Feb. 12, 1935. D. E. KEECH 1,991,324

DRIER

Filed April 15, 1930 4 Sheets-Sheet 1

Fig. 1.

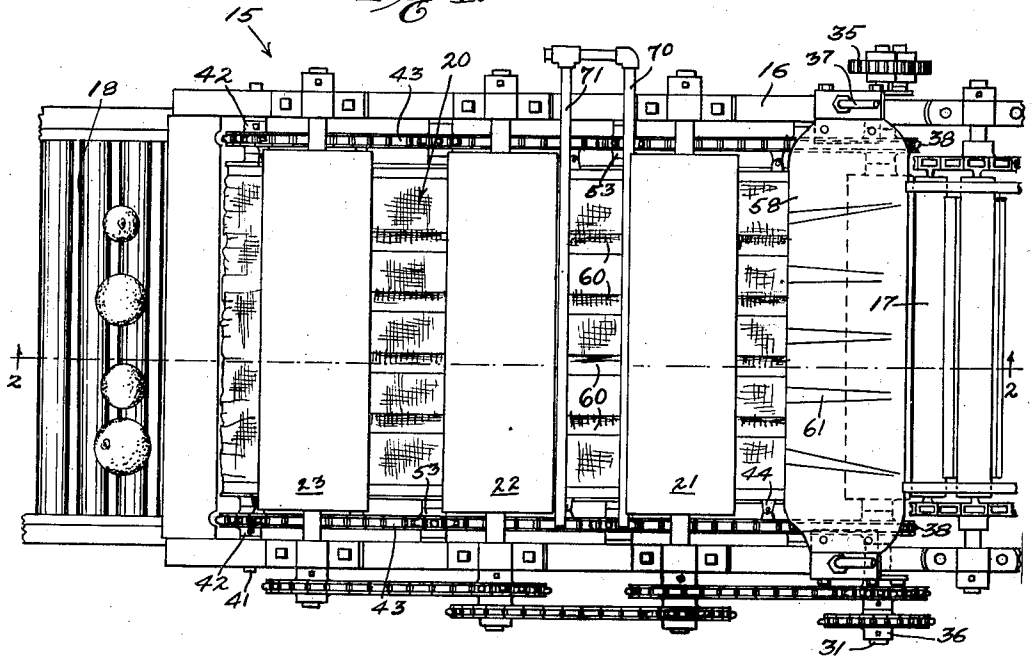
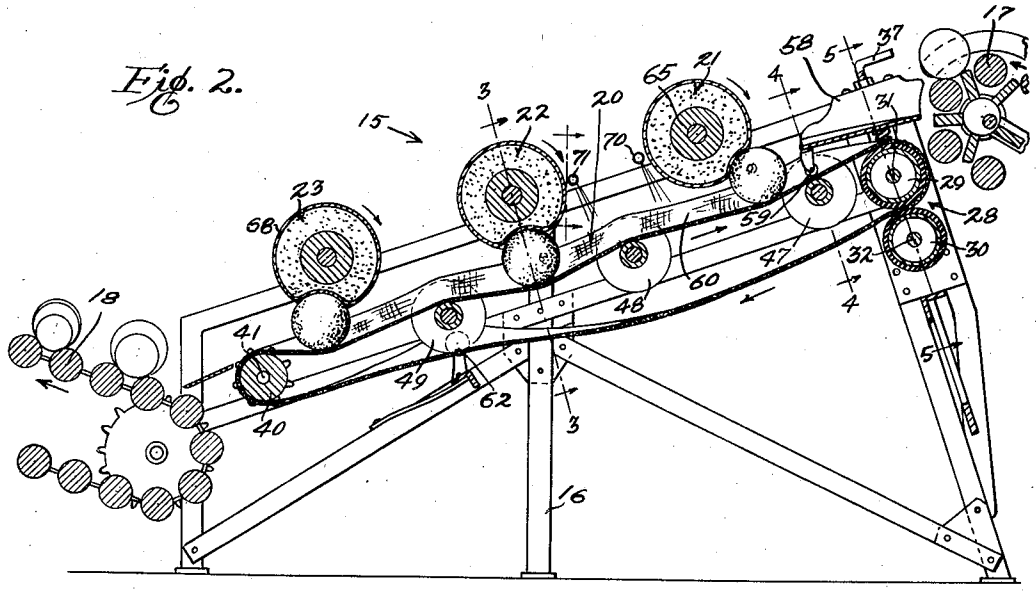


Fig. 2.



Inventor:

David E. Keech

Feb. 12, 1935. D. E. KEECH 1,991,324

DRIER

Filed April 15, 1930 4 Sheets-Sheet 2

Fig. 6.

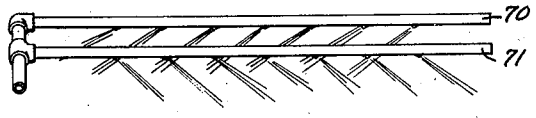


Fig. 3.

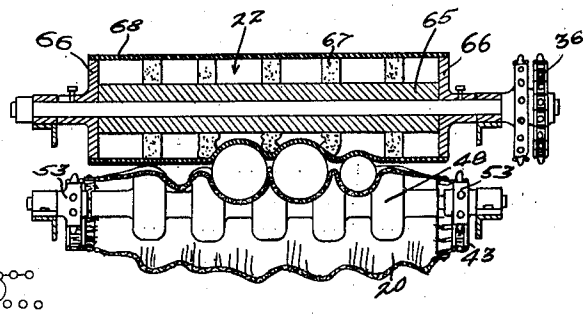


Fig. 7.

