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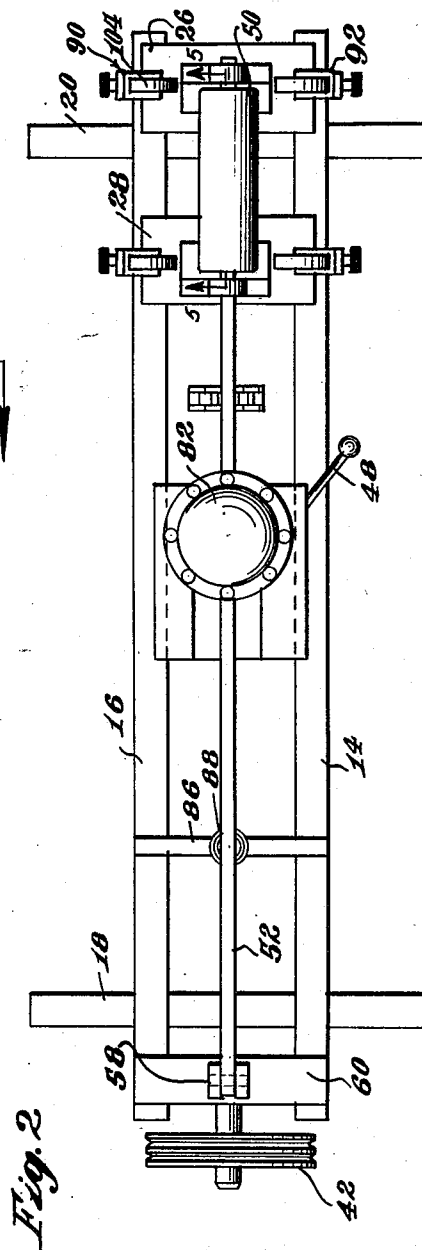
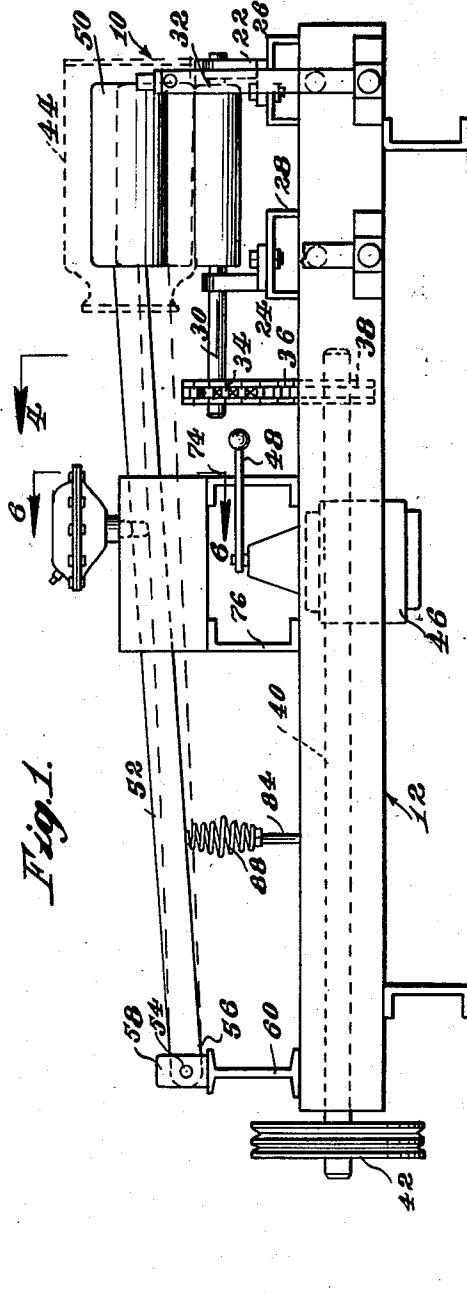
J. M. OLVEY ET AL

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APPARATUS FOR SMOOTHLY ROUNDING TUBULAR CAN BODIES

Filed March 23, 1951

2 SHEETS—SHEET 1



INVENTOR.
JUELL M. OLVEY
BY HOLLMAN B. OLVEY

McMorrow, Perlman & Davidson
ATTORNEYS

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2 SHEETS—SHEET 2

Fig. 3.

