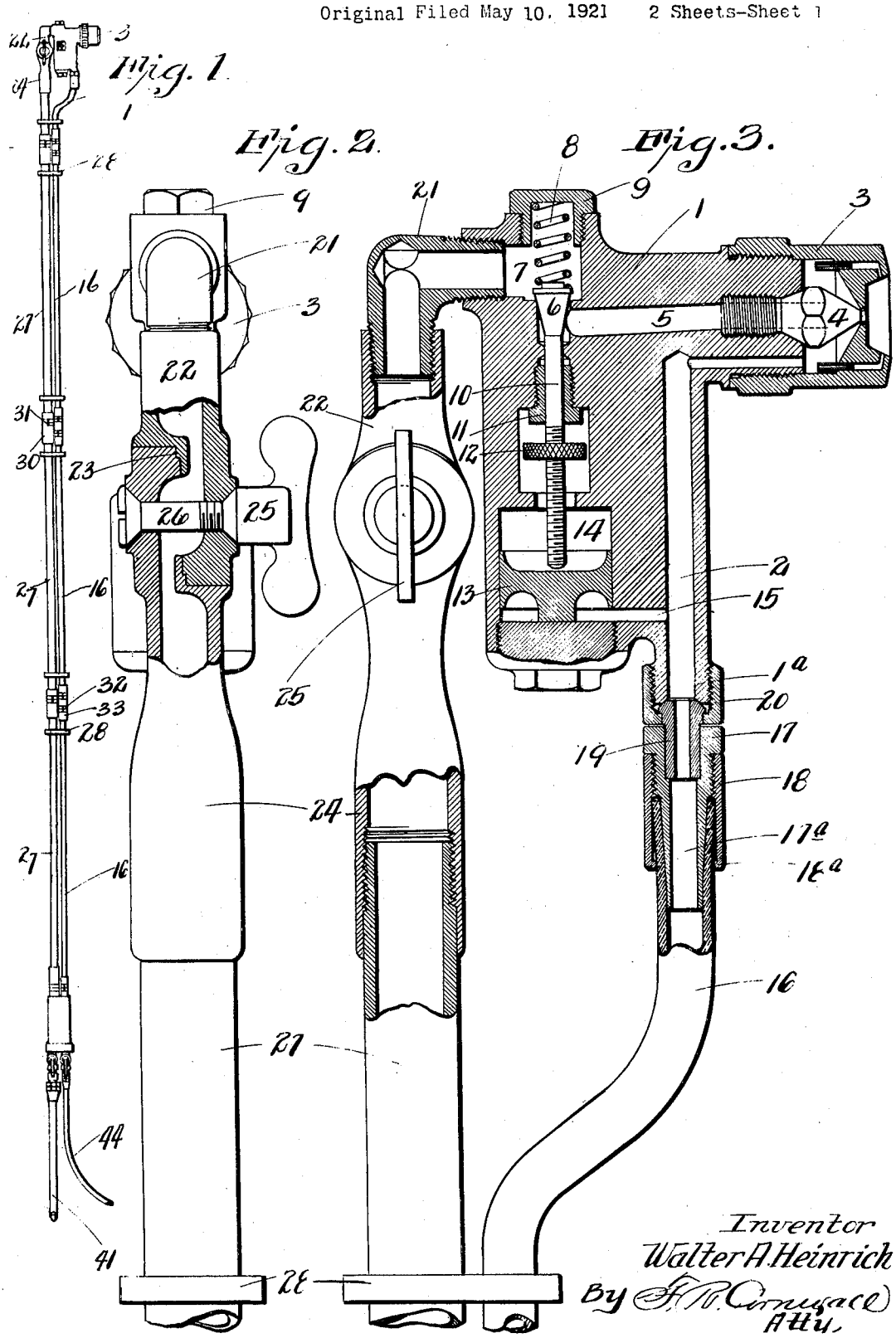
Nov. 2, 1926. 1,605,185

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EXTENSION SPRAY GUN

Original Filed May 10, 1921 2 Sheets-Sheet 1

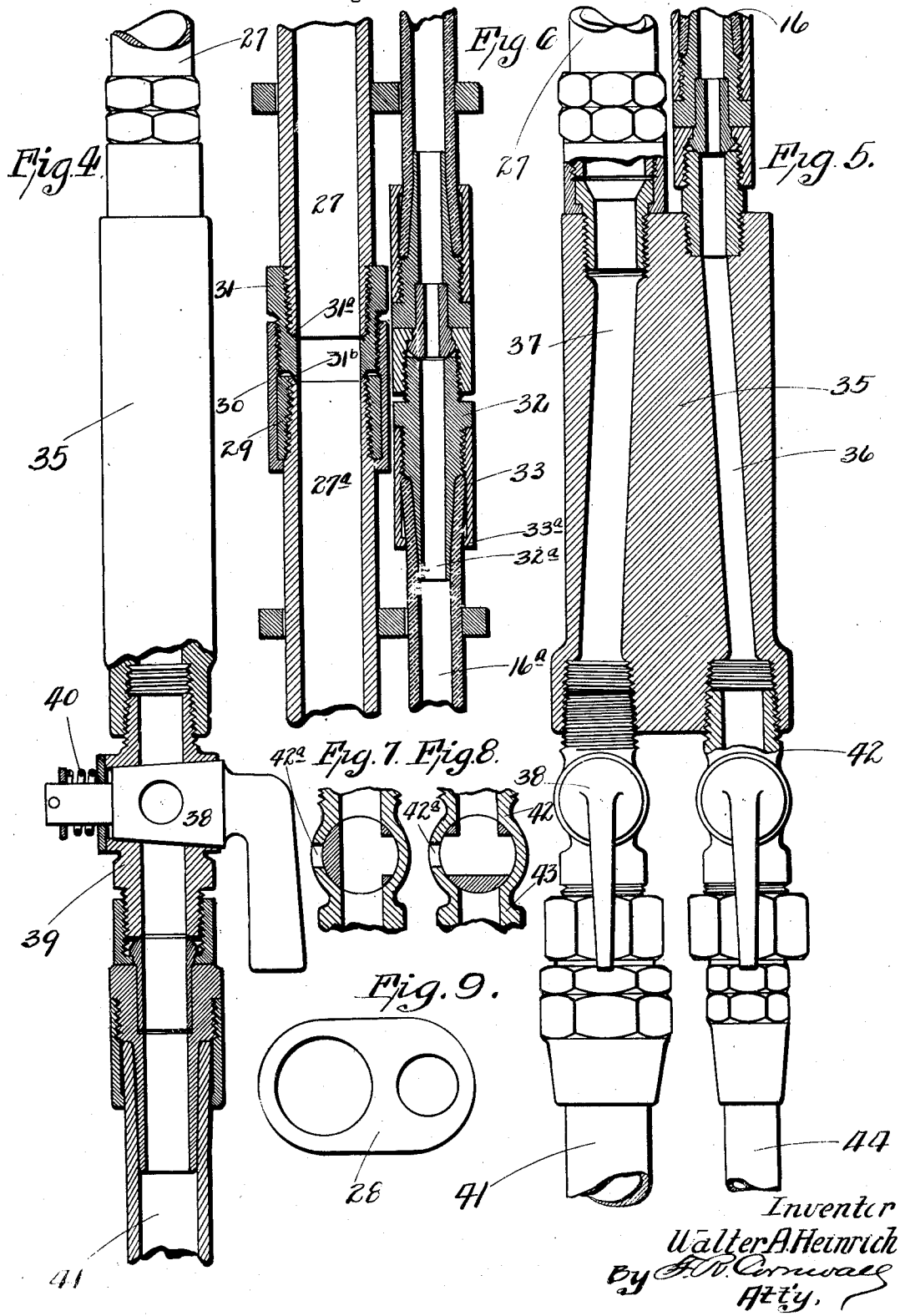


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EXTENSION SPRAY GUN

Original Filed May 10, 1921 2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

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EXTENSION SPRAY GUN.

Application filed May 10, 1921, Serial No. 468,313. Renewed October 6, 1924.

