Feb. 17, 1931. A. W. ADAMS 1,793,383

SPRAY GUN

Filed Oct. 31, 1928 2 Sheets-Sheet 1

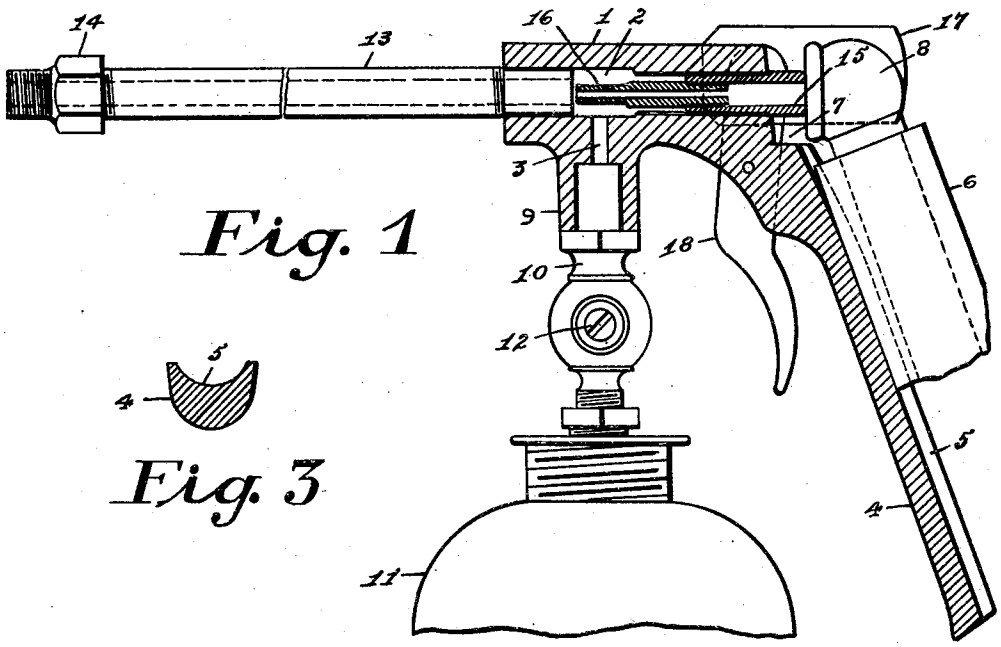


Fig. 1

Fig. 3

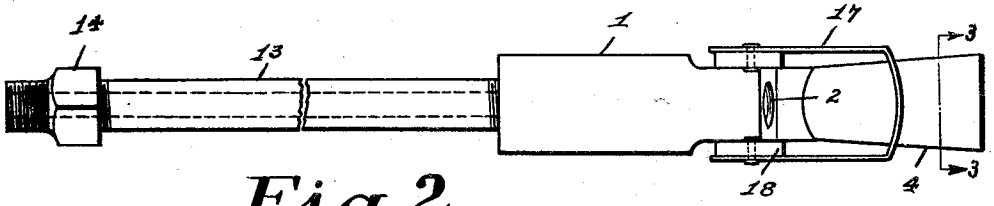


Fig. 2

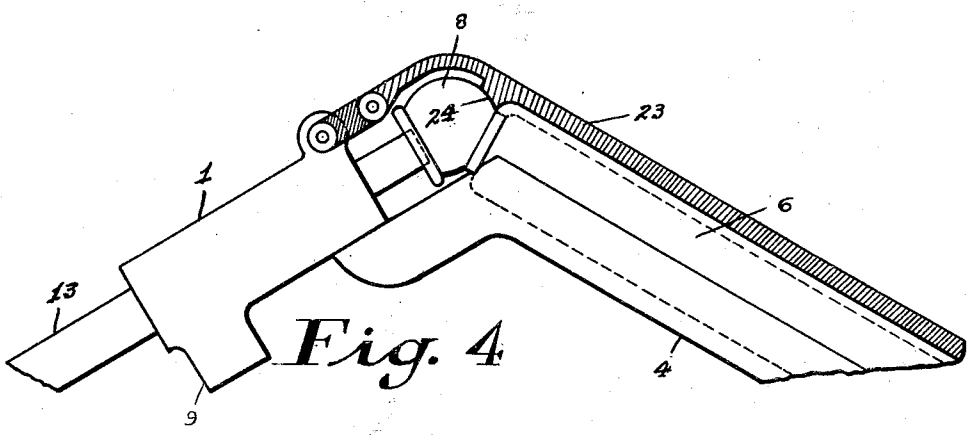


Fig. 4

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Feb. 17, 1931. A. W. ADAMS 1,793,383