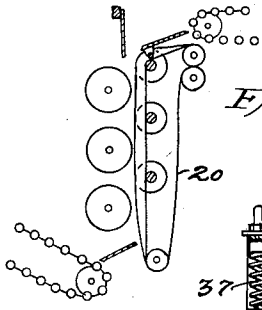


Fig. 4.

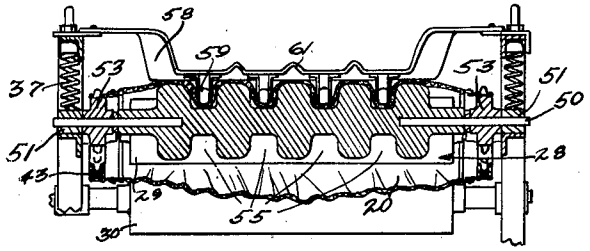
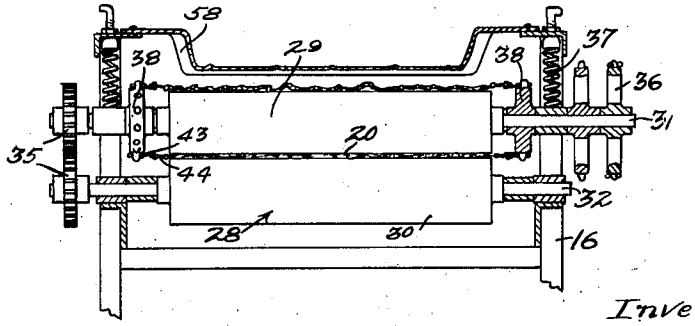


Fig. 5.



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David E. Keech

Feb. 12, 1935. D. E. KEECH 1,991,324

DRIER

Filed April 15, 1930 4 Sheets-Sheet 3

Fig. 8.

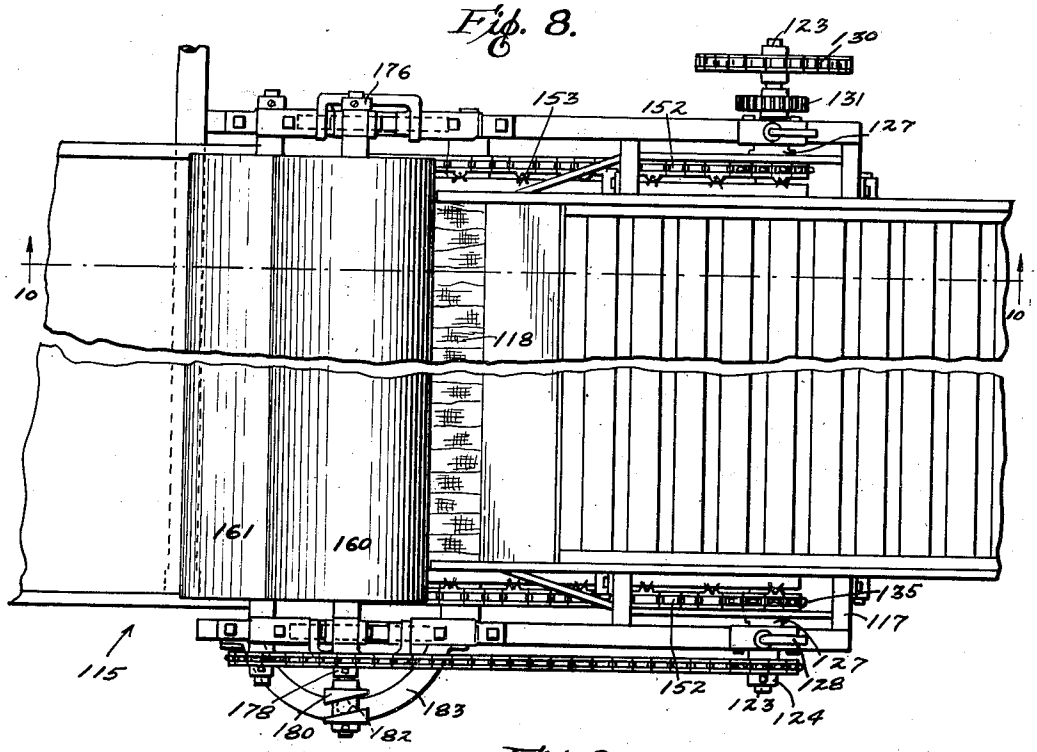
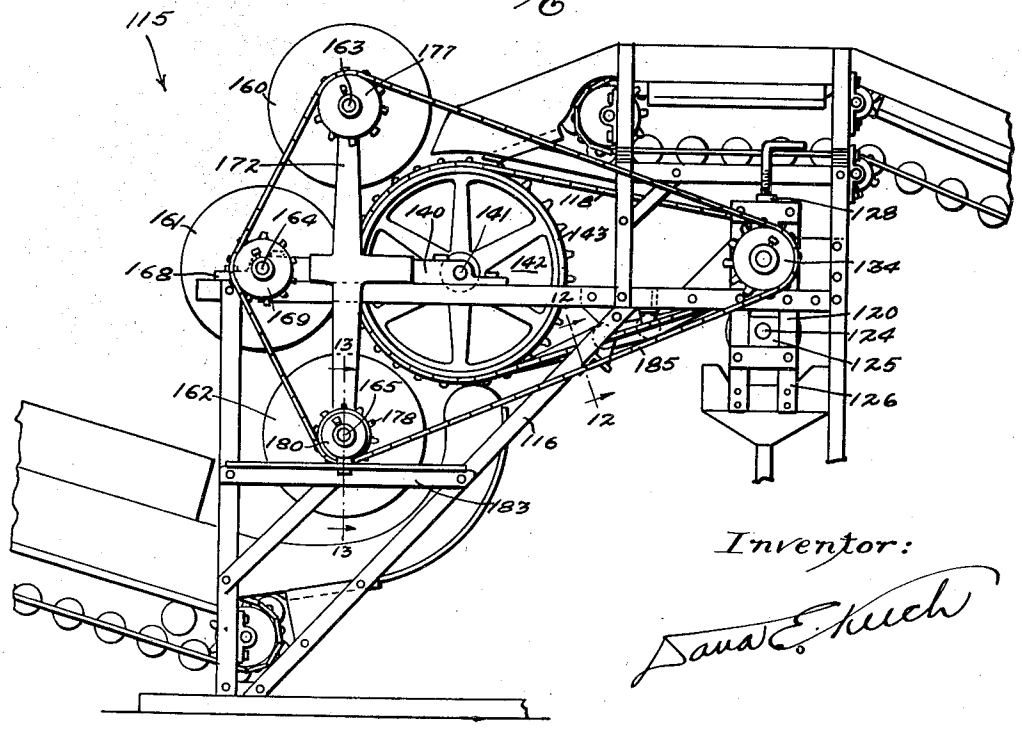