This invention relates to a new and useful improvement in extension spray guns for spraying paints, varnish and the like, the object being to adjustably arrange the spray head on the upper end of an extensible pipe constituting a handle.

This pipe is preferably made in sections and of metal for supplying paint to the spray head, and extending alongside of this sectional metal pipe is a sectional rubber hose having couplings at each section end for connection with the adjacent rubber hose section whereby air may be supplied to the spraying head. Sections may be added or removed for the purpose of lengthening or shortening the "handle". Each rubber hose section is held to its companion metal pipe section by means of sliding clips which may be adjusted along the metal pipe sections for the purpose of releasing the rubber hose section to permit manipulation thereof in making connections between the rubber hose sections, after which the clip, or clips, are slid towards the coupling to hold the end of the rubber hose sections in position on the metal pipe sections.

The spray head is vertically adjustable on the upper end of the extensible handle and the lower end of the handle is preferably formed of a casting forming a hand-grasp beneath which are cocks for controlling the flow of paint and flow of air to the spray head. The paint cock is preferably a two-way cock, while the air cock is a three-way cock, which, when the supply of air is cut off from the spray head, will open the air in the sectional rubber hose to atmosphere thus releasing the spray head from pressure.

Figure 1 is a side elevational view of my improved extension spray gun.

Figure 2 is an edge elevational view partly in section at the upper end of the apparatus.

Figure 3 is a side elevational view partly in vertical section of the upper end of the apparatus.

Figure 4 is an edge elevational view partly in vertical section of the lower end of the apparatus.

Figure 5 is a side elevational view partly in section of the lower end of the apparatus.

Figure 6 is a vertical sectional view through one of the intermediate joints of the apparatus.

Figure 7 is a detail view of the air valve at the lower end of the apparatus.

Figure 8 is a similar view showing said air valve in a different position.

Figure 9 is a detail view on one of the sliding clips.

On the drawings, 1 indicates a casting preferably made of aluminum and having an air conduit or passage 2 formed therein which opens through the end of the barrel into a chamber formed by an adjustable nozzle 3. The construction of this nozzle forms no part of my present invention, it being the subject-matter of a companion application filed by me on the tenth day of May, 1921, Serial No. 468,314. However, I am not confined to the particular nozzle shown, as the nozzle shown in my Patent No. 1,382,641, granted June 28, 1921, could be used.

4 is a nipple screwed into the end of the barrel and which supplies the paint at or near the central opening in the nozzle from a passage or conduit 5. 6 indicates a valve for closing communication between conduit 5 and a paint chamber 7. This valve 6 is normally held in a closed position by means of a spring 8 bearing thereagainst and seated in a removable cap or plug 9. The stem 10 of the valve passes through a packing gland 11 and has its lower end threaded to receive a nut 12 constituting the limit or stop for arresting the upward movement of valve 6.

13 indicates a piston mounted in a chamber 14 and under which leads a port 15 from the air conduit 2. Thus, when compressed air is admitted to the nozzle-chamber, it will also be admitted to the underside of piston 13 and raise said piston so that valve 6 is unseated and paint from chamber 7 will pass into conduit 5 and thence through nipple 4.

The spray head casting 1 is provided with a threaded boss 1^a by which a flexible air hose, preferably of rubber, may be attached

for the purpose of supplying compressed air to the conduit 2.

16 indicates a flexible hose which is slipped over a tapering nipple 17ª having a hexagonal head 17 by which the same may be held while the sleeve 18 is screwed home. This sleeve has an inwardly extending flange 18ª which grips and tightly holds the flaring end of the flexible tubing on the nipple 17ª.

19 indicates a ferrule driven into the head 17 so as to make a tight joint and 20 indicates a universal threaded coupling whose inwardly extending flange fits in the head of the ferrule so that when said coupling is screwed home, the beveled edge of the ferrule fits into the beveled seat in the boss 1ª, and a detachable air-conduit coupling is thus provided.

