May 29, 1951 J. PETRONE 2,554,635

APPARATUS FOR FILLING BRUSH HANDLES

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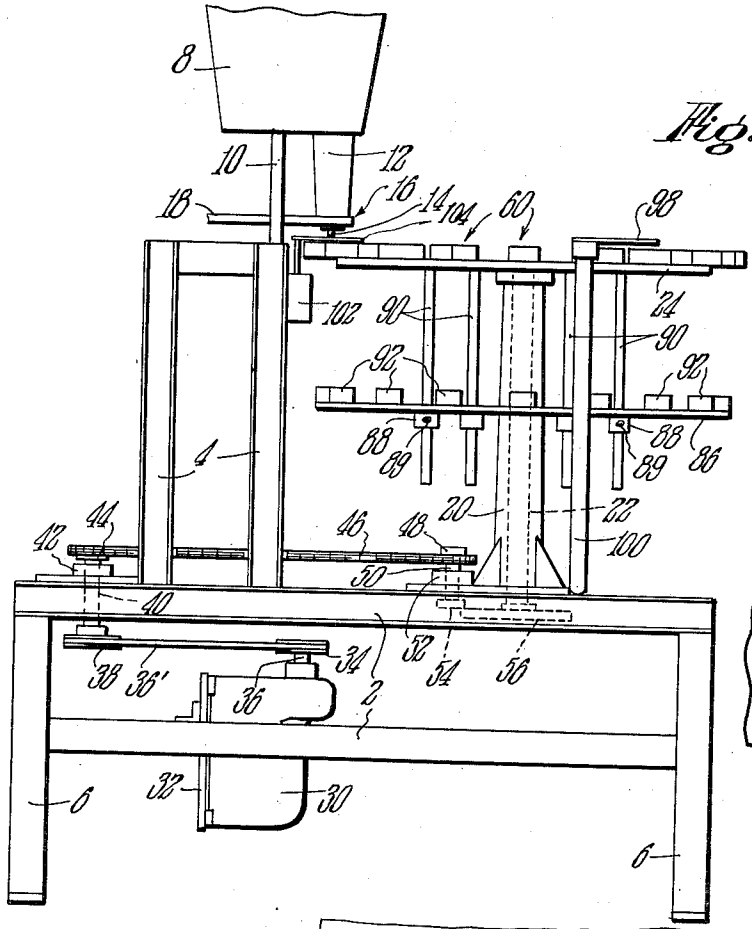

Fig. 1.

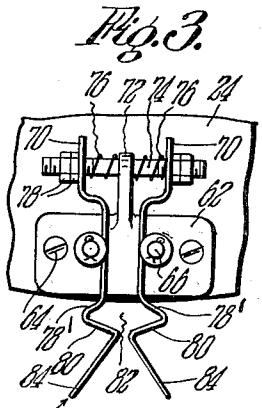

Fig. 3.

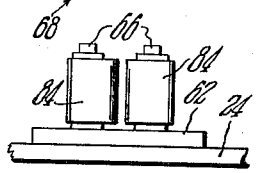

Fig. 4.

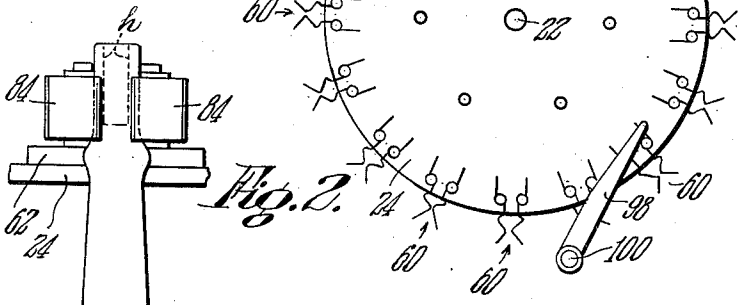

Fig. 2.

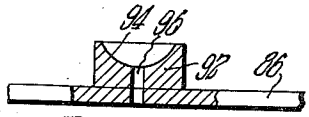

Fig. 5.

Fig. 6.

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APPARATUS FOR FILLING BRUSH HANDLES

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4 Claims. (Cl. 300—20)

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This invention relates to apparatus for filling brush handles and is directed more particularly to improvements in apparatus for presenting successive handles to means for injecting adhesive into the brush receiving holes thereof.

The principal object of the invention is directed to the provision of novel apparatus for releasably holding and transporting successive brush handles for the injection of cement or adhesive into the holes thereof and into which the brush elements are inserted.

According to the invention the apparatus is constructed and arranged so that handles are inserted therein and are transported thereby to the cement injecting means after which the brush elements may be inserted in the holes. The handles are transported in a step by step manner, the brush elements are inserted and the brushes ejected from the machine.

