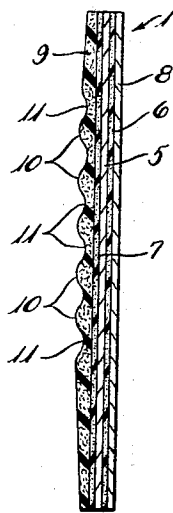


FIG. 3

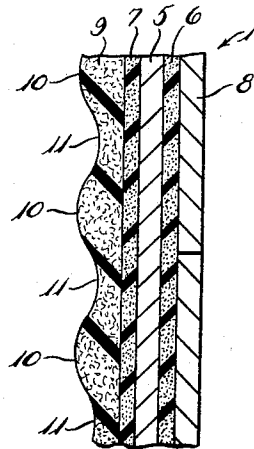


FIG. 4

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3,271,031

RIBBED BOWLING BALL PATCH

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3 Claims. (Cl. 273-63)

This invention relates to bowling ball finger or thumb pads or patches, and especially to a novel, thin patch having a plurality of transversely extending small ribs provided therein and smoothly blending into the remainder of the patch or pad.

The sport of bowling is becoming more and more popular all the time and naturally players participating in such game desire to have as large a score as they can possibly achieve. Thus, after a bowler has played the game for some length of time, it is difficult to improve his game because of certain habits the bowler forms, and for other reasons. It will be realized that only very minute differences in the manner of rolling the ball down the alley and the actual release of the ball by the bowler onto the alley make a great deal of difference in the actual results obtained. The smooth, slippery surfaces of the finger and thumb holes in the ball, plus the relatively heavy weight of the ball, make accurate control of the ball very difficult. There have been efforts made heretofore to facilitate the grip of the bowler with a bowling ball by the provision of thumb and finger patches, as covered in my previous United States Letters Patent No. 2,708,578, for positioning in the holes in a ball. Such additional patches have been very convenient to secure in bowling ball holes to give the bowler better engagement with the ball and hence, better control of the ball at the instant of throwing or releasing the ball onto the alley. Such extra or insert patches have been very useful in the balls, even though the bowler has had special spacing and diameters provided on these finger and thumb holes by purchase of an individual ball to his specific requirements.

The general object of the present invention is to provide a novel and improved type of a bowling ball finger and thumb insert patch or pad characterized by the combination of a plurality of solid grasping ribs in the insert patch with a good frictional material used in making the patches.

Another object of the invention is to combine the use of a thin frictional material in a bowling ball finger or thumb patch together with a plurality of solid, low, rounded, transversely extending ribs in the patch whereby a comfortable but effective gripping action can be provided by the patch of the invention.

Another object of the invention is to provide a novel and improved type of an insert patch for use in a bowling ball finger or thumb hole and with such patch being of relatively inexpensive construction, but having desirable operative properties and a long useful service life.

A further object of the invention is to use ground, vulcanized rubber-cork material in a resilient rubber layer for forming a frictional surface on a bowling ball patch.

The foregoing and other objects and advantages of the invention will be made more apparent as the specification proceeds.

Reference now is directed to the accompanying drawings which show one embodiment of a bowling ball finger or thumb hole insert patch embodying the principles of the invention, and wherein:

FIG. 1 is an elevation, partially shown in section, of a bowler's hand operatively engaging associated finger and thumb holes of a bowling ball;

FIG. 2 is a plan of the improved bowling ball finger patch of the invention;

FIG. 3 is an enlarged vertical section of the bowling ball finger patch of FIG. 2; and

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FIG. 4 is a further enlarged vertical section of the patch of FIG. 3.

When referring to corresponding parts shown in the drawings and referred to in the specification, corresponding numerals are used to facilitate comparison therebetween.

The present invention, in general, relates to an improved type of a bowling ball insert patch comprising a flexible backing layer having an adhesive coating on both surfaces thereof and having a back surface for engaging a wall of a bowling ball finger hole, and a solid, but flexible rubber-cork strip secured to the face surface of the backing layer and co-extensive with such backing layer, which strip has a plurality of spaced solid ribs thereon extending transversely thereof, the rubber-cork strip containing substantially equal quantities of a reclaimed, ground cork and rubber mixture and of new rubber-like material.

With reference to the details of the construction shown in the accompanying drawings, a bowling ball finger patch of the invention is indicated as a whole by the numeral 1. Such patch 1 is shown positioned in a finger hole 2 provided in a bowling ball 3. Such ball 3 also has a suitable thumb hole 4 provided therein and another finger hole may be provided in the ball, if desired. In all events, the patch 1 of the invention can be engaged with or positioned in either the thumb hole, or finger holes of the bowling ball, or both, as desired by the individual bowler.

This finger patch 1 is provided with a flexible backing, or adhesive layer, or sheet 5 usually made from a paper, or thin fabric sheet and with an adhesive coating indicated at 6 and 7 in the enlarged drawing of FIG. 3, on the back and face surfaces, respectively, of this sheet in the backing layer 5. The adhesive coating 6 is adapted to engage with the associated surfaces or wall of the hole 2, and with the adhesive used usually being of the pressure sensitive, or contact type and being of a permanent tacky nature so that it will adhere to the wall of the finger hole when once firmly pressed into engagement therewith.

