July 24, 1934. K. P. EDWARDS 1,967,355

COLLAPSIBLE GOLF SHAFT

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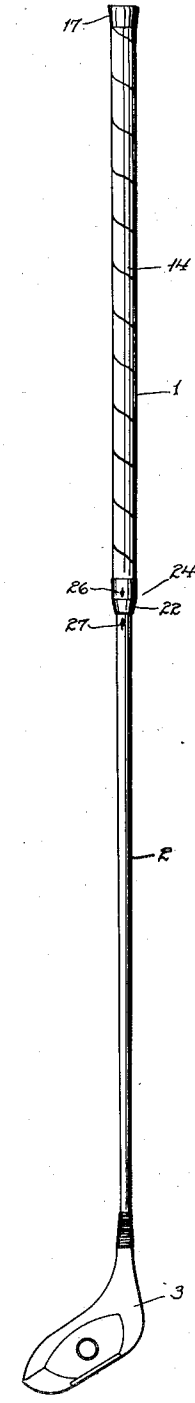


Fig. 1

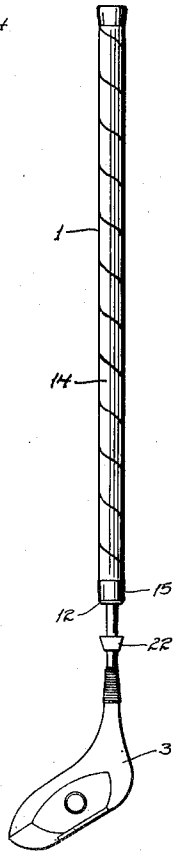


Fig. 2

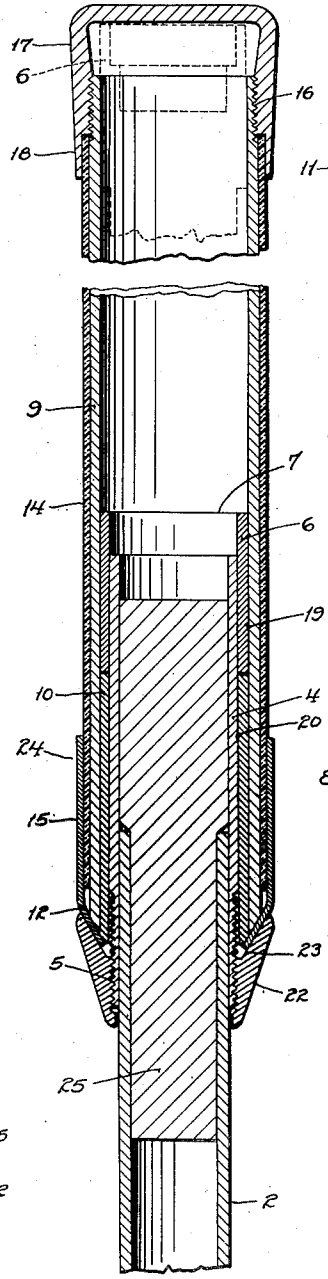


Fig. 3

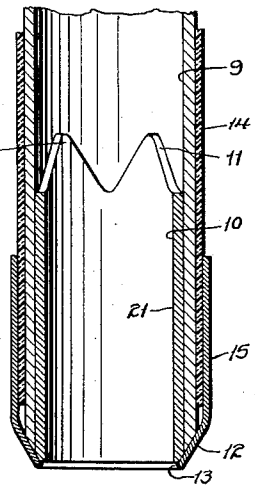


Fig. 4

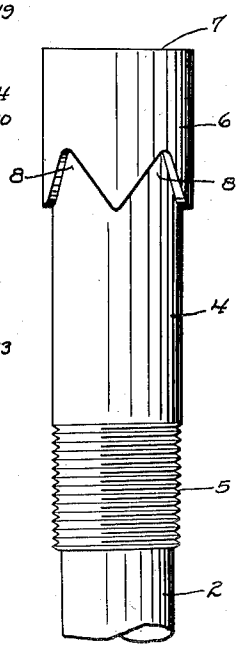


Fig. 5

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COLLAPSIBLE GOLF SHAFT

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7 Claims. (Cl. 273—80)

This invention relates to golf club shafts and particularly to longitudinally collapsible shafts.

