

Aug. 7, 1934.

W. P. CARR ET AL
MATERIAL DISCHARGE GUN

1,969,205

Filed Sept. 6, 1932

2 Sheets-Sheet 1

Fig. 1

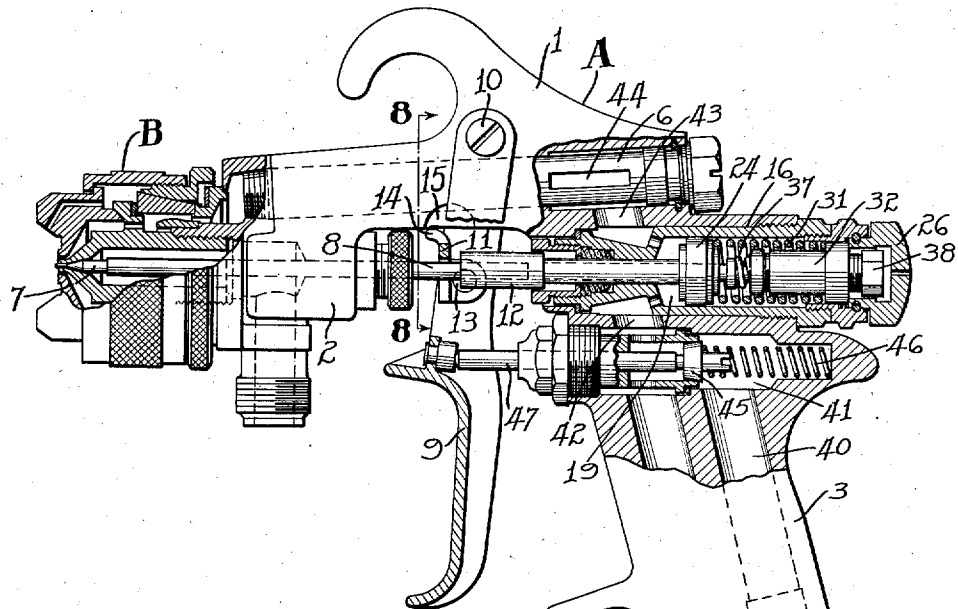


Fig. 2

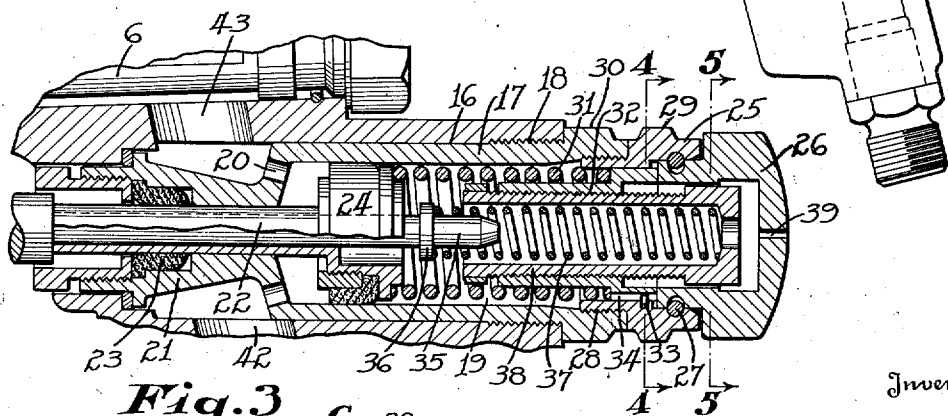
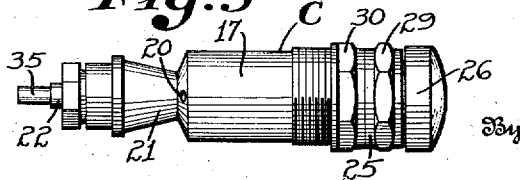