Fig. 9.



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David E. Keech

Feb. 12, 1935. D. E. KEECH 1,991,324

DRIER

Filed April 15, 1930 4 Sheets-Sheet 4

Fig. 11.

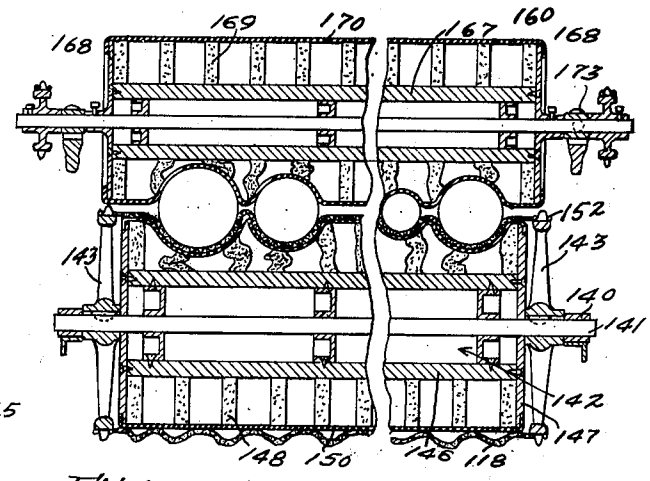


Fig. 13.

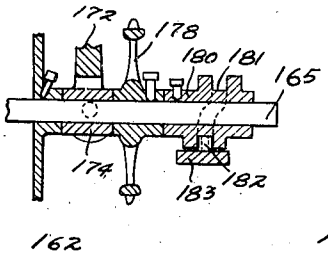


Fig. 12.

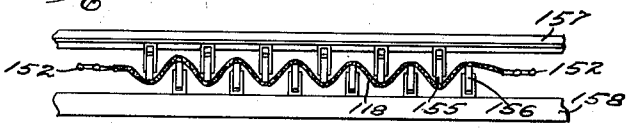
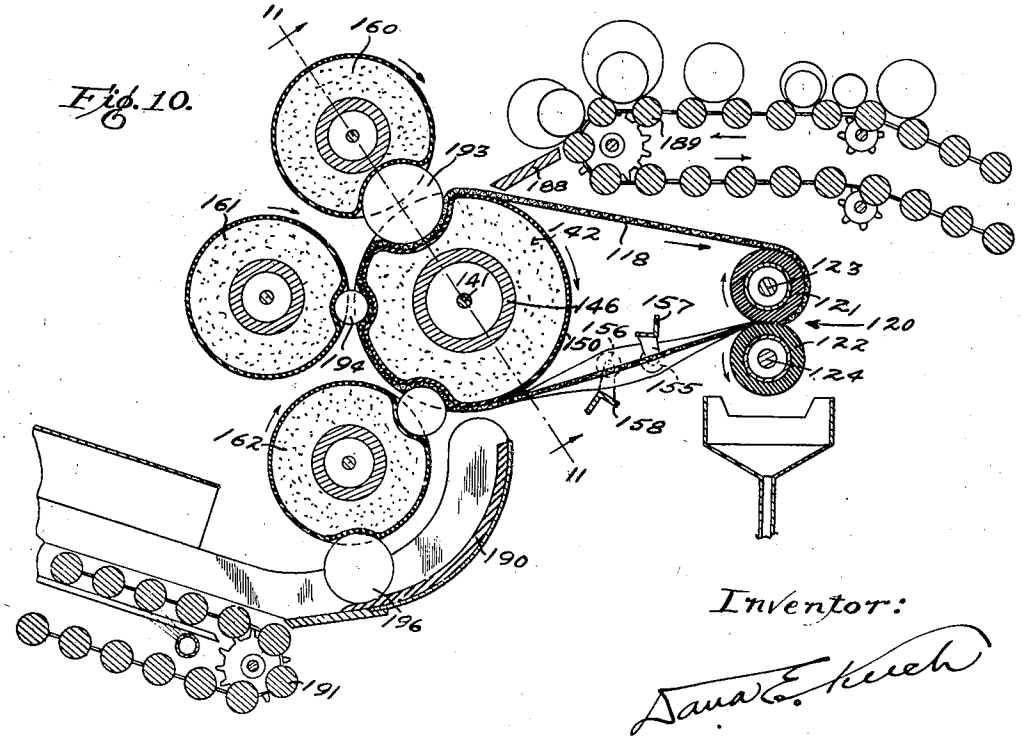


