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(54) **Refuse collection device**

Abfallsammelvorrichtung

Dispositif de collecte de déchets

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DescriptionFIELD OF THE INVENTION

[0001] The present invention relates generally to a refuse collection device for collecting refuse in a more sanitary manner.

BACKGROUND OF THE INVENTION

[0002] Collecting refuse, especially animal droppings is always a disgusting job. To help people to collect the refuse without using hand to directly pick up the refuse, there are a variety of refuse collection devices proposed and available in the market. One example of such refuse collection devices is Taiwan patent application No. 84206639 and an additional application associated therewith filed by the applicant. Reference is also made to US patent No. 5,671,959. Such a prior art device, although working well, yet has a disadvantage in that the prior art refuse collection device is controlled mainly by means of a flexible rope or wire which extends from the scooping cover of the device through a plurality of holes formed on an elongated rod to which the cover is attached and the parts associated therewith to a manual control. This significantly increases the manufacture cost due to its complication in structure. Also, in such a prior art device, inconvenience in operation may be sometimes encountered. US patent No. 5,671,959 discloses the features in the preamble of claim 1.

[0003] Thus, it is desirable to provide an improvement over such a conventional refuse collection device which is cheap in manufacture cost and much easier to operate.

SUMMARY OF THE INVENTION

[0004] Therefore, the principal object of the present invention is to provide a refuse collection device which is easier to manufacture and operate so as to reduce the manufacturing cost and to facilitate the operation thereof by the general consumers.

[0005] In accordance with the present invention, to achieve the above object, there is provided a refuse collection device comprising an elongated tubular portion and a collection container assembly comprising a mount supported by the elongated tubular portion and defining a refuse passage, a cover substantially corresponding in shape to the refuse passage and rotatably connected to the elongated tubular portion to be movable between a closed position where the cover substantially closes the refuse passage and an open position where the cover is angularly displaced from the closed position at a first angle to open the refuse passage, a primary bag having an opening fixed to the mount and surrounding the refuse passage defined by the mount, characterized in that the elongated tubular portion comprising an outer tube having an upper end and a lower end in an axial

direction, the outer tube having an inner cross-sectional dimension and an inner tubular assembly having an upper end and a lower end, the inner tubular assembly being received within the inner cross-sectional dimension of the outer tube to have the upper end thereof located within the outer tube and the lower end thereof extending out of the lower end of the outer tube, the outer tube being axially movable relative to the inner tubular assembly between an axial upper position and a lower position, the cover being rotatably connected to the inner tubular assembly by a pivot pin supported on the inner tubular assembly to be movable between the closed position and the open position, control means comprising a first grip fixed to the upper end of the outer tube and having a central bore co-axially aligned with and in communication with the inner cross-sectional dimension of the outer tube, the central bore defining a smooth inner surface, a second grip having a hollow shaft extending therefrom to be axially fixed to the inner tubular assembly, the shaft being slidably received within the bore of the first grip to allow the first grip to be movable relative to the second grip in unison with the outer tube between the upper position and the lower position, locking means comprising a groove formed in the inner surface of the central bore of the first grip, the groove having a first step of a predetermined depth and at least a radial opening formed on a circumference of the hollow shaft to movably receive therein a spherical member, the radial opening being located on the hollow shaft to completely receive the spherical member therein by being acted upon by the smooth inner surface of the central bore of the first grip when the outer tube is in the lower position where the cover is in the closed position, a first biasing element being provided to bias the spherical member out of the radial opening and partially into and thus engaging the groove of the first grip when the outer tube is in the upper position to securely hold the outer tube in the upper position and the cover in the open position by means of the engagement between the spherical member with the groove of the first grip, and releasing means for breaking the engagement between the spherical member and the groove of the first grip by allowing the spherical member to be moved back into the radial opening so as to allow the outer tube to move from the upper position to the lower position and thus closing the cover.

[0006] Further features of the invention are the subject of the dependent claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The present invention will be better understood from the following description of a preferred embodiment thereof, with reference to the attached drawings, wherein:

Fig. 1 is a perspective view showing a refuse collection device constructed in accordance with the

present invention;

Fig. 2 is an exploded perspective view of the refuse collection device of the present invention;

Fig. 3 is a vertical sectional view of the refuse collection device of the present invention in a closed condition with the collection bag removed;

Fig. 4 is a side elevational view, partially sectioned, of the refuse collection device of the present invention in an open condition;

Fig. 5 is a vertical sectional view of the refuse collection device of the present invention in an open condition with the collection bag removed;

Fig. 6 is a perspective view of the refuse collection device of the present invention in an open condition; and

Figs. 7, 8 and 9 are partial cross-sectional views showing the operation of the control device incorporated in the refuse collection device of the present invention, in which Fig. 7 shows the closed condition, Fig. 8 open condition and Fig. 9 bag released condition.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0008] With reference to the drawings and in particular to Figs. 1-3, wherein a refuse collection device constructed in accordance with the present invention is shown, the refuse collection device of the present invention comprises an elongated rod or tubular portion which in general use is substantially upright with an axis thereof extending substantially vertically, having a lower end to which a flexible refuse collection container 6 is detachably mounted and openably closed by means of a cover 53 and an upper end to which a control 4 is mounted to open the cover 53 for collecting refuse (not shown) into the collection container 6. The control 4 is designed to be handled and operable with one single hand of a user and will be further described.

[0009] The elongated rod portion of the refuse collection device comprises an outer tube 1, an intermediate tube 2 and an inner tube 3 telescoping each other with the inner tube 3 received inside the intermediate tube 2 and the outer tube 1 fitted over the intermediate tube 2, as shown in Fig. 3. Each of the tubes 1, 2 and 3 has an upper end and an opposite lower end. The control 4 is mounted to the upper end of the intermediate tube 2. The lower end of the inner tube 3 extends outside the intermediate tube 2 with a bag mount 5 fixed thereto for supporting the collection container 6.

[0010] As shown in Figs. 2 and 3, the bag mount 5 comprises a semi-circular frame having a lower flat sec-

tion adapted to be positioned against the ground and an arc upper section connected to the flat section to define therebetween a refuse passage. Preferably, the lower section of the mount 5 comprises a downward inclined edge 52 for facilitating moving the refuse into the container 6. The upper section of the bag mount 5 has an opening 51, preferably substantially centered on the upper section. The bag mount 5 is fixed to the lower end of the inner tube 3 by any known means, such as welding, in such a way that the opening 51 of the bag mount 5 is aligned with the lower end of the inner tube 3. The lower end of the inner tube 3 is provided with inner threading 33 that is accessible through the opening 51 of the bag mount 5.

[0011] An externally-threaded plug 56 is provided to threadingly engage the inner threading 33 of the inner tube 3 through the opening 51 of the bag mount 5 to support and retain a helical spring 54 within the lower end of the inner tube 3. The inner tube 3 is provided with a first pair of slots 32 which are elongated in the axial direction and diametrically aligned with each other to movably receive therein a pivot pin 535 extending through both slots 32. The elongated slots 32 of the inner tube 3 has a predetermined axial length which will be further discussed. The slots 32 are axially spaced from the lower end of the inner tube 3 to define a distance between the pin 535 and the plug 56 for accommodating therein the spring 54. The spring 54 is in general compressed to bias the plug 56 that is fixed in the lower end of the inner tube 3 away from the pin 535 so as to locate the pivot pin 535 at an axial upper end of the elongated slots 32 of the inner tube 3, as shown in Figs. 3 and 4.

[0012] The intermediate tube 2 is provided with a lower portion that extends beyond the outer tube 1 with two diametrically opposite holes 23 corresponding to the slots 32 of the inner tube 3 to allow the pivot pin 535 to extend therethrough to serve as a pivot for the cover 53.

[0013] The cover 53 comprises a semi-circular plate, substantially corresponding to the semi-circular frame of the bag mount 5 with an extension substantially parallel with the elongated rod portion in the axial direction. The semi-circular plate has two lugs 530 extending therefrom and spaced from each other in such a way to receive the elongated rod portion, particularly the lower end of the intermediate tube 2, therebetween. Each of the lugs 530 is provided with a hole 531 aligned with each other and corresponding to the holes 23 of the intermediate tube 2 to receive the pivot pin 535 there-through. This allows the cover 53 to be rotatable about the pivot pin 535 and thus making the semi-circular plate portion of the cover 53 movable relative to the bag mount 5 between an open position and a closed position for opening/closing the refuse passage defined between the upper section and lower section of the bag mount 5.

[0014] Biasing means 534 is provided between the elongated rod portion and the cover 53 to bias the cover 53 to close the refuse passage defined by the bag mount

5. With the biasing means 534, the refuse passage defined by the bag mount 5 is a normally-closed design. Namely, it is normally closed by the cover 53 under the biasing force of the biasing means 534 and will only be opened by manually actuating the control means 4 to move the cover 53 against the biasing means 534. This prevents the refuse collected in the collection container 6 that is mounted to the bag mount 5 from accidentally falling off the collection container 6 to cause a second time contamination. The actuation of the control means 4 for opening the cover 6 will be further discussed hereinafter.

[0015] In the embodiment illustrated, the biasing means 534 comprises a torsional spring, having a U-shaped configuration fit outside the two spaced lugs 530 of the cover 5. The U shape has two side limbs, each having a plurality of turns of the torsional spring formed thereon to define a bore 5341 loosely fitted over the pivot pin 535 to be held therein. The limbs of the U shape also have a bent end 5342 to be received and held within corresponding apertures 222 formed on a sideways tab 22 fixed to the intermediate tube 2.

[0016] A connecting link 533 is provided to connect between the cover 53 and the outer tube 1, see Fig. 3. This is accomplished by providing hook-like members 12 and 532 on both the outer tube 1 and the cover 53 and forming hangers on both ends of the connecting link 533 to engage the hook-like members on the outer tube 1 and the cover 53.

[0017] The control means 4 comprises a cylinder 47 which is sized to be received and fixed within an upper end of the intermediate tube 2 by any suitable means, such as press fitting or welding or simply a pin 470 (see Figs. 2 and 3) extending through both the intermediate tube 2 and the cylinder 47. The cylinder 47 comprises a central bore which is provided with inner threading 471. The threading 471 is formed so as not to interfere with the pin 470 that secures the cylinder 47 to the intermediate tube 2, see Fig. 3.

[0018] The intermediate tube 2 is arranged inside the outer tube 1 so that the upper end of the intermediate tube 2 is completely located within the outer tube 1. A cylindrical sleeve 46, having an outer diameter substantially corresponding to that of the intermediate tube 2, is fitted into the upper end of the outer tube 1 with a portion thereof located outside the outer tube 1 and secured to the outer tube 1 by means of for example a rivet 460 so as to serve as an axial extension of the outer tube 1. The sleeve 46 has a central bore defining a substantially smooth inner cylindrical surface, into which a hollow shaft 41 is movably fitted. The hollow shaft 41 has threading 410 and 411 provided at both upper and lower ends thereof. The shaft 41 extends through the central bore of the sleeve 46 to have the lower end threading 411 thereof threadingly engage the inner threading 471 of the cylinder 47 for securing the shaft 41 to the cylinder 47 and thus serving as an axial extension of the intermediate tube 2.

[0019] The hollow shaft 41 is provided with a plurality of openings 412 around a circumference thereof at a suitable position between the upper and lower threaded ends 410 and 411 to each receive therein a spherical member 413. The openings 412 are sized to allow the spherical members 413 to freely move therethrough. In the embodiment illustrated, there are two openings 412 formed on the shaft 41 and arranged to be diametrically opposite to each other.

[0020] The control means 4 further comprises a shank 42 which has an outer diameter or cross-sectional dimension corresponding to the inner diameter of the hollow shaft 41 so as to be axially movably received within the hollow shaft 41. The shank 42 has multiple-stepped grooves formed on a lower end thereof to respectively correspond to the openings 412 of the hollow shaft 41. Thus, in the embodiment illustrated, there are two such grooves formed on the shank 42 and are diametrically opposite to each other as more clearly shown in Figs. 7, 8 and 9.

[0021] The multiple-stepped grooves comprise a first recess 421 having a first depth measured from the outer surface of the shank 42, a second recess 422 having a second depth and a third recess 423 having a third depth, the recesses 421, 422 and 423 are arranged to be immediately juxtaposing each other in such a sequence and the third depth of the third recess 423 is smaller than the second depth of the second recess 422 which is in turn smaller than the first depth of the first recess 421 so that two steps are formed among the first, second and third recesses 421, 422 and 423 and each of the steps has an inclined transition between the two associated recesses. For example, a first inclined transition 428 (see Figs. 7-9) is arranged between the first recess 421 and the second recess 422 and diverges from the first depth of the first recess 421 toward the second depth of the second recess 422 and a second inclined transition 429 (see Figs. 7-9) is arranged between the second recess 422 and the third recess 423 and diverges from the second depth of the second recess 422 toward the third depth of the third recess 423. A flange 420 is formed next to the third recess 423 to define, together with the third depth, a shoulder or stop on the shank 42.

[0022] In accordance with the present invention, the first depth of the first recess 421 is such as to allow the respective spherical member 413 to be completely located inside the hollow shaft 41 and supported by the first inclined transition 428 (see Figs. 8 and 9) of the shank 42, as shown in Fig. 7; the second depth of the second recess 422 that is smaller than the first depth does not allow the spherical member 413 to be completely received within the hollow shaft 41 and forces the spherical member 413 to partially protrude out of the hollow shaft 41 through the respective opening 412 so that the spherical member 413 is only partially located within the second depth of the second recess 422 and supported by the second transition 429 (See Figs. 7 and

9) of the shank 42, as shown in Fig. 8; and the third depth of the third recess 423 that is smaller than the second depth further forces the spherical member 413 to further protrude out of the hollow shaft 41 through the openings 412 but still having the spherical member 413 partially located within the third depth of the third recess 423 and supported by the shoulder defined by the flange 420, see Fig. 9. The flange 420 also serves as a stop which prevents the shank 42 from further moving relative to the hollow shaft 41, as shown in Fig. 9, which will be further discussed.