Fig. 3



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Fig. 4

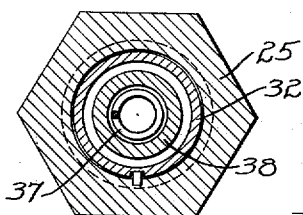


Fig. 5

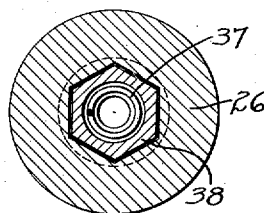


Fig. 6

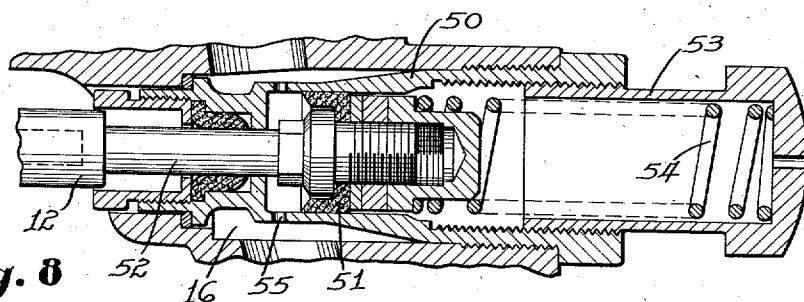


Fig. 8

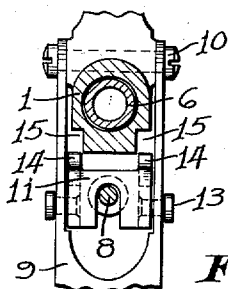


Fig. 7

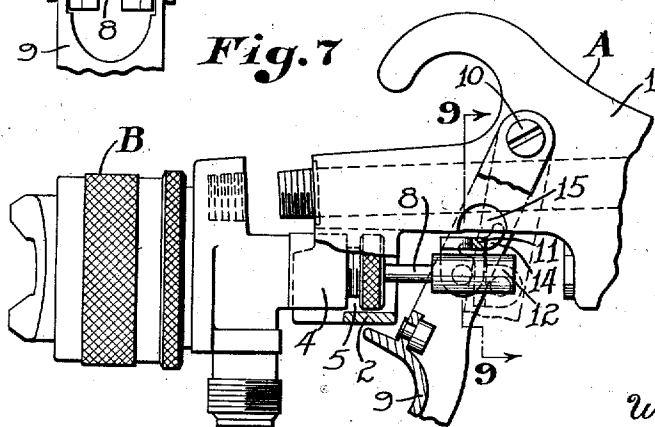
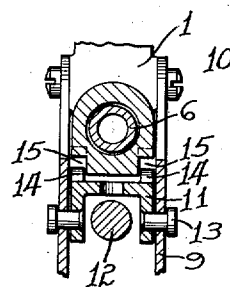


Fig. 9



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UNITED STATES PATENT OFFICE

1,969,205

MATERIAL DISCHARGE GUN

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Toledo, Ohio, a corporation of Ohio

Application September 6, 1932, Serial No. 631,873

24 Claims. (Cl. 91—45)

This invention relates to guns for discharging materials of a fluid or semifluid nature, and particularly to air brushes of the type adapted for spraying surface coating materials such as paints, lacquers, varnishes, etc., and has for its primary object the provision of certain improvements on devices of this character, whereby to enhance the practicability and commercial value thereof.

10 In this type of device, the air and material control valves are each spring-pressed to normally retain them closed, and the operator in actuating the trigger member to open these valves and then to maintain them open is required to oppose and overcome the closing pressure of the springs, which for prolonged spraying, in particular, becomes very tiring.

20 An important object of the present invention is the provision of means which is automatically operable upon an initial movement of the trigger member to relieve to a considerable extent the valve-closing pressure on said member, thus reducing to a minimum the tiring effect on the operator of holding the trigger member in open or operating position.

25 Other objects of the vehicle will be apparent from the following detailed description, and from the accompanying drawings illustrating the same, in which—

30 Figure 1 is a side elevation of a gun embodying the invention with the operating parts in normal closed position and with parts broken away. Fig. 2 is an enlarged fragmentary sectional detail of the fluid-operating means for partially relieving the closing pressure on the material valve when the trigger member is operated. Fig. 3 is a side elevation of the unit embodying the closing means for the material valve with the unit removed from the gun. Figs. 4 and 5 are cross-sections taken respectively on the lines 4—4 and 5—5 in Fig. 2. Fig. 6 is a view similar to Fig. 2 of a different form of automatic pressure relieving means for the material valve. Fig. 7 is a fragmentary elevation of the gun with the spray head unit partially removed from the stock unit and showing the trigger member and its material valve engaging dog in released position with respect to such valve. Fig. 8 is a cross-section on the line 8—8 in Fig. 1 illustrating the trigger dog in operating connection with the material valve, and Fig. 9 is a fragmentary section on the line 9—9 in Fig. 7.

