

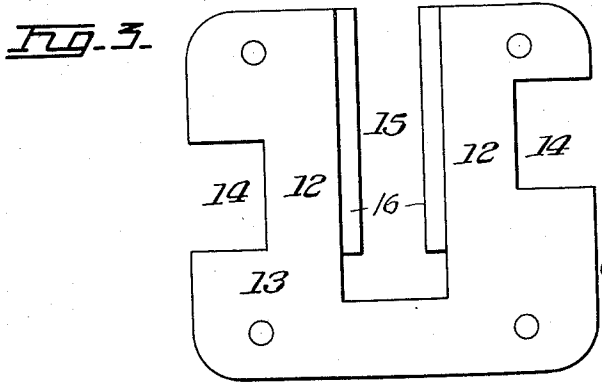
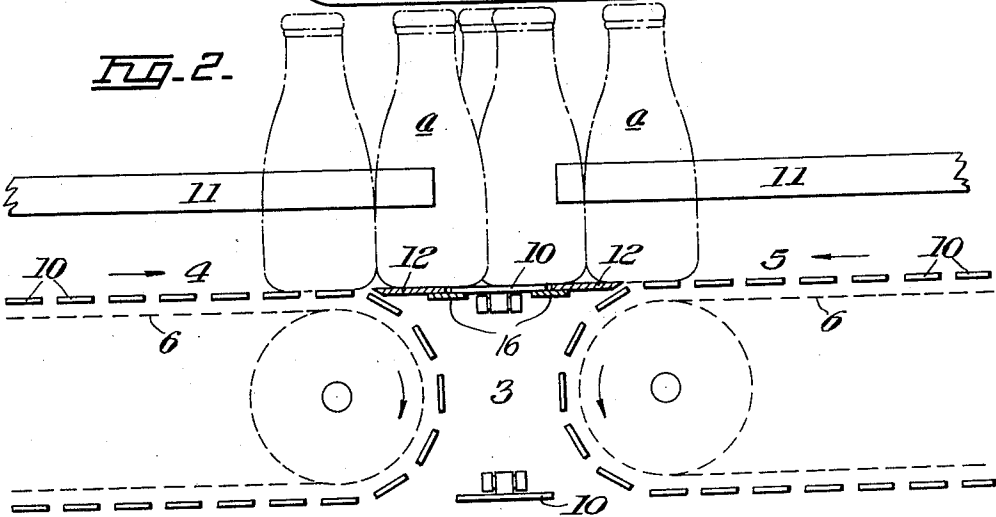
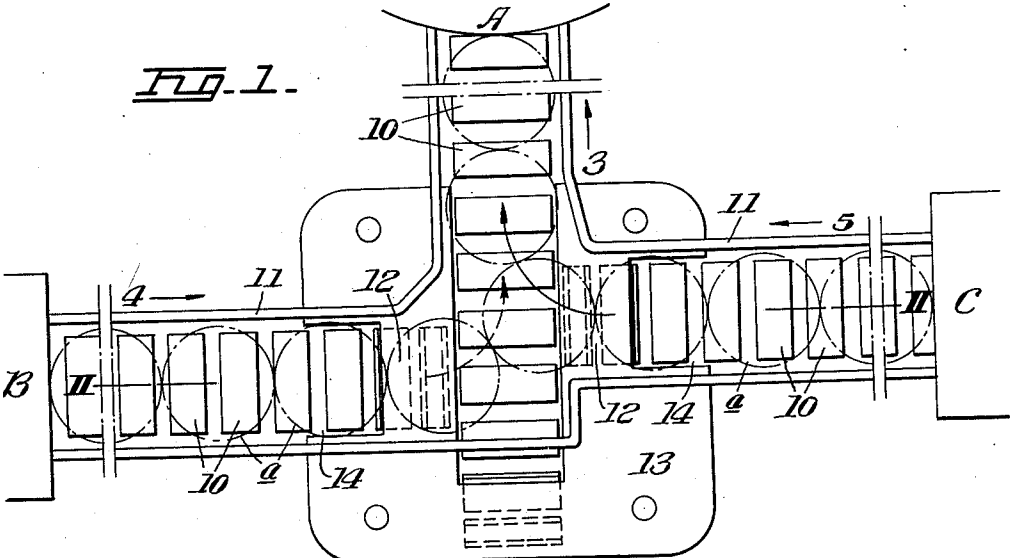
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CONTAINER CONVEYER AND DISTRIBUTOR

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CONTAINER CONVEYER AND DISTRIBUTOR

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6 Claims. (Cl. 198—32)

My invention is an improvement in distributing conveyers for containers such as bottles, cans, or the like and is particularly adapted to the art of conveying milk or other bottles as from two washing or other machines to a single filling machine, or to any other desirable or usable receiving station for further treatment.

Specifically, in the application of the invention as illustrated and as hereinafter described, the invention involves the installation of a main final delivery conveyer or trackway and a plurality of oppositely disposed inwardly feeding lateral conveyers. The invention also provides an automatically operating switching construction at the junction of a main conveyer between the feeding conveyers for placement on the intervening main delivery conveyer of the plural streams or series of bottles, as from two washers or the like, at opposite sides of said conveyer.

