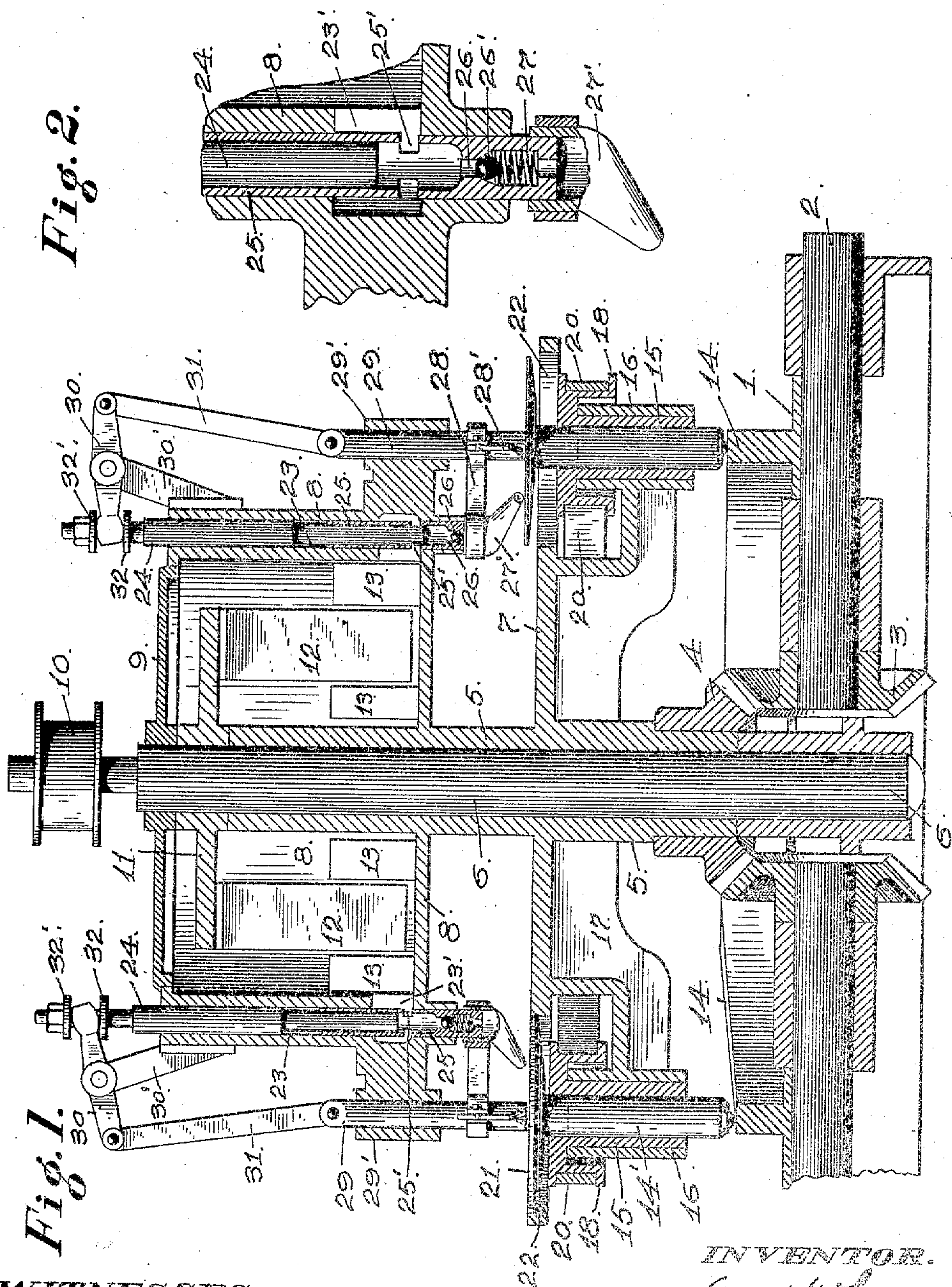


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PASTE APPLYING APPARATUS FOR CAN ENDS.
APPLICATION FILED SEPT. 23, 1908.

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Patented May 17, 1910.



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PASTE-APPLYING APPARATUS FOR CAN ENDS.

957,967.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, AXEL JOHNSON, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Paste-Applying Apparatus for Can Ends, of which the following is a specification.

The hereinafter described invention relates to an improved apparatus for applying liquid paste or sealing cement to the flange of a can head, so that when the head is applied to the open end of a can by being crimped thereon the paste or sealing material previously applied to the flange of the can head will act to form a perfect seal for the crimped joint, thus dispensing with the use of solder in the uniting of the head to the open end of the can.