It is one of the objects of my invention to provide a golf shaft construction whereby a golf club may be longitudinally collapsed or shortened for transportation purposes.

Another object of my invention is so provide a longitudinally collapsible golf shaft which will be cheap to construct and efficient and durable in operation.

Another object is to provide a longitudinally collapsible golf shaft comprising a plurality of relatively movable parts which are constructed in a manner to prevent their being separated from each other.

Another object is to provide a golf club comprising a shaft composed of a plurality of longitudinally collapsible portions adapted to be joined or assembled together for use and provided with a joint construction for joined portions thereof which will be free from looseness or any liability to looseness.

Another object is to provide a golf club comprising a plurality of longitudinally collapsible portions adapted to be joined or assembled together for use without variation from a predetermined longitudinal alignment relationship of the portions.

Another object is to provide a golf club comprising a plurality of longitudinally collapsible portions adapted to be joined or assembled together for use without variation in the relative rotational relationship of the parts around the longitudinal axis.

Another object is to provide a golf club comprising a plurality of longitudinally collapsible portions adapted to be joined or assembled together for use without variation in the length of the club as a whole.

Another object of my invention is to provide a golf club comprising a plurality of longitudinally collapsible portions adapted to be joined or assembled together for use in a manner to prevent rotatable shifting of the head end of the club relative to the handle or grip end when under the action of torque-producing impact on the head.

Another object is to provide a golf club comprising a plurality of longitudinally collapsible portions adapted to be joined or assembled together for use and constructed to require the minimum of added weight in the joint portions.

Another object is to provide a longitudinally collapsible golf club comprising a plurality of portions, one of which is adapted to be telescoped longitudinally within the other in an improved manner.

Another object is to provide a longitudinally collapsible golf club comprising two portions, a hollow handle portion and a head-carrying shaft portion, the shaft portion being adapted to be longitudinally telescoped within the handle portion.

Another object is to provide a longitudinally collapsible golf club comprising a hollow handle portion and a head-carrying shaft portion, the shaft portion being adapted to be telescoped longitudinally within the handle portion to shorten the length of the club for transportation purposes, and the two portions being adapted to be untelescoped to a predetermined degree of overlap and rigidly secured together at the overlapped portions to form a full length club for use.

Other objects will be apparent to those skilled in the art to which my invention appertains.

My invention is fully disclosed in the following description taken in connection with the accompanying drawing, in which:

Fig. 1 is a side elevational view of a complete golf club embodying my invention, and with the parts in position for use;

Fig. 2 is a view similar to Fig. 1 of the club of that figure in longitudinally collapsed condition for transportation purposes;

Fig. 3 is a longitudinal cross sectional view of the club of Figs. 1 and 2, with parts broken away and drawn to a larger scale and illustrating a joint construction which I may employ with the parts thereof in the assembled or uncollapsed condition of Fig. 1;

Fig. 4 is a fragmentary cross sectional view of some of the parts of Fig. 3;

Fig. 5 is an elevational view of the upper end of a club shaft portion which I may employ, and shown also in Fig. 3.

Referring to the drawing, I have shown generally at 1 a handle or grip portion of a golf club, and generally at 2 a shaft portion on the lower end of which is a club head 3. The head 3 may be of the usual construction and may be of any of the forms known in the art and may be attached to the lower end of the shaft 2 in any preferred manner, these features constituting no essential part of my invention, and in this connection also, the shaft 2 may be a hollow tubular shaft to be further illustrated and described in connection with the embodiment shown, or shaft 2 may be a solid shaft of wood, or a combination of wood and metal.

