Feb. 22, 1927. 1,618,503

G. M. ANDERSON ET AL

MEANS FOR PACKING BISCUIT

Original Filed Sept. 7, 1922 2 Sheets-Sheet 1

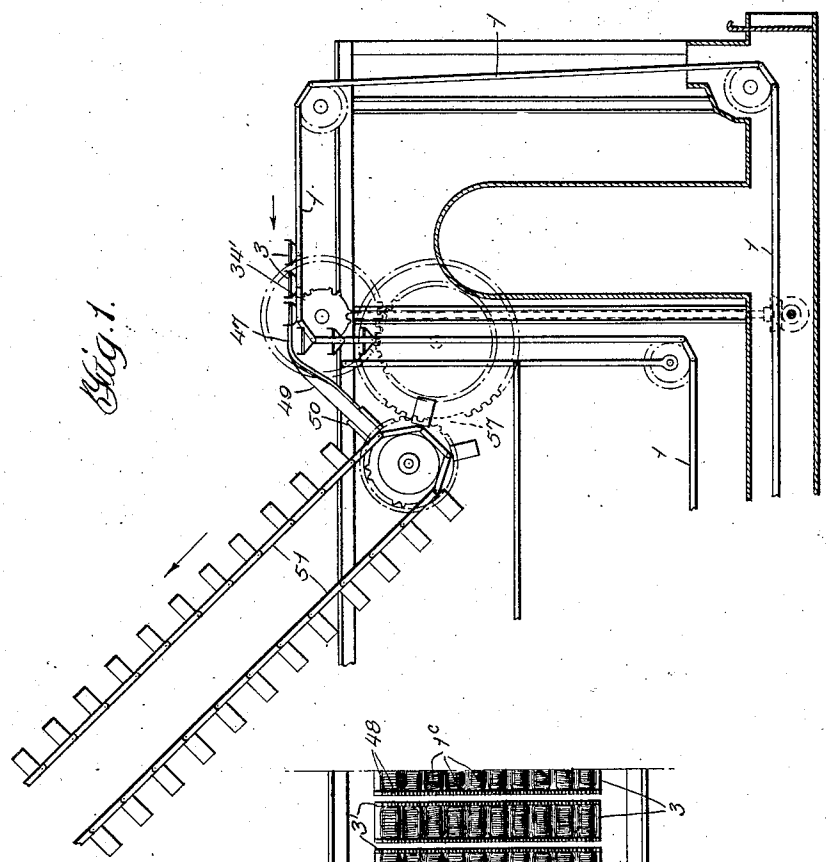


Fig. 1.

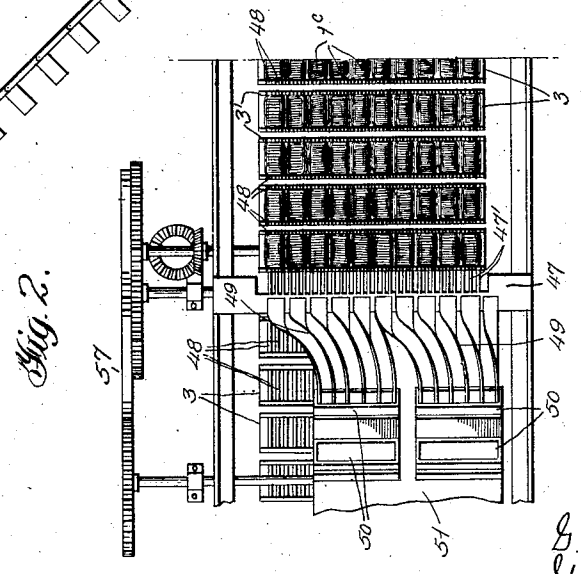


Fig. 2.