Fig. 10.



Inventor:

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Patented Feb. 12, 1935 1,991,324

UNITED STATES PATENT OFFICE

1,991,324

DRIER

Dana E. Keech, Glendale, Calif., assignor to Paxton Credit Corporation, Santa Ana, Calif., a corporation of California

Application April 15, 1930, Serial No. 444,421

20 Claims. (Cl. 34—1)

My invention relates to devices for handling whole fresh fruit or similar articles in commercial quantities, and particularly to devices for handling such articles incidental to treating the outer surfaces of the articles.

Many fruits such as apples, oranges, lemons and grapefruit, are commercially prepared for packing by being washed and rinsed after which the water adhering thereto is removed as by drying. Many devices have been produced for handling the fruit incidental to accomplishing these processes with the object of making such processes effective without injury to the fruit. This is also an important object of the present invention.

While my invention might be very effectively adapted to uses such as a washer or polisher for fruit, or similar articles, it is particularly adapted for removing liquid adhering to the exterior surface of the fruit. The illustrated embodiment was accordingly chosen with reference to this use, and for convenience the invention will be referred to herein as a drier.

Hitherto, driers have operated according to several different principles. In a very common type, the fruit is slowly carried along on a fifty foot horizontal travelling, rotating roller conveyer under blasts of air at room temperature. Here the water adhering to the fruit is evaporated, over half an hour being required for this. In foggy weather this drier does not entirely remove the water from the fruit and the wooden rollers sometimes warp and then wobble in rotating so as to crush small fruit against adjacent rollers. Moreover, chemical treatment of the fruit in the washing of it is a common practice, and traces of chemical are carried in the water evaporated in the drier so that the chemical is deposited on the rollers and quickly builds up sharp projections which puncture the rinds of fruit passing through the drier. This necessitates frequent washing of the rollers in this type of drier which is a laborious and expensive operation.

In another type of drier the water is bodily blown from the fruit by small streams of air under very high pressure. The purpose of this drier is to dry the fruit quickly but even with large powered blowers, this drier has an insufficient capacity to take care of an average sized citrus packing house. Another drawback is the shrill whistling noise which results from the air blowing on the fruit conveying rods.

The third type of drier in common use is the "absorbent towel". One development of this type carries the fruit on top of the towel. In another, the towel drags over the fruit while the latter is rotated. Neither of these developments have resulted in drying the fruit.

It has been my discovery that the weight of the fruit on the towel or the towel on the fruit is insufficient to cause a uniformly efficient transfer of water from the fruit to the towel. Furthermore, in none of these towelling devices has the towel been positively and thoroughly brought into contact, even under a light pressure, with all of the surface of the fruit.

There are therefore, in addition to the objects aforestated, further objects of my invention as follows:

1. To provide an efficient towelling device which will accomplish the major part of the drying process in packing fresh fruit.

2. To provide a towelling device which will press the fruit against the towel without injury to the fruit.

3. To provide a towelling device in which the towel is brought positively and thoroughly into contact with the fruit.

4. To provide a towelling device in which any or all of the foregoing objects can be accomplished quickly without injuring the fruit, thus giving a small device a relatively large capacity.

The manner of accomplishing the foregoing objects as well as further objects and advantages will be made manifest in the following description and the accompanying drawings, in which:

Fig. 1 is a plan view of a preferred embodiment of my invention.

Fig. 2 is a longitudinal vertical sectional view taken on the line 2—2 of Fig. 1.

Figs. 3, 4, 5 and 6 are fragmentary transverse vertical sectional views taken on the correspondingly numbered lines in Fig. 2.

Fig. 7 is a diagrammatic view illustrating the drier of my invention with the towel disposed in an upright position.

The remaining figures illustrate a modified form of my invention, Fig. 8 being a plan view of this.

Fig. 9 is a side elevational view of Fig. 8.

Fig. 10 is a longitudinal sectional view taken on the line 10—10 of Fig. 8 and diagrammatically illustrating the operation of my invention.

Fig. 11 is a transverse sectional view taken on the line 11—11 of Fig. 10.

Fig. 12 is a fragmentary sectional view taken on the line 12—12 of Fig. 9.

Fig. 13 is a fragmentary vertical sectional view taken on the line 13—13 of Fig. 9.