In the practice of my invention, the shaft portion 2 is adapted to be telescoped within the handle portion 1 to dispose the parts as illustrated in Fig. 2 wherein it will be seen that the total length of the golf club is approximately only one-half of that of the full length club of Fig. 1; and similarly the parts as illustrated in Fig. 2 may be untelescoped to dispose them in the condition of Fig. 1 for use as a club. The construction of the two parts of the club and the means to secure them together and the mode of operation thereof for the purposes just mentioned will now be described in connection with Figs. 3, 4 and 5.

The upper end of the shaft portion 2, which in the embodiment illustrated is of tubular construction, is provided with a shank portion 4 of slightly enlarged diameter which, at its lower portion, is provided with external screw threads 5 and at its upper portion with a head 6.

The construction thus described may be provided by telescoping a shank 4 of tubular material such as metal over the shaft portion 2 and telescoping a tubular head 6 over the shank portion 4, and by means of welding, brazing, press-force fitting, shrinking or like processes, the parts may all be rigidly secured together; or if preferred, they may be formed integrally out of a single piece of material.

In the embodiment illustrated, the shank portion 4 is slightly tapering, the surface thereof converging downwardly. The head 6 at its upper termination 7 may be disposed in a transverse plane but at its lower end the head 6 is provided with a plurality such as four cusps 8—8. The cusps may be of various suitable shapes but I prefer to give them the shape of equilateral triangles, that is to say, to form them to embrace an angle of 60°. Preferably also the cusps are disposed symmetrically around the axis of the shaft.

The handle portion 1 of the club comprises an inner tubular handle portion 9 in the lower end of which is an internal head 10 preferably provided by securing in the tubular handle 9 a short piece of tubing material rigidly secured to the handle 9 in any preferred manner such as those mentioned as suitable for securing the head 6 to the shank 4.

The upper end of the internal head 10 terminates in a plurality of tongues 11—11 substantially the same shape and size and disposition as the cusps 8 of the head 6 above described.

On the lower end of the handle 9 and head 10 is disposed a ferrule 12, the outer surface of which is conical, tapering downwardly. The ferrule is provided with an aperture 13 substantially the same size as the inside diameter of the internal head 10. The outer surface of the tubular handle 9 is preferably covered with a grip surface of leather, or like suitable material, 14, which may be wrapped spirally thereupon from end to end of the tubular handle 9. The lower end of the winding 14 may be secured in place by an upwardly extending tubular extension of the ferrule 12 shown at 15, telescoped outwardly upon the winding 14.

The upper end of the tubular handle 9 may be externally threaded as at 16 and upon the threads may be screwed a cover or cap 17, and the cap may have a downwardly extending tubular portion 18 adapted to telescope outwardly over the upper end of the winding 14.

In assembling the handle portion 1 and shaft portion 2 above described, the shaft portion 2, before the head 3 is secured thereto, is telescoped from above downwardly through the handle portion 1 before the cap 17 is put on the handle. Then the cap 17 is screwed into place and thereafter the shaft and handle portions are, in the practice of my invention, never separable.

The head 6 substantially fits the inside wall of the tubular handle 9 as at 19. Also the shank portion 4 substantially fits the inner wall of the internal head 10 as at 20, and to this end, the internal wall 21 of the said internal head may be slightly conical, and downwardly tapering. When the shaft portion and handle portion are untelescoped as far as they may go, the tongues 11—11 of the handle portion will mesh with the cusps 8—8 of the shaft portion and the parts will then be in the position illustrated in Fig. 3.

At this time, a nut 22 freely encircling the shaft portion 2, is moved upwardly axially along the shaft portion until its threads may be screwed on the thread 5. The nut 22 in its upper portion has a downwardly tapering internal conical wall of approximately the same angle as the conical ferrule 12. When the nut 22 is screwed tightly on the thread 5, its conical wall 23 engages the ferrule 12 and both centers the shaft 2 with respect to the handle portion 1 and draws the two portions in the untelescoping direction to draw the tongues 11 into the cusps 8 and rigidly seat the same together. This disposes the parts in condition for use as a club.

