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Coffey et al.

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[54] **SYNTHETIC GOLF TEE**

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[52] **U.S. Cl.** ..... **273/195 A**; 161/21; 161/89

[51] **Int. Cl.** **A63b 69/36**

[58] **Field of Search** ..... 273/195 A, 176 J, 196, 273/197, 198; 161/21, 89

[56] **References Cited**

UNITED STATES PATENTS

3,332,828 7/1967 Faria et al. 161/21

FOREIGN PATENTS OR APPLICATIONS

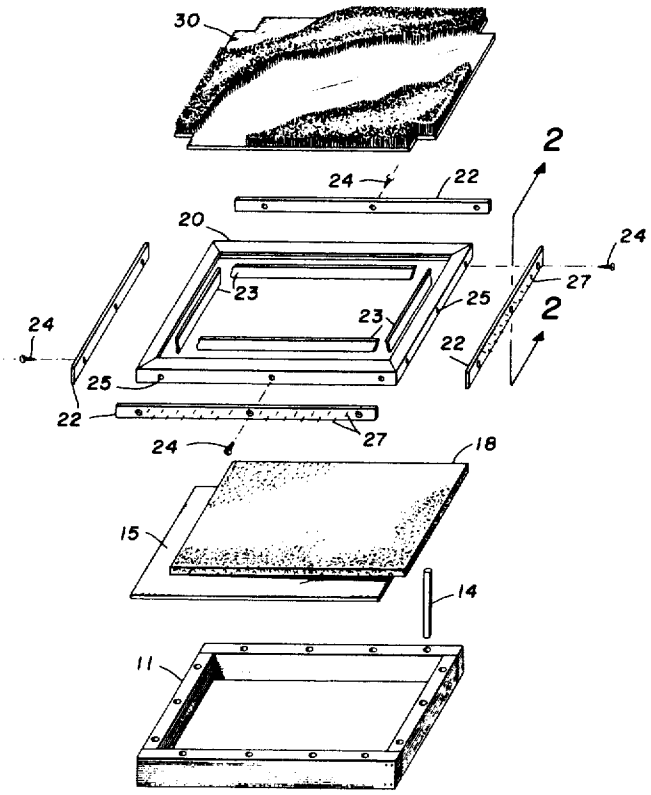
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Primary Examiner—George J. Marlo

[57] **ABSTRACT**

A synthetic golf hitting area adaptable for receiving a golf tee upon which a golf ball is placed for striking includes a frame mounted on a subsurface and a synthetic grass like fabric which is mounted on and stretched across the frame. The grass like fabric is a pile carpet of knitted construction wherein the total yarn denier is from about 3,000 to about 10,000 and wherein the tuft density of the piles ranges from 24 to 64 per square inch with the pile height being from one-fourth inch to three-fourth inches.