Referring specifically to the drawings, and par-

ticularly to Figs. 1 to 6 inclusive, the preferred embodiment of my invention comprises an orange drier 15 which includes a frame 16 and to which fruit is fed by a feeding conveyer 17 and from which fruit is removed by a discharge conveyer 18.

Mounted upon the frame 16 and inclined downwardly between the feeding and discharge conveyers is a fruit treating member which, in the present instance, comprises an absorbent towel 20. Disposed above the towel 20 are feeding members 21, 22 and 23 which feed the fruit along the towel 20 and cause this fruit to be pressurably engaged by the towel for the purpose of absorbing all surface moisture from the fruit, the members 21, 22 and 23 having a yielding contact with the fruit so that said pressure is applied without any injury to the fruit.

The towel 20 is endless and is supported upon and handled by the following mechanism. At the upper right hand end of the frame 16 is provided a wringer 28 including a pair of rubber rolls 29 and 30 mounted upon shafts 31 and 32. These shafts are journalled in suitable bearings provided on the frame 16 and rotate in opposite directions owing to meshing of a pair of gears 35 provided on a pair of adjacent ends of these shafts. The shaft 31 is driven by a sprocket 36 fixed thereto. The upper roll 29 of the wringer 28 is yieldably pressed against the lower roller 30 by suitable spring jacks 37 provided on the frame 16. Disposed idly on the shaft 31 between the upper wringer roll 29 and the frame 16 are sprockets 38.

At the opposite end of the frame 16 from the wringer 28 an idle roller 40 is provided which rotates upon a shaft 41 journalled in suitable longitudinally adjustable bearings provided on the frame 16. Fixed to the shaft 41 between the roller 40 and the frame 16 are sprockets 42.

The towel 20 is looped around the upper wringer roller 29 and is driven in the direction of the arrows in Fig. 2 by rotation of the wringer rolls 29 and 30. The opposite end of the towel 20 passes around the idle roller 40. In order to properly position the edges of the towel 20, endless chains 43 extend around aligned pairs of sprockets 38 and 42 as clearly shown in Fig. 1. At regular intervals the links of the chains 43 are provided with attachments 44 which are connected to edge portions of the towel 20.

Disposed at intervals beneath the upper flight of the towel 20 and supporting this, are three channel forming rollers 47, 48 and 49. These rollers are identical in construction and each is provided with pins 50, end portions of which are journalled in bearings 51 provided on the frame 16. Freely rotatable on the pins 50 between bearings 51 and ends of these rollers are sprockets 53 with which upper flights of the chains 43 are adapted to mesh. Each of the rollers 47, 48 and 49 is provided with a series of annular channels 55 corresponding channels of these rollers being in longitudinal alignment with each other. The rollers 47, 48 and 49 are so disposed on the frame 16 that the plane which is tangent to the top of the wringer roll 29, and which is parallel to the plane of the axes of the rollers 47, 48 and 49, lies midway between the troughs and the crests of the annular channels 55.

As clearly shown in Fig. 2, roller 47 is located close to the wringer roll 29 and an inclined drop board 58 is mounted directly thereabove so as to receive fruit from the feed conveyer 17 and direct this onto the towel 20. Provided upon the lower surface of the drop board 58 and extending downwardly therefrom are a series of small rollers 59 which extend into the troughs of the channels 55 and cause the towel 20 to conform to the contour of these channels. Thus when the towel 20 is placed in motion by the wringer 28 in the direction indicated by the arrows in Fig. 2, longitudinal channels 60 will be formed throughout the length of the upper flight of the towel 20. Also provided on the drop board 58 are ridges 61 which are for the purpose of directing fruit passing thereover, into the towel channels 60. The lower flight of the towel 20 sags downwardly and in order to prevent the excess material in the towel from running from one side to the other a series of rollers 62 are provided which extend upwardly into the annular channels 55 of the roller 49 so as to properly distribute the material in the towel 20 laterally just prior to its passing around the idle roller 40.

Referring now specifically to the feed rollers, the roller 21 is disposed above and substantially an equal distance between the channel forming rollers 47 and 48; the roller 22 is above and substantially equidistant from the rollers 48 and 49; and the roller 23 is disposed above and substantially equidistant from the roller 49 and the idle roller 40. These rollers are journalled in fixed positions on the frame 16 so that their axes are at right angles to the longitudinal towel channel 60. Each of these rollers has a solid core 65, solid heads 66, a plurality of spongy rings 67 mounted on the core and having substantially the same exterior diameter as the heads 66, and a cylindrical rubber sheath 68 secured at opposite ends to the head 66 and supported intermediate these by the rings 67. As shown in Fig. 3, the sheath 68 may easily be deformed owing to being supported resiliently by the rings 67. These rings may be formed of metallic springs or sponge rubber as desired.

The rollers 21, 22 and 23 are disposed the same distance above the towel 20 and as close as practicable to the crests of this towel which occur between the channels 60. The feed rollers 21, 22 and 23 are driven in the direction indicated in Fig. 2 by suitable chain and sprocket connections with the shaft 31 as shown in Fig. 1. The sprocket ratios in this drive are such that the peripheral speed of the roller 21 is practically twice the surface speed of the belt 20 while the feed roller 22 rotates slightly faster than the roller 21 and the roller 23 in turn slightly faster than the roller 22.

