

July 24, 1956

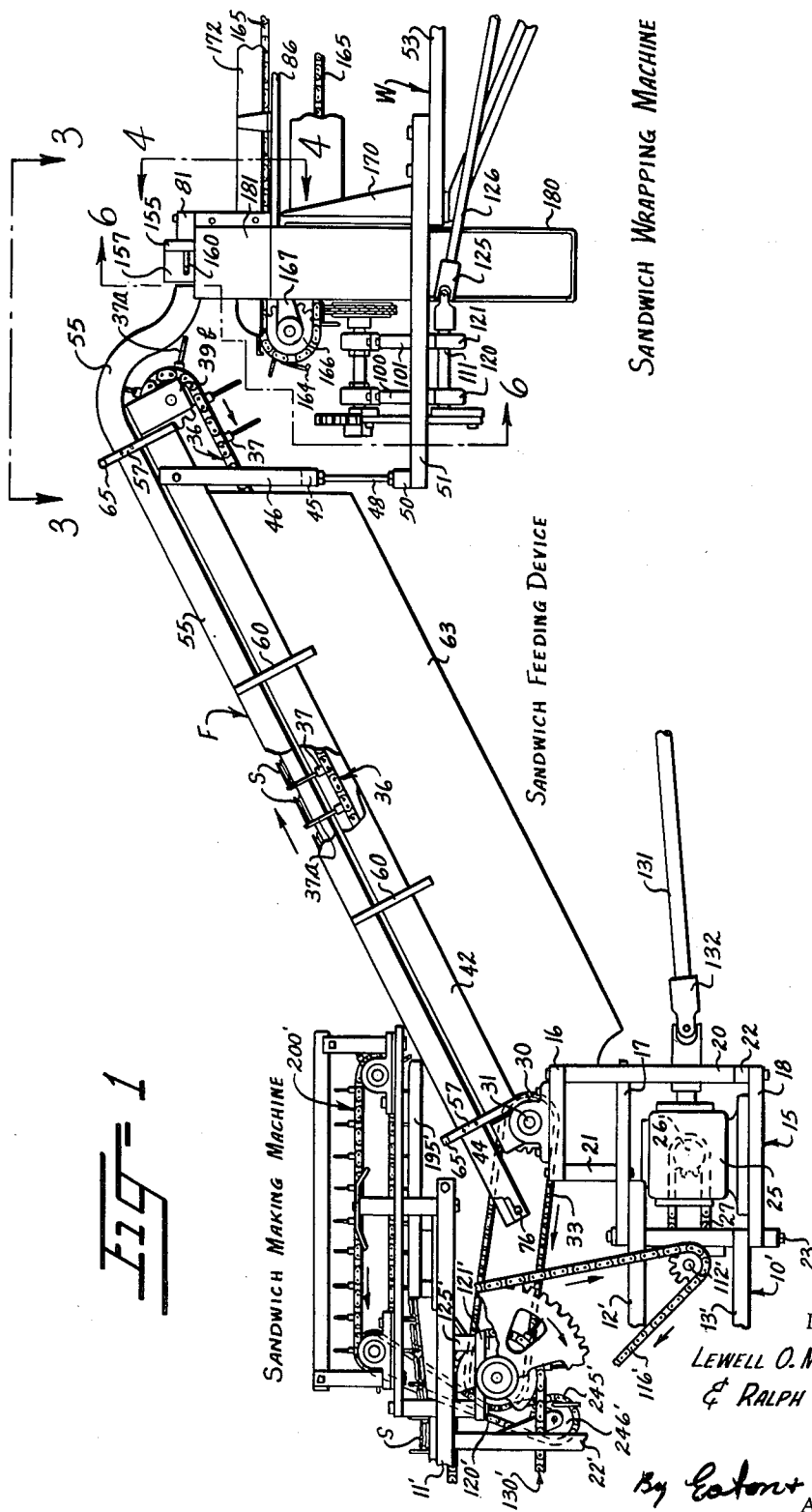
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2,755,907

CONFECTION FEEDING DEVICE

Filed June 8, 1953

7 Sheets-Sheet 1



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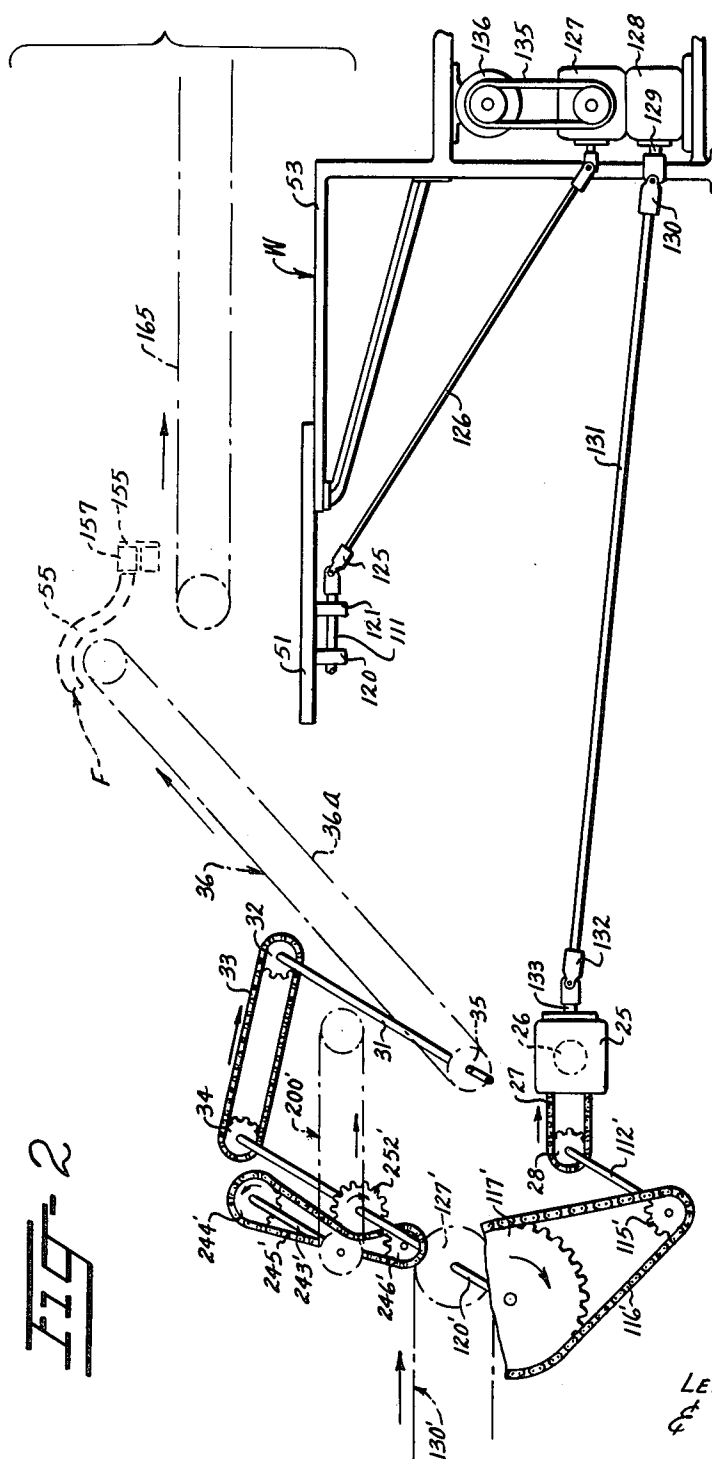
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CONFECTION FEEDING DEVICE

