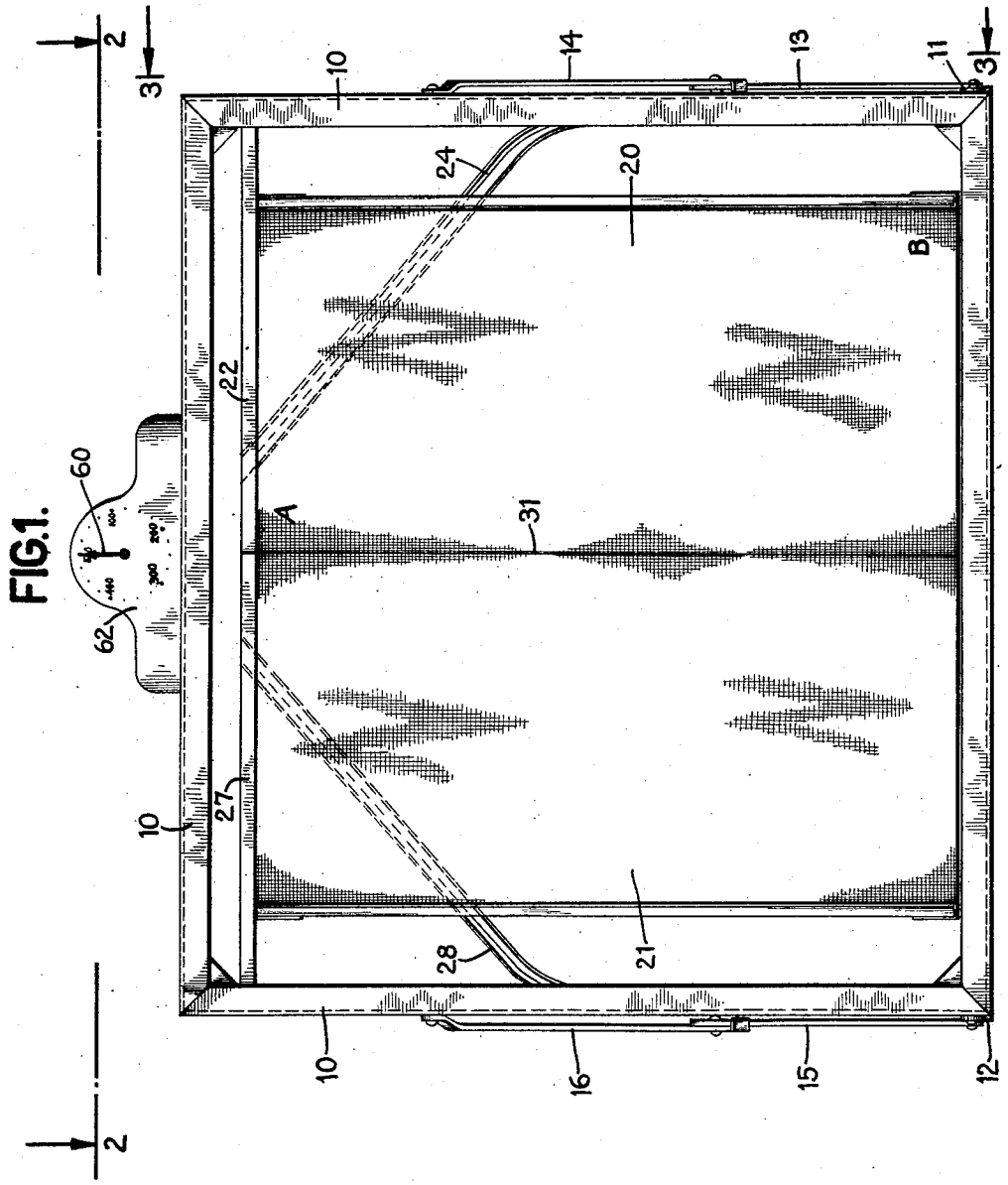
Jan. 3, 1933. E. B. ERIKSEN 1,893,278

GOLF PRACTICING DEVICE

Filed May 3, 1930 5 Sheets-Sheet 1

FIG.1.



