March 10, 1925. 1,529,517

H. B. TILTON

GOLF TEE

Filed Oct. 28, 1924

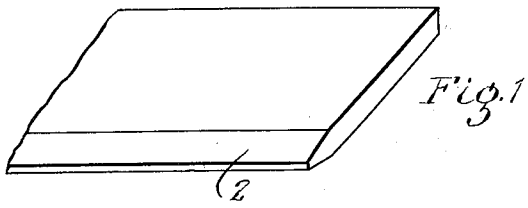
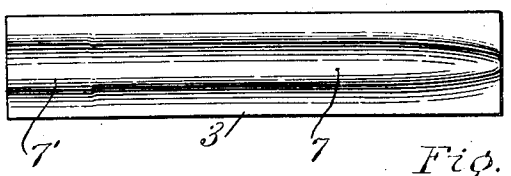


Fig. 1



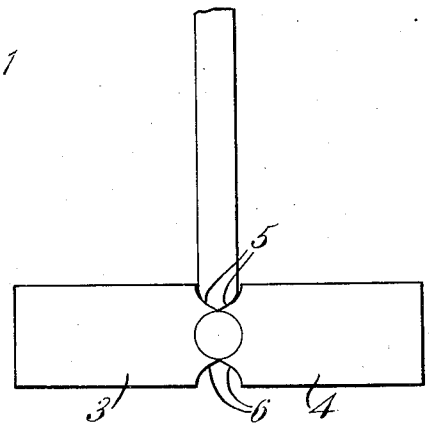
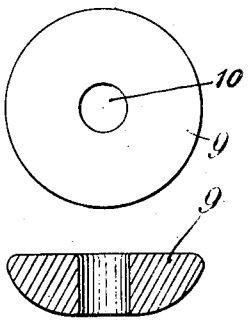


Fig. 2.



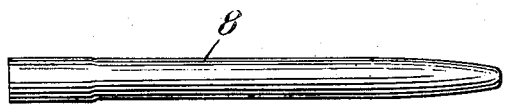


Fig. 3.

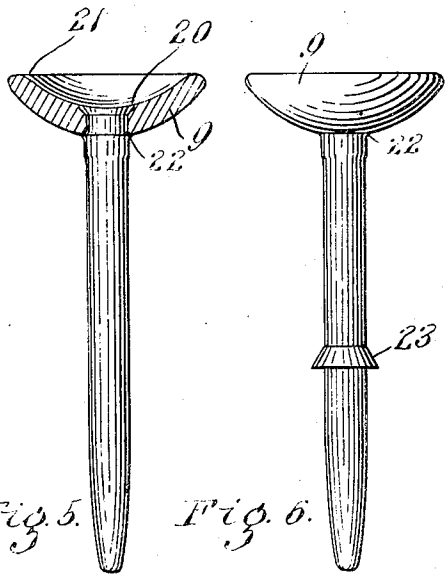


Fig. 5.

Fig. 6.

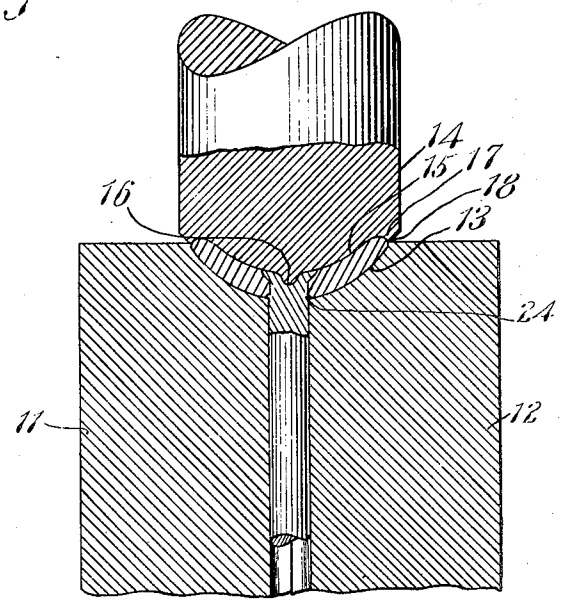


Fig. 4.

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Att'ys.

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UNITED STATES PATENT OFFICE.

HENRY B. TILTON, OF PORTSMOUTH, NEW HAMPSHIRE, ASSIGNOR TO MORLEY BUTTON MANUFACTURING COMPANY, OF PORTSMOUTH, NEW HAMPSHIRE, A CORPORATION OF MAINE.

GOLF TEE.

Application filed October 28, 1924. Serial No. 746,337.

To all whom it may concern:

Be it known that I, HENRY B. TILTON, a citizen of the United States of America, and resident of Portsmouth, in the county of Rockingham and State of New Hampshire, have invented new and useful Improvements in Golf Tees, of which the following is a specification.

