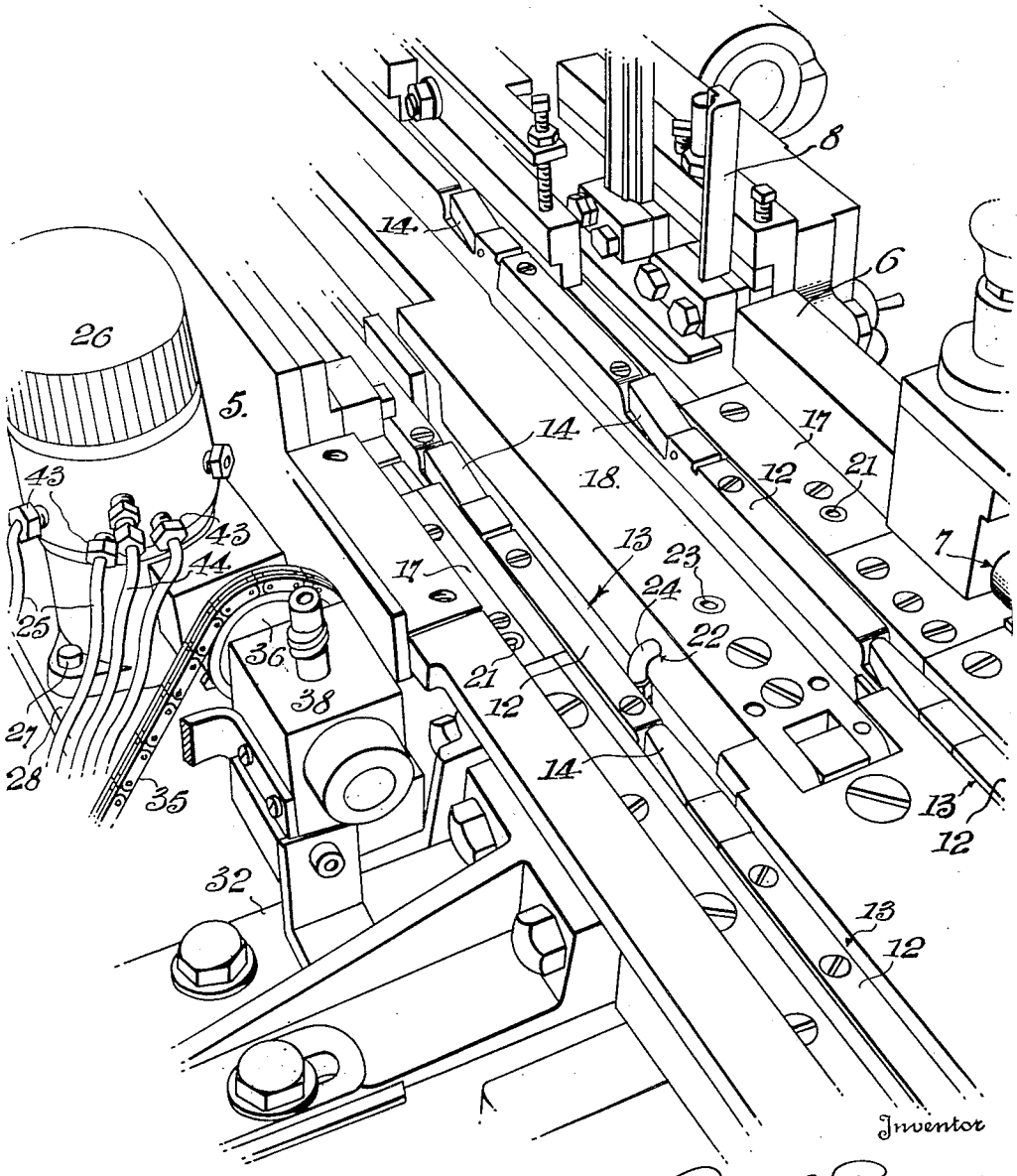
Dec. 30, 1941. P. E. PEARSON 2,268,298

BODY BLANK LUBRICATING MEANS FOR CAN BODY FORMING MACHINES

Filed Nov. 17, 1939 3 Sheets-Sheet 1

Fig. 1.