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GOLF PRACTICING DEVICE

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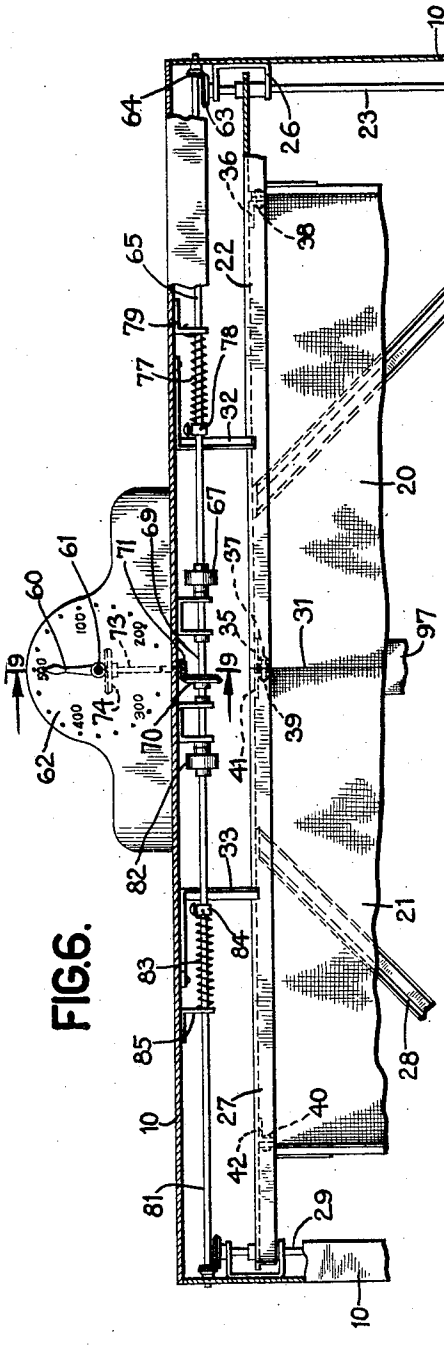


FIG.6.

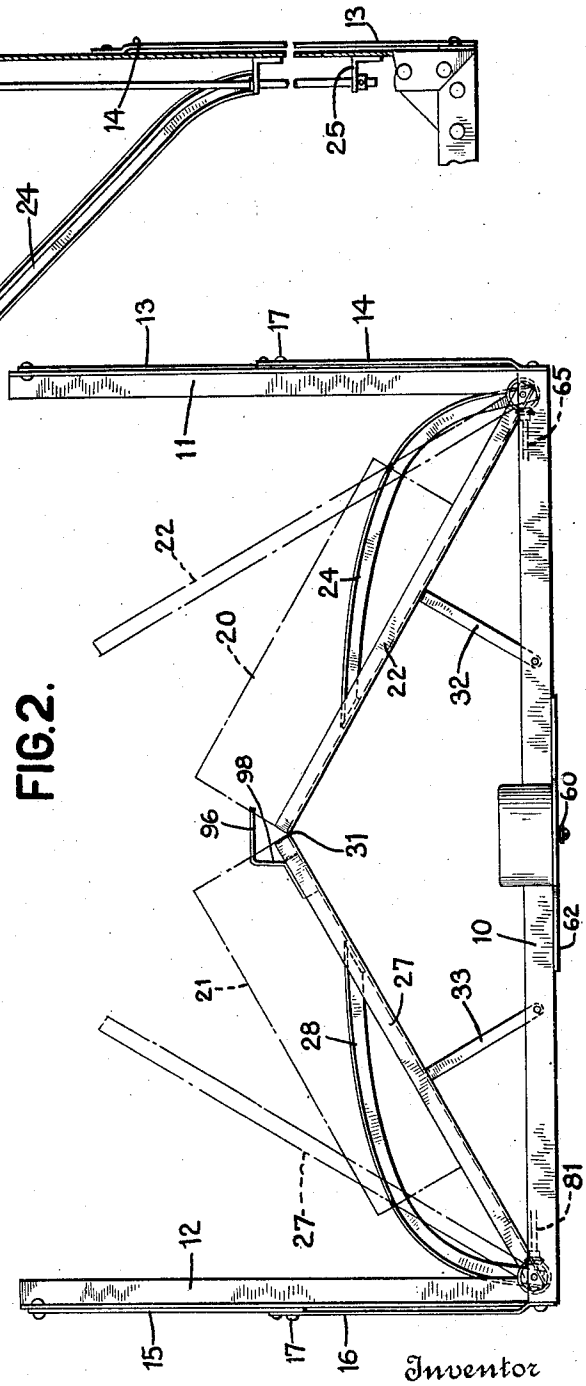


FIG.2.

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GOLF PRACTICING DEVICE

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FIG. 3.

