Nov. 15, 1932. R. W. TRACY 1,887,969

SPRAY GUN

Filed Sept. 18, 1929

Fig. 1.

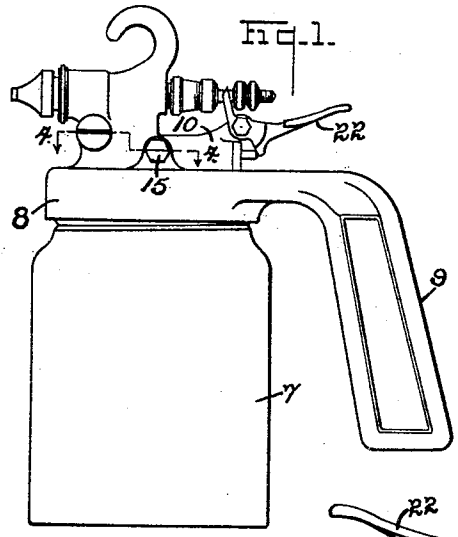
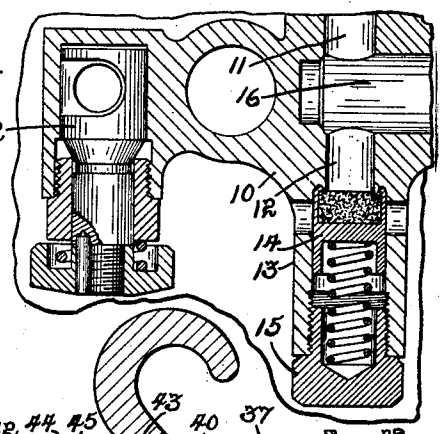


Fig. 4.



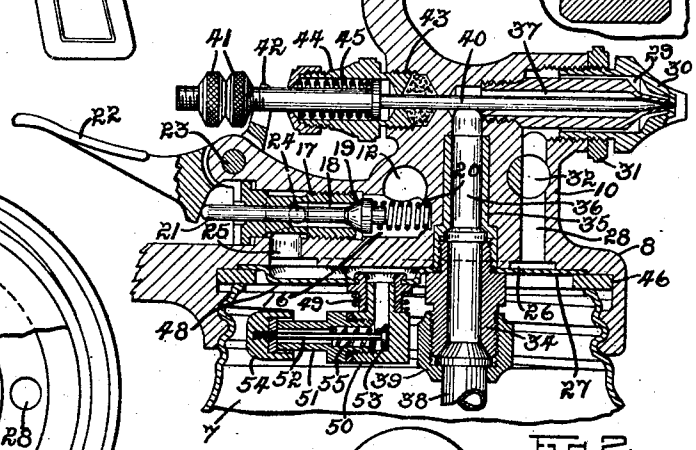


Fig. 2.

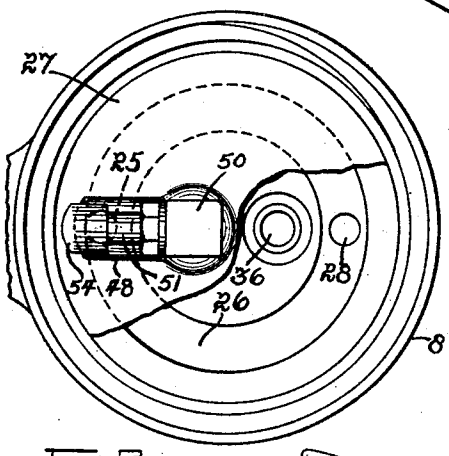


Fig. 3.

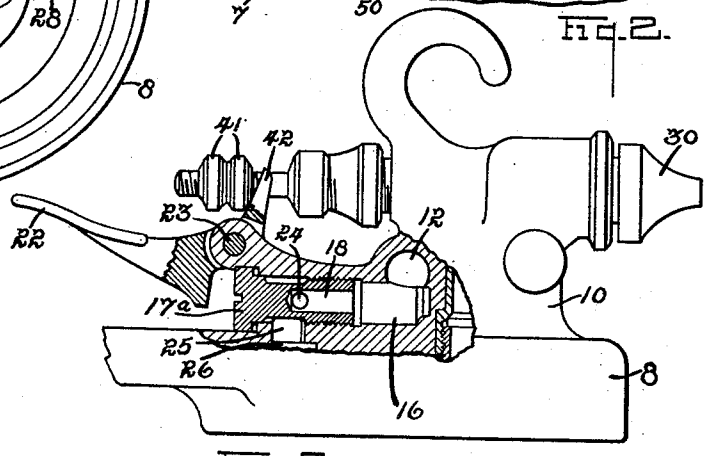


Fig. 5.

