April 2, 1935. N. R. BECK 1,996,535

LEER FEEDING APPARATUS

Filed April 17, 1933 3 Sheets-Sheet 1

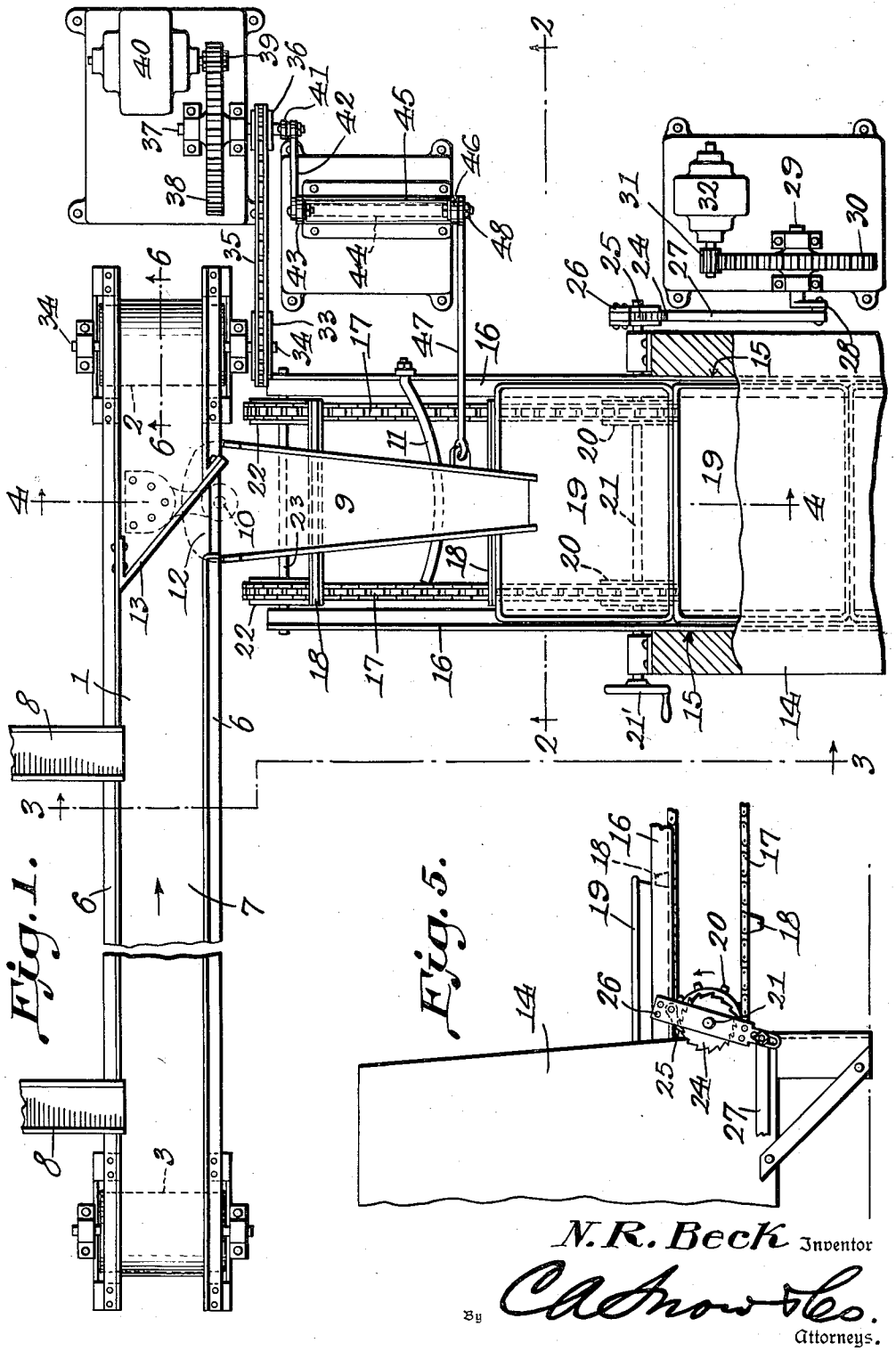

Fig. 1.

Fig. 5.

