Nov. 4, 1941. A. S. JACKSON 2,261,255

DECORATING APPARATUS

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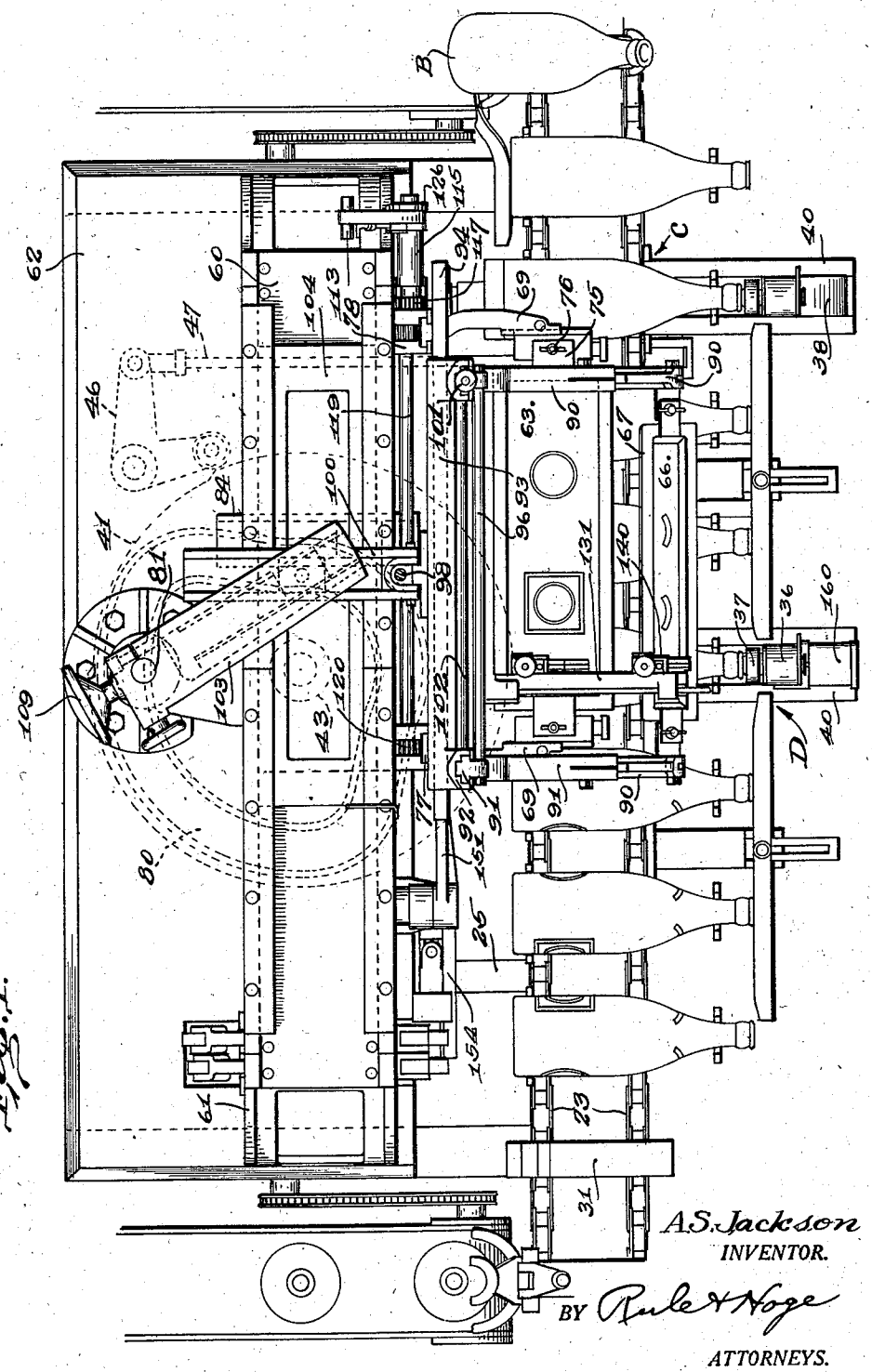


Fig. 1.

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BY Rule & Hoge
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DECORATING APPARATUS

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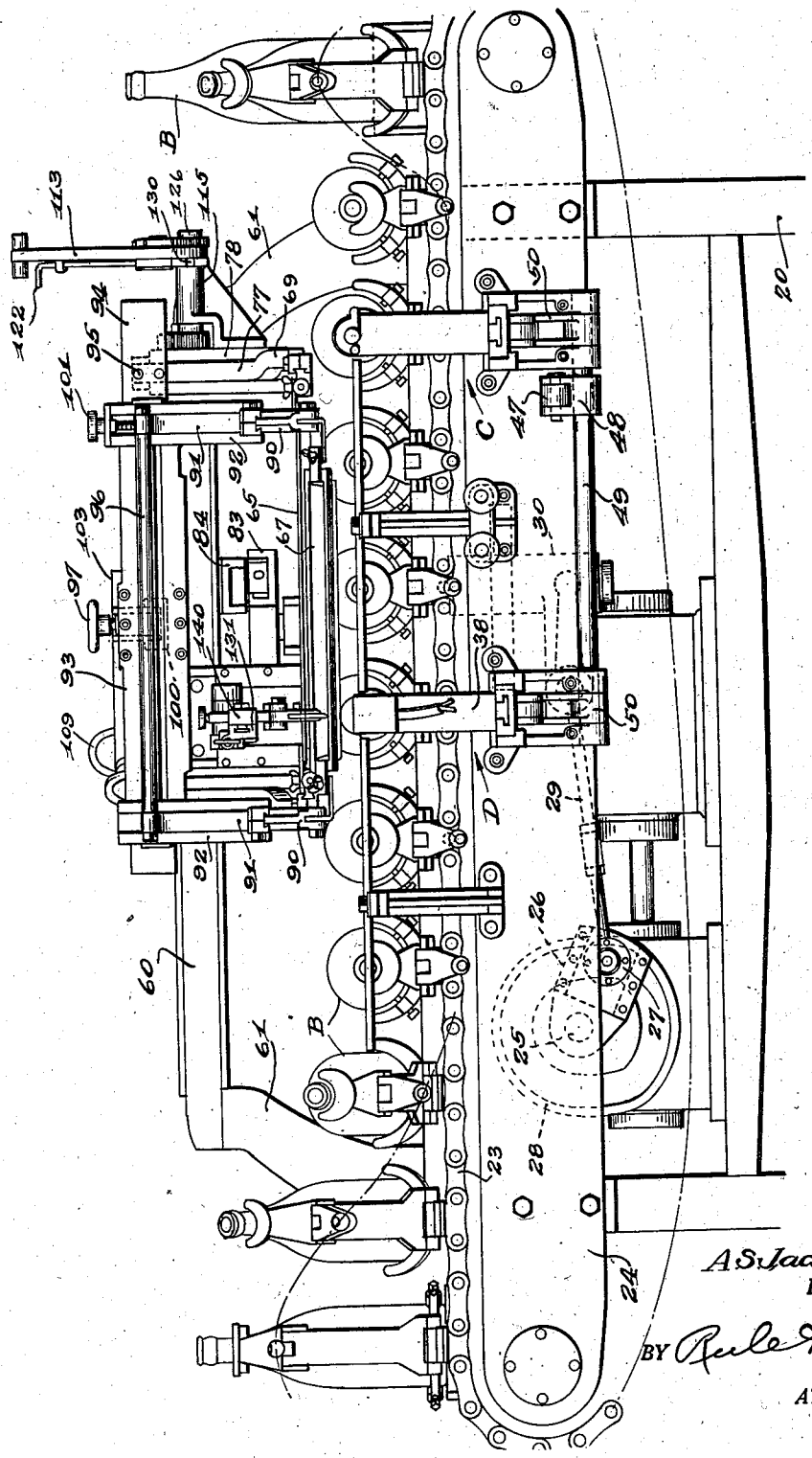