[0023] To accommodate the protrusion of the spherical members 413 out of the hollow shaft 41, corresponding to each of the multiple-stepped grooves of the shank 42, the sleeve 46 is provided on the inner surface thereof a two-stepped groove having a first step 461 and a second step 462 having different depths measured from the inner surface of the sleeve 46. The two steps 461 and 462 respectively correspond to the second depth and third depth of the respective multiple-stepped groove of the shank 42 so as to partially accommodate the spherical member 413 in the groove on the sleeve 46 when the spherical member 413 is located at either the second depth or the third depth of the multiple-stepped groove of the shank 42. Preferably, the two-stepped groove of the sleeve 46 is circumferential around the inner surface of the sleeve 46. Each of the steps 461 and 462 is provided with an arc edge which serves as camming means for driving the spherical members 413 back into the hollow shaft 41. The arc edge of each of the steps 461 and 462 are arranged to be opposite to the second transition 429 and the flange 420 with respect to the spherical member 413 when the spherical member 413 is located at the second recess 422 and the third recess 423.

[0024] The control means 4 further comprises a fixed grip 44 and a movable grip 45. The movable grip 45 comprises a cylindrical body having two finger holding extensions 451, preferably in opposite directions, to be held by the fingers of one hand of a user. The cylindrical body of the movable grip 45 is fitted over the portion of the cylindrical sleeve 46 that is located outside the outer tube 1. The cylindrical body of the movable grip 45 is dimensioned so that a lower end of the cylindrical body of the movable grip 45 rests on the upper end of the outer tube 1 and an upper end of the cylindrical body of the movable grip 45 is substantially flush with the upper end of the sleeve 46. The movable grip 45 is secured to the sleeve 46 by means of for example a rivet 450.

[0025] The fixed grip 44 comprises a cylindrical body with a palm holding extension 441 extending therefrom, preferably in a direction substantially transverse to the finger holding extensions 451 of the movable grip 45. The cylindrical body of the fixed grip 44 has a central bore 442 with a reduced, inner-threaded section to threadingly engage and is thus secured to the upper threading 410 of the shaft 41. The shank 42 that is movably received within the shaft 41 has an upper end extending out of the upper end of the shaft 41 for securing

and supporting thereon a manual button 424 which is movably received within the central bore 442 of the fixed grip 44 with a compression spring 43 located therebetween. The compression spring 43 forces the button 424 and the shank 42 secured thereto to move upwards (in a regular upright operation status) relative to and away from the hollow shaft 41 and the fixed grip 44 secured to the shaft 41.

[0026] The outer tube 1, the intermediate tube 2 and the inner tube 3 are respectively provided with diametrically opposite holes 11, elongated slots 21 and elongated slots 31 which are substantially corresponding to each other to receive a pin 13 extending through. The pin 13 is fixed in the holes 11 of the outer tube 1 to be axially movable in unison therewith. The elongated slots 21 and 31 of the intermediate tube 2 and the inner tube 3 allows the pin 13 to move therein and relative thereto which in turn allows the outer tube 1 to be axially movable relative to the intermediate tube 2 and the inner tube 3. The elongated slot 31 of the inner tube 3 has an axial length shorter than the elongated slot 21 of the intermediate tube 2 and the axial length difference is substantially equal to the axial length of the slots 32 that receive the pivot pin 535 therein so as to allow the inner tube 3 to axially move relative to both the intermediate tube 2 and the pivot pin 535 that is axially fixed to the intermediate tube 2 a distance substantially identical to the axial length of the slots 32. This is more clear by considering the situation shown in Fig. 4 by regarding the intermediate tube 2 and the pivot pin 535 as stationary, then the elongated slots 32 allow the inner tube 3 to move upward and similarly, the length difference between the slots 31 and 21 also allows the inner tube 3 to move upward relative to the intermediate tube 2. The purpose of allowing the inner tube 3 to move relative to the intermediate tube 2 will be described hereinafter.

[0027] Referring to Figs. 1, 4 and 6, the collection container 6 comprises a primary bag 60 which has an opening having a plurality of apertures 601 spaced along a section of the opening to be loosely fit over corresponding pegs 55 provided on underside of the lower section of the bag mount 5. The primary bag 60 also comprises a further aperture 602 loosely fit over an upper peg 221 provided on the sideways tab 22 of the intermediate tube 2. The movability of the inner tube 3 to which the bag mount 5 is secured relative to the intermediate tube 2 allows the primary bag 60 to be expanded and thus securely held on the bag mount 5.

[0028] The collection container 6 also comprises a secondary bag 61 which is configured to substantially fit over the cover 53 for preventing the cover 53 from being contaminated by the refuse collected by the refuse collection device of the present invention. The primary bag 60 has an extension strip 603 extending over the secondary bag 61 to attach to the secondary bag 61 by means of for example adhesive pad or material 610 so as to secure the secondary bag 61 to the primary bag 60 and securely hold both the primary bag

60 and the secondary bag 61 on the bag mount 5 and the cover 53.

[0029] To collect refuse, one may position the refuse collection device of the present invention next to the refuse at a suitable distance to allow the cover 53 to open with the refuse passage defined by the bag mount 5 facing the refuse. To open the cover 53, one may use the palm of one's hand to hold the palm holding extension 441 of the fixed grip 44 with the fingers holding the finger holding extensions 451 of the movable grip 45. By contracting the hand, the movable grip 45 is driven by the fingers in an upward direction toward the fixed grip 44. Due to the fact that the movable grip 45, the sleeve 46 and the outer tube 1 are secured together by means of the rivets 450 and 460, and further due to the fact that the intermediate tube 2 is fixed to the hollow shaft 41 by means of the cylinder 47 and the hollow shaft 41 is threadingly secured to the fixed grip 44, the movement of the movable grip 45 causes the outer tube 1 (as well as the sleeve 46) to move axially upward with respect to the intermediate tube 2 (as well as the hollow shaft 41). Since in the closed condition before the user moves the movable grip 45, the spherical members 413 are constrained within the openings 412 of the shaft 41 by the cylindrical inner surface of the sleeve 46 and located in the first recess 421 of the shank 42 and supported by the first transition 428 so that the movement of the outer tube 1 relative to the intermediate tube 2 is in general not interfered with by the spherical members 413, as shown in Figs. 3 and 7. The relative movement between the outer tube 1 and the intermediate tube 2 allows the link 533 to pull the cover 53 upward relative to the bag mount 5 by rotating about the pivot pin 535 against the torsional spring 534. This opens the cover 53.

[0030] Also, the relative movement between the movable grip 45 that is fixed to the sleeve 46 and the fixed grip 44 that is threadingly secured to the hollow shaft 41 drives the sleeve 46 upward relative to the hollow shaft 41 to such a position where the first step 461 of the two-stepped groove of the sleeve 46 is substantially aligned with the openings 412 of the hollow shaft 41 which allows the spherical members 413 to be driven radially outward by means of the contact and camming engagement thereof with the first inclined transitions 428 of the shank 42. The camming action is provided by means of the compression spring 43 between the button 424 to which the shank 42 is fixed and the fixed grip 44. The outward projection of the spherical members 413 makes the spherical members 413 to be partially received within and located at the first step 461 of the two-stepped groove of the sleeve 46 and remaining partially located in the second recesses 422 of the shank 42, as shown in Figs. 4 and 8. At this moment, the spherical members 413 are in contact engagement with the arc edge of the first step 461 of the sleeve 46 and also supported by the second inclined transitions 429 of the shank 42. This prevents the outer tube 1 from moving back in a down-

ward direction with respect to the intermediate tube 2 via the engagement among the spherical members 413 and the arc edge of the first step 461 of the sleeve 46 (with the spherical members 413 being held stationary by means of being located in and supported by the second recesses 422 and the second inclined transition 429 of the shank 42) so that the cover 53 is fixed at the open position as shown in Fig. 4.

[0031] By positioning the opened refuse collection device very close to the refuse to be collected, the user may now release the outer tube 1 by depressing the button 424 against the compression spring 43. This moves the shank 42 relative to the spherical members 413 within the openings 412 of the hollow shaft 41 to such a position where the first recesses 421 of the shank 41 are substantially aligned with the openings 412. Due to the camming function provided by the arc edge of the first step 461 of the two-stepped groove of the sleeve 46, the spherical members 413 are forced inward by means of the spring force of the torsional spring 534 acting upon and pulling the outer tube 1 downward via the link 533. The spherical members 413 are forced into the openings 412 of the hollow tube 41 with a portion thereof received in the first recesses 421 and the outer tube 1 is allowed to move downward by being acted upon by the spring force of the torsional spring 534 and the own weight thereof. Such a downward movement of the outer tube 1 and the torsional spring 534 accelerates the rotation of the cover 53 toward the closed position as shown in Fig. 3. Thus, when the cover 53 hits the refuse, the cover 53 strikes and scoops the refuse into the primary bag 60 via the refuse passage defined by the bag mount 5.

[0032] The slots 31 and 21 of the inner tube 3 and intermediate tube 2 are dimensioned and positioned so that the movement of the outer tube 1 from the closed position in Fig. 3 to the open position in Fig. 4 is not interfered with by the slots 21 and 31 and when the outer tube 1 is at the closed position, the pin 13 that is carried by the outer tube 1 is substantially coincident with the upper end of the slots 31 of the inner tube 3, see Fig. 4.

[0033] To dispose the collected refuse, in accordance with the present invention, the refuse collection container 6 may be detached from the bag mount 5 without the user's hand(s) directly touching the collection container 6. This is done by horizontally holding the refuse collection device with the cover 53 facing upward and pulling the movable grip 45 toward the fixed grip 44. The operation brings the first step 461 of the sleeve 46 to the position where it aligns with the openings 412 of the hollow shaft 41 so that the spherical members 413 enter the first step 461 of the two-stepped groove of the sleeve 46 and engage the first step 461 and the arc edge thereof. This is identical to the operation of opening the cover 53.

[0034] Thereafter, by further forcing the sleeve 46 upward (relative to the hollow shaft 41 by forcibly pulling the movable grip 45 further toward the fixed grip 44) to

such a position where the second step 462 is substantially aligned with the openings 412 of the hollow shaft 41. Due to the camming action provided by the second inclined transition 429 caused by the compression spring 43 which applies an upward force to the shank 42, the spherical members 413 are forced to further project out of the hollow shaft 41 and partially enter the second step 462 of the two-stepped groove of the sleeve 46. Engagement between the spherical members 413 and the arc edge of the second step 462 maintains the sleeve 46 in position and prevents the sleeve 46 from moving downward relative to the hollow shaft 41. This prevents the outer tube 1 from moving downward relative to the intermediate tube 2 and the inner tube 3 and thus keeps the cover 5 in an open condition. Since the second step 462 of the two-stepped groove of the sleeve 46 is located lower than the first groove 461 in a regular, upward operation situation, in other words, the distance between the second step 462 and the openings 412 of the hollow shaft 41 in the closed condition in Fig. 3 is greater than that between the first step 461 and the openings 412, the movable grip 45 under this condition is moved further toward the fixed grip 44 and the cover 53 is opened wider, as shown in Fig. 5 which also helps facilitate detachment of the collection container 6 from the bag mount 5.

[0035] To release the cover 53 from the wide open condition shown in Fig. 5, one may simply depress the button 424 to move the shank 42 downward so as to allow the spherical members 413 back into the hollow shaft 41 by means of the camming action provided by the arc edge of the second step 462 of the sleeve 46. The outer tube 1 is now allowed to move downward and thus closing the cover 53.

[0036] Quite obviously, the movement of the sleeve 46 to have the first step 461 engaged by the spherical members 413 that are held within the openings 412 of the hollow shaft 41 may be unlimitedly repeated for arbitrarily opening the cover 53 to perform a number of times of scooping refuse into the container 6 and also in the final, detachment operation of the refuse collection container from the bag mount 5. The present invention provides a simple and ready-to-operate mechanism for a user to repeatedly open and close the cover in collecting refuse which also provides a similar operation in disposing the refuse so collected by detaching the collection container from the bag mount 5.

[0037] Since in the open condition, the pin 13 is substantially coincident with and engages the upper end of the slots 31 of the inner tube 3, the additional movement of the outer tube 1 from the first groove 461 to the second groove 462 causes the pin 13 to drive the inner tube 3 to move with the outer tube 1 by means of the engagement between the pin 13 and the slots 31. The intermediate tube 2 that is secured to the fixed grip 44 via the hollow shaft 41, however, remains stationary and not influenced due to the length of the slots 32 that allows the inner tube 3 to move relative to the pivot pin 535 that is

fixed on the intermediate tube 2.

[0038] Due to the relative movement between the inner tube 3 and the intermediate tube 2, the spring 54 is compressed and the distance between the upper peg 221 on the intermediate tube 2 and the lower section of the bag mount 5 (or more precisely the lower pegs 55) is reduced. This loosens the primary bag 60 from the lower pegs 55 and the upper peg 221. The user may simply shake the refuse collection device to detach the primary bag 60 from the bag mount 5. Thereafter, by rotating the refuse collection device to have the cover 53 facing downward, the weight of both the refuse collected and the primary bag 60 drives the second bag 61 off the cover 53 with the connection therebetween provided by the extension strip 603 of the primary bag 60. Thus, the refuse collected in the primary bag 60 and the collection container 6 are both disposed into any suitable processing device or facility without the user's hand directly touching the probably contaminated collection container 6.

[0039] Although the preferred embodiment has been described to illustrate the present invention, it is apparent that changes and modifications in the specifically described embodiment can be carried out without departing from the scope of the present invention which is intended to be limited only by the appended claims.

