Dec. 19, 1922. 1,439,620.

V. C. H. ELGY.

APPARATUS FOR APPLYING LIDS TO TINS, CANS, AND THE LIKE.

FILED JAN. 26, 1921.

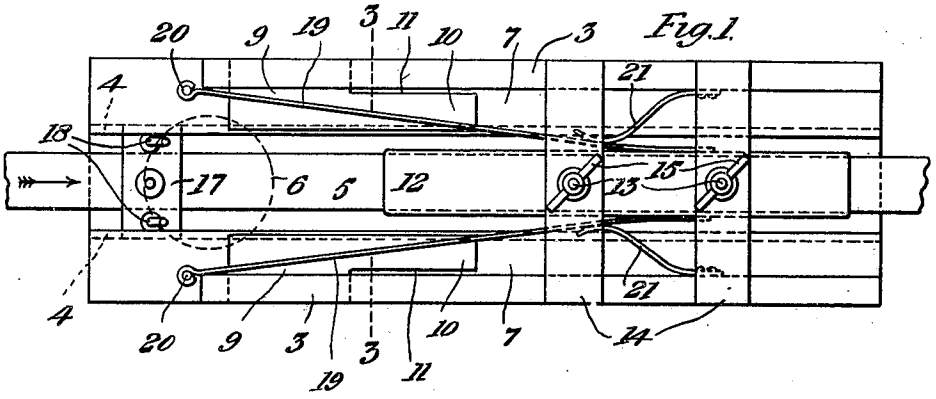


Fig. 1.

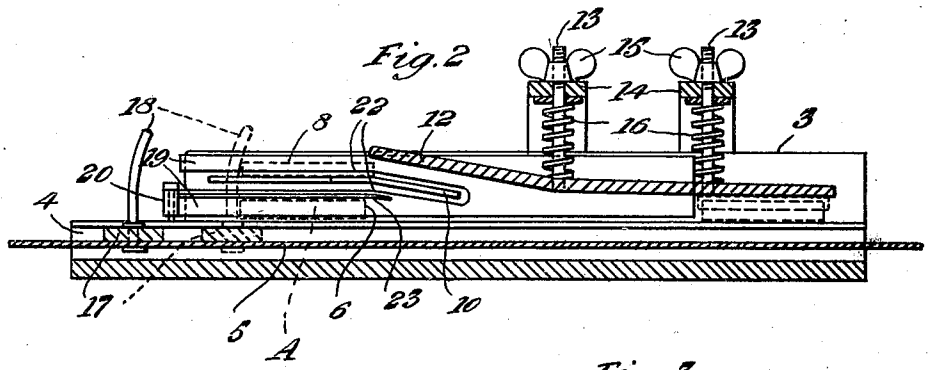


Fig. 2.

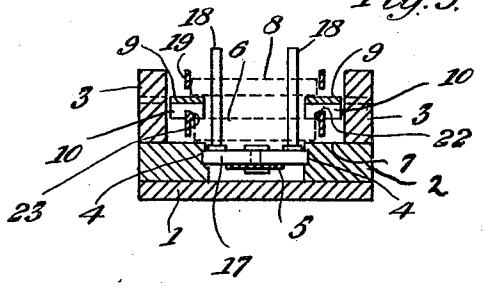


Fig. 3.

Inventor
Valentine C.H. Elgy.
By James L. Norris
Attorney.

Patented Dec. 19, 1922. 1,439,620

UNITED STATES PATENT OFFICE.

VALENTINE CHARLES HERBERT ELGY, OF LONDON, ENGLAND.

APPARATUS FOR APPLYING LIDS TO TINS, CANS, AND THE LIKE.

Application filed January 26, 1921. Serial No. 440,174.

To all whom it may concern:

Be it known that I, VALENTINE CHARLES HERBERT ELGY, a subject of the King of Great Britain, residing in London, England, have invented certain new and useful Improvements in Apparatus for Applying Lids to Tins, Cans, and the like, of which the following is a specification.

My invention relates to improvements in apparatus for applying flanged lids to tins, cans or like body members, the lidding apparatus being of the class described in the specification accompanying my co-pending U. S. application Serial No. 354,355, and comprising a longitudinally grooved or channelled track or guideway along which a tin or other like body member is carried forwardly towards a point of discharge by means of a suitably driven endless belt or conveyer into engagement with and at an angle with the inside of the flange of a lid member, the pair of said members being then carried further forward, by means of abutment pieces fitted to the conveyer, and beneath a device adapted to press the lid member down on the mouth of the body member or tin in a manner to close the latter.

