Aug. 24, 1954

V. LAURENCE

APPARATUS FOR REMOVING THE HEARTS FROM ARTICHOKES AND METHOD

2,687,156

Filed Jan. 23, 1951

4 Sheets-Sheet 1

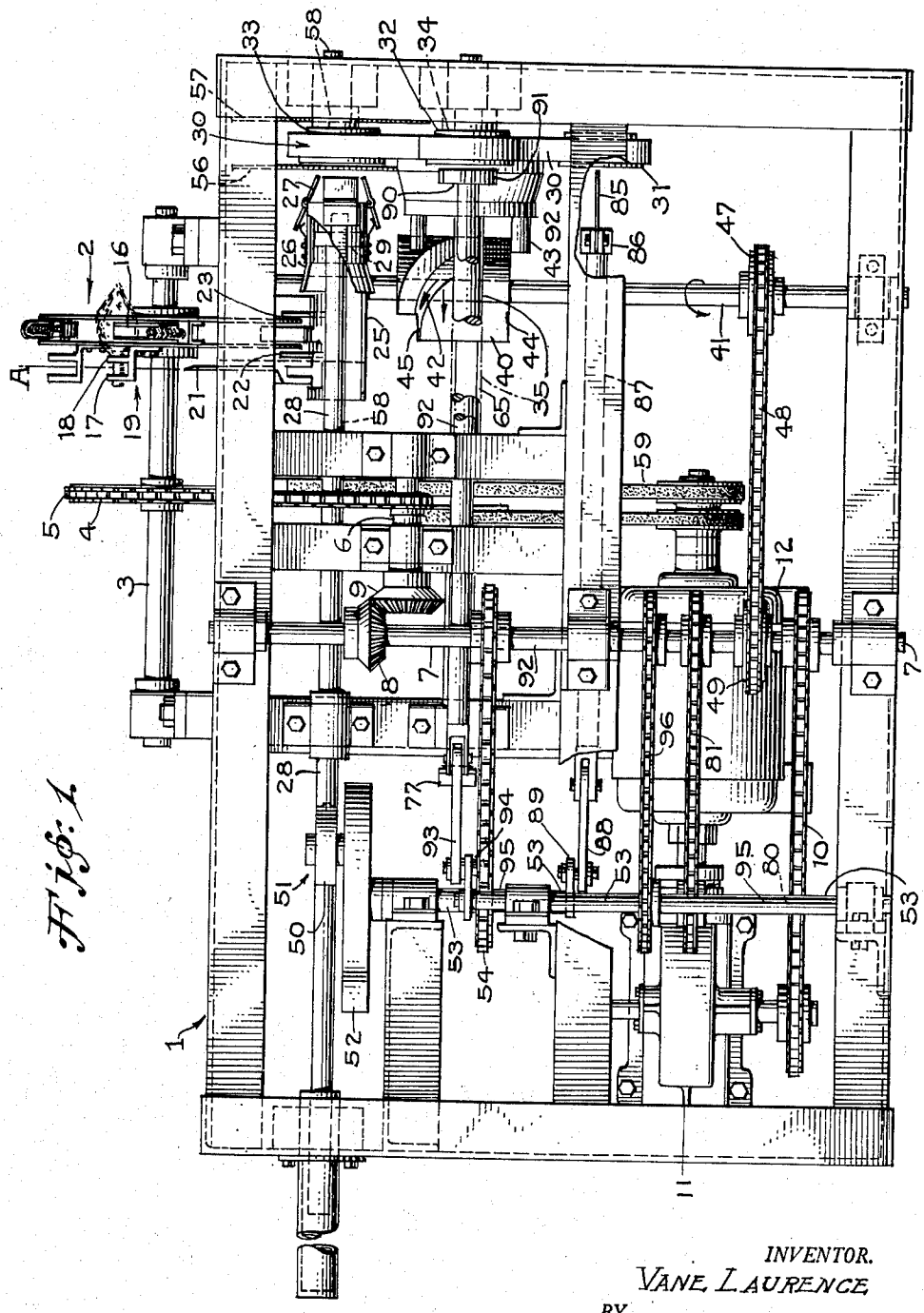


Fig. 1.

