Feb. 6, 1934. J. M. CHRISTMAN 1,945,730

PAINTING INSTRUMENT

Filed March 23, 1928

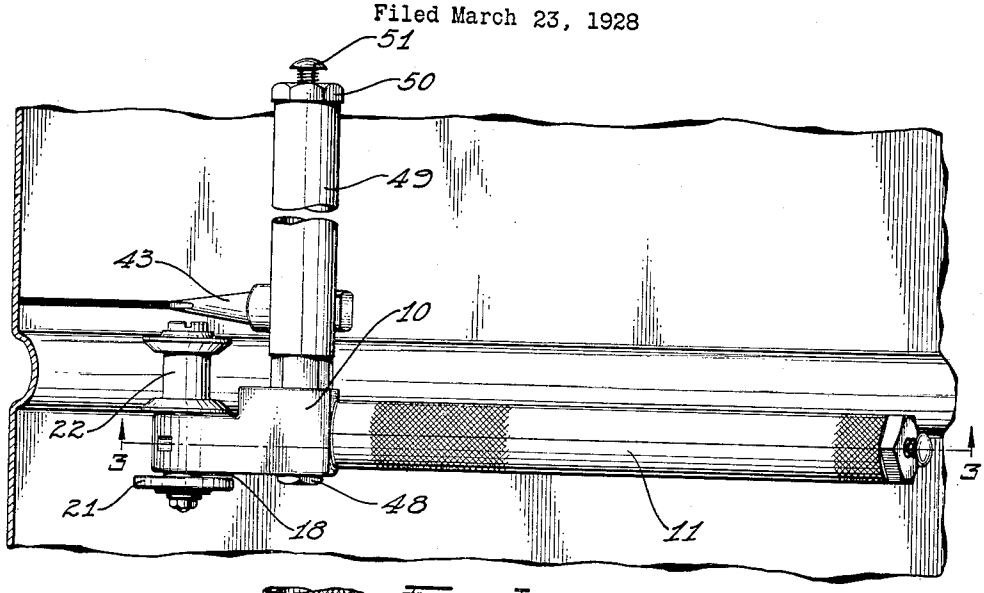


FIG. 1

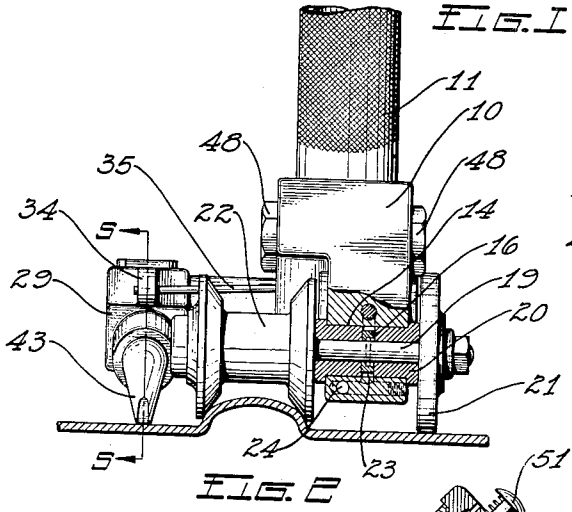


FIG. 2

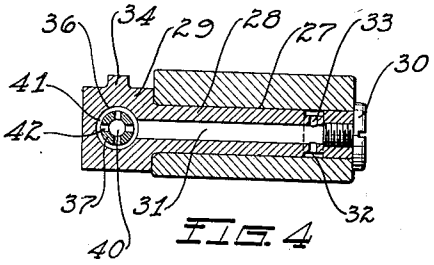


FIG. 4

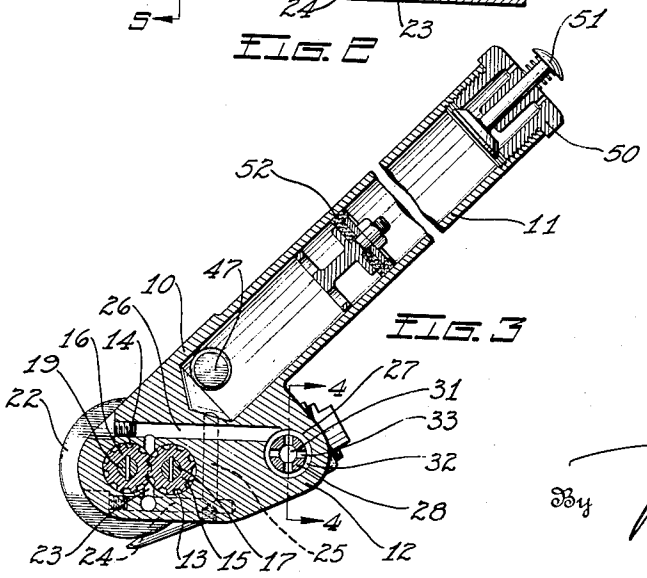


FIG. 3

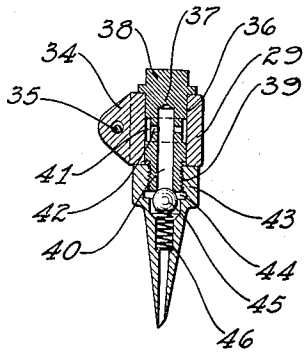


FIG. 5

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PAINTING INSTRUMENT

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18 Claims. (Cl. 91—62.6)

This invention relates to painting instruments and more particularly to a striping instrument.

An object of the invention is to provide an instrument for painting stripes on plain or curved surfaces.

Another object of the invention is to provide an instrument for painting stripes of uniform width throughout their length.

Another object of the invention is to provide a striping instrument adaptable for use in various positions; that is, for painting vertical, horizontal or inclined stripes.

Yet another object of the invention is to provide a striping instrument having an automatic feeding means operated by the movement of the instrument over the surface to be striped.

A further object of the invention is to provide a striping instrument having a guide arranged for coaction with a molding and a feeding means operated thereby for feeding paint with a uniform flow.

A further object of the invention is to provide a striping instrument having a container for liquid paint and means connected therewith for feeding the paint through a nozzle in a predetermined and constant flow.

A further object of the invention is to provide a striping instrument having a hollow handle for the reception of liquid paint and means connected therewith for automatically feeding the paint through a nozzle as the instrument is moved over a surface to be striped.

Yet a further object of the invention is to provide a striping instrument having an oscillatory nozzle provided with means for regulating the flow therethrough and for closing the nozzle when the flow ceases.