SPRAY GUN

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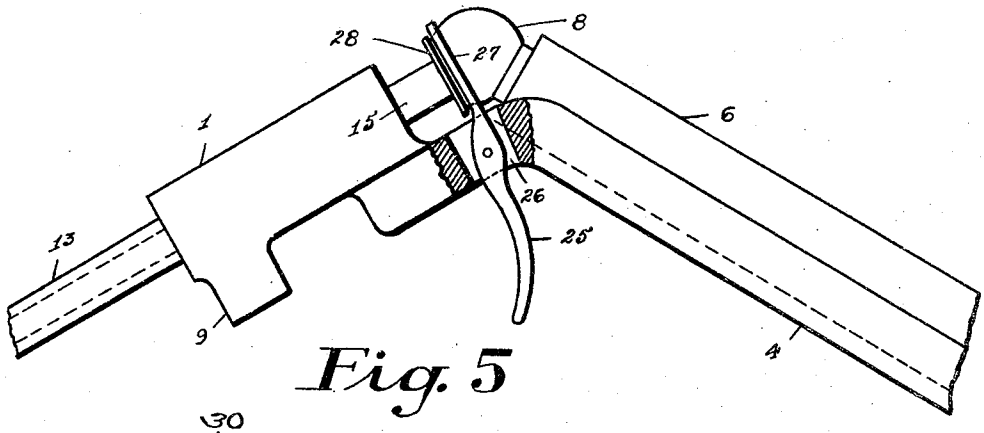


Fig. 5

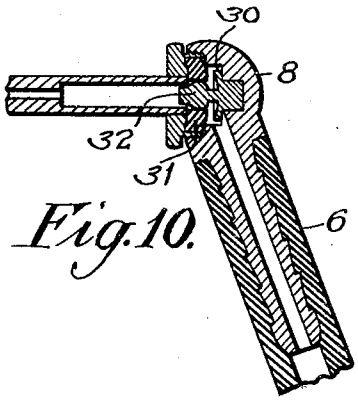


Fig. 10.

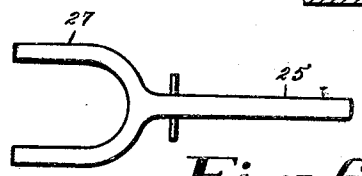


Fig. 6

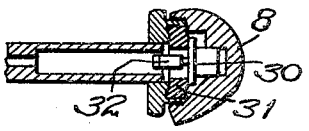


Fig. 11.