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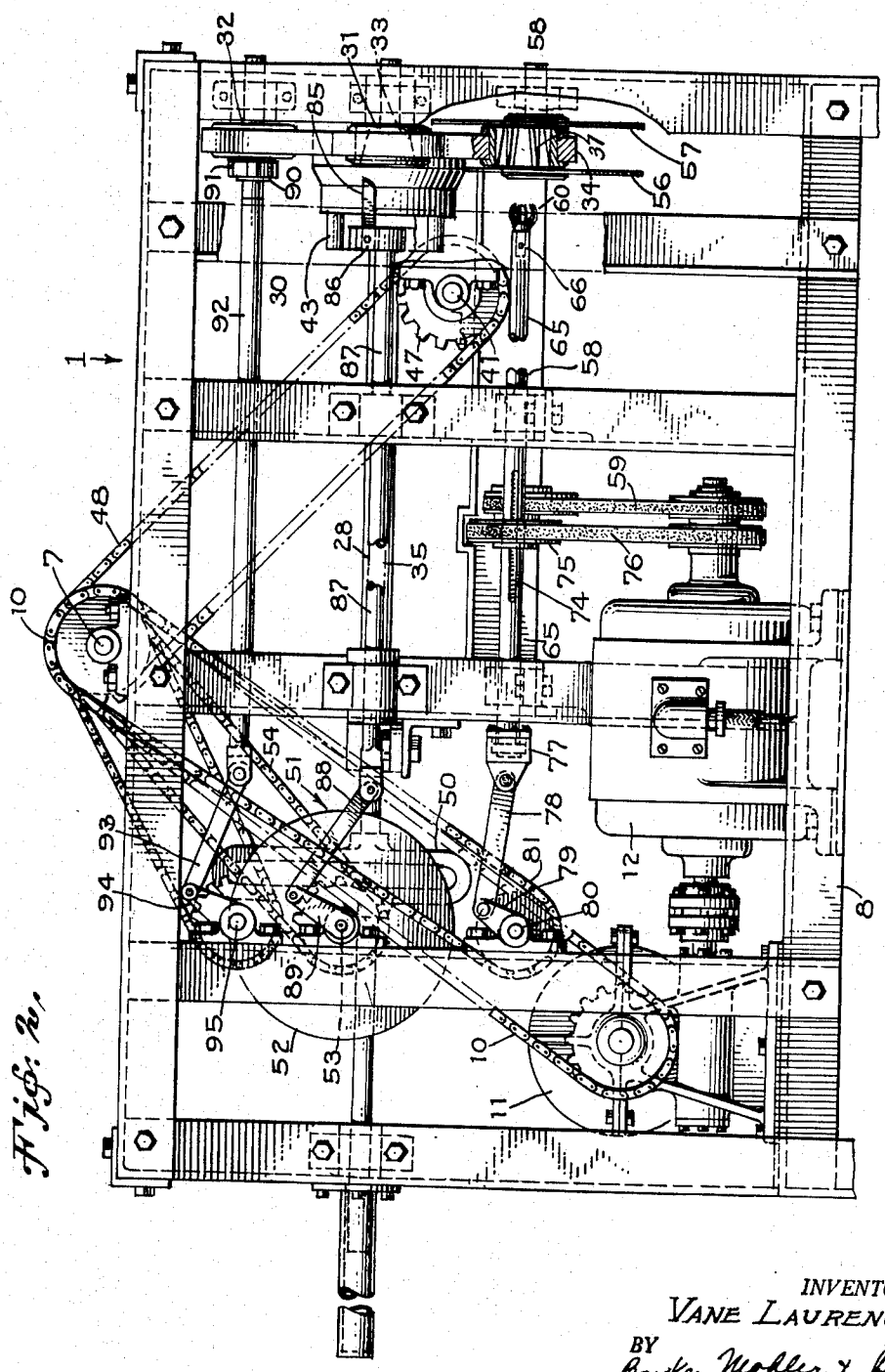


Fig. 2.

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APPARATUS FOR REMOVING THE HEARTS FROM ARTICHOKES AND METHOD

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Fig. 3.