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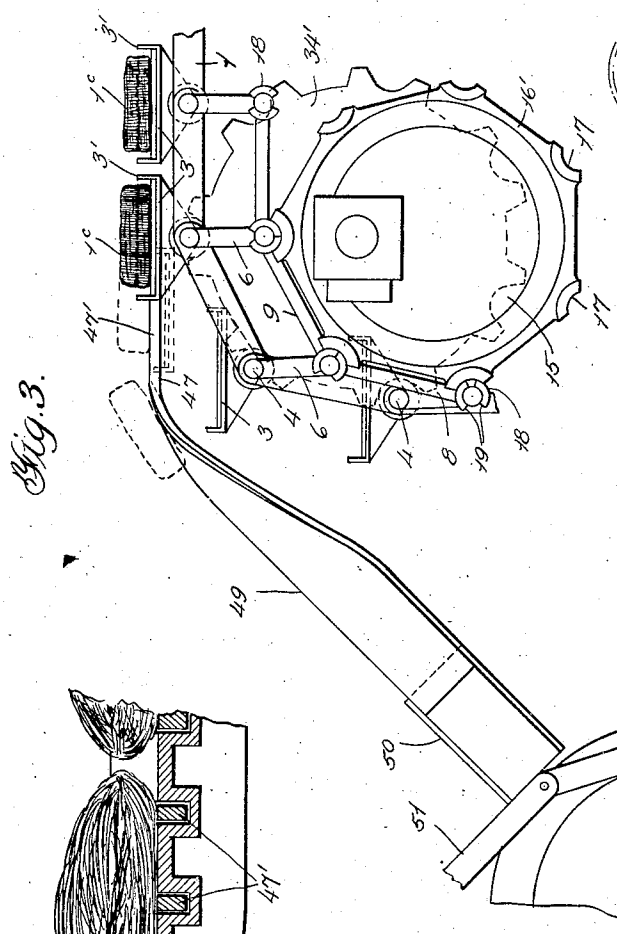


Fig. 3.

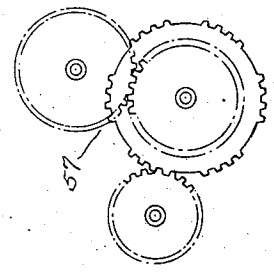


Fig. 5.

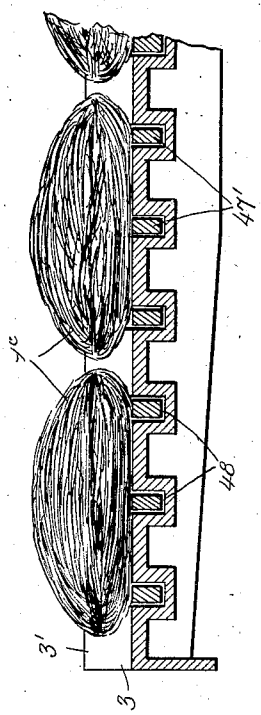


Fig. 4.

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# UNITED STATES PATENT OFFICE.

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## MEANS FOR PACKING BISCUIT.

Original application filed September 7, 1922, Serial No. 586,705. Divided and this application filed November 2, 1923, Serial No. 672,373. Renewed March 15, 1926.

Figure 1 is a side view of the invention, partly in section and partly broken away.

Figure 2 is a fragmentary top plan view of the same.

Figure 3 is a fragmentary side view of the invention on a larger scale.

Figure 4 is a detail fragmentary cross-sectional view of a conveyor tray and the engaging teeth of the removal device.

Figure 5 is a detail diagrammatic view of the drive gearing for the carton feed means.

The invention has relation to means for manufacturing cereal filamentous biscuit, having for an object the provision of means for packing the biscuit, wherein the movement of removal of the biscuit is used to initiate the conveyance of the biscuit into the cartons or boxes in which they are to be packed. Other objects and advantages will hereinafter appear.

The invention consists in the novel construction and combinations of parts, as set forth in the appended claims.

In the accompanying drawings, illustrating an embodiment of the invention applied to a machine constructed in accordance with the disclosure of co-pending application Serial No. 586,705, filed September 7, 1922, of which the present is a divisional application, the numeral 1 designates a conveyor, provided with trays 3 adapted each to carry a transverse row of biscuit 1c. The conveyor 1 extends horizontally to sprocket wheel 34′ and vertically downward therefrom, the trays 3 being maintained in upright position during the passage over said sprocket by any suitable means; for instance by the means shown in the application for patent of E. P. Webster, Serial No. 552,037 filed April 12, 1922.

According to this construction the pivot rods 4 of the conveyor chain links are provided with depending crank extensions 6, the lower ends of which are offset to form the pivots of the links 8 of a supplementary sprocket chain 9, both chains being endless and of the same length over-all. The two chains, connected by the crank extensions 6, form a parallel movement chain couple, whereof the links move in parallel and the connecting extensions move in parallel.

The journal boxes of the sprocket wheel shafts are provided each with a depending eccentric 16, held stationary by the box and carrying a sprocket wheel or annulus 16′ loose thereon, said eccentrics having their centers in the same vertical planes as the axial centers of the related shafts. The seats 17 of the sprockets 16′ are engaged by end heads 18 of the links 8, said heads having angularly related radial shoulders 19, the shoulders of the adjacent heads of different links contacting with each other as the supplementary chain passes around a sprocket wheel 16′.

