Oct. 20, 1953 E. G. LOCKIE 2,656,061

GOLF BALL RETRIEVER

Filed May 29, 1950 2 Sheets-Sheet 1

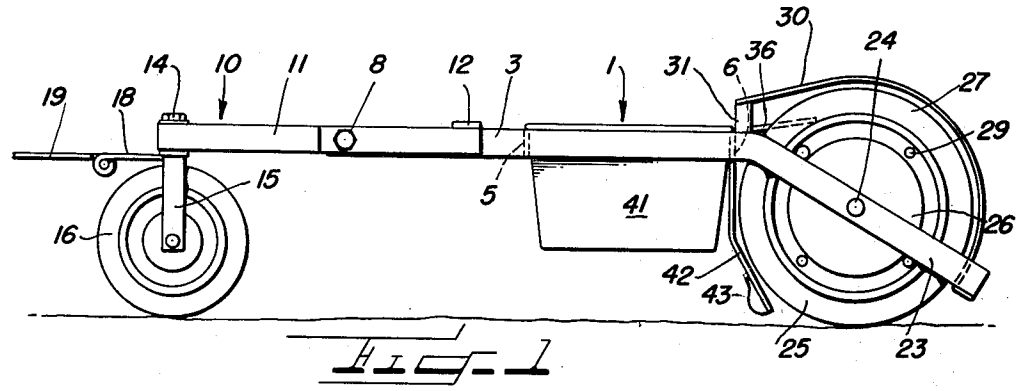


FIG. 1

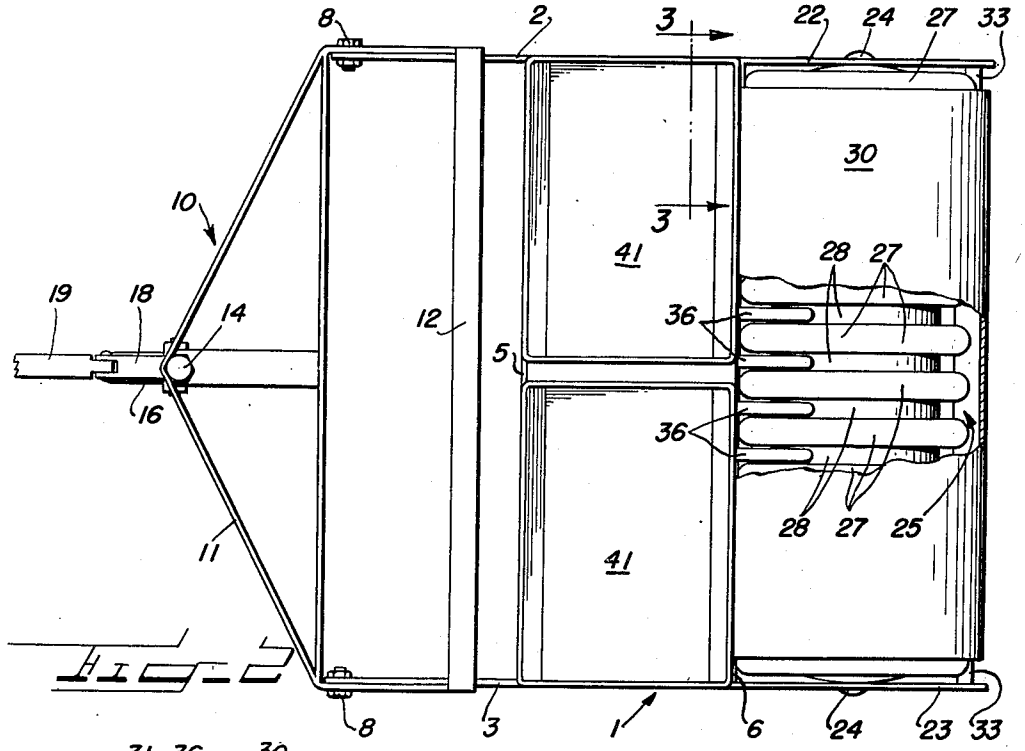


FIG. 2

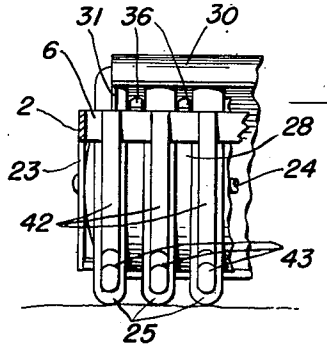


FIG. 3

INVENTOR.
E. G. LOCKIE

BY
Merrill M. Blackburn

ATTORNEY

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GOLF BALL RETRIEVER

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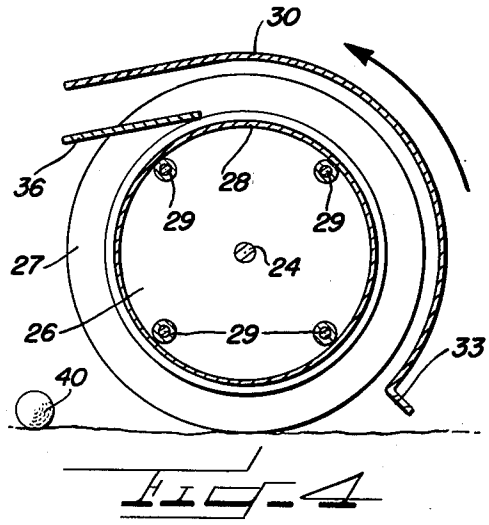