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UNITED STATES PATENT OFFICE

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SPRAY GUN

Application filed September 18, 1929. Serial No. 393,546.

This invention relates to a spray gun adapted to be carried in the hand and used for spraying paint or other material in fluid form.

The object of the present invention is to provide a spray gun for the purpose stated, which is efficient in its operation and which may be manufactured at a low cost. In its present embodiment, the spray gun constitutes a part of the cover to a receptacle for containing the liquid to be sprayed. It is particularly adapted to be used in connection with a small air compressor. The spray gun is provided with a thumb lever, the actuation of which first opens the air valve and then the valve for controlling the flow of paint or other fluid from the receptacle. If desired, however, the air valve may be omitted and the operation controlled entirely by means of the liquid valve.

The specific construction of the invention in its preferred form, and the advantages resulting from such construction, will be more particularly explained in connection with the accompanying drawing, in which

Figure 1 is a side elevation of the spray gun and the receptacle to which it is attached.

Figure 2 is an enlarged vertical longitudinal section of the same.

Figure 3 is a view of the under side of the cover, with parts broken away.

Figure 4 is an enlarged sectional view taken on the line 4—4 of Figure 1.

Figure 5 is a view similar to Figure 2, with the air valve omitted.

The invention, in its present embodiment, is illustrated in connection with a receptacle 7 adapted to contain paint, and provided with a cover 8 which is screwed on. The cover is provided with an integral extension 9 constituting a handle. The cover is preferably of cast metal formed on its upper face with an integral enlargement 10 and constitutes a housing for the mechanism which controls the spray.

The housing 10 is provided at one side with an inlet 11 adapted to be connected to an air compressor or other suitable source of compressed air. Directly opposite the inlet 11 and in alignment therewith is a bore 12 extending through a boss 13 and provided with a safety valve 14 which is retained by a plug 15. Leading rearwardly from the inlet 11 is a bore 16, the rear end of which is closed by a plug 17. The plug 17 is formed with a central passageway 18, which is normally closed by an air valve 19 yieldably held to its seat by a coil spring 20 within the bore 16. The valve 19 has a stem 21 extending rearwardly from the plug 17 and adapted to be engaged by a thumb lever 22, which is fulcrumed on a pin 23. It will thus be seen that a depression if the thumb lever 22 opens the air valve 19.

The passageway 18 is connected through a port 24 to an opening 25 which leads downwardly through the cover into an annular channel 26 formed in the inner face of the cover and covered by a disk 27. A bore 28 leads upwardly from the channel 26 into the air chamber 29 within the nozzle 30. The nozzle 30 is of the usual adjustable type, held in adjusted position by a lock nut 31. The supply of air to the nozzle may be adjusted by means of a valve 32.

The disk 27 is held against the inner face of the cover by a nipple 34, which is screwed into a bushing 35 set in the housing 10. A liquid passageway 36 through the bushing 35 leads to the liquid discharge member 37 within the air nozzle 30. A liquid tube 38 extending from the bottom part of the receptacle 7 is secured to the member 34 by means of a suitable union 39. The discharge of the liquid from the member 37 is controlled by means of a needle valve 40.

The rear end of the needle valve 40 extends beyond the housing and is threaded to receive adjustable lock nuts 41 which are engageable by the forked end 42 of the thumb lever 22 when the latter is depressed. A packing gland 43 is provided for the needle valve 40 and has an integral extension 44 forming a housing for a coil spring 45 which immediately closes the needle valve whenever the latter is released by the lever 22.

A gasket 46 not only forms a seal between the cover 8 and receptacle 7 but at the same time forms a seal between the periphery of the disk 27 and the cover.