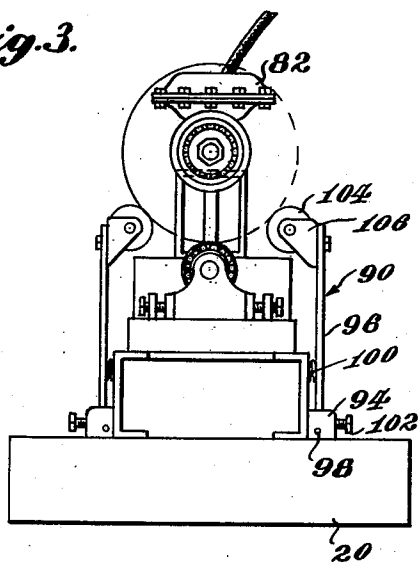


Fig. 5.

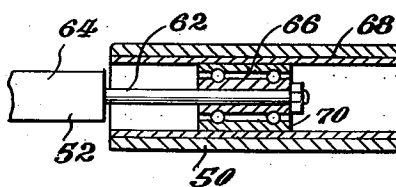


Fig. 4.

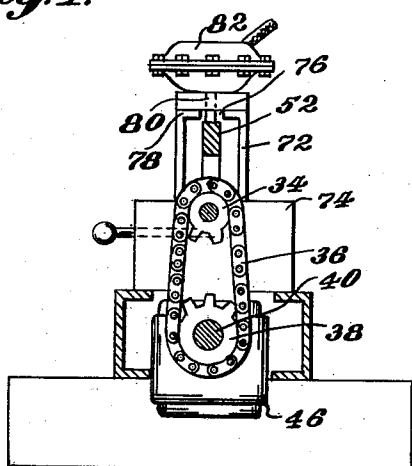
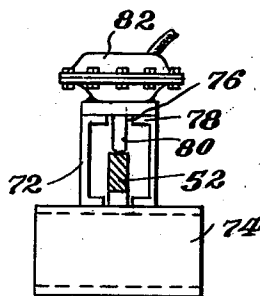


Fig. 6.



INVENTOR.
JUELL M. OLVEY
BY HOLLMAN B. OLVEY

McMORROW, Bertram & Davidson
ATTORNEYS

UNITED STATES PATENT OFFICE

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APPARATUS FOR SMOOTHLY ROUNDING
TUBULAR CAN BODIESJuell M. Olvey and Hollman B. Olvey,
East Point, Ga.

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2 Claims. (Cl. 153-54)

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This invention appertains to improvements in apparatus for smoothly rounding can bodies and particularly relates to machines, utilized for reshaping cylindrical milk cans.

The primary object of this invention is to provide a can straightening and smoothing apparatus on which cans can be operated upon, without necessitating the removal of the top or bottom of the can and with which an even pressure can be obtained.

Another object of this invention is to provide a can reshaping and smoothing apparatus, which includes a pair of cooperative rollers, the rollers engaging internally and externally the wall of a can body and applying an even pressure to straighten the wall of the can body, without stretching the wall and imposing deleterious wear and strain on the wall.

A further object of this invention is to provide a compact can reshaping apparatus, which is fast and efficient in operation.

These and ancillary objects and structural features of merit are attained by this invention, the preferred embodiment of which is set forth in the following description and illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevational view of a can reshaping machine, constructed in accordance with the principles of this invention;

Figure 2 is a top plan view thereof;

Figure 3 is an end elevational view thereof;

Figure 4 is a transverse sectional view taken on line 4-4 of Figure 1;

Figure 5 is a fragmentary longitudinal vertical sectional view taken on line 5-5 of Figure 2, and,

Figure 6 is a fragmentary transverse sectional view taken on line 6-6 of Figure 1.

