

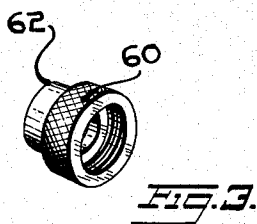
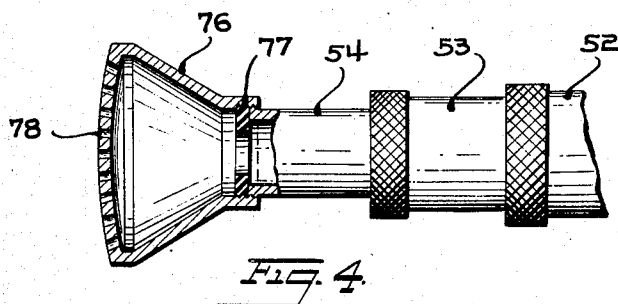
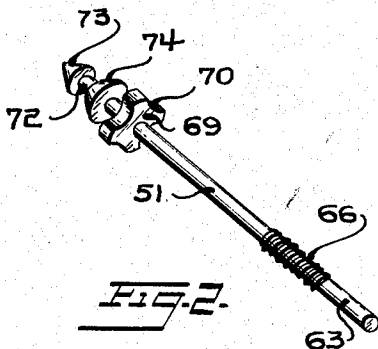
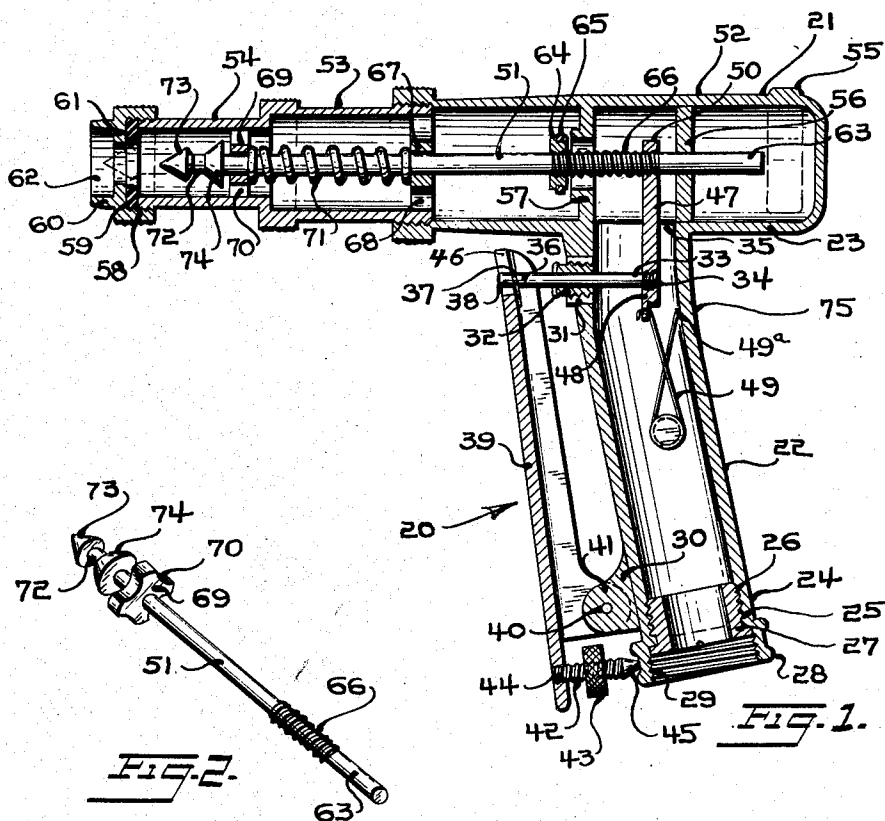
Sept. 19, 1950

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2,523,084

GUN TYPE GARDEN SPRAYER

Filed Nov. 2, 1945



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2,523,084

GUN TYPE GARDEN SPRAYER

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Application November 2, 1945, Serial No. 626,369

3 Claims. (Cl. 299-131)

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This invention relates to spray guns, and more specifically, to a type of garden spray gun for spraying water or insecticide.

It is often necessary in watering delicate and weak young plants and shoots to use a fine and soft spray so as not to harm the flowers or their roots. In addition, when using dangerous or poisonous chemical sprays, it is often essential that a limited amount of chemical be used and that the spray be fine to give good coverage and easily controlled to cover the desired locations to be sprayed.

Therefore, it is an object of my invention to construct a spray gun which will be easy to operate and control, and which will provide a fine or heavy spray as desired.

Another object is to construct a spray gun with a pistol grip which can be operated by squeezing the handle of the gun.

A further object is to provide a spray gun which can be locked in an open position to give any desired strength of spray, or controlled by hand for intermittent operation.

Another object is to provide a sturdy, simple and easily assembled spray gun which has a delicate and responsive valve.