To comprehend the invention reference should be had to the accompanying sheet of drawings, wherein—

Figure 1 is a vertical sectional view of the apparatus, there being illustrated two of the vertically movable can head holding plates carried by the rotatable table, the piston plungers associated therewith, and the connection between the said holding plates and the pistons, one of the holding plates being in a lowered position and its connected piston plunger raised to open the port for the admission of liquid paste or cement from the rotatable paste reservoir into the distributing nozzle, the other illustrated holding plate being shown in raised position, and its connected piston plunger lowered to force the liquid paste or cement from the distributing nozzle, the said view also disclosing the cam track on which moves the stem of the holding plates. Fig. 2 is an enlarged broken detail sectional view disclosing a portion of the rotatable paste holding reservoir, one of the ported receiving tubes carried thereby, the piston plunger therein, the distributing nozzle carried by said tube, and the spring held valve within the tube.

In the drawings, the numeral 1 is used to designate any suitable style of a supporting structure, through bearings of which extends a horizontally disposed drive-shaft 2, the pinion 3 of which intermeshes with a gear 4 secured on a vertically extended sleeve 5. This sleeve is fitted over and rotatable about a vertically disposed guide shaft 6, and to the said sleeve 5 is secured a car-

rier table 7, and a slight distance above the table 7, and, in the present case, integral with the sleeve 5 is located the paste holding reservoir 8.

The upper end of the shaft 6 projecting above the cover 9 for the reservoir 8, is reduced, and has secured thereto a belt pulley 10, which is driven by a belt, not shown. The said shaft 6 has secured thereto within the reservoir 8, intermediate the upper end of the sleeve 5 and the cover 9 for the said reservoir, a circular plate 11, from which depends a series of stirrer blades 12, which blades work between the projections 13 upwardly extended a short distance from the bottom of the reservoir 8. Inasmuch as the drive shaft 6 is driven in an opposite direction to the rotation imparted to the sleeve 5, the blades 12, acting in conjunction with the projections 13 will maintain the liquid paste within the reservoir 8 in a constant state of agitation during the working of the apparatus.

To the upper surface of the support 1 is secured a cam track 14, on which rests and rides, during the rotary movement of the carrier table 7, a series of vertically movable stems 14', which stems are slidably held within the thimbles 15, rotatably held within guide sleeves 16, carried by the brackets 17 depending from the carrier table 7. Each thimble 15 is formed with a channeled depending circular wall 18, which bears against an outer encircling strap 20, the frictional bearing thus formed, during the rotary movement of the carrier table 7, imparting rotation to the thimbles 15 and the stems 14' slidably held thereto. The said stems 14' have attached to the upper ends thereof the can head receiving and holding plates 21, each plate normally resting within one of the seats 22 of the series of seats in the carrier table 7.

Through the circular wall of the paste holding reservoir 8, in the present case, a series of vertical bores 23 are formed, which bores communicate with the interior of the reservoir by a feed opening 23', and within each of the bores 23 is located a vertically movable piston plunger 24, the lower end portion of the same being slightly reduced to work within the paste receiving tube 25, fitted within each of the vertical bores 23. The said receiving tubes are ported at 25', so as to admit of paste flowing therein from

the reservoir 8, the paste so admitted filling the tubes above the valved seat 26, which is controlled by the ball valve 26', held to its seat by the pressure of the spring 27, Fig. 2 of the drawings. To the lower end of the tubes 25, extended below the reservoir 8, an outwardly inclined distributing nozzle 27' is secured, which nozzles guide and direct the paste ejected from the tubes 25 onto the flange of the can head held onto the rotatable plates 21. From each distributing nozzle 27' extends an arm 28, which arm carries a brush 28', the purpose of which brush is to evenly spread the paste applied to the flange of the can head by the said distributing nozzles.

Each piston plunger 24 is actuated by a vertically movable rod 29, working through a bore in the brackets 29', projecting from the reservoir 8, and each rod 29 is connected to a lever 30, fulcrumed to an arm 30' by means of a link 31. The inner end of each lever 30 is bifurcated so as to straddle the upper projecting end of its piston plunger 24, working between the shoulder 32 and the collar 32' thereon.

