Sept. 3, 1940. C. M. HESSON 2,213,704

LABELING MACHINE

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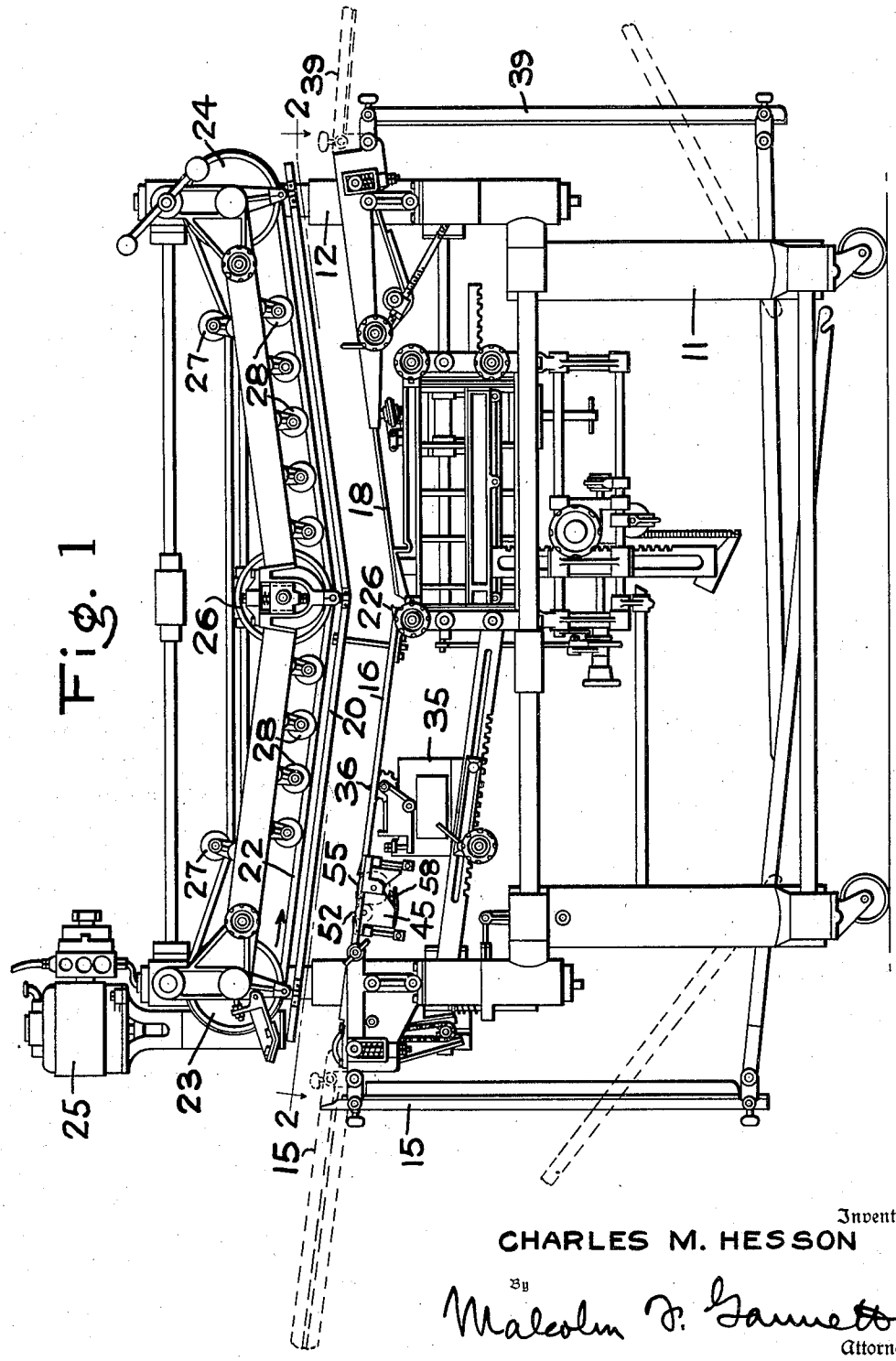