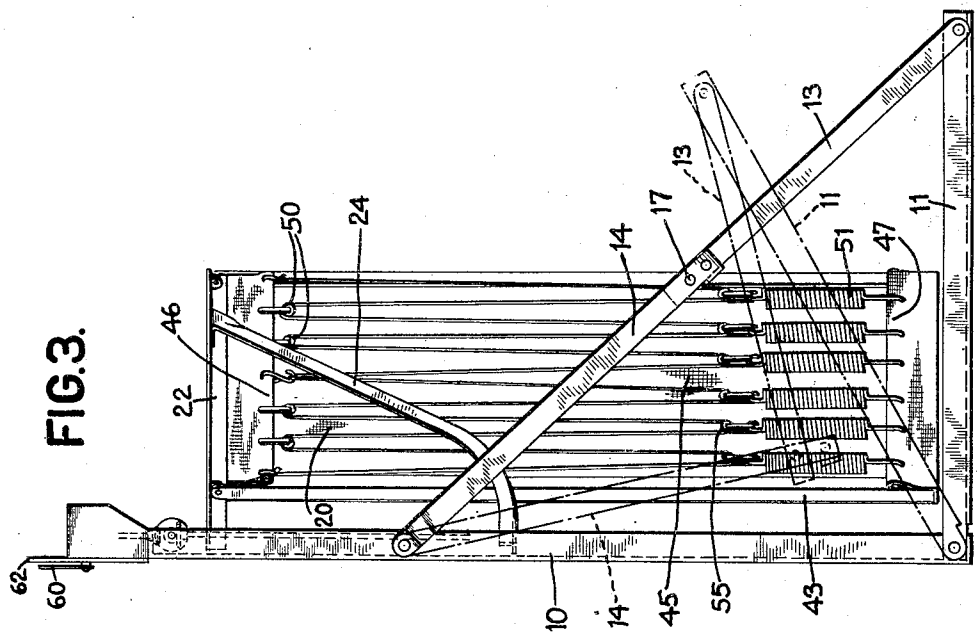


FIG. 5.

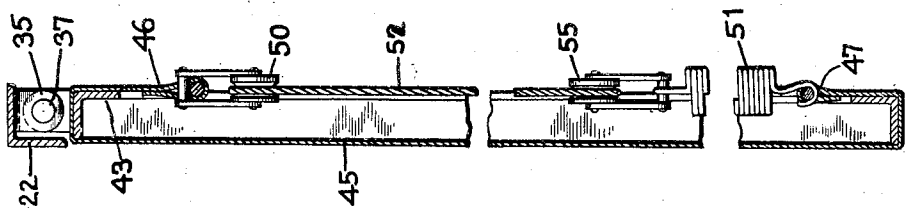
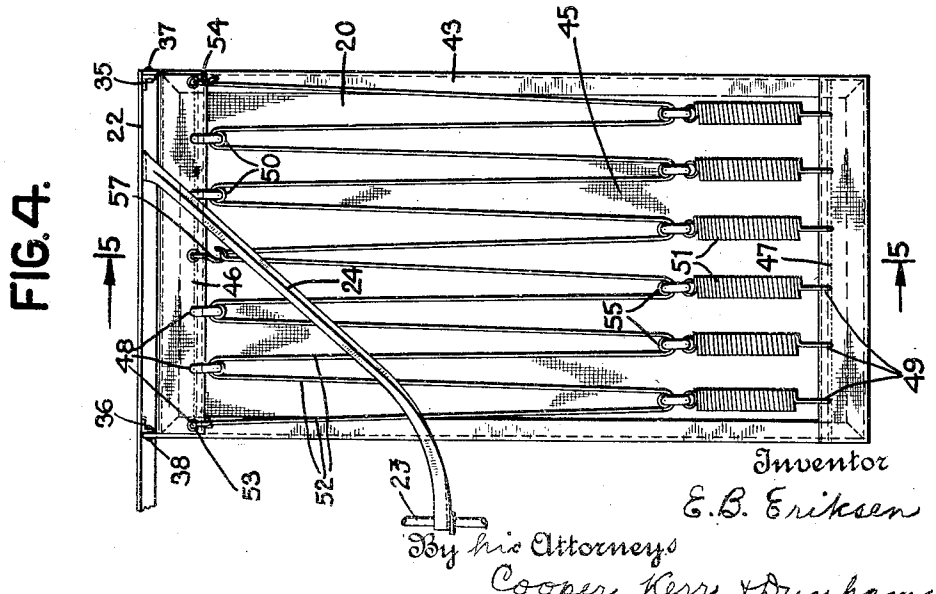


FIG. 4.



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GOLF PRACTICING DEVICE

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FIG.7.