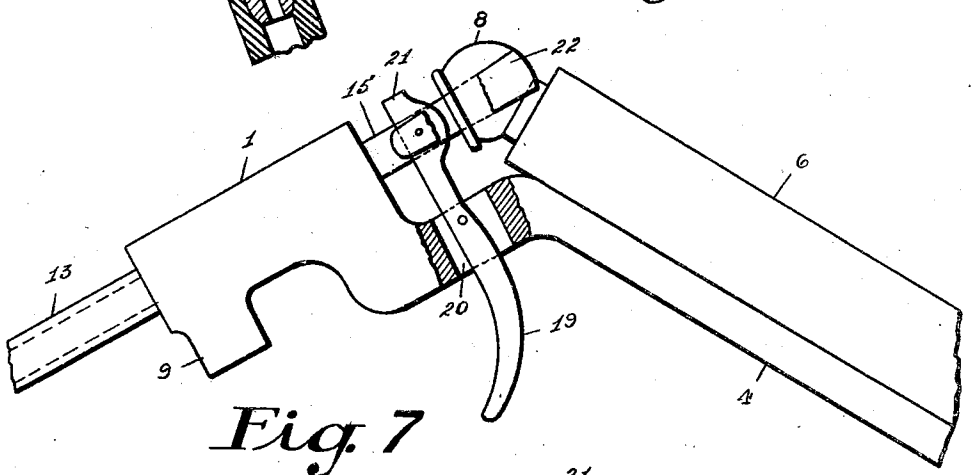


Fig. 7

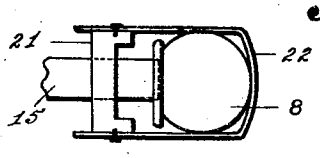


Fig. 9

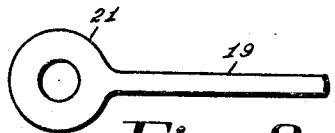


Fig. 8

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INVENTOR.

Patented Feb. 17, 1931

1,793,383

UNITED STATES PATENT OFFICE

ALEXANDER W. ADAMS, OF LORNE PARK, ONTARIO, CANADA, ASSIGNOR TO THE J. C. ADAMS COMPANY, OF TORONTO, ONTARIO, CANADA

SPRAY GUN

Application filed October 31, 1928. Serial No. 316,145.

The invention relates to improvements in spray guns as described in the present specification and shown in the accompanying drawings that form a part of the same.

The main object of the invention is to provide a spray gun to which the tire chuck of the air compressor line may be readily adapted in such a manner that the operation of the valve in said chuck is controlled through the movement of the trigger of the gun.

A further object of the invention is to provide a simple and efficient spray gun in the construction of which no valves, packing elements or other devices likely to become clogged or damaged through the action of the substance being sprayed are employed, thus rendering the gun equally efficient in the spraying of any liquids, such as oil, paint, grease or water, or powder.

And generally the objects of the invention are to provide a serviceable spray gun of sturdy construction, which may be easily connected and disconnected to an air line and which may be produced at small cost.

The invention consists in the novel features of construction, arrangements and combinations described in the present specification and more particularly pointed out in the claims for novelty following.

In the drawings, Figure 1 is a side elevation, partly in vertical section, of my improved spray gun, the liquid container being broken away.

Figure 2 is a plan view of the gun shown in Figure 1, the container and air chuck not being shown.

Figure 3 is a cross sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a side elevation, partly in vertical section, of a modified form of gun, the liquid container being omitted.

Figure 5 is a side elevation of a further modification of the invention, a portion of the gun being broken away and sectioned to show the method of mounting the combined chuck clamp and trigger.

Figure 6 is a detail of the chuck clamp and trigger shown in Figure 5.

Figure 7 is a side elevation of still another modification, portions of which are broken away.

Figure 8 is a detail of the trigger element shown in Figure 7.

Figure 9 is a plan view of a portion of the structure shown in Figure 7.

Figures 10 and 11 represent vertical and horizontal sectional views of the chuck.

Like numeral of reference indicate corresponding parts in the various figures.

Referring to the drawings, the body, indicated by the numeral 1, of the gun is provided with a longitudinal bore 2 extending completely through the same and being threaded interiorly at each end, and with a transverse bore 3 preferably entering the under side of the body substantially midway of the length thereof and registering at its inner end with the longitudinal bore, said body also being provided with a rearwardly positioned downwardly inclined integral handle 4 having its rear face grooved longitudinally, as at 5, for the reception of the pipe 6 of the air compressor line, said body being terminated short of the rear face of the handle 4, as at 7, to permit of the movement of the chuck 8 towards the bore 2, as will be explained in detail hereinafter.

The lower side of the body is preferably extended downwardly in the form of a nipple 9, through which the bore 3 extends, and into which is screwed a pipe 10 carrying at its lower end the container 11 adapted to contain the liquid, or powder, to be sprayed, said pipe 10 being provided with a valve 12 to regulate the discharge of the contents of the container.

The barrel 13 which is secured in the forward end of the stock, or body, of the gun is preferably threaded at its outer end for the reception of a suitable nozzle 14.

Threading into the rear end of the bore 2 and projecting rearwardly therefrom the required distance to enter the opening in the chuck 8 around the valve thereof when the air pipe 6 is placed in position in the handle 4, is a nipple 15, which nipple is threaded internally at its forward end for the reception of an air nozzle 16 which preferably extends forwardly slightly past the vertical bore 3,

so that in the operation of the gun no air will be blown downwardly into the container 11.