Fig. 2.

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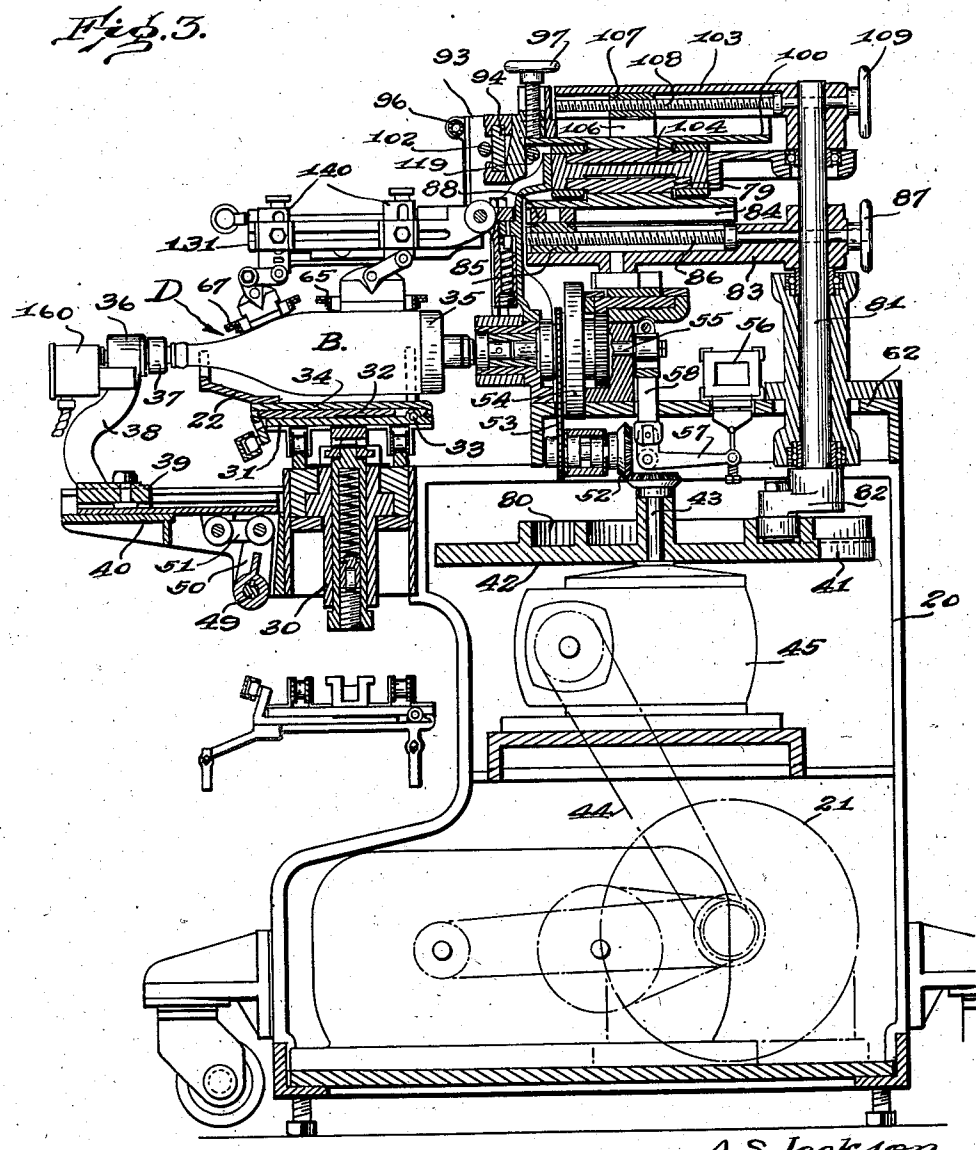
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DECORATING APPARATUS

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Fig. 3.



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Nov. 4, 1941. A. S. JACKSON 2,261,255

DECORATING APPARATUS

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Fig. 4.