In my prior application filed September 11, 1936, Ser. No. 100,304 is disclosed a system of somewhat similar means whereby a constant stream or train of bottles may be conveyed and delivered to the ultimate one of a series of terminal receiving stations, and to one or more intermediate laterally disposed stations automatically, as controlled or limited by the absorbing or receiving capacity of the several receiving stations or their supply conveyers.

In the present case the conditions are somewhat reversed and provide for any arrangement of apparatus where it is desirable or necessary to convey, for instance to a single filling machine, the output of two individual washers, both combined being of a less or equal capacity of reception of the final receiving filling machine, or of any other element, at a terminal receiving station.

In the present application I therefore utilize a single receiving and delivering conveyer located between the oppositely disposed inwardly moving delivery terminals of laterally arranged conveyers, each leading from a supply station to said main delivery conveyer, for reception and transportation of the contents of both to the single final receiving element, as a filler or the like. At such junction are also provided bridging and guiding elements whereby under normal or varying operating conditions the conveyed units may pass from the lateral trackways onto the main one for travelling support thereby.

The invention is also designed to maintain the feed of units to such final delivery station substantially in proportion to the lateral supply and

the absorbing or receiving capacity of the intermediate delivery trackway.

Referring to the drawing showing one preferred construction and arrangement:

Fig. 1 is a somewhat diagrammatic plan view showing the junction of the main and lateral conveyers;

Fig. 2 is a vertical sectional view on the line II—II of Fig. 1;

Fig. 3 is a detail plan view of a switching junction cover plate embodying the transfer bridge sections.

Ordinarily, the present common practice is to convey bottles from a washer to each filling machine by separate independent conveyers. Where the capacity of the filler is sufficient to absorb the output of say two washers, such result can be accomplished by feeding the units inwardly at each opposite side of the main delivery conveyer by the modification or re-arrangement of the conveyers and the junction bridge, as disclosed herein.

I show in Fig. 1 the junction of the three co-operating conveyers in which the conveyer 3 may be understood as leading to any utilized receiving station, as a filling machine A.

A similar conveyer 4 leads at substantially right angles from an individual washing machine B to conveyer 3, and a similar conveyer 5 leads thereto at the opposite side from another individual washer C or the like, neither of which nor the filling machine are shown in detail.

Each such conveyer is of conventional form utilizing a conveying belt or chain 6 of suitable construction, flexible vertically as commonly practiced and driven by any suitable means, as a motor geared with the usual head shaft of each conveyer.

It will be understood also that the speed of conveyer 3 is sufficiently greater than that of conveyers 4 and 5, and preferably slightly faster than the combined speeds of both, for reasonable reception of the loads of both. Thus for instance the speed of conveyer 3 may be fifty feet per minute, and of each conveyer 4 and 5 twenty two feet per minute, providing a reasonable excess capacity in conveyer 3, if desired.

In other words the receiving capacity of the delivery conveyer 3 is preferably in sufficient excess of the delivery capacity of both conveyers 4 and 5 to avoid undesirable excess supply, jamming, overloading, or the like.

The construction of the several conveyers is of any well known type to provide movement on a

common level of closely adjacent unit-supporting and carrying slats 10.

At the junction of the several conveyers I provide a comparatively thin flat supporting bridge section 12 forming a portion of a covering plate 13. Such plate as in Fig. 3 is provided with clearance openings 14, 14 for the adjacent terminal portions of the lateral conveyor sections 4 and 5 and with a middle clearance opening 15 for the chains and slats of conveyor 3 between inwardly extending slat-supporting flanges 16.

As shown, each such lateral supply conveyor 4 and 5 is off-set from the other more or less dependent on the size of the bottles *a*, and they are sufficiently out of cross alinement with each other so that the several incoming bottles from opposite sides will be delivered alternately or otherwise onto the slats of conveyor 3 without jamming or interlocking. It will be understood that as the conveyed columns of units are thus oppositely and inwardly delivered each individual unit thereof will be received by conveyor 3 and carried away towards station A at a considerably faster speed than that of either conveyor 4 or 5 and preferably at a faster speed than the combined speeds of both. In such manner, as the units are delivered inwardly they will be received and carried outwardly in a continuous stream, so long as the units are supplied by conveyers 4 and 5, or either of them.

The plate 13 is adapted to be laid across the gap portions at the junction and is preferably on a level slightly below that of the supporting slats 10, providing an ample supporting platform for the straight or lateral movement of the units.

The several trackways are defined by the travelling base slat members 10 and between guiding sides 11 of suitable construction to maintain the bottles erect with easy clearance in their passage. At corner portions such sides may be conformably rounded or sloped to provide for easy lateral travel and middle placement on conveyor 3 of the incoming units, as delivered from one or both conveyers 4 and 5 to the middle conveyor 3. In other words, as each unit passes from the terminal of conveyor 4 or 5, over the bridge section 12 and onto the slats of conveyor 3, its direction of travel is gradually changed upon first contacting and then sliding over onto the middle of the slats of conveyor 3, and the units will thus be received and carried by it, first around the corner junction and then longitudinally to the delivery terminal of conveyor 3.

