April 26, 1949. G. A. DUNN 2,468,255

FEED DEVICE

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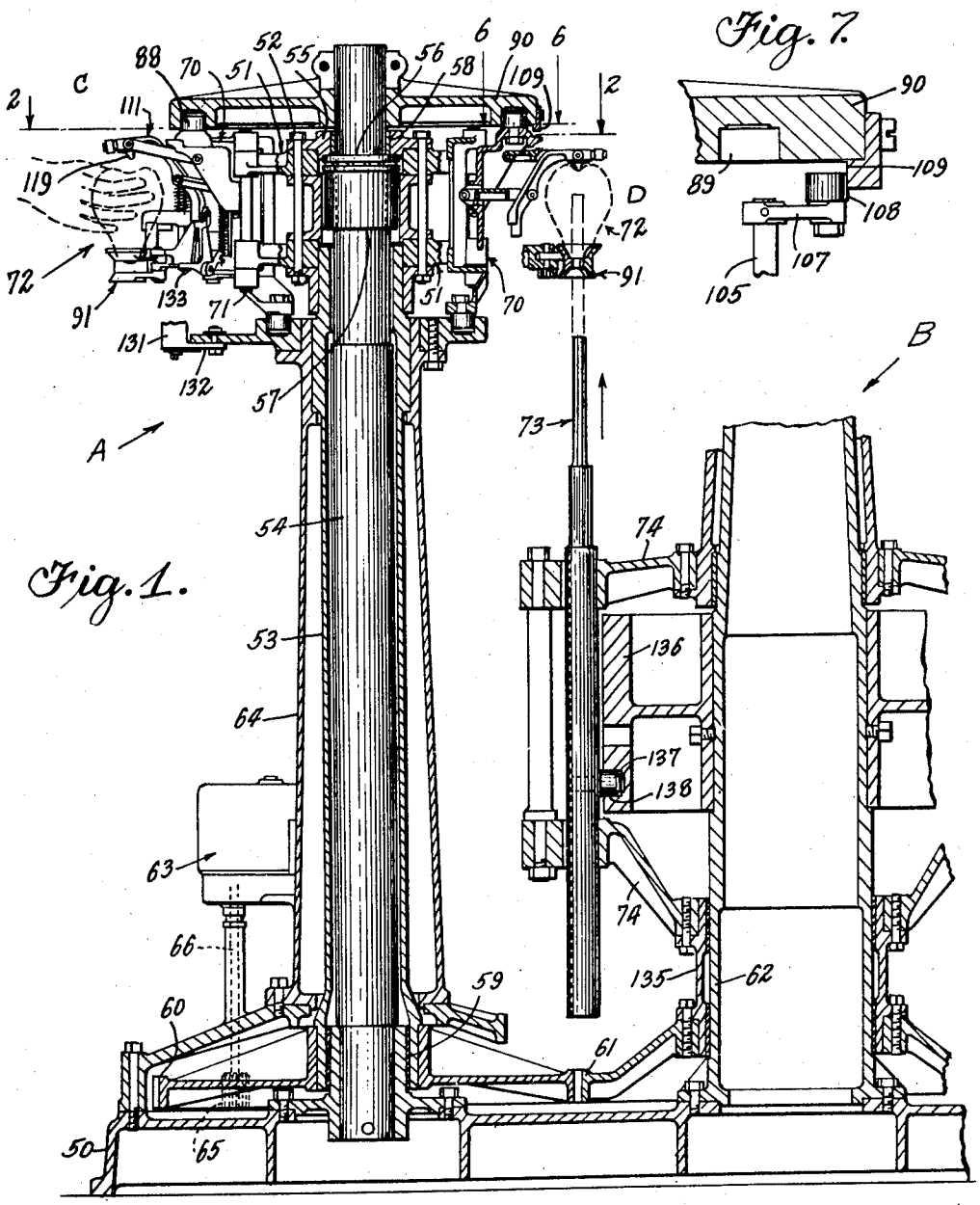


Fig. 1.

Fig. 7.

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Fig. 2.

