Aug. 17, 1965 J. R. GIBBS 3,201,048

MULTIPLE FLUID SPRAY GUN WITH REMOTELY OPERABLE SELECTIVE VALVE CONTROL

Filed April 19, 1963 2 Sheets-Sheet 1

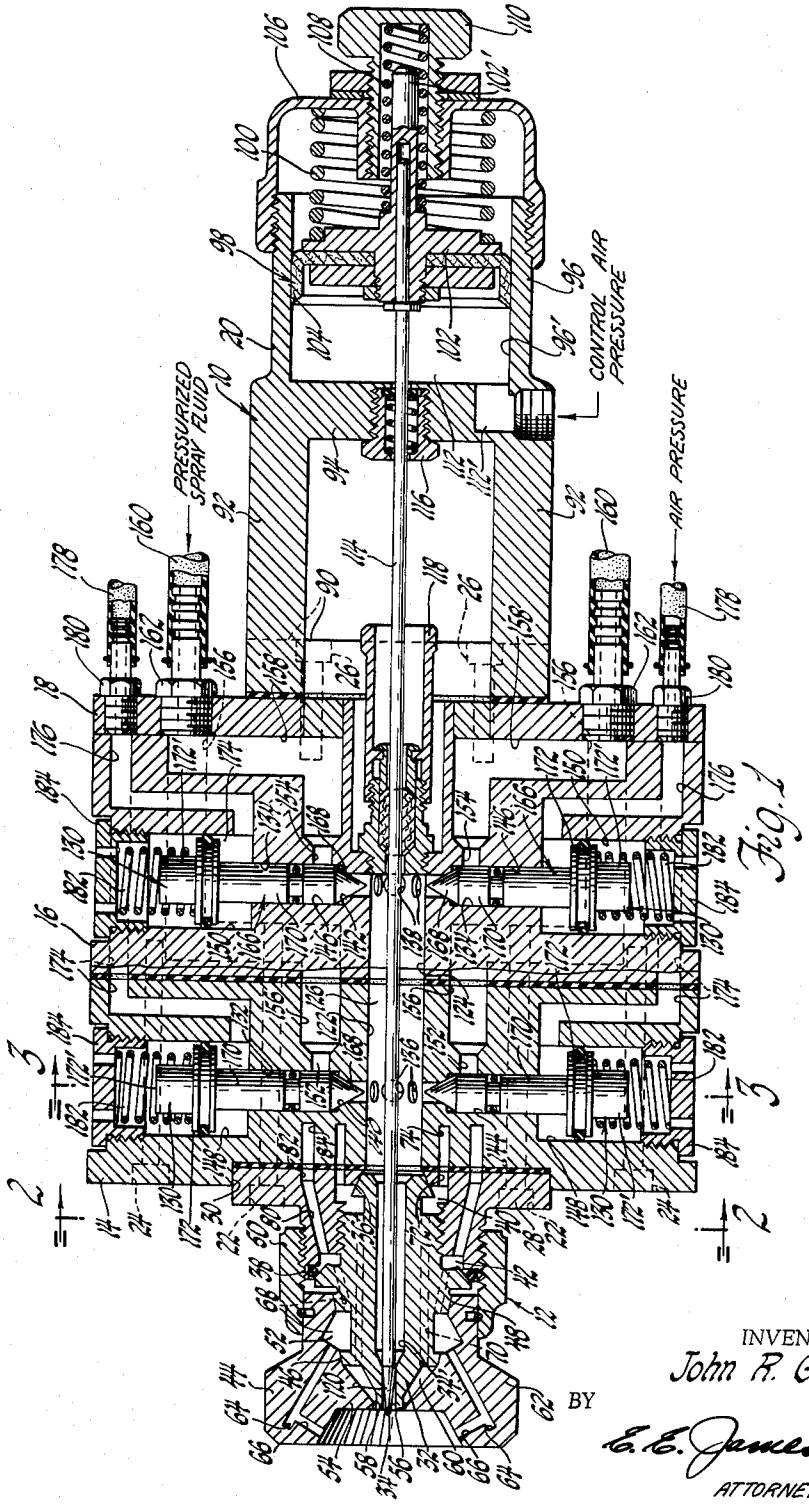

Fig. 1

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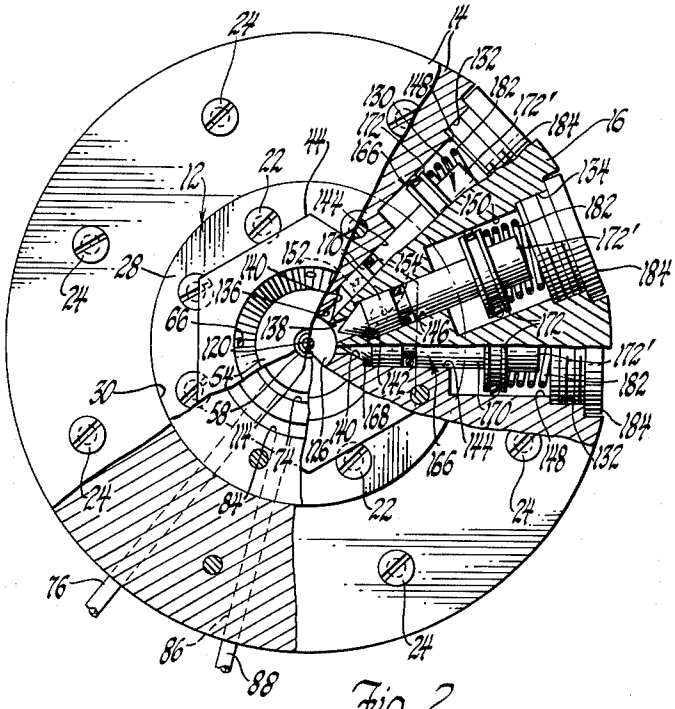

Fig. 2

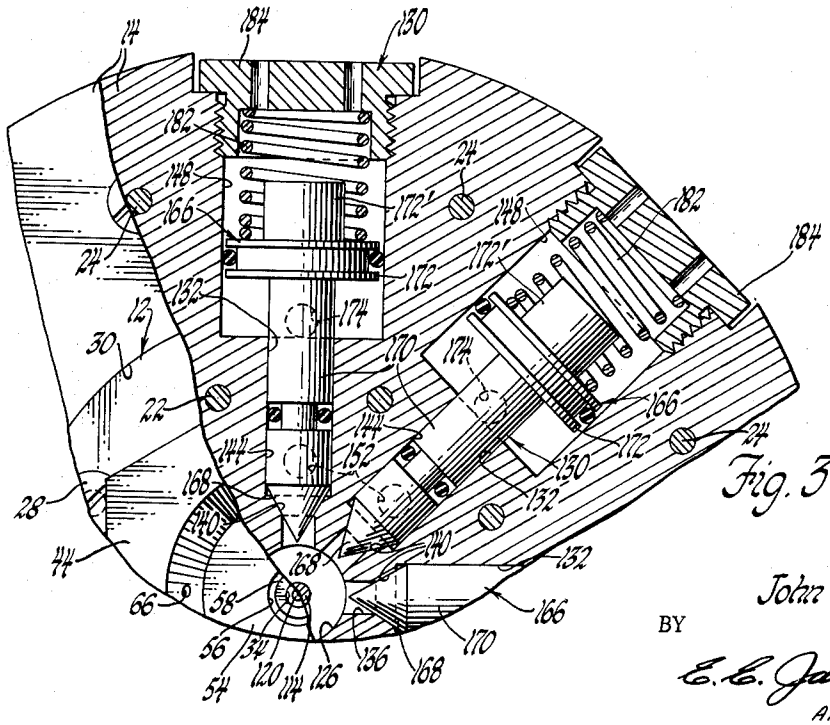

Fig. 3

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MULTIPLE FLUID SPRAY GUN WITH REMOTELY OPERABLE SELECTIVE VALVE CONTROL

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12 Claims. (Cl. 239—422)

This invention relates generally to spraying apparatus and systems and more particularly to a spray gun remotely and selectively operable to spray one of a plurality of fluids or liquids onto an adjacent workpiece.

In the past, hand-operated spray guns have been provided with divided multiple-fluid reservoirs selectively connectable to a spray nozzle through several manually operable valves. The limited quantity of fluid available from each reservoir and the related size of such hand guns have generally precluded their advantageous use in modern production applications.