Referring to the drawings, A designates the stock unit, and B the spray-head unit of a spray

gun embodying the invention, the latter being detachably carried by the former.

The stock unit A includes the horizontally disposed body 1, the boss 2 at the under side of the forward end thereof, and a handle 3 projecting down from the under side of the rear end portion of the body.

The spray-head unit B is detachably connected to the stock 1, in the present instance, by inserting the body shank 4 of the head through an aligned bore 5 in the boss 2 and drawing the head firmly to its seat against the stock by a turning of the tubular screw member 6 into threading engagement at its forward end with the head. The tube 6 communicates at its forward end with the customary air discharge passages of the spray-head and at its rear end, as hereinafter described, with a source of air pressure supply with which the gun is connected. The rear end of the tube 6 projects from the rear end of the bore 5 and is provided with an enlargement which seats against the end wall of the bore to close it and is adopted to be engaged by a turning tool.

The spray head carries the customary material control valve 7, the stem 8 of which projects rearwardly through and from the body shank 4 in position to be engaged by the trigger member 9 of the gun. The member 9 has its upper end forked and straddling the stock body 1 and pivotally connected thereto by a screw 10. The trigger 9 carries a dog 11 between its fork arms and below the body of the stock 1 and is adapted to straddle the valve stem 8 and to engage an enlargement or shouldered portion 12 thereon to effect a retraction of the valve stem from normal or closed position when the trigger is drawn rearwardly from its normal position, as shown in Fig. 1.

The dog 11 is of U-form, being of a width to substantially span the space between the fork arms of the trigger 9, and its legs have pivot studs 13 projecting outwardly therefrom and pivotally engaging the respective fork arms of the trigger, with the axis of the studs parallel to the trigger axis 10 and in substantially the line of opening pull of the dog on the valve stem. The web portion of the dog is centrally slotted from its bottom side upwardly to adapt the dog to straddle the valve stem 8, and the upper edge of such web is provided at its ends with ears 14, which coast with circular recesses 15 in the respective lower side edges of the stock body to effect a camming or throwing of the dog to horizontal stem-released position, as shown in Fig. 7,

when the trigger has been swung forward a predetermined extent, which latter is preferably only permissible when the spray-head unit B has been moved forwardly a short distance from its assembled position with respect to the stock body. It is apparent that when the trigger is swung forward from its normal position, as shown in Fig. 1, the curved walls of the recesses 15 will have camming coaction with the ears 14 of the dog to effect a swinging of the dog to horizontal or released position with respect to the enlarged portion 1 of the valve stem.

The primary purpose of providing this manner of engagement of the trigger with the valve stem is to enable the raising of the fulcrum point of the trigger with respect to the valve stem with which it cooperates, so that the trigger, during its operating movements in engagement with the valve stem, will have a more direct thrust thereagainst and will thereby lessen to a minimum the frictional wear-producing sliding coaction of the trigger in engagement with the valve stem.

The yielding closing means for the material valve 7 is mounted in a bore 16 provided through the upper end portion of the handle 3 immediately below the body portion 1 of the stock, and is in axial alignment with the valve stem. Both ends of this bore are open. In the present instance, the valve-closing means and the tension adjustment therefor comprises a unit C, shown in Fig. 3 as separated from the gun, and including a body shell 17, which is inserted in the bore 16 and retained therein by threading, as shown at 18.

The shell 17 forms a cylinder 19, which has its inner end open to the interior of the bore 16 through ports 20 and is provided at such end with a reduced shank or extension part 21 having an axial opening therethrough for a piston stem 22 and including a packing gland 23 for said stem. The shank 21 seats in and closes the forward end of the bore 16.

A piston 24 is mounted in the cylinder 19 and attached to the respective end of the stem 22, and the opposite end of such stem is adapted to bear against the rear end of the valve stem enlargement 12 when the spray head unit B and the control unit C are in assembled relation to the stock unit A, as shown in Fig. 1.