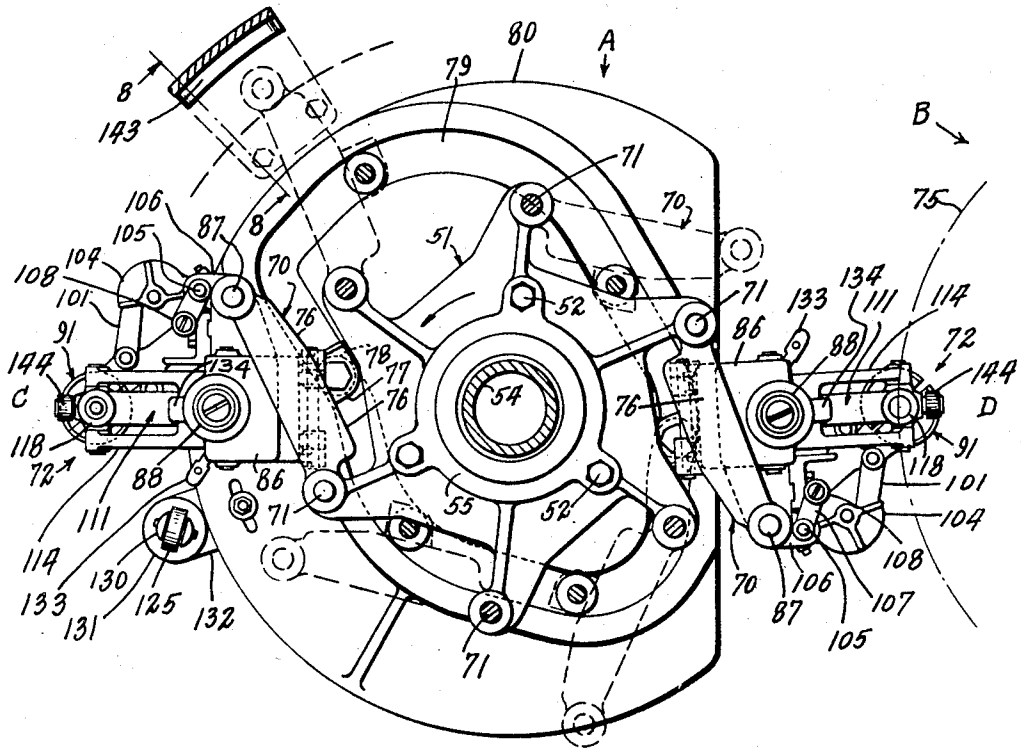
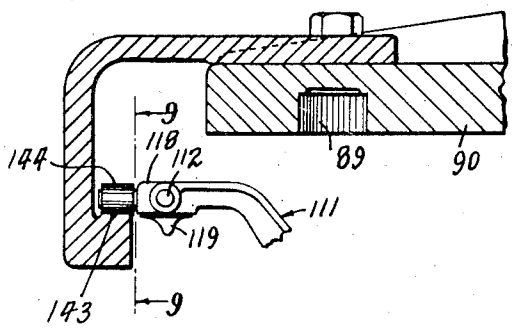


Fig. 8.



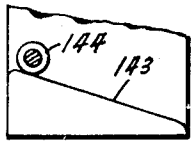


Fig. 9.

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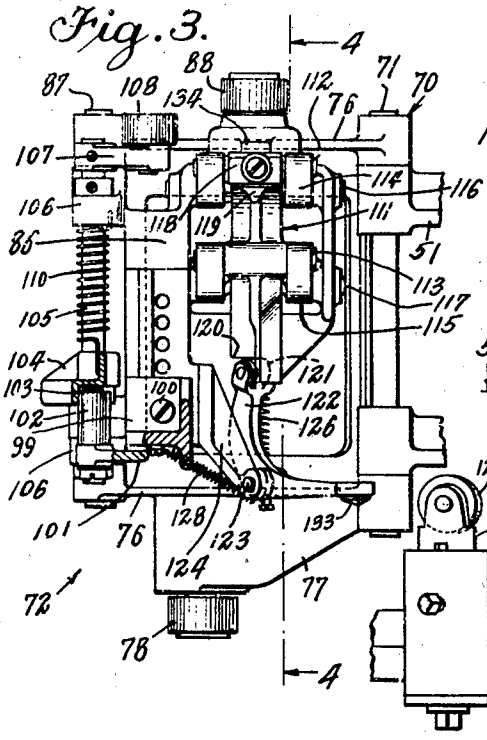
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Fig. 3.



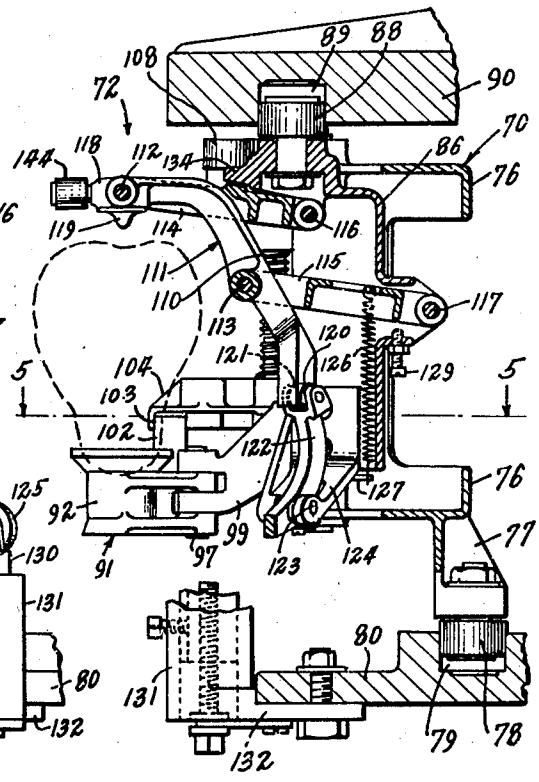


Fig. 4.

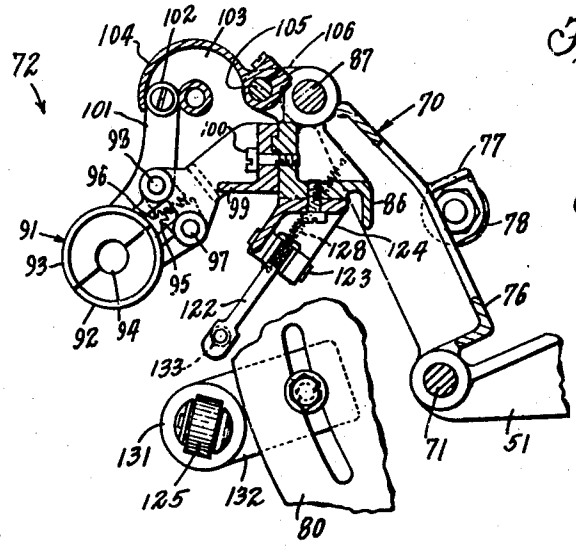


Fig. 5.

