United States Patent [19]

Bochmann et al.

[11] **3,893,630**

[45] **July 8, 1975**

[54] **SWIVEL OUTLET FOR SPRAYER OR THE LIKE**

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[22] Filed: **Mar. 29, 1974**

[21] Appl. No.: **456,010**

[52] **U.S. Cl.** **239/587**; 285/184; 285/273

[51] **Int. Cl.** **B05b 15/08**

[58] **Field of Search** .. 285/74, 273, 33, 282, DIG. 8, 285/DIG. 22, 184; 239/587

[56] **References Cited**

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[57] **ABSTRACT**

A swivel outlet for a sprayer discharge tube or the like is provided. The outlet includes two housings, one of which includes a cylindrical recessed portion and the other of which includes a cylindrical portion adapted to rotatably mate within the recess. A passageway is provided which interconnects a discharge tube, connected to one of the housings, with a nozzle outlet connected to the other housing. A key and keyway are formed on each of the housings to removably couple the housings together.

4 Claims, 4 Drawing Figures

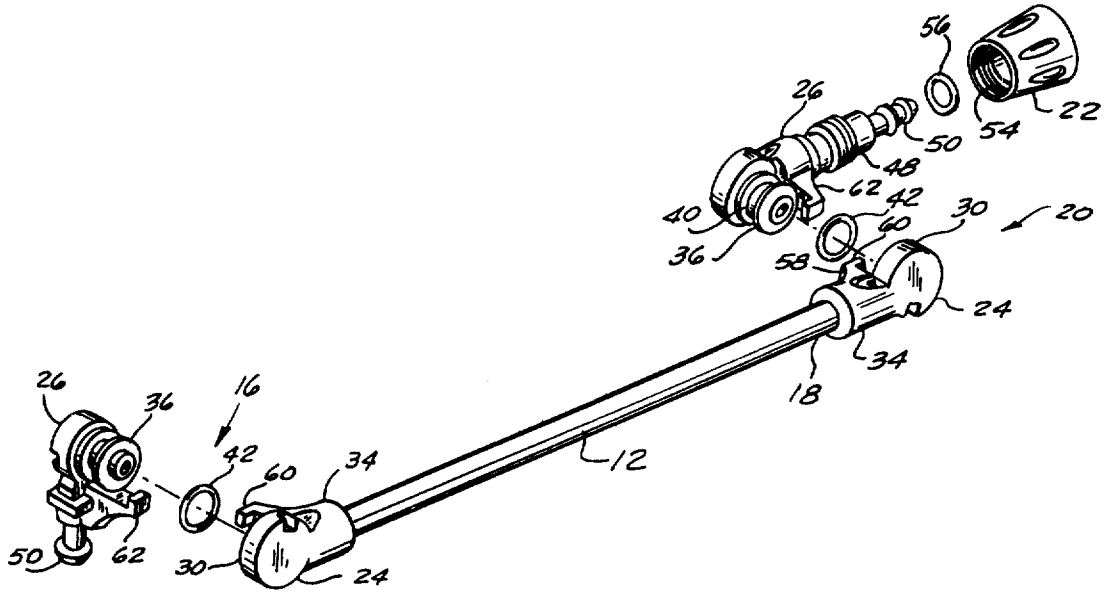


FIG. 1

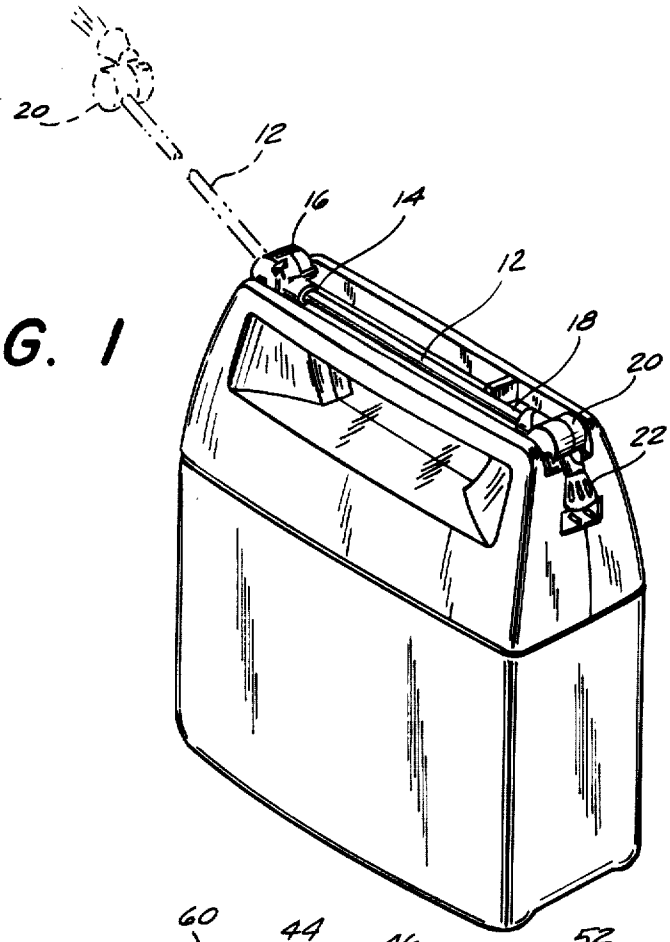


FIG. 4

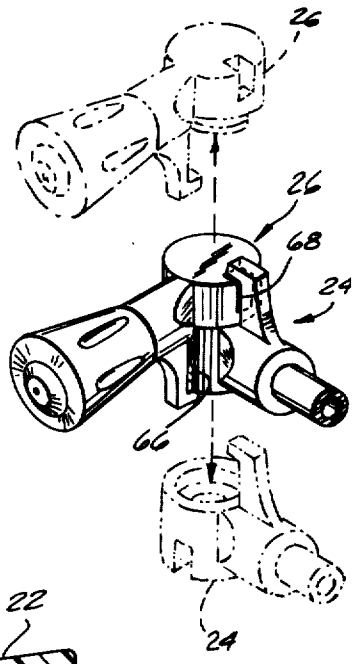


FIG. 3

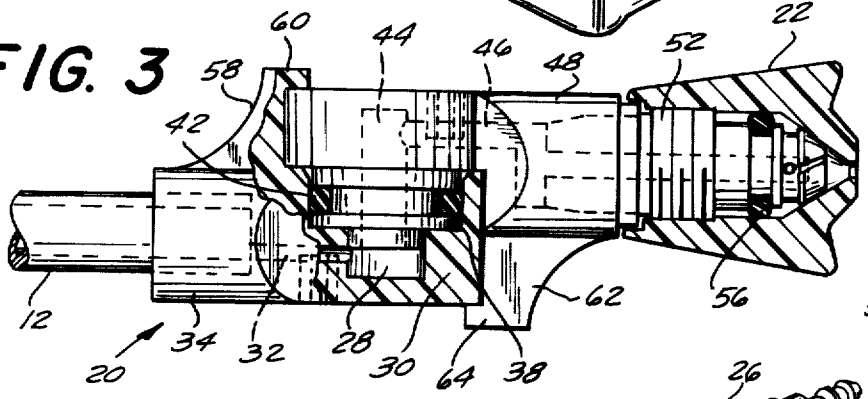
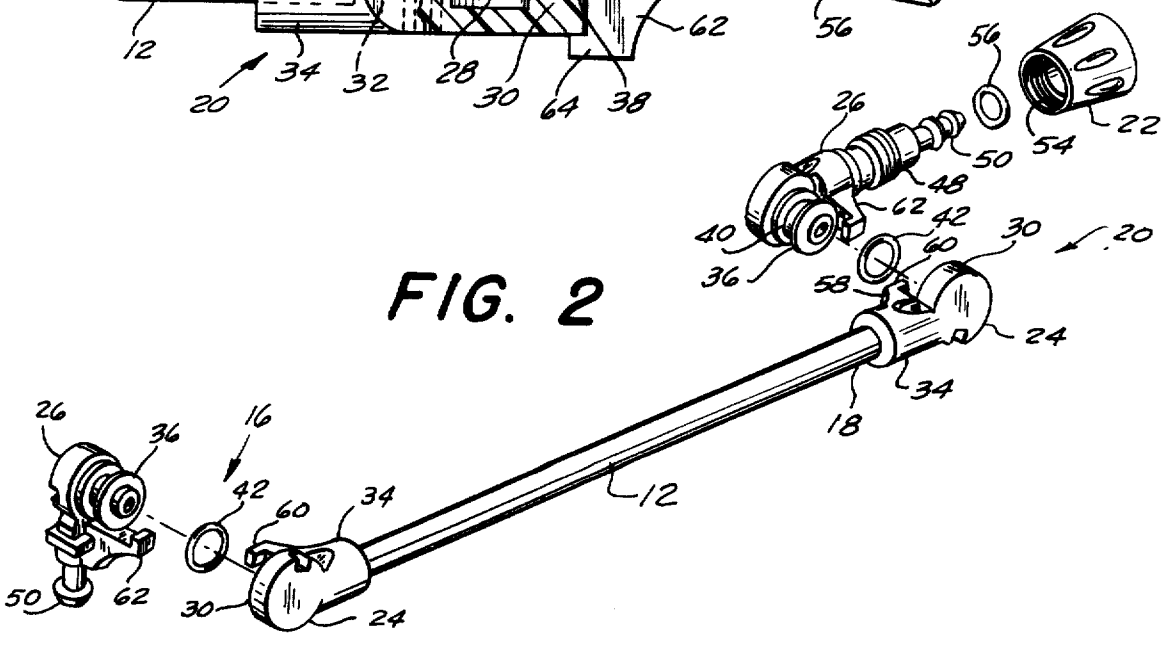


