Aug. 9, 1932. K. F. SNOW 1,871,430

MECHANISM FOR USE IN COATING BARRELS AND LIKE ARTICLES

Filed Feb. 11, 1930 3 Sheets-Sheet 1

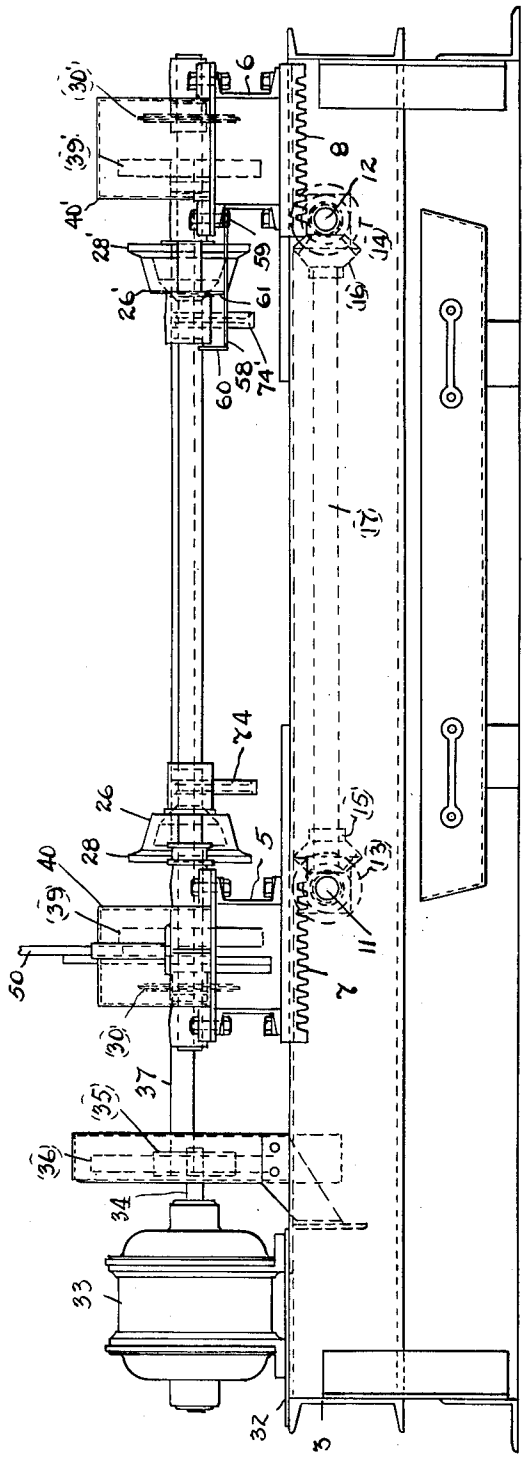


Fig. 1.

