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EMPTY CARTON REJECTOR

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3 Claims. (Cl. 209—90)

In the assembly of material in cartons for certain purposes, particularly where it is done partly by hand, there is a possibility that the part to be added by hand may not be inserted in every carton. This is particularly true in dried soups where the carton may first receive an envelope or the like containing certain of the soup ingredients while others are added later, preferably by machine.

An object of this invention is to provide means for automatically examining each carton as it passes a given point and of rejecting or throwing out those which do not contain the envelope or other material which the carton is supposed to contain as it passes that point.

This and other objects as will hereinafter appear are fully described in the following specification and shown in the accompanying drawing in which

Figure 1 is a partial perspective of a conveyor equipped with my carton rejecting means;

Fig. 2 is an enlarged section on the line 2 of Fig. 3; and

Fig. 3 is a section on the line 3—3 of Fig. 1.

The embodiment illustrated comprises a conveyor belt 10 slidably mounted on a track 11 which may be carried on suitable supports, not shown. The belt 10 is driven in any well known manner by means of suitable pulleys, not shown.

Brackets 14, 15 are secured to a side of the track and carry guide rails 16, 17 which are adjustably secured thereto by means of studs 18 passing through the brackets and by nuts on these studs.

On the opposite side of the conveyor, guide rails 20, 21 are similarly secured to the other side of the track. The guide rail 21 is curved outwardly at its end and terminates just beyond a bracket 24. The top rail 20 is bent to form a top guide rail 23 and then down to form a bracket 25. These brackets 24, 25 are adjustably secured at their lower ends on studs 26 (Fig. 2) and 27 (Fig. 1).

Spaced guide rails 20, 21, 20^a and 21^a are adjustably mounted on the opposite side of the track 11 in the same way as has been described for the guide rails 16, 17. The top guide rail 20 is raised at 23 so as to lie near the level of the top of a carton C and has two posts 24, 25 secured thereto and which are adjustably mounted on studs 26, 27. The guide rail 21 terminates just beyond the post 24 and the guide rails 20^a, 21^a continue from the post 25. A spring metal guide 28 serves to position the carton with respect to the guide rails 20, 21.

Thus an opening 30 is formed beneath the raised guide rail 23. Opposite this opening is located an air jet 31 connected through a pressure regulator 32 and pipe 33 to a suitable source of air supply (not shown). The lower guide rails 17, 21 and 21^a may be omitted for certain sized cartons.

Cartons C are fed one at a time to the conveyor by any well known means (not shown) and envelopes E containing certain powdered soup ingredients are dropped by hand, one envelope into each carton.

The air pressure on the air jet 31 is then regulated so that it is just sufficient to force the bottom of an empty carton C off the conveyor as shown in dotted lines (Fig. 2) and into a receptacle beneath (not shown) but is not sufficient to move a carton containing an envelope E.

The guide rails provide means for adjustment for different widths of cartons.

Thus it will be seen that I have provided a simple and efficient means for checking cartons for certain fillers and for rejecting cartons which are not properly filled.

While I have shown and described but a single embodiment of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, may be made which do not depart from the spirit and scope of my invention as disclosed in the appended claims.

I claim as my invention:

1. Mechanism for rejecting empty cartons comprising a conveyor, guide rails alongside the conveyor for guiding cartons in an upright position, and a jet of air directed across the conveyor, there being only one guide rail and that near the top of a carton opposite the jet to permit an empty carton to be blown thereunder from the conveyor, the jet not being strong enough to blow a filled carton from the conveyor.

2. Mechanism for rejecting empty cartons comprising a conveyor, a guide rail on each side of the conveyor midway the height of the cartons for guiding cartons in an upright position, and a jet of air directed across the conveyor, the guide rail at the point opposite the air jet being raised nearly to the top of the carton so that the air jet directed against the lower portion of the carton will tend to force the lower end of the carton through the opening beneath the raised guide rail, the air jet being strong enough to force an empty carton off the conveyor and beneath the raised guide rail but not strong enough to blow off a filled carton.

3. Mechanism for rejecting empty cartons

comprising a conveyor, a guide rail on each side of the conveyor midway the height of the cartons for guiding cartons in an upright position, a jet of air directed across the conveyor, the guide rail at the point opposite the air jet being raised nearly to the top of the carton so that the air jet directed against the lower portion of the carton will tend to force the lower end of the carton

through the opening beneath the raised guide rail, the air jet being strong enough to force an empty carton off the conveyor and beneath the raised guide rail but not strong enough to blow off a filled carton, and a guide for centering the carton on the conveyor at said opening.

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