21 indicates an angle coupling by which the spray head is secured to the upper end of a hollow casting 22. This hollow casting has a stepped concentric bearing 23 on a hollow casting 24. A butterfly nut 25 co-operates with a centrally arranged pivot bolt for the purpose of holding the castings 22 and 24 in close contact. When said butterfly nut 25 is loosened, casting 22 may be rotated about the pivot bolt 26 as an axis, after which the butterfly nut 25 may be tightened for holding casting 22 and its carried spray head in adjusted position. The head of the pivot bolt 26 and the inner end of the butterfly nut 25 are preferably beveled so as to make a tight joint.

27 indicates the upper section of a metal pipe having threaded engagement with the lower end of casting 24. 28 indicates a clip, see Figure 9, slidingly mounted on the metal pipe section 27 and the flexible tube section 16. The purpose of slidingly mounting this clip 28 is to provide for a relatively long free end of rubber tubing. In practice, the metal pipe sections are first secured together. These sections are about three feet long and as many are used as desired, depending upon the length required. By slipping these clips along the metal pipe sections, the connections may be made between the ends of the flexible tubing; and after the flexible tube sections are connected together, the clips are moved upwardly or downwardly, as the case may be, towards the couplings so that the flexible tube sections are held in proper spaced relation to the metal pipe sections, as shown in Figure 1.

The coupling between the flexible pipe sections is best seen in Figure 6, and preferably consists of a sleeve 29 arranged on one of the pipe sections to provide an abutment for a universal coupling sleeve 30 which has threaded engagement with a hexagonal headed sleeve section 31 arranged on the other pipe section. The end of the pipe upon which the threaded sleeve 31 is screwed is preferably beveled (as at 31ª) so as to engage a beveled seat in the sleeve 31, and the outer end of the sleeve 31 is preferably beveled, (as at 31ᵇ) so as to engage the seat in the end of the pipe 27ª which carries the universal coupling 30. The female flexible hose coupling heretofore described may be used in connecting the intermediate sections of hose, the male member of which consists of a hexagonal headed member 32 having threaded portions on each side of its head and a tapered tubular extension 32ª over which flexible tube section 16ª is arranged, there being a threaded sleeve 33 having an inwardly extending flange 33ª for gripping and tightly securing the end of the flexible tube on the tapered tubular extension.

35 indicates a casting having an air conduit 36 and a paint conduit 37. This casting forms a hand-grasp into the upper end of which are secured the lower metal pipe section (for paint) and the lower flexible tube section (for air). 38 indicates a two-way cock having a suitable handle arranged in a valve casing 39 and preferably drawn to its seat by means of a spring 40. This cock is employed for the purpose of admitting paint to the casting 35 and metal pipe sections to the spray head. A flexible pipe 41 is coupled to the lower end of valve casing 39 and leads from a source of paint supply, such as a paint tank (not shown). The paint in this tank may be under a low air pressure sufficient to force the same up to the spray head. In practice, I have found that from five to ten pounds pressure on the paint in the tank will answer all practical purposes and that the compressed air supply to the spray head may range from fifty to one hundred pounds pressure in securing good results.

42 indicates a valve casing having a three-way valve 43 arranged therein. This valve is preferably tapered like valve 38 and may be provided at one end with a handle for manual operation and a spring on the opposite end for holding said valve to its seat, as described with relation to valve 38.

Valve casing 42 is provided with an opening 42ª to atmosphere. When the valve is turned to the position shown in Figure 7, air is admitted to the spray head and the port to atmosphere is closed. When the valve is turned to the position shown in Figure 8, the supply is shut off from the spray head and a leakage provided to relieve the spray head from pressure. 44 indicates a flexible tube leading from a compressed air tank, or other source of compressed air supply.

In operation, as many sections may be used in the extension handle as are needed, the spray head being located on the upper end of the top section and adjusted as required. The operator may grasp the casting 35 with one hand and by taking hold of one of the sections above the casting guide the

spray head in its movement and hold it the desired distance from the wall or other object being painted.

If it is desired to shut off the apparatus at any time, the valve 38 is first closed and then the valve 43 operated to shut off the supply of compressed air to the spray head and permit a leakage of the compressed air from the spray head. To again start spraying operations, the air valve is preferably first opened, and then the paint valve manipulated until the required amount of paint is supplied to the spray head.

