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PICKUP IMPLEMENT

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4 Claims. (Cl. 294—61)

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This invention relates to a pick-up implement which is especially advantageous for use in picking up refuse around parks, estates, hotels, golf courses, hospitals, highways, etc.

The principal object of the invention is to provide an improved pick-up implement, which is light in weight and easy to handle, which may be readily assembled from a relatively few standard parts, and which is sturdy and dependable in operation.

A further object of the invention is to provide an improved pickup implement which will efficiently and readily pick up all kinds of refuse and from which such refuse can be discharged easily either by means of the hand or foot of the user.

A still further object of the invention is to provide an improved pick-up implement which will pick up more efficiently a greater variety of refuse than heretofore known implements of this type, and which can be readily operated by a one-armed person to accomplish such results.

Other objects and advantages of the implement of this invention, as well as the novel details of construction thereof, will be ascertained from a perusal of the following description when read in connection with the accompanying drawings, in which Fig. 1 is a longitudinal sectional view of the implement of this invention; Fig. 2 is a left-hand end view of the implement shown in Fig. 1; Fig. 3 is a broken, detailed view of the foot release mechanism of the implement, and Fig. 4 is a sectional view taken along the line 4—4 of Fig. 3.

In the drawings, the reference numeral 10 designates the body of the implement which consists of an elongated metal tube approximately thirty-seven inches long and having an inside diameter of about one-half inch. The tube 10, as well as the other parts of the implement, may be made of any suitable metal, but most of such parts are preferably made of aluminum, in order to reduce the weight of the implement to a minimum. Extending axially through the bore of the tube 10 is a rod or shaft 12, which is adapted to be slidably moved lengthwise within such tube to discharge refuse picked up by the implement. Threadedly engaged with the upper end of tube 10 is a bushing 11 through which extends the upper end of the rod or shaft 12. The lower end of rod 12 extends through a bushing 14 threadedly engaged with the lower end of tube 10. The bushings 11 and 14 serve as guides for the rod 12 which is readily slidable lengthwise therethrough for a limited range of movement as will hereinafter appear more clearly. Projecting beyond

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the external flange or shoulder 15 of bushing 14, is a threaded portion 16 on which is secured in threaded relation, an annular disc or plate 17 provided with a plurality of spikes 18 for picking up the refuse.

Mounted on rod 12 intermediate its ends is a sleeve 20 which is secured in position on such rod by means of a pair of transversely extending pins 21, 21. Located intermediate bushing 14 and sleeve 20 and surrounding rod 12, is a spring 22 which normally maintains the rod 12 in retracted position and which yieldably permits the advancement of such rod when force is applied by the user either to the knob 13 mounted on the upper end of rod 12, or to the foot release control of the implement. The foot release control is composed of a flat plate 23 which is mounted intermediate its ends in a transverse slot provided in rod 12 adjacent to the upper end of sleeve 20. The ends of plate 23 project outwardly through opposed longitudinally extending slots 23, 23 provided in tube 10. Mounted on each of the projecting ends of plate 23 is a foot actuatable member composed of a piece of metal sheeting 24, 24 which has been bent to form a pair of spaced parallelly arranged bracket portions 24, 24, and a foot rest portion 26. The bracket portions 24, 24 of each member overlies the outer side surfaces of a projecting end of plate 23 and are permanently secured to such intermediate portion of plate 23 by means of a pair of rivets 25, 25. The foot rest member is mounted on plate 23 so that portion 26 thereof, overlies the upper edge of such plate. The bracket portions 24, 24 of each member are each provided with an inner rounded bearing portion 27 whose inner peripheries ride on the outer surface of the tube 10, and together with the bearing portions 27, 27 of the foot actuatable member on the other end of plate 23, serve to facilitate the sliding action of plate 23 and to maintain plate 23 properly assembled on the device. The inner or bearing edges of the portions 27 are curved or rounded to minimize friction during the actuation of the foot release means.

The advancing movement of rod 12 through the application of pressure to either the knob 13 or a foot actuatable member 26, causes the advancement of a metal disc 31 mounted on the lower reduced end portion 33 of rod 12. As is shown more clearly in Fig. 1 of the drawings, the disc 31 is secured in position on portion 33 intermediate a washer 30 which is located on such reduced portion 33 against the shoulder formed by the latter on rod 12, and a nut 32 threadedly engaging the outer end of such reduced end por-

tion 33. Preferably also, disc 31 is threadedly engaged with the reduced rod portion 33. The metal disc 31 is provided with a plurality of apertures 37 through which the spikes 18 project, and which are slightly greater in diameter than the outside diameter of the spikes 18, so that disc 31 may be readily advanced and retracted on such spikes. The spikes 18 are each permanently secured in position on disc 17 in any suitable manner, such as by providing the spikes with a shoulder or transverse portion 35 which engages against the lower face of such disc and then riveting the ends 36 of such spikes against the upper face of disc 17. It is preferred that the spikes 18 be made of steel, have a length of approximately two and one-half inches and a tapered sharpened end about five-sixteenths of an inch in length. While the number of spikes may vary, to best accomplish the purposes for which the implement was devised, at least twelve spikes should be provided on disc 17. The spikes are mounted on disc 17 with spacings of approximately one-quarter of an inch and are so arranged that even if one or more does not penetrate the piece of refuse to be picked up, such as twigs, such refuse will be jammed between adjacent spikes.