FIG. 4

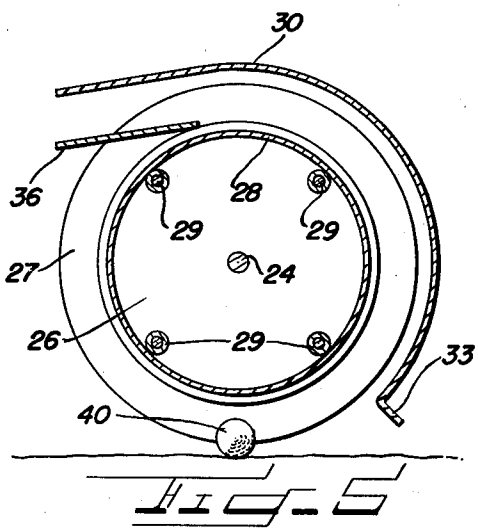


FIG. 5

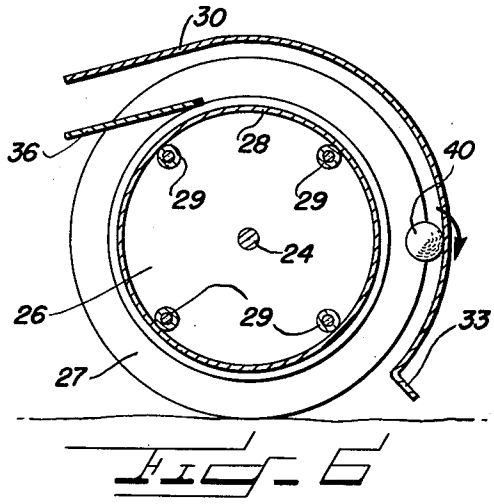


FIG. 6

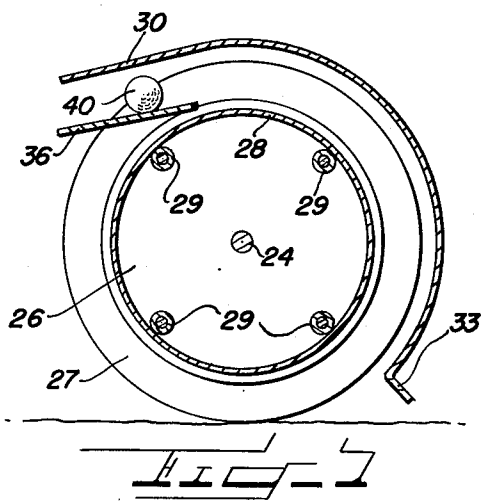


FIG. 7

INVENTOR.
E. G. LOCKIE
BY
Merrill M. Blackburn
ATTORNEY

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GOLF BALL RETRIEVER

Edward G. Lockie, Bettendorf, Iowa

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8 Claims. (Cl. 214—356)