The outer end of the cylinder 19 is closed by a suitable closure means, which, in the present instance, is of two-part construction and comprises the collar 25 and the plug member 26, which is rotatably mounted in the collar 25 and prevented from axial movements relative thereto by an anchoring ring 27 mounted in cooperating circumferential recesses in the two members. The collar 25 has threaded engagement with the outer end of the shell 17, as shown at 28, and has a portion provided with a wrench-engaging surface 29 to facilitate turning of the collar into form engagement with the shell. The shell 17 also preferably has a wrench-engaging surface 30 to facilitate a firm turning of the shell into engagement with the wall of the bore 16 in which inserted.

A compression spring 31 is disposed in the cylinder 19 with one end bearing against the rear side of the piston 24 and with its opposite end encircling a sleeve 32 and bearing against the shouldered or enlarged rear end portion of such sleeve, which has its outer or rear end thrust against the inner end of the closure member 26. The enlarged end portion of the sleeve 32 projects into the collar 25 and is prevented from turning

relative to said collar by a pin 33 projecting from one into a registering slot 34 in the other.

A second stem or pressure rod 35 extends entirely through the stem 22 and piston 24 axially thereof, the piston and its stem being hollow for such purpose, and its forward end is adapted to bear against the valve stem enlargement 12 while its rear end is provided at the rear of the piston with a shoulder 36 for receiving the thrust of a coiled compression spring 37 that is of considerably less tension than the spring 31. The spring 37 extends into a cylindrical plug 38, and has its rear end thrust against an internal shoulder or flange at the rear end of such plug. The plug 38 is threaded in the sleeve 32 and has its rear end fitting into the cup or hollow of the closure member 26 for turning movements therewith and free axial sliding movements relative thereto, whereby a turning of the member 26 relative to the member 25 will impart axial adjusting movements to the plug 38 due to its turning in threaded engagement with the sleeve 32. The forward end of the plug 38 acts as a stop for the rearward movements of the plunger 24, thus limiting the opening movements of the material valve. Such opening movement may be varied by an adjustment of the plug 38. A vent 39 is provided in the closure member 26, so as to place the adjacent end of the cylinder 19 in communication with the atmosphere.

The handle 3 has an air pressure supply passage 40 therein adapted to be connected at its lower end to a hose or other conduit in communication with a source of air pressure supply and opening at its upper end into a valve chamber 41 in the upper portion of the handle below the bore 16 which receives the valve-control unit C. The chamber 41 has an outlet 42 opening into the forward end portion of the bore 16 at a side of the reduced shank portion 21 of the control unit shell, and air admitted to such bore is adapted to enter the forward end of the cylinder 19 in advance of the piston 24 and also to pass from said bore through a port 43 into a longitudinally extending passage in the stock body 1, which passage communicates at its forward end with the air discharge passages of the spray-head, as well understood in the art. In the present instance, the screw 6 which ties the stock and spray-head units together is hollow to provide a passage there-through for the air to the spray-head, the air entering said tube through one or more passages 44 in its rear end portion.

The valve chamber 41 is closed between its inlet and outlet passages by a check-valve 45, which has opening and closing movements in a plane longitudinally to the body of the stock and is normally held seated in closed position by a coiled compression spring 46. An operating stem 47 projects forwardly from the valve 45 through a suitable packing gland and without the forward side of the handle 3 in position to be engaged at its forward end by the trigger 9 and operated to open the valve by a rearward movement of the trigger.

During the initial air valve opening movement of the trigger 9, the trigger dog 11 has a slight lost motion movement before it engages the enlargement 12 and imparts an opening movement to the material valve 7 during the continued retracting movement of the trigger. This permits compressed air to be admitted to the cylinder 19 and also to the spray-head before the material valve 7 is opened to permit a discharge of material from the spray-head. The air pressure admitted to the forward end of the cylinder 19 acts against the

piston 24 and moves it rearward against the tension of the spring 31, thereby entirely relieving the valve of the closing pressure of such spring, the only pressure then acting on the valve to resist an opening thereof being that of the light pressure spring 37, which acts on the valve stem through the pressure rod 35.

In practice, it is found desirable for most work to have a closing pressure of approximately eleven pounds against the valve when the trigger is free, and this is divided between the springs 31 and 37 so that the former has a closing pressure of approximately eight pounds and the latter of approximately three pounds. It is thus evident that when the trigger is operated to open the air-control valve 45, the air pressure within the cylinder 19 acts to relieve the trigger, in the present instance, of approximately eight pounds of the valve-closing pressure normally employed, and to make it necessary for the operator to only overcome a closing pressure of approximately three pounds in opening the material valve 7 and maintaining it open during a spraying operation. This effects a very material easing of the strain and effort heretofore necessary on the part of the operator to operate the trigger during a spraying operation and enables a considerably longer continued use of the gun without tiring the operator than would otherwise be possible.

