May 21, 1957 W. E. SUMNER 2,792,955

GOLF BALL RETRIEVER

Filed March 4, 1955

2 Sheets-Sheet 1

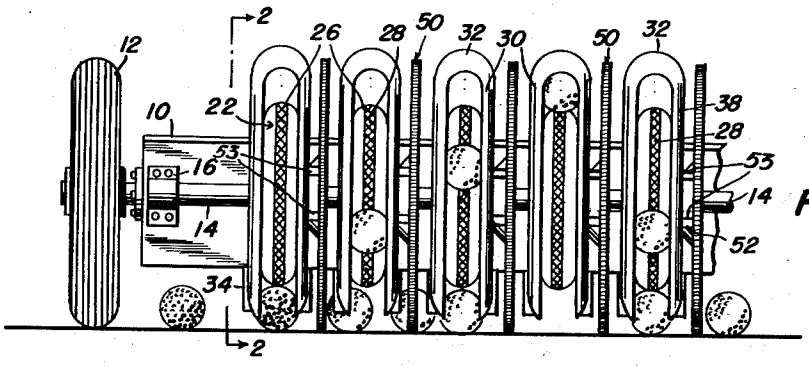


FIG. 1

FIG. 2

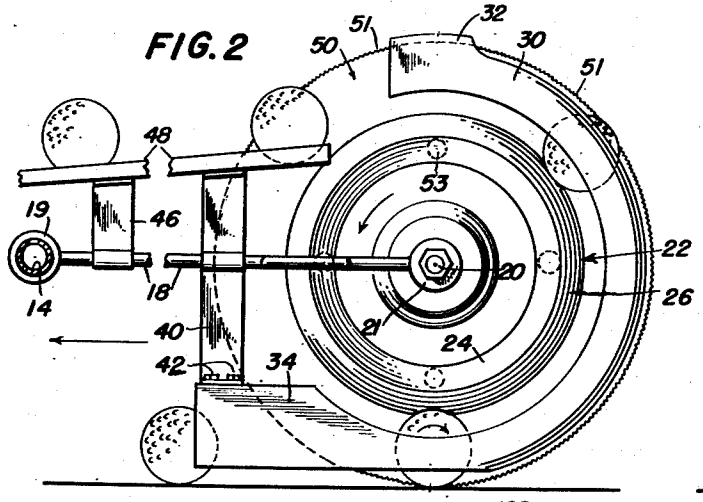
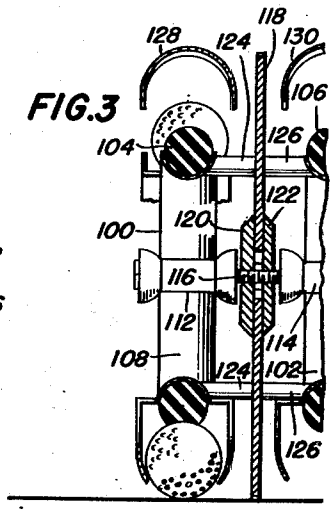