Claims

1. A refuse collection device comprising an elongated tubular portion (1, 2, 3) and a collection container assembly (6) comprising a mount (5) supported by the elongated tubular portion and defining a refuse passage, a cover (53) substantially corresponding in shape to the refuse passage and rotatably connected to the elongated tubular portion to be movable between a closed position where the cover substantially closes the refuse passage and an open position where the cover is angularly displaced from the closed position at a first angle to open the refuse passage, a primary bag (60) having an opening fixed to the mount (5) and surrounding the refuse passage defined by the mount (5),
characterized in that:

the elongated tubular portion comprising an outer tube (1) having an upper end and a lower end in an axial direction, the outer tube (1) having an inner cross-sectional dimension and an inner tubular assembly (2, 3) having an upper end and a lower end, the inner tubular assembly being received within the inner cross-sectional dimension of the outer tube (1) to have the upper end thereof located within the outer tube (1) and the lower end thereof extending out of the lower end of the outer tube (1), the outer tube being axially movable relative to the

inner tubular assembly between an axial upper position and a lower position, the cover (53) being rotatably connected to the inner tubular assembly by a pivot pin (535) supported on the inner tubular assembly to be movable between the closed position and the open position, control means (4) comprising a first grip (45) fixed to the upper end of the outer tube (1) and having a central bore co-axially aligned with and in communication with the inner cross-sectional dimension of the outer tube (1), the central bore defining a smooth inner surface, a second grip (44) having a hollow shaft (41) extending therefrom to be axially fixed to the inner tubular assembly, the shaft (41) being slidably received within the bore of the first grip (45) to allow the first grip (45) to be movable relative to the second grip (44) in unison with the outer tube (1) between the upper position and the lower position, locking means (461, 462, 413, 42, 421, 422, 423) comprising a groove (461, 462) formed in the inner surface of the central bore of the first grip (45), the groove having a first step (461) of a predetermined depth and at least a radial opening (412) formed on a circumference of the hollow shaft (41) to movably receive therein a spherical member (413), the radial opening (412) being located on the hollow shaft (41) to completely receive the spherical member (413) therein by being acted upon by the smooth inner surface of the central bore of the first grip (45) when the outer tube (1) is in the lower position where the cover (53) is in the closed position, a first biasing element (43) being provided to bias the spherical member (413) out of the radial opening (412) and partially into and thus engaging the groove of the first grip (45) when the outer tube (1) is in the upper position to securely hold the outer tube (1) in the upper position and the cover (53) in the open position by means of the engagement between the spherical member (413) with the groove of the first grip (45), and releasing means (42, 424) for breaking the engagement between the spherical member (413) and the groove of the first grip by allowing the spherical member (413) to be moved back into the radial opening (412) so as to allow the outer tube (1) to move from the upper position to the lower position and thus closing the cover (53).

2. The refuse collection device as claimed in Claim 1, **characterized in that** the cover (53) comprises a second biasing element (534) biasing the cover (53) toward the closed position so that when the outer tube (1) is released from the upper position, the cover (53) is forced back to the closed position by means of the second biasing element (534).

3. The refuse collection device as claimed in Claim 1, **characterized in that** the shaft (41) comprises a hollow member having a bore with the radial opening (412) formed on the hollow member to allow the spherical member (413) to be partially located within the bore of the hollow shaft (41), the locking means comprising a shank (42) movably received within the hollow shaft (41), the shank (42) comprising a groove (421, 422, 423) having a first recess (421) of a first depth and a second recess (422) having a second depth smaller than the first depth juxtaposing each other and connected by means of a first inclined transition (428) that diverges from the first depth to the second depth to define a first camming surface, the first depth being corresponding to the radial opening (412) and such as to allow the spherical member (413) to be completely received within the radial opening (412) of the hollow shaft (41) and the second depth being such as to partially project the spherical member (413) out of the radial opening (412), the first biasing element (43) being provided between the shank (42) and the hollow shaft (41) to bias the shank (42) in such a way to have the spherical member (413) located in the second recess so that when the outer tube (1) is in the lower position, the spherical member (413) is acted upon by the smooth inner surface of the first grip (45) to be completely received within the radial opening (412) so as not to interfere with the relative movement between the shank (42) and the hollow shaft (41) and when the outer tube (1) is in the upper position, the shank (42) is biased by the first biasing element (43) to have the first camming surface acting upon the spherical member (413) for protruding the spherical member (413) out of the radial opening (412) and partially into the first step (461) of the groove of the first grip (45) so as to securely fix the first grip (45) in the upper position.

4. The refuse collection device as claimed in Claim 3, **characterized in that** the releasing means comprises a manual button (424) which is received within a bore (442) that is formed on the second grip (44) and in communication with the bore of the hollow shaft (41) into which an upper end of the shank (42) enters to be fixed to the button (424) in a manner to be movable relative to the bore (442) of the second grip (44) with the first biasing element (43) disposed between the button (424) and the bore (442) of the second grip (44) so that by actuating the manual button (424) against the first biasing element (43) to move the shank (42) relative to the hollow shaft (41) for aligning the first recess (421) with the radial opening (412) and thus allowing the spherical member (413) to be completely moved back into the radial opening (412), the engagement between the spherical member (413) and the first grip (45) is broken and the outer tube (1) is released

to move from the upper position toward the lower position to close the cover (53).

5. The refuse collection device as claimed in Claim 1, **characterized in that** the coupling between the outer tube (1) and the cover (53) comprises a link (533) having a hanger formed on each of two opposite ends thereof to engage hook-like members (12, 532) provided on both the outer tube (1) and the cover (53).

6. The refuse collection device as claimed in Claim 1, **characterized in that** the inner tubular assembly comprises an intermediate tube (2) movably received within the outer tube (1) and an inner tube (3) movably received within the intermediate tube (2) to be movable relative to the intermediate tube (2) between a bag secured position and a bag released position, the intermediate tube (2) having an upper end within the outer tube (1) to which the shaft (41) is secured, the inner tube (3) having a lower end to which the mount (5) is fixed, the refuse collection device further comprising means for securing the bag on the mount (5), the bag securing means comprising a plurality of lower pegs (55) formed on a lower section of the mount (5) to receive corresponding first apertures (601) formed in the primary bag (60) to loosely fit thereto and an upper peg (221) provided on the intermediate tube (2) to which a further aperture (602) formed in the primary bag (60) is loosely fit, the upper peg (221) being spaced from the lower pegs (55) on the lower section of the mount (5) a predetermined distance sufficient to stretch the opening of the bag (60), a third biasing element (54) being provided between the inner tube (3) and the intermediate tube (2) to bias the inner tube (3) relative to the intermediate tube (2) toward the bag secured position and maintain the predetermined distance between the lower and upper pegs (55, 221) so as to stretch the primary bag (60) for securing the bag (6) to the mount (5).

7. The refuse collection device as claimed in Claim 6, **characterized in that** the refuse collection device further comprises driving means to move the inner tube (3) relative to the intermediate tube (2) against the third biasing means (54) from the bag secured position toward the bag releasing position to reduce the distance between the upper and lower pegs (221, 55) and thus releasing the bag (6) from the pegs (221, 55).

8. The refuse collection device as claimed in Claim 6, **characterized in that** the refuse collecting device further comprises secondary locking means (462, 423) for securing the inner tube (3) in the bag releasing position.

9. The refuse collection device as claimed in Claim 3, **characterized in that** the outer tube (1) is movable from the upper position to an uppermost position, the refuse collection device further comprising a secondary locking means (462, 423) comprising a second step (462) formed in the groove of the first grip (45) having a depth greater than the depth of the first step (461) of the groove and engageable by the spherical member (413) and a third recess (423) having a third depth formed in the groove of the shank (42), the third depth being smaller than the second depth and the third recess (423) juxtaposing the second recess (422) with a second inclined transition (429) therebetween to define a second camming surface, the second step (462) of the first grip (45) being such that when the outer tube (1) is located at the uppermost position, the second step (462) is aligned with the radial opening (412) so as to allow the spherical member (413) to be further projected out of the hollow shaft (41) to engage the second step (462) by being acted upon by the second camming surface between the second recess (422) and the third recess (423) so as to secure the first grip (45) in the uppermost position.

10. The refuse collection device as claimed in Claim 3, **characterized in that** the inner tubular assembly comprises an intermediate tube (2) movably received within the outer tube (1) and an inner tube (3) movably received within the intermediate tube (2) to be movable relative to the intermediate tube (2) between a bag secured position and a bag released position, the intermediate tube (2) having an upper end within the outer tube (1) to which the shaft (41) is secured, the inner tube (3) having a lower end to which the mount (5) is fixed, the refuse collection device further comprising means for securing the bag on the mount (5), the bag securing means comprising a plurality of lower pegs (55) formed on a lower section of the mount (5) to receive corresponding first apertures (601) formed in the primary bag (60) to loosely fit thereto and an upper peg (221) provided on the intermediate tube (2) to which a further aperture (602) formed in the primary bag (6) is loosely fit, the upper peg (221) being spaced from the lower pegs (55) on the lower section of the mount (5) a predetermined distance sufficient to stretch the opening of the bag (60), a third biasing element (54) being provided between the inner tube (3) and the intermediate tube (2) to bias the inner tube (3) relative to the intermediate tube (2) toward the bag secured position and maintain the predetermined distance between the lower and upper pegs (55, 221) so as to stretch the primary bag (60) for securing the bag (60) to the mount (5), the refuse collection device further comprising secondary locking means (462, 423) for securing the inner tube (3) in the bag releasing position.

11. The refuse collection device as claimed in Claim 10, **characterized in that** the outer tube (1) is movable from the upper position to an uppermost position, the refuse collection device further comprising secondary locking means (462, 423) comprising a second step (462) formed in the groove of the first grip (45) having a depth greater than the depth of the first step (461) of the groove and engageable by the spherical member (413) and a third recess (423) having a third depth formed in the groove of the shank (42), the third depth being smaller than the second depth and the third recess (423) juxtaposing the second recess (422) with a second inclined transition (429) therebetween to define a second camming surface, the second step (462) of the first grip (45) being such that when the outer tube (1) is located at the uppermost position, the second step (462) is aligned with the radial opening (412) so as to allow the spherical member (413) to be further projected out of the hollow shaft (41) to engage the second step (462) by being acted upon by the second camming surface between the second recess (422) and the third recess (423) so as to secure the first grip (45) in the uppermost position, and a coupling between the outer tube (1) and the inner tube (3) which allows the inner tube (3) to be movable with the outer tube (1) when the outer tube (1) is moved to the uppermost position with the spherical member (413) engaging the second step (462) of the groove so as to move the inner tube (3) to the bag releasing position.
12. The refuse collection device as claimed in Claim 11, **characterized in that** the coupling between the outer tube (1) and the inner tube (3) comprises a pin (13) carried by and transversely extending through the outer tube (1), the intermediate tube (2) having a first pair of opposite elongated slots (21) and the inner tube (3) having a second pair of opposite elongated slots (31) through which two opposite ends of the pin (13) extend, the first pair of slots (21) having a first axial length and the second pair of slots (31) having a second axial length which is shorter than the first axial length, the second axial length being such as to allow the outer tube (1) to move from the lower position to the upper position without any interference between the pin (13) and the second slots (31), and the second step (462) being positioned inside the first grip (45) so as to be further than the first step (461) so that the movement of the outer tube (1) toward the uppermost position drives the second step (462) to be engaged by the spherical member (413) and causes the pin (13) carried by the outer tube (1) to drivingly engage and move the inner tube (3) with the outer tube (1) so as to move the inner tube (3) against the third biasing element (54) toward the bag releasing position.

13. A refuse collection device as claimed in any of Claims 1-12 comprising a refuse collection container, the refuse collection container comprising a primary bag (60) having an opening detachably fixed to the bag mount (5) to surround the refuse passage and a secondary bag (61) removably fit over the cover (53), the primary bag (60) comprising an extension strip (603) having a free end releasably attached to the secondary bag by means of releasable attaching means (610).

14. The refuse collection device as claimed in Claim 13, **characterized in that** the releasable attaching means (610) comprises an adhesive material provided on the secondary bag (61) to fix the free end of the extension strip (603) of the primary bag (60).

