May 17, 1932. J. M. CHRISTMAN 1,858,984

STRIPING INSTRUMENT

Filed April 24, 1928

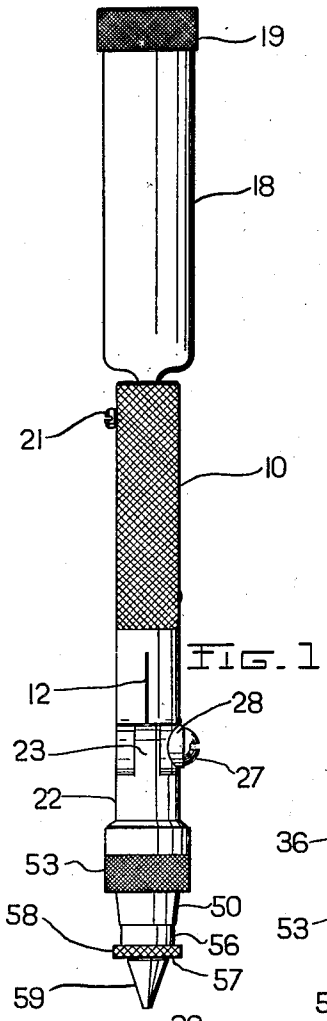


FIG. 1

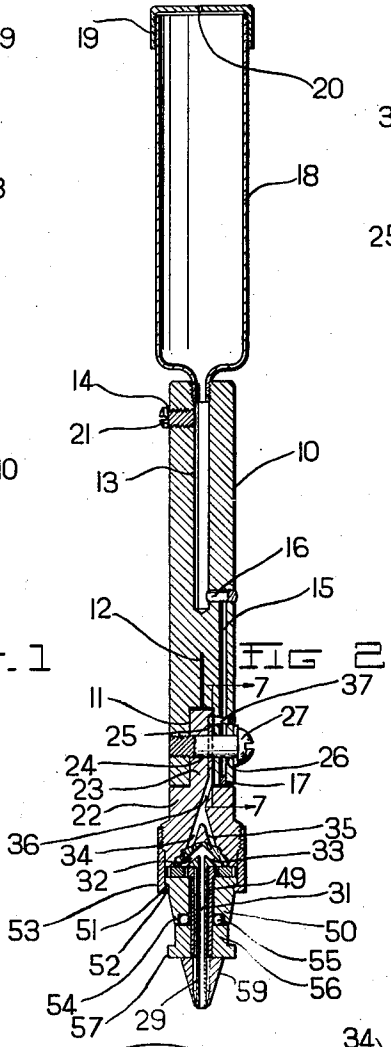


FIG. 2

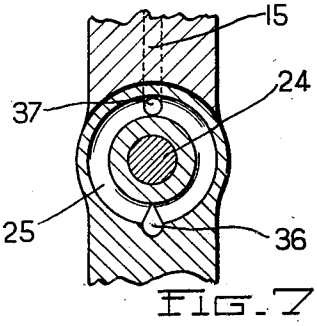


FIG. 7

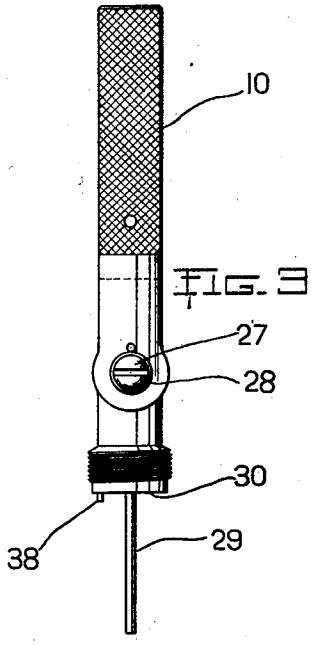


FIG. 3

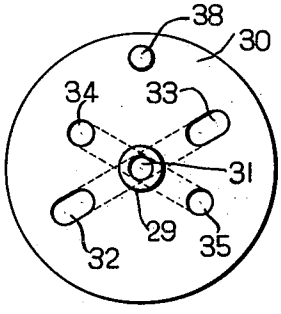


FIG. 4

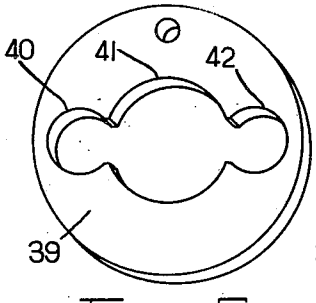


FIG. 5

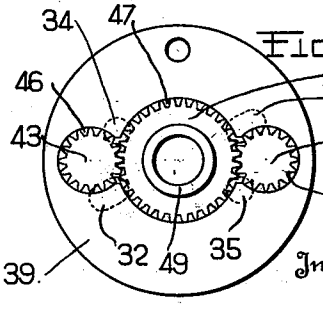


FIG. 6

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UNITED STATES PATENT OFFICE

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STRIPING INSTRUMENT

Application filed April 24, 1928. Serial No. 272,384.