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7 Sheets-Sheet 2



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7 Sheets-Sheet 3

Fig-3

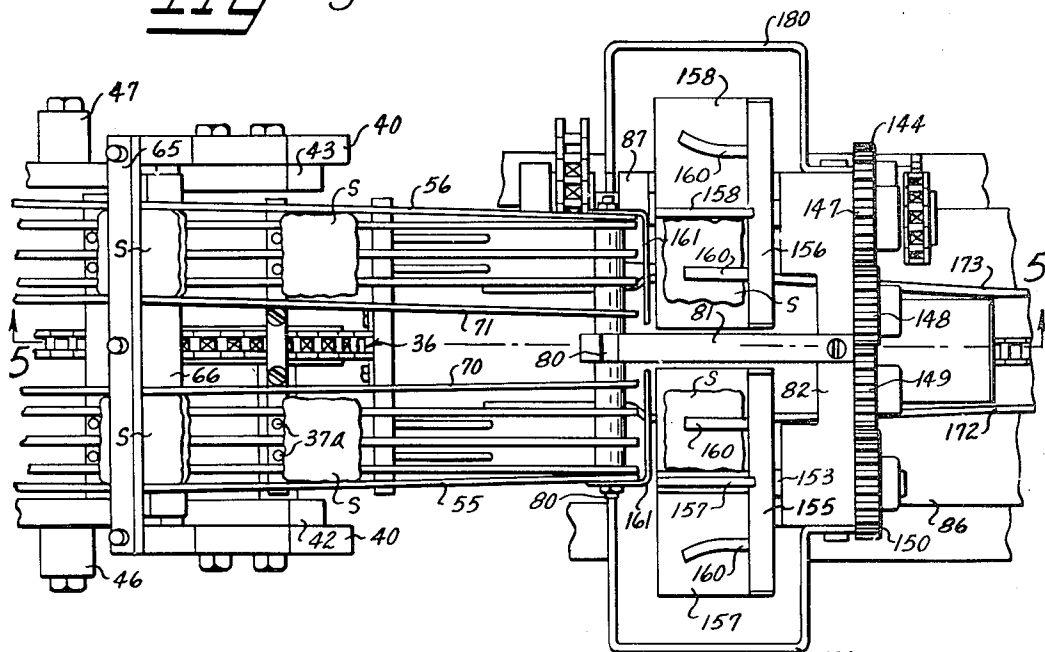
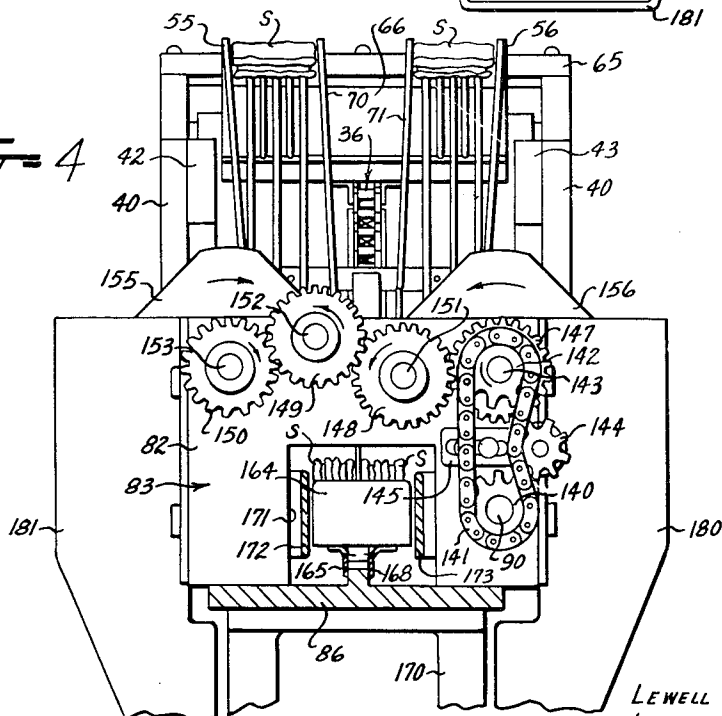