FIG. 3



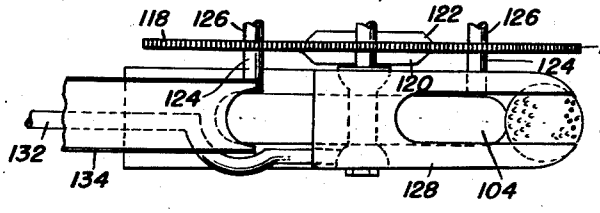


FIG. 4

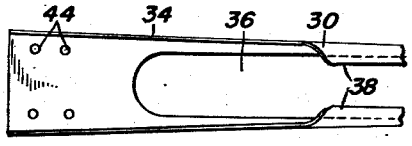


FIG. 5

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FIG. 6

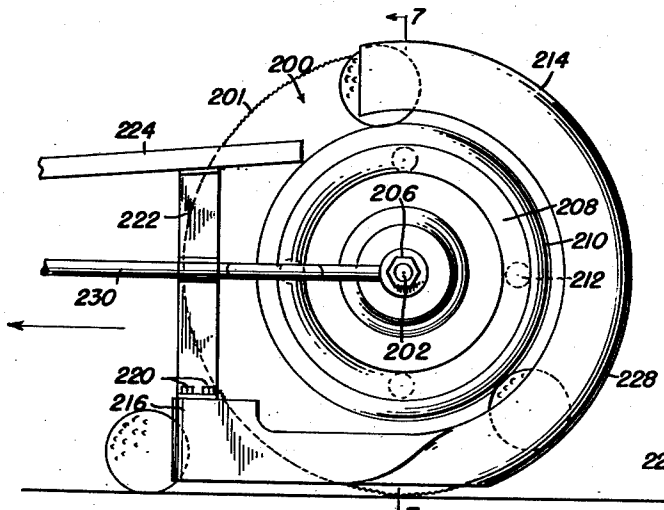
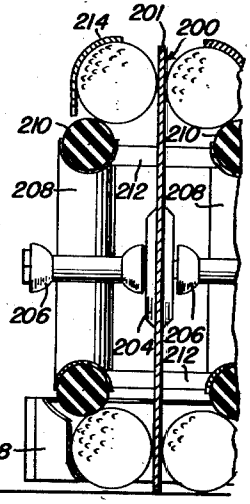


FIG. 7



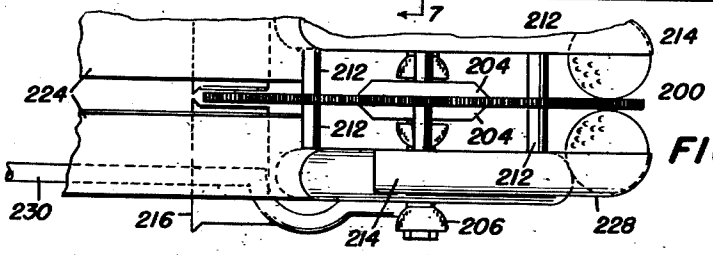


FIG. 8

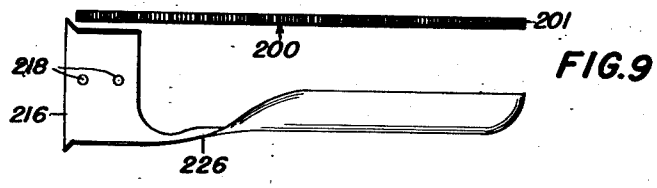


FIG. 9

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United States Patent Office 2,792,955 Patented May 21, 1957

2,792,955

GOLF BALL RETRIEVER

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Application March 4, 1955, Serial No. 492,079

9 Claims. (Cl. 214—356)

This invention relates to a golf ball retrieving device, and particularly relates to a device of this type which is movable along the ground and acts to pick up golf balls automatically and conveys them to a receptacle.

The type of golf ball retriever with which this invention is concerned is particularly adapted for use on a golf driving range where hundreds and perhaps thousands of balls are driven to all parts of a large tract of grassy ground covering many acres. It would be a herculean task for even a large group of persons to attempt to cover this whole tract of land and retrieve substantially all the balls lying thereon. Furthermore, since the balls are so small and the grass sometimes stands quite high, a person looking for the balls would inevitably miss a great many which are hidden from view. As a result, it has become necessary to develop machines which can cover the entire tract of land in relatively short time and which can automatically pick up and store a ball whenever it passes over one.

Many of these previous types of machines, however, were so constructed that often their full weight would descend on a ball, either crushing it or seriously damaging it. Other devices were so rigidly connected that when a rock or boulder was contacted, there was no "give" to the machine and it would, therefore, often be broken or otherwise damaged. Still other such machines tended to become clogged with the balls and required constant cleaning during use. Others could not follow the contour of the ground so that many balls hidden in ditches and crevices were passed over.

It is, therefore, one object of the present invention to provide a golf ball retriever which is capable of efficiently clearing the ground of golf balls or the like without becoming clogged.

Another object of the present invention is to provide a golf ball retriever which will not damage the golf balls being picked up.

Another object of the present invention is to provide a golf ball retriever which can follow the contour of the ground and pick up any hidden balls, and which is also capable of passing over rocks, bounders or other obstructions without being damaged thereby.

Other objects of the present invention are to provide an improved golf ball retriever, of the character described, that is easily and economically produced, which is sturdy in construction, and which is highly efficient in operation.

With the above and related objects in view, this invention consists in the details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawings in which:

Fig. 1 is a rear elevational view of a retriever embodying the present invention, wherein the device consists of a plurality of individual wheels, each associated with a separate disc, the device being shown in the act of picking up golf balls from the ground.

Fig. 2 is a side view of the device of Fig. 1, taken on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary cross-sectional view of a device similar to Fig. 1 but which consists of a double-sided wheel assembly.