The operation of the machine may be given in brief as follows:—The can heads to have paste applied to the flange thereof are, during the rotary movement of the carrier table 7, deposited by an operator suitably stationed onto the can head holding plates 21, working within the seats 22 of the carrier table, to receive onto the circular flange thereof paste discharged from the tube 25. As the carrier table 7 is carried around, the stem 15, of the plates 21, is moved onto the inclined portion of the cam track 14, and is forced upwardly, carrying therewith the can head plate 21 and pressing the central portion of the can head thereon against the lower end of the vertically movable rod 29 so as to gradually elevate the said rod, and, through the connections 31 and 30, lowering the piston plunger 24. The first portion of the downward stroke of the said piston plunger closing the port 25' and cutting off the flow of the paste from within the reservoir into the tube 25. As the piston plunger continues its downward movement and into the tube 25, the pressure of the piston plunger onto the liquid paste contained within the said tube unseating the valve 26' and forcing the liquid within the said tube into the distributing nozzle 27', and through said nozzle onto the flange of the can head held on the can head plate 21. As the paste is applied to the flange of the can head, the plate 21 is rotated by the movement of the thimble 15, which is driven by frictional contact with the encircling belt 20. As the stem 14' is carried onto the downwardly inclined portion of the cam track 14, the parts are restored to normal position by gravity, the

treated can head being removed by the operator. The pressure of the spring 27, the moment the piston plunger commences its upward stroke, due to the downward movement of the rod 29, forces the valve 26' against its seat 26, prior to the piston plunger moving upwardly sufficiently far to uncover the port 25'.

The action of only one of the can head plates and its associated parts has been set forth in the description of the working of the apparatus in the applying paste to the flange of a can head, the action of the remaining ones of the series being a mere duplication.

Having thus described the invention, what is claimed as new and desired to be protected by Letters Patent is—

1. In an apparatus for the described purpose, the combination with a rotatable can head holder, of means for forcing the same upwardly, a ported reservoir for the holding of a sealing paste, a valved receiving tube into which the paste is delivered from the said reservoir, a distributing nozzle connected with the said tube, of associated devices actuated by the upward movement of the can head holder for closing the port of the paste holding reservoir and ejecting paste from within the receiving tube and through the distributing nozzle onto the flange of a held can head, and means for imparting rotation to the can head holder.

2. In an apparatus for the described purpose, the combination with a ported paste holding reservoir, of a vertically movable rotatable can head holder, devices for imparting vertical movement to said holder and rotation thereto, a distributing nozzle and connecting means for conveying paste from the ported reservoir onto the flange of a can head contained on the can head holder, a device for spreading the paste so applied, and means for controlling the flow of paste from within the reservoir onto the flange of a held can head.

3. In an apparatus for the described purpose, the combination with a rotatable paste holding reservoir provided with a series of outlet ports, a carrier table supporting the said reservoir, of mechanism for imparting rotation to the said carrier table and the reservoir supported thereby, agitating devices within the reservoir, a series of vertically movable and rotatable can head holders working within the carrier table, devices for imparting rotation to the said can head holders during the rotary movement of the carrier table, a series of valved receiving tubes into which paste is delivered from the ported reservoir, a distributing nozzle connected with each of the receiving tubes, and associated devices actuated by the upward movement of the can head holders for closing the port of the reservoir and ejecting

paste from within the receiving tubes and through the distributing nozzles onto the flange of a held can head.

4. In an apparatus for the described purpose, the combination with a rotatable paste holding reservoir provided with outlet ports, a rotary carrier upon which said reservoir is mounted, of mechanism for imparting rotation thereto, devices within the reservoir for agitating the liquid material therein, a series of vertically movable and rotatable can head holders mounted on said carrier, means for imparting rotation to the can head holders, devices for receiving paste from the reservoir and delivering the same to the flange of a can head on the holders, and means for regulating the flow of material from within the reservoir and through the distributing devices.

5. In an apparatus for the described purpose, the combination with a rotatable paste holding reservoir provided with a series of outlet ports, a series of controlled distributing nozzles receiving paste from the reservoir, devices for maintaining the paste within the reservoir in an agitated condition during the working of the apparatus, mechanism for imparting rotation to the said reservoir, a series of piston plungers for controlling the outlet of the paste from the reservoir and forcing the same through the distributing nozzles, means for actuating said piston plungers, and a series of vertically movable and rotatable can head holders.

6. In an apparatus for the described purpose, the combination with the carrier table, of a paste holding reservoir provided with a series of outlet ports carried thereby, agitating devices within the reservoir, a series of vertically movable and rotatable can head holders supported by the carrier table, a series of distributing nozzles associated with the reservoir, a series of vertically movable piston plungers for controlling the flow of material from the reservoir into the distributing nozzles and forcing the same through the said nozzles, devices for raising the can head holders, connections actuated by the vertical movement of the said holders to operate the piston plungers, and devices for imparting rotation to the can head holders.

7. In an apparatus for the described purpose, the combination with a reservoir provided with a series of outlet ports, a rotary carrier upon which said reservoir is mounted, valved controlled distributing nozzles associated therewith and receiving paste from the said reservoir, mechanism for imparting rotation to said carrier, agitating means within the reservoir, and devices for controlling the flow of liquid paste from the reservoir into the distributing nozzles.