The details of construction of the control unit C, which include the specific stop adjusting means shown for the valve 7, and particularly an adjustment of such means without requiring axial movement of the control member 26, is not claimed herein, as such construction constitutes a part of the claimed subject-matter of a co-pending application of Harold A. Roselund Serial No. 631,876 which has matured into Patent No. 1,962,911 dated June 12, 1934, as does also the manner shown for connecting the stock and spray-head units A and B.

In Fig. 6 is illustrated a form of automatic pressure-relieving means for the material valve, wherein only one spring is employed and the air pressure is utilized to relieve only a portion of the tension of such spring.

In this form of the invention, 50 represents the shell member of the control unit, which is mounted in the stock bore 16 the same as in the other case, and 51 is the piston operating in the cylinder and having the stem 52 projecting from the forward end of the shell and bearing against the rear end of the valve enlargement 12. The outer end of the shell is closed by a plug 53, which is threaded in the shell and axially adjustable relative thereto. The valve-closing spring 54 bears at one end against the piston 51 and at its other end against the plug 53, which is cupped to partially receive the spring. Air under pressure is admitted from the bore 16 to the interior of the shell 50 in advance of the piston 51 through one or more ports 55. In this case, assuming any predetermined normal operating pressure of the air, which may, for instance, be considered as eighty pounds, the area of the piston exposed to the air pressure is so proportioned that such maximum air pressure of eighty pounds acting thereagainst will obviate or counterbalance say eight pounds of the spring pressure, if the closing pressure of the spring is eleven pounds, thus leaving a three pound closing pressure of the spring to be overcome by the operator through pressure applied to the trigger 9. The tension of the spring 54 can be varied by an adjustment of the plug 58 in the shell 50.

The form of automatic control first described is preferable to that shown in Fig. 6, for the reason that in the latter it is necessary to maintain the operating air pressure approximately constant in order to maintain the automatic pressure-relieving feature of the control means approximately constant, whereas in the first form the operating air pressure may vary within a wide range without effecting the operation of the pneumatic control means, so long as the pressure acting against the piston 24 is sufficient to overcome or balance that of the main closing spring 31.

It is apparent that to separate the stock and spray-head units of the gun for cleaning, inspection, or other purpose, it is only necessary to turn the tube 6 to release the threaded connection of its forward end with the spray-head, after which the spray-head may be withdrawn forwardly from the stock, except that it is necessary during the initial forward movement of the spray-head to move the trigger 9 forwardly therefrom from normal position to effect a throwing of the dog 11 to release position with respect to the valve stem enlargement 12, as shown in Fig. 7. When the spray-head is in attached relation to the stock, the rear end of the shank 5 of the former projects into position to coact with and prevent a sufficient forward movement of the trigger 9 to move the dog 11 to released position.

It is also apparent that the valve 7 is normally acted on by the full tension of both springs 31 and 37, or, as in the case of the form shown in Fig. 6, with the full tension of the spring 54, so as to insure a firm seating of the material valve to prevent escape of the material from the spray-head. Upon a rearward movement of the trigger 9 to effect a spraying operation, the air valve 45 is first opened, due to the lost motion connection between the dog 11 and valve stem enlargement 12, thus permitting air under pressure to enter the cylinder of the control unit C, where it acts on the enclosed piston to relieve, in one case, the entire closing pressure of the spring 31 on the valve, and in the other case a predetermined portion of the pressure of the spring 54. The air also passes to and from the spray-head. The continued rearward movement of the trigger effects further opening of the air valve and also a retraction of the material valve, the latter against the light pressure of the spring 37 or the remaining active pressure of the spring 54. It will be understood that the closing pressure on the material valve during such continued movement of the trigger is only sufficient to cause the material valve to seat when the trigger pressure thereon is released.

We wish it understood that our invention is not limited to any specific construction, arrangement or form of the parts, as it is capable of numerous modifications and changes without departing from the spirit of the claims.

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

1. In a material discharge gun, a material valve, means acting on said valve to exert a predetermined closing pressure thereon, means manually operable to open the valve against said closing pressure, and means pneumatically operable to counteract a portion of the closing pressure of said first means.