In industrial installations, substantial fluid reservoir capacity is normally provided remotely from one or more spray booth stations. The fluid thus stored is pressurized for supply to the several spray stations. Fluid type or color is usually selected by manually attaching the valved connectors of alternative fluid supply lines to the fluid inlet of the spray gun. In certain installations, manually operable control valves have provided desired fluid selection, generally for the purpose of mixing several fluid paints to provide a desired paint shade or color. However, such control valves have limited fluid selection and/or require location of the control valve structure remotely of the spray gun. Precise color control has been difficult, if not impossible, to obtain with such color mixing spray guns.

Either the selective attachment of valved supply line connectors or operation of manual control valves requires the continuous presence and attention of an operator, introduces a fluid selecting time-delay interval between different workpieces, and is susceptible to operator error in selecting proper fluid type or color. With either of these alternative color selecting arrangements, substantial fluid loss is required to purge and clean the spray gun and its fluid supply connecting lines and passages upon changing the selected color or type of fluid between different workpieces or spraying operations. These factors have generally precluded satisfactory use of such spray guns in fully automatic high speed production spray equipment.

The instant invention broadly contemplates a remotely controlled, multiple-fluid supplied spray gun particularly adapted for use in fully automatic, high-speed spray equipment and selectively operable to change the color or type of a fluid plastic, paint or other coating material with minimum delay between workpieces. With regard to certain of its more specific aspects, the invention contemplates a multiple-fluid selecting spray gun having a remotely operable fluid selecting valve structure of compact, lightweight design requiring minimum fluid loss for gun purging purposes and permitting use in automatic spray equipment wherein the gun rapidly traverses a workpiece carried by a moving conveyor; the valve structure further providing a multiplicity of fluid supply selecting valves independently and remotely operable and capable of effectively sealing the several gun-supplied pressurized fluids to prevent undesired intermingling and contamination of the fluids selectively supplied to and sprayed from the spray gun nozzle.

An illustrative embodiment of the invention features a spray gun having a plurality of normally closed, air actuated fluid selecting valves. These valves are reciprocable radially of a gun body member and control several fluid

supply ports opening radially to a common central chamber of short axial dimension. This fluid supplied central chamber communicates with a spray atomizing nozzle having an orifice remotely controlled by an air actuated valve. The fluid selecting valves each includes a piston and valve member precision molded from a suitable plastic material such as Teflon. Each valve member is normally spring biased to a fluid supply sealing, closed position and selectively actuated to a fluid supplying, opened position by an air pressure signal applied to the piston portion thereof by selective operation of remote control console. The several valve assemblies thus provide selective control of the different gun-supplied coating fluids. To modify the consistency or "wetness" of the spray coating and to purge or clean the gun between different workpieces, one of the fluid selecting valve assemblies may be connected to a pressurized supply of a suitable thinner, solvent, or other vehicle.

The illustrative spray gun may be mounted on any standard spray machine and has particular utility in those spray machines having horizontal, vertical or compound gun movement, such as used to spray the roof, deck or side panels of an automotive vehicle body. Used with a control console having suitable memory circuits, a plurality of spray machines equipped with the spray guns of the invention can be scheduled to apply the proper coating and/or color sequence at a number of successive spray booth stations thus permitting completely automatic spraying control for each succeeding conveyor-carried workpiece during movement through the spray booth.

The foregoing and other objects, advantages and features of the invention will be apparent from the following description of the illustrative embodiment having reference to the accompanying drawings, in which:

FIGURE 1 is a longitudinal sectional view of a spray gun embodying the invention with certain portions slightly rotated for purposes of illustration;

FIGURE 2 is an elevational end view taken substantially in the direction of the arrows indicated at **2—2** of FIGURE 1, with portions broken away and sectioned to show several fluid selecting valve assemblies and their staggered radial mounting relative to the central nozzle chamber of the gun; and

FIGURE 3 is an enlarged fragmentary elevational view similar to a portion of FIGURE 2 with other portions broken away substantially in the plane indicated at **3—3** of FIGURE 1 to show several of the fluid selecting valves in greater detail.

Referring more particularly to the drawings, a spray gun embodying the invention is indicated generally by the reference numeral **10** and comprises an air and fluid nozzle assembly **12**, two intermediate fluid supply and valve body members **14** and **16**, a fluid supply connecting plate **18** and a cylinder defining end body member **20**. These several elements are coaxially aligned and suitably secured together in sealing engagement by bolts indicated at **22**, **24** and **26**. The nozzle assembly **12** is of a conventional design similar to that shown and described in United States Patents No. 2,249,771 issued July 22, 1941, to William B. MacMartin and entitled "Nozzle Structure for Spray Guns" and No. 2,266,365 issued December 16, 1941, to John Harrison et al., entitled "Automatically Operated Spraying System."