Still a further object of the invention is to provide an instrument for painting stripes of uniform width, an instrument which is positive in action, highly efficient in operation and yet of marked simplicity as a whole and in respect to each of its component parts, so that its manufacture may be economically facilitated both as regards to parts and their assembly.

Other objects of the invention will appear from the following description taken in connection with the accompanying drawing which forms a part of the specification and in which:

Figure 1 is a plan view of a portion of a panel illustrating the instrument in use,

Figure 2 is a front elevation of the instrument, partly in section,

Figure 3 is a longitudinal sectional view taken on line 3—3, Fig. 1,

Figure 4 is a cross sectional view taken on line 4—4, Fig. 3, and

Figure 5 is a sectional view taken on line 5—5, Fig. 2.

Referring to the drawing for more specific details of the invention, 10 represents a body portion comprising a solid mass having formed integral therewith a hollow cylindrical handle 11. As shown, the body portion is substantially V-shaped with the handle extending therefrom parallel to one leg and the other leg is curved upwardly to meet the handle and to provide a heel portion 12.

The body portion has parallel overlapping transverse bores 13 and 14 in which are mounted corresponding intermeshing gears 15 and 16. The gear 15 is keyed upon a spindle 17 journaled in suitable bearings 18 fitted in the respective ends of the bore 13, and the gear 16 is keyed upon a spindle 19 journaled in sleeve bearings 20 fitted in the bore 14. The spindle 19 extends through the bore 14 and projects from the resective sides of the body portion. This spindle is provided upon one end with a wheel 21 and upon the other end with a guide roller 22. These guide members not only serve to maintain the instrument in position but in addition thereto provide an efficient driving means for the gears 15 and 16 which are positioned in and are a part of a feeding means to be hereinafter described.