Fig. 1

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Fig. 2

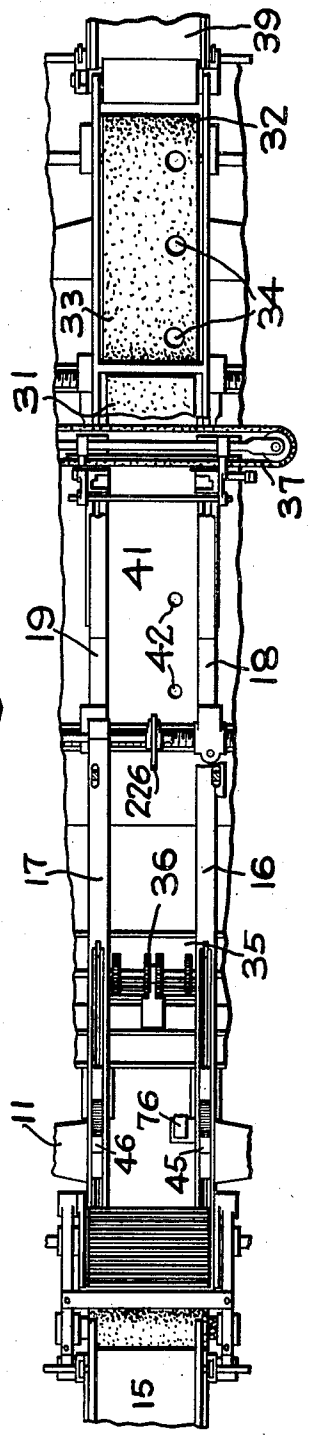
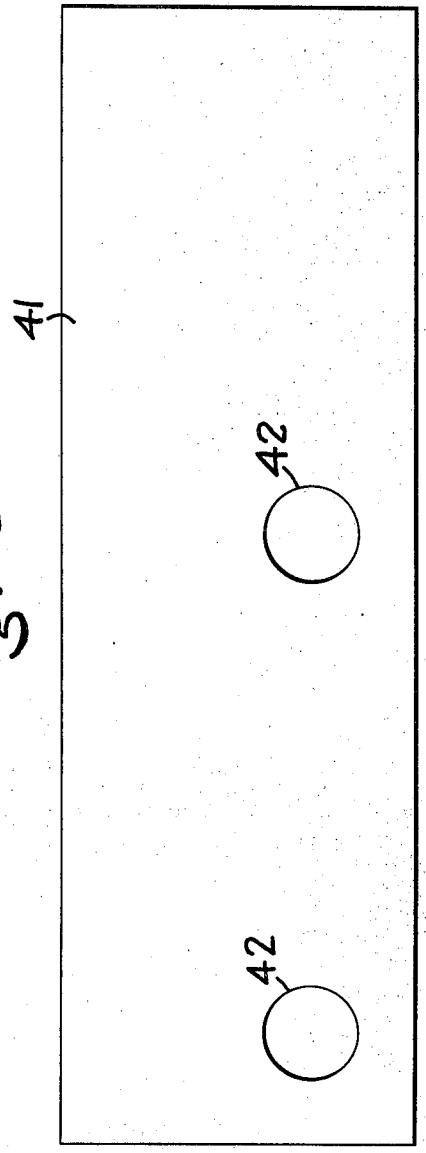


Fig. 3



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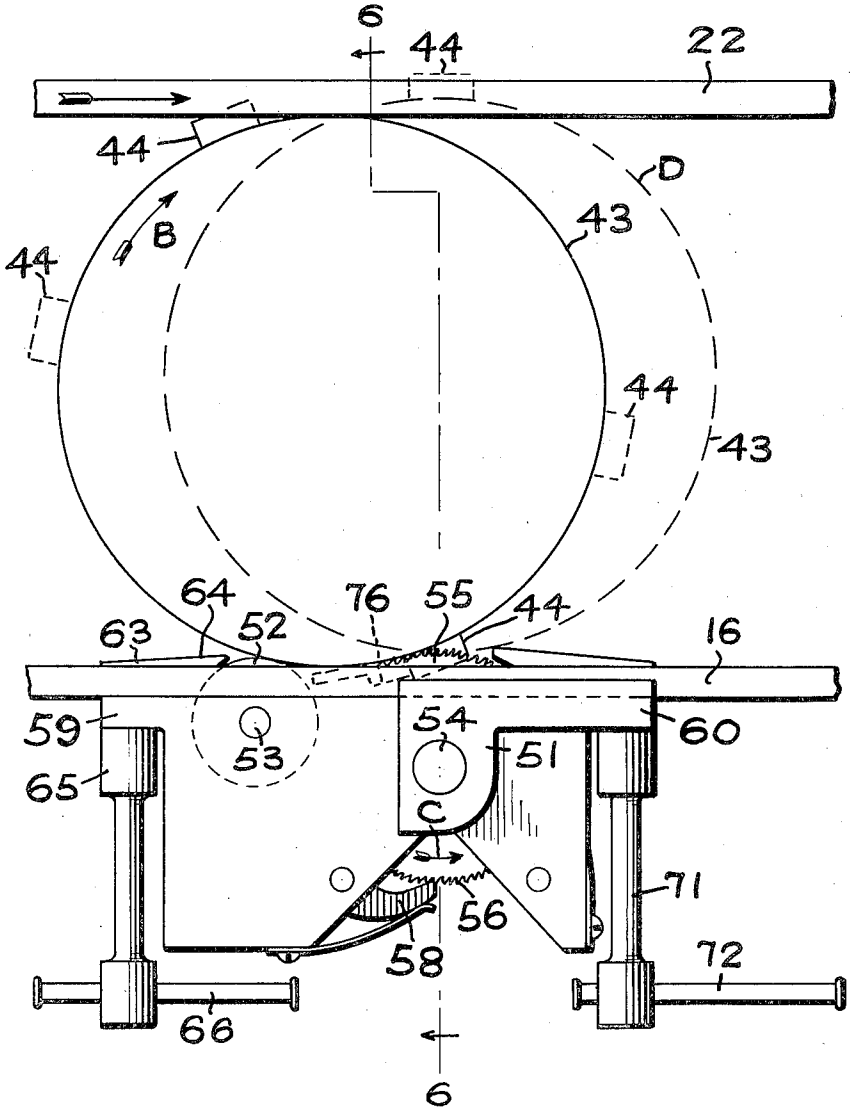
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LABELING MACHINE