Inventor

Paul E. Pearson

By Mason & Porter

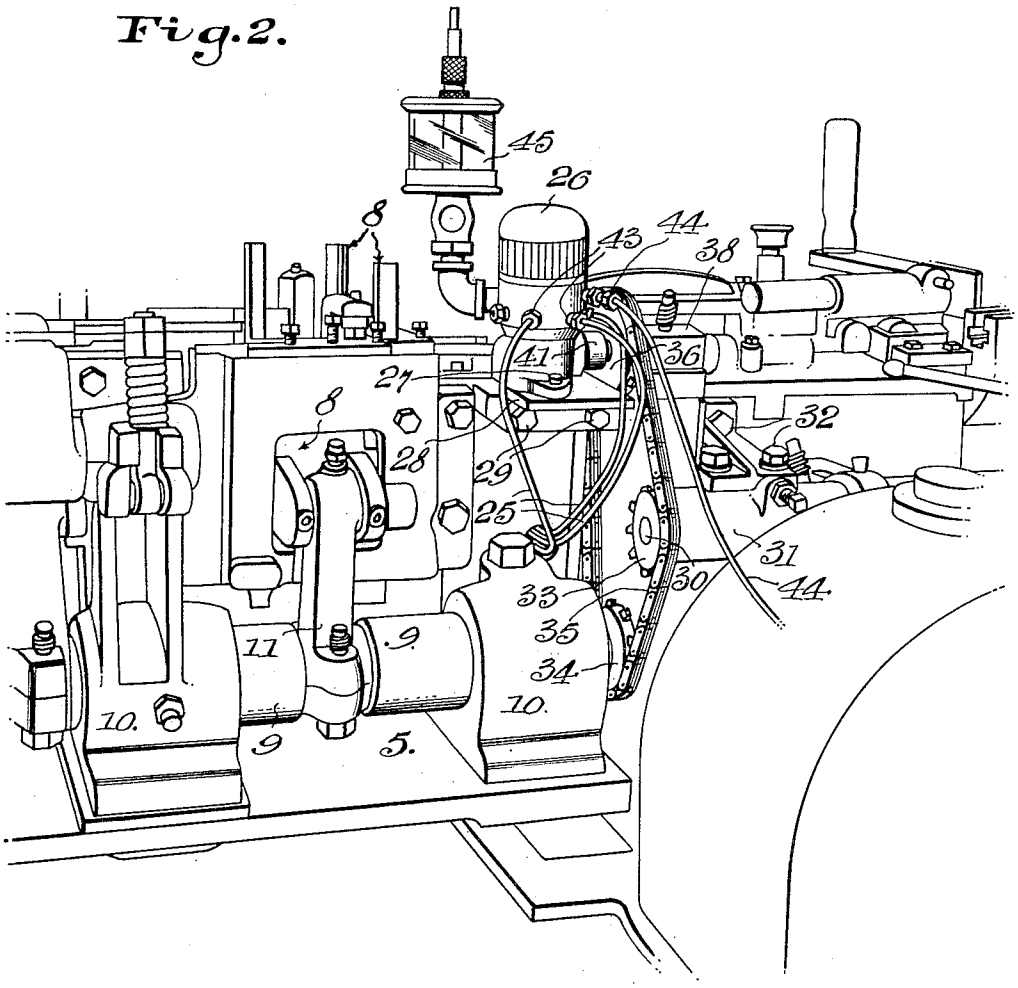
Attorneys

Dec. 30, 1941. P. E. PEARSON 2,268,298

BODY BLANK LUBRICATING MEANS FOR CAN BODY FORMING MACHINES

Filed Nov. 17, 1939 3 Sheets-Sheet 2

Fig. 2.



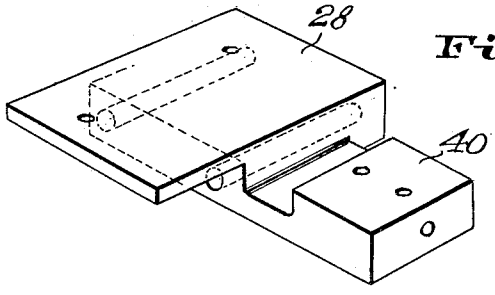


Fig. 5.

Inventor
Paul E. Pearson

By Mason & Porter
Attorneys

Dec. 30, 1941. P. E. PEARSON 2,268,298

BODY BLANK LUBRICATING MEANS FOR CAN BODY FORMING MACHINES

Filed Nov. 17, 1939 3 Sheets-Sheet 3

Fig. 3.