Thus the advance movement of the units towards conveyor 3 places them successively in engaging relation to the slats of such conveyor, by which they are then conveyed in a direction substantially at right angles to that of the feeding conveyers 4 and 5.

It is important also to off-set conveyor 4 from conveyor 5 more or less, as indicated by the broken section line II—II, so that each unit as it arrives over the slats of conveyor 3 will be out of alinement with the opposite oncoming unit. Because of the greater speed of conveyor 3 each unit will be quickly moved away as thus received, such unit then passing onto the delivery conveyor 3 and being carried forwardly towards station A in advance of the next oncoming opposite unit, throughout the operation.

The construction and operation of the invention will be readily understood from the foregoing description and it will continue to function automatically and satisfactorily to receive and trans-

fer the oppositely delivered supply units in the manner described.

While the application of the invention to the conditions stated, wherein the output of two oppositely located washers is received and delivered to a single filling machine is entirely effective, it will be obvious that the invention is equally applicable to other conditions. For instance, assuming two oppositely located filling machines as at stations B and C and an intervening conveyor leading to a single station as for instance a loader, or a work bench or the like, at station A, the conveyers 4 and 5 in such case will transfer filled bottles or the like to such final receiving station with the same facility.

The invention will therefore be understood to be usable in connection with any other similar operating conditions.

What I claim is:

1. In combination, a longitudinal conveyor adapted to receive conveyed units from opposite sides and to deliver them to a receiving station, a pair of oppositely moving lateral conveyers each arranged at an angle thereto at opposite sides, and a unitary bridge plate having a middle clearance opening and slat-supporting flanges for the longitudinal conveyor and lateral bridge sections at each side of the middle opening providing skidway supports from the lateral conveyers to the longitudinal conveyor.

2. In combination, a longitudinal conveyor adapted to receive conveyed units from opposite sides and to deliver them to a receiving station, a pair of oppositely moving lateral conveyers each arranged at an angle thereto at opposite sides, and a unitary bridge plate having a middle clearance opening and slat-supporting flanges for the longitudinal conveyor and clearance openings for the lateral conveyers and supporting bridge sections between said clearance openings and the middle clearance opening.

3. A unitary bridge plate providing sliding support for conveyed units in passing from lateral inwardly travelling conveyers to an intervening delivery conveyor, having a middle clearance opening and slat-supporting flanges for the delivery conveyor, clearance openings for the lateral conveyers at opposite edge portions of the plate and off-set from each other, and supporting bridge sections between said clearance openings and the middle clearance opening.

4. Means for conveying upright cylindrical units as bottles consisting of the combination of a main delivering conveyor and oppositely arranged inwardly approaching lateral branch conveyers leading thereto on a common plane, said lateral conveyers being slightly off-set from each other for alternating distribution of oppositely approaching units toward and to the main conveyor for single line non-interfering placement and movement thereon, guides for the main conveyor, guides for the lateral conveyers having at one side thereof corner clearance convergence with the guides of the main conveyor, the speed of the main conveyor being sufficiently faster than that of the lateral conveyers whereby to receive and carry away in a single row or column such alternately distributed units without junction interference, and a stationary supporting bridge on said common plane between the main conveyor and each branch conveyor providing a skidway support for units moving from either branch conveyor directly to the main conveyor.

5. Means for conveying upright cylindrical units as bottles consisting of the combination of

a main delivering conveyer and oppositely arranged inwardly approaching lateral branch conveyers leading thereto on a common plane, said lateral conveyers being slightly off-set from each other for alternating distribution to the main conveyer for single line movement thereon, guides for the main conveyer, guides for the lateral conveyers having at one side thereof corner clearance convergence with the guides of the main conveyer, the speed of the main conveyer being sufficiently faster than that of the lateral conveyers whereby to receive and carry away in a single row or column such alternately distributed units without junction interference, and a unitary bridge member at the junction of the main and branch conveyers consisting of a plate having a supporting surface flush with all of said conveyers and provided with a middle clearance opening for the terminal portion of the main conveyer and lateral clearance openings for the terminal portions of the branch conveyers.

6. Means for conveying upright cylindrical units as bottles consisting of the combination of

a main delivering conveyer and oppositely arranged inwardly approaching lateral branch conveyers leading thereto on a common plane; said lateral conveyers being slightly off-set from each other for alternating distribution to the main conveyer for single line movement thereon, guides for the main conveyer, guides for the lateral conveyers having at one side thereof corner clearance convergence with the guides of the main conveyer, the speed of the main conveyer being sufficiently faster than that of the lateral conveyers whereby to receive and carry away in a single row or column such alternately distributed units without junction interference, and a unitary bridge member at the junction of the main and branch conveyers consisting of a plate having a supporting surface flush with all of said conveyers and provided with a middle clearance opening and inwardly extending supporting flanges for the terminal portion of the main conveyer and lateral clearance openings for the terminal portions of the branch conveyers.

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