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Fig. 4



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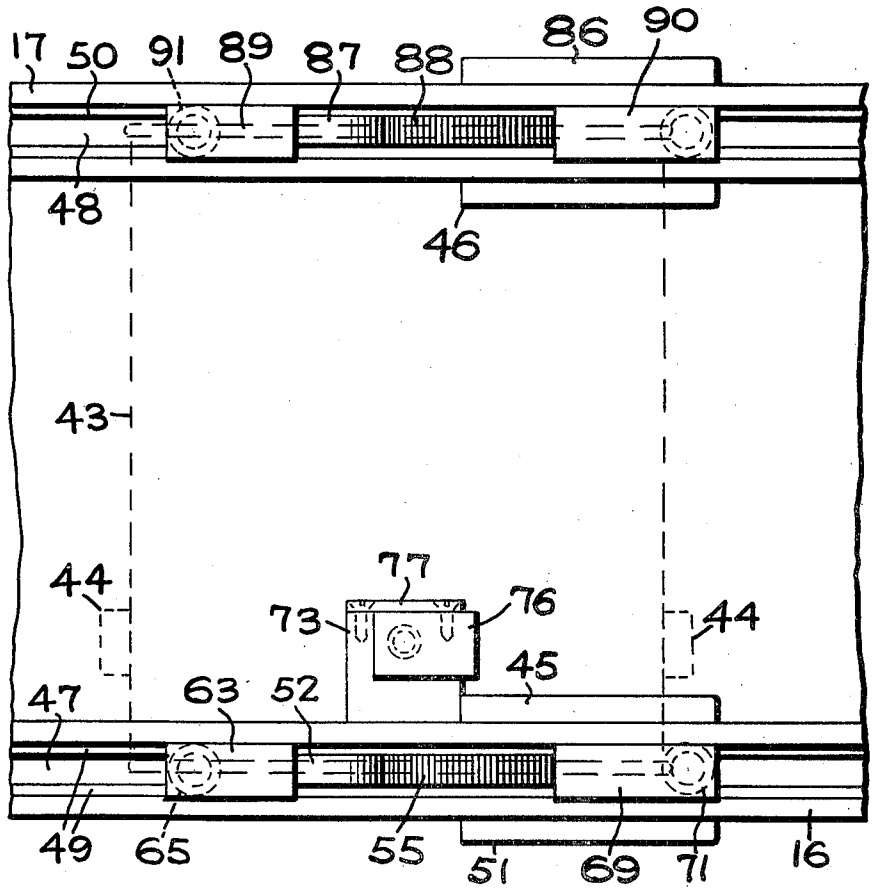
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LABELING MACHINE

