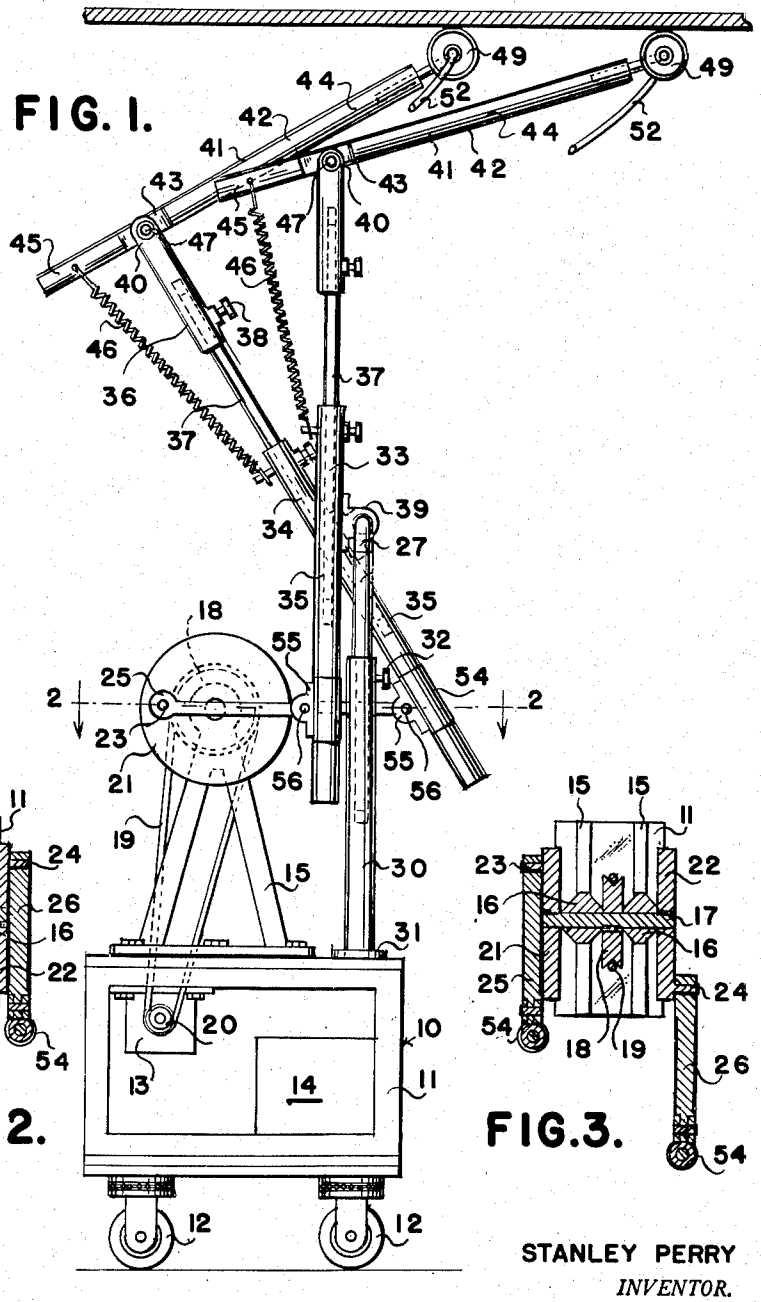
Aug. 25, 1959 S. PERRY 2,900,952

PAINTING MACHINE

Filed Aug. 29, 1957 3 Sheets-Sheet 1

FIG. 1.



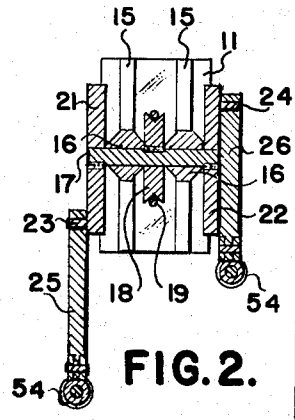


FIG. 2.

FIG. 3.

STANLEY PERRY
INVENTOR.

BY Abraham Friedman
Atty.