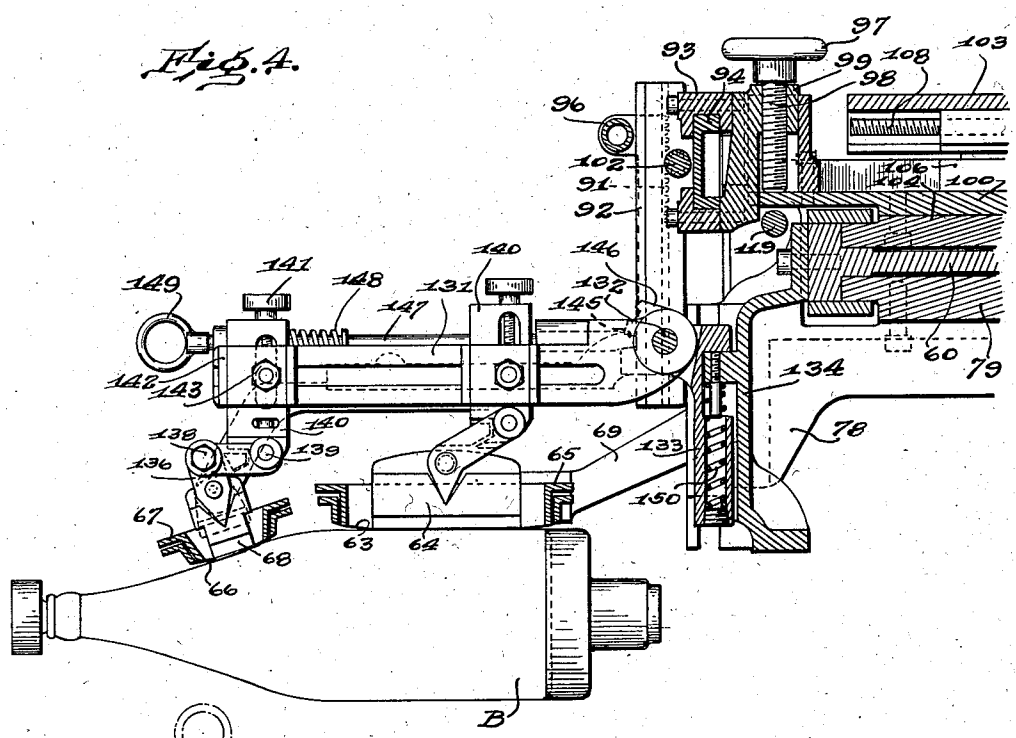
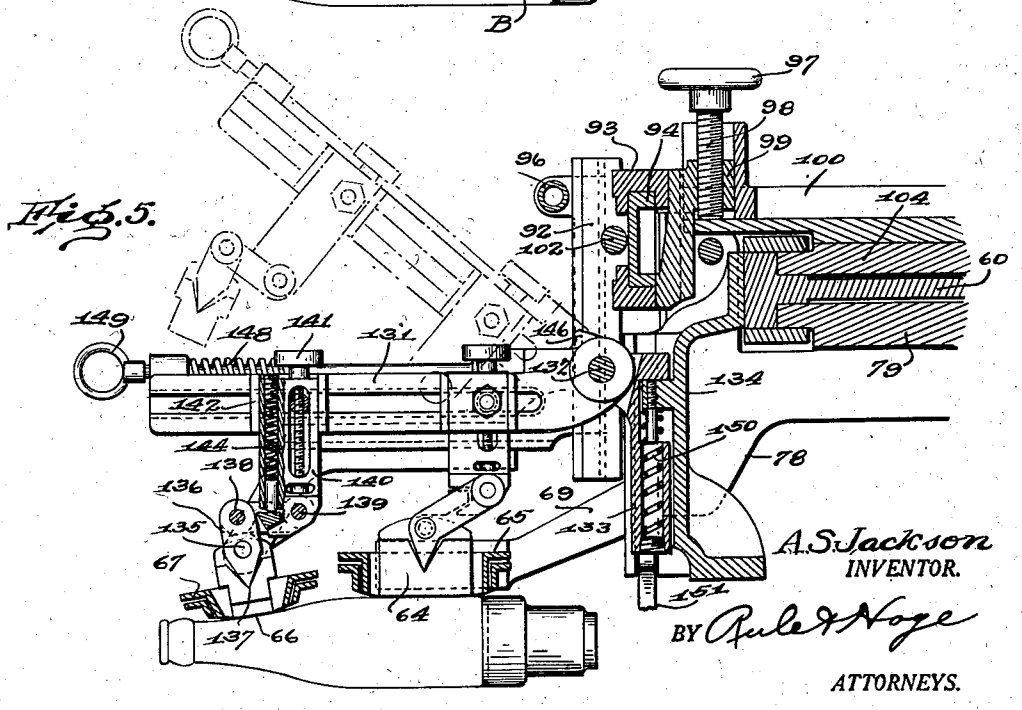


Fig. 5.



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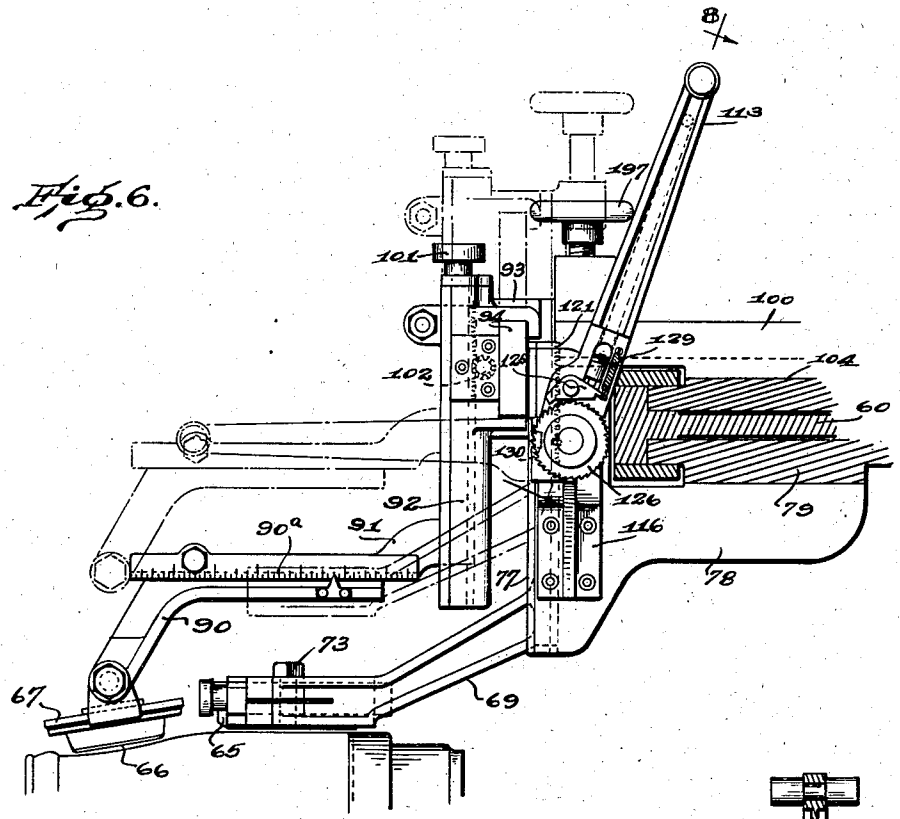
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DECORATING APPARATUS

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Fig. 6.