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Fig. 5



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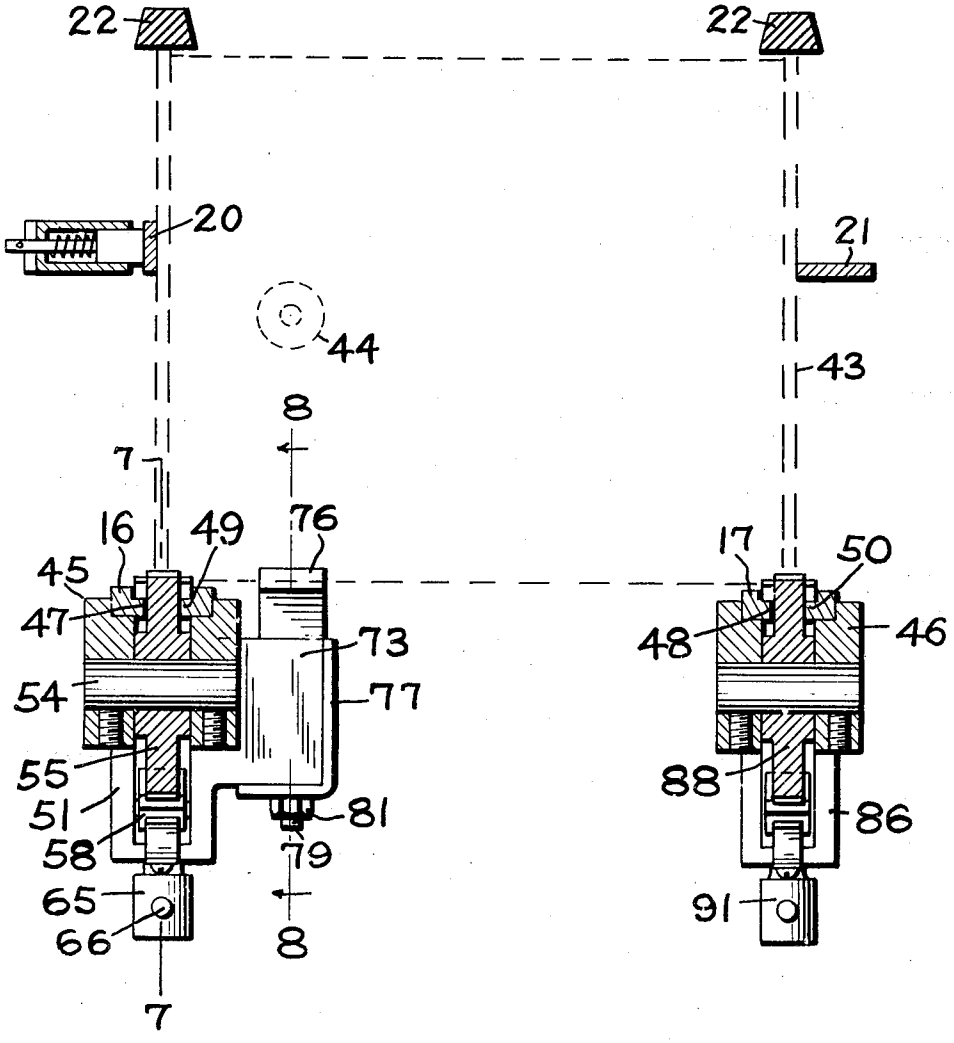
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LABELING MACHINE

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Fig. 6



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LABELING MACHINE

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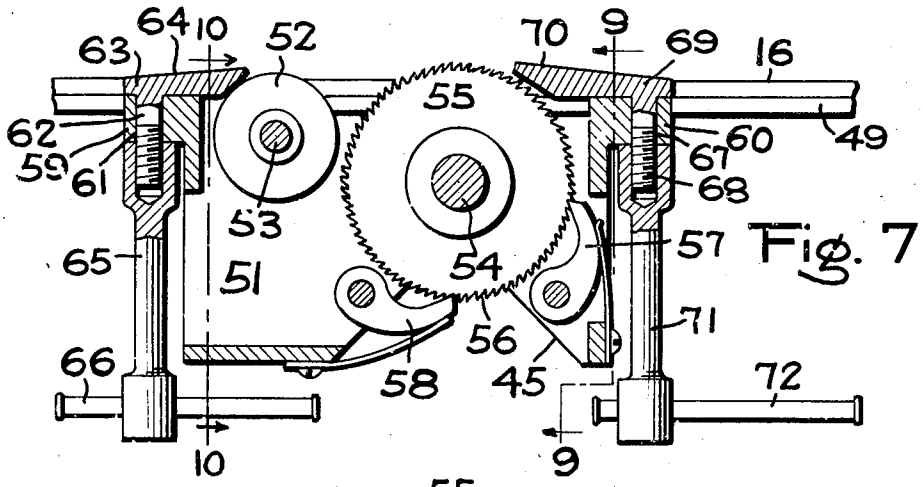