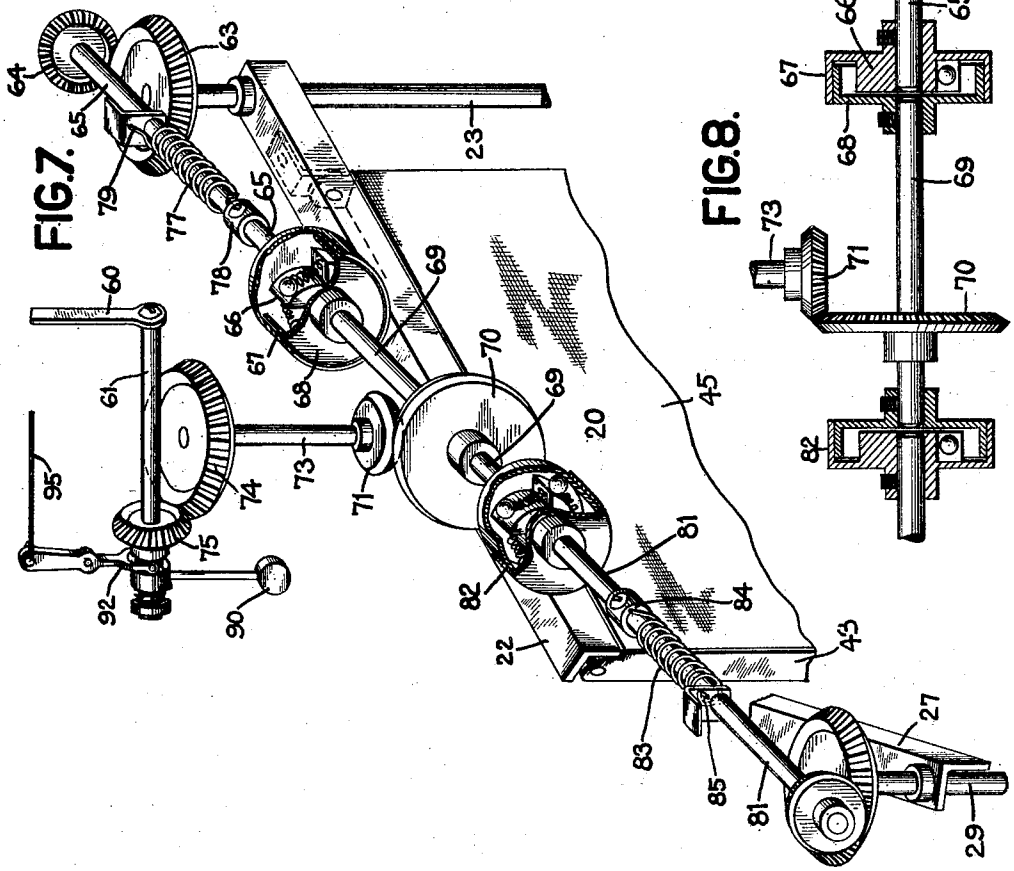
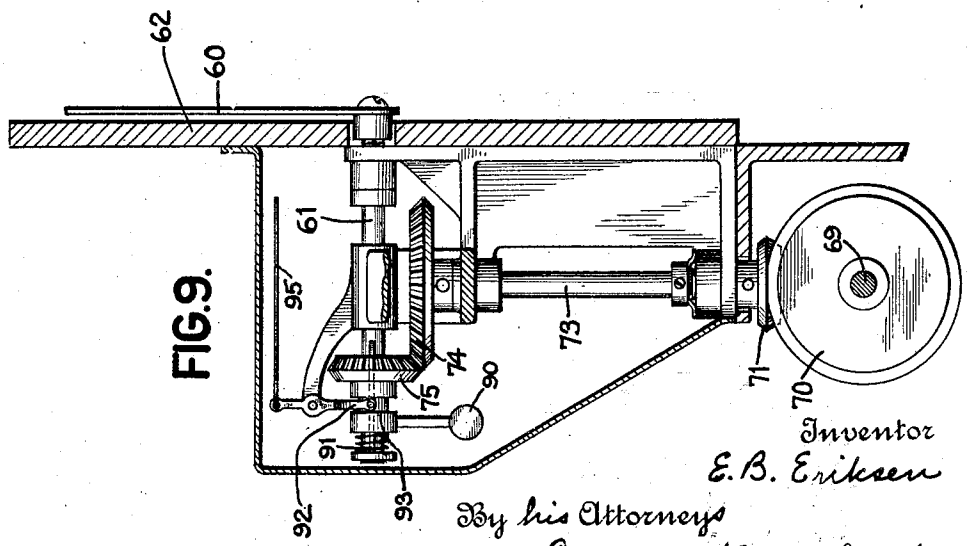


FIG.8.

FIG.9.



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GOLF PRACTICING DEVICE

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FIG.10.