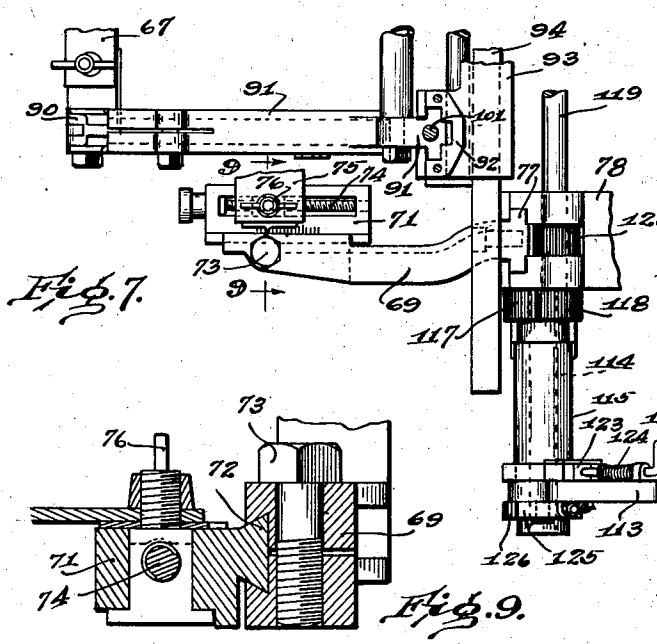


Fig. 7.

Fig. 9.

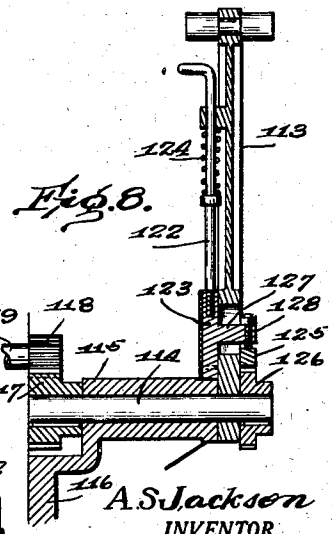


Fig. 8.

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DECORATING APPARATUS

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Fig. 10.

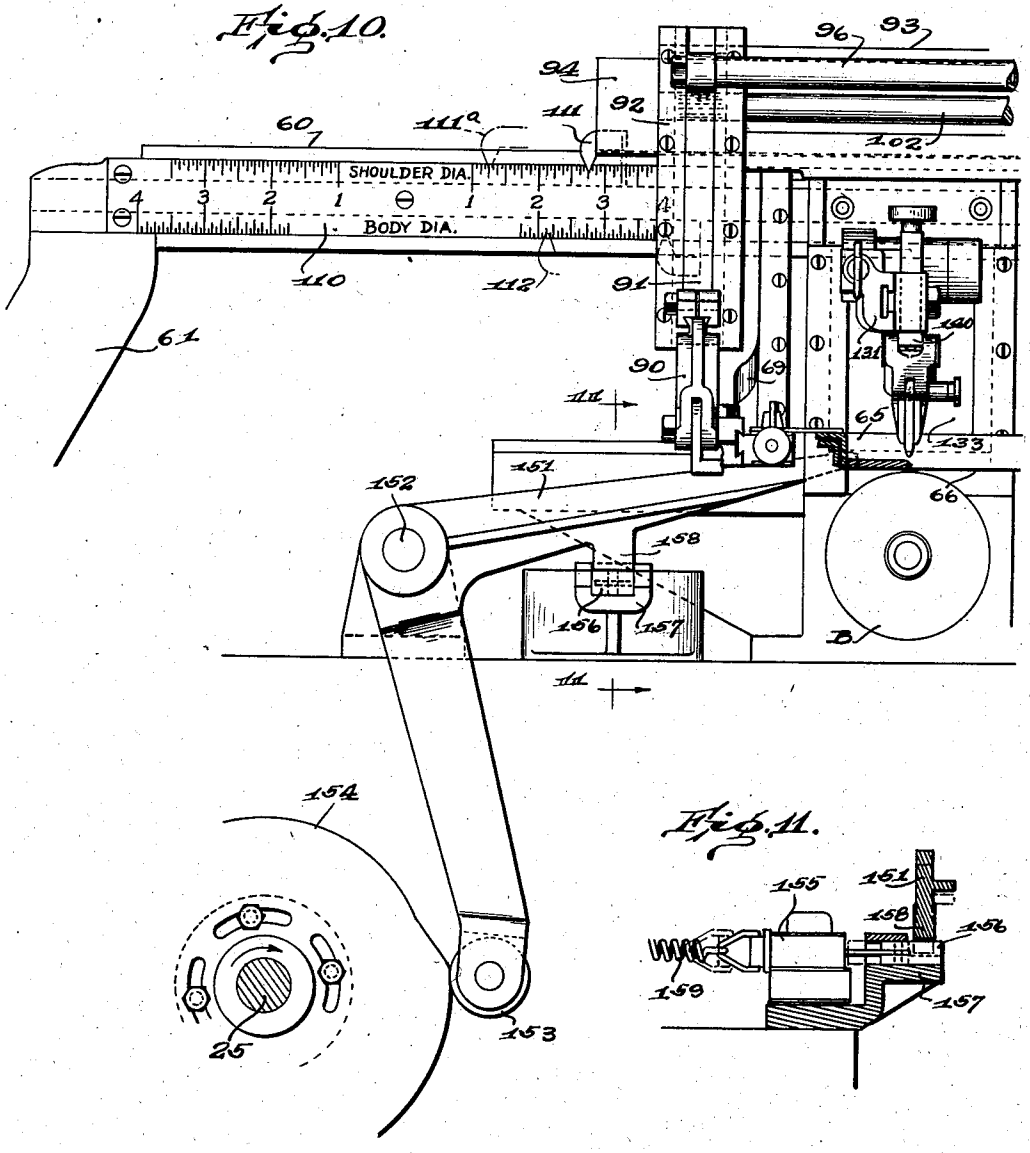


Fig. 11.