It will be understood from the foregoing, that the spikes 18 are fixedly and permanently secured to the lower end of the tube 19 of the implement and that the discharge plate 31 is normally held in a retracted position adjacent to, but slightly spaced from the spike plate 17 through rod 12 and spring 22. Thus, the major portion of the length of spikes 18 is normally left exposed, in order to enable such spikes to readily pick up refuse. In such use of the implement, the tube 19 is employed by the user as a handle. Because of the lightness and length of the implement, it may readily be inserted into bushes and refuse can be picked up from the ground without the necessity of the user stooping and bending over. Because of the arrangement and construction of the spikes, the implement will pick up leaves and pieces of paper from as small as one-half an inch square, up to sizes having a weight of approximately two pounds. The implement is equally effective whether the leaves or paper are wet or dry, and the operator can pick up a large number of pieces of such refuse, depending upon their size before finding it necessary to discharge the same from the spikes. The implement will also readily pick up articles such as twigs ranging in size from one-sixteenth of an inch thick and one inch long to substantially larger sizes, and bones, peach pits, dry clumps of cut grass, vegetables, fruit, rags, etc. In effect, the arrangement and construction of the spikes on the implement makes it possible to pick up practically any refuse lying loose on the ground, or in or under bushes or other plants.

When the operator desires to discharge the picked up refuse from the spikes, all that is necessary is for him to either depress the knob 13 with his thumb or while holding the handle 10, depress either of the foot rests or pedals 26 with one foot. As a result of such force, the rod 12 is caused to move downwardly against the tension of spring 22 thereby moving the discharge plate 31 towards the ends of spikes 18. During such movement of plate 31, the refuse will be stripped from the spikes and discharged therefrom. Upon the release of the knob 13 or foot pedal 26, the spring 22 will retract rod 12 and consequently plate 31 to their normal positions, and

ready the device for further pick-up operations. During such movement of the rod 12, it will be maintained in its axial position relative to handle 10 and will be caused to operate smoothly and with the minimum amount of friction by means of the bushings 11 and 14, and sleeve 20. When either foot pedal 26 is used, the engagement of the bearing portions 27 on the exterior surfaces of the handle 10, together with bushings 11 and 14 and sleeve 20, will prevent any tendency toward binding of the parts or the bending of rod 12 during such actuation of a foot pedal. The foot pedals 26 increase materially the versatility of the device, as they can be used interchangeably with the discharge knob 13 and also makes it possible for one-armed people, children and women to use the device with the exercise of relatively little effort. The range of movement of rod 12 and stripping disc 31, when actuated by either the knob 13 or a foot pedal 26, is controlled by the engagement of knob 13 with bushing 11 and by the engagement of washer 30 with portion 16 of bushing 14. This range of movement is preferably such that stripping disc 17 will be moved from its usual at-rest position to a point just short of the outer ends of the spikes 18.

While I have hereinabove described and disclosed in the drawings, a preferred embodiment of my invention, it will be apparent to those skilled in the art that changes may be made therein, without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. A refuse pick-up implement comprising an elongated tube, a spike support secured to the lower end of said tube, a plurality of spikes secured to said support and projecting downwardly from the lower face thereof, a rod slidably mounted in said tube, a stripping plate secured at the lower end of said rod and having a plurality of openings through which said spikes extend, an internal spring seat at the lower end of said tube, fixed with relation to said tube and transverse to an annularly-shaped space intermediate said tube and rod, means within said tube and provided on said rod at a point spaced substantially from said spring seat, said means defining a cross-sectional area greater than that of said rod and slidably cooperating with said tube to maintain the rod axially disposed within said tube, a coiled spring contained within said tube and encompassing said rod, said spring being positioned in the annularly-shaped space intermediate said tube and rod and being located intermediate said fixed spring seat and said slidable means, one end portion of said spring engaging said fixed spring seat and the other end portion of said spring being connected to said rod so that said spring tends to yieldingly resist advancing movement of said rod from its normal retracted position, and operable means located exteriorly of said tube and connected to said rod above said spring and manually operable to advance said rod and stripping plate from a retracted position against the tension of said coiled spring to clean said spikes of refuse.