Fig. 7

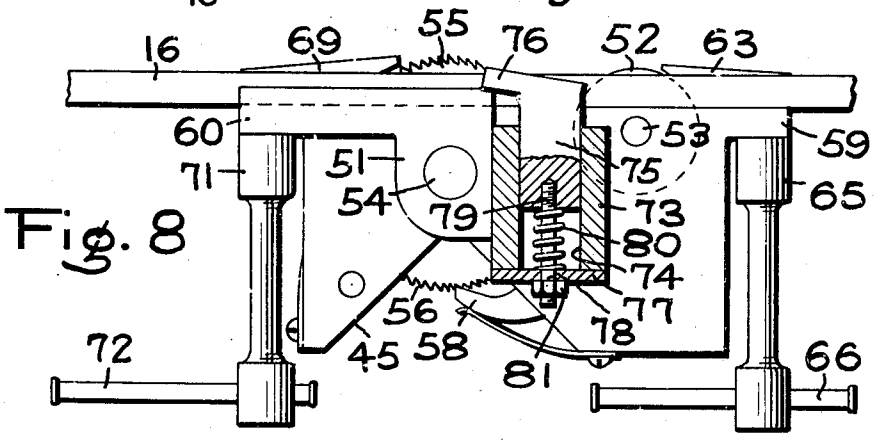


Fig. 8

Fig. 9

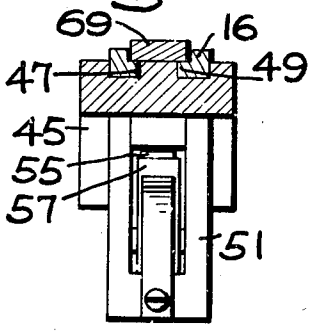
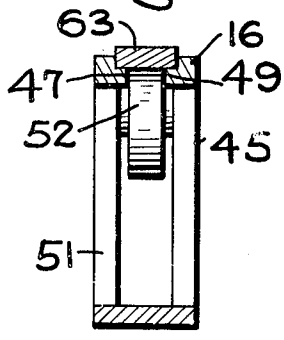


Fig. 10



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Patented Sept. 3, 1940 2,213,704

UNITED STATES PATENT OFFICE

2,213,704

LABELING MACHINE

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Application July 1, 1939, Serial No. 282,413

5 Claims. (Cl. 216—58)

This invention relates to improvements in labeling machines and more particularly to improvements in labeling machines of the type designed to place labels about cylindrical cans and the like as they roll through the machine.

In the application of labels to cans, buckets and other containers having peripheral ears, lugs or projections, it has been difficult to embody in an automatic labeling machine, mechanism which would continuously feed the cans or containers to the stack of labels, so that the lugs or projections on the cans or containers would register with the apertures in the labels provided therefor.

An object of the present invention is to provide an improved labeling machine having mechanism adapted to automatically position cans or containers having lugs or projections so that when the cans roll onto the labels, the lugs or projections on the cans will register with the apertures in the labels.

Another object of the invention is to provide an improved can registering mechanism for labeling machines, which is simple in construction, and reliable and exact in function under all conditions of service.

The invention also comprises certain new and useful improvements in the construction, arrangement and combination of the several parts of which it is composed, as will be hereinafter more fully described and claimed.

In the accompanying drawings:

Figure 1 is a side elevation of a labeling machine embodying the present invention;

Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1 and illustrating the supporting track structure for the containers;

Fig. 3 is a plan of a label having apertures;

Fig. 4 is an enlarged side elevation of the registering mechanism;

Fig. 5 is a plan of the registering mechanism shown in Fig. 4;

Fig. 6 is a vertical transverse section taken on the line 6—6 of Fig. 4;

Fig. 7 is a vertical section taken on the line 7—7 of Fig. 6;

Fig. 8 is a vertical section taken on the line 8—8 of Fig. 6;

Fig. 9 is a vertical transverse section taken on the line 9—9 of Fig. 7; and

Fig. 10 is a vertical transverse section taken on the line 10—10 of Fig. 7.

Referring to the drawings, the machine shown is similar in structure to previously patented machines, the machine of United States Patent No. 1,995,306, granted March 26, 1935, being a good illustration of this type. The drawings illustrate a labeling machine of the type referred to adapted to the labeling of cans or containers having lugs or projections extending beyond the body, such as cans or buckets with lugs for bails or handles, or jugs and bottles with handles.

As shown in Fig. 1, the machine comprises a suitable supporting frame structure, indicated at 11.

Supported by the frame 11, is a super structure, indicated at 12, and this super structure, and the parts carried thereby are adjustable, in the manner described in detail in the above referred to patent, so that cans or containers of various sizes can be accommodated in the machine.

The cans or containers are fed to the machine by means of an inclined platform 15 which directs the cans towards a track consisting of pairs of spaced parallel bars 16, 17, 18 and 19. The tracks 16 and 17 extend from the feed end of the machine downwardly towards the center of the machine, and the tracks 18 and 19 extend from the inner ends of the tracks 16 and 17 upwardly towards the discharge end of the machine.

The adjacent ends of the tracks 16 and 17 and 18 and 19, respectively, are spaced apart, as shown in Fig. 1, so as to provide a gap in the track for a trip finger 226 of the label feeding mechanism described in detail in Patent No. 1,995,306.

Disposed above the track are guide bars 20 and 21 adapted to engage the ends of the cans or containers and prevent lateral displacement thereof as the cans move through the machine. If so desired, the guide bars 20 and 21 may parallel the tracks.

Supported by the super structure 12, is a pair of endless belts 22 which are mounted on pairs of pulleys 23 and 24, the pulleys 23 being driven from a suitable source of power, such as an electric motor 25 operatively connected thereto by gearing, as fully described in the above referred to patent.