Patentansprüche

1. Abfallsammelvorrichtung, umfassend einen länglichen röhrenförmigen Teil (1, 2, 3) und eine Sammelbehälteranordnung (6), umfassend einen Halter (5), der von dem länglichen röhrenförmigen Teil getragen wird und einen Abfalldurchlass definiert, einen Deckel (53), der im Wesentlichen der Form des Abfalldurchlasses entspricht und drehbar mit dem länglichen röhrenförmigen Teil verbunden ist, um zwischen einer geschlossenen Stellung, in der der Deckel den Abfalldurchlass im Wesentlichen schließt, und einer offenen Stellung, in der der Deckel in einem ersten Winkel winklig von der geschlossenen Stellung versetzt ist, um den Abfalldurchlass zu öffnen, einen Hauptbeutel (60) der eine Öffnung hat, die am Halter (5) befestigt ist, und den vom Halter (5) definierten Abfalldurchlass umgibt, **dadurch gekennzeichnet, dass** der längliche röhrenförmige Teil ein Außenrohr (1) mit einem oberen Ende und einem unteren Ende in einer axialen Richtung, wobei das Außenrohr (1) eine Innenquerschnittsabmessung hat, und eine innere röhrenförmige Anordnung (2, 3) mit einem oberen Ende und einem unteren Ende umfasst, wobei die innere röhrenförmige Anordnung so in der Innenquerschnittsabmessung des Außenrohres (1) aufgenommen ist, dass ihr oberes Ende im Außenrohr (1) sitzt und ihr unteres Ende sich aus dem unteren Ende des Außenrohres (1) heraus erstreckt, wobei das Außenrohr relativ zur inneren röhrenförmigen Anordnung zwischen einer axialen oberen Position und einer unteren Position axial bewegbar ist, der Deckel (53) durch einen Drehbolzen (535), der an der inneren röhrenförmigen Anordnung getragen wird, drehbar mit der inneren röhrenförmigen Anordnung verbunden ist, um zwischen der geschlossenen Stellung und der offenen Stellung bewegbar zu sein, eine Betätigungsvorrichtung (4) einen ersten Griff (45), der am oberen Ende des Außenrohres (1) fixiert ist

und eine zentrale Bohrung hat, die coaxial mit der inneren Querschnittsabmessung des Außenrohres (1) fluchtet und mit ihr kommuniziert, wobei die zentrale Bohrung eine glatte Innenfläche definiert, einen zweiten Griff (44) mit einem hohlen Stiel (41), der sich zum axialen Fixieren an der inneren röhrenförmigen Anordnung davon erstreckt, wobei der Stiel (41) gleitend in der Bohrung des ersten Griffs (45) aufgenommen ist, damit der erste Griff (45) relativ zum zweiten Griff (44) im Einklang mit dem Außenrohr (1) zwischen der oberen Position und der unteren Position bewegbar sein kann, Arretierungsmittel (461, 462, 413, 42, 421, 422, 423), die eine in der Innenfläche der zentralen Bohrung des ersten Griffs (45) gebildete Nut (461, 462) aufweisen, wobei die Nut eine erste Stufe (461) einer vorbestimmten Tiefe und wenigstens eine radiale Öffnung (412) hat, die an einem Umfang des hohlen Stiels (41) gebildet ist, um ein kugelförmiges Element (413) bewegbar darin aufzunehmen, wobei sich die radiale Öffnung (412) am hohlen Stiel (41) befindet, um das kugelförmige Element (413) durch das Wirken der glatten Innenfläche der zentralen Bohrung des ersten Griffs (45) auf es vollständig darin aufzunehmen, wenn das Außenrohr (1) in der unteren Position ist, wobei der Deckel (53) in der geschlossenen Stellung ist, wobei ein erstes Vorspannelement (43) bereitgestellt ist, um das kugelförmige Element (413) aus der radialen Öffnung (412) und teilweise in die Nut des ersten Griffs (45) und so in Eingriff mit ihr zu drücken, wenn das Außenrohr (1) in der oberen Position ist, um durch den Eingriff des kugelförmigen Elements (413) in der Nut des ersten Griffs (45) das Außenrohr (1) sicher in der oberen Position und den Deckel (53) in der offenen Stellung zu halten, und Auslösemittel (42, 424) umfasst zum Aufheben des Eingriffs des kugelförmigen Elements (413) in der Nut des ersten Griffs, indem sie zulassen, dass das kugelförmige Element (413) in die radiale Öffnung (412) zurückbewegt wird, damit das Außenrohr (1) sich von der oberen Position auf die untere Position bewegen und somit der Deckel (53) geschlossen werden kann.

2. Abfallsammelvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Deckel (53) ein zweites Vorspannelement (534) aufweist, das den Deckel (53) zur geschlossenen Stellung hin vorspannt, sodass der Deckel (53), wenn das Außenrohr (1) aus der oberen Position gelöst wird, von dem zweiten Vorspannelement (534) wieder in die geschlossene Stellung zurückgezwungen wird.
3. Abfallsammelvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Stiel (41) ein hohles Element mit einer Bohrung aufweist, wobei die radiale Öffnung (412) an dem hohlen Element

gebildet ist, damit das kugelförmige Element (413) teilweise in der Bohrung des hohlen Stiels (41) sitzen kann, wobei das Arretierungsmittel einen Schaft (42) umfasst, der bewegbar in dem hohlen Stiel (41) aufgenommen ist, wobei der Schaft (42) eine Nut (421, 422, 423) aufweist, die eine erste Ausnehmung (421) einer ersten Tiefe und eine zweite Ausnehmung (422) mit einer zweiten Tiefe, die kleiner als die erste Tiefe ist, hat, die nebeneinander liegen und mithilfe eines ersten geneigten Übergangs (428) verbunden sind, der von der ersten Tiefe auf die zweite Tiefe divergiert, um eine erste Kurvenfläche zu definieren, wobei die erste Tiefe der radialen Öffnung (412) entspricht und so ist, dass das kugelförmige Element (413) vollständig in der radialen Öffnung (412) des hohlen Stiels (41) aufgenommen werden kann, und die zweite Tiefe so ist, dass sie das kugelförmige Element (413) teilweise aus der radialen Öffnung (412) vorstehen lässt, wobei sich das erste Vorspannelement (43) zwischen dem Schaft (42) und dem hohlen Stiel (41) befindet, um den Schaft (42) derart vorzuspannen, dass das kugelförmige Element (413) in der zweiten Ausnehmung sitzt, sodass, wenn das Außenrohr (1) in der unteren Position ist, die glatte Innenfläche des ersten Griffs (45) auf das kugelförmige Element (413) wirkt, damit es vollständig in der radialen Öffnung (412) aufgenommen wird, um die relative Bewegung zwischen dem Schaft (42) und dem hohlen Stiel (41) nicht zu stören, und sodass der Schaft (42), wenn das Außenrohr (1) in der oberen Position ist, von dem ersten Vorspannelement (43) vorgespannt wird, damit die erste Kurvenfläche auf das kugelförmige Element (413) einwirkt, um das kugelförmige Element (413) aus der radialen Öffnung (412) und teilweise in die erste Stufe (461) der Nut des ersten Griffs (45) vorstehen zu lassen, um den ersten Griff (45) sicher in der oberen Position zu fixieren.

4. Abfallsammelvorrichtung nach Anspruch 3, **dadurch gekennzeichnet, dass** das Auslösemittel einen Handknopf (424) umfasst, der in einer Bohrung (442) aufgenommen ist, die am zweiten Griff (44) gebildet ist und mit der Bohrung des hohlen Stiels (41) kommuniziert, in die ein oberes Ende des Schafts (42) einläuft, um derart am Knopf (424) befestigt zu werden, dass es relativ zur Bohrung (442) des zweiten Griffs (44) bewegbar ist, wobei das erste Vorspannelement (43) zwischen dem Knopf (424) und der Bohrung (442) des zweiten Griffs (44) angeordnet ist, sodass durch Betätigen des Handknopfs (424) gegen das erste Vorspannelement (43), um den Schaft (42) zum Ausrichten der ersten Ausnehmung (421) auf die radiale Öffnung (412) und so zum Zulassen, dass das kugelförmige Element (413) vollständig in die radiale Öffnung (412) zurückbewegt wird, relativ zum hohlen Stiel (41) zu

bewegen, der Eingriff zwischen dem kugelförmigen Element (413) und dem ersten Griff (45) aufgehoben und das Außenrohr (1) gelöst wird, um sich aus der oberen Position zur unteren Position zu bewegen, um den Deckel (53) zu schließen.

5. Abfallsammelvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Kupplung zwischen dem Außenrohr (1) und dem Deckel (53) ein Verbindungsglied (533) umfasst, bei dem an jedem seiner beiden entgegengesetzten Enden ein Aufhänger zum Einhängen an hakenähnlichen Elementen (12, 532) am Außenrohr (1) und am Deckel (53) geformt ist.

6. Abfallsammelvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die innere röhrenförmige Anordnung ein bewegbar in dem Außenrohr (1) aufgenommenes Zwischenrohr (2) und ein Innenrohr (3) umfasst, das bewegbar in dem Zwischenrohr (2) aufgenommen ist, um relativ zum Zwischenrohr (2) zwischen einer Beutel-befestigungs-Position und einer Beutel-gelöst-Position bewegt werden zu können, wobei das Zwischenrohr (2) ein oberes Ende in dem Außenrohr (1) hat, an dem der Stiel (41) befestigt ist, wobei das Innenrohr (3) ein unteres Ende hat, an dem der Halter (5) fixiert ist, wobei die Abfallsammelvorrichtung ferner Mittel zum Befestigen des Beutels am Halter (5) aufweist, wobei die Beutelbefestigungsmittel eine Mehrzahl von unteren Zapfen (55), die an einem unteren Abschnitt des Halters (5) gebildet sind, um entsprechende erste, im Hauptbeutel (60) gebildete Löcher (601) zum lockeren Anbringen daran aufzunehmen, und einen am Zwischenrohr (2) bereitgestellten oberen Zapfen (221) umfassen, an dem ein weiteres, im Hauptbeutel (60) gebildetes Loch (602) locker angebracht ist, wobei der obere Zapfen (221) um eine vorbestimmte Entfernung, die ausreicht, um die Öffnung des Beutels (60) zu dehnen, von den unteren Zapfen (55) am unteren Abschnitt des Halters (5) beabstandet ist, wobei zwischen dem Innenrohr (3) und dem Zwischenrohr (2) ein drittes Vorspannelement (54) bereitgestellt ist, um das Innenrohr (3) relativ zum Zwischenrohr (2) hin zur Beutel-befestigungs-Position vorzuspannen und die vorbestimmte Entfernung zwischen den unteren und dem oberen Zapfen (55, 221) aufrecht zu erhalten, um den Hauptbeutel (60) zum Befestigen des Beutels (6) am Halter (5) zu dehnen.

7. Abfallsammelvorrichtung nach Anspruch 6, **dadurch gekennzeichnet, dass** die Abfallsammelvorrichtung ferner Antriebsmittel zum Bewegen des Innenrohrs (3) relativ zum Zwischenrohr (2) gegen das dritte Vorspannmittel (54) aus der Beutel-befestigungs-Position zur Beutellöseposition aufweist, um die Entfernung zwischen dem oberen und den un-

teren Zapfen (221, 55) zu verringern und so den Beutel (6) von den Zapfen (221, 55) zu lösen.

8. Abfallsammelvorrichtung nach Anspruch 6, **dadurch gekennzeichnet, dass** die Abfallsammelvorrichtung ferner sekundäre Arretierungsmittel (462, 423) zum Befestigen des Innenrohrs (3) in der Beutellöseposition aufweist.

9. Abfallsammelvorrichtung nach Anspruch 3, **dadurch gekennzeichnet, dass** das Außenrohr (1) aus der oberen Position auf eine oberste Position bewegt werden kann, wobei die Abfallsammelvorrichtung ferner ein sekundäres Arretierungsmittel (462, 423) aufweist, das eine in der Nut des ersten Griffs (45) gebildete zweite Stufe (462), die eine Tiefe hat, die größer als die Tiefe der ersten Stufe (461) der Nut ist, und das kugelförmige Element (413) in Eingriff nehmen kann, und eine dritte Ausnehmung (423) mit einer dritten Tiefe umfasst, die in der Nut des Schaftes (42) gebildet ist, wobei die dritte Tiefe kleiner als die zweite Tiefe ist und die dritte Ausnehmung (423) neben der zweiten Ausnehmung (422) liegt mit einem zweiten geneigten Übergang (429) dazwischen, um eine zweite Kurvenfläche zu bilden, wobei die zweite Stufe (462) des ersten Griffs (45) so ist, dass die zweite Stufe (462), wenn das Außenrohr (1) sich auf der obersten Position befindet, mit der radialen Öffnung (412) fluchtet, damit das kugelförmige Element (413) dadurch, dass die zweite Kurvenfläche zwischen der zweiten Ausnehmung (422) und der dritten Ausnehmung (423) auf es wirkt, weiter aus dem hohlen Stiel (41) hinaus vorstehen gelassen wird, um mit der zweiten Stufe (462) in Eingriff zu kommen, um den ersten Griff (45) in der obersten Position zu befestigen.

10. Abfallsammelvorrichtung nach Anspruch 3, **dadurch gekennzeichnet, dass** die innere röhrenförmige Anordnung ein bewegbar in dem Außenrohr (1) aufgenommenes Zwischenrohr (2) und ein Innenrohr (3) umfasst, das bewegbar in dem Zwischenrohr (2) aufgenommen ist, um relativ zum Zwischenrohr (2) zwischen einer Beutel-befestigungs-Position und einer Beutel-gelöst-Position bewegt werden zu können, wobei das Zwischenrohr (2) ein oberes Ende im Außenrohr (1) hat, an dem der Stiel (41) befestigt ist, wobei das Innenrohr (3) ein unteres Ende hat, an dem der Halter (5) fixiert ist, wobei die Abfallsammelvorrichtung ferner Mittel zum Befestigen des Beutels am Halter (5) aufweist, wobei die Beutelbefestigungsmittel eine Mehrzahl von unteren Zapfen (55), die an einem unteren Abschnitt des Halters (5) gebildet sind, um entsprechende erste, im Hauptbeutel (60) gebildete Löcher (601) zum lockeren Anbringen daran aufzunehmen, und einen am Zwischenrohr (2) bereitgestellten oberen Zapfen (221) umfassen, an dem ein weiteres, im

Hauptbeutel (60) gebildetes Loch (602) locker angebracht ist, wobei der obere Zapfen (221) um eine vorbestimmte Entfernung, die ausreicht, um die Öffnung des Beutels (60) zu dehnen, von den unteren Zapfen (55) am unteren Abschnitt des Halters (5) beabstandet ist, wobei zwischen dem Innenrohr (3) und dem Zwischenrohr (2) ein drittes Vorspannelement (54) bereitgestellt ist, um das Innenrohr (3) relativ zum Zwischenrohr (2) hin zur Beutelbefestigungsposition vorzuspannen und die vorbestimmte Entfernung zwischen den unteren und dem oberen Zapfen (55, 221) aufrecht zu erhalten, um den Hauptbeutel (60) zum Befestigen des Beutels (60) am Halter (5) zu dehnen, wobei die Abfallsammelvorrichtung ferner sekundäre Arretierungsmittel (462, 423) zum Befestigen des Innenrohrs (3) in der Beutellöseposition aufweist.