FIG. 2



SWIVEL OUTLET FOR SPRAYER OR THE LIKE

BACKGROUND OF THE INVENTION

The present invention relates to sprayers and more particularly to an improved swivel outlet for a sprayer discharge tube.

Sprayers are widely used to apply fungicides, fertilizer, etc. to various forms of vegetation. Such sprayers are often provided with a swivel head which facilitates directing the spray in any desired direction. Oftentimes, the product to be sprayed comprises a suspension carried in a liquid medium. To prevent or relieve clogging and also to enable the sprayer to be used with a range of spray products without fear of contamination, the sprayer must be capable of being thoroughly cleaned. To this end, most sprayers are assembled so as to enable them to be readily disassembled.

Heretofore it has been somewhat of a problem to provide a swivel discharge for a sprayer which could readily be assembled and disassembled for cleaning without requiring the use of tools and without requiring any special fasteners to hold the swivel components together.

In view of the above, it is the principal object of the present invention to provide an improved swivel outlet for a sprayer discharge tube which may readily and easily be disassembled and assembled for thorough cleaning to insure proper maintenance.

SUMMARY OF THE INVENTION

The above and other beneficial objects and advantages are attained in accordance with the present invention by providing an improved swivel outlet for a spray discharge tube. The outlet includes two housings, one of which includes a cylindrical recessed portion and the other of which includes a cylindrical portion adapted to rotatably mate within the recess. A passageway is provided which interconnects a discharge tube, connected to one of the housings, with a nozzle outlet connected to the other housing. A key and keyway are formed on each of the housings to removably couple the housings together.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings:

FIG. **1** is a perspective view of a portable sprayer utilizing the swivel outlet of the present invention;

FIG. **2** is an exploded perspective view of the sprayer discharge tube of FIG. **1**;

FIG. **3** is a fragmentary sectional view of the present swivel outlet; and

FIG. **4** is a perspective view indicating the manner in which the components of the present swivel outlet may be disassembled.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention is illustrated in the accompanying drawings wherein similar components bear the same reference numeral throughout the several figures. In FIG. **1**, a sprayer **10** is illustrated. The details of the sprayer construction are described in the commonly assigned application Ser. No. **447,088** filed on Mar. **1**, **1974** for CORDLESS ELECTRIC SPRAYER. Suffice it to say for the present application, the sprayer **10** includes a discharge tube **12** provided at one end **14** with

a swivel connection **16** connecting the discharge tube with the sprayer internal components and at the other end **18** with a swivel outlet **20** connecting the discharge tube with a nozzle **22.** The details of swivel outlets **16** and **20** are substantially identical and although the following description is directed specifically at swivel outlet **20,** it is equally applicable to swivel outlet **16.**