As the degree of pressure of the air applied to the contents of the container is controlled largely by the size of the bore of the nozzle 16 and the position of the outlet thereof in relation to the bore 3 it is readily seen that the pressure may be regulated to meet requirements by simply inserting in the nipple 15 a nozzle of the required dimensions adjusted to the desired position in relation to said bore.

The chuck 8 is held in position on the nipple 15 and is drawn forwardly thereon to open the valve in said chuck by means of a stirrup 17 pivoted at its ends to the top ends of a trigger element 18 which is pivoted intermediate of its length to the body 1.

The trigger element may be fork shaped, with the forked portion spanning the body 1 and the ends of the stirrup pivoted to the corresponding side ends of the stirrup, as shown in Figures 1 and 2, or, a trigger element as shown in Figures 7 to 9 and indicated by the numeral 19 may be employed, which latter trigger operates in a slot 20 in the gun and is provided with an integral hollow head 21 adapted to loosely encircle the nipple 15, and to opposite sides of which the ends of the clamp, or stirrup, are pivoted.

In Figure 4 a modified form of construction is shown in which pressure is applied to force the chuck on to the nipple 15 by means of a lever 23, pivoted to the top side of the body of the gun and extending rearwardly and downwardly parallel with the handle 4 and being provided with an inward projection 24 adapted to bear against the rear side of the chuck as pressure is applied to the handle portion of the lever, it simply being necessary in the operation of this type of gun for the operator to close his hand over the handle 4 and the lever 23 between which the pipe 6 is positioned.

In Figures 5 and 6 the trigger element 25 extends through the gun and operates in a slot 26 therein and is provided with a fork shaped upper end 27 adapted to span the chuck 8 and in operation bearing against the flange 28 of the chuck to force said chuck on to the nipple 15 to open the valve in the chuck.

In the use of this invention a nozzle 16 of the dimensions necessary to give the desired spray is threaded into the nipple 15 and said nipple is threaded into the bore 2 the required distance. The air pipe 6 is then laid in the concaved portion 5 of the handle 4 with the chuck 8 in line with the nipple 15 and the chuck is then clamped to the gun by simply pulling down the pivoted stirrup 17, or 23, according to the type of stirrup employed. The operator then closes his hand over the air pipe and the handle 4 and by the manipulation of the trigger element can readily draw the chuck on to the nipple to cause said nipple to open the valve in the chuck and permit the air to pass through the bore 2 and spray the contents of the container through the discharge nozzle 14. On release of the pull on the trigger element the pressure of the air in the pipe 6 will force the valve to its closed position, causing the coincident withdrawal of the chuck a corresponding distance.

The chuck illustrated in connection with the various forms of the invention is of a conventional type wherein the valve indicated at 30 cooperates with a sealing gasket 31 under pressure in the pipe line to prevent outlet of the air, the valve having a pear-shaped projection 32 designed to be engaged by the nipple under pressure on the chuck to unseat the valve, as indicated in Figure 10.

The present invention provides a simple and efficient spray gun or such sturdy construction as to withstand the hard usage to which such devices are subjected. The method of mounting the stirrup and trigger insures the chuck being drawn straight on to the nipple and insures positive action of the gun.

What I claim is:—

1. In a spray gun adapted for cooperation with the tire chuck of an air compressor tube, the combination of a body having a longitudinal bore and an intermediate cross bore extending upwardly through the under side of said body into communication with said longitudinal bore, a handle integral with said body and depending downwardly from the rear end thereof, the rear face of said handle being grooved longitudinally for the reception of said air tube, an air nipple secured over said longitudinal bore and extending rearwardly from said body and adapted to enter said chuck, a trigger, and means operable through the movement of said trigger to draw said chuck on to said nipple to open the valve in said chuck.