8 Claims, 3 Drawing Figures



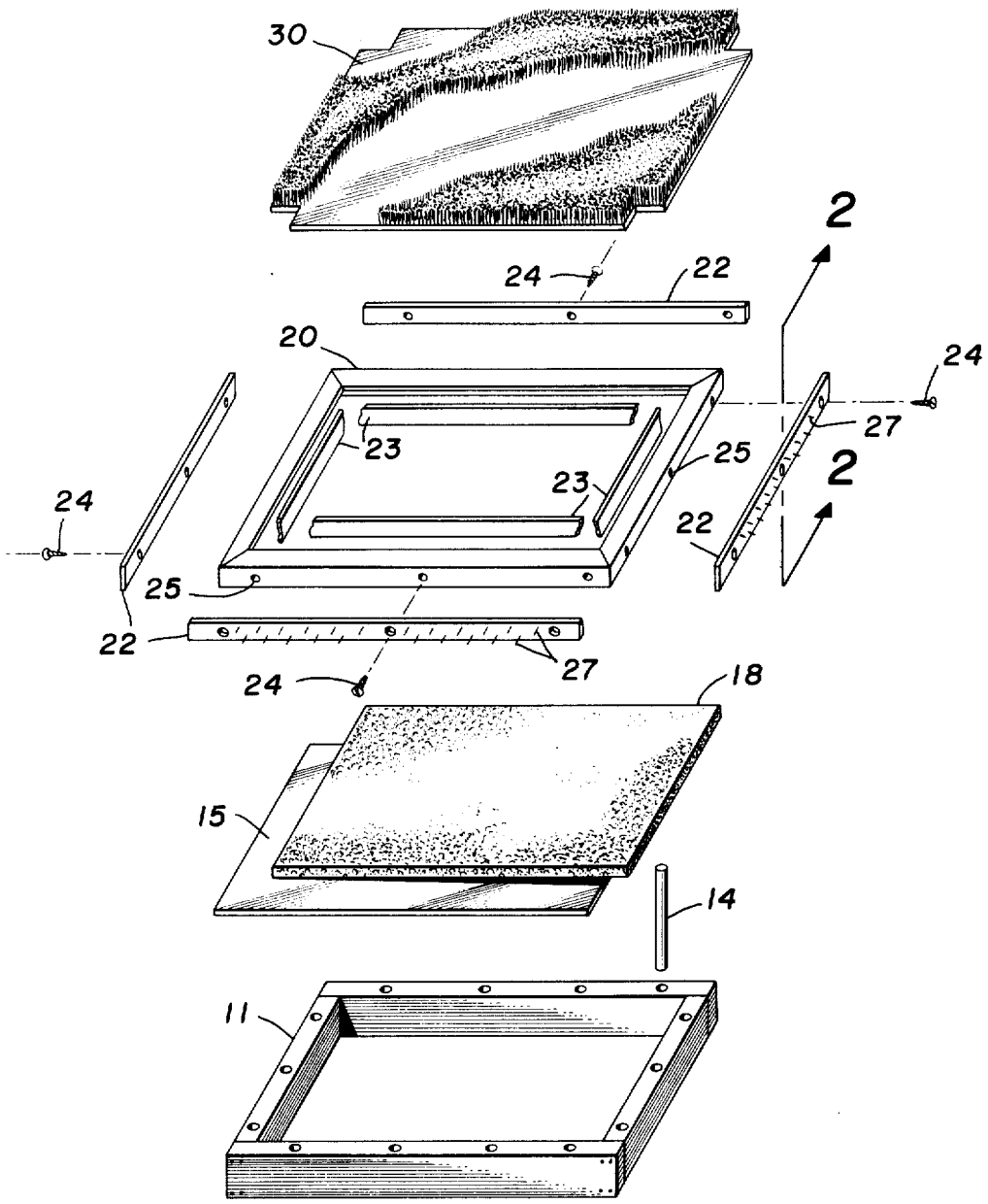


FIG. 1.

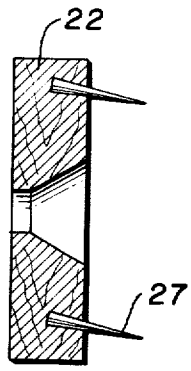


FIG. 2.