Fig. 4 is a fragmentary top plan view of the device of Fig. 3.

Fig. 5 is a fragmentary top plan view of the ball guide scoop used in the devices of Figs. 1 to 4.

Fig. 6 is a fragmentary side elevational view of a third embodiment of the present invention.

Fig. 7 is a fragmentary cross-sectional view of the device of Fig. 6, taken on line 7—7 of Fig. 6.

Fig. 8 is a fragmentary top plan view of the device shown in Figs. 6 and 7.

Fig. 9 is a top view of the ball guide and disc of Figs. 6, 7 and 8, the parts being shown in corresponding positions relative to each other but in disassembled condition.

Referring in greater detail to the drawings wherein similar reference characters refer to similar parts, there is shown in Fig. 1 a rectangular receptacle 10 having an open top and supported at either end by a wheel 12. These wheels 12, only one of which is shown, support the receptacle for movement along the ground. At the rear of the receptacle is a shaft 14 mounted between a pair of bearings on the receptacle, one of these bearings being indicated at 16. Extending rearwardly from the shaft 14 are a plurality of laterally spaced rods 18, each of these rods being connected to a sleeve 19 rotatably mounted on the shaft 14. The rods 18 are provided in laterally spaced pairs with each pair supporting an axle 20. Rotatably mounted on a hub 21 on each axle is a wheel 22 having a rim 24 and rubber tires 26. The tires 26 are provided with threads, corrugations or the like, as indicated at 28, for added traction and frictional contact with an object.

A ball guide 30 which has an inverted V-shaped, when viewed from the rear as in Fig. 1, and which is substantially semi-circular when viewed from the side, as in Fig. 2, extends somewhat more than half-way around the wheel, leaving the front edge of the wheel uncovered, as seen in Fig. 2. The top portion of the guide has a curved bridge section 32 overlying the wheel, the curvature of this bridge section being of a shape and size to slidably receive a golf ball or other similar article being retrieved. At the bottom portion of the guide 30 is provided a guide mouth 34. This guide mouth extends horizontally and at the rear thereof, the guide is provided with a longitudinal slot 36 defining a pair of walls which are provided with inwardly extending flange portions 38. These flange portions 38 form a guide channel at either side of the longitudinal slot, as best shown in Fig. 5.

Extending upwardly from the guide mouth 34, on either side of the vertical plane of the wheel, are brackets 40, bolted as at 42, or otherwise secured to the guide mouth. The bolts extend through holes 44 in the guide mouth. Supported by brackets 40, as well as by brackets 46 extending upwardly from the front portions of the rods 18, are chutes 48, one such chute inclining downwardly toward the open top of the receptacle from a position adjacent the upper periphery of each wheel. Mounted adjacent each wheel, on the corresponding axle, is a disc 50 which may be treaded or serrated as at 51. A spacer 52 is fixed between each wheel hub and its corresponding disc to maintain the lateral spacing thereof. The discs and their corresponding wheels are connected to each other by struts 53 or the like. Each disc has a larger diameter than the wheel so that only the discs contact the ground and act as rotatable supports for the device.

In operation, the device is pulled over the ground by a tractor, automobile, horse or any other source of power,

as it moves over the ground, any golf ball coming within the confines of the guide structure, is frictionally engaged by the wheel, which is spaced from the ground just the height of the golf ball, and thrown upwardly between the guide flanges until it is thrown over the top of the wheel onto the chute. It then rolls down the chute into the receptacle. Since each wheel, guide and disc assembly is mounted for separate pivotal movement, the weight on each golf ball is only the weight of the one assembly rather than the whole device. Furthermore, if a rock or other obstruction is encountered, the individual assembly can easily pivot up and over the obstruction and then fall down into position upon the ground by the force of gravity. This separate pivotal construction also permits the individual assemblies to enter into any ditch or other cavity encountered and follow the contour of such cavity under the force of gravity. In addition, the guide structure corresponding to each individual wheel, permits only those golf balls which are centered therebetween to be gathered up. This prevents any undesirable clogging of the balls within the guideways.