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LEER FEEDING APPARATUS

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Fig. 2.

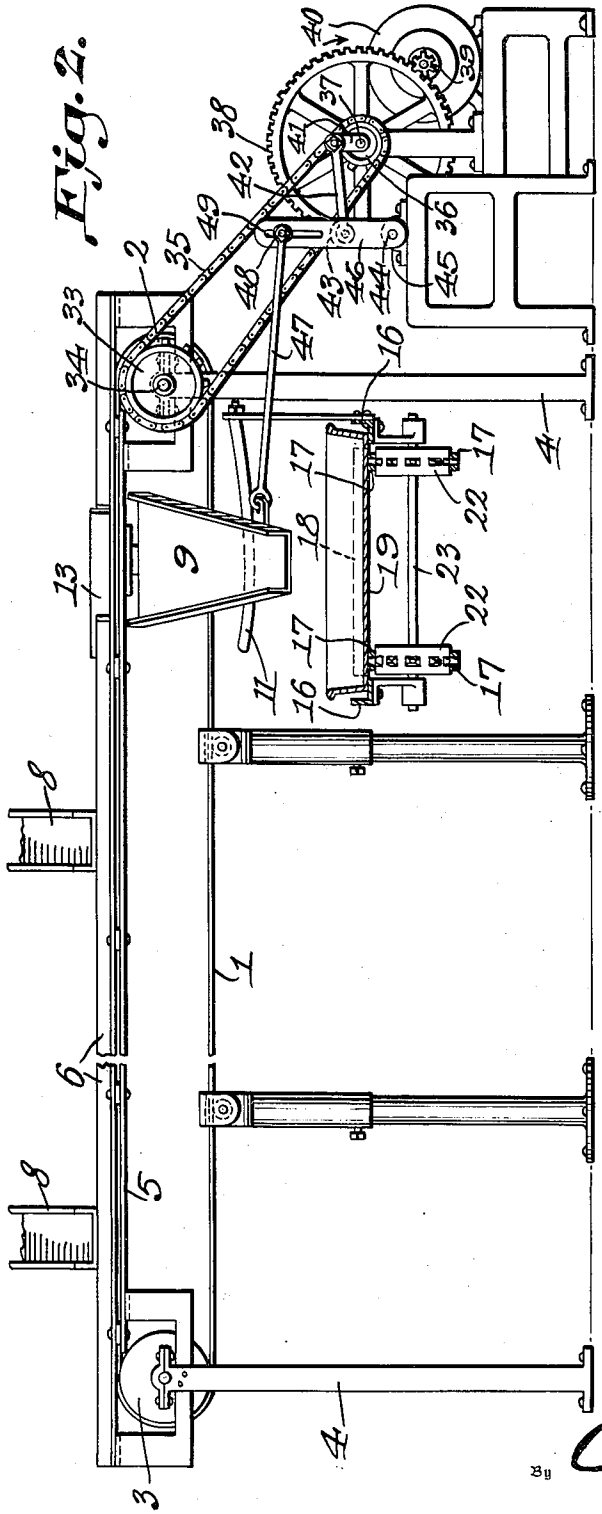

Fig. 7.

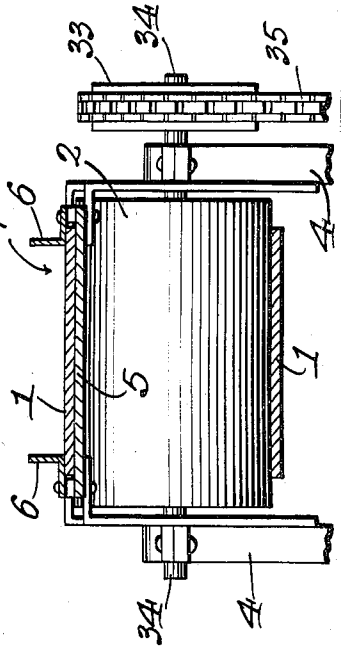

Fig. 6.