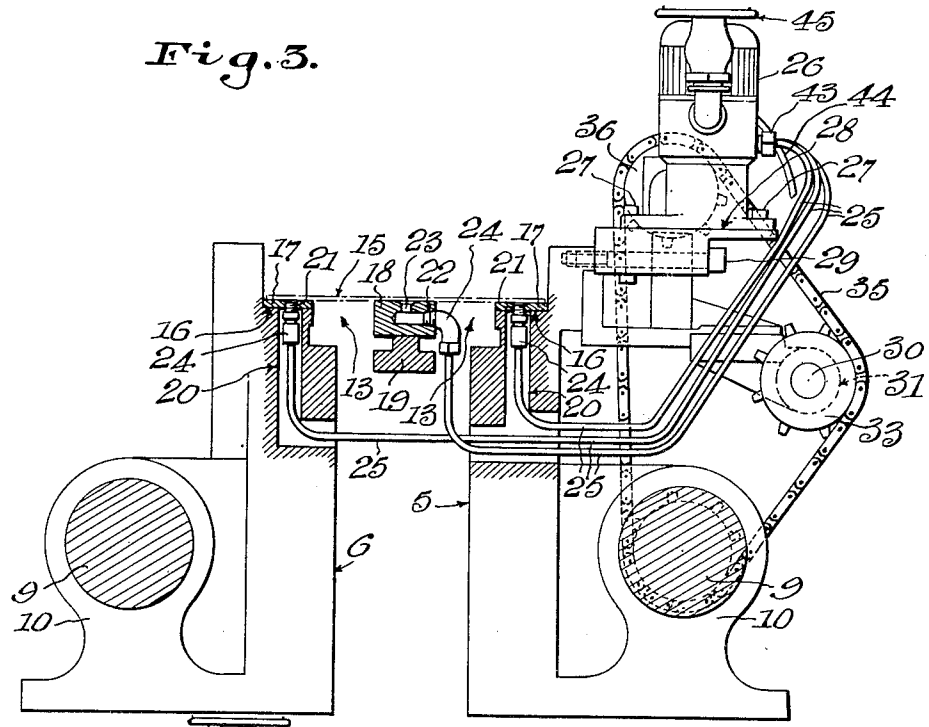
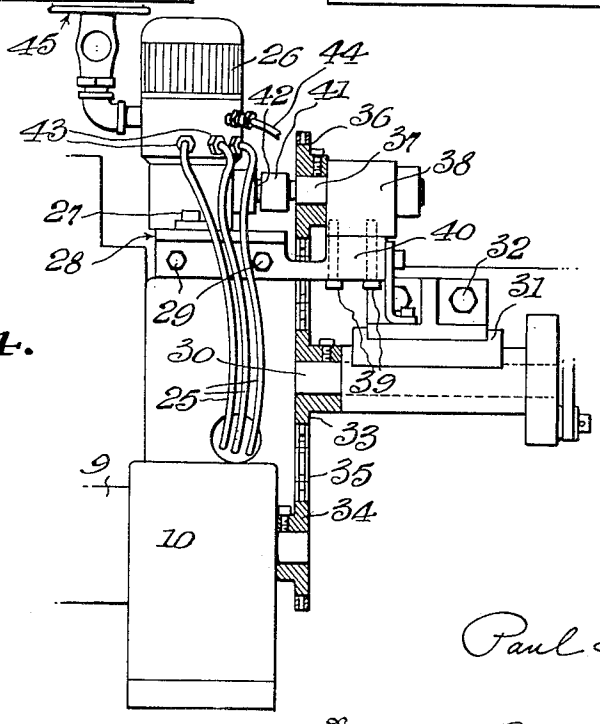


Fig. 4.



Inventor

Paul E. Pearson

By Mason & Porter

Attorneys

Patented Dec. 30, 1941

2,268,298

UNITED STATES PATENT OFFICE

2,268,298

BODY BLANK LUBRICATING MEANS FOR CAN BODY FORMING MACHINES

Paul E. Pearson, Chicago, Ill., assignor to Continental Can Company, Inc., New York, N. Y., a corporation of New York

Application November 17, 1939, Serial No. 305,022

4 Claims. (Cl. 271—54)

The invention relates generally to can body forming machines and primarily seeks to provide novel means for lubricating the blanks from which can bodies are formed so that abrasion of the blanks will be prevented during movement of the blanks through the forming machines.