Fig 4



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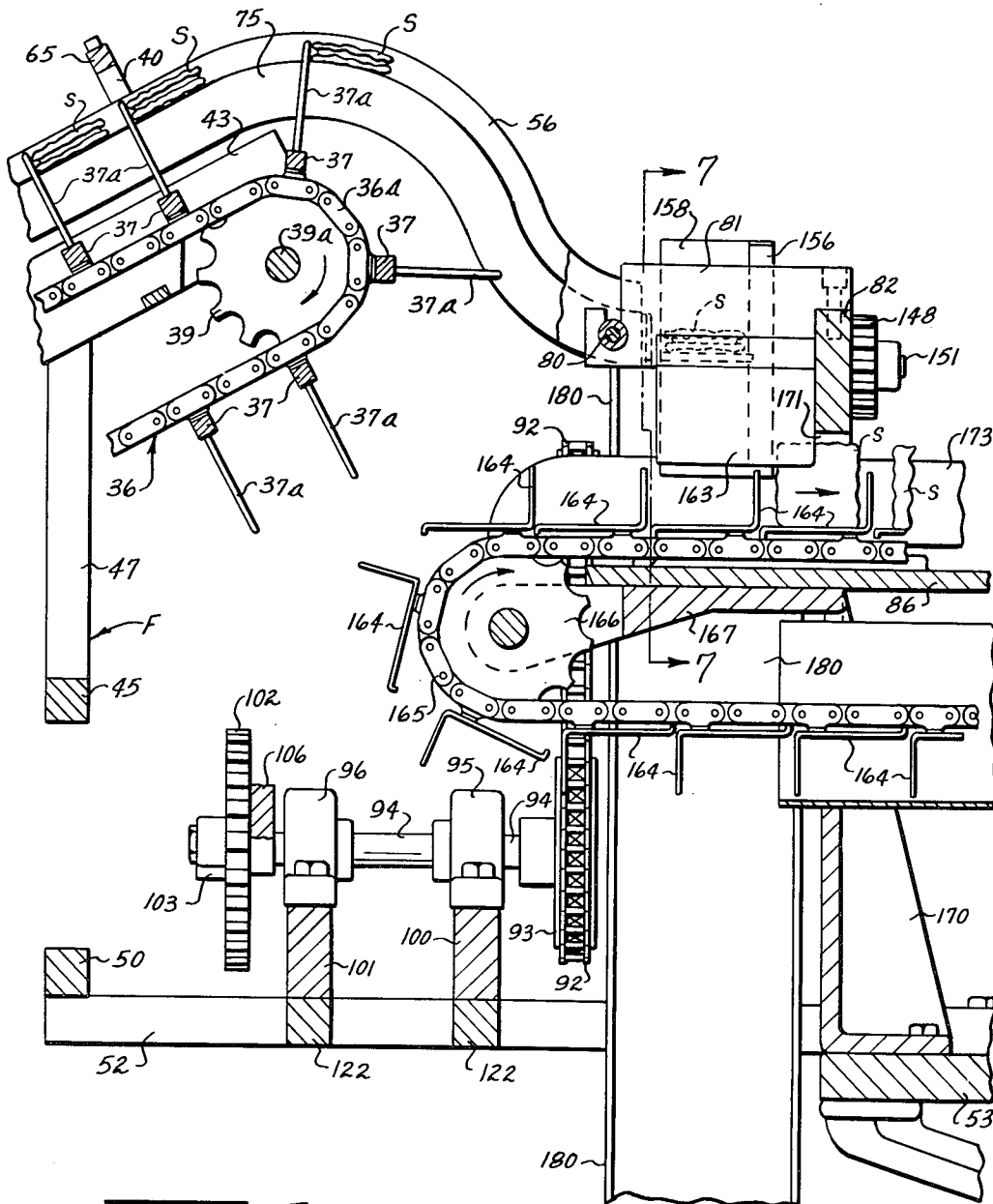


Fig. 5

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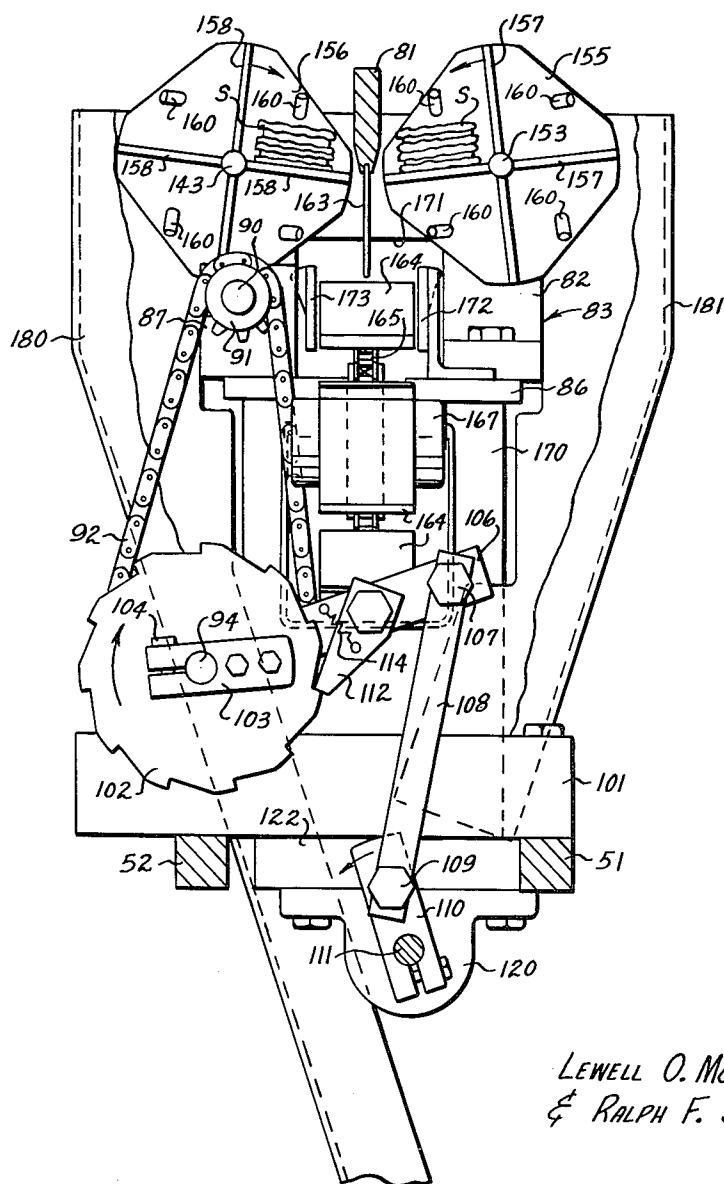
2,755,907