The feeding means comprises a passage or passages connecting the bores 13 and 14 with the hollow handle 11. As shown, the body portion is provided with a bore 23 intersecting the overlapping portions of the bores 13 and 14 and normal to the axis thereof; hence, the bore 23 is in the path of the intermeshing gears 15 and 16. The lower end of the bore 23 connects with a bore 24 which is normal to the bore 23 and extends rearwardly therefrom and the bore 24 is connected by a bore 25 to the interior of the handle, each of these bores being provided with cleanout plugs. The upper end of the bore 23 connects with a rearwardly extending bore 26 which, in turn, connects with a bore 27 extending transversely through the body portion.

The transverse bore 27 has mounted therein for oscillation a shaft 28 having upon one end an enlarged portion 29 bearing upon the side of the body portion and threaded into the other end of the shaft is a screw 30 for retaining the shaft in position. The shaft 28 is centrally bored as indicated at 31 and is provided with a circumferential groove 32 positioned to register with

the bore 26 and this groove communicates with the bore 31 by means of a plurality of radial bores 33. The enlarged portion 29 has a lug 34 to which is attached one end of a spring 35, the other end of which is secured in the side of the body portion, the purpose of which is to limit the oscillatory movement of the shaft and to retain in position the nozzle to be hereinafter described. Extending through the enlarged portion 29 is a transverse bore 36 fitted into which is a plug 37 having upon one end a head 38 and threaded upon its other end as indicated at 39. This plug has an axial bore 40 and a circumferential groove 41. The groove 41 communicates with the bore 40 by way of radial bores 42 and the groove 41 communicates with the bore 31 in the shaft 28. Mounted upon the threaded end portion 39 of the plug is a nozzle 43 having therein a recess 44 in which is positioned a ball 45 urged by a spring 46 to normally close the bore 40, the advantage of which will hereinafter appear.

The body 10 has oppositely disposed transverse bores 47, each communicating with the interior of the hollow handle 11. These bores are normally fitted with suitable plugs 48, each removable and replaceable by a container or barrel 49 shown attached in Fig. 1. Both the barrel 49 and the handle 11 have a cap 50 provided with a suitable spring loaded valve 51 for the purpose of venting the barrel. The pressure on the spring loaded valve is such that the valve will readily open to vent the barrel when paint is being drawn therefrom. The barrel 49 and the handle 11 are each provided with a follower 52, shown in section in the handle 11. This follower is by no means essential but is useful when the specific gravity of the paint is such that an additional weight will increase the flow thereof and retain the paint at the delivery end of the containers. The barrel 49 is changeable from one side of the instrument to the other so that the instrument may be made adaptable for either right or left hand use. This barrel is more particularly adapted for use in laying horizontal stripes or stripes in other positions in which paint would not feed properly from the handle owing to the position in which the instrument is held.

In operation, liquid paint is placed in the hollow handle 11 or the barrel 49 according to the use of the instrument and the position in which it is to be held for the particular work to be performed. The follower 52 is then placed in the handle or the barrel as the case may be, though such devices are by no means essential; they have been found desirable in the use of paints of various consistencies and specific gravity. The cap 50 is then threaded into the end of the handle or barrel and thereupon the instrument is ready for use.

When the instrument is adjusted to the work, the guide wheel 21 and guide spool 22 engage the surface of the object to be striped. When in this position the nozzle 43 is yieldingly held against the surface to be striped by means of the spring 35. In this position the instrument is drawn over the surface to be striped and as it moves the guide wheel 21, or as shown, the guide wheel 21 and the guide roller 22, rotate and thereby operate the feeding mechanism to draw the paint from the barrel or interior of the handle, as the case may be, through the passages in the body portion to the overlapping portions of the transverse bores in which the gears are positioned; here the paint is taken up by the gears and forced through passages leading to and through the oscillatory shaft 28 and the nozzle 43 past the spring pressed ball 45. When movement of the instrument ceases the gears driven by the guide members 21 and 22 stop, the pressure on the paint caused by these gears ceases and thereupon the ball 45 immediately closes the nozzle, hence, effectually stopping further flow of paint from the instrument. In this manner a measured or metered flow of paint is secured, the volume of which is constant for a given area of work.