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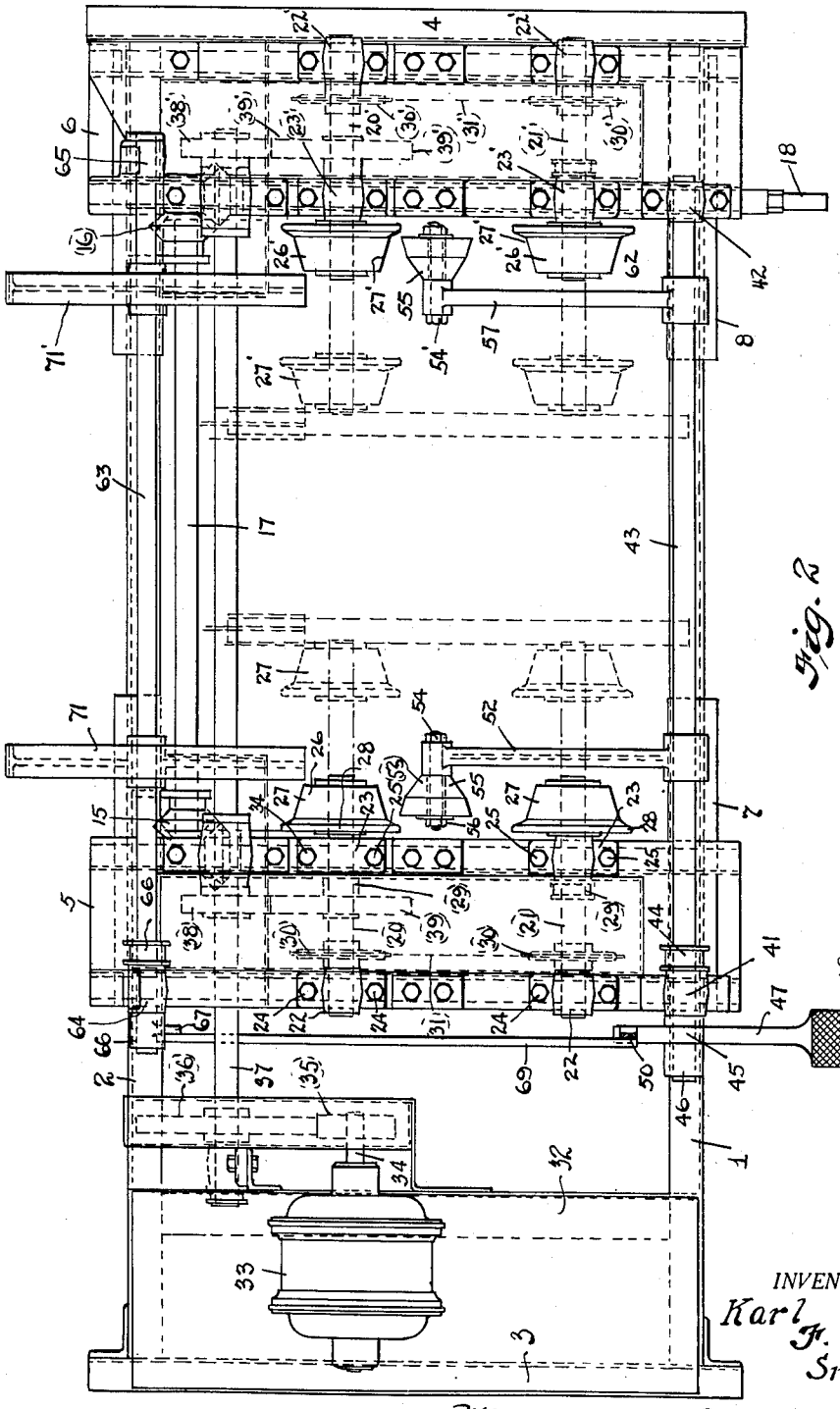


Fig. 2

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Filed Feb. 11, 1930 3 Sheets-Sheet 3