I accomplish these and other objects by constructing my gun with a barrel formed of a series of separate, threaded tube elements and positioning a valve with a plurality of bearings inside the barrel, and a control for the valve on the handle of the gun.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth. In the accompanying drawings forming a material part of the present disclosure:

Fig. 1 is a vertical section through the center of the spray gun constructed in accordance with the present invention.

Fig. 2 is a perspective view of the valve stem, a valve stem bearing and the spray control at the head of the valve stem.

Fig. 3 is a perspective view of a cap and spray control seat positioned at the head of the gun.

Fig. 4 is a plan view partly in section showing a variation of the head end of the spray gun.

In the drawing and in the specifications, in which like numerals indicate identical elements, my spray gun 20 shown in Figs. 1 to 3 inclusive is formed with a barrel 21, a tubular handle 22

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extending downward from the barrel in the vicinity of its rear end 23.

The tubular handle at its lower end 24 is provided with a female thread 25 into which is threaded a male end 26 of a coupling 27. The coupling is provided on its outside with two extending circular rings or flanges 28, and on its inside with female threads 29 for joining the spray gun to a hose. In addition the handle is provided at the forward part of its lower end 24 with a lug or ear 30 and at the forward part of its upper end with a threaded opening 31. A bushing 32 threaded into the opening 31 slidably carries a rod 33, whose threaded end 34 extends into the handle below and in the vicinity of an opening 35 between the barrel and handle. The outer end 36 of the rod is provided with a reduced neck 37 and head 38.

A trigger 39, which is located in front of the handle, is pivotally held thereto by a pin 40 which extends through the lug 30 and ears 41 formed at the lower end of the trigger. Adjacent and below the ears 41, a screw 42 having a fixedly mounted knurled flange 43 is threaded at one end into an opening 44 in the trigger, the other end 45 of the screw is pointed and rests against the handle, intermediate the rings 28. The upper end of the trigger is provided with a shouldered slot 46 (see Fig. 10) into which the head 38 of the rod 33 extends.

A rod or arm 47 is located partly in the barrel 21 and partly in the upper end of the handle and has its lower end 48 threaded to the end 34 of the rod 33, and is spring tensioned by a coiled spring 49, its upper end 50 being threaded to a valve stem 51. The spring 49 is secured by a pin 49^a to the rear of the handle.

The trigger functions by being squeezed toward the handle, or by allowing the spring 49 to force the trigger forward until the pointed end 45 of the screw 42 rests against the end of the handle. When the trigger is squeezed, the valve stem is pulled backward through the action of the rod 33 and arm 47, and when it is released, the spring 49 forces it forward. Adjustment of the screw 42 by rotation of the flange 43 to lengthen the distance between the end 44 of the trigger and the handle accomplishes the same result as squeezing the trigger, and locks the valve stem in its retracted position.

The barrel 21 is formed of a series of tubes threaded together, a tube 52 being rearmost and containing the handle, an intermediate tube 53 is threaded into the tube 52, and a head tube 54 is threaded over the intermediate tube. The

rear end of the tube 52 on its outside is provided with a flange 55, and on its inside, adjacent the rear of the handle, with a bearing seat 56. In addition the tube 52 is provided with a valve seat 57.

The head tube 54 is provided at its forward end with a male thread 58 and an inward extending flange 59. A cap 60 is threaded over the threads 58 and is provided with an inward extending flange 61 forming a smaller opening than the opening formed by the flange 59 and also with a forward extending lip 62.

The valve stem 51 which rests in the center of the barrel 21 and extends from the rear tube 52 well into the head tube 54, is provided at its rear end with a bearing section 63 which rests in the bearing seat 56.

A valve 64 is so positioned on the valve stem that it rests on the valve seat 57 when the trigger is tightly squeezed against the handle 22. The valve may be provided with a packing ring 65 if desired. Between the valve 64 and the bearing section 63 a threaded part 66 is located which coacts with the threaded part 50 of the arm 47.

A bearing 67 fits tightly in the tube 53 and slidably supports the valve stem 51. The bearing 67 is provided with passages 68 permitting the liquid or water to pass through the barrel. A flanged bearing 69, is secured to the valve stem within the tube 54 and is provided with passages 70 similar to the passages 68. Between the bearing 67 and the bearing 69, a coiled spring 71 encircles the valve stem.

The valve stem at its head end 72 is provided with an enlarged conical pointed tip 73 and, to the rear of the tip, with a washer 74 in the form of a truncated cone, the rear face of the washer 74 being larger than the front face.

When valve 64 is open, during any partial rearward pivoting of the trigger 39, the water forces its way forward under pressure and passes through the passages 68 and 70. The cone head 73 of the valve stem as a result of this movement becomes aligned slightly to the rear of the opening formed by the flanges 59 and 61, partly opening it, and causing the water to flow from the gun head in the form of a spray.

