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INNER WALL FOGGING GUN

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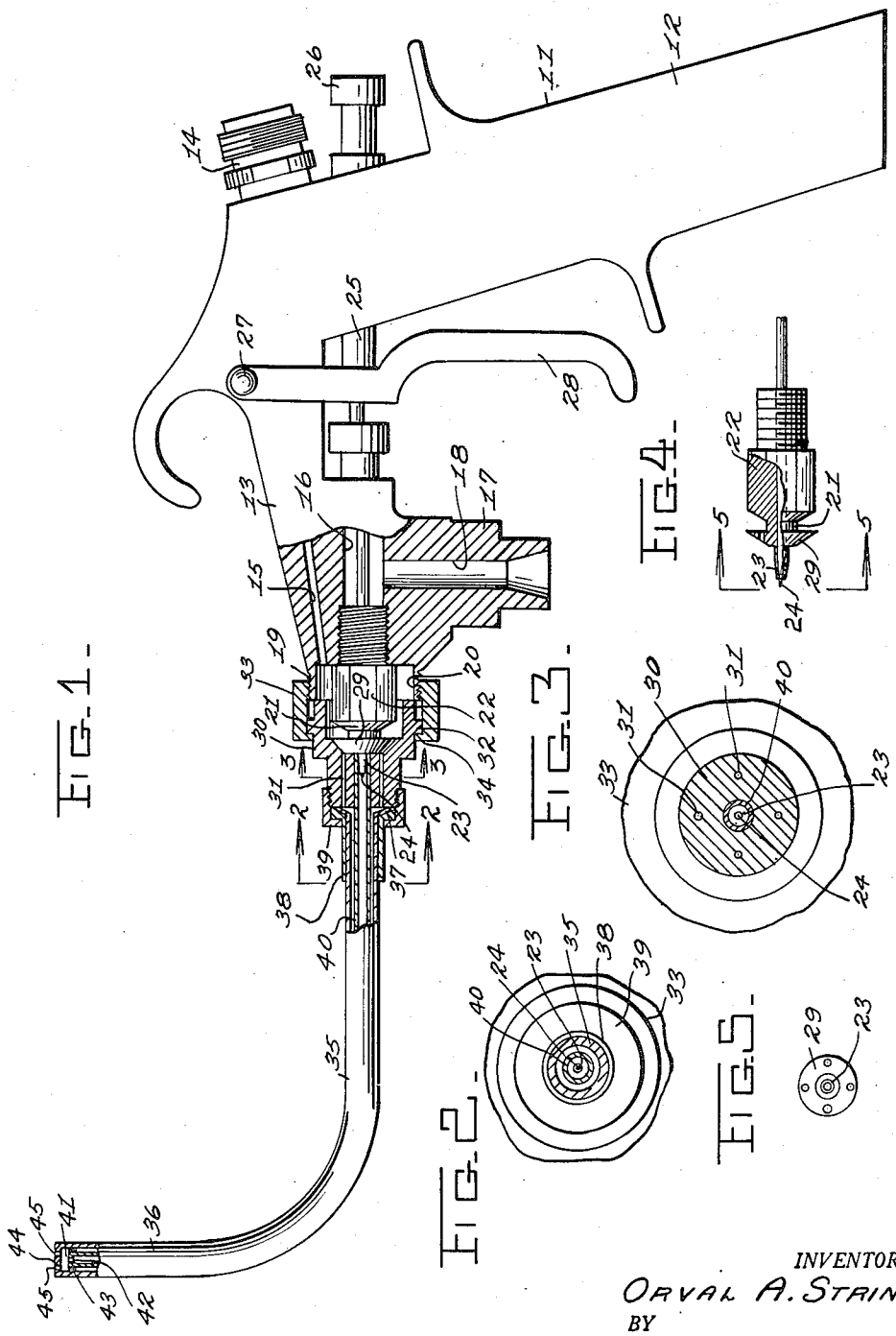


FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

INVENTOR.
ORVAL A. STRINGER
BY

McMorrow, Berman & Davidson
ATTORNEYS

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INNER WALL FOGGING GUN

Orval A. Stringer, Orlando, Fla.

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2 Claims. (Cl. 299—140)

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This invention relates to spray devices, and more particularly to an improved insecticide spray device for use in spraying insecticide and similar material into the walls of buildings for the control of termites and other insect pests.

A main object of the invention is to provide a novel and improved attachment for spraying insecticide and the like into building walls and other relatively inaccessible locations, said spray device being very simple in construction, being easy to manipulate, and affording access to interior surfaces and spaces which are inaccessible by the use of spray devices heretofore available.