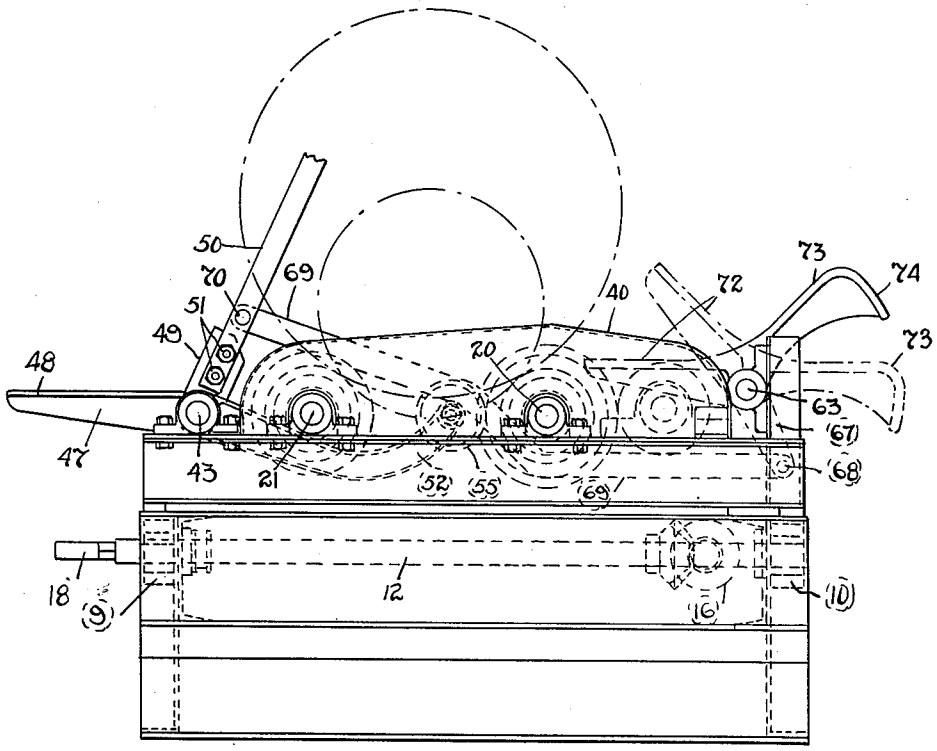


Fig. 3.

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UNITED STATES PATENT OFFICE

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MECHANISM FOR USE IN COATING BARRELS AND LIKE ARTICLES

Application filed February 11, 1930. Serial No. 427,627.

My invention, relating as indicated to a mechanism for use in connection with coating barrels and like cylindrical articles, has specific reference to a mechanism which is adapted to revolubly support such barrel or article during the course of the coating process and to so support such article that the exterior surface thereof is not marred or defaced in any way by the means employed to support it.

When barrels are coated, that is, painted or similarly treated, it is essential that the barrels be supported on their chime rings so that when the coating process is completed there will be no defects in the finished surface. Also the mechanism which supports the barrels should be adapted to discharge the same after the coating process is completed, and the discharging means should also be adapted to handle the barrel without contacting with the freshly coated surface. It is among the objects of my invention to provide a mechanism which shall revolubly support a barrel or cylindrical article in the above described manner.

The mechanism to be used in connection with the coating of barrels or cylindrical articles should be adaptable to be used with articles of varying lengths and diameters, and should be capable of adapting itself to handle such varying sizes with a minimum amount of adjustment which interferes with the operation of the machine. It is a further object of my invention to provide a mechanism which shall be adaptable to handle barrels of varying lengths and diameters without the necessity of more than a minimum of adjustment of the various operative parts. Other objects of my invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims; the annexed drawings and the following description setting forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principles of the invention may be used.

Fig. 1 is an elevational view of the mechanism comprising my invention; Fig. 2 is a plan view of such mechanism; and Fig. 3 is an end elevation thereof.

Referring more specifically to the drawings, and more especially to those figures in which like ordinals are employed to designate like parts. The ordinals 1 and 2 are employed to designate the longitudinal sides of the base frame on which the mechanism is mounted and 3 and 4 designate the end members of such frame. Positioned on the side frame members 1 and 2 are transversely extending frames generally indicated by 5 and 6. The frames 5 and 6 are adapted to be moved longitudinally of the side frames 1 and 2 by means of racks 7 and 8 being engaged by pinions 9 and 10, which are rigidly secured to transverse shafts 11 and 12. The shafts 11 and 12 have bevel gears 13 and 14 secured thereto which are in mesh with similarly formed gears 15 and 16 terminally mounted on shaft 17. Actuation of this frame-moving mechanism is accomplished by a suitable crank handle (not shown) engaging the extension 18 of the shaft 12. Upon rotation of the shaft 12 by such handle or crank the transverse frames 5 and 6, with their associated mechanism, can be moved away from or toward each other, as most clearly shown in the dotted and full line positions illustrated in Fig. 2.

The transverse frame 5 has revolubly mounted thereon shafts 20 and 21 which are journaled in bearings 22 and 23 which are removably secured to the transverse frame 5 by means of bolts 24 and 25. Terminally mounted on the shafts 20 and 21 are rollers 26 which have their main portions preferably conical in form as at 27 and which have circumferential flanges 28 formed on one end thereof. The shafts 20 and 21 have collars 29 mounted thereon which serve as axial restraining means for these shafts in their bearings. Shafts 20 and 21 also carry sprocket wheels 30 which are interconnected by a flexible chain 31.