The present invention relates to striping instruments and is especially applicable to instruments for striping panels or work of a similar character in which a pattern or guide is employed.

An object of the invention is to provide an instrument for painting a stripe of uniform width.

Another object of the invention is to provide an instrument for painting stripes so constructed and arranged that the point or nozzle thereof may be adjusted in various positions.

Another object of the invention is to provide a striping instrument having a pivoted nozzle provided with a guide member.

Another object of the invention is to provide a striping instrument comprising a reservoir, a nozzle and means intermediate the reservoir and the nozzle for metering a fluid from the reservoir through the nozzle at a rate commensurate with the rate of movement of the instrument over the surface to be striped.

A further object of the invention is to provide a striping instrument having a handle and a reservoir supported thereby, the reservoir being adaptable for connection with the handle in different positions, that is, in axial alinement with the handle and normal to the axis thereof so that fluid may be fed by gravity from the reservoir to the handle regardless of the position in which the instrument is held.

A further object of the invention is to provide a nozzle for a striping instrument having positioned therein a feeding means actuated by a rotatable member positioned adjacent the discharge end of the nozzle.

A still further object of the invention is to provide a striping instrument having a pivoted nozzle provided with means for regulating the flow of a fluid through the nozzle and means associated with the nozzle for actuating the regulating means to control the flow at a rate proportional to the rate of movement of the instrument.

Further objects of the invention will appear in the following description taken in connection with the drawings, which form part of this specification, and in which:

Figure 1 is a side elevation of a striping instrument embodying my invention,

Figure 2 is a longitudinal sectional view of the instrument,

Figure 3 is a detail view illustrating the handle,

Figure 4 is an end view of the handle,

Figure 5 is a perspective view of a washer for positioning the pump gears,

Figure 6 is a plan view of the washer showing the gears positioned therein, and

Figure 7 is an enlarged sectional view taken substantially on line 7—7 of Fig. 2.

Referring to the drawings for more specific details of the invention 10 represents a handle, one end of which has a diametral slot 11 and extending from the slot 11 is a second diametral slot 12 of less width than the first mentioned slot, the object of which will hereinafter appear. The other end of the handle is provided with an axial bore 13 and a radial bore 14 and positioned in the handle parallel to the slots 11 and 12 is a bore 15 connected by a radial bore 16 to the axial bore 13, the bore 16 being plugged at the circumference of the handle and the bore 15 being plugged at the end of the handle as indicated at 17.

Threaded in the axial bore 13 at the end of the handle 10 is a reservoir 18 provided with a cap 19 having a vent 20 and the radial bore 14 has positioned therein a plug 21 which may be removed and replaced by the reservoir 18 in which case the plug 21 is threaded in the end of the handle. Thus, the reservoir may be positioned either in axial alinement with the handle or normal thereto in order to freely feed by gravity any fluid that may be contained therein through the handle regardless of the position in which the instrument is held, that is, at any position between horizontal and vertical.

Pivoted in the slot 11 is a body 22. As shown, the body is provided with a reduced end portion 23 having a transverse bore 24 and an annular channel 25. The reduced end portion 23 fits snugly in the slot 11 and the bore 24 registers with a diametral bore 26 in the handle for the reception of a screw 27,

the screw being provided with a suitable washer 28. This structure provides means whereby the body may be adjusted at any angle relative to the handle and tightly secured in position, the small diametral slot 12 in the handle permitting sufficient contraction of the slot 11 to provide a tight joint.

The body 22 has a reduced end portion or nozzle 29 located centrally with respect thereto and forming in connection therewith a shoulder or annular face 30. The nozzle is axially bored as indicated at 31 to communicate with passages 32 and 33 extending from the face 30 inwardly. Also extending from the face 30 inwardly are passages 34 and 35 connected by a passage 36 to the annular channel 25 and the annular channel 25 communicates with the bore 15 in the handle through a radial bore or channel 37.

Positioned on the annular face 30 is a pin 38 adapted to prevent rotation of a washer 39 in which is positioned a gear pump. As shown, the washer 39 is provided with overlapping bores 40, 41 and 42, the central bore 41 being substantially twice the size of the bores 40 and 42. The washer 39 lies flush against the annular face 30 and has positioned in the bores 40, 41 and 42 intermeshing gears 43, 44 and 45. These gears form in connection with the bores 40, 41 and 42 in the washer 39, passages 46, 47 and 48 which register with the passages 32, 33, 34 and 35.