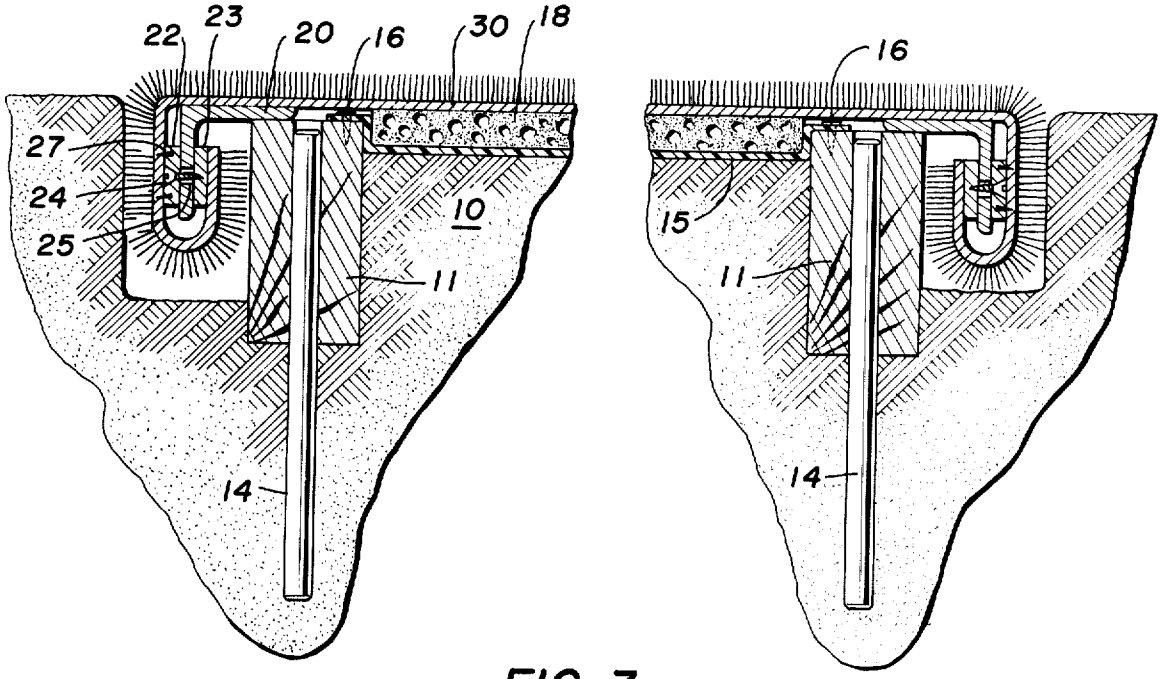


FIG. 3.

SYNTHETIC GOLF TEE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a synthetic golf tee and, more specifically, to a golf tee of a specific knitted construction wherein a golf ball supporting tee may be inserted through the pile carpet comprising the tee.

2. Brief Description of the Prior Art

Synthetic golf tees have been quite common for a long period of time and have found use especially on golf driving ranges. These prior art golf tees are very small and generally represent only the hitting area with the player standing on an adjacent rubber mat or the like. These golf tees are generally constructed by embedding a plurality of bristle like fibers into a rigid backing. If the player desires to elevate the golf ball above the surface of the tee area, he places the ball on a rubber insert which acts as a tee. While the prior art synthetic tees are adaptable for driving ranges, they have never found favor as a tee area on a golf course because a golfer would be limited to positioning his ball on a few square inches of synthetic tee and not be permitted to move around the golf course tee areas as he might desire. Also, the prior art tee areas are slightly elevated above the player's feet which is undesirable for the golfer must modify his swing and stance to correct this natural hooking stance.

SUMMARY OF THE INVENTION

This invention is comprised of a subsurface, a frame mounted on the subsurface and a pile carpet secured to and stretched across a frame. The subsurface may be natural dirt only; however, the preferred construction is to place a synthetic foamed sheet over a prepared natural dirt surface. The synthetic foamed sheet should be thick enough to allow for the golf tee to be inserted therein without penetrating the entire depth of the structure. The sheet should also be flexible enough to receive the tee but firm enough so that a force greater than four pounds per square inch in necessary to deflect the sheet 25% of its original thickness. If the foamed sheet is too flexible, the golfer does not have a firm footing and his feet will penetrate too deeply into the tee area as his weight shifts to his right foot during the backswing and to his left foot during the follow-through. It is desirable to have a foamed sheet of the type described in order to maintain a uniform tee area due to the fact that natural soil tends to shift which is a result of excessive play and weather. The material comprising the foamed sheet may be polyvinyl chloride, polyolefins such as polyethylene and polypropylene, snythetic rubber, polyurethane and the like.

The frame is generally comprised of aluminum and means for securing the pile carpet to the same. The size of the frame generally depends upon the size of the anticipated tee area, but in any event should be large enough to accommodate the golfer and the ball resting on the tee simultaneously during the swing. More appropriately, the frame should cover an area large enough to allow the golfer to move from one location on the tee to another to take advantage of various natural conditions such as wind and pin location on the green.