When the patch 1 is initially produced and before its engagement with the finger hole 2, a suitable paper, or other backing sheet 8 usually is secured to the backing layer 5 and may extend from one end thereof, or be split into two pieces for ready disengagement or pulling from the backing layer 5 at the time of placing the patch 1 in engagement with the finger hole 2. The adhesive layer 7 provided on the face of this backing layer 5 has a solid, but flexible resilient rubber-cork strip 9, as hereinafter described in more detail, secured thereto. Such strip 9 is of a special composition, is relatively hard, and has a good frictional surface. The strip 9 may, for example, be approximately $\frac{1}{32}$ inch or less, in thickness, depending upon the specific properties desired therein. In all events, as a feature of this patch 1, the flexible strip 9 has a plurality of ribs 10 provided thereon and formed integrally therewith to extend transversely thereof from margin to margin of the strip 9. These ribs 10 are preferably about twice the thickness of the remainder of the strip 9 at the maximum thickness portion of the rib 10. Usually the ribs 10 are smoothly blended together in the patch and all ribs are uniform and have arcuate top contours to provide smooth but protruding surfaces on the patch when operatively positioned. A plurality of the ribs 10, such as about four to eight, are present on the rubber-cork strip 9 and usually are substantially centered in the patch 1 with relation to its longitudinal axis.

Another important feature of the invention resides in the fact that the rubber pad or patch 1 has a plurality of small, finely divided, ground particles of a vulcanized

rubber-cork mixture therein. These ground particles are quite small and appear as small dots in the finished patch. By use of the ground cork and vulcanized rubber particles in a mixture of unvulcanized rubber and with other abrasive, stiffening and filler materials therein, when the remixed material is vulcanized, an extremely tough material has been provided which, when it has its upper surface ground to the contour shown in the drawing, provides a very high coefficient of friction on the surface of the patch for engaging a bowler's thumb or finger. At the same time, no undesirable abrasive action is secured on the user's finger. This new and improved composition, as its primary constituents comprises:

Material:	Parts by weight, lbs.
Cork and vulcanized rubber (ground) -----	About 21 to 22¼.
Synthetic styrene butadiene rubber -----	About 22.
Whiting (ground limestone) --	
Hard clay -----	About 18.
Plus vulcanizing ingredients, accelerators, anti-oxidants, etc.	About 18.
Total -----	100.

It is yet another feature of the invention that the ribs provided in the bowling ball finger or thumb patch or pad are provided thereon by a grinding action whereby any skin that may have been formed on the original rubber sheet from which the pad or patch is made has been removed therefrom and this aids in providing a uniform surface with many tiny cork and vulcanized rubber particles exposed for increasing the coefficient of friction at the surface of this pad.

It also should be noted that the ribs 10 are all of substantially uniform height in the pad and that they have convex arcuate surfaces provided thereon. It also should be noted that these plurality of transversely extending ribs 10 are smoothly blended into each other by means of concave connecting sections 11 formed in the upper surface of the rubber-cork layer or sheet 9 so that no sharp edges or protruding sections are provided in the bowling ball patch.

The layer 9 may be made from any suitable natural or synthetic rubber, or rubber-like materials or thermoplastic materials, or similar polymeric materials, and the styrene-butadiene rubber mentioned is one example of such material, which forms the carrier body or binder material of the strip.

The ground rubber-cork mixture may comprise, for example, approximately 60% of a rubber-like material with about 40% of small cork granules being intimately mixed therewith. They are ground after having been mixed together and the rubber vulcanized so as to provide a uniform mixture of small particles.

If desired, the paper backing strip 8 may be omitted, and the pad or patch may be mounted on a carrier board or sheet for display and sale purposes. The pad would be positioned in a hole in a bowling ball promptly after being removed from any such carrier board.

From the foregoing, it will be seen that an improved, tough, high friction rubber-like pad has been provided by the invention and that very thin layers of such relatively inexpensive material make very satisfactory bowling ball

pads, or patches. Hence the objects of the invention have been achieved.

While one complete embodiment of the invention has been disclosed herein, it will be appreciated that modification of such particular embodiment of the invention may be resorted to without departing from the scope of the invention, as defined in the appended claims.

What I claim is:

1. A bowling ball finger or thumb hole patch comprising an adhesive flexible backing layer having a pressure sensitive adhesive on both surfaces thereof and having a back surface for engaging a wall of a bowling ball hole, and a solid, but flexible rubber-cork strip secured to the face surface of said backing layer, said rubber-cork strip including (A) fine particles of a vulcanized material comprised of cork mixed with a significant quantity of rubber to give a tough substance having a relatively hard gripping characteristic embedded in (B) a layer of a rubber material forming the carrier body of the strip.

2. A bowling ball finger or thumb hole patch comprising an adhesive flexible backing layer having a pressure sensitive adhesive on both surfaces thereof and having a back surface for engaging a wall of a bowling ball hole, and a solid, but flexible rubber-cork strip secured to the face surface of said backing layer, said rubber-cork strip having a frictional face surface that is free from any surface skin thereon, with a plurality of solid ribs having smoothly curved convex surfaces and smoothly connected together by arcuately contoured concave recesses formed thereon, said rubber-cork strip having about equal quantities by weight of (A) a ground vulcanized material comprised of cork mixed with a significant quantity of rubber to give a tough substance having a relatively hard gripping characteristic and (B) a rubber material to provide a fairly hard, high frictional surface on the patch.

3. A bowling ball finger or thumb hole patch comprising an adhesive flexible backing layer having a pressure sensitive adhesive on both surfaces thereof and having a back surface for engaging a wall of a bowling ball hole, and a solid, but flexible rubber-cork strip secured to the face surface of said backing layer, said rubber-cork strip having a plurality of solid ribs of a maximum thickness of about several times the thickness of the end portions of the strip extending transversely thereof intermediate the end portions of the strip, said strip being of substantially uniform thickness at the end portions thereof, said rubber-cork strip having about equal quantities by weight of (A) a finely ground vulcanized material comprised of cork mixed with a significant quantity of rubber to give a tough substance having a relatively hard gripping characteristic and (B) a rubber material therein together with (C) abrasive, stiffener and filler materials of almost the combined weights of the rubber-cork mixture and of the rubber material.

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