2. In a spray gun adapted for cooperation with the tire chuck of an air compressor tube, the combination of a body having a longitudinal bore and an intermediate cross bore extending upwardly through the under side of said body into communication with said longitudinal bore, a container for the substance to be sprayed supported by said body in open communication with said cross bore, a longitudinally concaved handle depending downwardly from the rear end of said body and constituting a support for said air tube, a nipple secured in said longitudinal bore and extending rearwardly from said body and adapted to enter said chuck, said nipple carrying a nozzle extending forwardly past said cross bore, a trigger, and a stirrup pivotally supported by said trigger and adapted to be drawn over the rear side of said chuck whereby on the operation of said trigger said chuck is drawn forwardly on to said nipple to open the valve in said chuck.

3. In a device of the character described, in combination with the tire chuck of an air compressor line, a spray gun comprising a body having a longitudinal bore provided at one end with a rearwardly projecting nipple adapted for operative engagement with the valve in said chuck and at its other end being provided with a nozzle and also having an intermediate cross bore through the lower wall thereof terminating in register with said longitudinal bore, an air nozzle adjustable in the forward end of said nipple, a container for the substance to be sprayed, said container being supported by said body in register with said cross bore, a valve controlling the discharge from said container, a handle integral with said body and depending from the rear end thereof, and a trigger element having means for drawing said chuck forwardly on said nipple.

4. A spray gun comprising a body having an opening in the lower side thereof to admit the substance to be sprayed, a container removably secured to said body in register with said opening, said body also having a longitudinal bore in register with said opening, said longitudinal bore at one end receiving air under pressure to spray the contents of said container through the other end thereof, a nipple adjustable in said longitudinal bore and projecting rearwardly of said body, a nozzle adjustable in the forward end of said nipple, a handle offset rearwardly from said body and depending downwardly therefrom, the rear face of handle being grooved longitudinally, an adjustable chuck clamp extending rearwardly of said nipple, and a trigger adapted to draw said clamp forwardly towards said nipple.

5. In a spray gun adapted for cooperation with the tire chuck of an air compressor tube, the combination of a body having a longitudinal bore and an intermediate cross bore extending upwardly through the under side of said body into communication with said longitudinal bore, a handle integral with said body and depending downwardly from the rear end thereof, the rear face of said handle being grooved longitudinally for the reception of said air tube, a nipple secured in said longitudinal bore and extending rearwardly from said body and adapted to enter said chuck, and pivoted manually operable means adapted to force said chuck forwardly on said nipple.

6. A spray gun adapted for cooperation with an air compressor tube having a tire chuck, including a body formed with an air bore and an intercepting material channel, an air tube removably secured in said bore and fixed with relation to the body, means carried by the body for supporting the compressor tube in position to arrange the chuck in line with the air tube, and means including a trigger to move the chuck relative to the air tube to cause the latter to open the valve in the chuck in correspondence with the chuck movement.

7. A spray gun adapted for cooperation with an air compressor tube having a tire chuck, including a body having a longitudinally ranging air bore and an intercepting material channel, an air tube having threaded connection with the body and projecting beyond the rear end thereof, a handle carried by the body and formed to support the compressor tube to arrange the chuck in line with the air tube, a trigger mounted on the body, and means operated by the trigger for moving the chuck with relation to the fixed air tube to thereby open the valve of the chuck proportionally to such chuck movement.

8. A spray gun adapted for cooperation with an air supply tube having a tire chuck, including a spray nozzle having an air channel and a communicating fluent-material channel, the inlet of said air channel being in the form of a projecting nipple, means secured to said nozzle for supporting the air supply tube with the chuck disposed in line with the nipple, and means including a trigger to move the chuck relative to the nipple to cause the latter to open the valve in the chuck in correspondence with the chuck movement.

9. A spray gun adapted for cooperation with an air supply tube having a tire chuck, including a spray nozzle having a longitudinally extending air passage and a communicating fluent-material channel, said nozzle having a nipple projecting rearwardly and forming the air inlet to said passage, means secured to said nozzle and formed to support the air supply tube with the chuck positioned in line with said nipple, said means including a handle, and a trigger operable to move the chuck with relation to the nipple to thereby open the valve of the chuck proportionally to such chuck movement.

Signed at Toronto, Ont., this 12th day of June, 1928.

ALEXANDER W. ADAMS.