11. Abfallsammelvorrichtung nach Anspruch 10, **dadurch gekennzeichnet, dass** das Außenrohr (1) aus der oberen Position auf eine oberste Position bewegt werden kann, wobei die Abfallsammelvorrichtung ferner ein sekundäres Arretierungsmittel (462, 423) aufweist, das eine in der Nut des ersten Griffs (45) gebildete zweite Stufe (462), die eine Tiefe hat, die größer als die Tiefe der ersten Stufe (461) der Nut ist, und das kugelförmige Element (413) in Eingriff nehmen kann, und eine dritte Ausnehmung (423) mit einer dritten Tiefe umfasst, die in der Nut des Schaftes (42) gebildet ist, wobei die dritte Tiefe kleiner als die zweite Tiefe ist und die dritte Ausnehmung (423) neben der zweiten Ausnehmung (422) liegt mit einem zweiten geneigten Übergang (429) dazwischen, um eine zweite Kurvenfläche zu bilden, wobei die zweite Stufe (462) des ersten Griffs (45) so ist, dass die zweite Stufe (462), wenn das Außenrohr (1) sich auf der obersten Position befindet, mit der radialen Öffnung (412) fluchtet, damit das kugelförmige Element (413) dadurch, dass die zweite Kurvenfläche zwischen der zweiten Ausnehmung (422) und der dritten Ausnehmung (423) auf es wirkt, weiter aus dem hohlen Stiel (41) hinaus vorstehen gelassen wird, um mit der zweiten Stufe (462) in Eingriff zu kommen, um den ersten Griff (45) in der obersten Position zu befestigen, und eine Kupplung zwischen dem Außenrohr (1) und dem Innenrohr (3) aufweist, die es zulässt, dass das Innenrohr (3) mit dem Außenrohr (1) bewegbar ist, wenn das Außenrohr (1) auf die oberste Position bewegt wird, wobei das kugelförmige Element (413) in der zweiten Stufe (462) der Nut in Eingriff ist, um das Innenrohr (3) auf die Beutellöseposition zu bewegen.

12. Abfallsammelvorrichtung nach Anspruch 11, **dadurch gekennzeichnet, dass** die Kupplung zwischen dem Außenrohr (1) und dem Innenrohr (3) einen Bolzen (13) aufweist, der vom Außenrohr (1)

getragen wird und sich quer durch es erstreckt, wobei das Zwischenrohr (2) ein erstes Paar einander gegenüberliegender länglicher Schlitze (21) hat und das Innenrohr (3) ein zweites Paar einander gegenüberliegender länglicher Schlitze (31) hat, durch die sich zwei entgegengesetzte Enden des Bolzens (13) erstrecken, wobei das erste Paar Schlitze (21) eine erste axiale Länge hat und das zweite Paar Schlitze (31) eine zweite axiale Länge hat, die kürzer als die erste axiale Länge ist, wobei die zweite axiale Länge so ist, dass sich das Außenrohr (1) ohne Störung zwischen dem Bolzen (13) und den zweiten Schlitzen (31) von der unteren Position auf die obere Position bewegen kann, und die zweite Stufe (462) im ersten Griff (45) positioniert ist, um ferner als die erste Stufe (461) zu sein, sodass die Bewegung des Außenrohrs (1) hin zur obersten Position die zweite Stufe (462) zum Eingriff des kugelförmigen Elements (413) in ihr treibt und bewirkt, dass der vom Außenrohr (1) getragene Bolzen (13) das Innenrohr (3) mit dem Außenrohr (1) treibend in Eingriff bringt und bewegt, um das Innenrohr (3) gegen das dritte Vorspannelement (54) hin zur Beutellöseposition zu bewegen.

13. Abfallsammelvorrichtung nach einem der Ansprüche 1 bis 12, umfassend einen Abfallsammelbehälter, wobei der Abfallsammelbehälter einen Hauptbeutel (60) mit einer abnehmbar am Beutelhalter (5) fixierten Öffnung zum Umgeben des Abfalldurchlasses und einen abnehmbar um dem Deckel (53) angebrachten Zweitbeutel (61) umfasst, wobei der Hauptbeutel (60) einen Verlängerungsstreifen (603) aufweist, der ein freies Ende hat, das mithilfe eines lösbaren Anbringungsmittels (610) lösbar am Zweitbeutel angebracht ist.

14. Abfallsammelvorrichtung nach Anspruch 13, **dadurch gekennzeichnet, dass** das lösbare Anbringungsmittel (610) ein an dem Zweitbeutel (61) bereitgestelltes Haftmaterial zum Fixieren des freien Endes des Verlängerungsstreifens (603) des Hauptbeutels (60) umfasst.

Revendications

1. Dispositif de collecte de déchets comportant une portion tubulaire allongée (1, 2, 3) et un contenant de collecte (6) comportant une monture (5) supportée par la portion tubulaire allongée et définissant un passage pour les déchets, un couvercle (53) correspondant dans une large mesure en termes de forme au passage pour les déchets et connecté de manière rotative à la portion tubulaire allongée de telle manière à être déplaçable entre une position fermée où le couvercle ferme dans une large mesure le passage pour les déchets et une position

ouverte où le couvercle est déplacé de manière angulaire par rapport à la position fermée sur un premier angle pour ouvrir le passage pour les déchets, un sac primaire (60) ayant une ouverture fixée sur la monture (5) et entourant le passage pour les déchets défini par la monture (5),

caractérisé en ce que :

la portion tubulaire allongée comporte un tube extérieur (1) ayant une extrémité supérieure et une extrémité inférieure dans un sens axial, le tube extérieur (1) ayant une dimension transversale intérieure et un ensemble tubulaire intérieur (2, 3) ayant une extrémité supérieure et une extrémité inférieure, l'ensemble tubulaire intérieur étant reçu dans la dimension transversale intérieure du tube extérieur (1) de telle manière que l'extrémité supérieure relative se situe à l'intérieur du tube extérieur (1) et l'extrémité inférieure relative se prolonge hors de l'extrémité inférieure du tube extérieur (1), le tube extérieur étant déplaçable de manière axiale par rapport à l'ensemble tubulaire intérieur entre une position supérieure axiale et une position inférieure, le couvercle (53) étant connecté de manière rotative à l'ensemble tubulaire intérieur par un axe de pivotement (535) supporté sur l'ensemble tubulaire intérieur de telle manière à être déplaçable entre la position fermée et la position ouverte, un moyen de commande (4) comportant une première poignée (45) fixée sur l'extrémité supérieure du tube extérieur (1) et ayant un alésage central aligné de manière coaxiale sur et en communication avec la dimension transversale intérieure du tube extérieur (1), l'alésage central définissant une surface intérieure lisse, une deuxième poignée (44) ayant un arbre creux (41) se prolongeant par rapport à elle pour être fixé de manière axiale à l'ensemble tubulaire intérieur, l'arbre (41) étant reçu de manière coulissante à l'intérieur de l'alésage de la première poignée (45) afin de permettre à la première poignée (45) d'être déplaçable par rapport à la deuxième poignée (44) de manière synchronisée avec le tube extérieur (1) entre la position supérieure et la position inférieure, un moyen de blocage (461, 462, 413, 42, 421, 422, 423) comportant une rainure (461, 462) formée dans la surface intérieure de l'alésage central de la première poignée (45), la rainure ayant un premier pas (461) d'une profondeur prédéterminée et au moins une ouverture radiale (412) formée sur une circonférence de l'arbre creux (41) afin d'y recevoir de manière déplaçable un membre sphérique (413), l'ouverture radiale (412) étant située sur l'arbre creux (41) afin d'y recevoir de manière complète le membre sphérique (413) en

étant actionné par la surface intérieure lisse de l'alésage central de la première poignée (45) quand le tube extérieur (1) se trouve dans la position inférieure où le couvercle (53) est dans la position fermée, un premier élément de décentrement (43) étant prévu pour décentrer le membre sphérique (413) hors de l'ouverture radiale (412) et partiellement dans et pour ainsi engager la rainure de la première poignée (45) quand le tube extérieur (1) est dans la position supérieure afin de tenir de manière solide le tube extérieur (1) dans la position supérieure et le couvercle (53) dans la position ouverte par le biais de l'engagement entre le membre sphérique (413) avec la rainure de la première poignée (45), et un moyen de déblocage (42, 424) destiné à rompre l'engagement entre le membre sphérique (413) et la rainure de la première poignée (413) en permettant au membre sphérique (413) de retourner dans l'ouverture radiale (412) afin de permettre au tube extérieur (1) de se déplacer de la position supérieure à la position inférieure pour ainsi fermer le couvercle (53).

2. Dispositif de collecte de déchets selon la revendication 1, **caractérisé en ce que** le couvercle (53) comporte un deuxième élément de décentrement (534) qui décentre le couvercle (53) vers la position fermée de telle manière que, lorsque le tube extérieur (1) est débloqué de la position supérieure, le couvercle (53) est forcé de retourner sur la position fermée par le biais du deuxième élément de décentrement (534).
3. Dispositif de collecte de déchets selon la revendication 1, **caractérisé en ce que** l'arbre (41) comporte un membre creux ayant un alésage avec l'ouverture radiale (412) formée sur le membre creux afin de permettre au membre sphérique (413) d'être partiellement situé à l'intérieur de l'alésage de l'arbre creux (41), un moyen de blocage comportant une tige (42) reçue de manière déplaçable à l'intérieur de l'arbre creux (41), la tige (42) comportant une rainure (421, 422, 423) ayant un premier évidement (421) d'une première profondeur et un deuxième évidement (422) ayant une deuxième profondeur inférieure à la première profondeur se juxtaposant l'un l'autre et connectés par le biais d'une première transition inclinée (428) qui s'écarte de la première profondeur vers la deuxième profondeur afin de définir une première surface de coïncidence, la première profondeur étant mise en correspondance avec l'ouverture radiale (412) et de telle manière à permettre au membre sphérique (413) d'être reçu de manière complète à l'intérieur de l'ouverture radiale (412) de l'arbre creux (41) et la deuxième profondeur étant de telle manière à

- projeter partiellement le membre sphérique (413) hors de l'ouverture radiale (412), le premier élément de décentrement (43) étant prévu entre la tige (42) et l'arbre creux (41) afin de décentrer la tige (42) de telle manière à situer le membre sphérique (413) dans le deuxième évidement de telle manière que, lorsque le tube extérieur (1) est dans la position inférieure, le membre sphérique (413) est actionné par la surface intérieure lisse de la première poignée (45) pour être reçu de manière complète à l'intérieur de l'ouverture radiale (412) de telle manière à ne pas affecter le mouvement relatif entre la tige (42) et l'arbre creux (41) et lorsque le tube extérieur (1) est dans la position supérieure, la tige (42) est décentrée par le premier élément de décentrement (43) pour que la première surface de coïncement agisse sur le membre sphérique (413) afin de faire dépasser le membre sphérique (413) hors de l'ouverture radiale (412) et puis partiellement dans le premier pas (461) de la rainure de la première poignée (45) de telle manière à fixer de manière solide la première poignée (45) dans la position supérieure.
4. Dispositif de collecte de déchets selon la revendication 3, **caractérisé en ce que** le moyen de déblocage comporte un bouton manuel (424) qui est reçu à l'intérieur d'un alésage (442) qui est formé sur la deuxième poignée (44) et en communication avec l'alésage de l'arbre creux (41) dans lequel une extrémité supérieure de la tige (42) entre pour être fixée sur le bouton (424) d'une telle manière à pouvoir être déplaçable par rapport à l'alésage (442) de la deuxième poignée (44) avec le premier élément de décentrement (43) disposé entre le bouton (424) et l'alésage (442) de la deuxième poignée (44) de telle manière que, en actionnant le bouton manuel (424) contre le premier élément de décentrement (43) pour déplacer la tige (42) par rapport à l'arbre creux (41) afin d'aligner le premier évidement (421) sur l'ouverture radiale (412) et ainsi permettre au membre sphérique (413) d'être ramené complètement dans l'ouverture radiale (412), l'engagement entre le membre sphérique (413) et la première poignée (45) est rompu et le tube extérieur (1) est déblocqué pour se déplacer de la position supérieure vers la position inférieure pour fermer le couvercle (53).
5. Dispositif de collecte de déchets selon la revendication 1, **caractérisé en ce que** l'accouplement entre le tube extérieur (1) et le couvercle (53) comporte une pièce intermédiaire (533) ayant un dispositif de suspension formé sur chacune des deux extrémités opposées relatives pour engager des membres en forme de crochet (12, 532) prévus à la fois sur le tube extérieur (1) et le couvercle (53).
6. Dispositif de collecte de déchets selon la revendication 1, **caractérisé en ce que** l'ensemble tubulaire intérieur comporte un tube intermédiaire (2) reçu de manière déplaçable à l'intérieur du tube extérieur (1) et un tube intérieur (3) reçu de manière déplaçable à l'intérieur du tube intermédiaire (2) pour être déplaçable par rapport au tube intermédiaire (2) entre une position de sac en place et une position de sac dégagé, le tube intermédiaire (2) ayant une extrémité supérieure à l'intérieur du tube extérieur (1) sur laquelle l'arbre (41) est fixé, le tube intérieur (3) ayant une extrémité inférieure sur laquelle la monture (5) est fixée, le dispositif de collecte de déchets comportant par ailleurs un moyen destiné à fixer le sac sur la monture (5), le moyen de fixation du sac comportant une pluralité de tenons inférieurs (55) formés sur une section inférieure de la monture (5) pour recevoir les premiers trous correspondants (601) formés dans le sac primaire (60) pour l'y fixer de manière lâche et un tenon supérieur (221) prévu sur le tube intermédiaire (2) sur lequel un autre trou (602) formé dans le sac primaire (60) vient se fixer de manière lâche, le tenon supérieur (221) étant espacé par rapport aux tenons inférieurs (55) sur la section inférieure de la monture (5) à une distance prédéterminée suffisante pour étirer l'ouverture du sac (60), un troisième élément de décentrement (54) étant prévu entre le tube intérieur (3) et le tube intermédiaire (2) pour décentrer le tube intérieur (3) par rapport au tube intermédiaire (2) vers la position de sac en place et pour maintenir la distance prédéterminée entre les tenons inférieurs et le tenon supérieur (55, 221) de telle manière à étirer le sac primaire (60) afin de fixer le sac (6) sur la monture (5).
7. Dispositif de collecte de déchets selon la revendication 6, **caractérisé en ce que** le dispositif de collecte de déchets comporte par ailleurs un moyen d'entraînement destiné à déplacer le tube intérieur (3) par rapport au tube intermédiaire (2) contre le troisième moyen de décentrement (54) de la position de sac en place vers la position de dégagement du sac afin de réduire la distance entre le tenon supérieur et les tenons inférieurs (221, 55) et ainsi dégager le sac (6) des tenons (221, 55).
8. Dispositif de collecte de déchets selon la revendication 6, **caractérisé en ce que** le dispositif de collecte de déchets comporte par ailleurs un moyen de blocage secondaire (462, 423) destiné à fixer le tube intérieur (3) dans la position de dégagement du sac.
9. Dispositif de collecte de déchets selon la revendication 3, **caractérisé en ce que** le tube extérieur (1) est déplaçable de la position supérieure à une position supérieure terminale, le dispositif de col-