Aug. 25, 1959 S. PERRY 2,900,952

PAINTING MACHINE

Filed Aug. 29, 1957 3 Sheets-Sheet 2

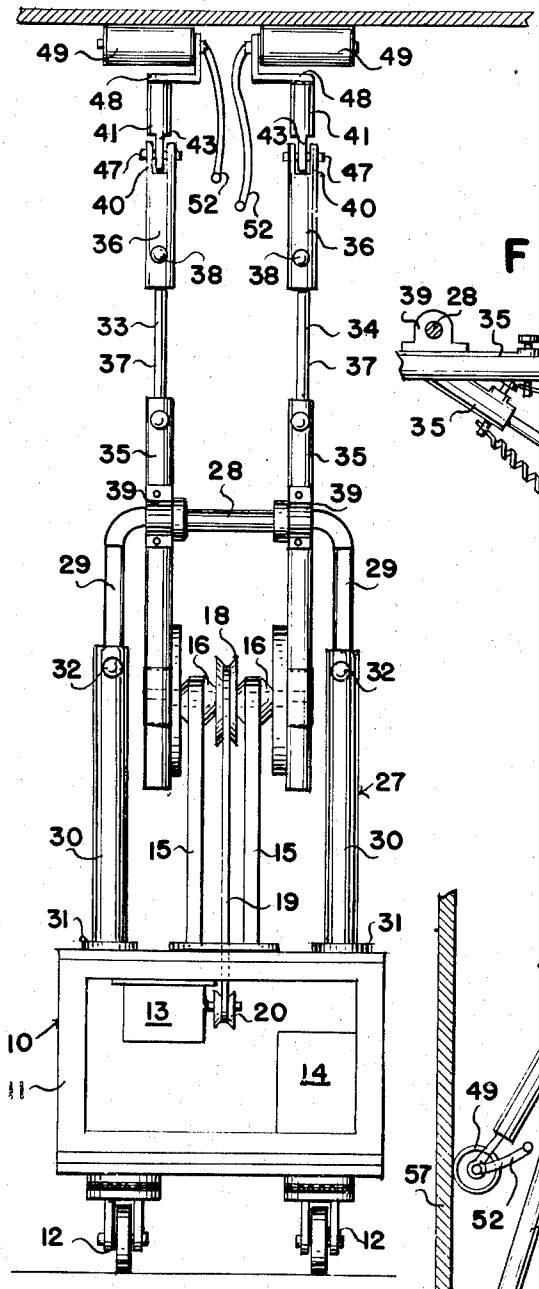


FIG. 4.

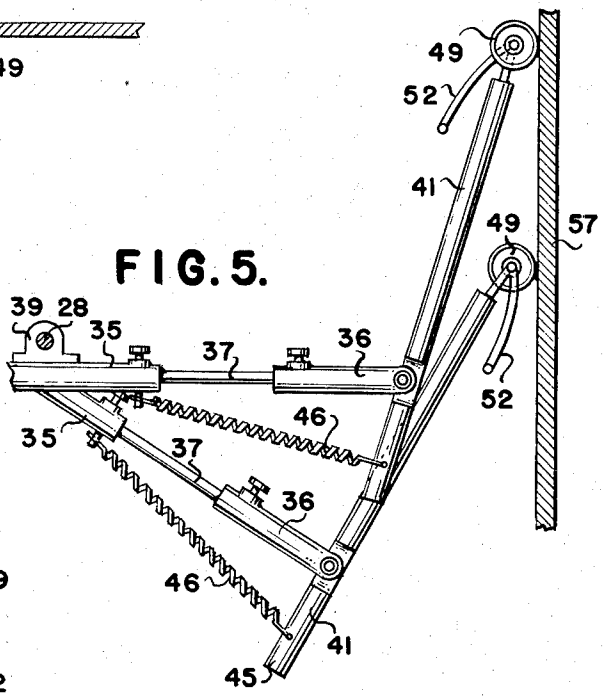


FIG. 5.