A further object of the invention is to provide an improved spray gun for use in spraying interior wall surfaces for depositing a fog of insecticide and similar material within a building wall, the spray gun being compact in size, rugged in construction, and being easy to maintain in operating condition.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a side elevational view, partly in longitudinal cross-section, of an improved spray gun constructed in accordance with the present invention;

Figure 2 is an enlarged transverse cross-sectional view taken on line 2—2 of Figure 1;

Figure 3 is an enlarged transverse cross-sectional view taken on line 3—3 of Figure 1;

Figure 4 is a side elevational detail view of a liquid needle valve fitting employed in the spray gun of Figure 1;

Figure 5 is an elevational detail view taken on line 5—5 of Figure 4.

Referring to the drawings, 11 designates a spray gun generally, said gun comprising a handle portion 12 and a body portion 13, said body portion having an air fitting 14 projecting from its rear portion and being formed with a passage 15 communicating with said air fitting. The body portion 13 is formed with a bore or passage 16 and a liquid fitting 17 depending from the body portion and formed with a passage 18 communicating with the bore 16. The forward end of the body 13 is formed with threads shown at 19. The body 13 is also formed at its forward end with an annular recess 20, and threaded into the bore 16 at said forward end is a discharge nozzle or fitting 21 having a hexagonal portion 22 which may be engaged by a wrench. The fitting 22 has an axial bore terminating at its forward end at a conical tip 23, and extending through the body 13 axially of the bore 16 is a needle valve 24 having a conical tip seated in the conical fitting tip 23, spring means, not shown, being provided in the handle 12 acting on the rear end portion of the needle valve and biasing

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the valve toward closing position in the tip member 23. The needle valve extends rearwardly, and secured to the rear portion of said needle valve is a plunger 25 which is slidable in the handle member 12 and which is acted upon by spring means, not shown, biasing the plunger to the left, as viewed in Figure 1. The normal position of plunger 25 is controlled by an adjusting screw 26, whereby the degree of opening of the needle valve may be regulated. Pivoted to the body 13 at 27 is a trigger member 28 which is suitably apertured to allow passage therethrough of the needle valve 24 and which is engageable with the forward end of the plunger 25, whereby by rotating said trigger member 28 counterclockwise, as viewed in Figure 1, the needle valve may be retracted to open position.

The fitting 21 is formed with an apertured conical flange 29. Designated at 30 is a sleeve member formed with an internal conical seat fitting over the conical flange 29, as shown in Figure 1, said sleeve member being formed with longitudinal parts or passages 31 communicating with the apertures in said flange. The sleeve 30 has an enlarged rearward portion or flange embracingly surrounding discharge nozzle 22 and formed with an annular rib 32, and encircling the sleeve member is a coupling nut 33 threadedly engaged on the threads 19 and formed with an inwardly-directed flange 34 engaging the rib 32 to lock the sleeve in the position shown in Figure 1.

Designated at 35 is a spray tip whose forward portion is bent to a right angle with respect to its rear portion, as shown at 36. The rear end of the spray tip 35 is flanged, as shown at 37, and surrounding the rear portion of the tip 35 is a flanged bushing 38, and engaging the enlarged rear portion of bushing 38 is a coupling nut 39 which is threaded on the forward portion of sleeve member 30, to thereby clamp the tip 35 to said sleeve member, as shown in Figure 1. Secured concentrically within tip 35 is an inner tube 40 which is secured at its rear end within the sleeve 30 and which fits over the conical tip member 23, as shown in Figure 1. The forward end of the tube 40 is spaced a short distance from the forward end of the outer tip member 36 to define a mixing chamber 41. The forward end wall of tube 40 is apertured centrally, as shown at 42, and is supported in the outer tube portion 36 by spaced drops of hardened solder, shown at 43. The outer tube member 36 has an end wall, shown at 44, which is formed with a plurality of apertures 45.