Mounted on the terminal portion of the base of the machine, as most clearly shown on the left in Fig. 2, is a transversely extending platform 32, which has securely mounted

thereon a prime mover 33, here shown in the form of an electric motor. The drive shaft 34 of the motor 33 has a driving gear 35 rigidly secured thereto which meshes with a driven gear 36 mounted on a shaft 37. The shaft 37 extends longitudinally of the machine and is suitably journaled in spaced bearings, (not shown). The shaft 37 has a driving pinion 38 rigidly secured thereto which meshes with a driven gear 39 secured to the shaft 20.

The construction of the transverse frame 6 and its associated mechanism is identical with that just described in connection with transverse frame 5 so that like ordinals bearing prime marks will be employed to designate similar parts on the two frames. In connection with the mechanism as shown mounted on the transverse frames 5 and 6 and the gearing in communication with the motor, it will be noted that all such mechanism and gearing is suitably enclosed in guards, such as 40, which protect such mechanism from the paint and like material which would be injurious to the operation thereof.

Mounted in bearings 41 and 42, which are respectively carried by the transverse frames 5 and 6, is a longitudinally extending shaft 43, which has a collar 44 shown associated therewith to prevent axial movement thereof with respect to the bearing 41. The shaft 43 has rigidly mounted thereon a member 45 which is axially restrained with respect to the shaft 43 by means of a collar 46. As most clearly shown in Figs. 2 and 3 the member 45 has an extending arm 47 which is terminally formed into a pad 48 adapted to receive the foot of the operator. The projecting element 49 of the member 45 has rigidly secured thereto an operating handle 50 by means of bolts 51.

Rigidly secured to the shaft 43 is a radially extending arm 52 which is terminally adapted to receive a stub shaft 53 which is secured thereto by means of a nut 54 engaging the threaded end thereof. Revolubly supported by the stub shaft 53 is a roller preferably conical in form and somewhat similar to roller 27, and which is axially restrained with respect to the shaft 53 by means of the nut 56. The shaft 43 has another radially extending arm 57 revolubly secured thereto, but axially slidable thereon, which arm 57 has a roller similar to roller 55 revolubly secured thereto in the same manner. As most clearly shown in Fig. 1, bracket member 58 is secured to the transverse frame 6 by means of a bolt 59, and extending laterally therefrom has an upwardly bent end 60 and a similarly directed projection 61 which projections are adapted to engage opposite faces of the hub 62 of the arm 57. In this manner the arm 57 is maintained in the proper relation to the rollers 26′ as the transverse frame 6 is moved along the bed of the machine.

The sides of the transverse frames 5 and 6 opposite the shaft 63, which is journaled in the bearings 64 and 65. The shaft 63 has a collar 66 rigidly secured thereto, which serves as an axial restraining means for this shaft with respect to the frame 5. Terminally mounted on the shaft 63 is a member 66 which has an arm 67 formed integrally therewith and extending radially therefrom. The terminal portion of the arm 67 is adapted to receive a pin 68 by means of which a lever 69 is oscillatably secured thereto. The opposite end of the arm 69 is secured to the lever 50 by means of a pin 70.

Rigidly secured to the shaft 63 at a point adjacent the transverse frame 5 is a rocker member 71 which, as most clearly shown in Fig. 3, consists of a substantially straight arm 72 and a curved portion 73. The shaft 63 has slidably keyed thereto at a point adjacent the frame member 6 another rocker member 71′ which is formed similarly to the rocker member just described. The rocker member 71′ has associated therewith a bracket similar to the bracket 58, which likewise maintains the rocker member 71′ in proper relation with respect to the transverse frame 6.

In the operation of this mechanism, the barrels to be coated are fed to the machine from a preferably inclined runway extending to the right of the machine, as viewed in Fig. 3. The barrels rest against the ends 74 of the rocker members until the shaft 43 is rotated in a counter-clockwise direction, due to actuation by the operator of either the pedal 47 or the control handle 50. This counter-clockwise rotation of the shaft 43, through the arm 69, causes the clockwise rotation of the shaft 63, which moves the rocker members 71 and 71′ into the position shown in dotted lines in Fig. 3. When the rockers 71 and 71′ are in this position, a barrel is permitted to roll thereon which, upon a reverse movement of the rockers, is permitted to roll onto the supporting rolls 26 and 26′. After the barrels have been coated an actuation of the shafts 43 and 63 in the manner just described will cause a counter-clockwise rotation of the arms 52 and 57, which will cause the rollers 55 to engage the barrels at the peripheries thereof and laterally move the same off the rollers 26 and 26′ onto receiving skids (not shown).