What I claim is:

1. In combination, a spray head for paints and the like provided with air and paint passages and a supply line therefor including two sections forming a continuous conduit, the axes of which sections intersect, said sections being hinged about the axial intersection.

2. In combination, a spray head having air and paint passages therein, a supply line therefor including two sections forming a continuous conduit, the axes of which sections intersect, said sections being hinged to each other so as to pivot about a line at right angles to the intersection of their axes, and means for holding said sections in pivotally adjusted positions.

3. The combination of a spray head having air and paint conduits therein, a sectional metallic pipe communicating with one of said conduits, a flexible pipe communicating with the other of said conduits, and means for holding said pipes in relatively fixed relation to each other.

4. The combination of a spray head having air and paint conduits therein, a sectional metal pipe communicating with one of said conduits and for supporting said spray head, universal couplings between said pipe sections, a flexible sectional pipe communicating with the other of said conduits in said spray head, and movable clips mounted on the metal pipe sections for holding the flexible pipe sections in relatively fixed relation, there being universal couplings between the sections of the flexible tubing.

5. The combination of a spray head having air and paint conduits therein, sectional pipes, one of which supports the head, a casting having conduits and forming a hand-grasp at the lower end of said pipes, and valves adjacent to said casting for controlling the passage of paint and air through said pipes.

6. The combination of a spray head having air and paint conduits therein, a casting forming a hand-grasp and provided with air and paint conduits, tubular connections between said spray head and said casting, a valve for controlling the passage of paint to the head and a valve for controlling the passage of compressed air to the head, said last mentioned valve when operated to shut off the supply of compressed air to the head and opening the conduit to the head to atmosphere, whereby the pressure in the tubular connection to the head is released.

7. In a spray head for paints or the like, an air conduit, a paint conduit, a valve in said paint conduit, a cylinder, a piston therein for operating said valve, a discharge orifice for air and paint, a passage leading from said air conduit to said orifice, and a relatively restricted passage leading from said air conduit to said cylinder whereby admission of air to said air conduit will establish a flow of air in said discharge orifice and automatically open said valve to subsequently establish a flow of paint to said discharge orifice.

8. In a spray head for paints and the like, a paint passage; an air passage; a piston operated valve seating laterally of the longitudinal direction of said paint passage, controlling the same; and a passage from said air passage to said piston, adapted to operate the same by leading air thereto.

9. In a coating device the combination of an extensible paint pipe; a spray head swiveled thereon; a paint passage in said head leading to said pipe through said swivel; an air passage in said head, an air pipe leading to said air passage, a spray nozzle on said head adapted to make the air and paint cooperative; and means in said head for controlling the paint passage by means of air from the air passage.

10. In a coating device the combination of an extensible paint pipe; a spray head swiveled thereon; a paint passage in said head leading to said pipe through said swivel; an air passage in said head; an air pipe leading to said air passage, a spray nozzle on said head adapted to make the air and paint cooperative; and means in said head for controlling the paint passage by means of air from the air passage, and manually operated valves controlling the paint and air pipes.

11. In a coating device the combination of an extensible paint pipe; a spray head swiveled thereon; a paint passage in said head leading to said pipe through said swivel; an air passage in said head an air pipe leading to said air passage, a spray nozzle on said head adapted to make the air and paint cooperative; and means in said head for controlling the paint passage by means of air from the air passage; a manually operated valve controlling the paint pipe; and a manually operated valve controlling the air pipe adapted to relieve the pressure in the same when the air supply is cut off.

12. In coating apparatus for paints and the like, the combination of a paint supply means; an air supply means; an automatic valve controlling the paint supply means op-

erable by a piston under control of air bled from the air supply means; a manually operated valve in the paint supply means remote from said auto-valve to open or close said supply means and a manually operated valve in the air supply; means remote from said automatic valve adapted to open or close the same and when closed to relieve the pressure on one side of said valve thereby permitting the aforesaid automatic valve to close.

In testimony whereof I hereunto affix my signature this 5th day of May, 1921.

WALTER A. HEINRICH.