8. The combination with a rotatable and vertically movable can head holder, of a paste reservoir, a paste receiving tube con-

nected therewith having a port communicating with said paste reservoir, and provided with a valve seat, a reciprocating piston in said receiving tube, a movable valve in said receiving tube below said port, a spring for holding said valve normally against said valve seat and a distributing nozzle connected with said tube, substantially as specified.

9. The combination with a rotatable can head holder, of a paste reservoir, a paste receiving tube connected therewith having a port communicating with said paste reservoir, and provided with a valve seat, a reciprocating piston in said receiving tube, a movable valve in said receiving tube below said port, a spring for holding said valve normally against said valve seat and a distributing nozzle connected with said tube, substantially as specified.

10. The combination with a rotatable and vertically movable can head holder, of a paste reservoir, a paste receiving tube connected therewith having a port communicating with said paste reservoir, and provided with a valve seat, a reciprocating piston in said receiving tube, a movable valve in said receiving tube below said port, a spring for holding said valve normally against said valve seat, a distributing nozzle connected with said tube, a vertically movable rod adapted to be centrally engaged by the can head as it is raised by said holder and connections between said rod and said piston for automatically operating said piston, substantially as specified.

11. The combination with a rotatable and vertically movable can head holder, of a paste reservoir, a paste receiving tube connected therewith having a port communicating with said paste reservoir, and provided with a valve seat, a reciprocating piston in said receiving tube, a movable valve in said receiving tube below said port, a spring for holding said valve normally against said valve seat, a distributing nozzle connected with said tube, a vertically movable rod adapted to be centrally engaged by the can head as it is raised by said holder and connections between said rod and said piston for automatically operating said piston, the downward movement of said piston in said tube operating to unseat the valve by pressure upon the interposed liquid in said tube, substantially as specified.

12. The combination with a rotary carrier, a plurality of vertically movable and axially rotatable can head holders on said carrier, a paste containing reservoir on said carrier, a plurality of paste receiving tubes having ports communicating with said reservoir, each of said tubes having a piston, a valve and a distributing nozzle, substantially as specified.

13. The combination with a rotary car-

rier, a plurality of vertically movable and axially rotatable can head holders on said carrier, a paste containing reservoir on said carrier, a plurality of paste receiving tubes 5 having ports communicating with said reservoir, each of said tubes having a piston, a valve and a distributing nozzle, and a plurality of reciprocating rods on said carrier adapted to be centrally engaged by the can 10 heads on the can head holders as said holders are raised and connecting means between said rods and said pistons, substantially as specified.

14. The combination with a rotary carrier, 15 a plurality of vertically movable and axially rotatable can head holders on said carrier, a paste containing reservoir on said carrier, a plurality of paste receiving tubes having ports communicating with said reservoir, 20 each of said tubes having a piston, a valve and a distributing nozzle, a plurality of reciprocating rods on said carrier adapted to be centrally engaged by the can heads on the can head holders as said holders are 25 raised, connecting means between said rods and said pistons, and a stationary cam for raising said can head holders as said carrier rotates, substantially as specified.

15. The combination with a rotary carrier, 30 a plurality of vertically movable and axially rotatable can head holders on said carrier, a paste containing reservoir on said carrier, a plurality of paste receiving tubes having ports communicating with said reservoir, 35 each of said tubes having a piston, a valve and a distributing nozzle, a plurality of reciprocating rods on said carrier adapted to be centrally engaged by the can heads

on the can head holders as said holders are raised, connecting means between said rods 40 and said pistons, a stationary cam for raising said can head holders as said carrier rotates, each of said valves having a spring for holding it normally closed, substantially as specified. 45

16. The combination with a rotatable can head holder, of a paste reservoir, a paste receiving tube connected therewith having a port communicating with said paste reservoir, and provided with a valve seat, a reciprocating piston in said receiving tube, a movable valve in said receiving tube below 50 said port, a spring for holding said valve normally against said valve seat, a distributing nozzle connected with said tube, and a 55 brush for spreading the paste applied to the can head flange by said nozzle, substantially as specified.

17. The combination with a rotary can head holder, of a paste reservoir, a paste receiving tube having a port communicating 60 with said reservoir, a piston for opening and closing said port, a distributing nozzle connected to said receiving tube and a device for spreading the paste applied to the can 65 head flange by said nozzle as the can head is rotated by said holder, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence 70 of two subscribing witnesses.

AXEL JOHNSON.

Witnesses:

N. A. ACKER,
D. B. RICHARDS.