2. In a spray gun, a material control valve, an air pressure control valve, means acting on the material valve to exert a closing pressure thereon, means manually operable to open the air valve

and also the material valve against the pressure of said means, said closing means being automatically operable by air pressure, when the air valve is open, to counteract a portion of the closing pressure of the closing means.

3. In a spray gun, a normally closed air valve and a normally closed material valve for the gun, spring pressure means acting on the material valve to exert a closing pressure thereon and including a cylinder and piston at the outlet side of the air valve and in communication with the passage controlled thereby, said piston being operable by air pressure, when the air valve is open, to counteract a portion of the closing pressure of the closing means, and manually operable means for opening said valves.

4. In a spray gun, an air valve and a material valve for controlling the respective discharge of air and material from the spray gun, the air valve being normally closed, a spring pressed plunger normally operable to exert a predetermined closing pressure on the material valve and pneumatically operable by air pressure when the air valve is opened to partially relieve said closing pressure, and manually operable means to open the air and material valves one in advance of the other.

5. In a spray gun, normally closed control valves respectively for the air and material discharge, a plunger exposed to the air discharging pressure at the outlet side of said valve and having connection with the material valve, means yieldingly acting on said plunger to cause it to exert a predetermined closing pressure on the material valve, said plunger being operated by air pressure, when the air valve is open, to counterbalance a portion of the pressure of said yielding means against the plunger, means manually operable to open first said air valve and then the material valve, and means for adjusting the tension of said pressure means.

6. In a spray gun, normally closed control valves respectively for the air and material discharging from the gun, a plunger having closing coaction with the material valve, a spring acting against said plunger to exert a predetermined valve-closing pressure thereon, said plunger being exposed at one side to the air discharging pressure when the air valve is open and being automatically operable by such air pressure to counteract a portion at least of the closing pressure of said spring, and means manually operable to open said air and material valves.

7. In a spray gun, normally closed control valves respectively for the air and material discharging from the gun, a plunger coacting with the material valve, a spring acting on the plunger to exert a predetermined valve-closing pressure thereon, said plunger being automatically acted on by air pressure, when said air valve is open, to at least partially counteract the pressure of the spring thereon, a secondary pressure means exerting a seating influence on the material valve, and means manually operable to open said air and material valves.

8. In a spray gun, a material control valve, two pressure means each normally exerting a closing pressure on said valve, one of said means being automatically operable by fluid pressure to counteract its valve-closing action, and manually operable means for opening said valve.

9. In a spray gun, a material control valve, two pressure means each normally exerting a closing pressure on said valve, one of said means being automatically operable by air pressure to

counteract the valve-closing action thereof, and means manually operable to admit air under pressure to said counteracting means and to open the valve against the closing action of said other means.

10. In a spray gun, air and material discharge passages, a control valve for each of said passages, separate spring actuated means acting on the material valve to exert a closing pressure thereon, one of said spring means being weaker than the other, means associated with the stronger spring means and operable by air pressure, when the air valve is open, to counteract, at least partially the valve-closing pressure of such stronger spring means, and means manually operable to open said air and material valves.

11. In a spray gun, a stock body and a spray-head, said body having a longitudinally extending bore therein, a control valve for the material discharge from the spray head having a stem extending rearwardly toward the forward end of said bore, means manually operable to open said valve, and a control means for the valve mounted in and removable as a unit from said bore, said control means including a shell, a plunger reciprocally movable in the shell and having a part coacting with the valve to adapt it to impart closing movements thereto, and spring means acting on the plunger to cause it to exert a predetermined closing pressure on the valve, said plunger adapted to be acted on by fluid pressure to counteract the valve-closing action of the spring thereon.

12. In a spray gun, a stock body having a longitudinally extending bore in its rear portion and a spray head carried by said body, a valve carried by the head for controlling the material discharge therefrom and having a stem projecting rearwardly toward the forward end of said bore, a trigger member for acting on the valve to move it to open position, and a closing control unit for the valve mounted in said bore and removable bodily therefrom, said unit comprising a cylinder adapted to have controlled communication at its forward end with a source of air pressure supply, two spring pressed members mounted in said unit and independently operable to exert a closing pressure on the valve stem, one of said members being automatically operable by air pressure in the cylinder to counteract its valve-closing action.