Brushes of the type referred to include a handle having a hole in the end thereof and a bristle carrier of wire or the like is inserted into and cemented in said hole. Heretofore the handle holes have been filled with cement while held in the hand and the bristle carriers are thereafter inserted but such a procedure entails time and labor which contributes to high cost production.

According to this invention, the handles are placed in the machine so that they progress to a station where the cement is injected into the holes thereof and while in the machine the bristle elements may be inserted and subsequently the brushes are automatically ejected.

With the foregoing and various other novel features and advantages and other objects of my invention as will become more apparent as the description proceeds, the invention consists in certain novel features of construction and in the combination and arrangement of parts as will be hereinafter more particularly pointed out in the claims hereunto annexed and more fully described and referred to in connection with the accompanying drawings wherein:

Fig. 1 is a side elevational view of apparatus for filling brush handles embodying the novel features of the invention;

Fig. 2 is a partial plan view of the transporter of the apparatus shown in Fig. 1;

Figs. 3 and 4 are plan and front elevational views respectively of one of the handle pocket mechanisms of the apparatus;

Fig. 5 is a sectional elevational view through one of the handle supports of the transporter; and

Fig. 6 is an elevational view showing a handle

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supported by a support and engaged in one of the pockets of the transporter.

Referring now to the drawings more in detail, the invention will be fully described.

Horizontal and vertical members 2, 4 and 6 are secured together to provide a frame for the apparatus which may be in any desired form.

A receptacle 8 is supported by members such as 10 at the upper side of the machine. Said receptacle is adapted to contain cement or adhesive of the desired type and has a depending discharge conduit 12 provided with a nozzle 14. A valve mechanism indicated by 16 is operable by a reciprocable member 18 so as to discharge a predetermined quantity of cement or adhesive on each reciprocation of the member 18 to the left.

A bearing standard 20 extends upwardly, as shown, and has a shaft 22 rotatable thereinto, the upper end of which is fixed to a transporter 24 which in the form of the invention shown is a circular disc.

A motor 30 fixed to a plate 32 which is secured to the frame, as shown, has a drive pulley 34 on its shaft 36 which is connected by a belt 36' to a pulley 38 fixed on a shaft 40. Said shaft 40 is rotatable in a bearing 42 and has a sprocket 44 connected by a chain 46 to a sprocket 48 fixed on a shaft 50.

The shaft 50 is rotatable in a bearing 52 and has fixed on its lower end a driver 54 for operating a Geneva gear 56 which is fixed to shaft 22.

The Geneva gear and driver therefor will be constructed, as the shaft 56 is continuously rotated, to rotate the shaft 22 in a step by step manner so as to present the pockets, carried by the transporter and to be described, successively to the nozzle 14.

In the form of the invention shown, there are sixteen pockets associated with the transporter wherefor the Geneva gear and driver therefor will be of well known form to rotate shaft 22 intermittently through an angle of twenty-two and one-half degrees.

The pockets are indicated in a general way by 60 and are shown more in detail in Figs. 3 and 4.

Brackets 62 are secured to the transporter 24 by screws 64 and have posts 66 extending upwardly therefrom. Jaws 68 are pivoted on the posts and are formed to relatively diverge at their inner or rear ends 70. Ears 72 extend from the brackets 62 and screw members 74 are provided around which are compression springs 76 disposed between the ears 72 and jaw ends 70. The said ends 70 loosely receive the screw members 74 so that the springs tend to separate said ends

and yieldingly hold the outer ends of the jaw members in closed relation. Nuts 78 in engagement with the screw members 74 limit movements of the jaw ends 70.

The portions of the jaw members outwardly of their pivotal connections with the brackets 62 extend relatively outwardly and inwardly at 78' and 80 to provide pockets 82 therebetween. The extremities 84 of the jaw members extend in a diverging relation.

The jaw members are yieldingly separable so that the upper end of a brush handle may be passed between the diverging end portions thereof into the pockets therebetween to be releasably held therein. The handles may be pulled outwardly from pockets since the jaw members are yieldingly separable.

A ring-like plate 86 is provided below the transporter 24 which has fixed thereto a plurality of hubs 88 which are in sliding engagement with rods 90 fixed to and depending from transporter 24.

Handle supports 92 are fixed to the upper side of the plate 86 and have depressions 94 in the upper sides thereof. Openings 96 extend through the supports 92 and plate.

The plate 86 is movable up and down on the rods 90 so that the lower end of a brush handle may rest in the depression of the support and be supported thereby in such a manner that the upper end of the handle is positioned in the pocket thereabove, as shown in Fig. 6. The plate 86 is movable up and down to accommodate brushes of different lengths and set screws 89 engage the rods 90 to hold the plate in adjusted positions.

In operation the transporter is moved clockwise in a step-by-step manner and brush handles are inserted in those pockets 60 which are advancing towards the nozzle 14. The handles are inserted into the pockets by resting the lower ends thereof in the supports 92 and swinging their upper ends inwardly between the diverging ends of the jaws and into the pockets 82.