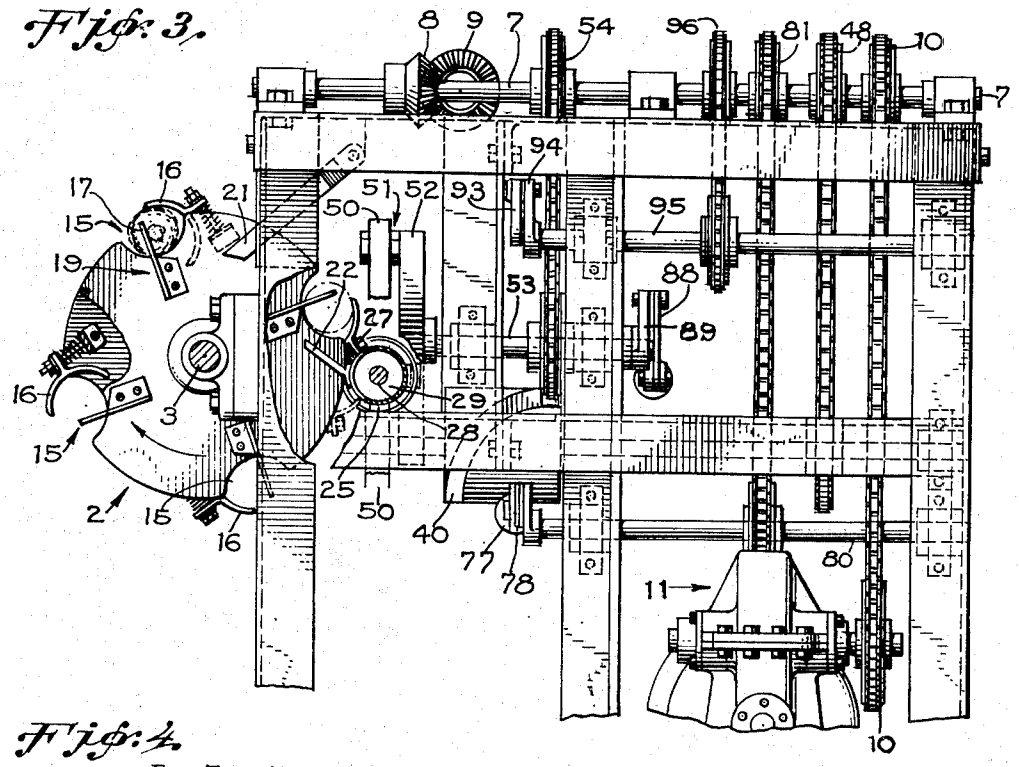
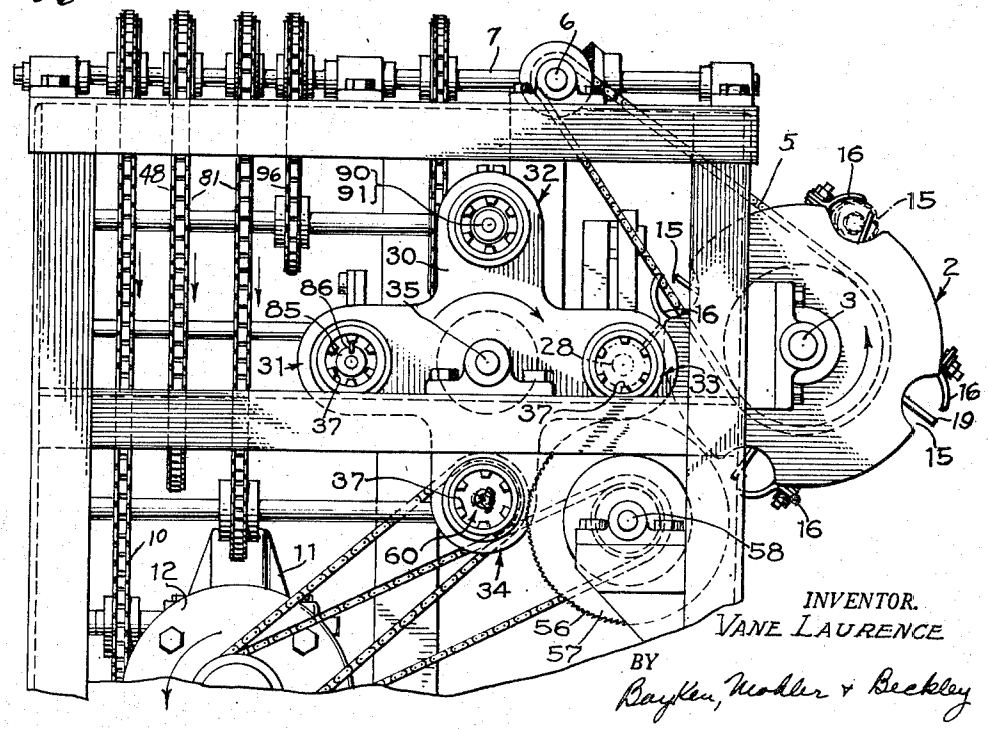


Fig. 4.



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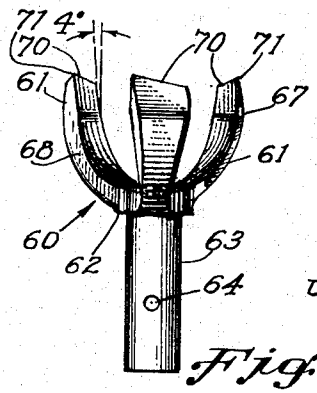


Fig. 5.

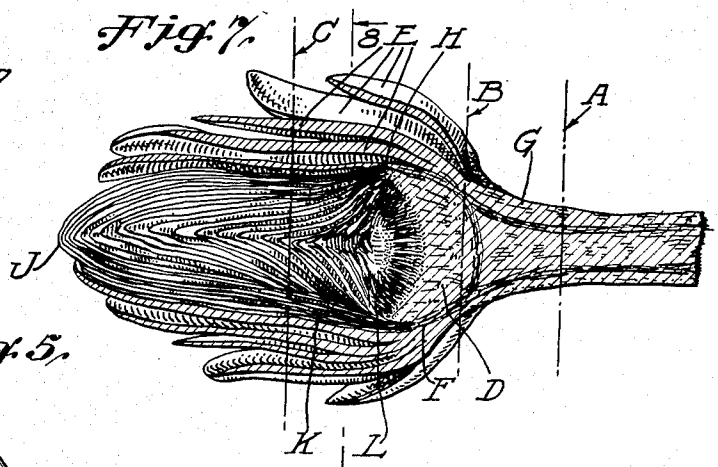


Fig. 7.

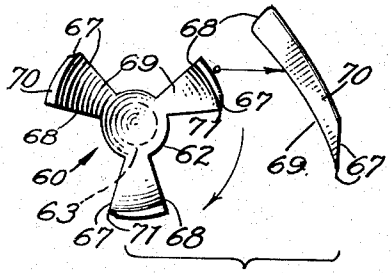


Fig. 6.

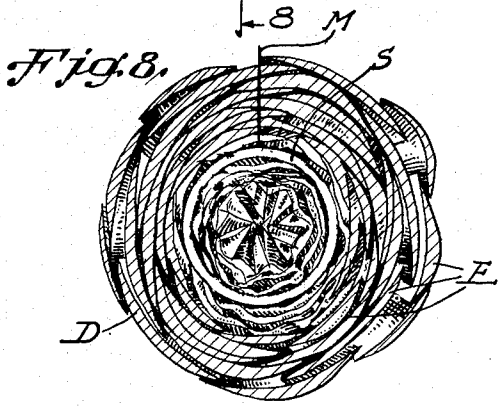


Fig. 8.

