May 8, 1962 G. K. HAUSE 3,033,575

PRACTICE GOLF CLUB

Filed April 22, 1960

Fig. 1.

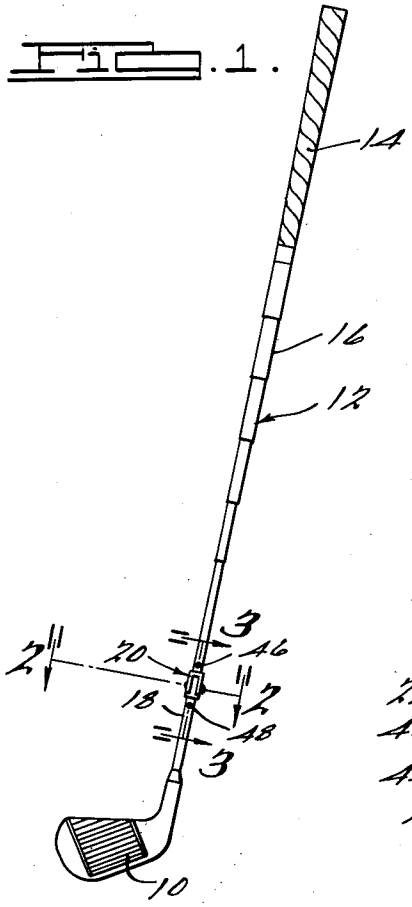


Fig. 2.

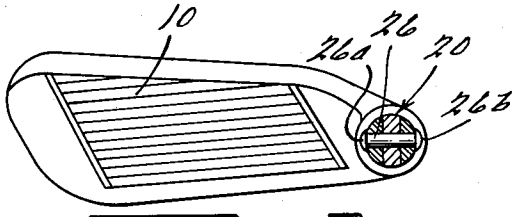


Fig. 3.

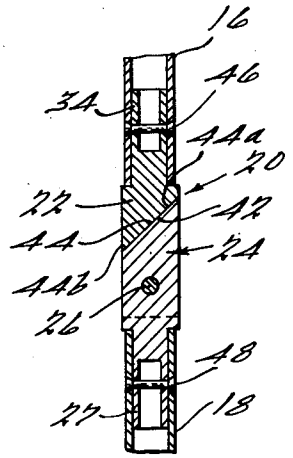
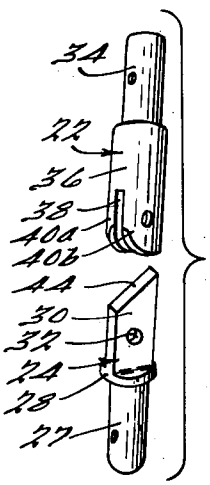


Fig. 4.



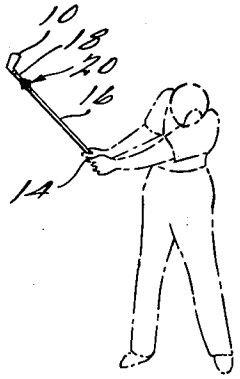


Fig. 5.

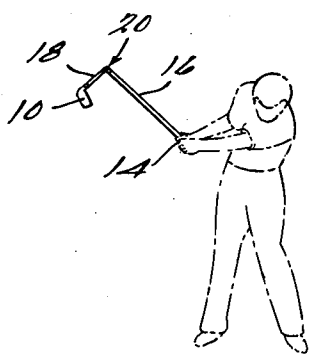


Fig. 6.

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PRACTICE GOLF CLUB

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This invention relates to practice golf clubs and, particularly, to a practice golf club having an improved hinge construction.

It is an object of the present invention to provide a practice golf club having an improved hinge interposed in the shaft thereof which permits the head of the club to pivot relative to the grip when the club is improperly swung, yet which operates to keep the shaft rigid and straight when the club is swung properly.

It is another object of the present invention to provide a hinge for a practice golf club of the above character in which any detectable looseness of fit between the hinge parts resulting from wear or normal dimensional tolerances is minimized or substantially eliminated.

It is still another object of the present invention to provide a hinge for a practice golf club of the above character in which the centrifugal force of the club head is utilized to wedge the hinge parts away from one another to take up any looseness between the hinge pin and the apertures of the hinge parts through which the hinge pin extends.

It is still another object of the present invention to provide a hinge for a practice golf club of the above character which is operable to keep the shaft portions on opposite sides thereof in proper alignment during correct usage of the club and which eliminates undesired lateral wobble.