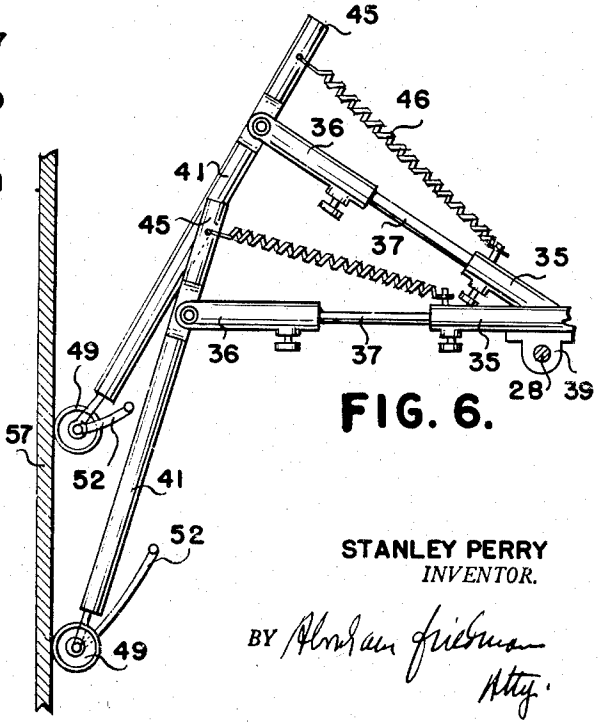


FIG. 6.

STANLEY PERRY
INVENTOR.

BY Abraham Friedman
Atty.

Aug. 25, 1959 S. PERRY 2,900,952

PAINTING MACHINE

Filed Aug. 29, 1957 3 Sheets-Sheet 3

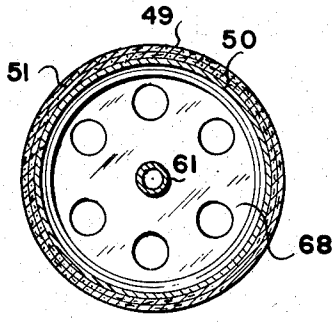
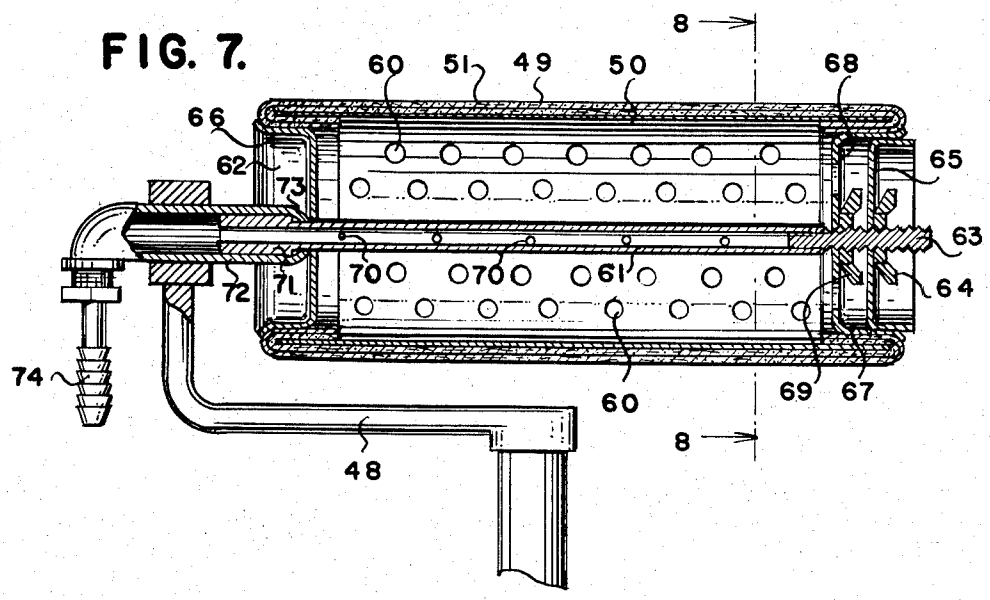


FIG. 8.

FIG. 7.



STANLEY PERRY
INVENTOR.

BY Atty.

United States Patent Office 2,900,952
Patented Aug. 25, 1959

2,900,952

PAINTING MACHINE

Stanley Perry, Brooklyn, N.Y.

Application August 29, 1957, Serial No. 681,049

1 Claim. (Cl. 118—207)

This invention relates to a painting machine and more particularly to a machine adapted to automatically apply a coating of paint or similar material to a wall, ceiling or similar surface.