CONFECTION FEEDING DEVICE

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FIG-6



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CONFECTION FEEDING DEVICE

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7 Sheets-Sheet 6

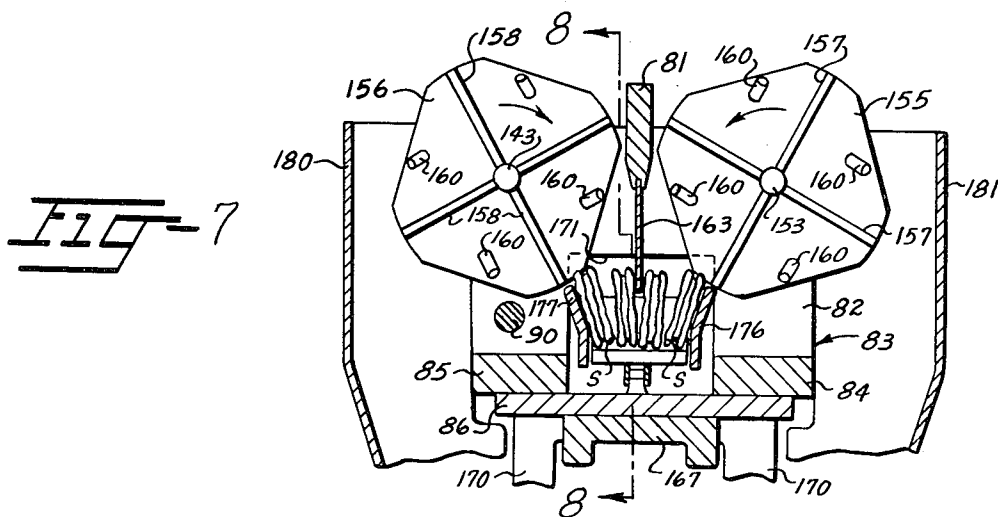
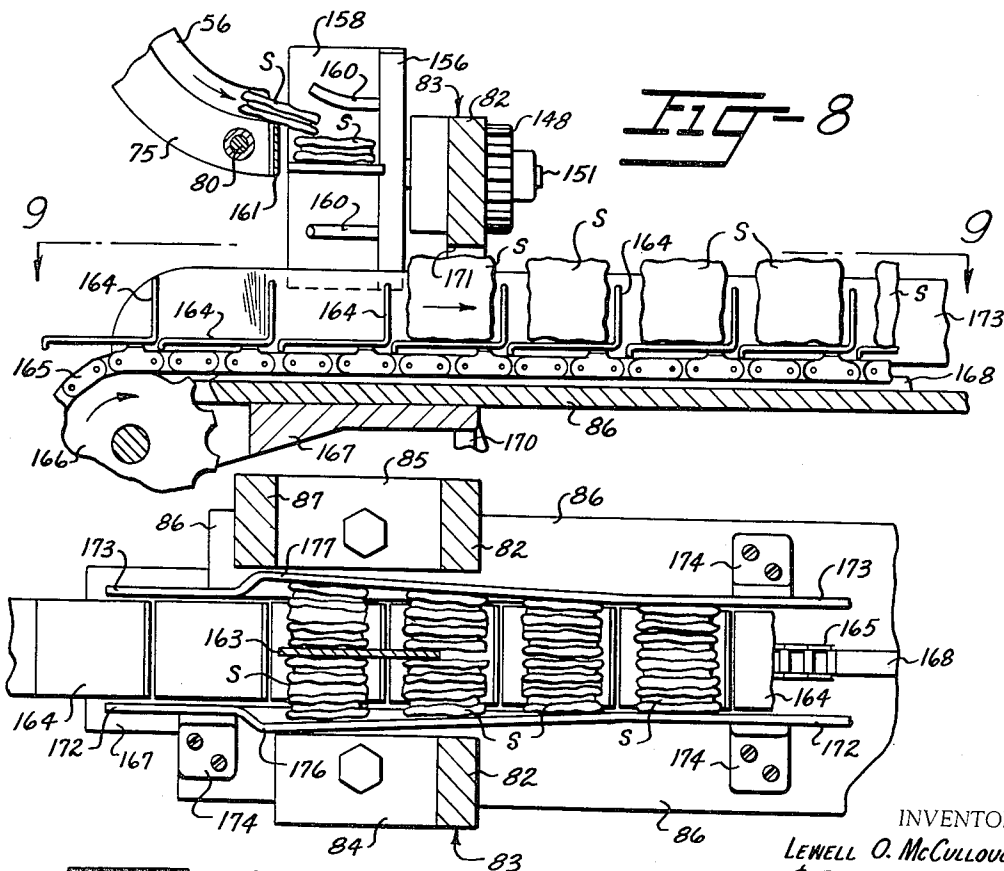


FIG-9

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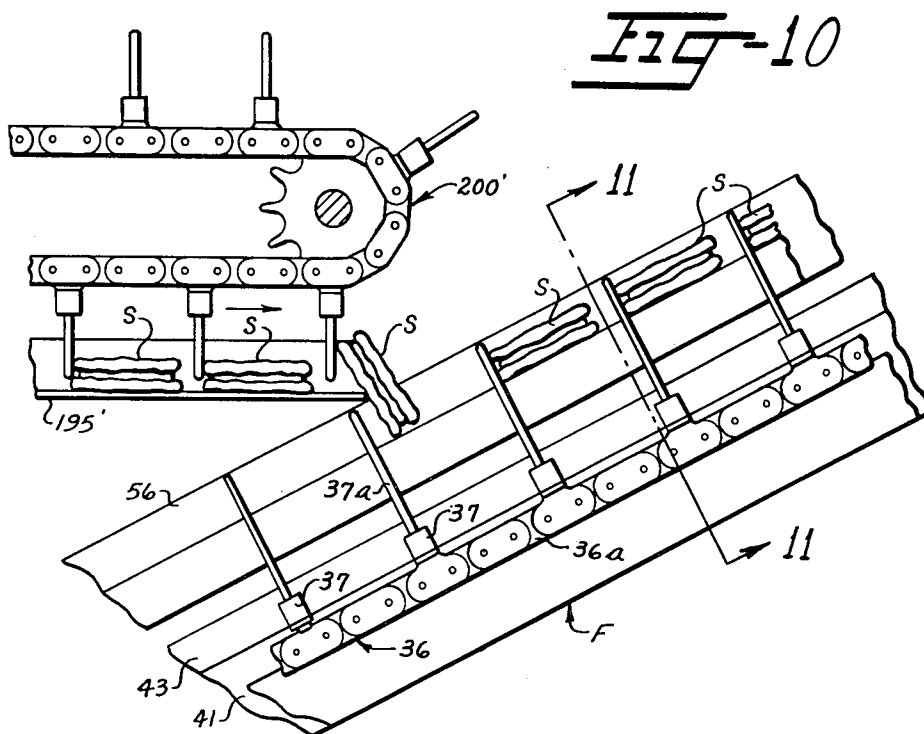
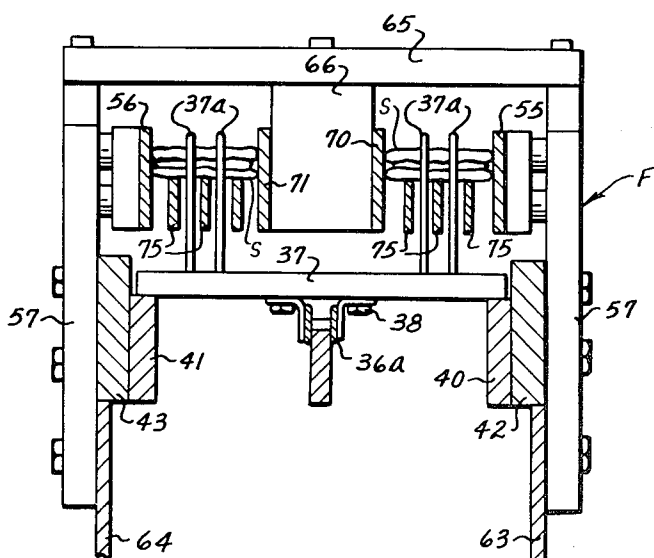
L. O. McCULLOUGH ET AL

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CONFECTION FEEDING DEVICE

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7 Sheets-Sheet 7



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2,755,907

CONFECTION FEEDING DEVICE

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Application June 8, 1953, Serial No. 360,198

8 Claims. (Cl. 198—35)

This invention relates to a confection feeding device for conveying confectionery articles such as cakes, sandwiches, or the like as they come from the discharge end of an article making machine, moving the same to a wrapping machine and grouping the articles and placing them in the wrapping machine for wrapping in packages. The invention is particularly adapted to be used with sandwich making and wrapping machines.