lecte de déchets comportant par ailleurs un moyen de blocage secondaire (462, 423) comportant un deuxième pas (462) formé dans la rainure de la première poignée (45) ayant une profondeur supérieure à la profondeur du premier pas (461) de la rainure et engageable par le membre sphérique (413) et un troisième évidement (423) ayant une troisième profondeur formé dans la rainure de la tige (42), la troisième profondeur étant inférieure à la deuxième profondeur et le troisième évidement (423) juxtaposant le deuxième évidement (422) avec une deuxième transition inclinée (429) entre eux pour définir une deuxième surface de coincement, le deuxième pas (462) de la première poignée (45) étant tel que, lorsque le tube extérieur (1) est situé sur la position supérieure terminale, le deuxième pas (462) est aligné sur l'ouverture radiale (412) de telle manière à permettre au membre sphérique (413) d'être projeté plus encore hors de l'arbre creux (41) afin d'engager le deuxième pas (462) en étant actionné par la deuxième surface de coincement entre le deuxième évidement (422) et le troisième évidement (423) de telle manière à fixer la première poignée (45) dans la position supérieure terminale.

10. Dispositif de collecte de déchets selon la revendication 3, **caractérisé en ce que** l'ensemble tubulaire intérieur comporte un tube intermédiaire (2) reçu de manière déplaçable à l'intérieur du tube extérieur (1) et un tube intérieur (3) reçu de manière déplaçable à l'intérieur du tube intermédiaire (2) de telle manière à être déplaçable par rapport au tube intermédiaire (2) entre une position de sac en place et une position de sac dégagé, le tube intermédiaire (2) ayant une extrémité supérieure à l'intérieur du tube extérieur (1) à laquelle l'arbre (41) est fixé, le tube intérieur (3) ayant une extrémité inférieure à laquelle la monture (5) est fixée, le dispositif de collecte de déchets comportant par ailleurs un moyen destiné à fixer le sac sur la monture (5), le moyen de fixation du sac comportant une pluralité de tenons inférieurs (55) formés sur une section inférieure de la monture (5) pour recevoir les premiers trous correspondants (601) formés dans le sac primaire (60) pour l'y fixer de manière lâche et un tenon supérieur (221) prévu sur le tube intermédiaire (2) sur lequel un autre trou (602) formé dans le sac primaire (6) vient se fixer de manière lâche, le tenon supérieur (221) étant espacé par rapport aux tenons inférieurs (55) sur la section inférieure de la monture (5) une distance prédéterminée suffisante pour étirer l'ouverture du sac (60), un troisième élément de décentrement (54) étant prévu entre le tube intérieur (3) et le tube intermédiaire (2) pour décentrer le tube intérieur (3) par rapport au tube intermédiaire (2) vers la position de sac en place et pour maintenir la distance prédéterminée entre les tenons inférieurs et le tenon supérieur (55, 221) de telle ma-

nière à étirer le sac primaire (60) afin de fixer le sac (60) sur la monture (5), le dispositif de collecte de déchets comportant par ailleurs un moyen de blocage secondaire (462, 423) destiné à fixer le tube intérieur (3) dans la position de dégagement du sac.

11. Dispositif de collecte de déchets selon la revendication 10, **caractérisé en ce que** le tube extérieur (1) est déplaçable de la position supérieure à une position supérieure terminale, le dispositif de collecte de déchets comportant par ailleurs un moyen de blocage secondaire (462, 423) comportant un deuxième pas (462) formé dans la rainure de la première poignée (45) ayant une profondeur supérieure à la profondeur du premier pas (461) de la rainure et engageable par le membre sphérique (413) et un troisième évidement (423) ayant une troisième profondeur formé dans la rainure de la tige (42), la troisième profondeur étant inférieure à la deuxième profondeur et le troisième évidement (423) juxtaposant le deuxième évidement (422) avec une deuxième transition inclinée (429) entre eux pour définir une deuxième surface de coincement, le deuxième pas (462) de la première poignée (45) étant tel que, lorsque le tube extérieur (1) est situé sur la position supérieure terminale, le deuxième pas (462) est aligné sur l'ouverture radiale (412) de telle manière à permettre au membre sphérique (413) d'être projeté plus encore hors de l'arbre creux (41) afin d'engager le deuxième pas (462) en étant actionné par la deuxième surface de coincement entre le deuxième évidement (422) et le troisième évidement (423) de telle manière à fixer la première poignée (45) dans la position supérieure terminale, et un accouplement entre le tube extérieur (1) et le tube intérieur (3) qui permet au tube intérieur (3) d'être déplaçable avec le tube extérieur (1) lorsque le tube extérieur (1) est déplacé jusqu'à la position supérieure terminale avec le membre sphérique (413) engageant le deuxième pas (462) de la rainure de telle manière à déplacer le tube intérieur (3) sur la position de dégagement du sac.

12. Dispositif de collecte de déchets selon la revendication 11, **caractérisé en ce que** l'accouplement entre le tube extérieur (1) et le tube intérieur (3) comporte une goupille (13) portée par et se prolongeant de manière transversale au travers du tube extérieur (1), le tube intermédiaire (2) ayant une première paire de fentes allongées opposées (21) et le tube intérieur (3) ayant une deuxième paire de fentes allongées opposées (31) au travers desquelles deux extrémités opposées de la goupille (13) se prolongent, la première paire de fentes (21) ayant une première longueur axiale et la deuxième paire de fentes (31) ayant une deuxième longueur axiale qui est plus courte que la première longueur axiale, la deuxième longueur axiale étant telle qu'elle per-

met au tube extérieur (1) de se déplacer de la position inférieure à la position supérieure sans aucune interférence entre la goupille (13) et les deuxièmes fentes (31), et le deuxième pas (462) étant positionné à l'intérieur de la première poignée (45) de telle manière à être plus éloigné que le premier pas (461) de telle manière que le mouvement du tube extérieur (1) vers la position supérieure terminale entraîne le deuxième pas (462) à être engagé par le membre sphérique (413) et amène la goupille (13) portée par le tube extérieur (1) à s'engager par entraînement et déplacer le tube intérieur (3) avec le tube extérieur (1) de telle manière à déplacer le tube intérieur (3) contre le troisième élément de décentrement (54) vers la position de dégagement du sac.

13. Dispositif de collecte de déchets selon l'une quelconque des revendications 1 à 12, comportant un contenant de collecte de déchets, le contenant de collecte de déchets comportant un sac primaire (60) ayant une ouverture fixée de manière détachable sur la monture (5) du sac pour entourer le passage pour les déchets et un sac secondaire (61) installé de manière amovible sur le couvercle (53), le sac primaire (60) comportant une languette d'extension (603) ayant une extrémité libre fixée de manière libérable sur le sac secondaire par le biais d'un moyen de fixation libérable (610).

14. Dispositif de collecte de déchets selon la revendication 13, **caractérisé en ce que** le moyen de fixation libérable (610) comporte un matériau adhésif prévu sur le sac secondaire (61) pour fixer l'extrémité libre de la languette d'extension (603) du sac primaire (60).

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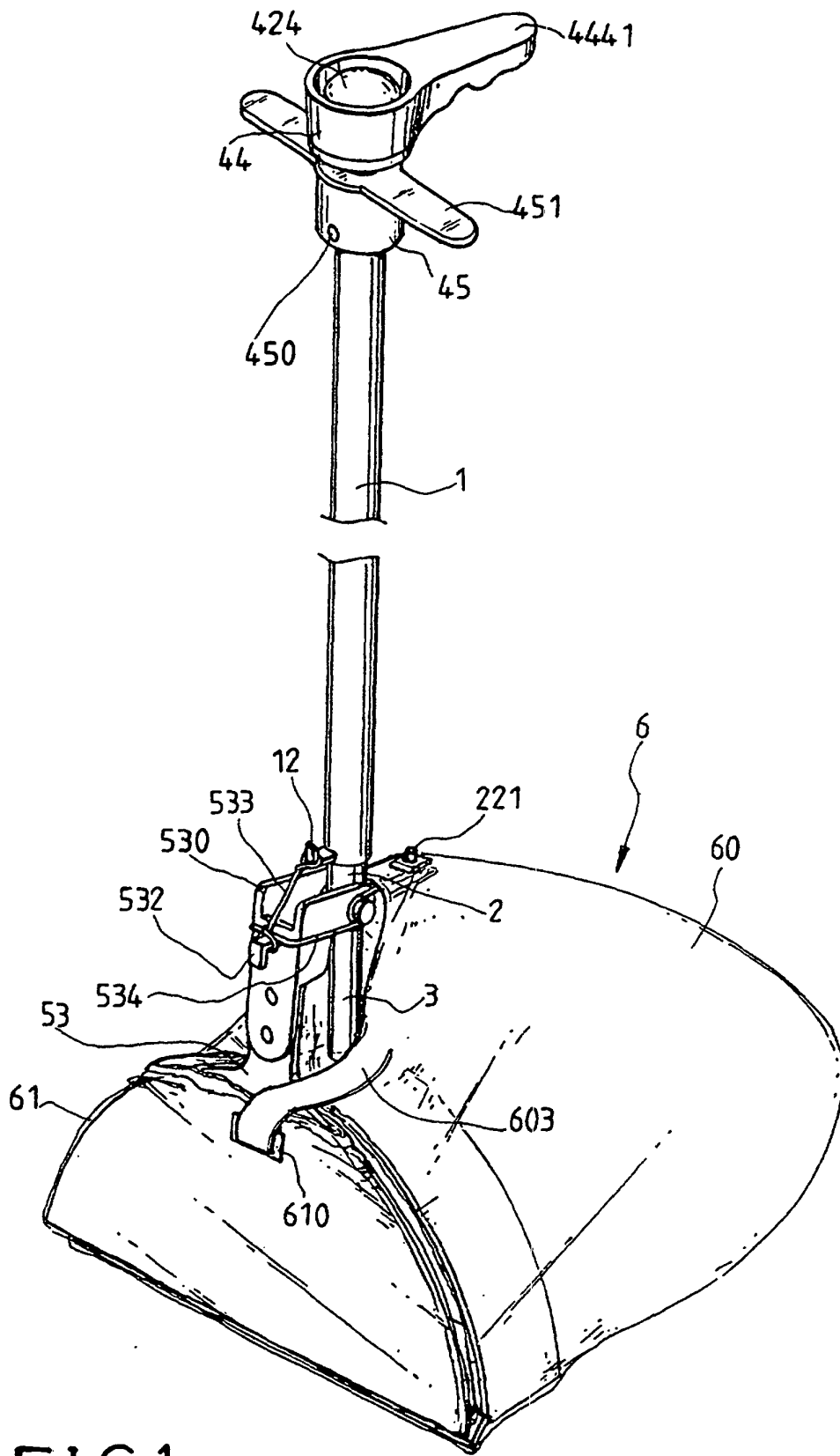