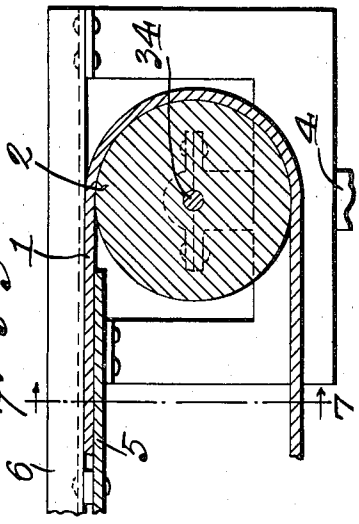

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Fig. 3.

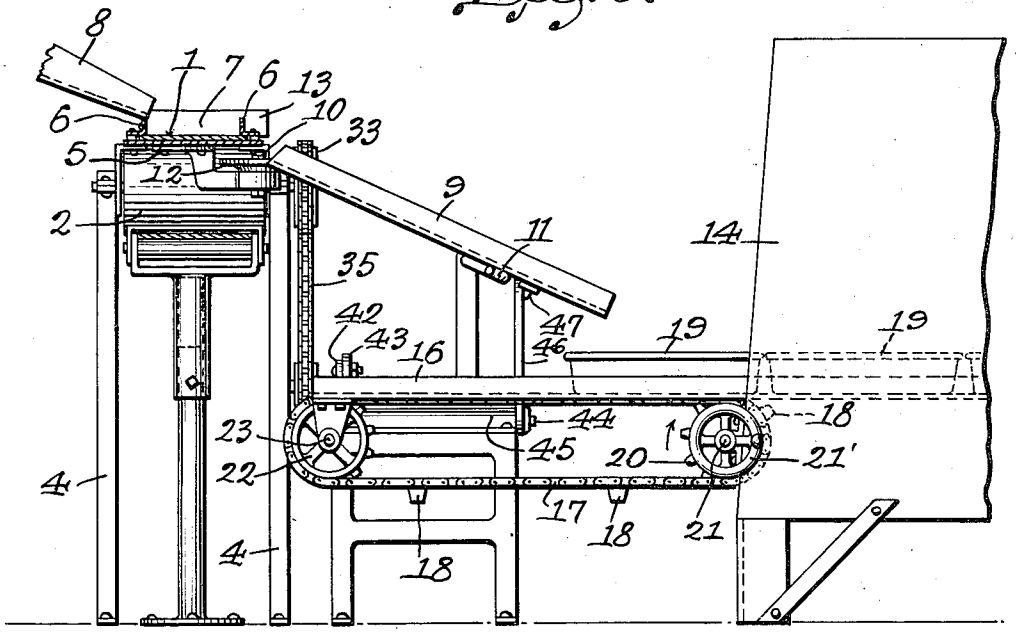
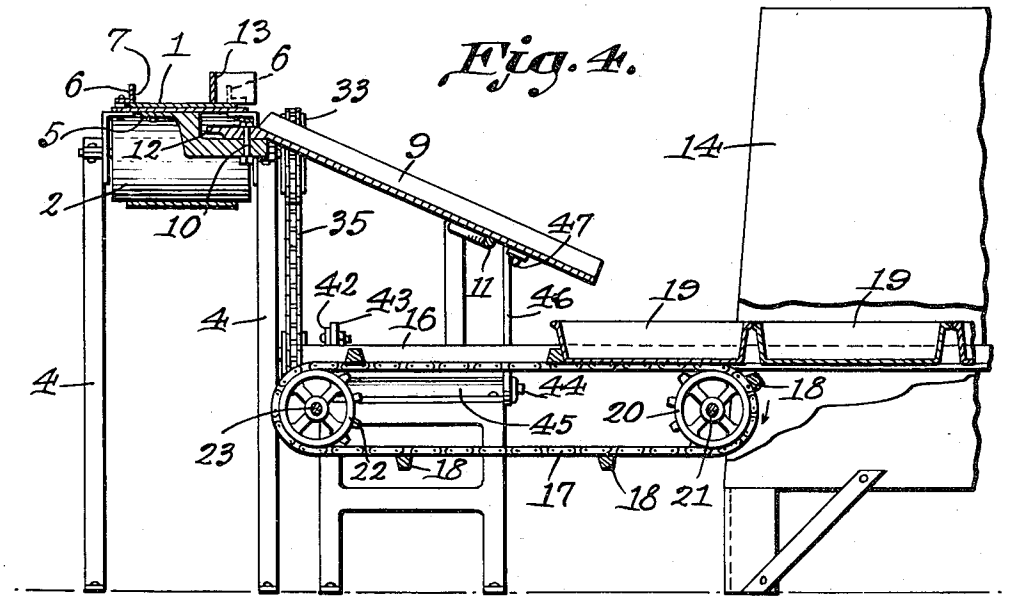


Fig. 4.