This invention relates to golf tees of the type having a shank for insertion into the ground and a head for supporting the ball, the principal objects being to provide a tee of this character in which the shank will not readily break off or blunt when being inserted, in which the head will hold the ball from rolling off even though the top is not exactly horizontal, in which the head will not split off at the sides, and which can be manufactured without excessive waste of material.

Wooden tees of this general type, which have the grain running longitudinally, tend to break off and blunt upon insertion into the ground when the ground is hard or when a stone is encountered, and the sides of the head split off in use so that the balls roll off on the split side. Moreover, the manufacture of such tees involves an excessive waste of material owing to the fact that the turning operation discards as much material as is left in the tees.

According to the present invention the shanks are made of fibrous material (preferably vulcanized fiber) which is exceedingly tough and does not readily break or blunt. The shanks are preferably cut from sheets of material which have the fibers disposed predominantly in planes parallel to the surface of the sheet due to the usual methods of manufacture of such sheets, so that the fibers in the shanks extend predominantly in planes longitudinal of the shanks as evidenced by the fact that the shanks may with difficulty be split longitudinally. The heads are preferably made of fibrous material in which the fibers extend in horizontal planes but in all horizontal directions. Suitable material for this purpose is the well-known button-board which is similar to high grade binder-board. In the usual procedure of manufacturing such boards the fibers extend predominantly parallel to the surfaces of the boards so that tee heads stamped out of such material have the desired arrangement of fibers.

Thus when the heads are fastened on the shanks, preferably in the manner hereinafter described, the fibers of the shanks extend predominantly in vertical planes and the fibers of the heads extend predominantly in horizontal planes, whereby the shanks do not readily break off and the heads do not tend to "nick" or split off at the sides of the shank.

The heads are preferably made of softer material than the shank so that the two parts can be more tightly interconnected, each head conforming closely to the contour of its shank when the two are interfitted. After the parts are interconnected the heads may be toughened or indurated to any desired degree by first soaking in oil and subsequently baking. However, the heads are preferably not indurated to the point of becoming brittle but are preferably left somewhat softer than the shanks.

For purposes of illustration one illustrative form of the invention and certain steps in the manufacture thereof are shown in the accompanying drawings, in which:—

Fig. 1 is a view of a piece of material from which the shanks of the finished tees are produced;

Fig. 2 discloses both an end elevation of a pair of cutting-off dies and also a side elevation of one of these dies;

Fig. 3 at its left-hand side shows, in plan and section, the blank from which the head of the tee is made and at its right-hand side a side elevation of one of the shanks;

Fig. 4 is a view of the holding dies employed in the assembly of the tee, together with a cooperating plunger die operating upon a tee held by the first-mentioned dies;

Fig. 5 is a view partially in elevation and partially in central vertical section through a finished tee; and

Fig. 6 is a side elevation of a modified form which the tee may assume in practice.

The shanks of the tees may be made of various materials but I have found hard vulcanized fiber-board, or horn fiber, or vulcanized paper very satisfactory materials for this purpose. A strip of this material of a width approximately equal to the desired length of the stems and rectangular in cross-section is first skived at its opposite sides at one edge to produce a reduction in thickness at the side at which the points will be formed. The result of this process is in-

dicated at 2 in Fig. 1. After this operation, which may be conveniently performed by grinding the edges of the strip, the material is passed between cut-off dies. These dies are shown in Fig. 2 and are numbered respectively 3, 4. These dies are provided with cooperating edges 5 and 6 which are each adapted to penetrate substantially half way through the strip 1 and between the edges on each die there is formed a groove 7 which is substantially semi-circular in cross-section, but which tapers somewhat at one end and is slightly enlarged in diameter at the other as indicated at 7'. After the blanks are cut from the strip they are placed in a suitable tumbler and any shreds which may be left attached to them are broken off leaving the shanks in substantially the desired condition and in form as shown in Fig. 3 at the right, where it will be observed that a bluntly pointed member having a slightly enlarged diameter at its opposite end is produced. This shank is referred to as 8 hereinafter.

The heads or ball-supporting portions proper of these tees are formed from suitable material, for example button-board, a composition made from waste paper stock. From this material there are formed, by an appropriate process, heads as shown to the left in Fig. 3, these heads initially being substantially flat on their upper surfaces and convex on their lower surfaces and each being traversed by an opening 10 which is a tight fit for the upper ends of the shank members. These blanks are designated 9.