It is an object of this invention to provide an automatic applicating machine which is adapted to apply a coating of paint or similar surfacing material to a wall, ceiling or similar surface in an effective and efficient manner with a minimum amount of manipulation.

It is a further object of this invention to provide a simple and efficient machine which is adapted to apply a surface coating to the surface areas indicated and may be readily positioned and adjusted with respect to a wide variety of surfaces to be painted.

Another object of this invention is to provide a machine of the character indicated which is adapted to apply a uniform and effective coating to the aforesaid surface areas.

Further objects and advantageous features of the invention will become more apparent from the following detailed description when read in conjunction with the annexed drawings in which:

Figure 1 is a side elevational view of the machine comprising the instant invention;

Figures 2 and 3 are cross sections of the crank mechanism taken along lines 2—2 of Figure 1;

Figure 4 is a front elevational view thereof;

Figures 5 and 6 are fragmentary views showing a modified disposition of the arms when applying paint or similar material to a vertical surface;

Figure 7 is a cross section of the applicator roller arrangement; and

Figure 8 is a cross section of the roller taken along line 8—8 of Figure 7.

As shown in Figures 1 and 4, the machine, designated generally by the numeral 10, is comprised of a housing or base 11 which is suitably mounted upon wheels or castors 12 so as to permit the entire machine to be readily moved from place to place as required. The housing 11 has mounted therein a suitable motor drive and gear reduction arrangement 13 by means of which the machine is actuated as well as paint reservoir and pumping means indicated generally by the numeral 14. A pair of spaced apart supporting brackets 15 are rigidly mounted on the top of housing 11 and are provided with suitable bearing means 16 for rotatably receiving the end portions of shaft 17 extending therebetween. A pulley wheel 18 is disposed between said brackets 15 and is secured on shaft 17 for rotation therewith. Belt 19 interconnects pulley wheel 18 with pulley wheel 20 which is mounted upon the output shaft of the motor drive and gear reduction means 13. It will thus be apparent that upon rotation of pulley wheel 20 by means of the motor drive, and its associated reduction gear the shaft 17 is simultaneously rotated at a somewhat reduced speed. The ends of shaft 17 extend beyond bearings 16 and said projecting ends have mounted thereon crank discs 21 and 22 secured thereto for rotation therewith.

The crank discs 21 and 22 are provided with outwardly extending crank pins 23 and 24 respectively. Crank pins 23 and 24 are disposed on said crank discs in diametrically opposed relation, being displaced from one another by 180°. Crank pins 23 and 24 are interconnected with crank arms 25 and 26 respectively. The arrangement thus far described comprises the drive mechanism for the applicator arrangement or assembly.

The drive mechanism actuates an applicator assembly. Said assembly comprises a generally inverted U-shaped support designated by the numeral 27. Support 27 comprises a horizontal crossbar 28 provided with depending members 29. The ends of members 29 are telescopically received within hollow stanchions 30 which are mounted upon base housing 11 as by means of mounting flanges shown at 31. It will be apparent from the foregoing that by reason of the telescopic relation between the members 29 and the stanchions 30 the height of crossbar 28 may be adjusted to any desired degree. Each of stanchions 30 is provided with a set screw 32 by means of which the members and crossbar may be fixed in position at any desired elevation.

A pair of lever arms 33 and 34 are pivotally mounted on crossbar 28. Said lever arms are similar in construction to each other and each comprises a main support tube 35 and a terminal support tube 36. The main support tube 35 and the terminal tube 36 are interconnected by means of an intermediate bar 37, the ends of said bar being telescopically received within said tubes and fixedly secured in position at any desired degree of extension by means of set screws 38. The pivotal connection of tube 36 with crossbar 28 may be accomplished by any suitable journal means. It has however been found advantageous to provide the aforesaid pivotal connection by means of a pillow block 39 secured to the main support tube. The crossbar 28 is rotatably received within said pillow blocks. The distal end of terminal tube 36 is provided with a bifurcated or yoke portion 40 for pivotal interconnection with its associated applicator arm 41. The applicator arm 41 is comprised of an elongated rod 42 provided with a reduced portion 43 which is received within the yoke 40 of the terminal tube 36 and pivotally connected therewith by means of a transverse pivot pin 47 which is passed through registering openings in the yoke and terminal tube. The pivot point of the applicator arm is located intermediate its ends so that its forward or applicator supporting portion 44 is substantially longer than its rearwardly extending portion 45. A tension spring 46 is secured to and extends between the rearward extension 45 of the applicator arm and the main support tube 35 so that said spring resiliently urges the forward end 44 of the applicator arm away from the lever arm assembly and toward the surface upon which the liquid material is to be applied.