Mounted upon the frame 16 and extending transversely thereof just above the path taken by the fruit on the towel 20, is a pair of pipes 70 and 71, which are connected with a supply (not shown) of air under a very high pressure. As shown in Fig. 6, the pipe 70 is provided with outlets which causes the discharge of a series of jets of air in a leftward direction against fruit traveling on the towel 20, while the pipe 71 is provided with openings which results in jets discharging on the fruit in a rightward direction.

The operation of the above described embodiment of my invention is as follows:

Fruit enters the machine from the feed conveyer 17, runs over the drop board 58, and drops onto the towel 20 in one of the channels 60. Pieces of fruit are immediately contacted by the feed roller 21, the peripheral speed of which is greater than the towel so that this fruit is drawn downwardly between this roller and the towel, giving a strong wiping action to the fruit, pres-

surably urging the fruit into these channels in the towel as best shown in Fig. 3. After moving out of contact with feed roller 21, the fruit rolls down the channels 60 into contact with the feed roller 22 which spins the fruit underneath it in the same manner as roller 21 had done. The pressure on small pieces of fruit is not as great as on large pieces, but owing to the fact that small pieces of fruit are turned over a considerably greater number of times, when passing under each of the feed rollers, than the large pieces of fruit are turned over, the wiping action on the small fruit is equally as good.

Where the fruit is small or irregular in shape the inclination of the towel 20 may need to be much steeper than shown in Fig. 2, in order for the fruit to freely roll over the channel forming rollers 48 and 49 into contact with the next adjacent feed roller. In fact this inclination may be made adjustable where it is necessary to use the same machine at different times for the drying of different types of fruit. There is no limit to the steepness of this angle and in some cases it may be desirable to place the towel 20 in a vertical position. In this case the annular protrusions on the channel forming rollers 48 and 49, which are disposed between the annular channels 55, would be formed of a resilient material such as sponge rubber, and these rollers, as well as the feed rollers 21, 22 and 23, would be placed closer together as shown in Fig. 7 so that upon leaving contact with the first two of these rollers the fruit would drop only a short distance before engaging the next roller.

It is also to be noted that the excess material in the towel 20 provided by the channels causes the towel to conform readily to the fruit so that when the fruit is rolling beneath one of the feeding rollers the towel wipes the fruit almost up to the axes of rotation thereof. Practically the entire surface of the fruit is wiped under each of the feed rolls 21, 22 and 23 thus insuring that by the time the fruit has passed through the drier 15 the fruit is entirely free of surface moisture. Another important feature of the device is that the driest portion of the towel at the lower end thereof comes into contact with the fruit just before it is discharged, and after a considerable portion of the moisture on the fruit has already been removed. This counter current action results in the maximum of efficiency in removing water from the fruit.

With certain types of fruit, such as apples or navel oranges, water collects in depressions at the blossom and calyx ends of the fruit so that this water cannot readily be absorbed by a towel contacting the fruit. Jets of air, directed angularly in different directions onto the fruit from the pipes 70 and 71, are designed to blow the water out of these depressions in the fruit and onto the surface of the fruit where it will be readily absorbed by the towel.

Referring again specifically to the drawings and particularly to Figs. 8 to 12 inclusive, a modified form of my drier is indicated by the numeral 115. This drier has a frame 116 consisting of spaced side structures as shown in Fig. 8, which are connected together by suitable cross bracing 117. The drier 115 has an endless towel 118 which is supported in the following manner.

A wringer 120 is mounted on the frame 116 and includes upper and lower rubber wringer rolls 121 and 122 which are mounted upon shafts 123 and 124. The shaft 124 is journalled in fixed bearings 125 provided upon sub-frames 126 which are secured to the main frame 116. The shaft 123 journals in bearings 127 which are movable vertically on the sub-frames 126 and which are adapted to be forced downwardly by spring screw jacks 128 provided on the upper ends of the sub-frames 126 so as to press the rubber roller 121 downwardly upon the rubber roller 122. The towel 118 passes around the roller 121 as shown in Fig. 10.

The shaft 123 is driven by a sprocket 130 secured thereon and this in turn drives the shaft 124 in the opposite direction through a pair of gears 131 fixed upon these shafts. The opposite end of the shaft 123 is provided with a feed roller drive sprocket 134. Idly disposed on the shaft 123 between the rubber roller 121 and the bearings 127 are sprockets 135.

Journalled in bearings 140 mounted at opposite points on the frame 116 is a shaft 141 on which is loosely mounted a drum 142. Fixed upon the shaft 141 between the drum 142 and the bearing 140 are a pair of sprockets 143 the pitch diameter of which is substantially the same as the diameter of the drum 142.

The drum 142 includes a solid core 146 provided with end plates 147. Surrounding the core 146 at intervals between the end plates 147 are rings 148 of resilient material. These rings may be made up of sponge rubber as illustrated, or may be made up of any suitable resilient construction. A rubber sheath 150 covers the periphery of the drum 142 and is connected at its opposite ends to the end plates 147.

The towel 118 also extends around the drum 142. At opposite sides of the towel 118 are provided guide chains 152 which extend around sprockets 143 and 135 and which are connected by suitable attachment links 153 to edge portions of the towel 118. It will thus be seen that when the wringer 120 is operated the towel 118 will be drawn therethrough, and the drum 142 and sprockets 143 will be rotated in the direction of the arrows in Fig. 9.