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Patented Nov. 4, 1941

2,261,255

UNITED STATES PATENT OFFICE

2,261,255

DECORATING APPARATUS

Albert S. Jackson, Wood River, Ill., assignor to Owens-Illinois Glass Company, a corporation of Ohio

Application November 8, 1939, Serial No. 303,424

10 Claims. (Cl. 101—124)

My invention relates to apparatus for decorating the surfaces of bottles and other articles and in its preferred form is adapted for applying color designs or decorations by a screen process in which the coloring or decorating materials are applied to the surface of the article as by stencilling through a screen or the like.

An object of my invention is to provide an improved apparatus which is designed for simultaneously applying decorations to different surface portions of the article having different diameters, as, for example, the body and shoulder or neck portions of a bottle of conventional form.

A further object of the invention is to provide novel means to effect rolling contact between the article and the screens by which the latter are caused to advance simultaneously along the surfaces to be decorated at different rates, corresponding to the peripheral speeds at which the respective surfaces are being rotated.

A further feature of the invention relates to adjusting and indicating mechanisms by which the apparatus may be adjusted for operation with articles of different dimensions and by which the required adjustments may be made and determined in advance of the decorating operations.

A further feature of the invention relates to novel mechanism for automatically holding the decorating devices in an inoperative position when an article is missing so that an empty cradle is presented at the decorating station.

Other objects of the invention will appear hereinafter.

Referring to the accompanying drawings:

Fig. 1 is a plan view of apparatus embodying the present invention;

Fig. 2 is a front elevation of the same;

Fig. 3 is a sectional side elevation, the section being taken at a decorating station;

Fig. 4 is a fragmentary sectional elevation showing the decorating apparatus during a decorating operation;

Fig. 5 is a similar view showing the apparatus adjusted for operation on a comparatively small article;

Fig. 6 is a part sectional elevation of the decorating devices and manual means for lifting them to an inoperative position;

Fig. 7 is a fragmentary plan view of the mechanism shown in Fig. 6;

Fig. 8 is a section at the line 8—8 of Fig. 6;

Fig. 9 is a section on a larger scale at the line 9—9 on Fig. 7;

Fig. 10 is a fragmentary sectional elevation showing a portion of the decorating screen carriage and means for periodically lifting and holding the squeegees in an inoperative position; and

Fig. 11 is a section at the line 11—11 on Fig. 10, showing an electromagnetic device for holding the decorating means in an inoperative position when an empty cradle is presented at the decorating station.

The preferred form of my invention as shown in the accompanying drawings may be considered as comprising improvements on the apparatus disclosed in Patent Number 2,231,535, February 11, 1941, in the names of Albert Jackson and Clarence A. Heyne. In said copending application there is disclosed an apparatus by which bottles or the like which are to be decorated are automatically delivered to cradles on an endless conveyor which is advanced step by step, bringing the articles to positioning stations where they are first rotated to a predetermined position, thereby determining the position at which the decoration is applied, the articles being thereafter rotated at a decorating station or stations during the decorating operations. In said apparatus the decorations are applied to the cylindrical body portion of the bottles.

The present invention is shown in an apparatus which in many respects is substantially identical with that disclosed in said copending application. The present invention comprises modifications and additions by which the shoulders of the bottles may be decorated at the same time as the body portions and to this end provides decorating means to engage simultaneously the body and shoulder surfaces of the rotating bottle. The decorating screens move over said surfaces at speeds substantially equal to the peripheral speeds of the surfaces, said speeds being proportional to the diameters of the said body and shoulder respectively.

Referring particularly to Figs. 1, 2 and 3, the apparatus comprises a framework 20 including a hollow base within which is mounted a continuously running electric motor 21 connected through suitable driving means for operating the various parts of the apparatus. The articles which are to be decorated, herein shown as bottles B of conventional form, are deposited on cradles 22 on an endless conveyor comprising parallel sprocket chains 23 trained over sprocket wheels at opposite ends of the conveyor frame 24 mounted on or forming a part of the framework 20. The conveyor is driven by the motor 21 through mechanism by which it is advanced step by step, thereby bringing the bottles in suc-

cession to the adjusting and decorating stations. These include a station C at which the bottles are rotatively adjusted preliminary to the decorating operation, and a decorating station D at which the color decorations are applied.

The means for driving the cradle conveyor includes a shaft 25 (Fig. 2) continuously driven by the motor 21 through suitable driving connections (not shown). A crank arm 26 on the shaft 25 has connected thereto a head 27 which may be adjustable lengthwise of the arm 26, said head carrying a cam roll running on a stationary cam track 28. A connecting rod 29 connects the head 27 with a connector frame 30 by which an operative connection with the cradle conveyor is effected. The construction is such that the conveyor is advanced step by step, being held stationary during the operations of adjusting and decorating the bottles. As the preferred means for driving the cradle conveyor is the same as that disclosed in the above mentioned Patent 2,231,535 and does not in itself form a part of the present invention, a more detailed illustration thereof is not deemed necessary herein.

The cradles 22 are supported on cross-bars 31 which are arranged at intervals along the conveyor and connected at their ends to the conveyor chains. Each cradle comprises a bar 32 overlying the supporting bar 31 and connected thereto by a pivot 33 near the inner end of the cradle, permitting the cradle to swing up and down for the purpose of receiving and discharging the bottles. The cradle also includes a bar 34 overlying the bar 32 and removably attached thereto, permitting the substitution of other cradles corresponding to the size and shape of the particular article which is to be carried thereby.

The positioning means for holding and rotating the bottles to a predetermined position preliminary to the decorating operation will now be described. Mechanism for this purpose is illustrated particularly as used at the station D. It is to be understood, however, that if desired, substantially identical mechanism may be provided at the station C for giving the articles any further preliminary rotation that may be needed for accurate adjustment, as more fully set forth in the aforementioned Patent 2,231,535. The mechanism for holding and rotating a bottle at the station D comprises a chuck 35 for engaging the base of the bottle and a holding device 36 for holding the bottle against the chuck. The holding device includes a head chuck or center 37 carried on an arm 38 on a slide block 39 mounted to reciprocate in guides formed on an arm 40 mounted on the conveyor frame 24 and projecting forwardly therefrom.

The mechanism for reciprocating the slide blocks at the stations C and D includes a cam 41 (Figs. 1 and 3) formed on the periphery of a cam disk 42 carried on a shaft 43 by which the cam disk is rotated continuously. The shaft 43 is driven from the motor 21, the driving connections including a chain drive 44 and speed reduction gearing within a gear box 45. The cam 41 actuates a bell crank 46 (Fig. 1) connected through a rod 47 (Figs. 1 and 2) to a rock arm 48 fixed to a rock shaft 49. The rock shaft operates through rock arms 50 and links 51 (see Fig. 3) to reciprocate the slide blocks 39 and the head chucks 37 carried thereby.