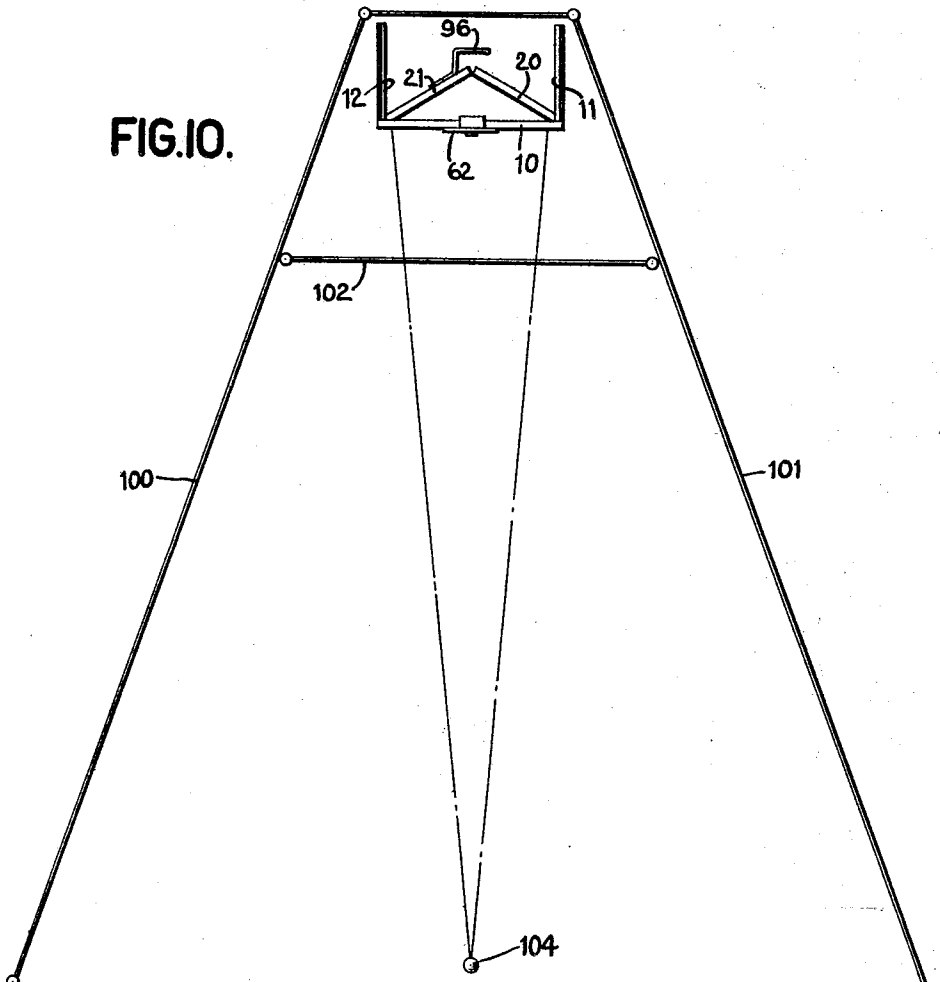
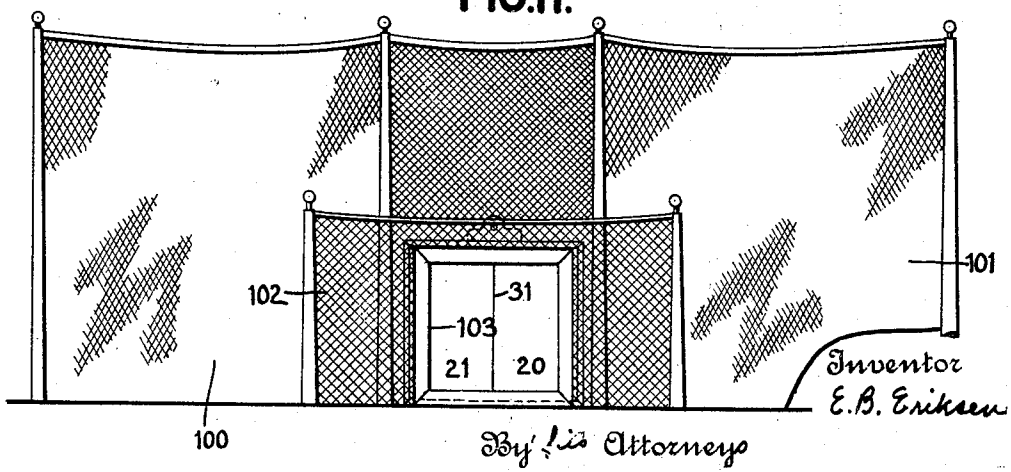


FIG.11.



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UNITED STATES PATENT OFFICE

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GOLF PRACTICING DEVICE

Application filed May 3, 1930. Serial No. 449,383.

This invention relates to a device for practicing golf or to a golf game.

Among the objects of the invention is to provide a device having a plurality of panels or shutters mounted in such a manner as to absorb the energy of a driven golf ball and give an indication of the effect of the impact of the ball as it strikes and displaces the panels.

Another object of the invention is to provide a golf practicing device so designed as to give an approximate indication of the amount of yardage covered, or necessary to be covered, by a driven ball from a tee to an assumed distant green by taking into account the force of the drive, the height of the driven ball at a measured distance from the tee and the deviation of the line of flight of the ball from a straight course between the tee and the hole at the green.

With these and incidental objects in view the invention consists of certain novel features of construction and combination of parts, the essential elements of which are set forth in the appended claims and a preferred form of embodiment of which is described hereinafter with reference to the drawings which accompany and form part of the specification.

In the drawings:

Fig. 1 is a front view of a golf practicing device embodying the present invention.

Fig. 2 is a plan view of the golf practicing device illustrated in Fig. 1.

Fig. 3 is a side elevation seen from the right of Figs. 1 and 2.

Fig. 4 is a rear elevation of one of the panels.

Fig. 5 is a sectional view of the panel on line 5—5 of Fig. 4.

Fig. 6 illustrates the controlling mechanism between the panels and the indicating means.

Fig. 7 is an enlarged perspective detail view of the controlling mechanism for the indicating means.

Fig. 8 is a sectional detail through the axes of the clutches shown in Fig. 7.

Fig. 9 is an enlarged detail showing the connection of the indicating means with its driving shaft.