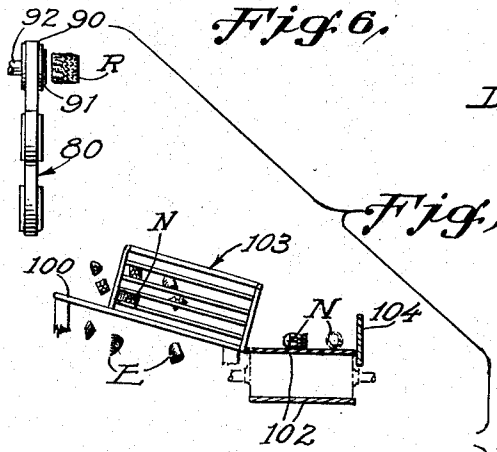


Fig. 10.

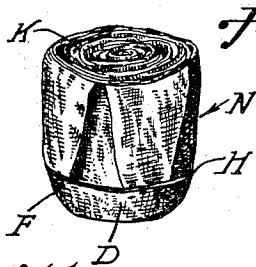


Fig. 9.

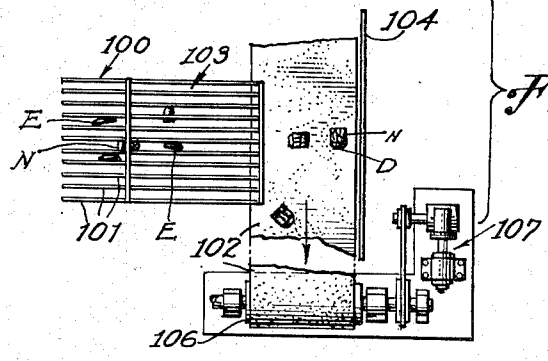


Fig. 11.

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UNITED STATES PATENT OFFICE

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APPARATUS FOR REMOVING THE HEARTS FROM ARTICHOKES AND METHOD

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Application January 23, 1951, Serial No. 207,290

6 Claims. (Cl. 146—238)

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The present invention relates to the art of removing the hearts from artichokes preparatory to canning such hearts. More particularly the invention is directed to a method and a mechanism for separating the heart, including the "button" or solid portion of the heart, and the tender inner leaves attached thereto, from the woody outer leaves and stem.

The principal object of the invention is the provision of a machine which will automatically perform the operations necessary to remove the hearts from artichokes more quickly and more economically than heretofore possible.

Another object is the provision of a method for carrying out the abovementioned operation which insures the removal of the complete heart and at the same time prevents inclusion of any undesirable outer leaves.

Other objects and advantages will be apparent from the following specification and from the attached drawings wherein:

Fig. 1 is a top plan view of the machine of the present invention with some portions broken away to show internal structure.

Fig. 2 is a side elevational view of the machine of Fig. 1 with portions broken away and in section to show structure.

Fig. 3 is a fragmentary end elevational view of the machine of Figs. 1, 2.

Fig. 4 is a fragmentary end elevational view of the machine taken from the end opposite that shown in Fig. 3.

Fig. 5 is a side elevational view of the cutter for severing the connection between the heart and the outer leaves.

Fig. 6 is a top plan view of the cutter of Fig. 5.

Fig. 7 is a longitudinal cross-sectional view through an artichoke showing schematically the processes accomplished by the invention.

Fig. 8 is a transverse cross-sectional view through the artichoke as taken along lines 8—8 of Fig. 7.

Fig. 9 is a perspective view of the heart removed from the artichoke ready for canning.

Fig. 10 is a semi-schematic fragmentary elevational view of the machine and showing schematically the method for separating the heart from the outer leaves and the conveyor means for carrying the heart to the canning station.

Fig. 11 is a plan view of Fig. 10.

The machine comprises a frame generally designated 1 which may be constructed of angle bars or the like. A feeding wheel generally designated 2 is supported in a vertical plane on a shaft 3 rotatably mounted on the frame 1. The

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shaft 3 is provided with a sprocket wheel 4 which is driven through a chain 5 from stub shaft 6 which in turn is driven by shaft 7 through bevel gears 8, 9. The shaft 7 extends transversely across the top of the frame 1 and is driven through chain 10 from a reducer 11 which is powered by motor 12. The motor 12 and reducer 11 are suitably supported on cross members of frame 1.