In the illustrative embodiment, the nozzle assembly includes a flanged nozzle mounting member **28** having a radial flange coaxially piloted and sealingly secured as shown within a mounting counterbore **30** formed in the adjacent valve body member **14**. A fluid nozzle member **32** having a central valve controlled orifice **34** is threadably mounted an annularly sealed at **36** and **38** within the mounting member **28** to form two axially spaced annular

chambers 40 and 42 therebetween. An air nozzle member 44 is mounted in sealing engagement at 46 and 48 with the fluid supply nozzle 32 by a snap ring retained coupling ring or nut 50 threadably secured to the cylindrical flange of the mounting member 28. The fluid and air nozzle members form an annular chamber 52 intermediate their sealing lands at 46 and 48. Depending upon the fluid coating and spray pattern desired, the inner radial flange 54 of the air nozzle member 44 may be formed to provide an annular air nozzle orifice 56 and an annular air nozzle chamber 60 embracing the tip 58 of the fluid nozzle member. The outer portion 62 of the air nozzle member projects axially beyond the fluid and air orifices defined by the tip 58 of the central nozzle member 32. This outer air nozzle portion has a plurality of obliquely extending passages 64 opening inwardly on the annular nozzle chamber 52 and intersected outwardly by air orifice passages 66 opening inwardly and obliquely of the outer nozzle portion 62 away from the central fluid and air orifices 34 and 56.

The central nozzle member 32 has a plurality of axially extending air supply passages 68 and 70. The passages 68 extend obliquely through the intermediate seal flange of member 32 between the annular chambers 42 and 52 and the passages 70 extend between the annular chambers 40 and 60. Pressurized air for the central air orifice 56 is supplied to the annular chamber 40 through ports 72 in the nozzle mounting member 28. These ports are connected through a mating annular recess 74 to a radial passage 76 formed in the adjacent end of the valve body member 14. The passage 76 is connectable at its outer end to a supply of pressurized air through operation of a suitable remote control console. The console controlled pressurized air thus supplied to the chamber 40 passes through chamber 60 and is emitted in a fluid atomizing stream from the central air orifice 56. The annular chamber 42 is similarly connected for pressurized air supply to the nozzle orifices 66 by passages 80 extending axially and obliquely to an annular recess 82 opening to the mounting face of the nozzle mounting member 28. The recess 82 is connected through a mating annular recess 84 to a second radial passage 86 formed in the adjacent end of the valve body member 14. The outer end 88 of the passage 86 is connectable to the pressurized air supply by suitable operation of the remote control console. The air thus supplied to the nozzle orifices 66 intersects and fans the atomized fluid spray emitting from the fluid and air orifices 34 and 56 and thus serves to provide the desired spray pattern for delivery to the workpiece.

As viewed in FIGURE 1, the end body member 20 has two oppositely extending flanges 90 secured by the screws 26 to the adjacent valve body member 16 and connector plate 18. Two diametrically spaced legs 92 interconnect and extend longitudinally from the flanges 90 to a transverse web or wall 94 defining a closed end of a cylinder 96 opening to the opposite end of member 20. A flexible gland or cup piston assembly 98 is reciprocably mounted in the bore 96' of the cylinder and cooperates with the end wall 94 to form an expansible motor chamber 112 therebetween. The piston 98 is normally biased toward the end wall 94 by a spring 100 compressively interposed between a flanged member 102 backing the gland 104 of the piston assembly and a spring seating cap 106 threadably secured on the open end of the cylinder defining body member 20. A second spring 108 embraces an axial extension 102' of the flanged piston member and is compressively interposed between a shoulder formed on the flanged piston member and a screw cap 110 threadably adjustable in the main spring seating cap 106. The spring 108 thus acts in parallel with the spring 100 to bias the piston assembly toward the closed end of the cylinder. The expansible chamber end of cylinder 96 has a port 112' connectable to the source of pressurized air by suitable operation of the remote control console.

Such selective supply of pressurized air to the chamber 112 actuates the piston 98 to the right from the position shown in FIGURE 1 against the biasing action of springs 100 and 108 until the piston extension 102' is carried into limiting engagement with the spring seating cap screw 110.