The central gear 44 has a sleeve 49 which is mounted for rotation on the nozzle 29 and a conical shaped sleeve 50 is slipped over the sleeve 49 and bears upon the washer 39 to encase the gears. The sleeve 50 has a shoulder 51 which is engaged by a flange 52 formed on a sleeve or cap 53 threaded on the nozzle 22. The sleeve 50 is further provided with a ball race 54 in which is positioned a plurality of ball bearings 55. A guide roller 56 which has a press fit on the sleeve 49 bears upon the balls 55. This guide roller is provided with a radial flange 57, the periphery of which is milled as indicated at 58, the object of which will hereinafter appear, and positioned on the end of the reduced portion 29 is a conical shaped tip 59 which abuts the end of the sleeve 49 and provides a finish for the end of the nozzle.

In operation, assuming that liquid paint has been placed in the reservoir 18 and that the reservoir is positioned either in the end of the handle or normal to the axis thereof and that the body and nozzle are adjusted at an angle to the axis of the handle by means of its pivotal connection, the instrument is then ready for use.

At any adjusted position of the body and nozzle to the handle, liquid paint will flow by gravity from the reservoir 18 through the bore 13, the passages 16, 15 and 37, through the annular passage 25 and thence through the channel 36, the passages 34 and 35 to the passages 46, 47 and 48 formed by the bores 40, 41 and 42 in the washer 39 and the peripheries of the gears 43, 44 and 45 mounted in the bores. At this point the paint is received by the gear pump and as the instrument is moved over the surface to be striped the knurled or milled periphery of the flange 57 on the guide 56, engages a straight edge or pattern, as the case may be, and rotates the guide to drive through the sleeve connection the gear 44 which meshes with and drives the gears 43 and 45, hence, as the gears are set in motion paint is pumped from the passages 34 and 35 and delivered through the channels 46, 47 and 48 to the passages 32 and 33 from which it is ejected through the bore 31 of the nozzle in a constant flow of a uniform, predetermined quantity.

Although this invention has been described in connection with certain specific embodiments, the principles involved are susceptible of numerous other applications that 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 striping instrument comprising a body, a pump therein, a nozzle and a rotatable means on and extending laterally from the nozzle for actuating the pump to eject fluid from the nozzle at a rate commensurate with the rate of movement of the instrument.

2. A striping instrument comprising a handle, a body pivotally connected thereto, a gear pump positioned in the body, a nozzle, a guide mounted for rotation on and extending laterally from the nozzle and means connecting the guide to the pump for actuating the pump to eject fluid from the nozzle at a rate commensurate with the rate of movement of the instrument.

3. A striping instrument comprising a handle having a passage therein, a body pivoted to the handle, the body having a passage communicating with the passage in the handle, a gear pump in the body, a nozzle, a rotatable member telescoping the nozzle and means connecting the rotatable member with the pump for the actuation thereof to eject fluid from the nozzle at a rate commensurate with the rate of movement of the instrument.

4. A striping instrument comprising a handle having a passage therein, a reservoir connected to the passage at one end of the handle, a body pivoted to the other end of the handle, a nozzle on the body, the body having a passage therein communicating with the passage in the handle, a pump positioned in the body and laterally extending

means telescoping the nozzle for actuating the pump.

5. A striping instrument comprising a handle having a passage therein, a reservoir connected to one end of the handle and communicating with the passage therein, a body pivoted to the other end of the handle, the body having a passage therein communicating with the passage in the handle, a gear pump positioned in the body, a nozzle on the body, a laterally extending guide mounted for rotation on the nozzle, means carried by the nozzle for retaining the rotatable guide in position and means connecting the rotatable guide to the pump for the actuation thereof.

6. A striping instrument comprising a body having a shoulder and a nozzle extending therefrom, the nozzle being axially bored, a washer on the shoulder having overlapping bores, intermeshing gears positioned in the overlapping bores, means for retaining the gears in position, a guide mounted for rotation on the nozzle and a driving connection between the gears and the guide.

7. A striping instrument comprising a body having a shoulder and a nozzle extending therefrom, the nozzle having an axial bore, a washer positioned on the shoulder, the washer having overlapping bores, intermeshing gears positioned in the bores, a sleeve mounted for rotation on the nozzle and connected with one of the gears, a retaining means for the gears and a driving means for the sleeve.