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Patented Apr. 2, 1935 1,996,535

UNITED STATES PATENT OFFICE

1,996,535

LEER FEEDING APPARATUS

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Application April 17, 1933, Serial No. 666,570

1 Claim. (Cl. 198—45)

This invention relates to apparatus designed primarily for conveying small bottles and the like from their points of formation to a small leer commonly known as a "peanut roaster" to those skilled in the art.

Heretofore it has been the practice to place small bottles on pans, place the pans by hand at the inlet of the roaster and thereafter remove them following the necessary annealing operation. This has required the services of two or more persons which has added considerably to the cost of producing small bottles.

It is an object of the present invention to provide a simple and efficient equipment which can be set up readily and which can be handled by a single person, said equipment serving to collect the formed bottles from different stations and deliver them to trays which are brought successively into proper position to receive the bottles as they are moved automatically into the roaster.

It is a further object to provide a means whereby the bottles will be spread uniformly over the bottom of the tray as said tray is fed into the roaster.

A still further object is to provide an apparatus of this type which is automatic in operation and requires the services of only one person who places the trays in position prior to being filled and subsequently removes the trays with the annealed glassware from the outlet end of the roaster.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claim, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:

Figure 1 is a plan view of the apparatus, some of the parts being broken away.

Figure 2 is a section on line 2—2, Figure 1.

Figure 3 is a section on line 3—3, Figure 1.

Figure 4 is a section on line 4—4, Figure 1, a portion of the roaster being shown in elevation.

Figure 5 is an elevation of a portion of the opposite side of the roaster showing a part of the drive provided for the pan conveyor.

Figure 6 is an enlarged section on line 6—6, Figure 1.

Figure 7 is an enlarged section on line 7—7, Figure 1, the conveyor roll and adjacent portion of its drive being shown in elevation.

Referring to the figures by characters of reference 1 designates an endless conveyor belt which can be formed of asbestos fabric and this belt is mounted on rolls 2 and 3 which, in turn, are suitably supported, as by the legs 4 of a table the top 5 of which is extended under and parallel with the upper flight of the belt so as to constitute a support therefor. The sides of the upper flight are preferably extended under guide strips 6 suitably supported on the table and cooperating to form a channel 7 along which bottles or the like can be conveyed by the upper flight of the belt.

The conveying belt can be of any desired length and is adapted to receive formed bottles or other glass articles at different stations adjacent thereto, any suitable means, such as chutes 8, being provided for directing the formed articles onto the belt. Adjacent to one end of the belt there is provided a delivering spout 9 which is mounted to swing at its upper end about a depending stud 10 supported beneath table top 5. This spout is inclined downwardly toward its free end and preferably tapered. It can be mounted to slide on a guide finger 11 and obviously is free to oscillate relative to the table, it being understood that at all times during such oscillation the upper end of the spout is in position to receive material from the upper flight of the conveyor belt 1.

One of the guide strips 6 is cut away above the receiving end of spout 9 so as to provide an outlet 12 through which articles can be delivered into the spout and in order that conveyed articles may be directed properly through this outlet 12, a deflecting strip 13 of any desired contour is extended across the upper flight of the belt 1 from one side strip 6 to the other, this deflector being disposed at such an angle that articles drawn thereagainst will be delivered through outlet 12.

A small leer or "peanut roaster" 14 is positioned with its inlet 15 adjacent to the delivery end of spout 9. This roaster, which is of a type well-known in the art, is provided with guide rails 16 extending outwardly from the outlet 15. Working between these rails are parallel endless chains 17 which can be provided at suitable intervals with pan engaging devices. For example, and as shown in the drawings, cross cleats can be secured on the chains so as to extend transversely therebetween and travel therewith. These cleats can be so spaced as to receive between them pans 19 in which the glass articles

are to be conveyed into the roaster 14. These pans can travel on the rails 16 and can be positioned readily by an attendant at the inlet end of the roaster.