The shanks 8 and partially completed head elements 9 are next assembled, this step being performed in any suitable manner, and after the member 8 has been seated within the recess in the member 9 and with its end opposite the point substantially flush with the flat surface of the member 9, or projecting slightly beyond the plane of this surface, the shanks 8 are clamped between dies 11 and 12, which are adapted to grip the shanks 8 particularly at the enlarged upper ends of the latter, with a small clearance between the lower side of the head element and the bottom of a recess 13 formed at the upper surface of the members 11 and 12. A plunger die 14 reciprocates in alignment with the shank of the tee when the latter is held between the dies 11 and 12 and is provided with a convex surface 15, preferably having at its central portion a projecting boss 16 and also having adjacent its periphery an annular shoulder 17 so formed as to prevent the lateral spread of the head blanks during the compression to which they are subject. At its outer edge this shoulder 17 is defined by an edge 18 which may serve to cut off any material which may be extruded. Under the operation of the die 14 the head is compressed into cup form and is also caused to slide downwardly along the shank 8 a short distance. The blow of the plunger 14 on the head of the shank upsets the shank over the cup 9 as indicated at 20, and also produces a head or flange 22 around the shank below the cup, this head or flange resulting in part from a slight movement of the shank past the edges 24 of the dies 11 and 12 and in part from the aforesaid sliding of the cupped head on the shank, the flange being pinched out between the dies and the cupped head. The provision of the enlargement on the upper end of the shank contributes substantially to the forming of the flange 22, as the dies 11 and 12 grip the relatively short enlarged portion and in effect bite into it in a manner to promote the formation of the flange. The compressing action to which the head is subjected also tends to reduce the diameter of the shank immediately above this shoulder with the result that when the upper end of the shank has spread as indicated at 20 in Fig. 5 the head is in effect clamped at its opposite sides by portions slightly larger than the opening through the head so that a very rigid structure is produced. As this operation is performed it will be observed that a concave ball seat 21 has been produced in the upper surface of the head upon which a ball may readily and securely be disposed, the radius of this surface being shorter than the radius of the ball.

When employing a relatively soft material such as button-board for the heads, the heads are preferably toughened and hardened after being clamped on the shanks as aforesaid. For this purpose any suitable indurating process may be employed. Subsequent to the indurating operation the tees are given one or more coats of paint.

In Fig. 6 there is disclosed a modification which may be advantageous under certain circumstances. Different golfers prefer tees of different height and also circumstances may arise where a higher tee is desired than would ordinarily be the case. For the purpose of causing the tee to penetrate the ground to the desired extent and then to give notice to the player so that he will not cause it to be lower than he might desire, there may be formed upon the exterior of the shank 8 an enlargement as indicated at 23 in Fig. 6. This may be done in various ways, as for example by a skiving process which produces the enlargement in the form of a skirt. These enlargements may be formed at different heights on different tees to suit different driving conditions.

As a result of the process through which my improved tees are passed in their production a very rigid union between the heads and shanks is secured so that the finished tees are thoroughly durable and not

apt to be damaged either during insertion or during removal and may also resist for some time the blows to which they are subjected in use. Moreover the shanks are so formed as while readily penetrating the ground, not to be blunted excessively on striking any small obstruction. Further both parts of the finished tees are composed of fibrous or laminated material with the laminations arranged in such manner as to permit most effective ground penetration while yet during manufacture the parts may be most securely united.

While the form of mechanism here shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the one form of embodiment herein disclosed, for it is susceptible of embodiment in various forms all coming within the scope of the claims which follow.

I claim:

1. A golf tee comprising a shank for insertion into the ground and a fibrous head extending laterally of the shank for supporting the ball, the fibers of the head extending predominantly in horizontal directions but in different horizontal directions, thereby to prevent the laterally extending portions of the head from splitting off.

2. A golf tee comprising a fibrous shank for insertion into the ground and a circular fibrous head on the shank for supporting the ball, the fibers of the shank extending predominantly along vertical planes and the fibers of the head extending predominantly along horizontal planes.

3. A golf tee comprising a shank for insertion into the ground and a fibrous head extending laterally of the shank for supporting the ball, the fibers of the head extending predominantly in horizontal directions but in different horizontal directions, the shank extending through the head and being anchored thereto.

4. A golf tee comprising a shank and a perforate head fitted thereon, the shank having a shoulder abutting the lower side of the head and having its upper end upset over the head.

5. A golf tee comprising a shank of vulcanized fibrous material having the fibers extending predominantly in vertical planes and a head of softer fibrous material having the fibers extending predominantly in horizontal planes.

6. The method of making a golf tee which comprises forming a shank of vulcanized fibrous material and a perforate head of softer fibrous material, fitting the head over the shank, and subsequently hardening the head.

7. The method of making golf tees which comprises forming a shank and a perforate head, fitting the head over the shank, and upsetting the shank over the head both above and below the head.

Signed by me at Portsmouth, N. H., this twenty-first day of October 1924.

HENRY B. TILTON.