Referring to FIGS. **2** and **3,** it can be seen that swivel outlet **20** includes a first housing member **24** and a second housing member **26.** Housing member **24** includes a recessed cylindrical portion **28** defined by cylindrical surfaces **30.** A passageway **32** extends radially outwardly from the recess to an enlarged portion **34** designed to snugly receive end **18** of the discharge tube **12.** Passageway **32** interconnects with the hollow bore through the discharge tube thereby providing a path from the discharge tube to the recess **28.**

The second housing member **26** includes a raised cylindrical portion **36** dimensioned to snugly fit into the upper part **38** of recess **28.** A groove **40** is provided about cylindrical portion **36** and an O-ring **42** seats in the groove to seal the cylindrical portion while permitting rotation of the second housing with respect to the first housing about the common axis of the two cylindrical portions.

As shown in FIG. **3,** a passage **44** extends axially along the cylindrical portion **36** of housing member **26.** The housing communicates with a second passage **46** extending radially through the cylindrical portion and terminating at an exterior surface of the housing. The passage **46** passes through an enlarged portion **48** of the housing which extends transverse to the cylindrical portion **36.** The end **50** of portion **48** is provided with a threaded fitting **52** adapted to receive a threaded portion **54** of nozzle **22.** An O-ring **56** insures a proper seal between the nozzle and fitting. Thus, a fluid passageway is provided from the bore of discharging tube **12** through the radial passage **32** to recess **28** of the first housing member. The fluid passageway then continues through the axial passage **44** and radial passage **46** of the second housing to the outlet for nozzle **22.** The first and second housings are rotatable with respect to one another with the second housing cylindrical portion **36** sealingly seated within the recess of the first housing thereby permitting the second housing and nozzle **22** to swivel as desired with respect to the first housing member.

The first and second housing members are removably coupled to each other by means of a set of keys and associated keyways. Accordingly, a key **58** affixed to the first housing member extends outwardly from the member. The key includes an inturned portion **60** adapted to snugly fit over the second housing as shown in FIG. **3.** Similarly, a key **62** is affixed to the second housing member and includes an inturned portion adapted to overlie portions of the first housing so that the housings are sandwiched between the inturned portions of the keys and secured to one another.

As shown best in FIG. **4,** each of the housings includes a keyway in the form of a slot. Accordingly, housing member **24** is provided with slot **66** and housing member **26** is provided with slot **68.** The slots **66** and **68** are in registry with one another so that key member **58** will align with slot **68** when key member **62** aligns with slot **66.** When the key members are in their associated slots, the components of the swivel outlet may readily be disassembled by merely pulling them

apart as shown in FIG. 4. The interior of the swivel and nozzle may then be readily cleaned and unclogged. The swivel outlet may be reassembled by realigning the keys in their associated keyways and thereafter swiveling the housings so that the keys and keyways are out of alignment in the position shown in FIG. 3. To prevent the inadvertent alignment of the keys and keyways during use of the sprayer, a detent is provided on each housing which must be overcome before the position of FIG. 4 can be attained.

Thus, in accordance with the above, the aforementioned objects are effectively attained.

Having thus described the invention, what is claimed is:

1. A swivel outlet for a sprayer discharge tube or the like comprising: a first housing member, a recessed cylindrical portion defined by surfaces of said first housing, a radial passageway extending through said surfaces to said recess, a second housing member, a cylindrical portion of said second housing sealingly mated for rotation within said recess, first passage means extending axially through said cylindrical portion to communicate with said recess, second passage means communicating with said first passage means and extending transversely thereto; and, means for removably coupling said first and second housing members, said coupling means comprising a key affixed to one of said housings and a keyway in the other of said housings, said key including portions adapted to overlie portions of said other housing.

2. The swivel outlet in accordance with claim 1 further comprising a discharge nozzle connected to one end of one of said radial or second passageway and means for interconnection with said discharge tube connected to the other of said passageways.

3. The swivel outlet in accordance with claim 2 wherein each of said first and second housings includes a key and a keyway, said first housing key being adapted to pass through said second housing keyway to overlie portions of said second housing and said second housing key being adapted to pass through said first housing keyway to overlie portions of said first housing whereby to removably couple said first and second housing members.

4. The swivel outlet in accordance with claim 2 wherein said key includes a first portion extending parallel to said associated cylindrical portion axis and a second portion extending radially inwardly, transverse to said axis.

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