For engaging and properly spacing the flights of the belts 22, intermediate their ends, are pulleys 26.

The upper flights of the belts 22 are engaged by wheels or rollers 27, and the lower flights of said belts are engaged by spring pressed rollers 28.

The rollers 28 urge the lower flights of the

belts 22 into contact with the cans or containers from above so that the cans are rolled by the belts through the machine in the manner fully described in Patent No. 1,995,306.

Since the belts 22 are operated in the direction indicated by the arrows in Figs. 1 and 4, the cans or containers will be fed downwardly over the tracks 16 and 17 and upwardly over the tracks 18 and 19 onto a yieldable pad 31 (see Fig. 2).

From the pad 31 the cans or containers are delivered onto an endless belt 32 having a yieldable surface or pad 33 preferably formed from a sheet of sponge rubber or the like. The pad 33 is formed with a plurality of apertures 34, the purpose of which will be hereinafter described.

Adhesive is applied to the cans or containers as they pass downwardly over the tracks 16 and 17 towards the center of the machine, the adhesive applied to the cans or containers being adapted for engaging and lifting a label from a stack in the manner described in Patent No. 1,995,306.

The adhesive is contained in a receptacle 35 disposed beneath the tracks 16 and 17 and located at a convenient point intermediate the ends of the machine and in advance of the disposition of the stack of labels.

Adhesive is taken up from the container or receptacle 35 and applied to the cans or containers by means of a toothed member 36 operated by the driving mechanism of the machine in the manner described in the above referred to patent.

Means are also provided for applying a line of adhesive transversely of the labels so that after the main body of a label has been affixed to a can or container the overlapped edges of the label will be sealed. This mechanism, which is shown in detail by Figs. 18, 19 and 20 of Patent No. 1,995,306, is located at the point where the tracks 18 and 19 meet the pad 31, as indicated at 37, in Fig. 2.

As shown in Fig. 3 the labels which are affixed to the cans or containers by the machine, comprise an elongated rectangular body 41 having formed therein at spaced intervals a plurality of apertures 42.

In the instant case (see Fig. 4), the cans or containers 43 have a pair of diametrically disposed bail lugs 44 formed thereon for bails or handles (not shown).

The apertures 42 are of a size to easily permit the lugs 44 or other projections extending beyond the body of the cans or containers to pass therethrough, and consequently said apertures are spaced apart a distance equal substantially to one half the circumference of the cans 43 so that when the cans are rolled over the stack of labels in the machine by the belts 22, the lugs 44 will register with the apertures 42.

For the purpose of positioning the cans or containers 43 so that the lugs 44 will register with the apertures 42 in the labels 41, an improved registering mechanism consisting of two members 45 and 46, applied to the tracks 16 and 17, respectively, is employed.

The members 45 and 46 are positioned on the track at a distance to the left, as viewed in Fig. 1, of the adhesive container 35, so that the cans or containers entering the machine from the feed platform 15, will be acted upon by the registering mechanism prior to the application of the adhesive to the cans.

The track bars 16 and 17 are spaced apart a suitable distance in order to support the cans or containers 43 in the manner shown in Figs. 5 and 6.

The tracks 16 and 17 are respectively formed with elongated slots 47 and 48 which may be of any suitable length.

The side walls of the slots 47 and 48 are so formed as to provide inwardly projecting flanges 49 and 50, respectively. These flanges are located in the bottom portion of the slots 47 and 48 and constitute ledges, the purpose of which will be hereinafter more fully described.

Suspended from the track 16 is a housing 51 which is U-shaped in cross section, as shown in Figs. 6, 9 and 10.

Disposed within the slot 47, as shown in Fig. 10, is a roller 52. As viewed in side elevation, (Fig. 4), the upper portion of the roller is located in a plane above the upper surface of the track 16. The roller 52 is free to rotate on a pin 53 carried by the housing 51.

Also rotatably mounted in the housing on a pin 54, is a toothed wheel 55 which is disposed in spaced relation with respect to the roller 52, as shown in Figs. 4 and 7.

The periphery of the wheel 55 is formed with small teeth 56 adapted to be engaged by a pair of spring pressed pawls 57 and 58 pivotally mounted in the housing 51.

The upper portion of the toothed wheel 55 is located in a plane above the upper surface of the track 16.

The upper surface of the housing 51 is planed smooth to snugly engage the abutting surface of the track 16.

In order to clamp the housing 51 to the track 16 in such a manner that the housing can be moved lengthwise of the track so as to adjust the position thereof on the track for different sizes of cans or containers, suitable clamping means are provided.

At each end of the housing 51 are extensions 59 and 60, the extension 59 being formed at one end of the housing and the extension 60 being at the opposite end of said housing, as shown in Fig. 7.