The flanged piston member 102 is secured to one end of a fluid orifice controlling needle valve 114. This needle valve extends axially of the spray gun and is reciprocably and sealingly supported intermediate its ends by an air pressure sealing gland 116 threadably mounted in the cylinder end wall 94 and a fluid pressure seal assembly 118 threadably supported in and extending longitudinally of a counterbore formed centrally of the intermediate valve body member 16. The other end of the needle valve member has a conically tapered valve portion 120 adapted to sealingly engage the fluid orifice of nozzle member 32. The intermediate valve body members 14 and 16 are centrally perforated at 122 and 124 and communicate with the central bore 34' of the fluid nozzle member to provide a central fluid supply chamber 126 spacedly embracing the needle valve intermediate the fluid seal 118 and the valve sealing fluid orifice 34.

In the absence of a console controlled supply of actuating air pressure to the expansible motor chamber 112, the needle valve is biased by the springs acting on the piston 98 to a closed position in fluid sealing engagement with the fluid nozzle orifice 34. Spray initiating operation of the control console sequentially supplies pressurized air to the air nozzle supply passages 76 and 86 and then regulates the supply of actuating air pressure to the expansible chamber. The needle valve is thus carried by the air actuated piston 98 to an opened position relative to the orifice 34. Such valve opening movement permits the pressurized coating fluid or liquid supplied to the central fluid chamber 126 to be sprayed from the fluid orifice 34 onto the adjacent workpiece with an appropriate air nozzle controlled spray dispersal pattern. Upon completion of the spraying operation, the control console is sequentially programmed to vent the expansible chamber 112 thus permitting spring biased return of the needle valve to its close position and then to disconnect the pressurized air supply from the air nozzle passages.

In accordance with the invention, the central chamber 126 is selectively connectable to a plurality of alternative remote reservoir supplies of pressurized coating fluids or liquids of different type or color. Such fluid supply is provided through the selective remote operation of a plurality of fluid supply selecting valves 130 which are reciprocably mounted for movement radially of the valve body members 14 and 16 between a normally closed position and a fluid supply connecting opened position. For the purpose of mounting the several valves, the valve body members 14 and 16 of the illustrative embodiment each have eight equiangularly spaced radial bores 132 and 134, respectively. These bores are of stepped diameter and terminate inwardly of their respective valve body members in radial ports 136 and 138 opening circumferentially into the central fluid supply chamber 126. In assembly, the valve mounting bores 132 and 134 of the valve body members 14 and 16 are angularly offset with respect to each other to accommodate the various air and fluid supply passages and the screws 22 and 24 extending therethrough. The valve mounting bores 132 and 134 are counterbored outwardly of their respective valve body members to provide frustoconical valve seats 140 and 142 immediately adjacent the inner radial ports 136 and 138, intermediate valve mounting counterbores 144 and 146, and relatively large diameter piston mounting counterbores 148 and 150, respectively.

The intermediate valve mounting counterbores 144 and 146 are respectively intersected by radial fluid supply ports 152 and 154 located slightly outwardly of the valve seats 140 and 142. The ports 152 and 154 are connected

through suitable passages 156 and 158 in the valve body members 14 and 16 to alternative fluid supply lines 160. The several fluid supply lines 160 are attached to the spray gun by fittings 162 threadably secured to the connector plate 18 in sealed axial alignment with the several passages 156 and 158. The distal ends of the several fluid supply lines 160 are connected to remote reservoirs for supply of pressurized spraying fluids of different types and colors. Where desirable to effect proper purging of the gun between different fluids and/or to control the wetting consistency and thickness of the sprayed fluid coating, a supply line connected to one of the valve mounting counterbores 146 in the valve body member 16 may be connected to a pressurized source of a suitable fluid solvent or thinner. The selectively supplied solvent or thinner is thus caused to pass longitudinally of the entire length of the central fluid chamber 118 between the fluid seal 118 and the fluid nozzle orifice 34. Proper purging of the central chamber and of the fluid orifice is thus assured prior to selective supply of the oncoming fluid type or color.