FIG.1

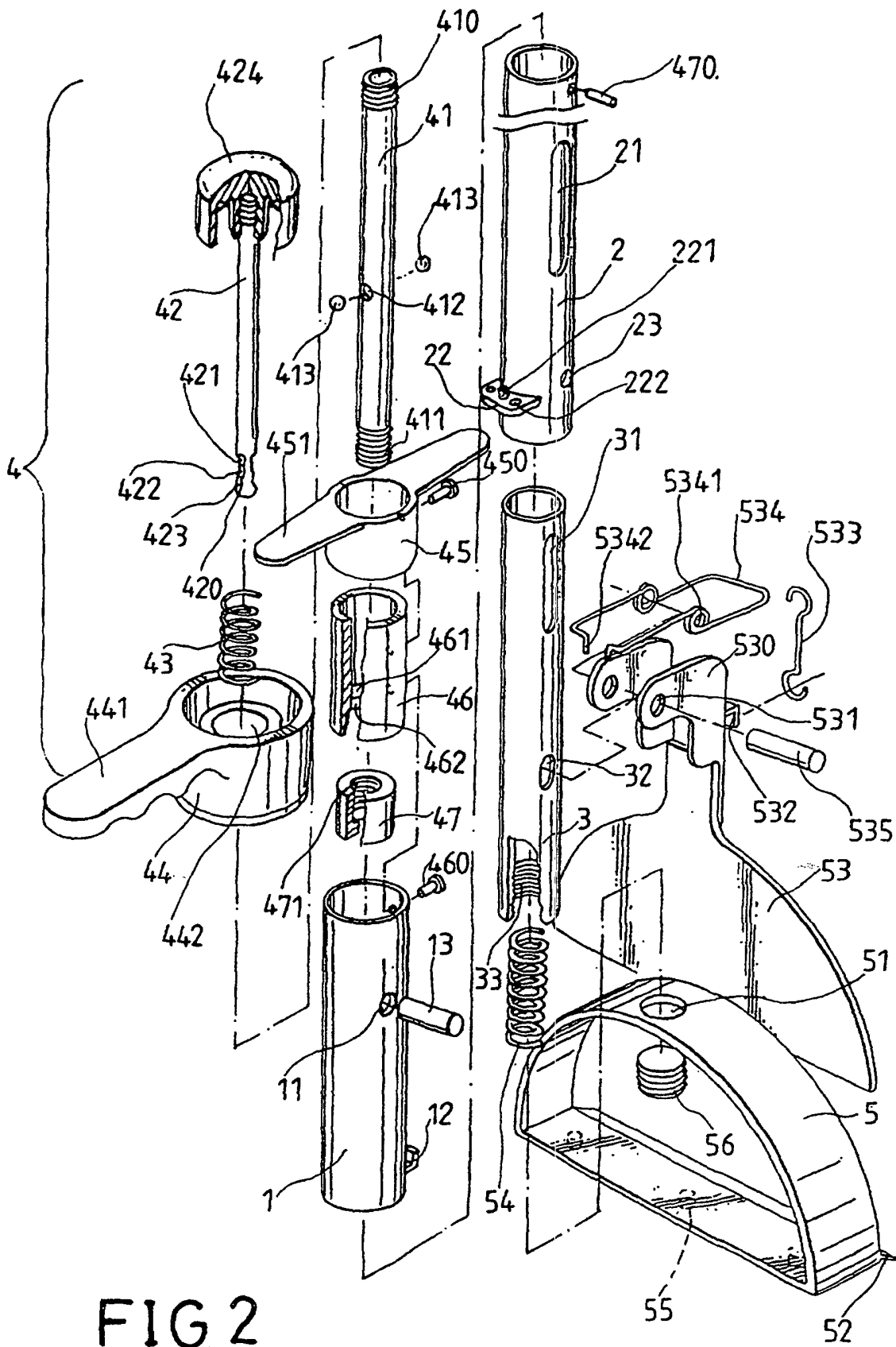


FIG. 2

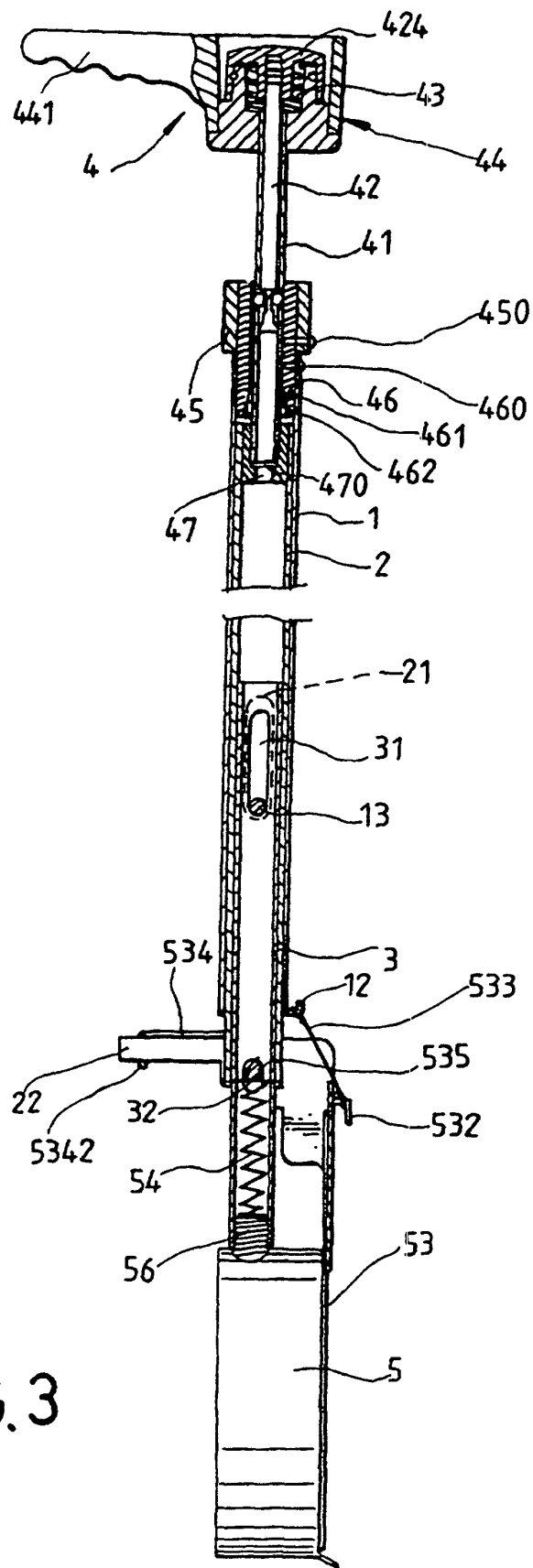


FIG. 3

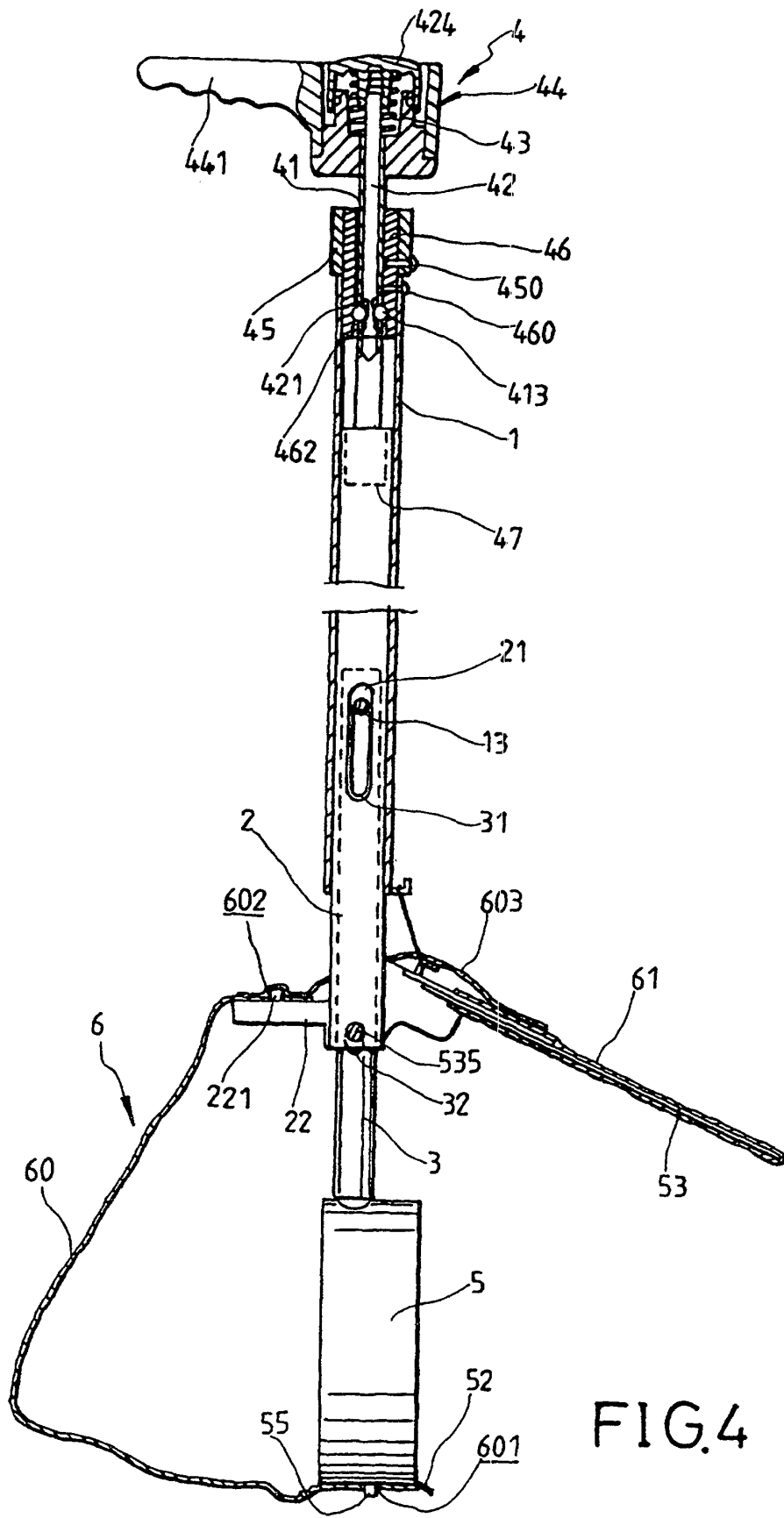


FIG.4

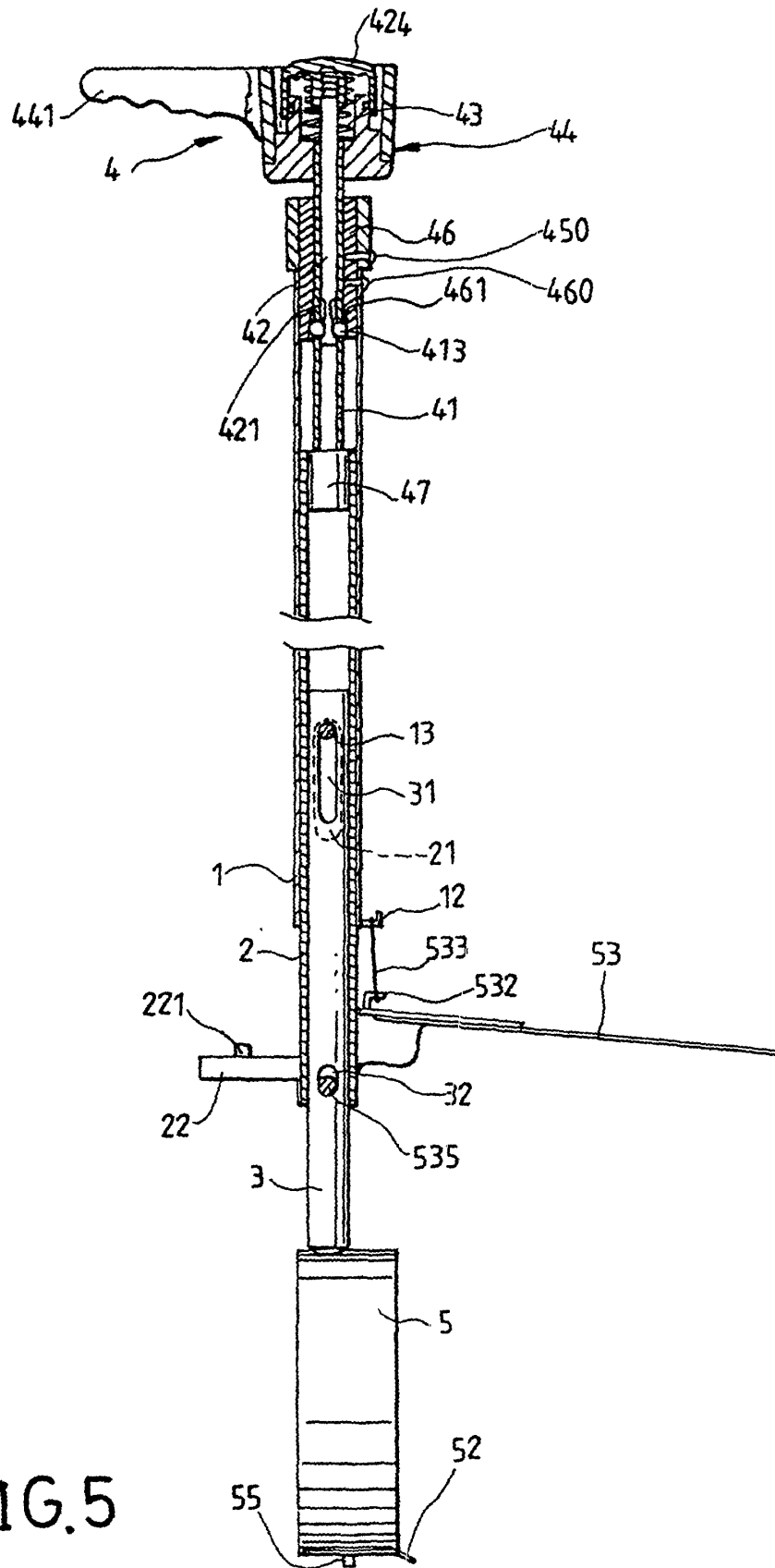


