

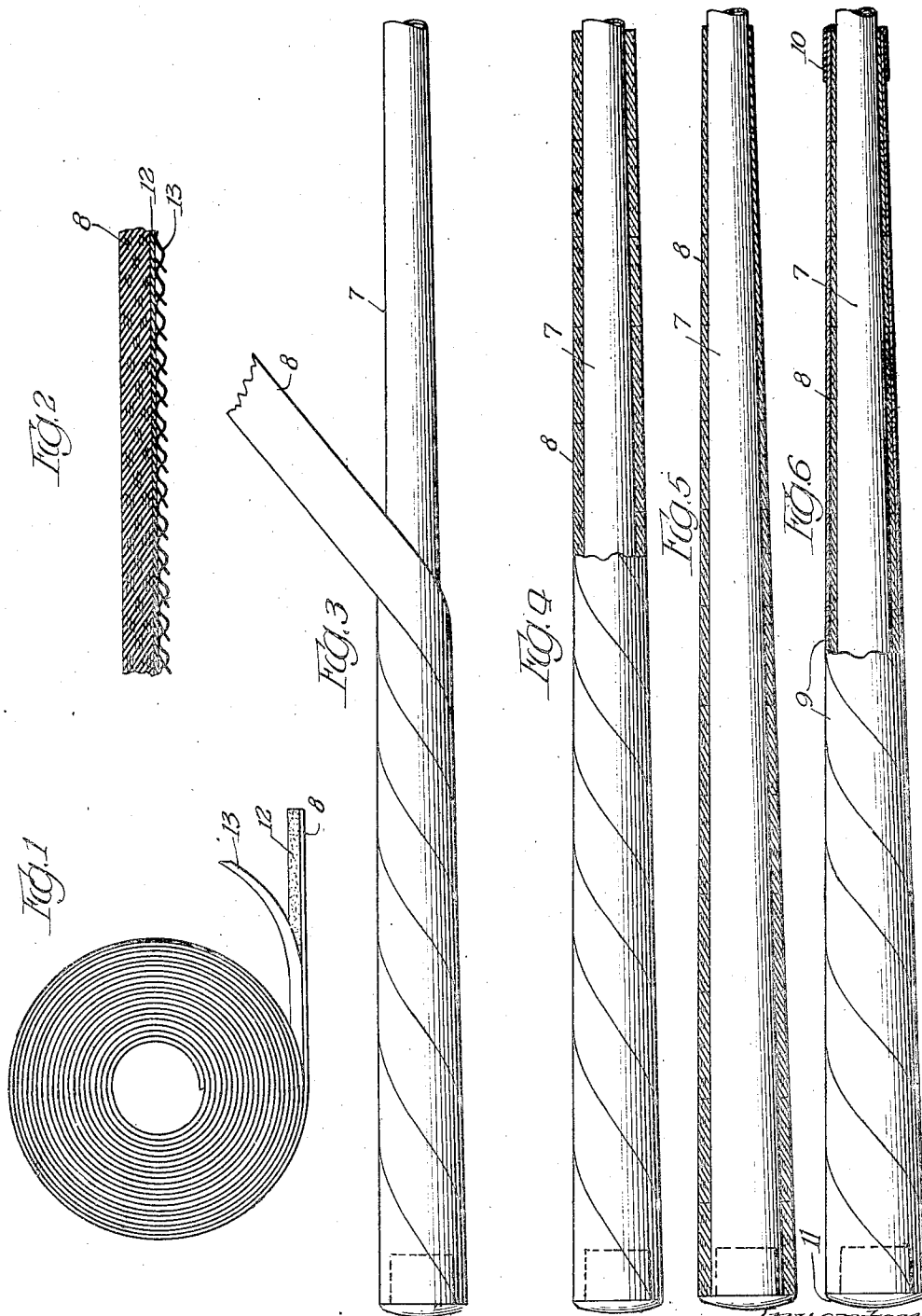
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MANUFACTURE OF GOLF CLUB GRIPS

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MANUFACTURE OF GOLF CLUB GRIPS

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2 Claims. (Cl. 273—81)

This invention pertains to the manufacture of grips, such for example, as golf club grips.