In conventional sandwich making machines, the sandwiches made from crackers, wafers and the like, are discharged in a horizontal position and must be moved to a separate wrapping machine to which they must be fed in groups with the sandwiches standing on end or vertically. Many problems are encountered in handling the sandwiches between the machines in such a way as to prevent breakage and to group and turn the sandwiches. This has heretofore required at least partial manual manipulation of the sandwiches which is slow and unsanitary.

It is, therefore, the primary object of this invention to provide automatically operable means for conveying the sandwiches from the sandwich making machine to the wrapping machine and to group and position a plurality of sandwiches in wrapping position on the wrapping machine.

It is another object of this invention to provide a device for taking the sandwiches from the discharge conveyor of a sandwich making machine in a horizontal side by side relationship, turning the same 90 degrees to a vertical position, after two of the sandwiches have been stacked on top of each other, and depositing the four vertically disposed crackers into the intake conveyor of a sandwich wrapping machine.

It is another object of this invention to provide a sandwich feeding device of the type described which will be operated in exact timed relation to the sandwich making machine and the sandwich wrapping machine so that the sandwich feeding device will take the sandwiches from the sandwich making machine as fast as the sandwich making machine can make the same and turn these sandwiches at the same rate of speed and then deposit said sandwiches into the intake conveyor of the wrapping machine so that there is no interruption in the operation from the sandwich making machine through the wrapping process, which will greatly increase the rate of production of the wrapped sandwiches and minimize the amount of breakage and damage to the sandwiches.

It is another object of this invention to provide a sandwich feeding device which has a conveyor comprising two trackways to accommodate two sandwiches in side by side relation as they are deposited thereon from a discharge conveyor of a sandwich making machine, and which conveyor is driven directly from the discharge conveyor of the sandwich making machine and at the same rate of speed. The conveyor then deposits the horizontally and side by side positioned sandwiches onto an inclined chute which directs the crackers by gravity into compartments of a pair of counter-rotating sandwich

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turning disks, after which the sandwich turning wheels are rotated a quarter of a revolution to deposit the sandwiches in a vertical position in pockets of an intake conveyor of the conventional wrapping machine.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of the sandwich feeding device, showing the same in position between the discharge end of the sandwich making machine and the intake end of a wrapping machine;

Figure 2 is a schematic diagram showing the movement of the sandwiches from the discharge end of the sandwich making machine, through the sandwich feeding device and into the sandwich wrapping machine and showing the driving means for said machines;

Figure 3 is an enlarged plan view of a section of the sandwich feeding device and being taken substantially along the line 3—3 in Figure 1;

Figure 4 is an enlarged vertical sectional view taken substantially along the line 4—4 in Figure 1;

Figure 5 is a transverse vertical sectional view through the sandwich feeding device and being taken substantially along the line 5—5 in Figure 3;

Figure 6 is an enlarged transverse vertical sectional view taken substantially along the line 6—6 in Figure 1;

Figure 7 is a vertical sectional view taken substantially along the line 7—7 in Figure 5;

Figure 8 is a longitudinal vertical sectional view taken substantially along the line 8—8 in Figure 7;

Figure 9 is a plan view of the intake conveyor of the wrapping machine and being taken substantially along the line 9—9 in Figure 8;

Figure 10 is an enlarged transverse vertical sectional view through a part of the sandwich feeding device conveyor and the discharge conveyor of the sandwich making machine and showing the manner in which the sandwiches are transferred from the sandwich making machine discharge conveyor onto the conveyor of the sandwich feeding device;

Figure 11 is a transverse vertical sectional view through the sandwich feeding device conveyor and being taken substantially along the line 11—11 in Figure 10.

Referring more specifically to the drawings, the numeral 10' broadly designates the frame of a sandwich making machine which could be of any type of sandwich making machine which has a discharge conveyor that discharges sandwiches in a side by side horizontal position, but which in this case is shown as being a sandwich making machine of the type shown and described in the patent application to Aaron A. Knee, Serial Number 236,617, filed July 13, 1951, and entitled, Improved Sandwich Making Machine, which is assigned to the assignors of record in the present application. Since the parts of the discharge end of the sandwich making machine shown in this application are identical to the parts of the discharge end of the sandwich making machine shown in the Knee application, the same reference characters will apply to like parts in this application with the prime notation added.

Referring to Figures 1 and 2, the frame 10' of the sandwich making machine comprises longitudinally extending vertically spaced side frame members 11', 12' and 13' spaced apart from each other and supported by vertically disposed support bars 22' and 33'. The discharge end of a main endless conveyor broadly designated at 130' extends around a sprocket 127' mounted on a drive shaft 120' rotatably mounted in bearing blocks 121' which are suitably secured to the lower ends of suitable spacing members 125' which are, in turn, secured to the lower surfaces of the longitudinally extend-

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ing frame members 11'. The main drive shaft 120' has a sprocket wheel 117' fixedly mounted thereon (Figures 1 and 2) which is driven by a sprocket chain 116' mounted on a sprocket wheel 115' fixedly mounted on a drive shaft 112'. The drive shaft 112' is rotatably secured in a bearing on the vertically disposed bar 33'. The opposite end of the shaft 112' has a sprocket wheel fixedly mounted thereon which is a part of the present invention and which will be later described.

The drive shaft 120' extends outside of the frame of the sandwich making machine and has a sprocket wheel 252' thereon engaged by a sprocket chain 245' extending upwardly and partially around a sprocket wheel 244' and downwardly and partially around a sprocket wheel 246'. The sprocket wheel 246' is an idler take-up sprocket wheel and is adjustably secured to the vertically disposed frame of the sandwich making machine. The sprocket wheel 244' is fixedly secured to one end of a drive shaft 243' which extends inwardly of the machine and drives an ejector conveyor broadly referred to at 200' in a counter-clockwise direction in Figures 1, 2 and 10.

A sprocket wheel 127' is also fixedly secured to the drive shaft 120' and drives the main endless conveyor 130', which conveyor normally feeds sandwiches S along a trackway and upwardly along an inclined guide 152' (Figure 1) where they are picked up by the ejector conveyor 200' and moved along channel-shaped discharge chutes 195' to be deposited two at a time, in side by side relation, on the conveyor of the sandwich feeding device, according to this invention, as shown in Figure 10.