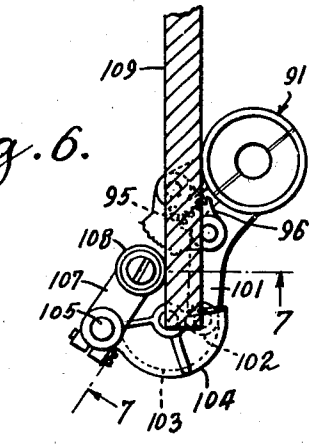


Fig. 6.

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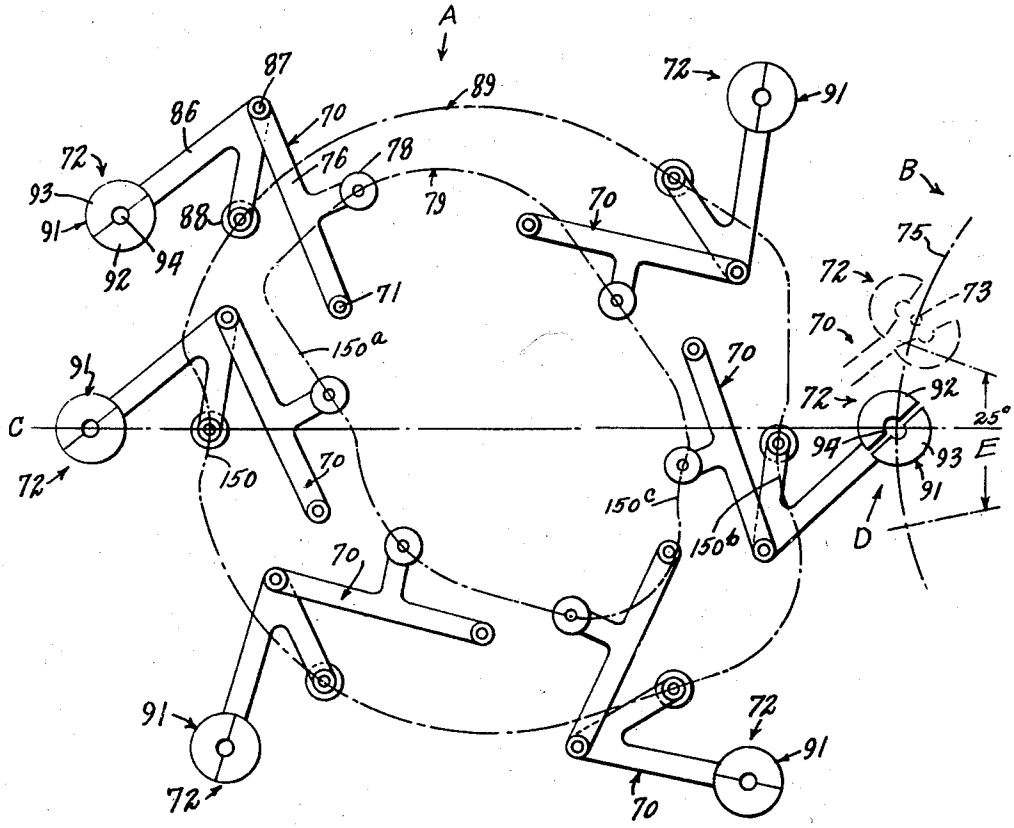


Fig. 10.

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UNITED STATES PATENT OFFICE

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FEED DEVICE

Guy A. Dunn, Oakland, Calif., assignor to California Packing Corporation, San Francisco, Calif., a corporation of New York

Application March 10, 1941, Serial No. 382,650

7 Claims. (Cl. 146—51)

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This invention relates to novel means and mechanisms organized and arranged to enable an operator to manually feed objects into a relatively high speed continuously operating object treating machine.

The application of my invention to a pear treating machine has been chosen to illustrate and describe one embodiment thereof. It is to be understood, however, that the invention is not limited to this preferred form but may be incorporated in other machines operating upon objects other than pears.

This application is drawn to the same disclosure as the joint application of Herbert L. Borchers and myself, Serial No. 264,802, filed March 29, 1939, now abandoned.

The pear treating machine to which this invention has been applied is of the relatively high speed continuously operating type, that is, the machine is not intermittent in its operation and consequently is not brought to a full stop upon the completion of each operating cycle as has been the practice in former pear treating machines.

This continuous operating type of machine has brought about a number of difficult problems, as, for example, the feeding of the fruit to the machine within the time available for this purpose and also to accurately center the fruit while being fed into the machine.

The solution of the above and other problems therefore becomes the principal object of this invention.

A further object resides in the manner of mounting the object carrying means onto the feed turret whereby a wide range of relative movement may be obtained between the carrying means and turret.

A further object is to provide means for controlling this relative movement between the carrying means and the feed turret whereby the carrying means are caused to dwell at a loading zone and to travel in transferring register with the object carrying means of the main turret while traversing a transfer zone.

A further object resides in the provision of means for effecting transfer of the object from the feeding to the main turret while in transferring register.

In the handling and treating of various irregular similar objects, such as fruit, and in this particular instance, pears, it is often necessary that such objects be presented in a properly aligned and predetermined position relative to the device for their subsequent automatic treatment.