By the above described arrangement the feeding wheel 2 is driven at all times in the direction indicated by arrows in Figs. 3 and 4. The feeding wheel 2 is formed with a plurality of artichoke receiving pockets 15 which include spring urged arms 16 for yieldably holding the artichokes in said pockets. In operation an artichoke is manually placed in each of the pockets 15 by swinging the arm 16 outwardly of the pocket. The arm 16 will then retain the artichoke in the pocket in the position indicated in Figs. 1, 3, 4 in dotted lines with the central longitudinal axis of the artichoke horizontal. Fixedly secured to the feeding wheel 2 adjacent each of the pockets 15 is a stem centering device comprising a U-shaped member 19 having legs 17, 18 spaced slightly from the side of the wheel 2 from which the stems of the artichokes project. As best seen in Fig. 1, the artichoke is positioned with the stem extending between legs 17, 18 of the centering device so that the base, or butt-end of the heart is closely adjacent the side of the feeding wheel 2 and in a predetermined position with respect thereto. As will subsequently be explained in detail, the visual positioning of the artichoke in pocket 15 of wheel 2 should be carefully done as the position of the artichoke on wheel 2 determines what portions of the artichoke are removed by the subsequent operations of the machine. However, the legs 17, 18 of the centering member 19 and the side of the wheel establish reference elements and uniform positioning of all the artichokes with respect to the wheel is readily accomplished without much skill on the part of the operator.

Secured to the frame 1 is a stationary knife blade 21 which is adapted to engage the stem of the artichoke as the latter moves toward the frame 1 (Fig. 3). This knife 21 passes between the legs 17, 18 of the centering member 19 and severs the stem of the artichoke at a point spaced a predetermined distance from the butt-end of the artichoke. Thus it is seen that the centering member 19 also serves as a backing up member for holding the stem of the artichoke while it is being sheared by the knife 21.

After the wheel 2 has moved the artichoke past the knife 21 the artichoke is engaged by a pair of stationary arms 22, 23 (Figs. 1, 3) which straddle the wheel 2 urging the artichoke outwardly of the wheel against the resistance of the spring urged arm 16. These stationary arms 22, 23 are inclined to the vertical as shown in Fig. 3 and cause the artichoke to fall into a trough 25 Fig. 1. This trough preferably comprises an upwardly opening semi-cylindrical section of sheet metal or the like which may be fixedly secured in any suitable manner to the frame 1.

Rigidly secured to one end of trough 25 is a hollow tubular member 26 having a bottom portion which is an extension of the trough 25. At the end of the member 26 which is remote from trough 25 are a plurality of plates 27 which are spring urged inwardly of said member at all times. Positioned within the trough 25 is one end of a rod 28 which is adapted to be reciprocated, in a manner to be described, longitudinally of the trough 25 and the member 26. This rod is provided at said end with a cylindrical piston-like member 29 which is adapted to engage the stem end of the artichoke and move said artichoke along the length of the trough 25 and through the member 26 and out of the end of the latter which is provided with the spring urged plates 27.

Adjacent the end of the member 26 is a turret, generally designated 30 which is provided with an annular row of artichoke receiving chucks 31, 32, 33, 34 respectively (Fig. 4). The turret 30 is centrally secured to a shaft 35 which is rotatably supported on the frame 1 and which is parallel with the rod 28 and substantially in the same horizontal plane as the latter. Upon ejection of an artichoke from the member 26 such artichoke is received by one of the chucks on turret 30. These chucks 31–34 are provided with a central opening for receiving the artichoke and a plurality of radially inwardly projecting teeth 37 for engaging the outer periphery of the artichoke. It will be apparent upon movement of the rod 28 to the right in Fig. 1 that the artichoke within the trough 25 will be forceably ejected from member 26 and into the chuck 33 (Figs. 1, 4). In this connection, it will be noted that the function of the plates 27 is to engage the outer leaves of the artichoke so as to urge such leaves inwardly and thus permit insertion of the artichoke into the chuck 33 with the outer leaves of the artichoke held tightly against the body of the artichoke. It will be understood that the size of the chuck is predetermined to suit the particular grade of artichokes to be processed so that the teeth 37 forceably engage the outer leaves to hold the artichoke firmly in place.

The turret 30 is adapted to be rotated in a clockwise direction (Fig. 4) so as to bring the chucks 32, 31, 34 successively to the position occupied by chuck 33 in Fig. 4 for receiving the artichokes.

The turret is intermittently rotated by means of a conventional cylindrical cam 40 which is mounted on rotatable shaft 41 extending transversely of the machine and at right angles to the turret shaft 35. This cam 40 is provided with a groove 42 for successively receiving pins 43 which project outwardly and rearwardly of the turret 30. It is assumed in this connection that the turret 30 is at the forward end of the machine. These pins 43 are positioned in an annular row with the center of said row coincident with the central axis of the turret 30. When one of said pins 43 is in the groove 42 with the cam shaft

rotating in the direction indicated (Fig. 1) the turret 30 will be rotated in a clockwise direction as seen in Fig. 4 until the end 44 of cam is reached by said pin. At that time the next succeeding pin will be engaged by a shoulder 45 at the other end of the cam 40 so that the two adjacent pins will be held between the end 44 and shoulder 45 until the formation of the groove causes the second pin to be moved in clockwise direction. The cam 40 is preferably formed so that the turret 30 is stationary for about ½ revolution of the cam and is moving during the other ½ revolution. During the time the turret 30 is at rest the above described operation of inserting the artichokes into the chucks is performed and also the other operations which will subsequently be described. The turret is shown at rest in the drawings.

The cam shaft 41 is provided with a sprocket wheel 47 which is driven through chain 48 from a sprocket wheel 49 on the upper transverse shaft 7 hereinbefore referred to. In this manner the intermittent movement of the turret 30 may be suitably synchronized with the feeding wheel 2 since both are driven from the same shaft (Fig. 1).