These and other objects and advantages of the present invention will become apparent from the following detailed description taken in conjunction with the accompanying drawings wherein:

FIGURE 1 is an elevational view of a hinged practice golf club embodying the principles of the present invention;

FIGS. 2 and 3 are sectional views of the hinge structure illustrated in FIG. 1, taken along the lines 2—2 and 3—3 thereof, respectively;

FIG. 4 is an exploded view of the two hinge members shown in FIGS. 2 and 3; and

FIGS. 5 and 6 are views showing the use of the golf club illustrated in FIG. 1 in proper and improper swings, respectively.

Referring now to the drawings, FIGURE 1 illustrates a training or practice golf club having a head **10** connected to the lower end of a shaft **12**. The shaft **12** is provided at its upper end with a grip **14**. The head **10** is illustrated in the drawing as a forged metal member of the type normally referred to as an "iron" in golf terminology. It will be appreciated, however, that the head **10** may be of the "wood" configuration or comprise any suitably shaped mass of material having a face adapted to make contact with a golf ball. The grip **14** is adapted to form a hand gripping portion and may be made from rubber, leather, cork composition or simply may comprise the upper end portion of the shaft itself. As used herein, the term "grip" is intended to mean any portion of the shaft or any material attached to the shaft which is intended to be grasped by the user for the purpose of swinging the club. The shaft **12**, illustrated herein, is shown as being of tubular metal, which is the most common type of golf club shaft in current use. It will be appreciated, however, that any suitable material may be used for the shaft, as, for example, wood, fiber glass or the like.

The shaft **12** is divided into two parts: an upper shaft portion **16** having the grip **14** at the upper end thereof and a lower shaft portion **18** connected to the head **10**. Interconnecting the shaft portions **16** and **18** is a hinge **20** including a pair of hinge members **22** and **24** pivotally connected by a hinge pin **26**. The hinge **20** is designed to permit the head **10** and lower shaft portion **18** to pivot rearwardly relative to the upper shaft portion **16** and grip **14**, and when the club is swung improperly such pivotal action will occur. When the club is swung correctly, however, the hinge **20** is operable to maintain the shaft portions **16** and **18** in alignment. In other words, the hinge **20**, which is interposed in the shaft **12**, is intended to cause the shaft to "break" or "bend" to indicate to the user that the club is not being swung properly. It has been found that desirable results are achieved by using a lower shaft portion **18** which is approximately six inches in length, although shaft portions of varying lengths may be used.

The construction and arrangement of parts of the hinge **20** may be clearly seen in FIGS. 2–4, wherein the lower hinge member **24** will be seen to include a hollow, depending cylindrical portion **27**, a collar **28** at one end of the portion **27** and a tongue **30** on the opposite side of the collar **28**. The tongue **30** is provided with an aperture **32** extending laterally therethrough. The upper hinge member **22** includes a hollow cylindrical portion **34** extending upwardly from a body portion **36** having a groove **38** formed therein adapted to receive the tongue **30** of the lower hinge member **24**. The groove **38** divides or bifurcates the lower end of the hinge member **22** into a pair of apertured fingers **40***a* and **40***b*. The bottom or end of the groove **38** is defined by a sloping shoulder **42** which is engageable by a conformably inclined shoulder **44** formed on the end of the lower hinge tongue **30**. It will be seen that said shoulders engage one another on a plane extending from a downwardly and rearwardly direction to a forwardly and upwardly direction relative to the face of the club. The cylindrical portion **34** of the upper hinge member **22** is tightly fitted within the upper shaft portion **16** and is tightly held therein by means of a rivet **46**. The cylindrical portion **27** of the lower hinge member is fitted within the end of the lower shaft portion **18** and is held therein by means of a rivet **48**.

As viewed in FIG. 3, it will be seen that the lower hinge member **24** may pivot in a clockwise direction so that its shoulder **44** will move away from the shoulder **42** of the upper hinge member **22**. This is a rearward direction relative to the face of the club head **10**. Movement of the lower hinge member **24**, in a counterclockwise direction, as viewed in FIG. 3, is limited by abutment of the shoulder **42** against the shoulder **44** and when in this position the shaft portions **16** and **18** are disposed in alignment. By virtue of the placement or angle of the hinge pin **26** relative to the head **10** of the club and also due to the centrifugal force of the club head **10** when being swung, the shaft portions **16** and **18** will stay in alignment when the club is properly swung, as is illustrated in FIG. 5. However, if the club is swung with a jerky motion, if the wrists are improperly rotated or pronated, or if the swing is otherwise improperly executed, the lower shaft portion **18** will pivot rearwardly to indicate the improper swing.