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The present invention relates, in general, to machines for picking up objects from the ground and, particularly, to machines for picking up golf balls from golf courses, and the like. Among the objects of this invention is the provision of a simple and sturdy machine adapted to be drawn across a driving range where the driven balls are found, and to pick up the balls and deposit them in a container for that purpose; and the provision of a golf ball retrieving machine which includes a plurality of rubber-tired wheels arranged in such spaced relation that, as the machine passes across the ground on which golf balls are lying, the balls will be picked up by the resilient tire-like peripheries of the wheels and carried by the rotation of the wheels and deposited in a container carried by the machine to receive the balls; while, in its more generic aspects, this machine may be used for picking up crops, such as fruit, nuts, or the like, which are harvested by being picked up from the ground.

This invention further resides in the combination, construction, and arrangement of the parts illustrated in the accompanying drawings and, while I have shown therein what is now regarded as the preferred embodiment of this invention, I desire the same to be understood as illustrative only and not to be interpreted in a limiting sense.

In the drawings annexed hereto and forming a part hereof,

Fig. 1 is a side view of a machine in which the principles of the present invention have been incorporated;

Fig. 2 is a plan view of the machine shown in Fig. 1;

Fig. 3 is a fragmentary sectional view taken substantially along the plane indicated by the line 3—3, Fig. 2; and

Figs. 4 to 7 are diagrammatic sectional views showing the operation of this machine.

Reference will now be made in greater detail to the annexed drawings for a more complete description of this invention. The frame of this golf ball retriever is indicated in its entirety by the numeral 1 and includes a pair of side bars 2 and 3 interconnected by a pair of fore-and-aft spaced crossbars 5 and 6. The front ends of the side bars 2 and 3 are pivotally connected at 8 to a supporting wheeled front truck 10 which includes a front yoke 11, the rear ends of which are connected by a crossbar 12 secured to the ends of the side bars of the yoke at their upper edges and rearwardly of the pivot points 8, the crossbar 12 overlying the front portions of the side bars 2 and 3. The forward portions of the

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truck frame converge and carry suitable bearing means in which the upper end of the spindle section 14 of a wheel fork 15 is rotatably positioned. The lower portion of the wheel fork receives a front supporting wheel 16. A stub tongue 18 is fixed to the upper portion of the wheel fork 15 and pivotally receives the rear end of an associated draft member 19 by which the machine is drawn.

The rear ends of the side bars 2 and 3 are formed to extend downwardly and rearwardly, as indicated at 22 and 23, and these frame portions are apertured to receive a transverse axle 24 on which a plurality of wheels 25 are mounted. The wheels may be journaled on the axle, or they may be fixed thereto and the axle journaled in the frame portions 22 and 23, as desired. Each wheel 25 includes a pair of dished or convex web members 26 which are apertured to receive the axle 24, and each wheel is provided with a rubber or rubber-like tire 27 which is substantially round in cross-section. The wheels are separated by spacing drums 28 and the drums and wheels are held in proper interconnected relation by four bolts 29, extending therethrough. The wheels are so spaced that, when they roll over a golf ball lying on the ground, the ball is held between the tire-like peripheries or tread portions of the adjacent wheels and are retained frictionally therebetween. Fig. 4 shows the machine approaching a golf ball on the ground and Fig. 5 shows how the weight of the machine will force the ball into engagement with the tires of two adjacent wheels, which roll together by virtue of the spacing drums 28 and the bolts 29.