The reciprocating rod 28 which feeds the artichokes into the chucks in turret 30 is connected at its end opposite the turret 30 with the yoke 50 of a scotch yoke generally designated 51. The wheel 52 of the scotch yoke is fixed to a shaft 53 extending transversely of the machine and rotatably supported on suitable bearings attached to the frame. The shaft 53 is driven from the upper shaft 7 by chain 54 so that the scotch yoke 51 will cause one complete reciprocating cycle of rod 28 during the time the feed wheel 2 rotates an amount equal to the spacing between pockets 15.

After an artichoke has been inserted into the chuck 33 of turret 30, the latter is rotated so that the chuck 33 moves past a pair of rotating saw blades 56, 57 which straddle the turret 30 so that the overhanging portions of the artichoke are severed from the remainder or central portion of the artichoke which is held within the chuck (Fig. 2).

Referring to Fig. 7 wherein a longitudinal cross-sectional view of an artichoke is schematically shown, the line A represents the cutting line of knife 21 hereinbefore described which severs a portion of the stem. Lines B and C designate the planes through which the artichoke is cut by saw blades 56, 57 respectively. In this connection it should be noted that only the heart of the artichoke is obtained by the present process and the outer leaves and stem are discarded and a suitable receptacle (not shown) may be provided for such waste material.

The saw blades 56, 57 are fastened to shaft 58 which in turn is rotatably supported on the frame 1. This shaft 58 is driven at all times by belt 59 (Fig. 2) from the output shaft of motor 12 so that the saw blades 56, 57 travel at a relatively high rate of speed.

After the artichoke has arrived at the position of chuck 34 in Fig. 4 and has come to rest by virtue of the action of cam 40 a cutter 60 is employed to sever the natural connection between the heart and the outer leaves of the artichoke. Referring to Figs. 7, 8 and 9 it will be seen that the "button" or butt end D of the artichoke is connected to the outer leaves E along its outer side F (Figs. 7, 9) and that the juncture between said butt end and the outer leaves extends circumferentially around the heart from the stem

G to a point H (Figs. 7, 9), at which point the connection with said outer leaves terminates.

Between the point H and the tip end J of the artichoke only the tender inner leaves K are connected to the heart and such inner leaves are contained within the outer heavy leaves and are connected to the inner portion L of the butt end. It is desirable that as much of the heart as possible be obtained for canning purposes, but at the same time it is essential that no portion of the outer leaves be included with the heart. The tender inner leaves K between planes B and C (Fig. 7) are of course desirable and remain connected to the butt end D of the heart when the heart is canned.

For separating the above described heart from the outer woody leaves I have formed the cutter 60 in a unique manner for accomplishing the desired purpose. This cutter 60 is adapted to be inserted while rotating, into the artichoke through the butt end for severing the outer leaves from the heart. The manner of actuating the cutter will subsequently be described.

Referring to Figs. 5, 6 it is seen that the cutter 60 comprises three identical cutting blades 61 secured together at their corresponding inner ends to a base 62 which in turn is formed with a shaft 63. The shaft 63 is provided with a hole 64 for securing the cutter to the driving shaft 65 to which it is connected as by pin 66 (Fig. 2).

The blades 61 extend generally axially away from the shaft 63 and slightly radially outwardly from the said shaft. Each blade 61 is formed with a sharpened leading edge 67 and a trailing edge 68 and the inner side 69 of each blade is generally spherical so that the blades generate an approximately cup-shaped solid of revolution during rotation. The tip end 70 of each blade is provided with a slight rake so that a sharp point 71 is formed at the outer end of the leading edge 67 of the blade. In operation this sharp point 71 is effective for cutting into the relatively tough woody portion of the outer leaves E adjacent the heart of the artichoke. It will be apparent as cutter 60 progresses into the artichoke that the curved leading edge 67 of the blades 61 will progressively cut into the heart of the artichoke to form the generally spherical sides F of the finished heart shown in Fig. 7. The length of the blades 61 is such that the tips 70 will pass beyond the point H (Figs. 7, 9) so that all of the outer woody leaves E will be severed from the heart. In this connection the point H in effect represents the maximum diameter of the heart and it is desirable that the cutter 60 be formed to such a size as to sever the outer leaves at this maximum diameter. The size of cutter 60 will therefore vary depending on the grade of artichoke to be run.

It is important that the blades of the cutter be formed so that they diverge outwardly at their outer ends and as best seen in Fig. 5 the leading edge 67 of the blades makes a slight angle (preferably about 4°) with the longitudinal axis of the cutter. By this structure, the cutter may be withdrawn from the artichoke without drawing the heart with it. It will be noted that the inner leaves K will tend to prevent withdrawal of the heart with the cutter. However, it should be understood that the inner leaves K are not connected with the adjacent outer leaves but are frictionally held against each other and against the ring of outer leaves by virtue of the radially inwardly directed pressure of the chuck in which the artichoke is held.

To further facilitate withdrawal of the cutter free from the heart the opposite faces of the blades diverge slightly from the leading edge to the trailing edge so that the blades in cross section are wedge-shaped (Fig. 6). By this structure, the outer leaves are forceably moved away from the heart as the cutting progresses and are compressed against each other and against the chuck in which the artichoke is held. It will be noted however that due to the spherical shape of the inner side 69 of the blades the artichoke heart is not compressed or deformed in any way. Thus not only are the outer leaves severed from the heart but said heart and leaves are forceably spaced apart by the cutter so as to form a space S (Fig. 8) between the heart and the adjacent outer leaves.