As each brush handle arrives to a position below the nozzle 14 cement is discharged into the hole *h* of the handle and as the handles move away from the nozzle the brush elements are inserted in the said holes.

The handles may be manually removed from the transporter but an ejector 98 is provided therefor on the upper end of a support 100 which is secured to the frame. This ejector is arranged to be engaged by the upper end of the brush handles with a cam action so as to cam and eject the handles as the transporter moves them clockwise and into engagement therewith.

In the event a brush handle projects upwardly from a pocket as it advances towards the nozzle the motor is cut out to stop the machine by a switch 102 having an operating lever 104 disposed in the path of movement of an advancing brush.

The invention may be embodied in other specific forms without departing from the essential characteristics thereof. Hence, the present embodiments are therefore to be considered in all respects merely as being illustrative and not as being restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all modifications and variations as fall within the meaning and purview and range of equivalency of the appended claims are therefore intended to be embraced therein.

What it is desired to claim and secure by Letters Patent of the United States is:

1. Apparatus for transporting successive elongated brush handles disposed in vertical position and having bristle holes in the upper ends thereof to means for discharging cement into said holes comprising in combination, a supporting structure having a main shaft rotatable therein on a vertical axis, a transporter fixed on the upper end of said shaft disposed in a horizontal plane, a plurality of pocket devices spaced circumferentially of the periphery of the transporter constructed and arranged to releasably hold upper ends of vertically disposed brush handles, a plate disposed below said transporter provided with means for receiving the lower ends of brush handles and for supporting them in vertical position with the upper ends thereof in said pocket devices, connections between said transporter and plate whereby the latter is rotated with the former, means for rotating said main shaft in a step-by-step manner for presenting successive pocket devices and handles therein to cement discharging means, and cam means fixed to said supporting means extending inwardly of the transporter and above the plane of the pocket devices disposed so as to lie in the path of and be engaged by the upper ends of brush handles as the transporter rotates to eject said handles from said pocket devices.

2. Apparatus for transporting successive elongated brush handles disposed in vertical position and having bristle holes in the upper ends thereof to means for discharging cement into said holes comprising in combination, a supporting structure having a main shaft rotatable therein on a vertical axis, a transporter fixed to the upper end of said shaft disposed in a horizontal plane, a plurality of pocket devices spaced circumferentially of the periphery of the transporter constructed and arranged to releasably hold upper ends of vertically disposed brush handles, a plate disposed below said transporter provided with means for receiving the lower ends of brush handles and for supporting them in vertical position with the upper ends thereof in said pocket devices, connections between said transporter and plate whereby the latter is rotated with the former, and means for rotating said main shaft in a step-by-step manner for presenting successive pocket devices and handles therein to cement discharging means, each of said pocket devices including a pair of jaw members pivotally mounted on the transporter for relative swinging movements towards and away from one another in horizontal planes having intermediate portions formed to provide pockets with outer portions arranged in outwardly diverging relation providing inwardly tapering throats leading into said pockets and spring means urging outer ends of said members towards one another.

3. Apparatus for transporting successive brush handles having bristle holes in the upper ends thereof to a means for discharging cement into the holes comprising in combination, a supporting structure having a main shaft rotatable therein, a transporter fixed on the upper end of the shaft, a plurality of pocket devices spaced circumferentially of the periphery of said transporter constructed and arranged to releasably hold upper ends of the brush handles, a plate provided with means for receiving the lower ends of the brush handles and for supporting them with the upper ends thereof in said pocket

devices, connections between said transporter and said plate whereby the latter is rotated with the former, means for rotating the main shaft in a step-by-step manner for presenting successive pocket devices and handles therein to a cement discharging means, and cam means fixed to the supporting means extending inwardly of said transporter and above the plane of said pocket devices disposed so as to lie in the path of and be engaged by the upper ends of the brush handles as said transporter rotates to eject the handles from said pocket devices.

4. Apparatus for transporting successive brush handles having bristle holes in the upper ends thereof to means for discharging cement into the holes comprising in combination, a supporting structure having a main shaft rotatable therein, a transporter fixed to the upper end of the shaft, a plurality of pocket devices spaced circumferentially of the periphery of said transporter arranged to releasably hold the brush handles, a plate provided with means for receiving the lower ends of the brush handles and for supporting them in vertical position with the upper ends thereof in said pocket devices, connections between said transporter and said plate whereby said plate is rotated with said transporter, and means for rotating the main shaft in a step-by-step manner for

presenting successive pocket devices and handles therein to cement discharging means, each of said pocket devices including a pair of jaw members pivotally mounted on said transporter for relative swinging movements towards and away from one another in horizontal planes having intermediate portions formed to provide pockets with outer portions arranged in outwardly diverging relation providing inwardly tapering throats leading into said pockets and spring means urging outer ends of said members towards one another.

JAMES PETRONE.

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