In order to pleat the towel 118 before it passes around the drum 142, a series of loosely journalled rollers 155 and 156 are mounted respectively on bars 157 and 158 provided on the frame 116 and extending transversely thereof and above and below the lower flight of the towel 118, as clearly shown in Fig. 12. In this manner, the slack in the towel is taken up and is evenly distributed along the drum 142 when the towel comes to rest on the surface of this drum.

Disposed with their axes parallel to that of the drum 142, and with their exterior surfaces close to the exterior surface of that drum, are three feeder rolls 160, 161 and 162 which are identical in construction and which are mounted respectively on shafts 163, 164 and 165. Each of these feeder rolls has a solid core 167 and heads 168 which are fixed to their respective shafts. Extending outwardly from the core 167 are resilient rings 169 which are covered by a resilient sheath 170, the opposite ends of which are attached to the heads 168.

The shaft 164 journals in bearings 168 and has a sprocket 169 fixed on one end thereof in the same plane as the sprocket 134. Pivotally swung on horizontal axes between the adjacent bearings 140 and 168 are a pair of rocker lever arms 172 upon the upper and lower ends of which are pivotally mounted bearings 173 and 174, in which are journalled the shafts 163 and 165 respectively. Fixed to the far ends of shafts 163 and 165, as shown in Fig. 7, are collars 176.

On the opposite ends of these shafts outside the bearings 173 and 174 respectively are fixed sprockets 177 and 178. With the arms 172 in a vertical position the sprockets 177 and 178 lie in the same plane as sprockets 134 and 169.

Fixed to the shaft 165 outside the sprocket 178 is a cam member 180 having an endless cam channel 181 provided therein. Extending into the channel 181 is a small roller 182 which is vertically pivoted on a frame member 183 which is rigidly provided upon the frame 116.

Extending around sprockets 134, 177, 169 and 178 is a sprocket chain 185 so that when the wringer 120 is operated the feed rolls 160, 161 and 162 will be rotated in the same direction as the wringer roll 121 or as indicated by the arrows in Fig. 9. As this occurs the cam member 180 is rotated with the shaft 165 so that movement according to the convolutions of the channel 181 is transmitted to the rocker arm 172. The channel 181 is so shaped that this will cause a continual axial shifting, back and forth, of the feed rollers 160 and 162 a distance of about one inch, the purpose of which will be described later.

Secured to the frame 116 above the drum 142 is a drop board 188 upon which fruit is delivered by a feed conveyer 189 and which is sloped so that this fruit rolls downwardly onto the towel 118 and in contact with the first feed roller 160. Disposed beneath the drum 142 and the final feed roller 162 is an arcuate padded runway 190 which is adapted to receive fruit and discharge this onto a discharge conveyer 191.

The operation of the drier 115 is as follows:

Rotation of the sprocket 130 by a chain attached to any suitable source of power causes rollers of the wringer 120, the drum 142 and the feed rollers 160, 161 and 162 to rotate in the directions indicated by the arrows shown in Fig. 10. Fruit fed from the feeder conveyer 189 drops upon the towel 118 in contact with the first feed roll 160. Owing to the relative diameters of the sprockets 134 and 177 and those of the wringer roller 121 and the feed roll 160, the peripheral speed of the latter roll is greater than that of the towel 118. Accordingly this feed roll draws the orange between it and the towel as shown in Fig. 10, where an orange 193 of maximum diameter is shown thus positioned.

The orange is spun as it continually progresses beneath the roller 160 until it comes in contact with the roller 161. An orange 194 of minimum diameter, is shown between the roller 161 and the towel 118. The fruit passes in a like manner underneath the roller 161 and into contact with the roller 162, which in like manner spins the fruit over the towel, and ultimately discharges it onto the padded drop board 190. The larger of the fruit passing from the point of discharge between the towel 118 and the roller 162 to the lower end of the drop board 190 is in contact with both the drop board and the feed roller 162 in the manner illustrated by the piece of fruit 196. On being discharged from the drop board 190 the fruit is carried away on the discharge conveyer 191.

The number of teeth in sprocket 169 is slightly less than that in sprocket 177, while sprocket 178 has still fewer teeth. This causes each of the feed rolls 161 and 162 to rotate slightly faster than the roll preceding it. Clearance of fruit between these rolls is thus assured.

The axial oscillation of the feed rollers 160 and 162 results in rolling the fruit between these feed rollers and the towel 118 so as to change the axis about which this fruit is rotated as it is fed downwardly by these rollers. This assures that the surface of the fruit will be entirely wiped by the towel 118.

Owing to the pleating of the towel 118 before it comes to rest on the surface of the drum 142 there is an ample excess of towelling material to permit this towel to conform to fruit pressed into the towel by the feeding rollers 160, 161 and 162. It is furthermore to be noted in Fig. 10 that there is very little longitudinal stretching of the towel 118 necessary in order for this to accommodate fruit pressed thereinto by the feed rollers as the towel normally conforms to the shape of the drum 142 which is convex, while in conforming to the fruit it is practically reversed to a concave position without having to cover an appreciably longer path.