The synthetic grass-like fabric which covers the tee area and is secured to the exterior periphery of the frame is a pile carpet of knitted construction. Carpets

of other construction such as tufted and woven are not suitable for this application for the reasons that the vertically extending tufts cannot be secured tightly enough in the backing to prevent them from being loosened and removed therefrom upon repeated striking of the carpet surface by a golf club. It is possible to weave a carpet of this type which would retain the tufts in the backing; however, such a carpet would have to be woven so tightly as to prevent tee penetration therethrough and thus destroy the usefulness as a golf tee. The total yarn denier which comprises the carpet must be from 3,000 to 10,000. Total yarn denier includes the stitch yarn, the pile yarn and the lay-in yarn. Total yarn denier therefore is those yarns previously identified which are present at each gauge position. The total pile denier which makes up the bulk of the total yarn denier ranges from about 2,000 to about 9,000. The tuft density or the number of vertically extending tufts per square inch is from 24 to 64. Thus, the total yarn denier and the tuft density dictate the size of the space available for tee penetration. Where the total yarn denier is below 3,000 or the tuft density is below 24, the resulting carpet has inadequate strength and dimensional stability and is not useful as a golf tee. Where the total yarn denier is above 10,000 or the tuft density is above 64 per square inch the resulting pile carpet becomes so tightly knitted that tee penetration can only be accomplished with great effort which again would not make such a carpet useful as a golf tee.

The carpet pile height affects both product durability and the golfer's ability to complete his swing or follow-through. A pile height of less than one quarter inch reduces fabric durability and can produce severe arm shock to the golfer if the club follows an arc which would carry the club head into the carpet. Where the pile height is greater than one quarter inch, the pile bends with the club head and tends to slide the club head forward and through the ball. A pile height of greater than three quarters is subject to pile matting and can cause the pile to be pushed through the fabric during tee insertion, both of which cause high tee penetration forces.

In general, the pile carpet of this invention employs a knitted construction as described in U.S. Pat. No. 3,332,828.

While the filaments comprising the pile may be round in cross section, it is preferred that the filaments be blade like or flat. In other words, the blade-like filaments should be substantially rectangular in cross-section having a width to thickness or aspect ratio of at least 3:1. While the denier of the individual filaments comprising the pile may be low, it has been found that a denier of at least **300** is preferable in order to provide adequate strength which is necessary to withstand the shearing action of a club head as it passes through a carpet.

DETAILED DESCRIPTION OF THE DRAWINGS

FIG. **1** is an exploded view showing the various components which comprise the invention;

FIG. **2** is a section view taken along lines **2,2** of FIG. **1** and showing means for securing the pile carpet to the frame; and

FIG. **3** is a sectional view showing the construction of the golf tee.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Soil **10** is leveled and prepared to receive inner frame **11.** Inner frame **11** is comprised of wooden boards **12** which are secured together by any common means in the shape of a rectangle as shown in FIG. **1.** Boards **12** are provided with a plurality of vertically extending tubular passageways **13** which are adapted to receive cylindrical rods **14.** Rods **14** are pounded through tubular passageways **13** and into soil **10** to secure support frame **11** therein. Polyethylene sheet **15** is then laid over the opening defined by support frame **11** and is secured to support frame **11** by means of tacks **16.** Polyethylene sheet **15** acts as a moisture barrier for the golf tee playing area. Thus, support frame **11** is adapted to receive a foamed polyurethane pad **18** which is approximately three quarters inch thick and which is contoured to fit snugly within the interior opened area as defined by support frame **11.**

Carpet frame **20** is comprised of angle shaped aluminum bars **21** which are fitted together to geometrically resemble support frame **11** but is slightly larger so as to extend over the exterior peripheral areas thereof. Each of the aluminum bars **21** are flanked with wooden slats **22** and **23** which are secured thereon by means of metal screws **24** which pass through openings **25** located in aluminum bars **21.** Exterior wooden slats **22** are provided with downwardly pointed securing pins **27.** Carpet **30** is stretched over carpet frame **20** and secured to the same by means of securing pins **27.** Having fastened carpet **30** to carpet frame **20,** that structure is then adaptable to be fitted over support frame **11.** It is not necessary to secure support frame **11** to carpet frame **20.** In fact, it is desirable not to do so in order that carpet frame **20** along with carpet **30** may be removed from support frame **11** for cleaning purposes.