The disk 27 is preferably formed with a

depressed portion 48 located beneath the channel 26 and having an outlet sleeve 49 secured therein. A right angular housing or elbow 50 is secured to the sleeve 49 and secured to this elbow is a laterally extending outlet nipple 51, through which extends the stem 52 of a valve member 53. The outer end of the stem 52 carries a cap 54 seating against the end of the nipple. A spring 55 tends to open the valve member 53 and permits the compressed air to build up a pressure on the material in the receptacle 7, while the cap protects the end of the nipple and prevents a back flow from within the receptacle after the compressed air supply is cut off. The elbow 50 is also adjustable about its axis in the sleeve 49, so that in painting, if it is necessary or expedient to turn the receptacle 7 on its side, the outlet nipple 51 may be always directed toward the side of the receptacle which is held uppermost during such painting, and there is no chance for the paint to run back into the air passage.

In spray painting, the most satisfactory results are obtained when both the air flow and the liquid flow are positively controlled by separate valves as shown particularly in Figure 2. The nuts 41 are preferably adjusted so that the liquid needle valve 40 opens just after and closes just before the air valve 19. In some instances however, especially when a small compressor and motor are used, it is preferable that the air flow be continuous until the motor is shut off. In such cases, the air valve 19 is omitted and the plug 17 is replaced by the plug 17^a shown in Figure 5.

The construction herein described may be manufactured very economically. Only a small casting is required and the machine work, particularly the drilling for the air and liquid passageways is comparatively simple. The annular channel in the inner surface of the cover is very easily made and it facilitates the use of pressure in the receptacle, while the gasket simultaneously seals the channel as well as the receptacle.

Although I have shown and described in detail a specific form of the invention, it is to be understood that this is merely illustrative and may be modified to a considerable extent without departing materially from the scope of the appended claims.

What I claim is:

1. In a spray gun, a housing provided with a compressed air passage and a liquid passage terminating in a spray nozzle, a normally closed valve for each passage, means for opening said valves, a nipple for admitting compressed air to the surface of the liquid to be sprayed, a cap loosely covering the outlet end of the nipple, a head at the inlet end thereof, a stem connecting said head and cap, a spring acting on said head and adapted to close the cap against the end of the nipple to prevent a back flow but yieldable, when the compressed air valve is open, to permit air pressure to be built up at the surface of the liquid.

2. In a spraying device, a liquid receptacle having a cover provided with a spray nozzle, means for directing compressed air and liquid to said nozzle, a nipple constituting means for admitting compressed air to the receptacle, and means for adjusting the direction of the discharge end of said nipple.

3. In a spraying device, a liquid receptacle having a cover provided with a spray nozzle, means for directing compressed air and liquid to said nozzle, and means for discharging compressed air into the receptacle including a nipple mounted on an axis perpendicular to the bottom of the receptacle and having a laterally extending discharge end, said nipple being adjustable about its axis.

4. In a spraying device, a liquid receptacle having a cover provided with a spray nozzle, means for directing compressed air and liquid to said nozzle, a nipple constituting means for admitting compressed air to the receptacle, means for adjusting the direction of the discharge end of said nipple, and means tending to prevent back flow through said nipple.

5. In a spraying device, a cover assembly for a receptacle containing liquid to be sprayed, comprising a housing having a base constituting a cover and provided with means for attaching it to the receptacle, said housing having an air passage and a liquid passage terminating in a spray nozzle, said base being formed with a channel in its inner face constituting a part of said air passage, a member closing the face of said channel, and a liquid tube secured to the base in line with the liquid passage and at the same time securing said member to said base.

6. In a spraying device, a cover assembly for a receptacle containing liquid to be sprayed, comprising a housing having a base constituting a cover and having a rim provided with means for attaching it to the receptacle, said housing having an air passage and a liquid passage terminating in a spray nozzle, said base being formed with a channel in its inner face constituting a part of said air passage, a member countersunk in the inside face of said base and closing the face of said channel, said member being of less diameter than the inside of the rim, and a single gasket constituting a seal between the receptacle and said base and at the same time constituting a seal between said member and said base.

In testimony whereof I have hereunto signed my name to this specification.

ROBERT W. TRACY.