When the cradle conveyor has been brought to rest after each step movement, the cam 41 operates the chucks to grip the bottles at the stations C and D. The chuck at the station D is intermittently rotated by power supplied through the shaft 43 operating through driving mechanism including bevel gears 52, a sprocket chain 53 and a friction clutch 54. The clutch comprises a clutch member or disk continuously rotated by the chain 53 and loosely mounted on a shaft 55 carrying the chuck 35. The clutch includes a friction disk fixed to the shaft 55 and movable into and out of driving contact with the first mentioned clutch member by lengthwise movement of the shaft 55. The clutch is under the control of an electromagnet 56 which, when energized, operates through a bell crank 57 and a lever 58 to move the shaft 55 lengthwise and bring the clutch members into driving engagement whereby the chuck and the bottle held thereby are rotated. When the bottle has been brought thus to the desired rotative position for receiving the color decoration, the electromagnet is deenergized (by means not shown), thereby releasing the clutch and stopping rotation of the bottle. During this rotative adjustment of the bottle the decorating screens are held in an inoperative position.

The decorating mechanism is supported on an I-beam 60 positioned above and in rear of the cradle conveyor, said beam being supported on standards 61 rising from a platform 62 mounted on the framework 20. The decorating means includes a screen 63 (see Figs. 1 and 4) herein referred to as the body screen, and the squeegee 64 cooperating therewith, for decorating the cylindrical body surface of the bottle. The screen is mounted on a screen frame 65 which may be of conventional construction. A shoulder screen 66, mounted on a screen frame 67, and a cooperating squeegee 68 are provided for decorating the shoulder or neck portion of the bottle. The screen frame 65 is carried on arms 69 at opposite ends of said frame. The frame is adjustable forwardly and rearwardly in said arms, having a slidable connection therewith. The connection between each arm 69 and the screen frame (see Figs. 7 and 9) includes a slide block 71 formed with a guide rail 72 slidably mounted in the arm 69 which comprises sections formed with a dove tailed groove to receive the rail 72. A clamping bolt 73 clamps the slide block 71 in adjusted position. The screen frame also has an adjustable connection with the slide block including an adjusting screw 74 journalled in the block and connected to a tab 75 on the end of the screen frame. A wing nut 76 clamps the tab to hold the frame in its adjusted position.

The arms 69 are formed at their rear ends with vertical extensions or bars 77 which are movable up and down in guideways formed on supporting brackets 78. The arms 69 with the extension bars 77 provide a carriage for the screen which is vertically adjustable as hereinafter described. The brackets 78 are secured to the under surface of a slide plate 79 directly beneath the I-beam 60 and extending lengthwise thereof. The plate 79 is supported in guideways for horizontal reciprocation in the direction of its length. It will be seen that with the construction just described, reciprocation of the plate 79 will reciprocate the body screen in the direction of its length for advancing the screen in rolling contact with the rotating bottle during the decorating operation.

The means for reciprocating the plate 79 and screen carried thereby includes a cam 80 (Figs. 1 and 3) formed on the cam plate 42. A vertical rock shaft 81 journalled in bearings on the plat-

form 62, carries a rock arm 82 at its lower end on which is a cam roll running on the cam 80. An arm 83 attached to the rock shaft 81 and extending forwardly therefrom is operatively connected to the slide plate 79 by means of a channel bar 84 fixed to the lower side of the slide plate and extending horizontally at right angles to said plate. An adjusting block 85 is adjustably mounted in a channel formed in the arm 83 for movement lengthwise of said arm. Such adjustment is effected by a screw 86 journalled in the arm 83 and threaded through the block 85, said screw being operated by a hand wheel 87. The block 85 carries a roll 88 which runs in the channel bar 84.

The cam 80 is so designed that the movement transmitted therefrom through the rock shaft 81 and arm 83 will cause the slide plate 79 and screen carried thereby to advance at the same surface speed as the cylindrical surface of the bottle B during the decorating operation. It will be noted that the means for rotating the chuck and bottle are interconnected with the means for reciprocating the decorating screen, the motion being transmitted to both said parts from the shaft 43. As the surface speed at which the bottle is rotated is proportional to the diameter of the bottle, the speed of the screen must be correspondingly adjusted when bottles of a different diameter are to be decorated, such adjustment being effected by rotating the hand wheel 87 and thereby adjusting the effective length of the rock arm 83.

The shoulder screen frame 67 is carried at the forward ends of arms 90 formed on and projecting forward from vertical rack bars 91, said arms and rack bars providing a carriage for the screen frame. The arms 90 as shown comprise telescopic sections permitting the screen to be adjusted forwardly and rearwardly, the position of adjustment being indicated by a scale 90a (Fig. 6). The rack bars 91 are mounted to slide up and down in guideways formed in vertical posts or standards 92 integral with or attached to the ends of horizontal frame pieces or bars 93. The bars 93 slidably embrace the upper and lower sides of a channel-shaped guide bar 94 extending lengthwise of the machine and connected as by means of rivets 95 (Fig. 2) to the vertical bars 77 of the body screen carriage. There is thus provided a sliding connection between the posts 92 and the bar 94 permitting the shoulder screen to be reciprocated horizontally relative to the body screen. A tubular rod 96 extends horizontally between the rack bars 91 and is rigidly connected at its ends to said bars.

The screen frames are adjustable up and down by means of a hand wheel 97 on an adjusting screw 98 threaded through an adjusting block 99 having a fixed connection with the frame bars 93. The lower end of the screw 98 bears on the forward end of a channel bar 100 which thus supports the weight of the screen frames. By rotating the hand wheel 97 in one direction the screen frames are adjusted upwardly as may be required for decorating a bottle of comparatively large diameter (Fig. 4). Rotation of the hand wheel 97 in the opposite direction permits the frames to move downward by gravity, thereby adjusting them for a comparatively small bottle (Fig. 5). The shoulder screen frame is adjustable relative to the body screen frame by means of an adjusting screw 101 (Fig. 2) which has a threaded connection with one of the rack bars 91 so that rotation of said screw raises or lowers said rack bar. The up and down movement of said rack bar is transmitted to the other rack bar through a shaft 102 (see Figs. 1 and 4) formed with rack teeth engaging said rack bars.