It is thus seen that as rotation is imparted to the shaft 112' (Figure 2), in a manner to be later described, rotation will be imparted to the sprocket wheel 115', the sprocket chain 116', the sprocket wheel 117' and to the main drive shaft 120'. The main conveyor 130' will then move the sandwiches along the trackways 152', after which they will be picked up by the ejector conveyor 200'. The conveyor 200' is driven through the sprocket wheel 252', sprocket chain 245', sprocket wheel 246' and the sprocket wheel 244' to thus impart rotation to the drive shaft 243' and the ejector conveyor 200' to thus move the sandwiches along the channel-shaped discharge chutes 195' (Figures 1 and 10). The parts heretofore described form no part of the present invention.

Means are provided for supporting the lower end of a sandwich feeding device broadly designated at F which is provided by this invention for feeding sandwiches from the sandwich making machine to the wrapping machine in a manner to be described. To this end, the frame 10' of the sandwich making machine has an extension broadly referred to at 15 attached thereto which is a part of the present invention, for supporting the lower end of the conveyor of the sandwich feeding device. The extension 15 comprises horizontally extending support bars 16, 17 and 18, vertically disposed support bars 20 and 21 at each side of the machine frame 10' and transversely extending bars 22 and 23. The horizontally disposed bars 18 support a gear box 25 (Figures 1 and 2), which has an output shaft with a sprocket wheel 26 fixedly secured thereto and a sprocket chain 27 thereon extends to a sprocket wheel 28 fixed on the inner end of the shaft 112', previously described.

The horizontal bars 16 support bearings 30 in which a drive shaft 31 is rotatably mounted and which shaft is driven by a sprocket wheel 32 engaged by a sprocket chain 33, the opposite end of which extends around a sprocket wheel 34 fixedly mounted on the outer end of the drive shaft 120'. The drive shaft 31 has fixedly secured intermediate its ends a sprocket wheel 35 (Figure 2), a sandwich feeding device endless conveyor broadly referred to at 36 and on which a conveyor chain 36a is mounted.

Certain spaced links of the sprocket chain 36a (Figures 10 and 11) have the medial portions of conveyor

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bars 37 suitably secured thereto, as by bolts 38, there being special links provided to accommodate the bolts 38. The bars 37 are each provided with a plurality of upwardly extending sandwich moving pins 37a, the lower ends of which are fixedly secured in the bars 37. The bars 37 span the sprocket chains 36a and the opposed end portions of the bars 37, on the upper reach of the sprocket chain 36a, are caused to move along in a straight path by guide bars 40 and 41 which extend substantially the length of the upper reach of the conveyor chain 36a and are fixedly secured to side supporting frame members 42 and 43. The side frame members 42 and 43 each have fixedly secured at their lower ends bearing brackets 44 (Figure 1) which are rotatably supported on the drive shaft 31 and support the lower end of the conveyor 36 of the sandwich feeding device. The upper end of the conveyor chain 36a is mounted on a sprocket wheel 39 fixedly secured to a shaft 39a, the opposed ends of which are rotatably mounted in bearing brackets 39b fixedly secured to the upper ends of the side frame members 42 and 43 (Figures 1 and 3).

The feeding device F is supported at its upper ends by a U-shaped bracket 45 having upturned legs 46 and 47 pivotally secured to the side frame members 42 and 43, respectively. The lower end of the U-shaped bracket 45 is adjustably secured to the upper end of a bolt 48, the lower end of which is threadedly secured in a transverse support bar 50 (Figures 1 and 5), opposed ends of which are secured to longitudinally extending support bars 51 and 52. The longitudinally extending support bars 51 and 52 extend to the right, in Figures 1 and 5, and are fixedly secured to a plate 53, which is a conventional part of a sandwich wrapping machine broadly designated at W with which this sandwich feeding device F is adapted to be associated.

This sandwich feeding device F could be used with any type of sandwich wrapping machine into which the sandwiches are fed four at a time in a vertical position and in this case is shown as being used with a May-Plex cellophane wrapper, manufactured by Wright's Automatic Machinery Company, Durham, North Carolina, of the type shown in Patent No. 2,526,824.

The conveyor 36 also includes a pair of outside sandwich guiding bars 55 and 56 which are fixedly secured, adjacent each end to support bars 57, the ends of which are fixedly secured to the bars 42 and 43. The medial portions of the outside sandwich guiding bars 55 and 56 are fixedly secured to and supported by support bars 60, the lower ends of which are fixedly secured to the side frame members 42 and 43 and which extend downwardly below the support bars 42 and 43 and have sheet metal skirts 63 and 64 fixedly secured thereto which substantially cover the lower reach of the conveyor chain 36a.

The upper ends of each set of support bars 57 have a bridging bar 65 fixedly secured thereto which bars are each provided with a depending plate member 66 (Figures 3, 4 and 11), fixedly secured thereto serving to support inner sandwich guiding bars 70 and 71 secured thereto. Disposed between the inner and outer sandwich guide bars 70, 71 and 55, 56, are a plurality of sandwich support bars 75, the lower ends of which are supported on a bolt 76 (Figure 1) passing through the outer sandwich guide bars 55 and 56, the inner sandwich guide bars 70 and 71 and through the sandwich support bars 75. The upper or opposite end of the bars 55, 56, 70, 71 and 75 are curved downwardly in a reverse S-shape to form a chute and their lower ends are supported on a bolt 80 which passes therethrough and which bolt 80 is supported in the front end of a longitudinally extending support bar 81.

The other end of the longitudinally extending support bar 81 is fixedly secured to an upstanding portion 82 (Figures 3 and 5) of a sandwich rotating stand 83. The sandwich rotating stand 83 is provided with feed 84 and

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85 (Figure 7) which extend horizontally and are fixedly secured to a plate member 86 which is a conventional part of intake conveyor of the wrapping machine, to be later described. The horizontally extending leg 85 of the sandwich rotating stand 83 is provided with an upturned bearing portion 87 (Figures 3, 6 and 9) in which a shaft 90 is rotatably mounted. The shaft 90 extends beyond the bearing portion 87 and has a sprocket wheel 91 fixedly secured thereto which is partially surrounded by an endless sprocket chain 92 extending downwardly therefrom and partially around a sprocket wheel 93.

The sprocket wheel 93 is fixedly secured to one end of a shaft 94 (Figures 1, 5 and 6) rotatably mounted in a pair of bearing blocks 95 and 96 fixedly secured to the upper edges of a pair of support bars 100 and 101 secured to the longitudinally extending support bars 51 and 52 (Figures 1, 5 and 6). The shaft 94 extends beyond the bearing 96 and has a ratchet wheel 102 adjustably secured thereto by means of a split block 103 fixed to the ratchet wheel 102 and penetrated by the shaft 94. The block 103 is tightened on the shaft 94 by a screw 104 and is provided to permit slippage instead of breakage in the event of a jam up of the mechanism.