The cutter 60 is secured as above described to one end of the shaft 65 which is rotatably mounted on the frame 1 and also slidably mounted for axial movement for moving the cutter 60 into and out of the artichokes. The shaft 60 extends rearwardly of the machine and is provided intermediate its ends with a key 74 which engages a conventional key-way in a pulley 75. The pulley 75 is driven through belt 76 from the output shaft of the motor 12 (Fig. 2).

For the purpose of reciprocating the cutter shaft 65 I provide a socket bearing 77 (Fig. 2) at the end of the shaft 65 opposite the cutter 60. This socket bearing 77 is pivotally connected to one end of a connecting rod 78 and the other end of said rod is pivotally connected to the outer end of a crank 79 which is secured at its inner end to one end of a shaft 80. The shaft 80 is rotatably supported on the frame 1 and is driven through chain 81 from the upper shaft 7 hereinbefore described (Figs. 2, 3). Upon rotation of the crank 79 with shaft 80 the rotating cutter shaft 65 will be moved toward and away from the turret 30 to perform the operation above described. The key 74 on shaft 65 permits such reciprocatory movement during rotation of said shaft. By suitable sprocket arrangement the shaft 65 undergoes a complete reciprocatory cycle during ¼ rotation of turret 30, the working portion of said cycle coinciding with the rest period of the turret 30.

After the circumferentially extending juncture between the artichoke heart and the outer leaves has been severed by cutter 60 the next step is to cut the ring of outer leaves E which surrounds the heart. Line M (Fig. 8) represents the line of this cut which severs the ring of outer leaves E transversely of its length, or axially of the heart.

For this purpose I provide a reciprocating knife 85 which is adapted to engage the artichoke when it is in the position represented by chuck 31 of Fig. 4. This knife 85 is secured in any suitable holder 86 (Fig. 2) which in turn is secured to one end of a shaft 87. The shaft 87 is slidably mounted on the frame 1 and is pivotally secured at its opposite end to a connecting rod 88 which is actuated by a crank 89 on the end of shaft 53. This shaft 53 carries the wheel of the scotch yoke 51 hereinbefore described.

During each rotation of shaft 53 the knife 85 will be moved into and out of the turret to cut the ring of outer leaves E. It should be noted in this connection that the radially inwardly projecting teeth 37 in the chucks 31—34 are positioned so that the knife 85 will engage the outer leaves E at a point radially inwardly of one of the teeth so that the artichoke is compressed at

that point and the ring of leaves will be cleanly severed.

When an artichoke reaches the position of chuck 32 (Fig. 4) it is ejected from the turret by means of a piston 90 which is provided with a circumferentially extending row of outwardly projecting teeth 91 which are formed complementarily to the teeth of the chucks 31—34 so that the piston 90 completely cleans the interior of the chucks during ejection of the artichoke.

The piston 90 is fastened to one end of a shaft 92 which is slidably supported on frame 1 and the other end of the shaft 92 is pivotally connected to a connecting rod 93 driven by crank 94 on the end of shaft 95. Shaft 95 is rotatably supported on frame 1 and is driven by a chain 96 from the upper shaft 7.

After ejection of the artichoke from the turret 30 means is provided for releasing the heart from the outer ring of leaves E and automatically transferring the heart only to the canning station. Referring to Figs. 10, 11 R indicates an artichoke just after ejectment from the turret 30. Positioned under the turret 30 is a grating 100 on which the artichokes are adapted to fall. This grating comprises a plurality of coplanar rods 101 or the like which slope downwardly from the machine and terminate at their lower ends adjacent a conveyor 102. Over the grating 100 and secured thereto in any suitable manner is a cage 103. Upon striking the grating 100 the heavier heart portion N will bounce downwardly along the grating 100 and through the cage 103 into the conveyor 102; a suitable stop 104 may be provided alongside the conveyor 102 to keep the hearts N on the latter. The outer leaves E will be separated from each other and from the heart N by the impact of the artichoke on the grating 100 and will fall through the spaces between the rods 101, said spaces being large enough to prevent passing of the relatively larger hearts therethrough. It is pertinent to note in this connection that the outer leaves E form a ring or "wreath" around the heart but are not physically connected together in any manner. However, due to the fact that adjacent leaves of the ring of outer leaves E are complementarily formed so that a ring-like configuration is achieved it is necessary to cut the ring of leaves transversely of its length as above described to achieve a complete separation of all the leaves upon impact.

A plurality of machines such as the one hereinbefore described may be positioned alongside the belt 102 so as to discharge the hearts onto said belts. The belt may be driven at one end by a pulley 106 and any desired power unit 107 for the purpose of conveying the hearts to the canning station (not shown).