Fig. 10 shows in plan the arrangement of nets which are used in connection with the golf practicing device.

Fig. 11 is a front view of the golf practicing device and nets shown in Fig. 10.

The golf practicing device includes a rectangular frame 10 which may be made out of any suitable material such as angle-irons joined together at their ends. In use, the face of this frame is disposed in a vertical plane and, as may be seen in Fig. 3, it has pivoted to its lower edge at its sides a pair of arms 11, 12. Arm 11 has pivotally connected to its outer end, one member 13 of a folding brace whose other end 14 is pivotally connected to the side member of frame 10. Likewise, as may be seen in Figs. 1 and 2, a folding brace having members 15 and 16 is pivotally connected at its extremities to arm 12 at the other side member of the frame. The two members of each of the folding braces are foldable in respect to each other about a pin 17. When it is desired to take down the golf practicing device, the arms 11 and 12 are folded upwardly against the frame 10.

In the present embodiment of the invention I have utilized two panels having means for supporting them for two degrees of freedom, they being pivoted for movement about vertical axes and horizontal axes. The vertical axes are so positioned that one of the panels swings away from the other and from a common line of contact when either one of the panels is struck by a driven ball. The right hand panel 20, Figs. 1, 2 and 6, is carried by a frame or bracket having an upper member 22, one end of which is secured to shaft 23. Member 22 has also connected to it a brace 24 which has its lower end fastened to shaft 23. Member 22 and brace 24 constitute the bracket by which the panel which is supported thereby may be carried by shaft 23 and moved through an angle whose apex is at the axis of shaft 23. Shaft 23 may be supported from the frame 10 by means of brackets 25 and 26 which, in the present embodiment, serve as bearings.

The bracket supporting the left hand panel 21 may be made in a similar manner and constitutes an upper horizontal member 27 and a brace 20, both of which are supported upon shaft 29. Shaft 29 serves the same purpose for panel 21 as shaft 23 serves for panel 28. Whenever panel 20 or panel 21 is struck by a ball from the front its movement is such as to rotate about the axis of its associated vertical shaft. The normal positions of panels 20 and 21 are illustrated in Figs. 1, 2 and 6. In this position their inner edges contact at 31 and they are limited to this position by means of arms 32, 33 which extend from the upper member of frame 10 and contact the upper members 22 and 27 of the brackets which support the respective panels. The angular relation of the normal position of the two panels in respect to the face of the frame 10 and in respect to each other is desirable so that a striking ball will be deflected away from the direction from which it came in order that the driver may not be struck by a rebounding ball.

Each panel 20, 21 is supported from its associated bracket so as to permit the swinging of the panel about a horizontal axis. For this purpose upper member 22 is provided with depending arms 35, 36, Figs. 4 and 6, from which extend pivot pins 37, 38 respectively. These pins pass through ears extending from the frame of panel 20. The frame of panel 21 is likewise provided with similar ears which have holes engaging pins 39, 40 supported from members 41, 42, respectively. These latter members are attached to the upper member 27 of the supporting bracket. This construction enables each panel to swing about the horizontal axis passing through the supporting pins carried by its respective bracket. It should be noted that braces 24 and 28 are so curved and formed as to not interfere with the swinging of the panels about their horizontal axes.

The construction of the panels may assume various forms but I prefer to construct each panel in the form of a frame 43 made up of a number of connected angle-irons. The use of angle-irons is preferred since they are rigid and their flanges, when positioned in the manner illustrated, take up but a narrow strip of the area adapted to receive the impact of a driven golf ball. While any suitably padded surface may be used for receiving the impact of a golf ball, I prefer to stretch over each panel frame a covering 45 of canvas or similar material. The canvas is free to deflect and absorb the energy of a golf ball to some extent over substantially its entire front surface. Referring to Figs. 4, 5 and 6, the ends 46, 47 of the canvas are folded over and may be reinforced by a rod. A set of holes 48 and a set of holes 49 are provided along the edges 46, 47, respectively. By one set of these holes a set of pulleys 50 is supported and the other set of holes constitutes anchoring means for a plurality of springs 51. A flexible member 52 is fastened at one end 53 in one of the holes 48, has its other end 54 fastened in another hole 48, and the intermediate portion of the flexible member passes over the pulleys 50 and the pulleys 55, one of which is carried by each spring 51. When the golf practicing device is assembled for use the flexible member is maintained taut, and under the influence of the springs 51 the canvas is stretched to the desired degree of tension across the face of the panel. The degree of tension may be varied by varying the point of connection of flexible member 52 with hook 57. When the device is not in use the construction illustrated is convenient for permitting the tension to be relieved from the springs and fabric. Both panels 20 and 21 may be made in the same manner.