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Another object of this invention, therefore, is to provide an object carrying and centering unit that will predetermine the proper vertical alignment of the objects to be carried by said unit prior to their being received by the transfer means of the main turret.

Another object is to provide gauging means in combination with the transfer means of the main turret, whereby said objects will be correctly positioned relative to the plane of subsequent treating means of the main turret.

A further object is to provide means whereby the engaging means is automatically released into engagement with the object, the pear in this instance, at the loading zone and insuring its predetermined vertical alignment.

A further object is to provide means whereby the object engaging means is automatically released and latched out of engagement with said object by the cooperative action of the transfer means of the main turret at the transfer zone and in timed relation thereto, and simultaneously predetermining the proper height of said object relative to the plane of subsequent treating by said main turret.

A further object is to provide automatic means to latch said object carrying and centering means in a retracted position prior to its advance to the loading zone in the event said carrying unit is empty at the transfer zone whereby the transfer means of the main turret will fail to latch the object engaging means in its retracted position.

A further object is to provide the carrying units with means for automatically opening or releasing said units in timed relation with the transfer means of the main turret at the transfer zone for the purpose of transferring the objects, and to provide means for automatically closing said carrying units subsequent to the transfer of the objects and prior to their arrival at the loading zone.

A further object is to provide rigidly mounted cam tracks coacting with cam rollers on the respective members of the several sets of lever systems for the purpose of attaining the desired dwell, accelerating, and coincident periods of the object engaging and carrying units in their proper sequence and in timed relation with the rotation of the main turret.

These and other objects and advantages will become apparent as the nature of the invention is more fully understood from the following description and accompanying drawings, wherein is set forth what is now considered to be a preferred embodiment.

It should be understood, however, that this particular embodiment of the invention is chosen principally for the purpose of illustration, and that variations therefrom in details of construction or arrangement of parts may accordingly be effected and yet remain within the spirit and scope of the invention as the same is set forth in the appended claims.

In the drawings:

Fig. 1 illustrates in vertical section, a feed turret in accordance with this invention, showing the same as being operable in combination with a main turret.

Fig. 2 is a plan view of the feed turret, partly in section, and taken in the plane of line 2—2 of Fig. 1.

Fig. 3 is a front elevation of one of the object carrying and centering units, partly broken away, and illustrating the same in its latched position.

Fig. 4 is an enlarged vertical section taken in the plane of the line 4—4 of Fig. 3, and illustrates the several elements of the carrying and centering unit in cooperative relation with the fixed cams of the feed turret.

Fig. 5 is a plan section taken in the plane of the line 5—5 of Fig. 4.

Fig. 6 is an enlarged plan section taken in the plane of the line 6—6 of Fig. 1, and illustrating the means for releasing the carrying elements.

Fig. 7 is a vertical section taken on the line 7—7 of Fig. 6.

Fig. 8 is an enlarged vertical section through a portion of the uppermost fixed cam and taken substantially in the location as indicated by the line 8—8 of Fig. 2.

Fig. 9 is a fragmental view of the latching cam and is taken substantially on the line 9—9 of Fig. 8.

Fig. 10 is a diagrammatic illustration of the lever systems and the two actuating cams or controlling means therefor showing the manner in which the lever systems are actuated by their respective controlling means to first cause the object carrying and centering means of the lever systems to dwell at the loading zone and the manner in which they are accelerated to the transfer zone where the carrying and centering means of the lever systems are conveyed through the transfer zone in transferring alignment with the object carrying devices of the main turret whereby an accurate transfer of the object from the feed turret to the object carrying device of the main turret of the machine is obtained.

In its preferred embodiment, this invention includes a feed turret A and a main turret B, Fig. 1, both being supported upon standards rigidly secured to a base 50. These units A and B are continuously operated at a constant speed and in timed relation inasmuch as they cooperate with each other to effect the purpose of this invention.

The feed turret A includes a spider 51, including two spaced apart similar members rigidly held together in axial alignment by the bolts 52. This spider 51 (Figs. 1 and 2) is pressed on, or otherwise rigidly secured to the upper end of sleeve 53 (Fig. 1) rotatably mounted upon the standard 54 which is rigidly secured to the base 50 of the feed turret A. A thrust collar 55, rigidly affixed to the top of the spider 51 supports the spider assembly on a thrust bearing 56 which rests upon a shoulder 57 of the standard 54. A bushing 58 is interposed between the thrust collar 55 and the standard 54 and together with the thrust bearing 56, insures proper axial and vertical alignment of the spider assembly.

The lower end of the sleeve 53 is supported in a bearing 59 which surrounds the lower extremity of the standard 54 mounted in the base 50, and secured to the lower end of said sleeve, in any suitable manner, is a large spur gear 60 meshing with the gear 61 rotatably mounted on the standard 62 of the main turret B.

These gears 60 and 61 are preferably of the same pitch diameter, although a different ratio would make no essential difference in their function provided the operating elements of the respective turrets were arranged for such particular relationship. However, in this preferred embodiment of the invention, they rotate at the same speed.

A suitable electric motor and speed reduction assembly 63 secured to the tubular housing 64 of the base structure 50 furnishes the power necessary to operate the rotating members of the feed turret A and the main turret B. The pinion 65 on the drive shaft 66 meshes with gear 60 for driving the feed turret in a counter-clockwise direction, as viewed in plan (see Figs. 2 and 10). The gear 61 of the main turret B and its associated rotatable members are accordingly driven at corresponding speed but in a clockwise direction.