It will be observed that the two portions 1 and 2 of the club overlap each other at the joint construction indicated generally at 24; that the joint is perfectly rigid, particularly in the preferred form of construction in which the head 6 and shank 4 fit respectively the tubular handle 9 and the internal head 10. The overall length of the shaft is invariable and the shaft portion 2 when a blow is struck on the head 3 cannot twist out of position with respect to the handle portion 1 because of the engagement of the tongues 11 and cusps 8.

When the minimum of cost is an essential consideration, the close fit between the shank portion 4 and the internal head 10 and particularly the tapering fit thereof may be omitted, and the tight engagement of the tongues 11 and the cusps 8 and a reasonably accurate fit between the head 6 and the tubular handle 9, taken in conjunction with the centering effect and rigid interlocking action of the nut 22 on the conical ferrule 12 may be relied upon to effect a joint of sufficient rigidity.

A filler 25 of light-weight metal such as aluminum, may be disposed within the shaft portion and extend over a portion of the overlapping joint construction to facilitate the use of thin walled parts and to supplement their rigidity if desired.

To collapse the club shaft of my invention, it is only necessary to unscrew the nut 22 and permit it to slide down on the shaft portion 2 to such position as that illustrated in Fig. 2 whereupon, the two parts of the shaft may be telescoped together, the head 6 sliding upwardly into the tubular handle 9 until it takes up the position indicated in dotted lines in Fig. 3, its extreme upper position being stopped upon the inner internal end wall of the cap 17.

In untelescoping the handle and shaft portions preparatory to locking them together for use, it is highly desirable that the shaft portion 2 and handle portion 1 shall in every instance take up exactly the same relatively rotational

position. For purposes of economy in manufacture, it is preferred that the cross sectional shape of the shaft and handle portions generally be circular so that it is possible, when the parts are in the collapsed position, for the shaft to rotate around within the handle portion. In order then that the desired predetermined rotational relative position may be attained when the parts are assembled for use, I prefer to mark the lower end of the handle portion 1 as at 26 and the upper end of the shaft portion 2 as at 27 with indicia such as arrows or stars to indicate generally the correct relative positions of the handle and shaft, and when they are placed generally relatively in these positions, the nut 22, upon being drawn up tight, will cause the interaction of the tongues 11 and cusps 8 to exactly position the handle and shaft portions as will be understood.

It is, furthermore, within the scope of my invention to so form the tongues 11 and cusps 8 and to so space the same relatively that they cannot be intermeshed except in one predetermined relative rotational position of the shaft 1 and handle 2, in which case the indicia 26 and 27 would not be needed, but the preferred form comprehends the use of the indicia with tongues 11 and cusps 8 of any suitable shape and disposition.

By means of the foregoing construction and mode of operation it will be apparent that the following advantages result.

The parts of the club including the handle portion, shaft portion and the nut 22 are not separable and cannot become lost nor interchanged accidentally with corresponding parts of other shafts. The joint between the parts is rigid and there is no looseness in it nor liability of looseness in use. The club will have the same "feel" every time it is set up for use because of the predetermined alignment relation of the parts. When it is desired to repair the shaft portion 2, it may be taken out of the club separately, by first removing the head 3, and repairs independently of the handle portion 1 whereby repairs are rendered relatively cheap. In case of accident, a new shaft portion may be supplied without the necessity of greater cost of both shaft and handle as has heretofore been necessary. The joint construction prevents accidental shifting of the head 3 rotationally when a blow is struck on a golf ball. The joint construction and mode of operation are equally applicable to wood or metal shaft portions. The joint construction provides a suitable amount of overlap of the two main telescoped parts whereby strength and rigidity and durability are insured. The club is exactly of the same length every time it is put together for use.

My invention is not limited to the exact details of construction shown and described. Hereinbefore alternative features of some of the parts are described and other changes and modifications may be made within the spirit and scope of my invention.