Referring to Figs. 6, 7 and 9, the indicating means consists of a hand 60 carried by a shaft 61. This hand travels over the face of a dial 62 in response to the effect of a moving ball striking either of the panels. The movement of hand 60 and shaft 61 is controlled by the movement of either shaft 23 or shaft 29. Shaft 23 has at its upper end a bevel gear 63 which engages a bevel gear 64 on shaft 65. Shaft 65 carries the driving element 66 of a one-way clutch 67. The driven element 68 of the one-way clutch is fastened to a shaft 69. Shaft 69 carries a bevel gear 70 which meshes another bevel gear 71 mounted upon shaft 73 and this shaft drives shaft 61 through bevel gears 74, 75. The one-way clutch 67 is so connected in the chain of mechanism as to transmit to the indicating hand 60 only the return movement of the brackets of the panels about their vertical axes. This precaution is taken in order to relieve the indicating mechanism from the shock of the impact of a driven ball upon a panel. Shaft 65 is geared to shaft 23 so as to respond to all of the movements of shaft 23 and it is, therefore, convenient to mount upon this shaft a helical spring 77, one end of which is staked to the shaft by means of a fixed collar 78 and the other end of which is fixed at 79 in respect to the frame 10. When panel 20 and its bracket is rotated about the axis of shaft 23, as the result of impact of a driven golf ball upon the panel, this spring will yield until its restraining influence overcomes the movement of the panel on its vertical axis. It is apparent that when the energy of the golf ball is fully absorbed and the movement of the panel is terminated, the spring 77 will assist in restoring the displaced panel to its normal position. During the operation of restoration, the indicating hand 60 will be moved a distance commensurate with the angle through

which the bracket of panel 20 has been displaced.

The extent of the movement of the panel 21 about the vertical axis of shaft 29 may be indicated by means of mechanism similar to that just described and it is convenient to use the same indicating means. The upper end of shaft 29 is geared to shaft 81 which is disconnected from shaft 69 except for a one-way clutch 82. This one-way clutch operates to rotate shaft 69 upon the return movement of the bracket carrying the panel 21. Spring 83 has one end 84 staked to shaft 81 and its other end 85 fixed in respect to the frame 10.

In order to permit the hand 60 to be placed at any position or restored to its zero position, it is desirable that some means be provided. While a friction slip connection between hand 60 and shaft 61 would serve the purpose, it is probably more convenient to a player to have means which may be controlled from a distance. A satisfactory way is to mount upon shaft 61 a small weight 90. When this weight is in its lowest position hand 60 would be in its zero position. For enabling the weight 90 to operate to restore the hand 60 to its zero position, I provide a key 91 between gear 75 and shaft 61, a spring urging gear 75 into engagement with gear 74 and a fork 92 engaging collar 93 on gear 75. By rocking the fork, gear 75 may be taken out of mesh with gear 74 and subsequently restored to a meshing relation therewith by the spring. The fork may be operated by a flexible member 95 having an end accessible to a player. Of course, the fork could be operated by a player within reach of the indicating means.

In order to take into account a true shot which strikes the line of contact 31 of the two panels 20, 21, I provide a stop 96 which may be mounted upon either one of the two panels. This stop extends for the full height of the panels and may take the form of a strip of canvas 97 supported at its ends by means of brackets 98. Any ball which strikes upon the line of contact 31 and which otherwise might cause only a slight parting of the two panels, would come into contact with the stop 96 and have its effectiveness indicated by the accompanying movement of the hand 60.

In using the golf practicing device it will be preferable to provide side walls 100, 101, Figs. 10 and 11, which would serve to prevent the loss of any stray balls. Just forward of the golf practicing device should be disposed a heavy netting 102 having an opening 103 therein of sufficient width and height to permit the passage of balls driven from tee 104 to the portions of the panels 20, 21 which constitute the impact receiving surface. This netting 102 would serve to prevent injury to any other portions of the golf practicing device and to prevent balls from striking, for example, the edges of the canvas surface which are backed by the flanges of angle-irons.

It will be apparent from the character of the construction of the golf practicing device that a ball driven with equal force will effect movement of the hand 60 in accordance with the position of its point of impact upon the panels 20, 21. Since line 31 is at the edge of each panel and the functioning of each panel is the same it will only be necessary to refer to one of the panels for describing the manner in which the device indicates the relative efforts of different players in matching their powers.

The law of operation of the device may be understood by considering the following: Two shots of equal force at different distances from the axis of shaft 23 in a horizontal line will effect different distances of travel of the hand of the indicating means in accordance with the distance of their points of impact from shaft 23. The greatest movement of hand 60 for drives of equal force will be had for the ball striking nearest the edge 31. Then again by virtue of the fact that the panel 20 is supported for pivotal movement about a horizontal axis, the action of gravity against the movement of the panel about this horizontal axis will absorb some of the energy of the ball striking the panel. Since a ball striking along the lower edge of a panel has a greater portion of its energy absorbed by the restraining influence of the weight of the panel, a shot striking at the lower edge would have less effect upon the indicator hand than a shot of equal force striking the panel along its upper edge, even though the points of impact of both shots are at the same distance from the vertical axis of movement. For balls driven by equal forces and striking, one at A and one at B, the ball striking at A will cause the indicating hand to indicate more yardage than the ball striking at B. In fact, balls striking at A will cause the maximum indication and balls striking at B will cause the minimum indication.