FIG. 5

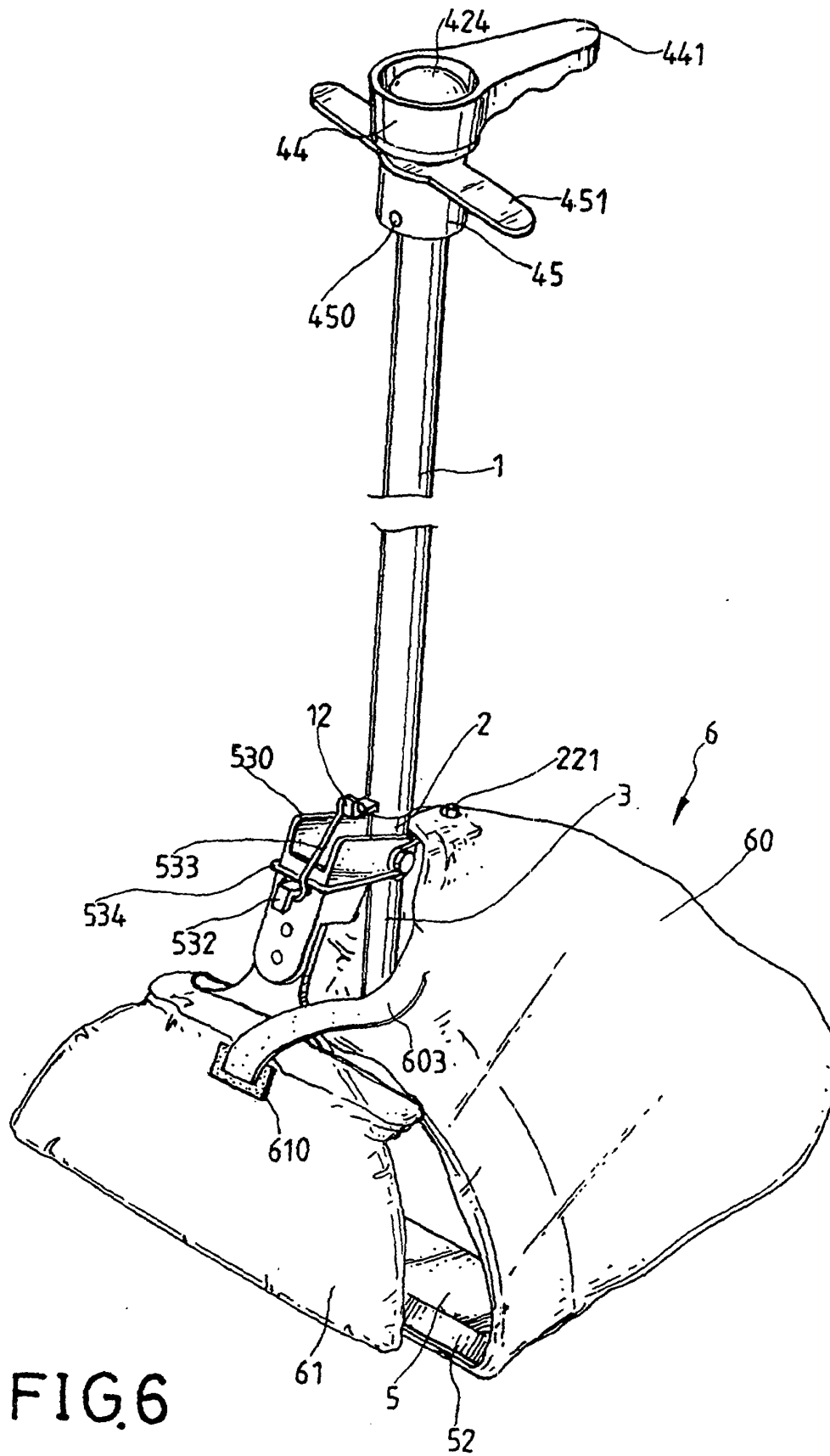


FIG. 6

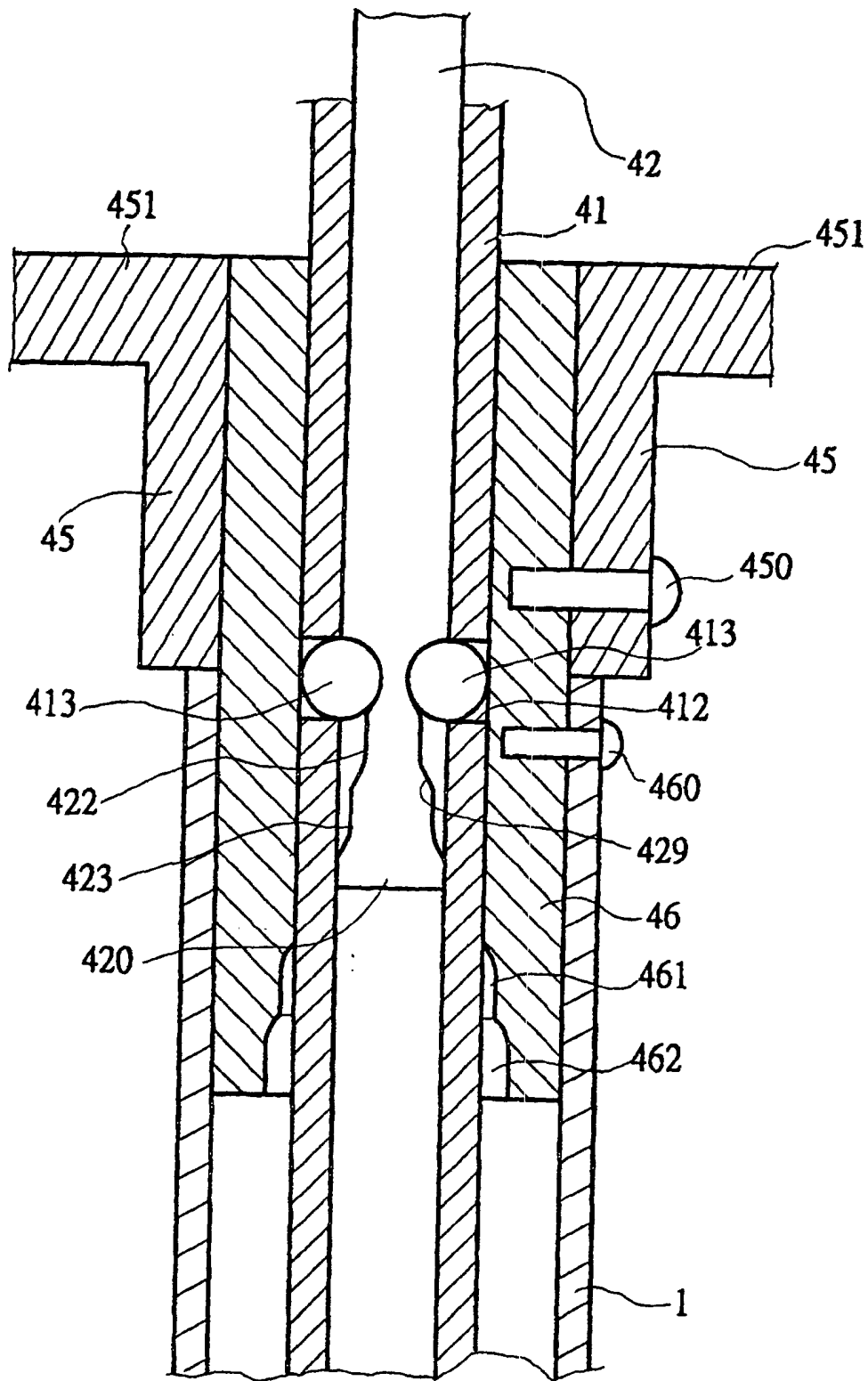


FIG. 7

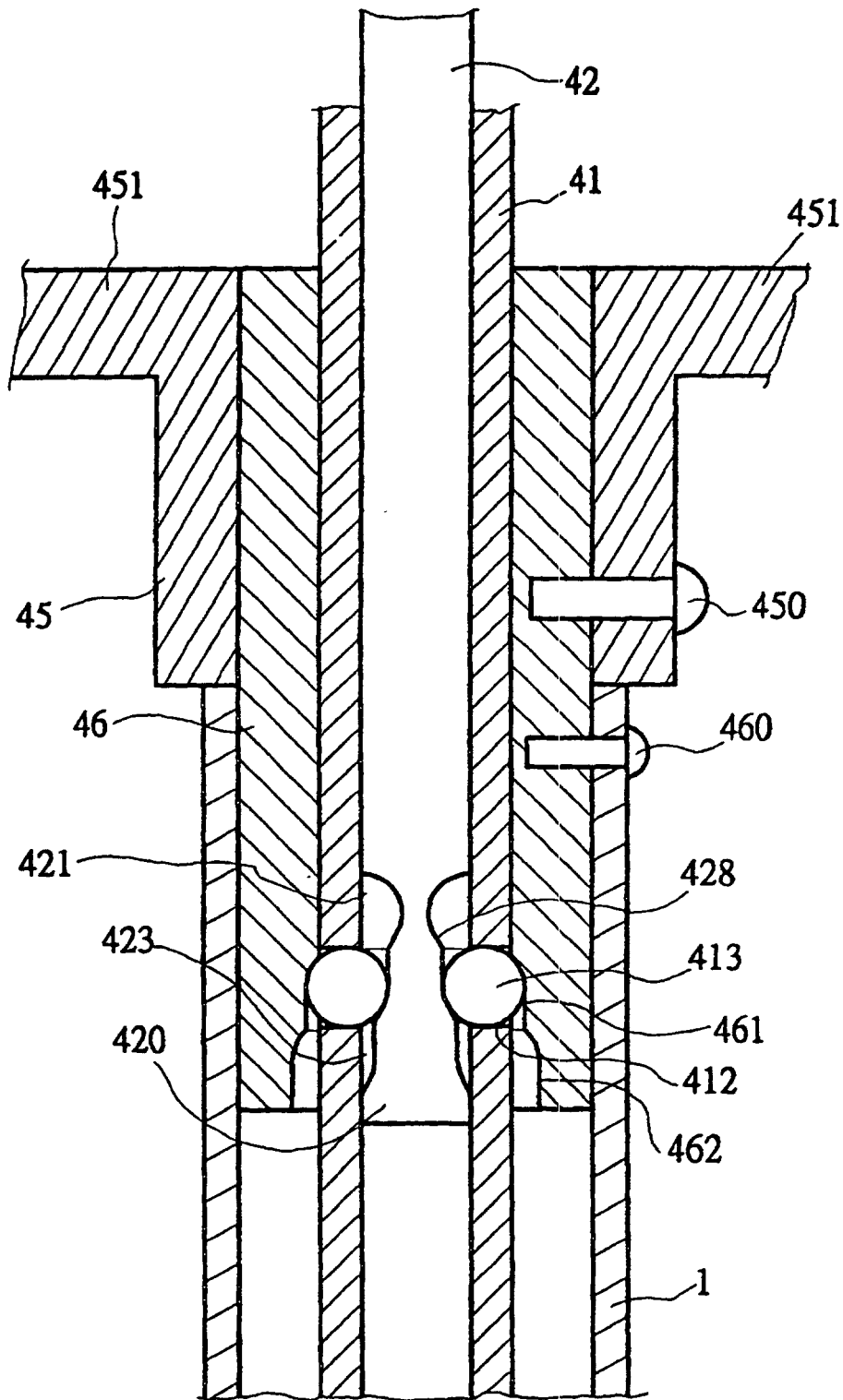


FIG. 8

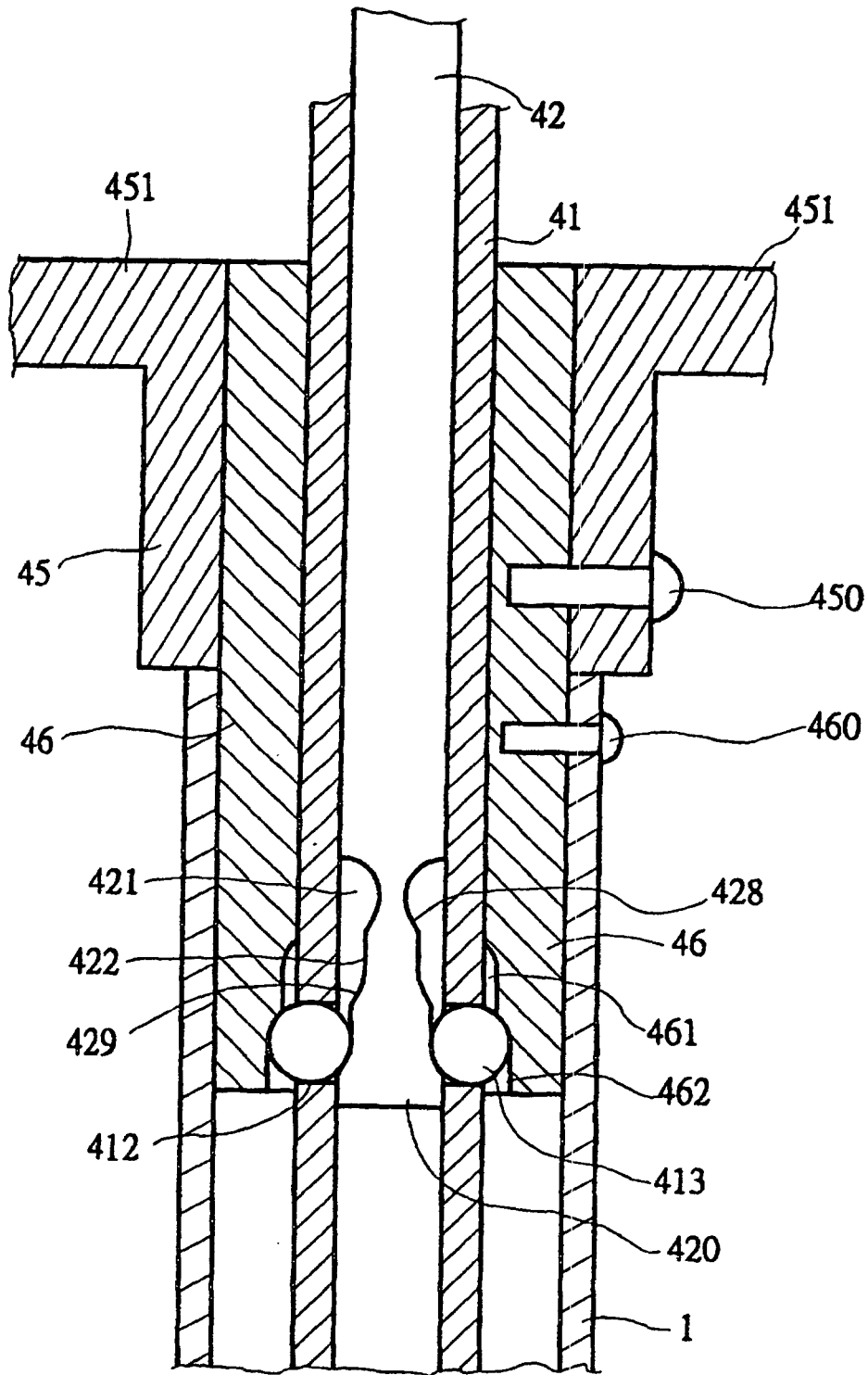


FIG. 9