The feed turret is provided with 6 sets of lever systems 70 which are hingedly connected thereto by the hinge pins 71 symmetrically disposed about the central axis of the feed turret. As above pointed out in the preferred embodiment, there are provided 6 sets of lever systems 70. However, it is to be understood that in some applications of the invention one or even a greater number than 6 such lever systems may be advantageously employed. On the free end of each of the lever systems 70 there is provided an object carrying and centering means generally indicated at 72.

The main turret B may likewise include a plurality of object carrying or impaling devices 73, reciprocable in the main turret member 74 symmetrically disposed about the standard 62, and equidistant from the central axis thereof. Preferably there are the same number of object carrying or impaling devices 73 as there are object carrying and centering units of the feed turret A.

It will be understood however that the feed turret may be provided with a greater number of object carrying and centering devices 72 than the main turret is provided with its object carrying and impaling devices 73, in which case a different gear ratio will be employed to bring each of the turret object carrying devices in transferring register with its related carrying device of the main turret. In such an organization the feed turret may be operated at a slower rate of speed than the main turret, thus permitting greater interval of time for the initial placing and centering of the object in the feed turret.

It is the purpose of this invention to provide a rotary turret that will continuously feed similar objects, such as pears, to a main turret, which will transfer said objects from the feed turret to the main turret for the subsequent treatment thereof.

By referring to Figs. 1, 2 and 10, it will be observed that the longitudinal center line of both turrets A and B is the common diameter of the circles formed by the paths of rotation of their respective engaging elements.

In Fig. 10, C represents the loading zone or station where the objects, pears in this instance, are fed into the feed turret A, and D represents

the transfer zone or station where the objects are transferred to the main turret B.

The loading zone C may be located directly opposite to the transfer zone D, as shown in Fig. 10.

As each of the feed turret carrying means 72 is carried through the transfer zone, it is guided so as to travel in transferring alignment with its related main turret impaling device 73. This coincident travel of the two moving carrying devices extends for approximately 25° of travel, as is indicated in Fig. 10 at E, and it is during this portion of the cycle that the object is transferred from the feed to the main turret.

Cam means are provided for controlling the relative movement between the carrying and centering means 72 of each of the lever systems and the feed turret in a manner to be later described. Inasmuch as the several sets of lever systems together with their associated object carrying and centering means 72 are identical, the following description for one set of said elements will apply for all.

By referring to Figs. 1, 2, 4, 5 and 10, it may be observed that the innermost levers 76 of the lever system 70 is substantially in the form of a hinged frame having upper and lower aligned pivotal centers at either end, and that said link is pivotally mounted on hinge pin 71 at its inner end.

The innermost lever 76 is provided with an integral rearwardly and downwardly extending boss 77, pivotally carrying a cam roller 78, which travels in the control cam track 79 milled in the upper face of the control cam 80, which cam is rigidly secured to the tubular housing 64 of the feed turret A.

The outermost lever 86 of the said lever system 70 is substantially a frame member as in the instance of the inner lever 76 and is designed to support the object carrying and centering means 72.

The inner and outer levers 76 and 86 of each lever system 70 are pivotally connected by the pivot pin 87.

The outermost lever 86 of each lever system is provided with a cam roller 88 arranged to travel in the cam track 89 milled in the under surface of the second control cam 90 rigidly secured to the top of the central standard 54.

As previously pointed out, each of the object carrying and centering means 72 is mounted upon the free end of the outer or second link 86 of each lever system 70 and each of the object carrying and centering means 72 includes a lower or divisible annular stem and carrying and centering means and an upper or blossom end centering means which are constructed to operatively engage and release the object, a pear in this instance, at predetermined periods during the operation of the feed turret.

By referring particularly to Figs. 4 and 5, it may be observed that the lower or divisible annular stem end carrying and centering means 91 may include a pair of complementary members 92 and 93, which, when in their closed position (Fig. 5), assume the form of an annular cup having a central opening 94.

Formed integral with rearwardly extending portions of the respective complementary members 92 and 93 are intermeshing segmental gears 95 and 96, said complementary members being in this manner rotatably supported on the respective pivots 97 and 98 in the bifurcated end of the angular bracket 99 which is adjustably secured as at 100 to the body of the outer link 86 of each lever system 70.

It is to be understood that this angular bracket 99 is designed to provide for the proper location of the aforesaid complementary members 92 and 93 which constitute the lower carrying means 91.

The extension of the complementary member 93 is in the form of a bellcrank, rotatable about its pivot 98, and its tail portion 101 carries a cam roller 102 guided in the cam track 103 of a cam lever 104, which is rigidly secured to the lower end of a rod 105 rotatably mounted in extensions 106 of the respective upper and lower bearings for the pivot 87 of the outer lever 86, thereby maintaining definite relationship between said cam lever 104 and the lower carrying means 91.

Rigidly secured to the top of the rod 105 is an arm 107 (Fig. 6) supporting a cam roller 108 at its outer end, said arm 107 being positioned so that its roller 108 lies in the path of a cam face 109 (see Figs. 6 and 7) projecting downwardly from the edge of the upper fixed cam 90, and for the purpose of swinging open the complementary members 92 and 93 about their respective pivots 97 and 98, during the transfer period, a torsion spring 110 (Fig. 3) surrounding the rod 105 and acting between the cam 104 and the upper extension 106 of the lever 96 to yieldingly hold the respective complementary members 92 and 93 in closed relation after disengagement of roller 108 from the depending cam face 109.