By a proper actuation of the shaft 18, which will impart rotation to the shaft 17, the transverse frames 5 and 6 may be so spaced that the distance between the circumferential flanges 28 and 28′ on the rollers 26 and 26′ will be just the length of the barrel which is to be received by the machine. When the transverse arms 5 and 6 are so positioned on the base the barrels or like cylindrical articles will be supported on their peripheries at the terminals thereof so that when the bar-

rels are rotated and the coating applied thereto the fresh coating will not be marred by the supporting mechanism. The rollers 55, which are associated with the discharge arms 52 and 57 are adapted to similarly engage the barrel or cylindrical article so that when the barrel has once been coated the exterior thereof will in no way be marred incidental to its movement from the painting machine.

The motor 33, through the gear train described in connection therewith, effects a positive drive to each roller of the machine so that a constant rotation of the supported barrel takes place while the barrel is positioned on the machine, which rotation permits the operator to spray or otherwise apply the coating to the barrel over its entire periphery.

It will be seen in connection with the above description that the mechanism comprising my invention is particularly applicable to be used in the coating of barrels and like articles and that the manner in which such barrels are subjected is different from, and has advantages over, any means heretofore employed to support cylindrical articles during the coating process. Only so much of my invention has been described as has been considered pertinent to the operation thereof and the description is believed to be sufficient for those acquainted with the art of coating cylindrical articles, suffice it to say that detail changes might be made in the various forms of the construction here chosen for purposes of illustration without in any way departing from the principles of my invention.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a mechanism of the character described, the combination of spaced paired rollers having their peripheries oppositely inclined to radially and axially support a cylindrical article by engaging its periphery at the terminals thereof, and rollers revolubly mounted on arcuately movable arms adapted to similarly engage such article and move the same off said first named rollers.

2. In a mechanism of the character described, the combination with a base frame; of transverse frames mounted for relative movement on said base; paired rollers rotatably mounted on said transverse frames, said rollers having their peripheries oppositely inclined to radially and axially support a cylindrical article by engaging its periphery at the terminals thereof, and movable means for similarly engaging such article to move the same off said rollers.

3. In a mechanism of the character described, the combination with a base frame, of transverse frames movably mounted on said frame, paired conical rollers revolubly mounted in said transverse frames, said pairs of rollers having their peripheries oppositely inclined to radially and axially support a cylindrical article by engaging its periphery at the terminals thereof, and rollers revolubly mounted on movable arms adapted to similarly engage such article and move the same off said first named rollers.

4. In a mechanism of the character described, the combination with a base frame, of transverse frames movably mounted on said frame, means associated with said base adapted to move said transverse frames away from and toward each other, paired conical rollers revolubly mounted in said transverse frames, said pairs of rollers having their peripheries oppositely inclined to radially and axially support a cylindrical article by engaging its periphery at the terminals thereof, and rollers revolubly mounted on arcuately movable arms adapted to similarly engage such article and move the same off said first named rollers.

5. In a mechanism of the character described, the combination of spaced paired rollers having their peripheries oppositely inclined to radially and axially support a cylindrical article by engaging its periphery at the terminals thereof, rollers revolubly mounted on arcuately movable arms adapted to similarly engage such article and move the same off said first named rollers, and means for singly feeding such articles to said first named rollers.

6. In a mechanism of the character described, the combination of spaced paired rollers having their peripheries oppositely inclined to radially and axially support a cylindrical article by engaging its periphery at the terminals thereof, rollers revolubly mounted on arcuately movable arms adapted to similarly engage such article and move the same off said first named rollers, means for singly feeding such articles to said first named rollers, and operable means interconnecting said arms and said feeding means adapted to effect a simultaneous actuation of said discharge arms and said feeding means.

Signed by me, this 25th day of January, 1930.

KARL F. SNOW.