The extension 59 is formed with a vertical bore 61 adapted to receive a depending threaded stem 62 of a plate 63 mounted in the track 16 above the flanges 49.

The lower surface of the plate 63 rests on the upper surface of the flanges 49 and the upper surface of said plate is inclined, as indicated at 64, Fig. 7.

The plate 63 extends from the front end of the housing 51 rearwardly towards the roller 52, the rear end of said plate terminating adjacent to the periphery of said roller.

The downwardly projecting threaded stem 62 is engaged by an internally threaded clamping member 65 having a handle 66 adapted to be manually operated.

The extension 60 is formed with a vertical bore 67 adapted to receive a depending threaded stem 68 of a plate 69 mounted in the track 16 above the flanges 49.

The plate 69 has its lower surface resting on the upper surface of the flanges 49 and an upper inclined surface 70.

As shown in Fig. 7 the plate 69 extends from the rear end of the housing 51, forwardly towards the toothed wheel 55, the front end portion of said plate terminating adjacent to the periphery of said wheel.

The threaded stem 68 is engaged by an internally threaded clamping member 71 having an operating handle 72.

As shown in Figs. 5, 6 and 8, the housing 51 is

formed with a lateral extension 73 having an opening 74 formed vertically therein.

Mounted in the opening 74 is the depending portion 75 of a member 76 which is adapted to be engaged by one of the bail lugs 44 on the cans or containers in the manner to be hereinafter more fully described.

The opening 74 is otherwise closed by a plate 77 which may be L-shaped in form, as shown in Fig. 6, said plate being detachably secured to the extension 73 by screws as shown in Fig. 5.

The bottom portion of the plate 77 is formed with an opening 78 through which projects a threaded pin 79.

The pin 79 has threaded engagement with the depending portion 75 of the stop member 76.

Encircling the pin 79 and bearing at one end against the plate 77 and at the other end against the member 75 is a compression coil spring 80. The tension of the spring 80 is adjusted by a nut 81 mounted on the lower extremity of the threaded pin 79 and bearing against the under side of the plate 77.

Suspended from the track 17 is a housing 86 of the regitsering mechanism 46. This housing is similar in construction to the housing 51 heretofore described, with the exception that the lateral extension 73 and the stop member 76 carried thereby are omitted from the housing 86.

Mounted within the housing 86 is a roller 87, a toothed wheel 88, a front plate 89, and a rear plate 90, all similar in construction to the roller 52, toothed wheel 55 and plates 63 and 69, respectively, heretofore described.

As shown in Figs. 5 and 6 the registering mechanism 46 is clamped to the track 17 in a manner similar to that above described in detail, by means of clamping members 91 and 92.

The registering mechanisms 45 and 46 are positioned on the tracks 16 and 17, respectively, so that the rollers 52 and 87, and the toothed wheels 55 and 88 are alined, as shown in Fig. 5.

In operation, the cans or containers 43 are rolled through the machine by the belts 22. When a can or container reaches the registering mechansm it is carried off the tracks 16 and 17 by the plates 63 and 89 and over the rollers 52 and 87. The can then comes into contact with the toothed wheels 55 and 88 and also with the rollers 52 and 87, and assumes the position indicated by full lines in Fig. 4.

In this position the bail lugs 44 may be disposed approximately in the position indicated by dotted lines, Fig. 4.

With a can thus resting against the rollers 52 and 87 and the toothed wheels 55 and 88, respectively, the can will be raised above the tracks 16 and 17. Through the action of the belts 22, which are moving in the direction of the arrow, Fig. 4, the can will now be turned in the direction of the arrow B, the toothed wheels 55 and 88 rotating in the direction of the arrow C until one of the lugs 44 comes into contact with the stop member 76.

When a lug of the can engages the stop member 76, the peripheral movement of the can and the toothed wheels 55 and 88 is stopped momentarily. The spring pressed pawls 57 and 58 prevent movement of the toothed wheels in the direction opposite to that shown by the arrow C in Fig. 4, and consquently, due to the action of the belts 22 the can is now rolled forwardly over the top of the toothed wheels 55 and 88 and onto the plates 69 and 90 and thence onto the tracks 16 and 17, respectively.

Due to the fact that a lug 44 of the can has been moved into engagement with the stop member 76, the can will roll forwardly from the registering mechanism with the lugs thereof in correct position to pass into the apertures in a label, so that in the application of a label around a can the lugs will register properly with the openings provided therefor in the labels.

When a can has stopped its peripheral movement with one of its lugs against the stop 76 and is carried forwardly over the toothed wheels 55 and 88 in the manner heretofore described, and attains the vertical center directly over the center of the axis of the toothed wheels, as indicated by the broken lines D, Fig. 4, there is a tendency for the can to turn the toothed wheels in the direction opposite to the arrow C and skid downwardly over the toothed wheels onto the tracks.