By reason of the fact that the end of the nozzle is positioned substantially in a transverse line with the point of contact of the guide roller 22 with its guide, a stripe may be formed to a point immediately adjacent the end of the molding or other guide on which the roller operates.

Although this invention has been described in combination with certain specific embodiments the principles involved are susceptible of numerous other applications as will readily occur to persons skilled in the art. The invention is, therefore, to be limited only as indicated by the scope of the appended claims.

Having thus described the various features of my invention, what I claim as new and desire to secure by Letters Patent is:

1. A painting instrument comprising a body portion, a hollow handle integral therewith, a pumping means positioned in the body portion and connected with the interior of the handle, an oscillatory nozzle on the body portion connected with the pumping means, a guide for the instrument and means connecting the guide and the pumping means for operating the pumping means.

2. A painting instrument comprising a body, an oscillatory shaft extending from the side of the body, a nozzle fixed to the shaft with the outlet end adapted to bear against a surface to be painted, the shaft having an axial bore and a circumferential groove communicating with the axial bore by radial bores, the nozzle having an axial bore and a circumferential groove communicating therewith by radial bores with the groove in the nozzle registering with the axial bore in the shaft, and a spring pressed means for normally closing the nozzle.

3. A painting instrument comprising a body portion having a transverse bore, a roller on the body, a shaft rotatably mounted in the bore, the shaft having an axial bore and a diametral bore, a two part nozzle fixed in the diametral shaft bore, the nozzle communicating with the axial bore in the shaft and the outlet end thereof adapted to be held in contact with the surface to be painted, and means for normally closing the nozzle.

4. A painting instrument comprising a body portion having a transverse bore, an oscillatory shaft in the bore, the shaft having an axial bore and a diametral bore communicating therewith, a two part nozzle fixed in the diametral shaft bore, the nozzle communicating with the axial bore in the shaft, and a valve adapted to close the nozzle.

5. A painting instrument comprising a body portion having a transverse bore, a shaft mounted for oscillation in the transverse bore, the shaft having an axial bore and a diametral bore communicating with the axial bore, a two part nozzle adjustably positioned in the diametral bore, the nozzle having an axial bore and a circumferential groove communicating therewith

through radial bores and with the axial bore in the shaft, the nozzle having a recess, a spring pressed ball in the recess adapted to normally close the nozzle and means for yieldingly retaining the nozzle in position.

6. A painting instrument comprising a handle part, a guide roller thereon, and a nozzle, independently movable of the guide roller, supported on the handle part and spring pressed toward the surface operated upon.

7. A striping instrument comprising a body, a paint container therefor, a guide roller mounted on the body, an extension on the body and a nozzle mounted on the extension in spaced relationship laterally to the body, said nozzle applying paint directly upon the surface traversed.

8. In a painting instrument of the type in which a guide roller is employed, a nozzle adapted to resiliently engage the work and a second roller to determine the position of the nozzle with reference to the work.

9. In a hand painting instrument, a paint containing body, a nozzle therefor having its outlet end adapted to contact with the surface to be painted, a guide roller on the body in spaced relation laterally of the nozzle discharge end and spacing the body from the work, and a second roller in laterally spaced relation from the side of the first roller remote from the nozzle.

10. In an instrument for striping a surface having a raised portion, a paint containing body, a paint distributing means on the body and a guide, shaped to corform to the raised portion, to aid in distributing the liquid, said guide and distributing means being spaced laterally of the body.

11. A striping instrument comprising a container, a body fixed thereto, a roller engaged on the body to act as a support for said body and container, and a nozzle resiliently and movably engaged on the body to cause engagement of the nozzle with the work while the roller is engaged therewith.