It is thus seen that I have produced a drier which will efficiently apply an absorbent element to fruit or corresponding objects so as to remove in a short time and with a small expenditure of power, practically all of the moisture adhering to the surface of such fruit or other objects. It is further evident that the means for handling the fruit in this drier might easily be used for handling fruit for other purposes, and in addition to covering the invention as a drier, it is desired to cover the feeding means employed therein for feeding fruit for any purpose.

While I have shown and described but two different embodiments of my invention, it is to be understood that various changes might be made in these without departing from the spirit of the invention or the scope of the appended claims.

When the phrase "pressing fruit against the absorbent element" is used in the claims it is to be understood to mean applying a substantially greater degree of pressure than is represented by the weight of the fruit against this element or the weight of the element against the fruit.

What I claim is:

1. In combination: an absorbent towel; means supporting said towel to provide a channel therein having a width substantially smaller than that of fruit to be treated; means for pressing fresh, whole fruit into said channel and feeding it longitudinally by spinning it therein; and means for mechanically removing water from said absorbent towel during operation of said mechanism.

2. In combination: an endless absorbent element; means for supporting said element to provide a plurality of channels therein; means for imparting motion to said element parallel with the direction of said channels; and means for pressing fruit into said channels and feeding it along said channels in the opposite direction to the movement of said element by spinning said fruit in said channels.

3. In combination: an absorbent element; means to cause said element to continuously move over a given path; means for distributing the material of said element across said path during said movement so that an excess of material is available for application to fruit; means for supporting said material so that it will pressurably resist deformation; and means for pressing fruit against said element to cause said material to pressurably conform to said fruit and feeding said fruit in the opposite direction to that of said element.

4. In combination: an absorbent element supported under a strain; resilient means for pressing fresh, whole fruit against said element so as

to increase said strain and feeding fruit longitudinally relative thereto; and means for mechanically removing water from said absorbent element.

5. In combination: an endless substantially resilient absorbent element; means for moving said element over a given path in a given direction; resilient means for pressing fresh, whole fruit against said element and causing the feeding of fruit longitudinally relative thereto in the opposite direction.

6. In combination: a travelling absorbent element positioned with a substantial deviation from horizontal and travelling upwardly; and a resilient member for pressing fresh, whole fruit against said element, so as to cause a substantial pressurable conformation of said element to said fruit, and feeding the fruit downwardly along said element.

7. In combination: a travelling absorbent element positioned with a substantial deviation longitudinally from horizontal and travelling upwardly; a plurality of resilient rolls disposed transversely at intervals along said element; and means for rotating said rolls so they will successively engage and press fruit against said element and feed fruit longitudinally along said element said fruit moving from one roll to the next by gravity.

8. In combination: an absorbent element positioned with a substantial deviation from horizontal; a plurality of resilient rolls at intervals along said element; and means for rotating said rolls at successively faster speeds so they will successively engage and press fruit against said element, said fruit moving from one roll to the next by gravity and passing between said element and said rolls.

9. A combination as in claim 3 in which means is provided for mechanically removing water from said absorbent element during its movement.

10. A combination as in claim 3 in which said element supporting means comprises a cylinder with a resilient surface.

11. A combination as in claim 3 in which said element supporting means comprises a cylinder with a resilient surface; and means for mechanically removing water from said absorbent element.

12. In combination: a towel supporting cylinder with a deeply resilient surface; an endless towel trained around said cylinder; means for mechanically removing water from said towel and causing it to rotate; a feed cylinder with a resilient surface disposed substantially parallel to said towel cylinder and close thereto; and means for rotating said feed cylinder to feed fruit between said cylinders and press said fruit into said towel.

13. In combination: a towel supporting cylinder with a deeply resilient surface; an endless towel trained around said cylinder; means for mechanically removing water from said towel and causing it to rotate; a plurality of feed cylinders with resilient surfaces and disposed at intervals with their axes substantially parallel to said towel cylinder and close thereto; and means for rotating said feed cylinders to feed fruit between them and said towel and press said fruit into said towel and spin same therein.

14. A combination as in claim 12 in which said towel travels in the opposite direction to said fruit.

15. A combination as in claim 13 in which said towel travels in the opposite direction to said fruit, and said feed rolls rotate at successively greater speeds.

16. In a mechanism for drying whole fresh fruit, the combination of: an absorbent towel; means for yieldably supporting said towel so as to resist deformation with a substantial force in excess of the weight of said fruit or the weight of said towel yet so that when a piece of fruit is pressed against said towel with such a force the towel pressurably conforms to a substantial portion of the adjacent hemisphere of said fruit without injuring said fruit; and means conforming to a substantial area of said fruit for pressing said fruit in such a manner against said towel and feeding said fruit along said towel.

17. A combination as in claim 16 in which said feeding means includes resilient rollers rotating on axes disposed across the direction said fruit travels.

18. A combination as in claim 16 in which said towel is endless and in which means is provided to form said towel into channels, and said feeding means includes resilient rollers rotating on axes disposed across said channels.

19. In a device for towelling whole fresh fruit, the combination of: a fabric towel; means for causing said towel to bag down longitudinally to form a plurality of definite parallel troughs; and means for feeding whole fresh fruit along said troughs.

20. In a device for towelling whole fresh fruit, the combination of: a fabric towel; means for causing said towel to bag down longitudinally to form a plurality of definite parallel troughs; means for feeding whole fresh fruit along said troughs; and means for removing liquid from said towel.

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