Referring now more particularly to the accompanying drawings, the illustrated can reshaping and straightening apparatus 10 includes a base structure 12, which preferably consists of a pair of parallel facing channel side bars 14 and 16 mounted on transverse supporting channel bars 18 and 20.

Longitudinally spaced and aligned bearing blocks 22 and 24 are mounted by means of supports 26 and 28 on the upper edges of the side bars 14 and 16 and support a shaft 30, on which a roller 32 is circumposed, the roller being positioned between the bearing blocks. A sprocket 34 is fixedly circumposed on the end of the shaft 30, which extends inwardly from the bearing 24 and is drivingly connected by means of a chain 36 to a sprocket 38, which is fixed on the inward end of a drive shaft 40. The drive shaft 40 is rotatably journaled between the side bars 14 and

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16 and drive pulleys 42 are fixedly circumposed on the outer end thereof, the pulleys being suitably connected by a drive transmission mechanism to a prime mover (not shown).

The roller 32, which is stationary relative to the base structure, is driven about an axis paralleling the side bars 14 and 16 and paralleling the axis of the drive shaft 40 and is adapted to engage externally the wall of a can, such as the milk can 44, depicted in Figure 1.

A conventional transmission 46 is operatively associated with the drive shaft 40 and is controlled by a manual actuable lever 48, so as to control the rotative movements of the roller 32, the roller being rotatable in clockwise and counterclockwise directions.

An idler shaping roller 50 is provided for cooperation with the driven shaping roller 32, the roller 50 being arranged to be inserted within the can 44 to engage the interior surface of the sidewall of the can in direct opposition to the driven roller 32. A longitudinal pressure lever supports the idler roller 50 on an end thereof and the opposite end 56 of the lever is mounted on the adjacent end of the base structure by a pivot pin which traverses a pair of upstanding ears 58 which are fixed on a transverse supporting bar 60 mounted on the upper edges of the side bars 14 and 16, near the pulleys 42. A stub axle 62 is downwardly offset from the longitudinal axis of the pressure lever 52 and is suitably anchored in the end 64 thereof. A ball bearing assembly 66 is circumposed on the outer end of the stub axle 62 and positioned thereon in any suitable manner. The insert 68 of the roller 50 is fixedly circumposed on the outer race 70 of the ball bearing assembly 66, so that the idler roller 50 is mounted on the pin 62 for free rotative movement, without any frictional drag.

A sleeve 72 is mounted on a pair of cross bars 74 and 76 which are transversely fixed on the upper edges of the side bars 14 and 16, the sleeve 72 being longitudinally disposed with the pressure lever 52 extending through the sleeve. A vertical opening 76 is formed in the top wall 78 of the sleeve for the reception of a plunger 80, which is adapted to bear on the upper edge of the pressure lever 52, as illustrated in Figure 4. The plunger 80 is actuated by a hydraulic ram 82 mounted on the top wall 78 of the sleeve. The ram 82 is operative to urge the lever 52 downwardly so as to engage the idler roller 50 with the internal surface of the sidewall of the can 44 in opposition to the driven roller 32.

A lug 84 projects upwardly from a cross bar 86, mounted on the side bars 14 and 16, and forms an abutment for the lower end of a spring 88,

which is affixed at its upper end to the underside of the lever 52, intermediate the pivot 54 and the plunger 80 and serves to yieldably urge the lever upwardly.

A pair of longitudinally spaced guide roller elements 90 are carried by the side bar 16 and a circular pair of guide roller elements 92 are carried by the side bar 14, the pairs of guide roller elements being in opposed arrangement and being positioned to engage a lower part of the external surface of the side wall of the can 44 at points adjacent to opposite ends of the can on a level above the driven roller 32.