The upper or blossom end centering means 111 (Fig. 4) of each object carrying and centering means 72 is pivotally supported as at 112 and 113 by the parallel arms 114 and 115, respectively, and said parallel arms are pivotally secured at their respective opposite ends to the body of the outer lever 86 as at 116 and 117 (Figs. 3 and 4).

This upper member 111 has an offset engaging head 118 having a tapered boss 119 projecting from its lower face which is in axial alignment with the center of the lower carrying means 91 and serves to align or center the object or pear in the carrying means 72.

The lower end of the upper member 111 is notched as at 120 to receive a roller or detent 121 pivoted on one end of a bellcrank 122 which is pivotally supported as at 123 in an offset bracket 124 secured also to the body of the outer lever 86 of the lever system 70. The other leg of the bellcrank extends outwardly and downwardly into the path of an antifraction engaging member 125 (Figs. 3 and 5) adjustably secured to the lower fixed cam 80.

A tension spring 126 (Fig. 4) connects the lower parallel arm 115 to a fixed point 127 on the offset bracket 124 which is rigidly secured to the lever 86, and a second tension spring 128 (Figs. 3 and 5) is attached to the outer leg of the bellcrank 122 and to the body of said lever 86. It is through the related action of these springs 126 and 128 that the upper member 111 is latched out of engagement with the pear by the bellcrank 122 and its latching roller 121.

A set screw 129 (Fig. 4) in the cross web of the outer lever 86 will engage one of the cross webs of the lower parallel arm 115 and limit the downward movement of said parallel arms and the upper member 111, when the latching detent 121 is disengaged from the notch 120 of the member 111.

The lower portion of the upper member 111 may be offset to conform with the location of the latching detent 121 of the bellcrank 122 which is necessarily at an angle in order to be intercepted by the antifraction member 125.

This antifriction member 125 (Figs. 3 and 5) may be a roller mounted in the upper end of a stud shaft 130 adjustably mounted in the sleeve

131 of a bracket 132 which in turn is adjustably secured to the lower fixed cam 80. Adjustment of said anti-friction member is required only for the proper alignment with the engaging box 133 of the bellcrank lever 122 of the several object carrying and centering means 72, when setting up the turret feed or varying the location of the lower carrying and centering means 91 when a different size pear or other object is to be handled.

A stop 134 (Fig. 4) integral with the top part of the outer link, engaging a boss on the cross web of the upper of the parallel arms 114, limits the upward movement of said arms and also the upward movement of member 111.

Preferably there are the same number of impaling devices 73 on the main turret as there are object carrying means 72 on the feed turret although for the purpose of illustration only one of these impaling devices 73 is shown, it being understood that the remaining number of these devices are identical in construction and mode of operation and are symmetrically disposed about the axis of the main turret B.

The timing of the main turret relative to the feed turret is such that as the respective carrying means 72 travels through the transfer zone D, the respective impaling devices 73 of the main turret will be in exact axial alignment with the vertical axis of the pear or other objects held by said carrying means 72.

Each of the impaling devices 73 is preferably in the form of a tube and is moved upwardly while passing through the transfer zone D to enter the aligned fruit to a predetermined depth, thus taking over control of the fruit from the feed turret.

The impaling devices or tubes 73 are reciprocably mounted in the rotatable spider or main turret member 74 which may be composed of an upper and lower member and are secured to the hub 135 of the main turret gear 61, Fig. 1.

A cylindrical cam 136 is rigidly secured to the central standard 62, preferably between the upper and lower members of the rotatable spider 74. A cam track 137 is milled in the cylindrical surface of said cam, and guides the cam roller 138 which is rotatably secured to the lower enlarged portion of the impaling device or tube 73 and at 90° to its vertical axis. Each of the impaling devices or tubes 73 may be held against rotation by any suitable means, not shown.

The cam track 137 in the cam 136 is designed to reciprocate the impaling devices 73. During the travel of each of the impaling devices 73 through the transfer zone, it is moved upwardly into the pear to thereby take over control of the pear and at the same time to return the upper centering means to its latched position. As the upper member 111 will not be latched in its retracted position by the upward movement of the impaling tube 73 unless fruit or other object is being carried by the carrying and centering means 72, it is therefore desirable to provide means for retracting the upper member 111 which will act before the return of the carrying means 72 back to the loading zone C.

The means for automatically retracting the upper member 111 may include a cam face 143 (Figs. 2, 8 and 9), secured to the upper fixed cam 90 of the feed turret A and positioned for the proper clearance of the various moving parts. The cam face 143 is positioned to intercept the path of travel of the small cam roller 144 rotatably mounted upon the forward portion of the engaging head 118 of the upper member 111 and will thus lift any of the upper members 111 to its retracted position where it will latch in the manner previously described in those cases in which the impaling device 73 does not perform this function during the passage of the parts through the transfer zone.

In the operation of the preferred embodiment of the invention herein disclosed, the several adjustable elements of the feed turret A are uniformly set for the particular size of pears or other object to be handled thereby, and the several transfer members, the impaling tubes or devices 73, of the main turret B are likewise uniformly adjusted as to their vertical position so that the pear or other object impaled thereon will be properly positioned for introduction to the main turret for subsequent treatment thereof.

It has previously been described how the two turrets A and B are simultaneously and continuously operated in timed relation with each other by virtue of the driving pinion 65 rotating the feed turret gear 60 and said gear 60 in turn driving the main turret gear 61 in the reverse direction, and the timing of the respective impaling devices 73 to coact with the respective carrying and centering means 72 as they successively travel through the transfer zone D in transferring alignment.