Secured to the forward end 44 of the applicator arm is a bracket 48 which carries applicator roller 49. As may be more particularly seen in Figures 7 and 8, the roller 49 comprises a cylinder 50 of metal or similar material having a perforated wall. The cylinder 50 is covered with a layer of porous or pervious material 51 so that paint or similar liquid material introduced into the interior of the cylinder passes through the perforations 60 thereof and the interstices of the pervious material 51 and is thus applied to a surface. A hollow tubular shaft 61 extends axially through the cylinder 50 and is fixedly secured to end cap 62. The tubular shaft 61 is provided with a threaded end 63 which engages with a wing nut 64 to lock the end caps 62 and 65 in position and to seal the cylinder. The layer of pervious material 51 is clamped in position by engagement with the circumferential flange 66 of end cap 62 and the similar circumferential flange 67 of retaining disc 68. The wing nut 69 which holds the

retaining disc in position in combination with the wing nut 64 which holds end cap 65 in position serves as a dual locking arrangement to assure that both end caps 62 and 65 are retained in sealing engagement with the cylinder. The tubular shaft 61 is provided with a perforated wall as shown at 70 and with an enlarged end portion 71. From the foregoing it will be apparent that the entire assembly of the cylinder, the layer of pervious material and the tubular shaft are mounted for rotation as a unit. The enlarged end of the tubular rod is rotatably mounted within the coupling 72, the end 73 of which is swaged to thereby form a rotary seal between the coupling and the shaft. The coupling 72 is provided with a suitable fitting 74 to receive a supply hose. It will be seen from the foregoing that paint or similar material fed into the coupling will enter the cylinder through the perforations in the tubular rod and thence pass through the perforated wall of the cylinder and through the layer of pervious material to be applied to a wall surface. The arrangement permits the free rotation of the applicator roller as it is moved in contact with a surface supported on bracket 48. In order to eliminate the necessity for constantly filling the roller 49, a paint supply arrangement is interconnected therewith. Said paint supply arrangement consists of a suitable paint reservoir and pump schematically shown at 14 mounted in the base housing 11. A conduit 52 interconnects the paint supply arrangement with the fitting 74. It is apparent from the foregoing, however, that an arrangement is thus provided whereby a continuous supply of paint is provided for each of the applicator rollers.

It is apparent from the foregoing that each applicator assembly thus comprises a pair of articulated arms which support the actual applicating device or roller, these being resiliently biased toward the surface upon which the material is to be deposited. The rollers are thus kept in contact and applicating relation with the surface upon which the coating is to be applied. The necessary rocking movement or applicating action for the articulated arms supporting the rollers is provided by means of a linkage between the crank discs 21 and 22 and the main support tube portions 35 of the lever arms 33 and 34. This linkage is the form of the invention illustrated in Figures 1, 2, 3 and 4 comprising connecting rods 25 and 26. A connecting rod is pivotally interconnected with the main support tube portion 35 of each of the lever arms 33 and 34 respectively. In order to accomplish this interconnection collar 54 is mounted upon each of the main support tubes 35. Each of said collars carries a slotted pillow block 55 within which the terminal portion of its associated connecting rod 25 and 26 is received and pivotally secured by means of a pivot pin 56 which extends through registering apertures in the pillow block and the terminal portion of the associated crank arm. The collars 54 may be rotated about the body of the terminal tubes 36 so that the form of linkage between the lever arm assemblies and the crank discs may be readily modified if desired. The crank pins 23 and 24, as heretofore indicated, are disposed in diametrically opposed relation on each of the crank discs so that they are displaced from each other by 180°. When the crank discs are rotated by means of the belt and pulley transmission of the motor and reduction gear arrangement, it is apparent that the linkage will cause each of the lever arms to be rocked and pivotly swung through an arc in a plane normal to the axis of the horizontal crossbar as well as the axis of the crank discs. This action will in turn cause each of the applicator arms and its associated roller to be reciprocably moved along the surface to which the coating is to be applied and to thus deposit the coating thereon in a strip corresponding in width to that of the roller and in length corresponding to the throw or reciprocal movement of the terminal portions of the lever arms. There thus results a rolling action against the surface which corresponds to the manual manipulation of a roller of this character. Since the applicator assemblies are linked to the crank discs in 180° offset relation, it is also apparent that these assemblies are rocked in opposing directions so that while one of the rollers is being moved forward the other will simultaneously be moving backwards. The opposing applicating action of the assembly and its associated roller results in a more uniform deposition of material as the device is moved along to cover the entire surface and to overlap adjacent coated areas. Furthermore, the opposing action of the applicator arms lends balance to the entire arrangement, eliminates vibration and results in a more stable and efficient machine and coating operation.