The sprocket wheels 16′ serve as guide sprockets or idlers and, together with the action of the shoulders 19, are adapted to prevent any movement of the supplementary chain that would throw the trays out of horizontal position, since said trays are rigidly mounted upon the rods 4.

Prior to the downward movement of the trays from sprocket 34′, the teeth 47′ of a stationary biscuit removal device or comb 47 will engage transverse grooves 48 of the bottoms of the trays 3, beneath the biscuit 1c in said trays, whereupon the trays will pass downwardly as the chain passes downwardly around the sprocket, away from and below said teeth, which will uphold the biscuit resting thereon. At the same time the rear flanges or sides 3′ of said trays will push the biscuit along the teeth of said comb, until said flanges pass below the tops of said teeth, from the position shown in full lines to the position shown in dotted lines in Figure 3. The succeeding tray 3 now coming along, its front flange 3′ will engage the biscuit resting upon said teeth and will further push the same along; the entire movement of the biscuit row by the push of both front and rear flanges of the tray being approximately the length of a biscuit and a half.

The movement of the biscuit by the side flanges 3′ of the conveyor trays is utilized to bring them upon spiral inclined ways 49, wherein the biscuit will descend through force of gravity and will be caused to assume parallel vertical position, from their previous parallel horizontal position, said ways being brought more nearly together as they extend downwardly, to thereby separate the successive major rows of biscuit into minor rows of a predetermined number of

biscuit (five in the present case) to the row. The biscuit so separated into minor rows are delivered to separate open-top cartons 50, carried by conveyor 51, said conveyor preferably being inclined and passing upwardly to a floor above, where the cartons may be sealed.

The conveyor 51 is shown as driven by intermittent gearing 57 having operative connection with the drive of conveyor 1, but any other suitable driving means may be employed.

We claim:

1. In a machine for packing biscuit, a moving conveyor, means for successively feeding cartons, and means for removing successive transverse rows of biscuit each row abreast and as a unit from said conveyor and delivering the same to said cartons each row as a unit to a carton.

2. In a machine for packing biscuit, a moving conveyor, means for successively feeding cartons, and means for horizontally removing successive transverse rows of biscuit each row abreast and as a unit from said conveyor and delivering the same to said cartons each row as a unit to a carton.

3. In a machine for packing biscuit, a moving conveyor, an endless conveyor for successively feeding cartons, and means for removing successive transverse rows of biscuit each row abreast and as a unit from one end of the biscuit conveyor and delivering the same to said cartons each row as a unit to a carton.

4. In a machine for packing biscuit, a moving conveyor for biscuit, means for successively feeding cartons, a plurality of inclined ways leading to the carton conveyor, and means for removing successive transverse rows of biscuit each row abreast and as a unit from said conveyor and delivering the same to said inclined ways, the latter delivering to the cartons of the carton conveyor each row as a unit to a carton.

5. In a machine for packing biscuit, a moving conveyor for biscuit, means for successively feeding cartons, a plurality of inclined ways leading to the carton conveyor, a platform, and means for removing successive transverse rows of biscuit each row abreast and as a unit from the biscuit conveyor and delivering the same to said inclined ways including means for pushing the rows of biscuit successively upon said platform and therefrom upon the said ways, the latter delivering the biscuit directly to the cartons of the carton conveyor each row as a unit to a carton.

6. In a machine for packing biscuit, a moving conveyor for biscuit, means for successively feeding cartons, a plurality of inclined ways leading to the carton conveyor, and means for removing successive transverse rows of biscuit each row abreast and as a unit from the biscuit conveyor and delivering the same to said ways, the latter delivering directly to the cartons of the carton conveyor and being adapted to divide each major row of biscuit into two minor rows and to deliver both minor rows simultaneously to two cartons.

7. In a machine for packing biscuit, a moving conveyor for biscuit, means for successively feeding cartons, a plurality of inclined ways leading to the carton conveyor, and means for removing successive transverse rows of biscuit each row abreast and as a unit from the biscuit conveyor and delivering the same to said ways, the latter delivering directly to the cartons of the carton conveyor and being adapted to adjust the biscuit from horizontal to vertical position.

8. In a machine for packing biscuit, a moving conveyor, means for successively feeding cartons, and means for removing successive transverse rows of biscuit each row abreast and as a unit from said conveyor and delivering the same to said cartons each row as a unit to a carton and for adjusting the biscuit from horizontal to vertical position.

In testimony whereof we affix our signatures.

GEORGE M. ANDERSON.
STUART HILDER.