One end of a lever arm 106 is oscillatably mounted on the shaft 94 and its other end is pivotally secured as at 107 to the upper end of a connecting link 108. The lower end of the connecting link 108 is pivotally secured as at 109 to the outer end of a crank arm 110 which is adjustably secured to one end of a rotatable shaft 111 in a manner similar to the block 103. (Figures 1 and 6.) The lever arm 106 has a dog 112 pivotally mounted thereon which is urged into engagement with the ratchet wheel 102 by a tension spring 114, one end of which is secured to the dog 112 and the other end of which is secured to the arm 106.

The shaft 111 is rotatably mounted in bearing blocks 120 and 121 (Figures 1 and 6) which are secured to spacing bars 122 secured to the support bars 100 and 101. The shaft 111 extends beyond the bearing block 121 and has a universal joint 125 secured thereto and which is connected to a drive shaft 126. The drive shaft 126 is connected to the output end of a gear box 127 (Figure 2) driven by the driving motor of the wrapping machine to thereby drive the sandwich rotating means of the sandwich feeding device in timed relationship with the sandwich wrapping machine.

The wrapping machine is also provided with a driving gear box 128 which is interconnected with the gear box 127 and has an output shaft 129 thereon to the outer end of which a universal joint 130 is secured. The opposite end of the universal joint 130 has a drive shaft 131 connected thereto and to a universal joint 132 secured on the input shaft 133 of the gear box 25, heretofore described, which is fixedly secured to the sandwich making machine. Both the gear boxes 127 and 128 are driven by a belt 135 which is driven by the conventional driving motor 136 of the sandwich wrapping machine.

It is thus seen, that as rotation is imparted to the gear box 127 and the drive shaft 126, by the motor 136, rotation will be imparted to the shaft 111 and the crank arm 110 and as rotation is imparted to the crank arm 110, oscillation will be imparted to the arm 106 through the link 108 to thus oscillate the dog 112 and impart step by step rotation to the shaft 94, the sprocket wheel 93, sprocket chain 92, sprocket wheel 91 and the shaft 90.

The opposite end of the shaft 90 from that to which the sprocket wheel 91 is secured has fixedly secured thereon a sprocket wheel 140 (Figure 4) which is partially surrounded by an endless sprocket chain 141 extending upwardly and partially around a sprocket wheel 142 on a rotatable shaft 143 and engaging an idler sprocket 144 which is rotatably mounted on a bracket 145 adjustably secured to sandwich rotating stand 83. The sprocket wheel 142 (Figures 3 and 4) is integral with a spur gear 147 which is one of a chain of spur gears

148, 149 and 150. The gears 148 and 149 are rotatably mounted on stub shaft 151 and 152 and the gear 150 is fixed on a rotatable shaft 153.

The inner ends of the shafts 143 and 153 have fixedly secured thereto a pair of sandwich rotating disks 155 and 156, respectively. Each of the sandwich rotating disks 155 and 156 are divided into compartments by a pair of cross plates 157 and 158 which are fixed in grooves in the disks 155 and 156 and are secured to reduced portions of the shafts 153 and 143, respectively. The portions of the plates 157, 158 defining each compartment may be termed as sandwich receiving plates. Each of the compartments of the sandwich rotating disks 155 and 156, formed by the plates 157 and 158, are provided with curved pins 160 secured to the disks 155 and 156 and which act as stacking guides for the sandwiches S as they slide down the inclined chute on the sandwich supporting bars 75 (Figure 8). The ends of the bars 75 are covered by vertically extending guard plates 161 held in place by the bolt 80 (Figures 3 and 8) and which prevent the sandwiches S from bouncing back against the sandwich support bars 75 or bouncing out of the compartments of the sandwich rotating disks 155 and 156 as they are deposited therein.

The sandwich rotating disks 155 and 156 are separated by the longitudinally extending support bar 81, previously described and a plate 163 depending therefrom and secured to the bar 81 and extending downwardly to a position closely adjacent the upturned leading edges of a plurality of cups 164 which are conventional parts of the intake conveyor of the sandwich wrapping machine W. The cups 164 are secured to special links of an endless conveyor chain 165, the outer end of which partially surrounds a sprocket wheel 166 rotatably supported in a bearing member 167 (Figures 1, 5 and 7) which is fixedly secured to the plate 86 of the sandwich wrapping machine. The plate 86 is supported by a U-shaped support 170 (Figures 1 and 4) which extends downwardly and is fixedly secured to the plate 53 of the sandwich wrapping machine and through which the lower reach of the conveyor chain 165 passes.

The conveyor chain 165 is driven from the conventional wrapping machine motor 136, by conventional means, not shown, so as to move in timed relation with the sandwich feeding device F and the sandwich making machine which are driven by the motor 136 in the manner previously described.

The sandwich rotating stand 83 is provided with an opening 171 in the plate 82 through which the upper reach of the conveyor chain 165 and the cups 164 thereon pass with the sandwiches S therein. The conveyor chain 165 is guided along its upper reach, by a chain guide 168 on the plate 86. The wrapping machine W is also provided with sandwich confining or sandwich guiding plates 172 and 173, at each side of the conveyor 165 and which are spaced slightly above the plate 86 and are secured thereto by angle brackets 174 (Figures 6 and 9). The guiding bars 172 and 173 are bent outwardly at their upper edges as at 176 and 177, respectively, directly beneath the sandwich rotating disks 155 and 156.

Suitable covers 180 and 181 are provided for the sandwich rotating mechanism and are supported by the stand 83. The cover 180 preferably extends downwardly and serves as a chute for broken sandwiches and the like.

Method of operation

Since, the output conveyor 200, at the discharge end of the sandwich making machine, and the conveyor 36 of the sandwich feeding device F operate in timed relation to each other, it will be noted by referring to Figure 10 that the sandwiches S are moved along the chutes 195' two at a time in side by side relationship and the outer ends thereof drop off the end of the chutes 195', into suitable pockets formed by the pins 37a of

the conveyor and are supported by the sandwich supporting bars 75 (Figure 10). It is to be understood, that two sandwiches S are simultaneously dropped into the conveyor on the sandwich feeding device one of which is dropped between the sandwich guiding bars 55 and 70 and the other sandwich is dropped between the sandwich guiding bars 71 and 56. As the sandwiches S fall onto the sandwich supporting bars 75, they are moved along these bars by the upwardly extending pins 37a of the conveyor chain 36.