In Figs. 3 and 4 there is shown a second modification wherein the wheel and guide assembly is similar to that of the device described above except that there are two wheels and associated structure connected to one disc, one wheel and its guide structure being connected to each surface of the disc. This is illustrated by wheels **100** and **102** provided with rubber tires **104** and **106** similar to tires **26**. The rims **108** and **110** of the wheels **100** and **102** are mounted on hubs **112** and **114** on an axle **116**. A disc **118** serrated or treaded at **119**, spaced from the wheels by a pair of spacers **120** and **122**, is mounted on the axle. The rims **108** and **110** are connected to the disc by struts **124** and **126**. A guide structure, generally indicated at **128** and **130**, similar to that shown at **30**, is also provided. These double wheel assemblies are connected to the receptacle by rods **132** extending from the outer hub portion of each wheel. A chute **134** leads down toward the receptacle from each wheel. This double wheel construction, by using only half as many discs as the first described form of the invention, permits a greater area to be occupied by the wheels and their guides and, therefore provides a greater pick up area. This type is, therefore, somewhat more efficient than the first described type, although not quite as sturdy.

In Figs. 6, 7 and 8 there is shown a third modification of the invention which may be similar to either the first or second form described above but which is illustrated as similar to the second type using the double wheel construction. This form of the invention is shown as comprising a disc **200** serrated or treaded at **201**, mounted on an axle **202** between a pair of spacers **204**. The spacers **204** are provided between a pair of hubs **206** mounted on the common axle. A pair of rims **208**, one on each side of the disc, are mounted on the hubs and are provided with rubber tires **210** having treads or the like thereon. The rims **208** are connected to the disc by struts **212**. A semi-circular ball guide **214** partially encircles each wheel, these guides being generally similar to those shown in Figs. 3, 4 and 5 except that, instead of being formed from a longitudinally slotted bar having laterally bent over flanges, the guides **214** each comprise a plate **216** forming a scoop portion similar to scoop **34**. This plate has holes **218** to receive bolts or the like, as at **220**, for connecting the brackets **222** to the guide. A chute **224** is supported on each bracket. A twisted arm **226** integrally connects the plate **216** to a channel-shaped circular guide portion **228**. The balls, as they are picked up, are guided around the wheel between the portion **228** and the disc **200**, as best seen in Figs. 7 and 8. A supporting rod **230** extends to a pivoted sleeve on the receptacle, not shown. This guide structure is somewhat lighter and cheaper to construct than that previously described above, although it is not quite as sturdy.

It is apparent from the description above that all forms of the invention have the common attribute of individual wheel support wherein the individual wheel assemblies are automatically and individually adjustable to follow the contours of the ground and wherein the weight of only one such wheel assembly bears on a ball at any one time. It is furthermore, apparent that the device may be used to retrieve any other similar object in addition to golf balls.

Although this invention has been described in considerable detail, such description is intended as being illustrative rather than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

Having thus set forth and disclosed the nature of this invention, what is claimed is:

1. A golf ball retrieving device comprising a movable frame, a receptacle on said frame, and at least one ball retrieving assembly pivotally mounted on said frame, said retrieving assembly comprising a rotatable disc, at least one wheel connected to said disc in laterally spaced relationship, said wheel being of a smaller diameter than said disc and being spaced from said disc, a peripheral guide structure spaced radially and laterally from each wheel, and a conveyor associated with each wheel and adapted to convey articles from the periphery of said wheel to said receptacle.

2. The device of claim 1 wherein there are a plurality of ball retrieving assemblies spaced laterally of each other and each being mounted independently of the others.

3. The device of claim 1 wherein said guide structure comprises a substantially semi-circular bar having inwardly turned flanges extending inwardly from opposite sides thereof to define a guide channel.

4. The device of claim 1 wherein said guide structure comprises a substantially semi-circular bar which has a laterally off-set channel portion so constructed and arranged as to slidably embrace a ball between said channel portion and said disc.

5. The device of claim 1 wherein a wheel and guide structure are provided adjacent one surface of said disc.

6. The device of claim 1 wherein a wheel and guide structure are provided adjacent each of the two opposite surfaces of said disc.

7. A golf ball retrieving device comprising an elongated, open-topped receptacle, a wheel on each of the two opposite ends of said receptacle, a shaft connected to one wall of said receptacle between said wheels, a plurality of rods pivotally connected to said shaft in laterally spaced relationship to each other, individual axles connected to said rods, a wheel having a peripheral guide track connected thereto, mounted on each of said axles, and a disc connected laterally to each wheel and extending radially beyond the periphery of its corresponding wheel.

8. The device of claim 7 wherein each rod is connected to said shaft by means of a sleeve rotatable on said shaft.

9. The device of claim 7 wherein a chute extends from the periphery of each wheel toward the open top of said receptacle.

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