A curved upper shield or guard 30 is carried by the frame 1 above the wheels 25. The front edge of the shield 30 is connected in any suitable way to the rearward crossbar 6, as by lugs 31, as shown in Fig. 3. The shield 30 is curved concentrically with the wheels, and it extends down around the rear side of the wheels in closely spaced relation, the rear and lower edge of the shield or guard being secured, as by welding, to a transverse bar 33 which is attached at its ends to the rear ends of the downturned frame portions 22 and 23.

A plurality of stripper bars 36, secured at their forward and lower ends to the rear crossbar 6, extend into the spaces between the wheels, as best shown in Figs. 4 to 7, far enough to pass under a ball held between adjacent wheel tires. As the wheels rotate, the stripper bars 36 dislodge the balls from between the wheels, whereupon the balls roll forwardly by gravity along the

upper side of each stripper bar and into ball-receiving means carried on the frame. Preferably, as best shown in Figs. 1 and 2, such ball-receiving means consists of a pair of rectangular containers 41, each of which has front and rear flanges adapted to rest on the crossbars 5 and 6 but, when filled, they may readily be lifted from the machine. For the purpose of deflecting balls on the ground into the spaces between the retrieving wheels, I provide depending deflector bars 42, fixed at their upper ends, as by welding, to the rear crossbar 6. Secured to the forward side at the lower end of each of the deflector bars 42 is a forwardly extending lug 43 which, during the passage of the machine over the ground, aids in pushing balls on the ground over into positions where they may be picked up by the wheels 25.

Attention is called to the fact that the balls are engaged by the wheels and the shield so that they are rolled up between the wheels and shield as the machine moves forwardly.

The operation of the machine of the present invention is believed to be clear from the above description. As the machine is pulled over the ground, the deflectors 42, 43 place the golf balls 40 in a position to pass into the space between adjacent wheels. As the machine passes over the balls, the latter are held between the tire-like peripheral portions and the shield 30 and are carried by the continued rotation of the wheels up and into the guard or shield 30. The latter then engages the balls, as shown in Fig. 6, causing them to roll along, the wheels embracing the balls until the latter are brought upwardly to points where they are removed from between the wheels by the stripper bars 36. After being dislodged by the latter, the balls roll downwardly and forwardly along the bars 36 and into the container 41. Since each side wall of each of the tire-like peripheral portions can be deflected laterally inwardly when a ball is encountered, independently of the opposite side wall, when a ball is held between two adjacent tire portions 27, it does not interfere with another ball being held between the other side of either of said tire portions and the next adjacent tire portions.

While I have illustrated a part of a single unit, it will be understood that as many units may be used, side by side, as are desired. It is customary to use three units, side by side, with thirteen wheels, each, but one person has purchased six units so that he may cover approximately twenty feet at a time.

It is of course understood that the specific description of structure set forth above may be departed from without departing from the spirit of this invention as disclosed in this specification and as defined by the appended claims.

Having now described my invention, I claim:

1. A golf ball retriever comprising a frame, including side bars spaced apart laterally, a roller comprising a plurality of axially aligned wheels, each having a resilient tire-like periphery with side wall portions displaceable laterally inwardly independently of one another, said wheels being interconnected to rotate together, an axle on which said wheels are mounted for rotation in said frame, between the side bars, said wheels being spaced apart a distance such that, when the wheels roll over a golf ball lying on the ground, the golf ball will be held between the side wall portions of the tire-like peripheries of two adjacent wheels and be carried upwardly by the rotation of the wheels, a shield covering the upper part of the wheels, a crossbar fixed at its ends to said side bars just in advance of said wheels, a plurality of stripper bars fixed to said crossbar and extending into the spaces between the wheels for removing any balls held by the wheels and the shield, and one or more containers carried adjacent said stripper bars for receiving golf balls stripped from said wheels by said bars.