The sandwiches S are then carried up the inclined conveyor of the sandwich feeding device F to the S-shaped curved discharge portion thereof (Figure 5) and at which time the pins 37a then move around the sprocket wheel 39 and move out of engagement with the rear edges of the sandwiches S. The sandwiches S each then slide down the inclined chute in side by side relationship to each other and one sandwich S slides into the pocket of the sandwich rotating disk 155 which is in alignment with the guide bars 55 and 70 and the other sandwich S slides into the pocket of the sandwich rotating disk 156 which is in alignment with the guide bars 71 and 56 to rest upon the partitions 157 and 158 of the sandwich rotating disks 155 and 156 that are in a horizontal position.

Rotation of the sandwich rotating disks 155 and 156 is so timed that as soon as two sandwiches S are deposited, one on top of the other (Figure 8), in each of the compartments of the sandwich rotating disks 155 and 156, the sandwich rotating disks 155 and 156 are then counter-rotated in the direction of the arrows, in Figures 6 and 7, approximately one-quarter revolution by means of the crank arm 110 and the ratchet wheel 102, previously described, to thus let the two sandwiches in each compartment slide down the partitions 157 and 158 and against the dividing plate 163 to guide the sandwiches S into the cups 164 of the feeding conveyor for the sandwich wrapping machine.

The conveyor chain 165 is so timed that each time each of the sandwich rotating disks 155 and 156 dump two sandwiches S onto the chain 165, one of the cups 164 will be directly beneath the sandwich rotating disks 155 and 156 and the chain 165 will move the sandwiches S to the right in Figure 8 to position the next empty cup 164 beneath the sandwich rotating disks 155 and 156.

It is thus seen, that each time the sandwich rotating disks 155 and 156 dump two sandwiches each into the cups 164 of the conveyor chain 165 the sandwiches S are moved from a horizontal position substantially as shown in Figure 6 to a vertical position substantially as shown in Figure 7.

It is thus seen, that there has been provided a sandwich feeding device which will take two sandwiches simultaneously in a side by side relationship from a conveyor of a sandwich making machine and move these horizontally disposed sandwiches into a pair of counter-rotating sandwich rotating disks to place four sandwiches in a vertical position in the cups of an intake conveyor of a sandwich wrapping machine which wraps the same. This eliminates handling between the machines and reduces waste and damage as well as increasing the speed and efficiency of production.

In the drawings and specifications, there has been set forth a preferred embodiment of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being defined in the claims.

We claim:

1. In sandwich handling machinery, apparatus for successively and separately receiving first and second sandwiches in horizontal position and turning them to upended position while grouping said first and second sandwiches together comprising a pair of adjacent rotatable disks mounted on substantially parallel axes and having

outer faces disposed in substantially parallel relationship transversely of their axes, driving means for intermittently contrarotating said disks through an arc of substantially ninety degrees, complementary sets of four substantially equally circularly spaced sandwich receiving plates projecting outwardly from said outer faces of said disks whereby said first and second articles may be positioned upon those plates of the two disks disposed in horizontal position and in close proximity to each other and, upon subsequent rotation of said disks, the first and second sandwiches will be swung through an arc of substantially ninety degrees and discharged from the corresponding plates in side-by-side relation and in vertical position.

2. A structure according to claim 1 including a separator plate disposed between the arcuate path of travel of the outer edges of said receiving plates mounted on said disks to prevent the sandwiches from sliding off the corresponding plates during the course of turning them from substantially horizontal to substantially vertical position.

3. In sandwich handling machinery, apparatus for successively and separately receiving first and second groups of sandwiches in horizontal position and turning them to vertical position while grouping the first and second groups together into a single group comprising first and second spaced substantially parallel rotatable members, first and second circularly spaced radially extending sandwich receiving plates carried by the respective first and second rotatable members, certain adjacent first and second receiving plates normally occupying a substantially level position adjacent each other for receiving respective first and second groups of sandwiches thereon, means operable automatically each time first and second groups of sandwiches are positioned upon the adjacent first and second receiving plates for imparting part of a revolution to the first and second rotatable members in opposite directions whereby the first and second groups of sandwiches on adjacent first and second plates slide off the plates toward each other and are deposited in side-by-side relationship and in substantially vertical position.

4. A structure according to claim 3 including a substantially vertically disposed separator plate disposed between the arc of travel of the outer edges of the adjacent first and second receiving plates for guiding the first and second sandwiches as they slide off the corresponding first and second plates and to insure that said sandwiches are deposited in substantially vertical position.

5. A structure according to claim 3 having a stacking guide element spaced from each of said first and second receiving plates whereby each time first and second groups of sandwiches are positioned on corresponding first and second receiving plates, the corresponding guide element will assist in maintaining the corresponding first and second groups of sandwiches on the corresponding first and second receiving plates.

6. A sandwich grouping and turning device comprising a frame, a pair of horizontally spaced substantially parallel shafts journaled in said frame, a disk fixed on each shaft, the outer faces of said disks being disposed in substantially parallel relationship, a plurality of sandwich receiving plates fixed to each of said shafts and extending radially therefrom, there being four such receiving plates fixed to each of said shafts and being circularly spaced substantially equidistant from each other, the proximal edges of said disks being disposed in closely spaced relationship, and means for intermittently imparting contra-rotative movement for a quarter revolution to the two shafts simultaneously whereby sandwiches may be positioned upon the adjacent receiving plates on the two disks in the interim between each rotative movement thereof and the corresponding sandwiches will be swung through an arc of substantially ninety degrees for upending said sandwiches as they slide off the corresponding receiving plates, thereby grouping said sandwiches.

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7. A structure according to claim 6 having a separator plate disposed between the arc of travel of the proximate edges of the receiving plates on the pair of shafts and serving to prevent such sandwiches on the adjacent plates from moving into engagement with each other until they have been substantially upended as they slide off the adjacent receiving plates. 5

8. A structure according to claim 6 wherein each of said disks is provided with a stacking guide thereon spaced from the surface of each receiving plate upon which the sandwiches are to be positioned to thereby assist in maintaining said sandwiches where positioned adjacent the corresponding receiving plates until the latter plates have moved to where the sandwiches will slide off the free edges thereof. 10 15

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References Cited in the file of this patent

UNITED STATES PATENTS

10,929	Mitchell	May 16, 1854
765,473	George	July 19, 1904
1,091,509	Hanford	Mar. 31, 1914
1,365,741	Speer	Jan. 18, 1921
1,432,355	Orstrom	Oct. 17, 1922
2,603,340	Warren	July 15, 1952
2,603,341	Knee	July 15, 1952
2,632,985	Schmitt	Mar. 31, 1953
2,656,656	Murdock	Oct. 27, 1953