One object is to render such a machine capable of dealing with tins of diameters smaller than the largest size tin for which the machine has been constructed to accommodate. For this purpose, the machine is provided with means for centering and aligning a pair of co-operating tin and lid members relatively to one another and the centre line of the track when the machine is used for operating on the smaller sizes of tins, and while the said members are being carried below the lid closing device.

A further object is to provide means permitting the machine to be adjusted to operate on tins of varying predetermined depth or height.

The invention will be described with reference to the accompanying drawing, in which Fig. 1 is a plan of part of the improved apparatus which is shown furnished with means adapting the machine for operating on tins of varying diameters and depths.

Fig. 2 is a longitudinal section of the apparatus, and Fig. 3 is a cross section on the line 3—3 in Fig. 1.

In the drawing the grooved or channelled track or guideway is shown consisting of a base 1, lower side walls 2 and upper side walls 3. The endless band or conveyer, by means of which the tins and lids are moved along the guideway during a lid-closing operation, is denoted by 5. The direction in which the band travels is indicated in Fig. 1 by an arrow, but the mechanism for actuating the band is not shown. The tins 6 are fed one by one, mouth upwards, and in proper timed relation, by suitable feeding mechanism, by gravitation or by hand, on to the floor surface of the guideway, at some convenient point thereof. The lids 8 are similarly delivered, mouth down, and one by one on to a platform which comprises two longitudinal portions 9, 9, carried by the side walls 3 of the guideway. The rear parts of each of these portions is substantially horizontal, while each front part 10 has a downward inclination and is formed in a manner to be capable of yielding under pressure applied above or below. For this purpose the front parts 10 may be cut away on their outer edges as indicated at 11 in Fig. 1.

The device for closing a lid 8 down on to a tin 6 is shown at 12 and consists of a plate whose under surface is suitably inclined relatively to the floor 7; the rear portion of the surface being comparatively steeply inclined, the next or central portion under which the tin and lid pass in the final stage of pressing the lid on to the tin being less inclined and the foremost portion parallel with the floor 7, or nearly so.

The plate 12 is carried by rods 13 which are supported on U-shaped yokes 14 by means of the wing nuts 15 on the upper screw threaded ends of the rods. The yokes are suitably fixed to the sides 3 of the guideway. By adjusting the nuts 15 the distance of the plate 12 above the floor 7 may be varied as desired. The plate 12 can be raised and lowered to suit tins and lids of different depths.

Encircling the rods 13 are coil springs 16 of appropriate compression which also can be varied by operating nuts 15.

At suitable distances apart the conveyer band 5 is fitted with a series of cross pieces 17 to each of which is secured a pair of upstanding abutment pieces or fingers 18, the upper portions of which are bent forwardly for a purpose hereinafter described. The lateral edges of the cross pieces extend into grooves 4 provided in the floor of the chan-

nelled guideway, thereby preventing the band from rising. The fingers 18 constituting a pair are so spaced apart that they tend to centre a tin and lid in engagement with them.

Supposing a tin has been fed to or placed upon the floor of the guideway at a convenient distance in rear of or to the left of the platform 9 in Fig. 1, and a lid on to the rear parts of the platform, then as the band advances the lower portions of the next adjacent pair of fingers 18 in the rear will engage with the side of the said tin, and carry the tin along the floor 7 into the dotted line position A in Fig. 2. On that position being reached the upper forwardly bent portions of the fingers 18 will engage with the lid at the moment on platform 9, as indicated in Fig. 2. On further forward movement of the band, the fingers will carry both the tin and lid forward, the lid being slightly in advance of the tin, and to such an extent that as the lid moves over the downwardly inclined portions 10 of the platform 9 and acquires an inclined position with the leading part of its flange just ahead of the front edges of the parts 10, the front portion of the rim of the tin will be moved into engagement with a portion of the inner face of the flange of the lid. As the tin and lid in such relative positions are carried by the conveyer band 5 and fingers 18 under the lid closing device 12, the lid will be gradually pressed on to the mouth of the tin and will attain the properly closed position by the time the tin and lid reach the front portion of the lower surface of the plate 12.

As the conveyer continues its travel it will convey the tin, now closed by the lid, beyond the front end of the plate 12, towards a point of discharge.

The platform 9 being formed in two portions with a gap between, a passageway for the travelling fingers 18 of the conveyer band is thus afforded. The width of the plate 12 is such that the fingers 18 are able to pass one on each side of it.