13. In a spray gun, a reciprocally movable control valve having a shouldered part, a trigger, a dog carried by the trigger and operable to engage the valve shoulder and impart opening movements to the valve when the trigger has normal operating movements, and means coacting with said dog to cause it to be moved out of operating alignment with the valve shoulder when the trigger is moved a predetermined extent from normal operating position.

14. In a spray gun, a body part, a spray head removably carried by the body part and including a reciprocally movable control valve having its stem projecting rearwardly from the spray head and provided with a shoulder, a trigger movably carried by the body part, a dog pivotally carried by the trigger and operable to engage the valve shoulder and impart opening movements to the valve when the trigger is normally moved to operate the valve and automatically movable by coaction with a part of the body member to move to inoperative position with respect to the valve when the trigger is moved a predetermined extent from normal operating po-

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sition, whereby to permit a removal of the spray head from the body member.

15. In a spray gun, a body, a spray head detachably carried thereby and having a normally closed reciprocally movable control valve the stem of which projects rearwardly from the spray head and is shouldered, a trigger movably carried by the body, a dog pivoted to the trigger and straddling the valve stem when the trigger is in normal operating position and adapted to coact with the stem shoulder to open the valve when the trigger is moved rearwardly from normal position, and means cooperating with the dog to move it to disengaged position with respect to the valve stem when the trigger is moved forwardly from normal position.

16. In a spray gun, a normally closed reciprocally movable material control valve having a shouldered stem, a trigger, a forked dog pivoted to the trigger and operable to engage the valve stem shoulder and open the valve when the trigger is moved rearwardly from normal position, and means coacting with the dog to move it relative to the trigger to inoperative position relative to the valve when the trigger is moved forward from normal position.

17. In a spray gun, a body, a spray head removably carried by the body and having a control valve with its stem projecting rearwardly from the head and shouldered, means acting to normally close the valve, a trigger pivoted to the body, and a dog of U-form pivoted at its leg portions to the trigger and having its web portion notched to straddle the valve stem and to coact with the stem shoulder to open the valve when the trigger is moved rearwardly from normal position, said dog and body having camming coaction to effect movement of the dog to released position with respect to the valve stem when the trigger is moved forward from normal position.

18. In a spray gun, a valve for the control of the material discharge, a control unit for the valve separable therefrom and mounted in and bodily removable as a unit from the gun and including a movable member spring actuated in one direction to have closing coaction with the valve and pneumatically operated in the opposite direction to relieve, a predetermined extent, the spring actuated valve closing pressure of the member, and means separate from said unit and coacting with and manually operable to open the valve.

19. In a spray gun, a normally closed reciprocally movable valve, a trigger, means movably carried by the trigger and operable to coact with the valve and impart opening movements thereto when the trigger is normally operated, and means coacting with said first means to move it relative to the trigger to release the valve when the trigger is moved forwardly a predetermined extent from normal operating position.

20. In a spray gun, a normally closed control valve, manually operable control means for the valve, means pivotally carried by said control means and actuated by valve opening movements of said control means to impart opening movements to the valve, and cam means for moving said pivotal means to disengage the valve upon a predetermined abnormal movement of the control means.

21. In a material discharge gun, a material valve, means acting on said valve to exert a predetermined closing pressure thereon, means manually operable to open the valve against said closing pressure, and means rendered operable by a predetermined valve opening movement of said manually operable means to counteract a portion of the closing pressure of said first means.

22. In a material discharge gun, a material valve, means acting on said valve to exert a predetermined closing pressure thereon, means manually operable to open the valve against said closing pressure, means operable to counteract a portion of the closing pressure of said first means, and means actuated by a valve opening movement of said manually operable means to render said last means active.

23. In a spray-gun, a material control valve, two pressure means each normally exerting a closing pressure on said valve, means operable to open the valve against said closing pressure, and means rendered operable by a predetermined valve opening movement of said operating means to counteract a portion of the valve closing pressure of said pressure means.

24. In a material discharge gun, a material control valve, two pressure means each normally exerting a closing pressure on said valve, means manually operable to open the valve against said closing pressure, means operable to counteract a predetermined portion of the closing pressure of said first means, and means actuated by a valve opening movement of said manually operable means to render said last means active.

WILLIAM P. CARR.
ROBERT W. TRACY.