Each of the guide rollers is similarly constructed and, as seen in Figure 3, includes a base block 94, which is fixedly mounted on one of the frame side bars 14 or 16 and in which an upstanding bar 96 is pivoted by a pin 98, the bar being thereby swingable toward and away from the roller 32 about a horizontal axis. The blocks are fixed to the outer sides of the side bars 14 and 16, and springs 100 compressed between the side bars and the bars 96 urge the bars 96 outwardly. Stop screws 102 are threadingly carried by the blocks above the pivots 98 and bear against the bars 96 for locking the bars in selected vertical planes, against the tension of the springs 100. Rollers 104 are rotatably journaled in U-shaped supports 106, which are affixed to the laterally inward sides of and at the upper ends of the bars 96.

In operation, a can body is disposed on the idler roller 50 and the guide roller bars 96 are adjusted to bring the rollers 104 into positive engagement with the external surface of the side wall of the can, as seen in Figure 3. The ram 80 is then actuated to move the lever 52 about the pivot 54 and bring the rollers 50 and 32 into co-operative relationship, so that the rollers engage externally and internally the wall of the can with sufficient force to roll and shape the can side wall to its original cylindrical contour.

Upon release of the ram 82 the spring 88 is operative to raise the lever 52 and thereby elevate the idler roller 50 away from the fixed roller 32 and free the reshaped can for removal from the idler roller 50.

Obviously, by employing the hand lever 48, the driven roller 32 may be rotated in opposite directions, dependent upon the particular operation or the desires of the workman, which, of course, would be influenced by the condition of the can body.

Having thus described this invention, what is claimed is:

1. In apparatus for restoring the plane cylindrical contour of a dented can sidewall, a base, a drive shaft extending longitudinally of said base and journaled thereon, said drive shaft having an end located at one end of said base provided with means for connection to a power source, the other end of said drive shaft terminating in longitudinally spaced relation to the other end of the base, a fixed shaping roller mounted on said base between the said other end of the drive shaft and the said other end of the base, said fixed roller having its axis parallel to and spaced laterally from one side of said base, said fixed roller having an end operatively connected to said other end of the drive shaft, a pressure lever extending longitudinally along said one side of the base and laterally spaced therefrom, means pivoting one end of said lever to the said one end of the base, spring means acting between said one side of the base and an intermediate part of said lever and

normally urging said lever outwardly away from said one side of the base, a movable shaping roller journaled on the other end of said lever with its axis paralleling the axis of said fixed shaping roller, said movable roller being positioned at the side of said fixed roller remote from the said one side of the base, and pressure exerting means mounted on said base and engaging an intermediate part of said lever for swinging said lever laterally inwardly toward the said one side of the base with a can circumposed on said movable roller so as to engage the can sidewall with the fixed roller with sufficient selected force to roll and reshape the can sidewall between the rollers.

2. In apparatus for restoring the plane cylindrical contour of a dented can sidewall, a base, a drive shaft extending longitudinally of said base and journaled thereon, said drive shaft having an end located at one end of said base provided with means for connection to a power source, the other end of said drive shaft terminating in longitudinally spaced relation to the other end of the base, a fixed shaping roller mounted on said base between the said other end of the drive shaft and the said other end of the base, said fixed roller having its axis parallel to and spaced laterally from one side of said base, said fixed roller having an end operatively connected to said other end of the drive shaft, a pressure lever extending longitudinally along said one side of the base and laterally spaced therefrom, means pivoting one end of said lever to the said one end of the base, spring means acting between said one side of the base and an intermediate part of said lever and normally urging said lever outwardly away from said one side of the base, a movable shaping roller journaled on the other end of said lever with its axis paralleling the axis of said fixed shaping roller, said movable roller being positioned at the side of said fixed roller remote from the said one side of the base, and pressure exerting means mounted on said base and engaging an intermediate part of said lever for swinging said lever laterally inwardly toward the said one side of the base with a can circumposed on said movable roller so as to engage the can sidewall with the fixed roller with sufficient selected force to roll and reshape the can sidewall between the rollers, said base having laterally adjustable guide roller elements mounted on said base at opposite sides of said fixed roller, said roller elements including rollers for engaging the can sidewall and being laterally adjustable to support and center a can relative to said fixed roller.

JUELL M. OLVEY.
HOLLMAN B. OLVEY.

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