The shoulder screen is caused to travel along the shoulder of the bottle during the decorating operation by motion-transmitting mechanism substantially like that above described in connection with the body screen. Such mechanism for driving the shoulder screen includes an arm 103 attached to the rock shaft 81 and extending forwardly therefrom. Said arm has a driving connection with a slide plate 104 mounted above the I-beam 60 for reciprocation lengthwise thereof. The channel bar 100 is fixed to the plate 104 and has slidably supported therein a connector block 106, pivotally connected to a slide block 107 adjustable lengthwise in the arm 103 by means of an adjusting screw 108 and hand wheel 109. The speed of the shoulder screen is adjusted relative to that of the body screen by means of the hand wheel 109, to correspond to the diameter of the surface to which the shoulder decoration is being applied.

Referring to Fig. 10, a scale plate 110 mounted on the beam 60 is provided with scale markings along its upper margin over which is a pointer 111 carried on the bar 94. The position of the pointer 111 on the scale when the shoulder screen frame has been moved to the limit of its movement in either direction indicates the shoulder diameter for which the mechanism is set. For example, if it is desired to decorate a comparatively large bottle, as shown in Fig. 4, the mean diameter of the shoulder portion to which the decoration is to be applied being, for example, two and three-fourths inches, the hand wheel 109 is adjusted to bring the pointer 111 to the position shown indicating a shoulder diameter of two and three-fourths inches. If a bottle of small shoulder diameter, for example, one and one-fourth inches, is to be decorated, adjustment will be made to bring the pointer 111 to the broken line position 111a indicating one and one-fourth inches diameter. The scale plate is provided along its lower margin with scale markings cooperating with a pointer 112 for indicating adjustments for the body screen frame. These scale markings are likewise calibrated to indicate the body diameter in inches. The pointer 112 is carried with the body screen frame.

It is sometimes desirable to lift the screens and hold them in an elevated position. Mechanism for this purpose is illustrated in Figs. 1, 2, 6, 7 and 8. Such mechanism includes a hand lever 113 mounted to swing about the axis of a shaft 114 journalled in a bearing sleeve 115 formed on a bracket 116 attached to the bracket 78. Keyed to the inner end of the shaft 114 is a gear wheel 117 which meshes with a pinion 118 on one end of a shaft 119. Pinions 120 also secured to the shaft 119, engage rack teeth 121 (Fig. 6) formed on the bars 77.

Mounted on the hand lever 113 for movement lengthwise thereof is a rod 122 carrying at its inner end a head 123 normally held in its lowered position under the tension of a coil spring 124 mounted on said rod. A pawl 125 pivotally mounted on the lever 113 is adapted to engage a ratchet wheel 126 on the shaft 114. A lug 127 on the head 123 carries a stop screw 128 which engages the pawl and normally holds it out of contact with the ratchet wheel. When the operator desires to lift the screen frames he grasps the handle of the lever 113 and a finger-piece

on the rod 122 and pulls said rod upward against the tension of the spring 124, thereby releasing the pawl and permitting it to move into engagement with the ratchet under the influence of a spring 129 (Fig. 6). He then swings the lever forward and downward to the broken line position (Fig. 6). This movement of the lever operates through the shaft 114, gears 117, 118, 120, and rack bars 77 to lift the screen frames. The hand lever is held in its forward position by means of a lug on the head 123 engaging a notch 130 (Fig. 6) formed in the bearing sleeve 115. The notch 130 is comparatively shallow so that the head 123 does not move inwardly a sufficient distance to release the pawl 125. The screen frames are therefore held in their lifted position.

The squeegees 64 and 68 are carried on a horizontally disposed frame or arm 131 (Figs. 1, 4 and 5) connected by a pivot pin 132 to a slide block 133 mounted for vertical sliding movement in guideways formed in a bracket 134 which is bolted to the I-beam 60.

Referring to Fig. 5, the shoulder screen frame 67 is loosely connected by a pivot pin 135 to a vertically disposed arm 136. The screen frame may have a limited rocking movement about the lower pointed end 137 of the arm 136, permitting the frame to adjust itself to the particular angle of the surface which is being decorated. The arm 136 is fulcrumed at 138 on a second arm which in turn is pivoted at 139 to a vertically disposed slide block 140 adjustable up and down on the frame 131, such adjustment being effected by a hand operated screw 141. The slide 140 is also adjustable lengthwise of the arm 131 and for this purpose is mounted in a slide block 142 slidable lengthwise on the arm 131 and clamped in adjusted position by a nut 143 (Fig. 4). A coil spring 144 mounted in the slide 140 serves to hold the squeegee downward with a yielding pressure against the screen during the decorating operation.

The body squeegee 64 is also mounted for adjustment lengthwise of the arm 131 and for vertical adjustment substantially in the same manner as the shoulder squeegee. The squeegee frame may be swung upward by hand about its pivot 132 to the broken line position shown in Fig. 5 and held in such position by a dog 145 engaging a notch in a holding rack 146. Said dog is carried by a rod 147 held in locking position by a spring 148 and adapted to be withdrawn by a handle 149. The arm 131 is also held in its lowered position by said dog 145 engaging a lower notch in the rack 146.

Referring to Figs. 4 and 5 the slide 133 which carries the squeegee arm has a limited up and down movement in the bracket 134 as before noted and is yieldingly held in its lowered position by a coil spring 150. While held in this position the squeegees bear against the decorating screens and function in the usual manner to force the decorating material through the screens during the decorating operation. During the intervals between such operations the slide 133 is held in an upward position in which the squeegees are lifted away from the screens. Referring to Fig. 10 the means for lifting the squeegee arm includes a bell crank lever 151 mounted to swing about a stationary fulcrum 152. One arm of the lever carries a cam roll 153 running on a cam 154 mounted on the shaft 25. The other arm of the bell crank lever projects beneath the slide 133 for lifting the latter under the influence of the cam 154.