By referring to the diagrammatic view as shown in Fig. 10, it may be observed that a portion of the second control cam track 89 includes an arcuate section 150 at the loading zone C. The center of curvature of this arcuate portion 150 is laid out from the vertical axial center of the object carrying and centering device 72 when located in the loading zone, whereby the object carrying means will dwell during the continuous rotation of the feed turret in order to provide sufficient time for the placing and centering of the object or fruit in the carrying means 72.

It is to be understood when the term "dwell" is used that the object carrying and centering means may actually remain stationary with relation to the forward travel of the feed turret. However, it will rotate slightly during the dwell about its vertical central axis which in no way affects the placing or centering of the fruit in the device. This is a very important feature of the invention as it provides the necessary time interval for the feeding of the object into the feed turret of a relatively high speed operating machine. If it were not for this dwell at the loading zone, it would be very difficult if not impossible to feed the objects as the object carrying means travel past the loading zone.

To obtain the dwell of each of the feed turret carrying means 72 as they pass through the loading zone, the first control cam track 79 has a straight line portion, as at 150—A to cooperate through the innermost lever 76 of each lever system with the outer lever 86.

During the dwell period, the operator presents a pear with its neck or stem end downward so that it rests and is centered in the complementary halves of the lower or divisible annular stem end carrying and centering means 91, while the large or blossom end is positioned uppermost so that the depression contained therein is directly in line with the small tapered boss 119 of the upper centering member 111 (Figs. 1 and 4).

The operator may hold the fruit in this position until the upper centering means 111 is released by the boss 133 swinging into engagement with the anti-friction roller or member 125 as previously described, or the operator may place the stem end of the fruit in the carrying means

72 and thereafter lift the blossom end until its depression enters the small tapered boss 119, insuring proper alignment or centering of the fruit in the device and so holding the fruit until the upper centering member 111 is tripped by the engagement of the boss 133 with the antifriction member 125 occurring almost immediately upon the passage of the carrying means 72 from its loading zone C.

In this manner, the fruit is accurately centered, first by the lower or divisible annular stem end carrying and centering means 91 and secondly by the upper centering means 111. These two devices cooperate to hold the fruit in correct alignment and to thus present the fruit to the impaling means at the transfer zone and as a result thereof the fruit will be accurately centered upon the main turret impaling device 73 at the completion of the transfer.

It will be understood that when the machine is arranged to treat objects other than pears, it may be necessary to provide a different type of carrying and centering means from those shown and described herein.

As previously pointed out, each of the lever systems 70 constitutes means for mounting each of the carrying and centering means 72 onto the feed turret A in order to provide for a relative movement between the carrying means and the turret and also the manner in which the two control cams 79 and 89 are arranged to control the action of the lever systems to bring about the dwell at the loading zone and the transferring register at the transfer zone.

The second important portion of the two control cams 79 and 89 is indicated at 150—B and 150—C, which portions of the respective cams control the action of the respective lever systems as they travel through the transfer zone D. The control cam portions 150—B and 150—C are arranged to actuate each of the lever systems as it passes through the transfer zone to convey the holding and centering means 72 carried thereby so that the vertical axial center of the carrying means 72 will travel along the arc of the main turret impaling device 73 which arc is indicated in Fig. 10 by the reference numeral 75 and due to this arrangement the carrying means 72 of the feed turret will travel through the transfer zone D in accurate alignment with the impaling device of the main turret, whereby an accurate transfer of the object is obtained. The two control cams 79 and 89 directly following the transfer portions 150—B and 150—C are arranged to actuate the lever systems to swing the carrying means 72 thereof to permit the impaling device 73 of the main turret to pass from between the complementary members 92 and 93 which at this point will have been opened in the manner previously described.

The position of the lever system as it leaves the transfer zone D is shown in broken lines in Fig. 10 and illustrates the manner in which the impaling device 73 of the main turret passes from between the open complementary members. The remaining portions of the two control cams are arranged to control the lever systems in any suitable manner between the loading and transfer zones.

The transfer of the pear takes place in the following manner:

As one of the feed turret fruit carrying means 72 approaches the transfer zone D, one of the main turret impaling devices 73 also approaches the transfer zone and during this approach starts

to rise by virtue of the engagement of the cam roller 138 carried by said impaling device 73 with the rise period of its cam track 137.

As the feed and main turret continue their travel, the impaling device 73 of the main turret is caused to rise and finally as the two turrets pass through the transfer zone the impaling device 73 enters the central opening 94 of the lower centering means 91 of the feed turret and as the operation continues the impaling device 73 moves upwardly into the aligned fruit held in the feed turret and will during this upward movement push the pear against its upper centering member 111 and will raise this member upwardly against the action of its spring 126 until reaching its fully retracted position at which point the stop 134 will prevent further upward movement, and also at this point the upper centering member 111 will be locked in its retracted position by the latching mechanism previously described.

The upward movement of the fruit is limited by the upper centering member 111 reaching its retracted position and in so doing acts to push the fruit on the impaling device 73 at a predetermined distance from the upper centering member 111 and in this way serving as a gauge to predetermine the proper vertical position of the pear for such subsequent treatment as may be performed upon the pear by the main turret. In the present instance the upper end of the impaling device 73 eventually locates itself at a point approximately opposite the large diameter of the pear, as indicated in broken lines in Fig. 1.