When the valve 64, which is in the middle of the spray gun, is almost closed, then the pressure of the water in the front chamber is reduced to almost zero and the water will discharge past the front valve with very little force. Therefore, that discharging water, in that position of the valve 64, may be used for watering the roots of plants or new tender plants which would be damaged by water under any appreciable amount of pressure.

In order to permit an easy manipulation of the gun the handle is bent backwards at its lower end by the curved section 75; and to aid in obtaining a pleasing configuration for the barrel, the tube 52 is narrowed towards its head.

Although the tip or head 60 is shown threaded to the tube 54, it can be integral therewith.

In the variation shown in Fig. 4, the tube 54 is provided with an enlarged shower or spray head 76 having a female threaded opening 77, that coacts with the male threaded end 58 of the tube 54; the spray head 76 is also provided with spray holes 78 through which the liquid is discharged.

It is evident from the foregoing description, that the setting of the screw 42 controls the amount of opening of the valve 64 and the volume of liquid sprayed when the trigger is not being squeezed. In addition, it is plain that if the screw is in a retracted position and the trigger is re-

leased, the elements on the valve stem will force the tip 73 to go through the flange 59 and seat the washer 74 on that flange 59 closing the spray gun.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. In a spray gun having a tubular barrel formed with a valve seat at one end thereof and enclosing a spring pressed valve stem having a valve member normally engaging the valve seat and a tubular handle depending from the tubular barrel, means for urging the valve stem in a direction to unseat the valve member from the valve seat, comprising a trigger extended vertically along the front of the tubular handle and spaced slightly therefrom, means pivotally supporting said trigger element adjacent its lower end on the tubular handle, a vertical arm connected at its upper end to the valve stem and having its lower end depended into the top of the tubular handle, a resilient member urging said vertical arm in a direction to assist the spring pressed valve stem in retaining the valve member in position on its valve seat, a rod slidably extended through the wall of the tubular handle and having its inner end attached to the bottom end of said arm and its outer end attached to the top end of said trigger, and means for holding said trigger in a pivoted position in which said rod will be pushed inward to urge the valve stem to a position in which the valve member will be unseated from the valve seat.

2. In a spray gun having a tubular barrel formed with a valve seat at one end thereof and enclosing a spring pressed valve stem having a valve member normally engaging the valve seat and a tubular handle depending from the tubular barrel, means for urging the valve stem in a direction to unseat the valve member from the valve seat, comprising a trigger extended vertically along the front of the tubular handle and spaced slightly therefrom, means pivotally supporting said trigger element adjacent its lower end on the tubular handle, a vertical arm connected at its upper end to the valve stem and having its lower end depended into the top of the tubular handle, a resilient member urging said vertical arm in a direction to assist the spring pressed valve stem in retaining the valve member in position on its valve seat, a rod slidably extended through the wall of the tubular handle and having its inner end attached to the bottom end of said arm and its outer end attached to the top end of said trigger, and means for holding said trigger in a pivoted position in which said rod will be pushed inward to urge the valve stem to a position in which the valve member will be unseated from the valve seat, said holding means comprising a screw extended between the lower end of said trigger beneath its pivotal supporting means and the lower end of the tubular barrel, said screw having its outer end threaded through the lower end of said trigger and its inner end bearing against the lower end of the tubular handle, and a knurled flange formed on said screw intermediate of its ends

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by which said screw may be rotated in one direction or the other.

3. In a spray gun having a tubular barrel formed with a valve seat at one end thereof and enclosing a spring pressed valve stem having a valve member normally engaging the valve seat and a tubular handle depending from the tubular barrel, means for urging the valve stem in a direction to unseat the valve member from the valve seat, comprising a trigger extended vertically along the front of the tubular handle and spaced slightly therefrom, means pivotally supporting said trigger element adjacent its lower end on the tubular handle, a vertical arm connected at its upper end to the valve stem and having its lower end depended into the top of the tubular handle, a resilient member urging said vertical arm in the direction to assist the spring pressed valve stem in retaining the valve member in position on its valve seat, a rod slidably extended through the wall of the tubular handle and having its inner end attached to the bottom end of said arm and its outer end attached to the top end of said trigger, and means for holding said trigger in a pivoted position in which said rod will be pushed inward to urge the

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valve stem to a position in which the valve member will be unseated from the valve seat, said holding means comprising a member supported at one end on said trigger beneath its pivotal supporting means and being movable relative thereto and having its other end engaging said handle for pivoting said trigger when said member is moved relative to said trigger.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
150,376	Tomlinson	Apr. 28, 1874
785,387	Tuck et al.	Mar. 21, 1905
1,736,768	Boynton	Nov. 26, 1929
1,825,864	Horter	Oct. 6, 1931
2,107,686	Bramsen	Feb. 8, 1938

FOREIGN PATENTS

Number	Country	Date
505,602	Germany	Aug. 22, 1930