Figures 5 and 6 illustrate the manner in which the machine may be adapted to apply the coating material or paint to vertical surfaces such as walls.

As shown in Figure 6, in order to adapt the applicator to apply the coating to such vertical surface indicated by the numeral 57, the horizontal crossbar 28 is advantageously lowered by means of the telescopic action of the depending members 29 with the hollow stanchions 30. The lever arms 33 and 34 are then disposed in a substantially horizontal position. The collars 54 may be rotated on the terminal tubes 36 to accommodate the linkage with connecting rods 25 and 26. The action of the connecting rod linkage causes the terminal portions of the lever arms to move the applicator arms and their associated rollers up and down along the vertical wall surface. It should be noted that the rollers as illustrated in Figure 6 are in depending relation with respect to the applicator arms as a consequence of which the device is adapted to apply the paint or similar material to lower wall surfaces as for example adjacent the floor surface of a room. When it is desired to reach the vertical wall surface adjacent the ceiling, the lever arms may be reversed in crossbar 28 as shown in Figure 5 so that the applicator rollers and the applicator arms extend upwardly. In this position the vertical wall surfaces adjacent the ceiling are readily reached.

From the foregoing it will be apparent that the instant device may thus be readily adapted to apply a coating to the variety of wall and ceiling surfaces which are encountered when painting and to apply the coating material thereto in a simple, efficient and effective manner. The entire machine may be moved as the work progresses to extend the area upon which the coating is being applied and to secure overlaps between adjacent coated areas so that an even and complete coating may be applied to the aforementioned surfaces. A single operator is thus enabled to rapidly coat substantial surface areas and by merely moving the machine along as the work progresses.

I have here shown and described a preferred embodiment of my invention. It will be apparent, however, that this invention is not limited to this embodiment, and that many changes, additions and modifications can be made in connection therewith without departing from the spirit and scope of the invention as herein described and hereafter claimed.

I claim:

A machine for applying a coating to a surface comprising a base, motive power means carried by said base, a pair of supporting brackets secured to said base and extending thereupon, a shaft rotatably journaled in said brackets, a pair of crank discs mounted on the opposing ends of said shaft for rotation therewith, means for rotating said shaft secured to said shaft and operatively associated with said motive power means whereby said crank discs are rotated by said motive power means, a support carried by said base, said support including a horizontal crossbar, a pair of lever arms mounted in spaced relation for pivotal movement on said crossbar in a plane normal to the plane of the surface to be coated, an applicator arm pivotally secured to each of said lever arms, applicating

means carried by each of said applicating arms and resilient means associated with each of said applicator arms for resiliently urging said coating means toward the surface to be coated, connecting rod means interconnecting a terminal portion of each of said lever arms with said crank discs whereby each of said lever arms is pivotally moved on said crossbar to thereby reciprocate said applicator arms and their associated applicating means along the surface to be coated.

References Cited in the file of this patent

UNITED STATES PATENTS

1,160,031	Adams	Nov. 9, 1915
1,543,873	Rundell	June 30, 1925
2,313,643	Howard	Mar. 9, 1943
2,751,618	Pruitt	June 26, 1956

FOREIGN PATENTS

350,515	Germany	Mar. 21, 1922