In can body forming machines, the blanks from which the bodies are formed are fed one by one from a stack through successive stations in the machine at which various forming operations are performed. The well-known Troyer-Fox machine, disclosed in United States Letters Patent to Troyer, No. 1,772,820 of August 12, 1930, is an outstanding example of body maker, and in this machine the blanks are individually withdrawn from the supply stack by a suction cup, are fed a distance forwardly to a grain breaker station by a reciprocating feeder, are pushed laterally by a reciprocating pusher and passed through grain breaking rolls which return them to the breaker station at a higher level, and are then fed step-by-step through the notching, edging and forming stations in the well-known manner. These blanks are coated with a protective coating, usually of lacquer or enamel, so that products later packaged in the containers made from the blanks will not directly contact the metal interior surfaces. Unless some provision is made to prevent abrasive contact of the traveling can body blanks with opposing surfaces of the machine parts, the abrasive action serves to scratch the protective coating and lay bare metal surfaces intended not to be exposed to oxidation or to direct contact with packaged products. Therefore, it is an object of the present invention to so lubricate the opposed blank and machine part surfaces as to prevent objectionable abrasion of coated surfaces of said blanks.

An object of the invention is to provide means for squirting a quantity of a lubricant against each blank at a station in the machine and during a period of rest of said blank.

Another object of the invention is to provide lubricating apertures in the supporting rails or slideways over which the blanks are fed, and to force lubricant through said apertures and against the blanks so as to apply a film of lubricant to the coated surfaces of the blanks traveling over said rails or slideways.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more fully understood by following the detailed description, the appended claims, and the several views illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a fragmentary perspective view looking from the left side and down into the feed line of a body making machine having the invention mounted thereon.

Figure 2 is a fragmentary perspective view looking at the left side of the machine at the position at which the invention is mounted.

Figure 3 is a somewhat diagrammatic vertical cross-section through the machine feed line and illustrating the manner of mounting the invention on the machine.

Figure 4 is a somewhat diagrammatic vertical longitudinal section through the lubricant feed unit drive center.

Figure 5 is a detail perspective view illustrating the lubricant feed unit mounting bracket.

In the example of embodiment of the invention herein illustrated the lubricant distributing devices are illustrated as mounted upon a Troyer-Fox body maker which is very well-known in the art and is disclosed in U. S. Letters Patent 1,772,820 hereinbefore referred to. This machine includes a left housing or frame side 5 and a right housing or frame side 6, the latter supporting the usual grain breaking roll set generally designated 7, and each side housing serving as a mount for a set of blank edge notching devices generally designated 8.

As is well-known, the blanks from which the can bodies are formed are withdrawn individually from the supporting stack and are fed step-by-step through the feed line in the machine. As the blanks come to rest at the grain breaking station they are shifted laterally between the lower cooperating grain breaking rolls, and, after passing through the rolls, are returned, at a higher level, to the feed line to be fed step-by-step through the other mechanisms of the machine. It will be noted by reference to Figure 1 of the drawings that a stop station at which no mechanical operation is performed on the body blanks is disposed between the grain breaking and notching stations generally indicated at 7 and 8. It is at this stop station that the invention herein disclosed functions.

A power shaft 9 is diposed along the outside of each housing 5 and 6 in suitable bearings indicated at 10, and each such shaft is connected by driving connections 11 with one of the blank edge notching equipments 8 for the purpose of imparting vertical reciprocation to the notching irons.

The blanks are fed step-by-step along the feed line by feed bars 12 which reciprocate in grooveways 13 provided therefor, each bar being equipped with the usual blank engaging feeder fingers 14. A blank 15 is indicated on the feed line in Figure 3 of the drawings.

Each housing 5 and 6 includes a shelf portion 16, and a wear plate or slideway rail 17 is secured upon each shelf and cooperates with the center bar 18 disposed centrally along the feed line and supported on the center support 19. Each housing shelf portion is recessed as at 20

beneath the respective rail 17, and each rail is apertured and tapped as at 21. The center bar 18 is apertured and tapped laterally as at 22, and this lateral tap is connected by a duct 23 with the top surface of the center bar in the manner best illustrated in Figure 3 of the drawings.

A lubricant distributing fitting 24 is secured in each of the taps 21 and 22 and each fitting is connected by a distributing duct or conduit tube 25 with a suitable force feed lubricant distributing unit generally designated 26 and removably secured as at 27 on a bracket 28 which is in turn removably secured as at 29 to the left housing or frame side 5. See Figures 2, 3 and 4 of the drawings.