In using the device, the fitting 14 is connected by a suitable conduit to a source of compressed air, and the fitting 17 is connected by a suitable conduit to a source of insecticide or other fluid to be sprayed, the latter fluid being likewise under

pressure. When the trigger 28 is pulled backwardly, the insecticide or other fluid to be sprayed flows through passage 18 and bore 16 to the fitting 21 and past the tip of the needle valve 24 into the inner tube 40. The liquid passes through the inner tube 40 and emerges into the mixing chamber 41 in the form of a jet. Meanwhile, air under pressure passes from the fitting 14 through the passage 15 into the chamber 20 and through the apertured flange 29 and passages 31 into the space between the inner tube 40 and the outer tube 35. The air flows past the lumps of solder 43 into the mixing chamber 41 and mixes violently with the jet of liquid emerging from opening 42 and creates a mixture of air and liquid which emerges from the openings 45 in the form of a fine spray or fog. In applying the spray or fog, an opening which need only be large enough to receive the tip 35 is made in the inner element of the wall which is to be treated, the curved tip 35 being inserted through said opening and being held so that the spray or fog emerging from the apertures 45 may be directed in any desired direction parallel to the wall. It is thus possible, by rotating the gun around the axis defined by the rear portion of the tip 35, to distribute the fog or spray substantially throughout the wall interior in a uniform manner in all directions. By repeating this procedure at different locations in the wall, the entire wall may be thus treated with only a small amount of insecticide being required to completely fill the inside of the wall with a fog of the mixture. After the treatment has been concluded at each aperture in the wall, said aperture may be plugged up in any suitable manner, and inasmuch as only a small aperture is required, it is a relatively simple matter to hide the aperture.

While a specific embodiment of an improved spray gun for distributing a fog of insecticide or the like inside building walls has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. A spray gun comprising a gun body having a first passage for air under pressure and a second passage for liquid spaced from said first passage, a discharge nozzle connected to one end of said second passage, a sleeve having one end arranged in confronting relation with respect to one end of said gun body adjacent said nozzle, a cylindrical flange on the confronting end of said sleeve embracingly surrounding said nozzle and secured to said one end of said gun body, said flange being spaced from said nozzle to provide a space therebetween, said space being in communication with the adjacent one end of said first passage there being a plurality of spaced longitudinally extending port extending inwardly from the other end of said sleeve and terminating in and in communication with said space, a longitudinal tube having one end extending into the other end of said sleeve and embracing said discharge nozzle, a second longitudinal tube circumposed about and spaced from said first named tube and having one end fixedly secured to the other end of said sleeve, the space between said first and second named tubes being in communication with said plurality of spaced longitudinally extending ports of said sleeve, an end wall provided with a plurality of spaced apertures on the other end of said second tube, the other end of said first named tube being spaced from said end wall of said second named tube, and a second end wall provided with a centrally disposed aperture on the other end of said first named tube and spacedly secured to the adjacent portion of said second named tube, said second and first named end walls and the adjacent portion of said second named tube forming a mixing chamber for the liquid discharge through the central aperture of said second end wall and the air discharged through the spaced securement of said second end wall.

2. A spray gun comprising a gun body having a first passage for air under pressure and a second passage for liquid spaced from said first passage, a discharge nozzle connected to one end of said second passage, a sleeve having one end arranged in confronting relation with respect to one end of said gun body adjacent said nozzle, a cylindrical flange on the confronting end of said sleeve embracingly surrounding said nozzle and secured to said one end of said gun body, said flange being spaced from said nozzle to provide a space therebetween, said space being in communication with the adjacent one end of said first passage, there being a plurality of spaced longitudinally extending ports extending inwardly from the other end of said sleeve and terminating in and in communication with said space, a longitudinal tube having one end extending into the other end of said sleeve and embracing said discharge nozzle, a second longitudinal tube circumposed about and spaced from said first named tube, an outwardly extending flange on one end of said second tube and having one face abutting against the other end of said sleeve, a coupling nut bearing against the other face of said outwardly extending flange and embracingly secured to the other end of said sleeve, the space between said first and second named tubes being in communication with said plurality of spaced longitudinally extending ports of said sleeve, an end wall provided with a plurality of spaced apertures on the other end of said tube, the other end of said first named tube being spaced from said end wall of said second named tube, and a second end wall provided with a centrally disposed aperture on the other end of said first named tube and spacedly secured to the adjacent portion of said second named tube, said second and first named end walls and the adjacent portion of said second named tube forming a mixing chamber for the liquid discharge through the central aperture of said second end wall and the air discharged through the spaced securement of said second end wall.

ORVAL A. STRINGER.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
716,724	Lassoe et al.	Dec. 23, 1902
805,474	Lavertine et al.	Nov. 28, 1905
1,728,756	Hansen	Sept. 17, 1929
1,758,810	Austin	May 13, 1930
2,038,508	Elliott	Apr. 21, 1936
2,149,115	De For	Feb. 28, 1939