After the fruit is impaled upon the impaling device 73 of the main turret in the manner above described, the complementary members 92 and 93 of the lower carrying and centering device 91 are caused to swing open to permit the carrying device of the main turret to pass therefrom in the manner shown in broken lines in Fig. 10. As the main turret continues its rotation, its impaling device 73 may be raised further or lowered as desired, by the action of its cam track 137 to position the fruit for subsequent treatment.

During the travel of the feed turret from the transfer zone to the loading zone, the complementary members 92 and 93 are returned to their normally closed position in the manner previously described, and upon arriving at the loading zone are in condition to receive another piece of fruit which in turn will be carried through the cycle of operation above referred to.

Having fully described the invention, it is to be understood that it is not to be limited to the details herein set forth, but the invention is of the full scope of the appended claims.

I claim:

1. In a machine for handling fruit, a main turret having a fruit carrying device, a fruit feed turret operated in timed relation with the main turret, a compound lever system mounted in the feed turret and having fruit carrying means, a multiple cam system within the feed turret and operably connected between the compound levers to cause the fruit carrying means thereof to dwell at a loading zone and during its passage through a transfer zone to travel in axial alignment with the object carrying device of the main turret to facilitate feeding of fruit to the fruit carrying means during the dwell and to facilitate an accurate transfer of the fruit from the fruit carrying means of the feed turret to the fruit carrying device of the main turret, and means for effecting transfer of the fruit from the fruit carrying

means of the feed turret to the fruit carrying device of the main turret during such alignment.

2. In a device for handling fruit, a continuously rotating main turret having a fruit carrying device, a feed turret operated in timed relation with the main turret, a compound lever system carried by the feed turret having fruit carrying means, and a multiple cam means in the feed turret operably connected with levers of the compound lever system and operable as the levers travel in the feed turret to cause the fruit carrying means thereof to dwell at a loading zone and during its passage through a transfer zone so as to cause the fruit carrying means of the feed turret to move in axial alignment with the fruit carrying device of the main turret to facilitate an accurate transfer of the fruit thereto.

3. In a machine for handling fruit, a main turret having a fruit carrying device, a feed turret having its axis of rotation spaced from the axis of rotation of the main turret and operated in timed relation with said main turret, a compound lever system within the feed turret and having fruit carrying means, a multiple cam system within the feed turret and operably connected with levers of the compound lever system to cause the fruit carrying device thereof to dwell at a loading zone, and during its passage through a transfer zone to travel in axial alignment with the fruit carrying device of the main turret to facilitate an accurate transfer of the fruit thereto.

4. In a machine for handling fruit, a main turret having a fruit carrying device, a feed turret operating in timed relation with the main turret, a compound lever system carried by the feed turret, the compound lever system supporting a fruit carrying and centering ring, a multiple cam means operably connected with levers of the compound lever system to cause the fruit carrying ring thereof to dwell at a loading zone for receiving and centering a fruit, and during its passage through a transfer zone to position the centering ring and the fruit carrying device in axial alignment.

5. In a fruit handling device, a main turret having fruit impaling means, a feed turret operated in timed relation with the main turret, the feed turret having fruit carrying and centering means, a compound lever system operatively connected with the fruit carrying and centering means, a multiple cam system operably connected with levers of the compound lever system in the feed turret to actuate the fruit centering and carrying means and to provide a dwell of the fruit centering means at a feed zone at which the fruit is fed to the fruit carrying and centering means, and means at a transfer zone for actuating the impaling means in timed relation with the fruit centering and carrying means to impale the fruit.

6. In a pear handling machine, a continuously rotating main turret having impaling means, a continuously rotating feed turret driven in timed relation with the main turret, carrying and centering means including a stem end carrying and centering means and blossom end centering means, means mounting said carrying and centering means on the feed turret to provide relative movement therebetween, a compound lever system operably connected with the fruit carrying and centering means, a multiple cam system within the feed turret and operably connected with levers of the compound lever system for causing the carrying and centering means to dwell at a loading zone whereby the time interval permitted for feeding the stem end of the fruit into the carrying and centering means with relation to the blossom end centering means is increased, and means at a transfer zone for impaling the fruit as held by the stem end carrying and centering means, said latter means being positioned in the main turret, and means operable after said impaling means is operated for actuating the carrying and centering means and blossom and centering means to release the fruit to the impaling means.

7. In a continuously operating fruit handling apparatus, the combination of a fruit receiving and carrying means, means for moving the fruit carrying means continuously through a closed path in which a fruit feeding station is provided at which the fruit is fed to the fruit carrying means, a compound lever system operably connected with the fruit carrying means, a multiple cam means operably connected with levers of the compound lever system for moving the fruit carrying means through a modified path of movement at the feed station for causing the fruit carrying means to dwell at said station, whereby the effective time within which a fruit may be fed to the fruit carrying means is increased.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,445,345	Moorshead	Feb. 13, 1923
1,451,571	Gay	Apr. 10, 1923
1,654,091	Pieler	Dec. 27, 1927
1,819,442	Ridley	Aug. 18, 1931
1,856,498	Miller	May 3, 1932
1,860,745	MacDougall	May 31, 1932
1,906,604	Hutchinson	May 2, 1933
2,007,981	Nordquist	July 16, 1935
2,112,119	Rowe	Mar. 22, 1938
2,155,088	Hopkins	Apr. 18, 1939