2. Means for picking up substantially uniformly sized objects from the ground, comprising a roller having a plurality of more than two substantially hollow tire-like peripheral sections, each having axially spaced apart side walls lying in axially spaced apart planes lying normal to the axis of rotation of said roller, and the two side walls of each peripheral section being separately and individually displaceable toward one another, carried by said roller in such axially spaced-apart relation that, when said roller passes over one or more of said objects on the ground, said objects tend to be held between adjacent side wall portions of said peripheral sections and be carried around by the continued rotation of the roller, both side wall portions of any one peripheral section being deflected toward one another when two of said objects, lying on the ground in relatively close transverse relation, are picked up at the same time at substantially directly opposite sides of the same peripheral section, and means for stripping said objects from between said side walls after said objects have been carried around to the upper portion of the roller.

3. Means for picking up substantially uniformly sized objects from the ground, comprising a plurality of more than two coaxially positioned, peripherally continuous, annular members, each having a pair of axially spaced-apart side wall portions individually and separately displaceable inwardly toward the other and independently of the other, said annular members being spaced apart axially to embrace and hold one of said objects between each pair of adjacently positioned members when the latter are rolled over said object while said object is lying on the ground, and means for removing said object from between said members after the embraced object has been carried beyond the upper portions of said members.

4. Means as defined by claim 3 in which a curved guard member overlies said members in substantially concentric relation and is spaced from said members a distance appreciably less than the distance between adjacent elements, said guard being thereby adapted to contact and retain said object engaged between said members until it reaches a position to be acted upon by said removing means.

5. Means for picking up from the ground objects of substantially uniform size, comprising a roller including a plurality of axially aligned wheels, each having a resilient tire-like periphery with a pair of axially spaced-apart side wall portions facing axially outwardly in opposite directions from the plane of the wheel, said axially outwardly facing side wall portions being displaceable inwardly independently of one another, a frame for supporting said wheels, means for mounting said roller in said frame, said wheels being spaced apart a distance such that, when the wheels roll over one of said objects lying on the ground, it will be held between the side wall portions of the tire-like peripheries of two adjacent wheels and be carried upwardly by the rotation of said wheels, and means carried by the

frame for removing objects from adjacent wheels.

6. A device for picking up relatively small objects from the ground, comprising a frame, including side bars spaced apart laterally, a roller comprising a plurality of axially aligned wheels, each having a resilient tire-like periphery with side wall portions displaceable laterally inwardly independently of one another, said wheels being interconnected to rotate together, an axle on which said wheels are mounted for rotation in said frame, between the side bars, said wheels being spaced apart a distance such that, when the wheels roll over one of said objects lying on the ground, said object will be held between the side wall portions of the tire-like peripheries of the two adjacent wheels and be carried upwardly by the rotation of the wheels, a shield covering the upper part of the wheels, a crossbar affixed at its ends to said side bars just in advance of said wheels, a plurality of stripper bars affixed to said crossbar and extending into the spaces between the wheels for removing any of said objects held by the wheels and the shield, and one or more containers carried adjacent said stripper bars for receiving any objects stripped from said wheels by said bars.

7. Means for picking up from the ground relatively spherical objects of substantially uniform size, comprising a frame, a pair of axially spaced-apart wheels, journaled in said frame, each having an annular tire-like periphery having axially spaced-apart side walls, and a curved shield carried by the frame in concentric relation with respect to the wheels, said shield being spaced substantially radially outwardly of the

tire-like peripheries of said wheels a distance approximately the same as the axial distance between adjacent side walls of said wheels.

8. The invention defined by claim 7, further characterized by said shield extending over the top of said wheels and beyond, stripper elements carried by the frame and positioned between said wheel peripheries and below said shield, the latter after it passes over the tops of said wheels being spaced farther from said stripper elements than from said wheels at points before the shield passes over the tops of the wheels, whereby objects picked up by the wheels and held between the shield and said wheels, as they roll up the shield during the rotation of the wheels, will be released from between the shield and the wheels after they pass over the tops of the wheels, and an object-receiving container carried by said frame in a position to receive said objects after they are released from between said shield and said wheels.

EDWARD G. LOCKIE.

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