It is clear, therefore, that if the trajectory of a driven ball had been lower than the field of impact A or more to one side, or both conditions had prevailed, the effect of the impact would be less and a lesser distance would be indicated. As on the links, after a low shot or a side shot there remains more yardage to cover than if the ball had been driven farther in the true direction. Likewise, a weaker shot would cover less distance and, when using the device, the indication would be less for such a shot. If the assumed distance of the hole is 400 yards, and the first player makes a perfect hit and covers, by the indicator, 250 yards, his efforts for his second shot should be determined by the amount of force he should use to cover the remaining 150

yards. Should he then strike the ball with sufficient force, but out of the proper line, he might find that his effort is worth only 75 yards toward the hole and that he must make his next shot good for the remaining 75 yards. His opponent, for example, might have made a perfect first shot for 250 yards and then overzealously applied too much force, for his second and accurate drive thereby gaining a total indication of 500 yards. This places his ball 100 yards beyond the hole and his efforts for his third drive would have to be adjusted to enable exactly 100 yards to be indicated in order to be credited with only three strokes for the 400 yard hole. The player making the least number of strokes for any given distance would win the game.

I have described a preferred embodiment of my invention but I wish it to be understood that alterations and modifications including the use of different materials and the relation and form of parts are contemplated and that I desire to cover such changes which come within the scope of the claims appended.

I claim:

1. In a golf practicing device, the combination comprising, a frame, a plurality of panels supported thereby, means associated with said frame and panels for pivotally supporting each panel for two degrees of freedom, means yieldingly restraining the movement of each panel in one direction about one of its axes, and indicating means controlled by the movement of each panel for giving comparative indications of the moments causing displacements of the panel about one of its axes because of impact of driven balls striking upon any portion of the face of the panel.

2. In a golf practicing device, the combination comprising, a frame, a plurality of panels supported thereby, means associated with said frame and panels for pivotally supporting each of said panels for movement about a vertical axis and about a horizontal axis, means yieldingly restraining the movement of each panel in one direction about its vertical axis, and indicating means controlled by the panels for giving comparative indications of the effect of impacts against the panels.

3. In a golf practicing device, the combination comprising, a frame, brackets carried thereby, panels supported by said brackets, each of said brackets being mounted for pivotal movement about a vertical axis, and pivotal means for supporting each of said panels from its associated bracket for pivotal movement about a horizontal axis.

4. In a golf practicing device, the combination comprising, a frame, brackets carried thereby, panels supported by said brackets, each of said brackets being mounted for pivotal movement about a vertical axis, each of said panels being mounted on its associated bracket for pivotal movement about a horizontal axis, and means for indicating the effect of impact against said panels.

5. In a golf practicing device, the combination comprising, a frame, a plurality of panels, a bracket supporting each panel, said brackets being mounted on said frame for pivotal movement about vertical axes, means suspending each of said panels from its associated bracket whereby pivotal movement of the panel about a horizontal axis is enabled, stops determining the forward positions of said brackets, resilient means urging said panels and brackets forwardly toward said stops when displaced by a moving ball, and indicating means responsive to the movements of the panels and brackets about their vertical axes as the result of being struck by a moving ball.

6. In a golf practicing device, the combination comprising, a frame, a plurality of panels, a bracket supporting each panel, said bracket being mounted on said frame for pivotal movement about a vertical axis, stops determining the forward positions of said brackets, means suspending each of said panels from its associated bracket whereby pivotal movement of the panel about a horizontal axis is enabled, resilient means urging said panels and brackets forwardly toward said stops when displaced by a moving ball, indicating means responsive to the movements of said panels and brackets about their vertical axes, said indicating means having connections with the brackets including one-way clutches for transmitting movement in only one direction of the pivoting panels and brackets to said indicating means.

7. In a golf practicing device, the combination comprising, a frame, a pair of spaced parallel shafts mounted thereon, a bracket carried by each shaft, a panel pivotally suspended from each of said brackets, said panels normally having their inner edges contacting mid-way between the two shafts, a stop member carried by one of the panels and overlapping the inner edge of the other panel, means determining the forward positions of said panels and brackets, resilient means for maintaining the panels and brackets in their forward positions, indicating means carried by said frame, and shafts and gearing connecting each of said first named shafts to said indicating means.

8. In a golf practicing device, the combination comprising, a rectangular frame, means for supporting said frame in a vertical position, a shaft rotatively mounted at each vertical edge of the frame, a bracket carried by each shaft, a panel pivotally mounted upon each of said brackets from pivots horizontally disposed, said panels being normally disposed at an angle to the face of the frame and angularly to each other with their inner

edges contacting, means yieldingly urging said brackets into normal position, and indicating means controlled by said shafts for indicating the extent of their displacement from normal position.

In testimony whereof I hereto affix my signature.

EINAR B. ERIKSEN.