As stated above, the pairs of fingers 18 tend to centralize or align the tins and lids pushed forwardly by them, so that tins having a diameter substantially equal to the distance or space between the inner faces of the side wall 3 of the guideway, and tins having smaller diameters can have their lids applied to them by the improved apparatus.

However, to ensure a tin and lid having a diameter less than the width between the sides 3 being accurately centered relatively to one another, means independent of the fingers 18 and whose duty is to keep tin and lid in proper central alignment irrespective of the fingers, and also to control the lid in its descent after it leaves the sloping portions of platform 9, may be provided; one form of such means will now be described.

The independent centralizing means, shown in the drawing consists of a pair of vertical and oppositely disposed cheek or guide blades 19, 19, which may be of any suitable length and are at their rear ends 20 hinged or pivotally mounted on a convenient part of the channelled guideway. The blades are associated with means tending normally to push yieldingly their front portions inwardly towards the centre line of the channelled guideway, while leaving them free to yield and move outwardly under pressure from a tin and lid passing between them.

In the drawing the blades are shown bearing against springs 21 attached each at one end to a suitable part of the guideway frame, but coil springs or other suitable devices may be alternatively provided for yieldingly pushing the blades inwardly. Any suitable means may be provided for limiting the movement of the blades. It will be seen that as a tin and lid are pushed forwardly by the fingers 18 along the guideway and between the blades, the springs 21 will yield and the blades will adjust themselves to the diameter of the tin and lid, and centre them relatively to one another along the centre line of the guideway.

The rear portions of the blades 19 are slotted as at 22 to permit of their to and fro movement about the lateral portions of the platform 9. Controlling means as an embossment or projection 23 may be provided on the inner faces of the blades 19 of the centralizing device for the purpose of preventing the tins from rising while moving under platform 9. Similar controlling means may be applied to the inner faces of the sides 3 of the guideway for the same object when the centralizing devices 19 are not employed.

The blades 19 and springs 21 may be mounted on the machine in a manner to be readily removable when not required in closing tins of a diameter substantially equal to the distance between the sides 3 of the guideway.

Having thus described the nature of the said invention and the best means I know of carrying the same into practical effect, I claim:—

1. In a can, tin and like lidding apparatus of the class described having a longitudinally channelled guideway and an endless conveyer band traversing the guideway, means for centering and aligning a can to be lidded and a lid relatively to one another and to the centre line of the guideway during the movement of the conveyer and the can and lid along the guideway, said means comprising pairs of upstanding fingers fitted to and disposed transversely of the said band, the pairs of fingers being suitably spaced apart along the band and

the two fingers constituting a pair being themselves spaced transversely apart and adapted to engage side portions of the said can and lid and thereby center the said can and lid one relatively to the other, substantially as described.

2. In can, tin and like lidding apparatus of the class described having a longitudinally channelled guideway and an endless conveyor band traversing the guideway, means for centering and alining a can to be lidded and a superposed lid relatively to one another and the centre line of the guideway during the forward movement of the conveyor with the can and lid along the guideway, said means comprising pairs of upstanding fingers fitted to and disposed transversely of the said band, the fingers having their upper parts forwardly bent with respect to their lower parts, the pairs of fingers being suitably spaced apart along the band and the two fingers constituting a pair being themselves spaced transversely apart, their lower parts adapted to engage a side portion of the can and their upper parts adapted to engage a side portion of the lid, thereby centering the can and lid one relatively to the other, substantially as described.

3. In a can, tin and like lidding apparatus of the class described having a longitudinally channelled guideway and an endless conveyer band traversing the guideway, means for centering and aligning a can to be lidded and a lid relatively to one another and to the centre line of the guideway during the movement of the conveyer and the can and lid along the guideway, said means comprising pairs of upstanding fingers fitted to and disposed transversely of the said band, the pairs of fingers being suitably spaced apart along the band and the two fingers constituting a pair being themselves spaced transversely apart and adapted to engage side portions of the said can and lid and a pair of oppositely disposed guide plates arranged longitudinally of the guideway, each guide plate having one end pivotally mounted on the guideway and the other end free, resilient devices interposed between the inner sides of the guideway and the free ends of the said plates and adapted normally to push the said free ends towards the centre line of the guideway, and into yielding engagement with the side portions of the said members.

In testimony whereof I have signed my name to this specification.

VALENTINE CHARLES HERBERT ELGY.