2. A refuse pick-up implement comprising an elongated tube, a spike support secured to the lower end of said tube, a plurality of spikes secured to said support and projecting downwardly from the lower face thereof, a rod slidably mounted in said tube, a stripping plate secured at the lower end of said rod and having a plurality of openings through which said spikes ex-

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tend, an internal spring seat at the lower end of said tube, fixed with relation to said tube and transverse to an annularly-shaped space intermediate said tube and rod, a cylindrically-shaped member within said tube and provided on said rod at a point spaced substantially from said spring seat, said member being movable with said rod relative to said tube and slidably cooperating with the latter to maintain the rod axially disposed within said tube, said tube having at least one longitudinally extending slot in the region thereof wherein said cylindrically-shaped member is slidably movable relative thereto, a coiled spring contained within said tube and encompassing said rod, said spring being positioned in the annularly-shaped space intermediate said tube and rod and being located intermediate said fixed spring seat and said cylindrically-shaped member, one end portion of said spring engaging said fixed spring seat and the other end portion of said spring being connected to said rod so that said spring tends to yieldingly resist advancing movement of said rod from its normal retracted position, operable means located exteriorly of said tube and connected through said slot to said rod above said spring and manually operable to advance said rod and stripping plate from a retracted position against the tension of said coiled spring to clean said spikes of refuse.

3. A refuse pick-up implement comprising an elongated tube, a spike support secured to the lower end of said tube, a plurality of spikes secured to said support and projecting downwardly from the lower face thereof, a rod slidably mounted in said tube and having a substantially smaller diameter than said tube to provide an annularly-shaped space therebetween, a stripping plate secured at the lower end of said rod and having a plurality of openings through which said spikes extend, means removably connecting said spike support to the lower end of said tube and providing an internal, annularly-shaped spring seat, fixed with relation to said tube and surrounding said rod in transverse relation to the annularly-shaped space intermediate said tube and rod, and said means providing a fixed guide member for slidably supporting said rod for lengthwise movement axially of said tube, means within said tube and provided on said rod at a point spaced substantially from said spring seat, said means defining a cross-sectional area greater than that of said rod and slidably cooperating with said tube to maintain the rod axially disposed within said tube, a coiled spring contained within said tube and encompassing said rod, said spring being positioned in the annularly-shaped space intermediate said tube and rod and being located intermediate said fixed spring seat and said slidable means, one end portion of said spring engaging said fixed spring seat and the other end portion of said spring being connected to said rod so that said spring tends to yieldingly resist advancing movement of said rod from its normal retracted position, and operable means located exteriorly of said tube and connected to said rod above said spring and manually operable to advance said rod and stripping plate from a retracted position against the tension of said coiled spring to clean said spikes of refuse.

4. A refuse pick-up implement comprising an elongated tube, a spike support secured to the

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lower end of said tube, a plurality of spikes secured to said support and projecting downwardly from the lower face thereof, a rod slidably mounted in said tube and having a length substantially greater than that of said tube and having a diameter substantially smaller than that of said tube so as to provide an annularly-shaped space therebetween, a stripping plate secured at the lower end of said rod and having a plurality of openings through which said spikes extend, means removably connecting said spike support to the lower end of said tube and providing an internal, annularly-shaped spring seat, fixed with relation to said tube and surrounding said rod in transverse relation to the annularly-shaped space intermediate said tube and rod, and said means providing a fixed guide member for slidably supporting said rod for lengthwise movement axially of said tube, a fixed guide member at the upper end of said tube for slidably supporting said rod for lengthwise movement axially of said tube, a cylindrically-shaped member within said tube and provided on said rod at a point spaced substantially from said spring seat and intermediate said fixed guide members, said cylindrically-shaped member being movable with said rod relative to said tube and slidably cooperating with the latter to maintain the rod axially disposed within said tube, said tube having at least one longitudinally extending slot in the region thereof wherein said cylindrically-shaped member is slidably movable relative thereto, a coiled spring contained within said tube and encompassing said rod, said spring being positioned in the annularly-shaped space intermediate said tube and rod and being located intermediate said fixed spring seat and said cylindrically-shaped member, one end portion of said spring engaging said fixed spring seat and the other end portion of said spring being connected to said rod so that said spring tends to yieldingly resist advancing movement of said rod from its normal retracted position, operable means located exteriorly of said tube and connected through said slot to said rod above said spring and manually operable to advance said rod and stripping plate from a retracted position against the tension of said coiled spring to clean said spikes of refuse, and operable means connected to the upper portion of said rod projecting beyond said upper fixed guide and manually operable to advance said rod and stripping plate from a retracted position against the tension of said coiled spring to clean said spikes of refuse.

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