If an empty cradle is presented at the decorating station the squeegee arm is automatically retained in its lifted position during the decorating period. Means for this purpose comprises an electromagnet 155 (Fig. 11), the solenoid of which is connected to a stop block 156 slidable in a supporting bracket 157 on which the electromagnet is mounted. When the magnet is energized the stop block 156 is moved to the right as shown in full lines in Fig. 11 in which position it engages beneath a lug 158 on the bell crank 151, thereby holding the squeegee arm in its lifted position. The electromagnet remains deenergized during normal operations and is held in the retracted position out of the path of the bell crank by a coil spring 159. The electromagnet is under the control of a switch mechanism within a switch box 160 (Fig. 3). This comprises a switch operated by the head chuck 37 (as more fully set forth in said copending application) to close the switch and actuate the holding device (Fig. 11) when an empty cradle is presented at the decorating station.

Modifications may be resorted to within the spirit and scope of my invention.

I claim:

1. Apparatus for decorating a round bottle or the like comprising a chuck for holding the bottle, a motor, driving mechanism by which motion is transmitted from the motor to the chuck for rotating the latter, decorating devices for applying decorations to the cylindrical body and the shoulder of the bottle respectively, means for causing said decorating devices to travel in rolling contact with the rotating bottle, comprising a cam driven by the motor, a rock shaft actuated by said cam, rock arms connected to said rock shaft, reciprocating elements carrying said decorating devices respectively, and operating connections between said rock arms and said elements for reciprocating the latter at speeds corresponding to the peripheral speeds of said body and shoulder surfaces.

2. Apparatus for decorating a round bottle or the like comprising a chuck for holding the bottle, a motor, driving mechanism by which motion is transmitted from the motor to the chuck for rotating the latter, decorating devices for applying decorations to the cylindrical body and the shoulder of the bottle respectively, means for causing said decorating devices to travel in rolling contact with the rotating bottle, comprising a cam driven by the motor, a rock shaft actuated by said cam, rock arms connected to said rock shaft, reciprocating elements carrying said decorating devices respectively, operating connections between said rock arms and said elements for reciprocating the latter at speeds corresponding to the peripheral speeds of said body and shoulder surfaces, and adjusting means individual to said rock arms for adjusting the effective length of said arms and thereby adjusting the speed at which said elements are driven to correspond to the diameters of the surfaces to be decorated.

3. Apparatus for decorating bottles or the like comprising a chuck for holding the bottles, a motor, driving connections between the motor and said chuck, decorating devices each comprising a screen frame and screen, one of said screens positioned to engage the cylindrical body surface of the bottle, the other positioned to engage the shoulder surface of the bottle, and means for reciprocating said frames and causing the screens to advance while in rolling contact with the bot-

tle at speeds corresponding to the peripheral speeds of the said surfaces, said means for advancing the screens comprising a cam driven by said motor, a rock shaft rocked by said cam, rock arms connected to the rock shaft, slide plates connected respectively to the screen frames, and driving elements connected to said rock arms and having driving connections respectively with said slide plates.

4. Apparatus for decorating bottles or the like comprising a chuck for holding the bottles, a motor, driving connections between the motor and said chuck, decorating devices each comprising a screen frame and screen, one of said screens positioned to engage the cylindrical body surface of the bottle, the other positioned to engage the shoulder surface of the bottle, and means for reciprocating said frames and causing the screens to advance while in rolling contact with the bottle at speeds corresponding to the peripheral speeds of the said surfaces, said means for advancing the screens comprising a cam driven by said motor, a rock shaft rocked by said cam, rock arms connected to the rock shaft, slide plates connected respectively to the screen frames, driving elements connected to said rock arms and having driving connections respectively with said slide plates, and means for adjusting said driving elements lengthwise of said arms and thereby adjusting the speeds at which said slide plates are moved.

5. Apparatus for decorating bottles or the like comprising a chuck for holding the bottles, a motor, driving connections between the motor and said chuck, decorating devices each comprising a screen frame and screen, one of said screens positioned to engage the cylindrical body surface of the bottle, the other positioned to engage the shoulder surface of the bottle, means for reciprocating said frames and causing the screens to advance while in rolling contact with the bottle at speeds corresponding to the peripheral speeds of the said surfaces, said means for advancing the screens comprising a cam driven by said motor, a rock shaft rocked by said cam, rock arms connected to the rock shaft, slide plates connected respectively to the screen frames, driving elements connected to said rock arms and having driving connections respectively with said slide plates, and means for adjusting said driving elements lengthwise of said arms and thereby adjusting the speeds at which said slide plates are moved, and indicating means to indicate adjustments corresponding to the diameters of the bottle at the surfaces to be decorated.

6. The combination of a decorating screen, a carriage on which the screen is supported, means for reciprocating the carriage, and carriage lifting mechanism mounted to reciprocate with the carriage for manually lifting the carriage and screen and holding them in an inoperative position, said mechanism including a hand lever, a gear train operatively connecting the lever to the carriage, and a locking device to hold the carriage in its lifted position.

7. The combination of a decorating screen, a carriage on which the screen is supported, means for reciprocating the carriage, and means mounted to reciprocate with the carriage for manually lifting the carriage and screen and holding them in an inoperative position, said lifting and holding means including a hand lever, a pawl and ratchet wheel actuated by said lever, gearing including a shaft rotated by the pawl and ratchet wheel and driving connections between said shaft and the carriage, including a vertical rack connected to the carriage and a pinion driving said rack.

8. Decorating apparatus comprising, in combination, a squeegee, a support on which the squeegee is mounted, automatic means for lowering and lifting said support and squeegee for moving the squeegee into and out of operative relation to an article to be decorated, a stop movable into position to prevent the lowering of the squeegee, and means operable automatically in the absence of an article from the decorating position to move the stop into said position.

9. Decorating apparatus comprising, in combination, a squeegee, a support on which the squeegee is mounted, automatic means for lowering and lifting said support and squeegee for moving the squeegee into and out of operative relation to an article to be decorated, and automatic means to prevent the lowering of the squeegee in the absence of an article from the decorating position, said lifting means including a lifting arm, said preventing means comprising a stop movable into and out of the path of the lifting arm, an electro-responsive means controlled by an article at the decorating station for actuating said stop.

10. Decorating apparatus comprising a squeegee, a support on which the squeegee is mounted, means for bringing articles in succession to a decorating station with the article positioned beneath the squeegee, automatic means for periodically lifting said support and the squeegee to an inoperative position including a cam, a lever actuated by the cam and comprising an arm projecting into the path of the squeegee support, a stop movable into and out of a holding position beneath said arm in which it holds the squeegee lifted out of operative position, and electro-responsive means for moving said stop into operative position upon failure of an article to be presented at the decorating station.

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