It has heretofore been customary in connection with the manufacture of a grip for the shaft of a golf club first to take a strip of paper or cloth or a strip of cork composition with a co-extensive support forming cloth inner facing and an adhesive coating on the exposed face or side of the facing, and wind it spirally around the upper end of the shaft in order to form a backing, then to sand or otherwise treat the backing strip so as to eliminate any unevenness in its exterior surface, especially at the butt joints between the various convolutions, then to wind an outer or finish strip of leather around the backing strip and finally to apply a ferrule or other holding means around the inner or lower ends of the backing and leather finish strips in order to complete the grip. In practice it has been found that although a grip of this type is useable it has certain disadvantages and is subject to several objections of which the following are examples:

(a) The grip is not smooth in contour due to the fact that the backing strip, regardless of whether it is formed of paper or cloth or cork composition with a coextensive cloth inner facing, has little or no stretchability and hence cannot be applied to the shaft in a spiral fashion or manner without buckling or puckering along at least one of its margins;

(b) The grip, due to the backing strip lacking any appreciable resiliency, has no yield or give and hence is hard and does not have or possess the ability to absorb shock or vibration in connection with use of the club to which the grip is applied;

(c) The grip is likely to slip or twist around the shaft because the backing strip does not possess sufficient tensile strength and stretchability to permit it to be wound around the shaft in a stretched condition; and

(d) The grip is not capable of being fitted to the hands of the user by sanding, or otherwise reducing the thickness of, the backing strip, since a single winding of such strip does not have sufficient thickness to permit any appreciable reduction thereof.

The primary object of this invention is to provide a simple and novel method of making a golf club grip which does not possess the disadvantages and objectionable features of previously designed grips. In general the improved method includes as steps (1) taking an elastic backing strip of mixed vulcanized rubber and

light filler material, such as cork, and with a coating of permanently tacky pressure sensitive adhesive on its inner face and winding such strip spirally around the large end of the shaft of the club while at the same time maintaining it in a stretched condition, (2) then sanding or otherwise treating the backing strip so as to cause it progressively to decrease in thickness from the outer or large end thereof to its inner or small end, and (3) finally winding a finish strip of leather or like material around the sanded backing strip.

Other objects of the invention and the various advantages and characteristics of the present method of golf club grip manufacture will be apparent from a consideration of the following detailed description.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by claims at the conclusion hereof.

In the drawing which accompanies and forms a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a perspective view of a roll of the cork-vulcanized rubber backing strip which is used in carrying out or practicing the improved method;

Figure 2 is a longitudinal section of the backing strip showing such strip before removal of the holland strip which is employed to prevent the permanently tacky pressure sensitive adhesive coating from adhering to the outer face of the backing strip when the latter is in roll form and also serves to increase the tackiness and permanently adhesive character of the coating.

Figure 3 is a side view showing the backing strip being wound spirally around the large end of a tapered steel golf club shaft;

Figure 4 is a view partly in side elevation and partly in section, illustrating the improved backing strip after it has been wound around the shaft;

Figure 5 is a longitudinal view showing the backing strip after it has been sanded or shaped so as to make it of progressively decreasing thickness from the outer end thereof to its inner or small end; and

Figure 6 is a side view of the completed grip, parts being shown in section for illustrative purposes.

The grip which is shown in the drawing is produced by the improved method. It is illustrated in connection with a tapered hollow steel

golf club shaft 7 and consists of a backing strip 8, an outer or finish strip 9 of leather or like material, a ferrule 10 and a plug 11. The backing strip is formed for the most part of ground cork and vulcanized rubber, as hereinafter described, and is wound spirally around the large or upper end of the shaft 7. It is adhesively connected to the shaft by a coating 12 of permanently tacky pressure sensitive rubber base adhesive and is so wound or wrapped around the shaft that the convolutions thereof have butt joints between them. As shown in Figure 5, the backing strip 8 is of progressively decreasing thickness from the outer or large end thereof to its lower or small end. The finish strip 9 is wound spirally around the backing strip 8, as shown in Figure 6, and has butt joints between its convolutions. The ferrule 10 extends around the lower or small ends of the backing and finish strips and serves to hold such strips in place, i. e., against unwinding. If desired a winding (not shown) of thread may be used in lieu of the ferrule 10. The plug 11 fits within the upper end of the shaft 7 and has a marginal flange in overlapped relation with the upper ends of the two strips 8 and 9. This plug is preferably inserted into place before the strips 8 and 9 are applied to the shaft.

The backing strip 8 is supplied to the manufacturer of the grip in roll form as shown in Figure 1. It is formed of the following ingredients in substantially the proportions set forth:

Crude rubber	-----pounds	32
Ground cork	-----do	40
Mineral filler	-----do	2
Sulphur	-----do	1
Accelerator	-----ounces	6

In forming the backing strip the crude rubber is broken down by milling it. Thereafter the mineral filler, sulphur and accelerator are added to the milled rubber. After mixing together the rubber, mineral filler, sulphur and accelerator the ground cork is added to, and worked into, the mixture. In practice it has been found that the best results have been obtained when the cork has a mesh running from 8 to 25. With cork particles having a mesh no greater than 8 and no less than 25 the resultant strip has the desired or proper texture. After due or proper mixing of the aforementioned ingredients the material is sheeted out on a three roll calender to a thickness of approximately $\frac{1}{8}$ th of an inch. After such operation the sheet is placed in a dry heat vulcanizer and cured for a sufficient period of time to effect complete vulcanization of the rubber part of the mixture. After the vulcanizing operation or step the adhesive coating 12 is formed by spreading onto the cork-vulcanized rubber sheet a rubber composition which is formed of the following ingredients in substantially the proportions specified:

	Pounds
Rubber	-----28
Organic softener	-----22 $\frac{3}{4}$
Mineral filler	-----20

The above ingredients are milled together and then dissolved in approximately 15 gallons of rubber solvent, such as naphtha. Preferably two coats of the aforementioned composition are spread upon the under or inner face of the cork-vulcanized rubber sheet by way of a suitable spreader machine. Upon evaporation of the solvent there is formed on the cork-vulcanized rubber sheet the adhesive coating 12 and this coat-

ing is permanently tacky and pressure sensitive. A coextensive sheet of holland 13 is then applied to the adhesive coating 12. After application of the holland the material is cut into strips and rolled. Due to the fact that the ground cork is worked into the vulcanizable rubber mixture the backing strip 8 is of substantially uniform texture throughout with the cork particles in commingling relation with the rubber. Because the strip 8 includes cork and an admixture of vulcanized rubber it has high tensile strength and is both resilient and elastic.

In forming the grip the holland 13 is first removed from the backing strip 8. Thereafter the strip is spirally wound around the large or upper end of the shaft 7. Preferably one end of the strip is applied to the upper extremity of the shaft and then the strip is spirally wound around the large end of the shaft in such manner as to bring the various convolutions into abutting relation. The adhesive coating 12 on the inner face of the backing strip 8 serves to hold the strip in connected relation with the shaft. During winding of the backing strip around the shaft the strip is stretched or maintained under tension. As a result of this the wound strip accurately conforms to the contour of the shaft and not only securely grips the shaft 7 but also is not likely to slip during use of the grip. After application of the backing strip 8 to the shaft the strip is subjected to the action of a sandpaper belt or other sanding means in order progressively to decrease its thickness from its outer end to its inner end. The sanding operation or step is preferably such that the backing strip has a thickness of approximately $\frac{1}{8}$ of an inch at its large or upper end and a thickness of approximately $\frac{1}{16}$ of an inch at its lower end. After the sanding operation the leather finishing strip 9 is wound spirally around the backing strip, as shown in Figure 6, and the ferrule 10 is mounted in place.

The herein described grip is characterized by the fact that it has yield or give due to the nature or character of the backing strip 8. It remains tenaciously in place because the backing strip is under tension and is secured in place by the permanently tacky pressure sensitive rubber base adhesive coating 12. Because of the fact that the backing strip 8 possesses comparatively high tensile strength it is not necessary to employ a cloth or fabric inner facing on the backing strip. The grip is further characterized by the fact that it may be manufactured readily and at a low cost. Because the backing strip 8 includes vulcanized rubber as one of its main ingredients or component parts the grip when placed under compression and then relaxed recovers its original shape or conformation and will not acquire any permanent set. The backing and finishing strips after application to the shaft constitute or form concentric sheaths around the shaft. Due to the fact that the backing strip includes vulcanized rubber and the adhesive coating 12 is of the rubber base variety and hence has a natural affinity for the rubber part of the backing strip there is no likelihood of the adhesive coating being dislodged from the inner face of the backing strip. Because the backing strip has appreciable thickness it is possible to reduce the thickness of the grip should the user desire a smaller grip. In this connection it is contemplated that upon removal of the leather finish strip 9 the backing strip may be sanded or otherwise reduced in thickness the desired degree.

Thereafter the leather finish strip will be reapplied to complete the grip. Preferably the leather finish strip 9 is adhesively connected to the backing strip 8 by an adhesive coating.

The invention is not to be understood as restricted to the details set forth since these may be modified within the scope of the appended claims without departing from the spirit and scope of the invention.

Having thus described the invention what I claim as new and desire to secure by Letters Patent is:

1. That improvement in the manufacture of a grip for a shaft which comprises first taking a backing strip of vulcanized rubber and ground cork in commingling relation with the rubber and spirally winding it in a stretched condition around a portion of the shaft, then shaping the

strip so as progressively to reduce its thickness from one end thereof to the other, and finally applying a finishing sheath around the backing strip.

2. That improvement in the manufacture of a grip for a tapered shaft which comprises first taking a backing strip formed for the most part of vulcanized rubber and ground cork in commingling relation with the rubber and having a permanently tacky adhesive coating on its under face and spirally winding the strip in a stretched condition around the large end of the shaft, then shaping the strip so as progressively to decrease its thickness from the large end thereof to its small end, and finally spirally winding a finishing strip around the backing strip.

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