8. A striping instrument comprising a body having a shoulder and a nozzle extending therefrom, a washer positioned on the shoulder, the washer having overlapping bores, intermeshing gears positioned in the bores, a sleeve carried by one of the gears, the sleeve being rotatably mounted on the nozzle, a retaining member for the gears positioned on the sleeve, means for securing the retaining member in position, a guide member fitted tightly on the sleeve, bearings between the guide member and the retaining member and a retaining member for the guide member fitted tightly on the nozzle.

9. A striping instrument comprising a handle having a bifurcated end and a passage in the handle, a nozzle, a body having a reduced end portion and a passage in the body, the reduced end portion of the body pivoted in the bifurcated end of the handle, the reduced end portion having an annular passage communicating with the passage in the handle and the passage in the nozzle.

10. A striping instrument comprising a body, a nozzle, a pump in the body, and a rotatable means on and surrounding said nozzle for actuating the pump to eject fluid from the nozzle at a rate commensurate with the rate of movement of the instrument.

11. A striping instrument comprising a body, a nozzle, a pump in the body and a collar rotatably engaged about the nozzle and operatively connected to the pump.

12. A striping instrument comprising a body having a channel therein, a disk having a plurality of overlapping openings therein disposed on the cylinder, intermeshing gears disposed in the overlapping openings, a small tube disposed on the body and communicating with the overlapped openings, a second tube on the first tube operatively engaged with the gears, a sleeve over the tubes, and a roller operatively engaged with the second tube to cause the gears to rotate when the roller is rotated.

13. A striping instrument comprising a body having a chamber therein, a pump associated with the chamber, a nozzle for the pump and a laterally extending rotatable guide member telescoping the nozzle and connected to the pump for the operation thereof.

14. A striping instrument comprising a body having a chamber therein, a pump associated with the chamber, a nozzle for the pump and a rotatable guide member telescoping the nozzle positioned adjacent the discharge end of the nozzle and connected to the pump for the operation thereof.

15. A striping instrument comprising a body having a chamber therein, a pump associated with the chamber, a nozzle for the pump, means securing the pump and nozzle in position, a rotatable guide member positioned on and extending normal to the nozzle and in spaced relation from the discharge end thereof and means operatively connecting the pump to the guide member.

16. A striping instrument comprising a body having a chamber therein, a pump mechanism associated with the chamber, a nozzle for the pump mechanism, means threaded axially on the body for clamping the pump mechanism and nozzle in position, a guide member rotatably positioned on the nozzle and extending normal thereto and means operatively connecting the pump to the guide member.

17. A striping instrument comprising a body having a chamber therein, a cap threaded on the body, a member supported by the cap, a pump and a nozzle therefor clamped between the body and the member supported by the cap, a rotatable guide member on the nozzle and means operatively connecting the pump to the guide member.

18. A striping instrument comprising a body having a chamber therein, a cap for the chamber, a member supported by the cap, a pump and a nozzle therefor clamped between the body and the cap, said nozzle extending through the member, a rotatable guide member positioned around and carried by the nozzle, means retaining the guide mem-

ber in position and means operatively connecting the pump to the guide member.

19. A striping instrument comprising a body having a chamber open at one end, a cap threaded upon the open end of the body, a pump and a nozzle therefor supported between the open end of the body and the cap, a rotatable guide having a shaft positioned on the nozzle and connected to the pump and means retaining the guide in position.

20. A striping instrument comprising a body having a chamber open at one end and having a detachable hollow handle connected therewith, a cap threaded upon the open end of the body, a disk having a pump mechanism positioned therein, a second disk having the ports for the pump positioned therein, a nozzle for the pump, means for supporting the pump and nozzle on the open end of the body, a rotatable guide on the nozzle adjacent the discharge end thereof and means operatively connecting the pump mechanism to the guide.

21. A striping instrument comprising a body, an outer sleeve, pump mechanism intermediate the body and the outer sleeve, means securing the outer sleeve to the body, a guide and drive roller sleeve extending into the outer sleeve, means for retaining the roller sleeve in the outer sleeve, a driving connection between the roller sleeve and pump mechanism, and a nozzle extending through the sleeves, said nozzle being in communication with the pump mechanism.

22. A striping instrument comprising a body, an outer sleeve, pump mechanism intermediate the body and the outer sleeve, means securing the outer sleeve to the body, an inner sleeve piloted in the outer sleeve, means securing the inner sleeve axially in the outer sleeve, a roller telescoping and fixed to the inner sleeve adjacent an end of the outer sleeve between the roller and outer sleeve, driving mechansim between the inner sleeve and the pump mechanism, and a nozzle extending through the inner sleeve, said nozzle being in communication with the pump mechanism.

In testimony whereof I affix my signature.

JOHN M. CHRISTMAN.