Any suitable force feed lubricant distributor capable of forcing a squirt of lubricant through the delivery openings provided in general cross alignment in the rails 17 and center bar 18 each time a can body blank 15 comes to rest over said lubricant delivery openings may be employed and suitably actuated in timed relation with the body blank feeding devices. One form of unit found acceptable for this purpose is disclosed in U. S. Letters Patent to Coles No. 1,934,344, issued Nov. 7, 1933. This unit includes a rotary actuator shaft which imparts rotation to a distributor valve, and it also includes a plurality of distributor tube couplings and individual pump plungers which operate alternately to draw lubricant into the unit and force measured quantities thereof from the unit under control of said distributor valve. Since the construction and operation of this unit is described in detail in the patent referred to, further detail description is thought to be unnecessary herein.

In order to operate the lubricant distributing unit for distributing the lubricant into the space intervening each blank 15 and the supporting rails 17 and center bar as the blank comes to rest at the stop station intervening the grain breaking station and the blank notch station, there is provided a jack shaft 30 which rotates in suitable bearings 31 secured as at 32 on said housing or frame side 5 above the shaft 9 hereinbefore referred to. This shaft is not provided expressly for the purpose of actuating the lubricant feeding devices but is customarily provided on the body making machines as a part of the mechanism utilized to feed the body blanks laterally at the grain breaking station. A sprocket 33 is secured upon the shaft 30, and a sprocket 34 of like diameter is secured in alignment therewith on the adjacent shaft 9. A chain 35 is passed over the sprockets 33 and 34 and over a sprocket 36 of like diameter on a shaft 37 which is rotatably supported in a bearing 38 secured as at 39 on an extension 40 of the bracket 28. The shaft 37 carries a coupling head 41 which removably couples with the actuator shaft 42 of the lubricant distributing unit 26, the shafts 37 and 42 being disposed in axial alignment.

The feed tube couplings 43 of the distributor unit 26 are connected with the receiving ends of the tubes or ducts 25 leading to the feed line or blank supporting slideways, and an overflow duct 44 connects the distributing unit with a suitable point of overflow discharge. The distributor unit is supplied with lubricant from any suitable source of supply, and in this particular illustration this supply source takes the form of gravity feed cup 45.

It will be obvious that by reason of the sprocket and chain connections 33 to 36 with the shaft 9, the lubricant distributor unit is actuated in timed relation with the various mechanisms of the body maker, including the feed bars 12, and these driving connections are so proportioned that this unit will deliver a squirt of lubricant through the cross-aligned rail and center bar apertures each time a body blank 15 comes to rest thereover. By this means a film of lubricant will be applied between each blank and the supporting rails and center bar, and abrasion of the blank will be avoided during the feeding thereof through the feed line of the body maker.

It is, of course, to be understood that the details of structure and arrangement of parts may be variously changed and modified without departing from the spirit and scope of my invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a can body maker wherein is provided a feed line including a center bar and laterally spaced right and left housing supported blank slideway rails, means for feeding blanks step-by-step over said bar and rails, said bar and rails having apertures extending upwardly through their blank supporting surfaces, and means actuated in timed relation to the blank feeding means for delivering a squirt of lubricant through said apertures each time a blank comes to rest thereover so as to lubricate said blanks and prevent abrasion thereof while passing over said bar and rails.

2. In a can body maker wherein is provided a feed line including slideway surfaces, means for feeding blanks step-by-step over said surfaces, means including a rotary power shaft for delivering blanks laterally onto the feed line, and means driven from said shaft to deliver lubricant between blanks and said slideway surfaces during an interval of rest of said blanks on said surfaces.

3. In a can body maker wherein is provided a feed line including a center bar and laterally spaced right and left housing supported blank slideway rails, means for feeding blanks step-by-step over said center bar and rails, means including a rotary power shaft for delivering blanks laterally onto the feed line, and means driven from said shaft to deliver lubricant between blanks and said center bar and rails during an interval of rest of said blanks on said center bar and rails, said center bar and rails having apertures extending upwardly through their blank supporting surfaces, and said last-named means including a force feed lubricant distributor having a conduit attached to each aperture for delivering a squirt of lubricant through the apertures and against a blank thereover each time a blank comes to rest over said apertures.

4. In a can body maker wherein is provided a feed line including laterally spaced blank supporting slideway rails, means for moving blanks in spaced relation over said rails, means including a force feed lubricant distributer having delivery ducts disposed to deliver squirts of lubricant between the blanks and said rails to prevent abrasion of the blanks while passing over said rails, and means for operating said distributer in timed relation to the blank feeding means so as to deliver said squirts of lubricant only when blanks overlie said ducts and not when said ducts underlie spaces intervening said blanks.

PAUL E. PEARSON.