A combined valve and piston member 166 is reciprocably mounted in each of the several radially aligned counterbores 144, 148 and 146, 150 of the valve body members 14 and 16, respectively. These valve members are preferably precision molded of a suitable solvent impervious material, such as Teflon, having sealing resiliency and self-lubricating bearing properties. The valve members 166 each has a conical end portion 168; an intermediate diameter cylindrical shank and valve portion 170; a flanged piston portion 172; and a valve travel limiting end portion 172'. When mounted in aligned valve body counterbores, the conical end portion 168 of each valve member is sealingly engageable with the mating frustoconical valve seat 140 or 142 to close the adjacent radial port 136 or 138, respectively. The intermediate diameter cylindrical valve portion 170 slidably and sealingly engages the intermediate counterbore 144 or 146 to open and close the fluid supply port 152 or 154 opening thereto. The piston defining flange 172 of each valve member has a groove mounted O-ring seal which slidably and sealingly engages its valve body mounting counterbore 144 or 146.

Each O-ring sealed piston 172 cooperates with the closed inner end of its mounting counterbore and a second groove mounted O-ring seal carried by the intermediate shank portion 170 to define an expansible motor chamber therebetween. These expansible chambers are individually connected through passages 174 or 176 in the valve body members 14 and 16 to selectively supplied air pressure control lines 178. These air supply lines are attached to the spray gun by fittings 180 threaded in the connector plate 18 in sealed axial alignment with the adjacent ends of the several expansible chambers connected passages 174 and 176. The distal ends of the several air pressure supply lines 178 are selectively connectable to the pressurized air supply by appropriate fluid selecting operation of the remote control console.

The valve members 166 are normally maintained in their fluid supply sealing, closed positions by springs 182. Each spring 182 is compressively interposed between the piston flange of its respective valve member and a perforated spring seating cap 184 threadably secured in the outer end of its respective piston mounting counterbore. A console selected supply of air pressure to any one of the air supply lines 178, when applied to its connected expansible chamber, actuates the associated valve and piston member 166 radially outwardly against the biasing action of its return spring 182 into limiting engagement between its outer end portion 172' and its return spring seating cap 184. Such valve opening movement interconnects its associated valve supply port 152 or 154 and the adjacent radial valve port 136 or 138, thereby supplying the selected fluid type or color to the central chamber 126 for needle valve controlled spraying through the fluid nozzle orifice 34.

As indicated above, the spray gun 10 is adapted to be mounted on a spray gun mounting machine or station and carried thereby transversely of a conveyor carried workpiece such as a vehicle body panel. A spray gun mounting machine of the type indicated is shown and described in United States Patent No. 2,955,568 issued to William G. Blenman et al. on October 11, 1960, and entitled "Paint Spraying Apparatus." In such a production application, the several air and fluid supply lines connected to the spray gun are preferably formed of a translucent flexible plastic, such as nylon, which is impervious to the fluid solvent. The use of such translucent tubing facilitates inspection of the spray gun for the purpose of detecting a failure of either a supply selecting valve or its O-ring seal. The conveyor coordinated timing of the remote console to provide appropriate nozzle air and pressure actuating signals for control of the fluid selecting valves and the fluid orifice controlling needle valve member may be provided by timing controls of the type shown and described in copending United States patent application Serial No. 362,026, filed April 23, 1964, in the names of William G. Blenman and Wendell R. Johnson and entitled "Adjustable Control Mechanism."

In operation, the spray gun 10 may be purged between workpieces by programmed remote air pressure actuation of one of the fluid supply selecting valves 166, thereby supplying either solvent or the desired oncoming fluid to the central fluid supply chamber, with a simultaneous or subsequent brief period of air pressure actuation of the needle valve to its fluid orifice opening position. As the next workpiece approaches the spray gun mounting machine or station, the fluid selecting valve of the desired oncoming fluid is actuated or remains actuated to its opened position and thus supplies the desired fluid to the central chamber 126.

As the conveyor carried workpiece reaches a given position proximate the spray gun, a console and conveyor coordinated air pressure signal is supplied to the needle valve actuating chamber 112 and acts to shift the needle valve to its fluid orifice opening position. Thereafter, the relative movement provided between the conveyor carried workpiece and the spray gun mounting machine cooperate and assure proper spraying of the workpiece, the spray pattern for a given fluid coating sequence being controlled by the console controlled supply of air to the annular air orifice 56 and to the several fan orifice passages 66. When the workpiece reaches a second position relative to the spray gun indicating completion of the spraying operation, the conveyor coordinated console sequentially vents the needle valve and fluid supply selecting valve expansible chambers to close these valve members.