In practice, it has been found desirable to utilize stainless steel in the manufacture of the hinge **20**, although it will be understood that other suitable materials could also be utilized. The design and shape of the hinge **20** has a distinct bearing on the efficiency and desirability of the club in performing its intended function. Due to the overall length of the shaft **12**, any looseness in fit between the hinge members **22** and **24** is greatly magnified at the grip, which is located a substantial distance

from the hinge. Although great care may be exercised in the manufacture of the hinge parts **22** and **24** to insure the desired interfitting relationship therebetween, some dimensional tolerances must be provided for and, additionally, normal wear between the hinge parts will develop some looseness in the hinge. By the design of the hinge **20**, the detectability or effect of any looseness in fit between the hinge parts is greatly minimized or substantially eliminated and the danger of any sensation of sloppiness on the part of the user is greatly diminished. This function is achieved in several different ways. First, it will be noted that the tip or outer end **44***a* of the tongue shoulder **44** is disposed at a substantial distance from the hinge pin **26**. The opposite sides of the tongue **30** adjacent to the shoulder tip **44***a* will abut against the walls defining the groove **38** during use of the club to prevent attempted lateral wobble of the lower shaft portion **18** relative to the upper shaft portion **16**. The closer the tongue tip **44***a* is brought to the hinge **26** in the design of the hinge, the greater the likelihood of the lower shaft portion **18** wobbling. Additionally, some wear will occur between the hinge pin **26** and the aperture **32** of the tongue **30**. This wear could result in some axial play between the shaft portions **16** and **18** being detected during the swing of the club. However, as the club is swung and particularly at the beginning of the downswing, a wedging action will occur between the inclined shoulders **42** and **44** which tends to force the hinge members **22** and **24** apart in a direction axially of the shaft. This wedging force results from the fact that the shoulders **42** and **44** abut on a plane which is inclined or disposed at an acute angle relative to the axis of the shaft **12**. This axial force will take up any play or looseness in fit between the aperture **32** of the lower hinge member **24** and the hinge pin **26**, which is carried by the upper hinge member **22**. The wedging action is particularly produced by the force exerted by the user in swinging the upper shaft portion **16** downwardly reacting against either the inertia or centrifugal force of the head **10**.

In addition to the above factors, the tip or end portion **44***a* of the lower hinge member shoulder **44** provides a positive stop whereby the hinge members may be made to accurately align with one another when the shoulders **42** and **44** abut. It will be appreciated that the closer the tip **44***a* is to the hinge pin the greater the chance for error in alignment of the shaft portions **16** and **18** when the hinge members abut one another.

While it will be apparent that the preferred embodiment herein illustrated is well calculated to fulfill the objects above stated, it will be appreciated that the invention is susceptible to modification, variation and change without departing from the proper scope or fair meaning of the subjoined claims.

What is claimed is:

1. In a practice golf club having a grip at the upper end thereof and a head at the lower end thereof provided with a face on its forward side, and a shaft, a hinge interposed in said shaft and dividing said shaft into two portions, said hinge having a pair of hinge members, one of said hinge members being fixed to one of said shaft portions and the other of said hinge members being fixed to the other of said shaft portions, a hinge pin pivotally connecting said hinge members, one of said hinge members having a tip on its forward side spaced from said hinge pin and a shoulder inclined relative to the shaft portion to which it is fixed and extending toward said tip, the other of said hinge members having a shoulder engageable with the shoulder on said one hinge member, and said hinge members being arranged to permit rearward and upward pivotal movement of said head from a normal position with said shaft portions disposed in alignment and said shoulders in engagement.

2. In a practice golf club having a grip at the upper end thereof and a head at the lower end thereof provided with a face on its forward side, and a shaft, a hinge connected to said shaft between said grip and said head, said hinge having a pair of pivotally connected hinge members, one of said hinge members having a groove and the other of said hinge members having a tongue fitted within said groove, a hinge pin extending through said tongue and groove, said tongue having a tip disposed on the forward side thereof and a shoulder extending to said tip and inclined relative to the length of said shaft, said groove having a shoulder at the bottom thereof conformably engageable with the shoulder on said tongue, and said hinge members being arranged to permit rearward and upward pivotal movement of said head from a normal position in which said shoulders are engageable.

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