Preferably in practice, the nut 22 is provided with threads of small helical angle and the outer periphery of the nut is relatively large, whereby it may be easily screwed up with sufficient tightness by the unaided thumb and finger, but if preferred, wrench surfaces may be provided on the nut for cooperation with a suitable wrench.

I claim:

1. In a collapsible golf shaft, a tubular handle, a shaft telescopically longitudinally movable therein, stop portions on the handle and shaft respectively engageable upon telescopically extending the handle and shaft, and means for telescopically extending the handle and shaft and forceably engaging the stop portions, the stop portions being provided with interlocking surfaces to predetermine a relative rotational position of the handle and shaft.

2. In a collapsible golf club, a tubular handle, a shaft telescopically longitudinally movable therein, stop portions on the handle and shaft respectively engageable upon telescopically extending the handle and shaft, a screw-threaded nut on the shaft engageable with a portion of the handle to telescopically extend the handle and shaft and forceably engage the stop portions.

3. In a collapsible golf club, a tubular handle, a shaft telscopically longitudinally movable therein, stop portions on the handle and shaft respectively engageable upon telescopically extending the handle and shaft, a screw-threaded nut on the shaft engageable with a portion of the handle to telescopically extend the handle and shaft and forceably engage the stop portions, the nut and the corresponding engageable portion of the handle having conical mutually engageable surfaces to axially align the shaft relative to the handle.

4. In a collapsible golf club, a tubular handle, a shaft telescopically longitudinally movable in the handle, the shaft having an enlarged portion substantially fitting the handle interiorly thereof, the handle being provided on its lower end with a conical surface, a nut screw-threaded on the shaft having a conical surface engageable with that on the handle, the handle and shaft, having mutually interlockable portions adapted to be interlocked by a longitudinal extension movement, said interlocking portions when moved longitudinally into interlocked relation being adapted to stop further longitudinal movement of the handle and shaft and being adapted to establish a predetermined relative rotational position of the handle and shaft, the interlockable portions being adapted to be drawn into interlocked relation by the nut when turned.

5. In a collapsible golf club, a tubular handle, a shaft telescopically longitudinally movable in the handle, the shaft having an enlarged portion substantially fitting the handle interiorly thereof, the handle being provided on its lower end with a conical surface, a nut screw-threaded on the shaft having a conical surface engageable with that on the handle, the handle and shaft, having mutually interlockable portions adapted to be interlocked by a longitudinal extension movement, said interlocking portions when moved longitudinally into interlocked relation being adapted to stop further longitudinal movement of the handle and shaft and being adapted to establish a predetermined relative rotational position of the handle and shaft, the interlockable portions being adapted to be drawn into interlocked relation by the nut when turned, and the engageable conical portions of the nut and handle being adapted to axially align the shaft with the handle.

6. In a collapsible golf club, a tubular handle, a shaft telescopically longitudinally movable in the handle, the shaft having an enlarged portion substantially fitting the handle interiorly thereof, the handle being provided on its lower end with a conical surface, a nut screw-threaded

on the shaft having a conical surface engageable with that on the handle, the handle and shaft, having mutually interlockable portions adapted to be interlocked by a longitudinal extension movement, said interlocking portions when moved longitudinally into interlocked relation being adapted to stop further longitudinal movement of the handle and shaft and being adapted to establish a predetermined relative rotational position of the handle and shaft, the interlockable portions being adapted to be drawn into interlocked relation by the nut when turned, and means on the handle and shaft to approximately determine said predetermined rotational relative position.

7. In a collapsible golf shaft, a tubular handle, a shaft rotatively and telescopically longitudinally movable within the handle, the handle and shaft being provided with mutually interlockable portions adapted to be intermeshed upon effecting longitudinal extending movement of the shaft and handle and adapted upon intermeshing to predetermine a relative rotational position of the handle and shaft and adapted to intermesh to prevent rotational shifting of the handle and shaft relatively and means preventing longitudinal relative displacement of the handle and shaft in the contracting direction.

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