From the foregoing description, it will be seen that the illustrative embodiment provides a multiple-fluid selecting spray gun of relatively simple, compact, lightweight design capable of providing the several stated objectives and advantages of the invention. It will be further apparent that various modifications and changes might be made in and from the disclosed embodiment without departing from the spirit and scope of the invention as defined in the following claims.

I claim:

1. In spray apparatus having a valve controlled fluid nozzle, a body member having a fluid supply chamber communicating with said nozzle, a plurality of radially disposed valve chambers opening through valve seating ports to said fluid supply chamber, and a plurality of passages connectable to alternate supplies of pressurized fluid coating material and each of said passages opening through a valve controlled port to a different one of the valve chambers adjacent the valve seating port, valve means including a valve member reciprocably mounted in each valve chamber and shiftable between a seated port closing position and an opened port interconnecting posi-

tion, and means for selectively actuating each of said valve members between their opened and closed positions thereby selecting the fluid material supplied through said fluid supply chamber and sprayed from said nozzle.

2. In a spray gun having a fluid nozzle controllable by a valve member shiftable between opened and closed positions, a valve body member having a central chamber communicating with said nozzle, a plurality of valve chambers disposed radially of the central chamber and opening thereto through angularly spaced valve seating ports, and a plurality of passages each connectable to a different supply of pressurized fluid coating material and terminating in a valve controlled port opening to a different one of the valve chambers in closely spaced relation to the valve seating port therein, valve means including a valve member reciprocably and sealingly mounted in each of said valve chambers and shiftable between a normally closed position sealing both the valve seating and fluid supply ports and an opened position interconnecting said ports, and means selectively operable to actuate each of said valve members between its opened and closed positions thereby selecting the fluid material supplied to said nozzle through said control chamber.

3. In a spray gun as set forth in claim 2, said selectively operable means including means for normally biasing each of said valve members to its closed position, fluid pressure means independently operable to shift each of said valve members to its fluid supply opened position in response to an air pressure control signal supplied thereto, and means for supplying a selective valve actuating air pressure control signal to each of said fluid pressure means.

4. In a spray gun having a valve controlled fluid nozzle means, body means defining a central fluid supply chamber communicating with said nozzle means, a plurality of valve mounting chambers disposed radially of the central chamber and connectable thereto through angularly spaced radial valve seating ports opening circumferentially of the central chamber, and a plurality of fluid supply ports each opening to a different one of the valve mounting chambers in closely spaced normal relation to the valve seating port therein, passage means for connecting each of said fluid supply ports to a different supply of pressurized fluid coating material, valve means including a valve member mounted in each of said valve chambers and shiftable between a normally closed seated position sealing both the radial and fluid supply ports thereto and an opened position interconnecting said ports, and means for remotely and selectively actuating each of said valve members to its opened position thereby selecting the fluid material supplied through said central chamber and sprayed from said nozzle means.

5. In a spray gun as set forth in claim 4, said valve actuating means including fluid pressure means independently operable to shift each of said valve members to its fluid supply opened position in response to an air pressure control signal supplied thereto, and means for supplying a selective valve actuating air pressure control signal to each of said fluid pressure means.

6. In a spray gun having a valve controlled fluid nozzle means, body means defining a central fluid supply chamber of short axial dimension communicating coaxially with said nozzle, means defining a plurality of angularly spaced radial valve chambers each having a radial valve seating port opening to said fluid supply chamber and having a valve controlled fluid supply port opening normally thereto in closely spaced relation to the valve seating port, passage means for connecting each of said fluid supply ports to an alternative supply of different pressurized fluid coating material, valve means including a valve member mounted in each valve chamber and shiftable between a seated port closing position and an opened position interconnecting the spaced ports of its mounting chamber, and means for independently and remotely actuating said valve members between their opened and closed positions to select the fluid material supplied through said fluid supply chamber and sprayed from said nozzle means.

7. In a spray gun as set forth in claim 6, said valve actuating means including means normally biasing each valve member to its closed position, fluid pressure motor means independently operable to shift each valve member to its opened position in opposition to its biasing means, and means for supplying a selective valve actuating air pressure control signal from a remote air pressure source to each of said fluid pressure motor means.