The chains 17 are carried by sprockets 20 on a drive shaft 21 and by sprockets 22 on a transverse shaft 23.

The drive shaft 21 can be rotated at will by means of a hand wheel 21' or the like but ordinarily this shaft will be actuated intermittently at a desired speed by special mechanism provided for that purpose. This mechanism can include a ratchet wheel 24 secured to the shaft 21 and normally engaged by a pawl 25. This pawl is carried by one end of a lever 26 which is fulcrumed on shaft 21. The other end of this lever is adjustably engaged by a pitman 27 which receives motion through a crank 28 from a shaft 29. A large gear 30 is secured to this shaft and is adapted to be driven by a small gear 31 on the shaft of a motor 32. Thus it will be seen that during the operation of the motor the lever 26 will be oscillated and pawl 25 will be caused to rotate shaft 24 intermittently in one direction. Obviously should it be desired to feed the pans 19 into the roaster 14 more rapidly than is possible with the mechanism described, all that would be necessary would be to rotate the hand wheel 21' in the proper direction. This would cause the teeth of the ratchet wheel to slip under the pawl so that this manual actuation would not be interfered with by the power mechanism.

The conveyor belt 1 is adapted to be driven continuously by any mechanism desired. For example a sprocket 33 can be secured to the shaft 34 of roll 2, this sprocket receiving motion through a chain 35 from a smaller sprocket 36 secured to a shaft 37. This shaft is provided with a gear 38 adapted to be driven by a smaller gear 39 on the shaft of a motor 40. A crank arm 41 is carried by one end of shaft 37 and is connected by a pitman 42 to the intermediate portion of a lever 43. This lever is extended upwardly from one end of a rock shaft 44 journalled in a suitable bearing 45 and another lever 46 is extended from the shaft and is connected by a rod 47 to the spout 9. The pivot bolt 48 used for connecting rod 47 to lever 46 can be adjustable within a longitudinal slot 49 in lever 46 so that the extent of movement of spout 9 during the oscillation of lever 46 can be regulated.

In practice the small bottles or other glass articles being produced at different stations are delivered through the chutes 8 onto the upper flight of the belt 1 which is travelling in the direction indicated by the arrow in Figure 1. As these articles reach the deflector 13 they are directed into the spout 9. The outlet end of this spout overhangs a pan 19 which has been placed on the chains 17 by an attendant. As the back wall of the pan is engaged by a cleat 18 the pan will be fed slowly along rails 16 through outlet 15 and into the roaster. This movement ordinarily will be intermittent and slow, due to the action of the pawl 25 on ratchet wheel 24. As the pan advances the chute 9 is slowly swung from side to side by its rod 47 and the mechanism operating it. Thus the articles being delivered from the spout will be spread over the pan from side to side and as the pan is advanced intermittently it will ultimately be delivered into the roaster with the articles distributed evenly over the bottom of the pan. As each pan passes from under the outlet end of spout 9 another empty pan which has been placed in position back of it, will be brought to a point where it can receive the delivered articles.

One attendant will have ample opportunity not only to place pans at the feeding end of the apparatus but also to remove the filled pans from the outlet end of the roaster.

The two driving mechanisms can be so timed that lateral swinging of the spout 9 can take place during pauses between the movements of the pan. This will prevent delivered articles from piling upon each other in the pan.

While this apparatus is designed primarily for use with small leers or "peanut roasters" it will be understood that under some conditions it might be found advantageous to use it in connection with larger leers and in handling large bottles or other glass containers.

What is claimed is:

In leer feeding apparatus an endless conveyor having a side outlet, means for supplying bottles to the conveyor, a stationary deflector overlying the conveyor adjacent to the outlet for deflecting the bottles from the conveyor through the outlet, a chute for receiving bottles from the outlet, a motor for driving the conveyor, means driven by the motor for oscillating the chute laterally in timed relation to the speed of the conveyor, said means being adjustable to vary the sweep of the chute, and independently movable conveying means for receiving bottles from the chute.

NORMAN R. BECK.