12. In a paint dispensing instrument for applying an ornamental stripe to surfaces, a body, a pump in the body, a paint container associated with the body and communicating with the pump, roller means associated with the body and adapted to roll upon the surface to be striped, a movably mounted tubular nozzle communicating with the pump and extending from the body at an oblique angle to the surface of the work, the outlet end of said nozzle being adapted to be held in contact with the surface during the striping operation substantially in line with the axis of the roller means, and a positive driving mechanism between the roller means and the pump, said pump exuding a paint ribbon from the nozzle outlet opening directly upon the surface traversed of a uniform width and thickness throughout its length of application irrespective of the rate of movement of the instrument.

13. In a paint dispensing instrument for applying a finish stripe to surfaces, a body, a pump in the body, a paint container associated with the body and communicating with the pump, a pair of spaced rollers associated with the body adapted to roll upon the surface to be striped, a nozzle having its outlet end adapted to bear at least partially against the surface to be striped when the rollers engage the same and communicating with the pump, said nozzle being pivotally associated with the body to allow relative movement in line with the direction of the instrument movement, and driving means between one of the rollers and the pump, said instrument discharging a paint ribbon from the nozzle upon the surface traversed of uniform width and thickness irrespective of the rate of its movement or the relative movement of the nozzle and body.

14. In a paint dispensing instrument for applying a finish stripe to surfaces, a body, a pump in the body, a paint container associated with the body and communicating with the pump, roller means associated with the body and adapted to roll upon the surface to be striped, a nozzle having its outlet end adapted to bear at least partially against the surface over which the instrument is moved, said nozzle being pivotally associated with the body to allow relative movement in line with the direction of the instrument movement, resilient means associated with the nozzle and body to hold the nozzle outlet end in engagement with the surface to be striped against which the roller means engages irrespective of the body tilting or uneven surfaces, and driving means between the roller means and the pump, said instrument discharging a paint ribbon upon the surface traversed from the nozzle outlet.

15. An instrument adapted to stripe a surface while held in the hand of an operator comprising a body, a hollow paint containing handle associated with the body, a pump in the body communicating with the interior of the handle, a spring pressed nozzle pivotally carried by the body and communicating with the pump, the outlet end of the nozzle being normally engageable with the surface to be striped, and body supporting roller means adapted to be rotated on the surface to be striped and connected to actuate the pump when operated, said pump moving a stream of paint through the nozzle outlet from which it is deposited upon a surface traversed at a rate commensurate with the rate of movement of the instrument.

16. An instrument for applying a stripe on a surface having portions in two planes comprising a fluid carrying means including a handle portion adapted to be grasped in the hand of an operator, a nozzle associated with the fluid carrying means, said nozzle extending beyond the one wall of said means and having an outlet end adapted to bear against the surface to be striped, and a supporting guide roller associated with the fluid carrying means in spaced relation laterally of the nozzle, said roller being adapted to be held against and moved along one of the planes of the surface to be striped and the nozzle outlet end bearing against the surface in the other plane, the relation of the handle portion and the nozzle outlet end being such that the position of the handle portion can be varied angularly in the direction of the instrument movement without materially changing the spaced bearing relation of the nozzle outlet with respect to the guiding portion of the surface being striped.

17. A striping instrument comprising a body portion, a paint container fixed to the body portion, a pumping means positioned in the body portion and communicating with the interior of the container, a pivotally mounted nozzle carried by the body portion communicating with the pumping means, a guide for the instrument, and means connecting the guide and the pumping means for operating the pumping means.

18. In a paint dispensing instrument for applying a finish stripe to surfaces, a body, a pump in the body, a paint container associated with the body and communicating with the pump, a roller associated with the body adapted to bear against the surface to be striped, a nozzle hav-

ing its outlet end adapted to bear at least partially against the surface to be striped when the roller engages the same and communicating with the pump, said nozzle being pivotally associated with the body to allow relative movement in line with the direction of the instrument movement, and driving means between the roller and the pump, said instrument discharging from the nozzle a paint ribbon upon the surface traversed of uniform width and thickness irrespective of the rate of its movement or the relative movement of the nozzle and body.

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