8. In a spray gun having a fluid nozzle controlled by a valve shiftable between a normally closed position and an opened fluid spraying position, body means defining a short fluid supply chamber communicating axially with said nozzle, means defining a plurality of angularly spaced bores opening radially to the central fluid supply chamber, each of said bores being counterbored radially outwardly to provide an inner valve seating port, an intermediate counterbore having a fluid supply port normal to and closely spaced from its valve seating port, and an outer counterbore having an air supply port opening to its inner end, a valve member reciprocably mounted in each of the several radially aligned counterbores and comprising an intermediate valve portion slidable in the intermediate counterbore to open and close the fluid supply port opening thereto, a conical valve end portion sealingly engageable with the valve seating radial port, and a piston portion slidable in the outer counterbore and forming an expansible chamber motor with the inner end thereof, spring means for normaly biasing each valve member into fluid sealing engagement with its valve seating port, fluid passage means connecting each of said valve controlled fluid supply ports to a different supply of pressurized fluid material, and air supply means selectively connectable to supply air pressure control signals to each of the air supply ports opening to the expansible chamber ends of the piston mounting counterbores, the selective supply of an air pressure control signal to the expansible chamber defined between any one piston and its mounting counterbore being operable to actuate the valve member outwardly against the biasing action of its associated spring means thereby sequentially opening its valve seating radial port and the fluid supply port controlled thereby.

9. In spray apparatus having a valve controlled nozzle and a short fluid supply chamber communicating with the nozzle, means defining a plurality of angularly spaced bores each extending radially of the fluid supply chamber and being counterbored outwardly to provide an inner valve seating port opening radially to the fluid chamber, an intermediate counterbore having a fluid supply port spaced from its valve seating port, and an outer counterbore having an air supply port opening to its inner end, fluid passage means connecting each of said fluid supply ports to a different supply of pressurized fluid, air supply means selectively connectable to supply air pressure control signals to each of said air supply ports, a valve member reciprocably mounted in each of said radial bores and comprising a conical valve end portion sealingly engageable with the valve seating radial port, an intermediate valve portion slidable in the intermediate counterbore to open and close the fluid supply port opening thereto, and a piston portion slidable in the outer counterbore and forming an expansible chamber motor with the inner end thereof, and spring means for normally biasing each valve member into sealing engagement with its valve seating radial port, the selective supply of an air pressure control signal to the expansible chamber defined between the piston portion of any one valve member and the closed inner end of its mounting counterbore being operable to actuate the valve member outwardly against the biasing action of its associated spring means thereby sequentially opening its valve seating radial port and the fluid supply port controlled thereby.

10. In spray apparatus having a fluid nozzle and a

fluid supply chamber communicating with said nozzle, primary valve means including a valve member shiftable between a closed nozzle sealing position an an opened nozzle spraying position in response to a control signal remotely supplied thereto, a plurality of secondary valve means disposed radially of said fluid supply chamber and each including a valve member shiftable radially of said fluid supply chamber in response to a control signal remotely supplied thereto between a closed position and an opened fluid supply connecting position, a plurality of passage means connectable to supply alternative pressurized fluid coating materials selectively through each secondary valve means to said fluid supply chamber, and means for selectively and remotely supplying a control signal to each of said valve means thereby actuating said valve members between their opened and closed positions to select the pressurized fluid material supplied to said fluid supply chamber and to control the spraying operation from said nozzle.

11. In a spray gun as set forth in claim 10, said valve means each further including means for normally biasing their respective valve members to its closed position and fluid pressure means operable to shift each of said valve members to its opened position in response to an air pressure control signal supplied thereto, and said control signal supplying means being operable to selectively supply an air pressure control signal to each of said valve actuating fluid pressure means.

12. In a spray gun having a fluid nozzle and a supply chamber communicating with said nozzle, primary valve means including a valve member shiftable between a closed nozzle sealing position and an opened nozzle spraying position in response to a control signal remotely supplied thereto, a plurality of passage means for supplying alternative pressurized fluid coating materials to said fluid supply chamber, a plurality of secondary valve means operable to selectively control the supply of pressurized fluid material through each of said passage means, said secondary valve means each including a valve member shiftable radially outwardly with respect to the fluid supply chamber between a closed position and an opened fluid supply connecting position, means for normally maintaining the secondary valve member in its closed position and operable to shift the secondary valve member to its opened position in response to control signal supplied thereto, and means for selectively and remotely supplying an actuating control signal to each of said valve operating means thereby selectively actuating said valve members between their opened and closed positions to select the pressurized fluid material supplied to said fluid supply chamber and to control the spraying operation from said nozzle.

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