In order to prevent any slipping movement of the cans or any reverse movements of the toothed wheels, the periphery of said toothed wheels are formed with the notches or teeth 56. These teeth have two functions, one function being to prevent slipping of the cans as they roll over the wheels, and the other function being to receive the pawls 57 and 58 and thereby provide means for preventing backward rotation of the wheels.

Therefore, if the wheels were formed with smooth peripheral surfaces and no locking or ratchet means used, there would not be any means for controlling the rotation of the wheels, and consequently the cans would skid or slip while being rolled over the wheels by the belts 22, with the result the accurate or positive registration of the lugs of the cans with the apertures in the labels could not be had.

After labels have been attached to the cans in the manner described in Patent No. 1,995,306, the cans will roll over the belt 32, the lugs 44 of the cans entering the apertures 34 in the surface 33 of the belt. From the belt the cans will pass onto the discharge platform 39 and be directed thereby away from the machine.

From the foregoing description, it will be noted that by the present invention the members 45 and 46 are mounted on the tracks 16 and 17, respectively, in such a manner that the tracks can be moved toward and away from each other when the machine is being adjusted for the purpose of accommodating cans or containers having dimensions of other sizes than the dimensions of the cans for which the machine may be set, without the necessity of readjusting the relative positions of said members in any manner other than the setting of the members lengthwise of the tracks, as has been heretofore described. This is due to the fact that each registering member is individually mounted on each track without any connecting elements therebetween.

Having thus described my invention, what I claim is:

1. In a labeling machine for affixing a label to a can having bail lugs and the like projecting from the body thereof, a pair of spaced tracks for supporting the can, means for rolling the can along the track, label supporting, feeding, and pasting means, adhesive applying means, an elongated slot formed in each track, a pair of spaced wheels suspended from each track in front of the adhesive applying means and extending through the slot in the track for engaging and supporting the can above the track.

one of said wheels being free to rotate in both directions and the other said wheel being free to rotate in only one direction, and a stop member located in the path of the bail lugs for engaging a bail lug to thereby position the can so that the bail lugs will register with apertures in a label when they pass over the labels supported in the machine.

2. In a labeling machine for affixing a label to a container having a lug projecting therefrom, a pair of spaced tracks for supporting the container, means for propelling the container along the track, label supporting, feeding, and pasting means, an elongated slot formed in each track, mechanism suspended from each track in front of said label supporting means and comprising a pair of spaced wheels extending through said slot for supporting the container in spaced relation to the track, one of said wheels being free to rotate in both directions and the other said wheel being free to rotate in only one direction, and a stop member for engaging said lug to limit the rotation of the container while the container is supported by said wheels and thereby position the container so that the lug will register with an aperture in a label.

3. A machine for labeling a container having a lug projecting therefrom, comprising a support for labels having an aperture to register with the lug, a pair of spaced apart parallel tracks for supporting the container, mechanism for moving the container through the machine, an elongated slot formed in each track, mechanism secured to each track and comprising a pair of spaced wheels extending upwardly through said slot for supporting the container in spaced relation to the track, one of said wheels being free to rotate in both directions and the other said wheel having a toothed periphery adapted to prevent slipping of the container thereon and being free to rotate in only one direction, and a stop member for engaging the lug to position the container so that the lug will register with the aperture in the label.

4. A machine for labeling containers having lugs projecting therefrom, comprising a support for labels having apertures to register with said lugs, a pair of spaced apart parallel tracks for supporting a container, means for rolling the container through the machine, mechanism secured to each track and comprising two spaced wheels extending above the top of the track for supporting the container in spaced relation to the track, whereby the container is free to rotate out of contact with the track, one of said wheels having a toothed periphery adapted to prevent slipping of the container thereon, means engaging a tooth of the toothed wheel for preventing reverse rotary movement of said toothed wheel, and a stop disposed in alinement with a lug on the container for contacting the lug and thereby limit the amount of rotation of the container supported by said wheels, the container being adapted to be rolled over the top of the toothed wheel and down upon the track by said container rolling means when further rotation of the container on said wheels is prevented by a lug engaging said stop.

5. A machine for labeling containers having lugs projecting therefrom, comprising a support for labels having apertures to register with said lugs, a pair of spaced apart substantially parallel tracks for supporting the container, means for propelling a container along the tracks, mechanism suspended from each track in front of said label supporting means and comprising a pair of spaced wheels extending above the top of each track for supporting the container in spaced relation to the track, one wheel of each of said pairs of wheels being mounted so as to freely rotate and means whereby the other said wheel of each of said pairs of wheels can rotate in only one direction, and means for engaging a lug on the container to limit the rotation of the container while the container is supported by said wheels and thereby position the container so that the lugs thereof will register with apertures in a label.

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