EXAMPLE 1

A frame structure as previously described was prepared and a pile carpet was secured thereto. The pile carpet was of knitted construction and had a total yarn denier of 6500. The pile yarn had a denier of 4500, the stitch yarn had a denier of 1,000 and the lay-in yarn had a denier of 1,000. The pile yarn was comprised of nine 500 denier nylon ribbons having an aspect ratio of 9:1. The thousand denier stitch and lay-in yarn was continuous filament polyester tire yarn. The composite of the filaments were knitted to provide a one half inch pile height, the knitted carpet having six wales and eight courses per inch to provide a tuft density of **48** per square inch.

To test for durability, a 2 inch square was marked on the surface of the carpet and this 2 inch square area was struck 250 times with a seven iron with the tester taking full swings. The test area was then examined and it was found that no pile yarns were removed from the pile carpet nor was the carpet base damaged in any appreciable way. A second 2 square inch area was marked off on the pile carpet and a tester using a standard golf tee and golf ball penetrated the second marked area 500 times with the tee. It was found that tee retention was adequate after the 500th tee penetration and that the pile carpet was not damaged by filament breakage as a result of the repeated tee insertions.

The foamed sheet material used was polyurethane having 25% deflection with a force of 5 pounds per square inch. The foam pad was three quarters of one inch thick and the golf tees did not penetrate the same.

EXAMPLE 2

The procedure of Example 1 was repeated with the exception that the pile carpet had a total yarn denier of 2500 and had approximately 20 tufts per square inch. While this pile carpet easily passed the tee penetration test, it failed the golf club impact test in that the pile yarn was pulled from the carpet base to the extent that substantially all of the filaments had been either severed or pulled out.

EXAMPLE 3

The construction of Example 1 was repeated with the exception that the total yarn denier was 10,000 and the tuft density was 70 per square inch. The Example easily passed the golf club impact test; however, the tee penetration test could not be accurately evaluated because the tee could only be inserted through the pile carpet with undue force which all but prevented the tee from being inserted therethrough. It was also noted that certain lay-in and stitch yarns were severed due to the force required for tee penetration.

We claim:

1. A synthetic golf tee comprising:

a. a subsurface,

b. a frame mounted on said subsurface, said frame being comprised of side walls defining a golf tee area, and

c. a synthetic fabric secured to said frame and covering said golf tee area, said synthetic fabric comprising a pile carpet of knitted construction, said pile carpet having a total yarn denier of from 3,000 to 10,000, a tuft density of from 24 to 64 per square inch and a pile height of from one-fourth to three-fourth inch.

2. The synthetic golf tee of claim **1** wherein said subsurface is comprised of a dirt base and a synthetic foamed sheet being at least one-quarter inch, positioned between said dirt base and said synthetic fabric and supporting said synthetic fabric.

3. The synthetic golf tee of claim **2** wherein said synthetic foamed sheet required a force greater than 4 pounds per square inch to deflect said sheet 25% of the original thickness.

4. The synthetic golf tee of claim **3** wherein said foamed sheet is comprised of the group consisting of closed cell polyvinyl chloride, polyolefin, synthetic rubber and polyurethane.

5. The synthetic golf tee of claim **1** wherein the pile fibers are nylon and are blade-like in construction having an aspect ratio of at least 3 to 1.

6. The synthetic golf tee of claim **5** wherein said pile fibers individually have a denier of at least 300.

7. The synthetic golf tee of claim **6** wherein the total pile denier is from 2000 to 9000.

8. The synthetic golf tee of claim **5** wherein said total yarn denier is approximately 6500 and said tuft density is approximately 48.

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