DISCLAIMER

1,969,205.—William P. Carr and Robert W. Tracy, Toledo, Ohio. MATERIAL DISCHARGE GUN. Patent dated August 7, 1934. Disclaimer filed February 29, 1936, by the patentees, the assignee, The De Vilbiss Company, approving. Hereby enter this disclaimer to claims 1, 2, 3, 4, 5, 6, 21, and 22 of said patent. [Official Gazette March 17, 1936.]

sition, whereby to permit a removal of the spray head from the body member.

15. In a spray gun, a body, a spray head detachably carried thereby and having a normally closed reciprocally movable control valve the stem of which projects rearwardly from the spray head and is shouldered, a trigger movably carried by the body, a dog pivoted to the trigger and straddling the valve stem when the trigger is in normal operating position and adapted to coact with the stem shoulder to open the valve when the trigger is moved rearwardly from normal position, and means cooperating with the dog to move it to disengaged position with respect to the valve stem when the trigger is moved forwardly from normal position.

16. In a spray gun, a normally closed reciprocally movable material control valve having a shouldered stem, a trigger, a forked dog pivoted to the trigger and operable to engage the valve stem shoulder and open the valve when the trigger is moved rearwardly from normal position, and means coacting with the dog to move it relative to the trigger to inoperative position relative to the valve when the trigger is moved forward from normal position.

17. In a spray gun, a body, a spray head removably carried by the body and having a control valve with its stem projecting rearwardly from the head and shouldered, means acting to normally close the valve, a trigger pivoted to the body, and a dog of U-form pivoted at its leg portions to the trigger and having its web portion notched to straddle the valve stem and to coact with the stem shoulder to open the valve when the trigger is moved rearwardly from normal position, said dog and body having camming coaction to effect movement of the dog to released position with respect to the valve stem when the trigger is moved forward from normal position.

18. In a spray gun, a valve for the control of the material discharge, a control unit for the valve separable therefrom and mounted in and bodily removable as a unit from the gun and including a movable member spring actuated in one direction to have closing coaction with the valve and pneumatically operated in the opposite direction to relieve, a predetermined extent, the spring actuated valve closing pressure of the member, and means separate from said unit and coacting with and manually operable to open the valve.

19. In a spray gun, a normally closed reciprocally movable valve, a trigger, means movably carried by the trigger and operable to coact with the valve and impart opening movements thereto when the trigger is normally operated, and means coacting with said first means to move it relative to the trigger to release the valve when the trigger is moved forwardly a predetermined extent from normal operating position.

20. In a spray gun, a normally closed control valve, manually operable control means for the valve, means pivotally carried by said control means and actuated by valve opening movements of said control means to impart opening movements to the valve, and cam means for moving said pivotal means to disengage the valve upon a predetermined abnormal movement of the control means.

21. In a material discharge gun, a material valve, means acting on said valve to exert a predetermined closing pressure thereon, means manually operable to open the valve against said closing pressure, and means rendered operable by a predetermined valve opening movement of said manually operable means to counteract a portion of the closing pressure of said first means.

22. In a material discharge gun, a material valve, means acting on said valve to exert a predetermined closing pressure thereon, means manually operable to open the valve against said closing pressure, means operable to counteract a portion of the closing pressure of said first means, and means actuated by a valve opening movement of said manually operable means to render said last means active.

23. In a spray-gun, a material control valve, two pressure means each normally exerting a closing pressure on said valve, means operable to open the valve against said closing pressure, and means rendered operable by a predetermined valve opening movement of said operating means to counteract a portion of the valve closing pressure of said pressure means.

24. In a material discharge gun, a material control valve, two pressure means each normally exerting a closing pressure on said valve, means manually operable to open the valve against said closing pressure, means operable to counteract a predetermined portion of the closing pressure of said first means, and means actuated by a valve opening movement of said manually operable means to render said last means active.

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DISCLAIMER

1,969,205.—William P. Carr and Robert W. Tracy, Toledo, Ohio. MATERIAL DISCHARGE GUN. Patent dated August 7, 1934. Disclaimer filed February 29, 1936, by the patentees, the assignee, The De Vilbiss Company, approving. Hereby enter this disclaimer to claims 1, 2, 3, 4, 5, 6, 21, and 22 of said patent. [Official Gazette March 17, 1936.]