In connection with the transfer of the artichokes from the feeding wheel 2 to the turret 30 it will be noted that the hollow tubular member 26 is at the end of the trough 25 which is positioned between the feeding wheel 2 and the turret 30. Upon movement of an artichoke toward the turret 30 with its butt end trailing the outer leaves of the artichoke tend to open up upon engagement with any obstruction. For this reason, the plates 27 hereinbefore referred to are positioned at the end of the tubular member 26 adjacent the turret 30. These plates 27 project at one of their ends longitudinally of the tubular member 26 beyond the same and are slanted relative to the longitudinal axis of said tubular member so that their projecting ends extend toward said axis upon movement of the artichoke toward the turret 30 by virtue of the action of piston 29. These plates 27 urge the outer leaves inwardly against the body of the artichoke so that upon insertion of the artichoke into one of the chucks 31—34 the outer leaves will not spread outwardly. In this connection the teeth 37 of the chucks are tapered so that the gripping diameter of said teeth is greatest at the end of the chucks adjacent the tubular member 26 (Fig. 2). From this end the radially inwardly directed sides of the teeth are slantingly disposed with respect to the axis of the chuck so that a wedging action between the teeth and the artichoke is effected to hold the latter securely in the chuck.

Considering the steps of the method, independently of the machine itself, it is seen that artichokes are supported for movement in succession, and laterally thereof, along a predetermined path of travel with their stems projecting laterally from said path at the same side thereof. At a point along said path these stems are severed from the artichoke at the butt end thereof spaced from the heart, so that the remaining stem portions are all short and of substantially the same length, so that when the artichokes are pushed axially thereof from butt ends a uniform distance laterally of said path, as will be done, the hearts will occupy corresponding positions in a plane parallel with said path.

After the stems are severed, as above described, the artichokes are successively moved to a common transfer point where they are successively moved axially of their central axes and laterally of said path, with the severed faces of their butt ends trailing, a uniform predetermined distance to a pick up point where they are again moved laterally thereof along a third path of travel.

At a point along this third path of travel the outer leaves are severed from said heart substantially along the outer surface of said heart leaving an annular or wreath-like sheath of said outer leaves surrounding and enclosing said heart, but free therefrom. During this severance of said outer leaves the outer leaves are held around the heart and the latter is supported by said wreath-like sheath.

The next step in the method is the severance or splitting of this sheath axially of the central axis of the heart and sheath, or transversely of the annular or wreath-like sheath at one side of the heart. This step breaks the continuity of the annular sheath of outer leaves so that a relatively slight impact against the leaves will not only cause the leaves to separate from each other, but also from the heart.

The next step is the application of this impact, which preferably is accomplished by dropping the heart and its split sheath by gravity against a relatively hard surface.

Finally, the leaves that are so broken away from the heart are permitted to continue their fall by gravity and the hearts are deflected to one side where they are moved along a path of travel to a point for further processing.

The apparatus or machine, shown herein is the preferred one for carrying out the above described steps, although it is seen that the method itself is conceivable apart from the precise apparatus herein shown.

In this connection, it may be added that other machines have heretofore been designed for the intended purpose of removing the outer leaves from the heart. Attempts have been made to simultaneously punch out the heart and sever

the outer leaves therefrom at the same time after cutting off the stem and the outer ends of the leaves. Other attempts ignore the tender inner leaves, restricting recovery to merely a disc-like portion of the heart. The present method and machine not only effect a saving in the most desired portions of the artichoke and in the cost of obtaining said portions, but a more attractive product is obtained.

The present machine has been employed with great success throughout a canning season and its use has resulted in a greater economy than heretofore possible with other machines of like nature. The uniformity of the hearts produced enhances the salability of the product as does the clean manner in which the unused portions are separated from the heart.

It should be understood that the machine herein described in detail is not to be taken as restrictive of the invention, but only as a preferred form thereof. Obviously various changes of a design nature may be made without departing from the scope of the invention defined in the following claims.

I claim:

1. The method of separating the hearts from the outer leaves of artichokes that comprises the steps of: successively moving artichokes axially of their longitudinal axes along a predetermined path of travel a uniform distance from a starting point to a common transfer point with their butt ends trailing, then moving said artichokes laterally and successively from said transfer point along a common path of travel and severing the outer leaves at their butt ends from said heart at a point in said path, thereby forming an annular sheath of said leaves around said heart in substantially undisturbed relationship to each other, supporting said heart within said sheath, splitting said sheath longitudinally of its axis at one side thereof while so supporting said heart and then loosening the said leaves from each other and from said heart by impact.

2. In a machine for removing the outer leaves of an artichoke from its heart, a support for supporting said artichoke for movement axially of its longitudinal axis along a path of travel substantially in alignment with said axis, with its butt end trailing, leaf engaging means positioned at a point along said path for yieldably engaging said outer leaves at points around the artichoke for compressing said leaves against said heart, a centrally open holder adjacent said leaf engaging means having elements thereon for holding said artichoke with its said outer leaves compressed against said heart, means for moving said holder away from said leaf engaging means, and cutters respectively spaced from said leaf engaging means supported for movement into said artichoke when the latter is so moved away from said leaf engaging means and is in said holder for severing said outer leaves from said heart at points adjacent said heart to thereby provide an annular sheath of severed leaves around said heart and for splitting such sheath at one side of said heart transversely thereof.

3. A machine for removing the outer leaves of an artichoke from the heart comprising: a carrier having spaced artichoke engaging means for respectively holding an artichoke therein with its stem projecting therefrom for movement along a path transversely of such stem, means adjacent said carrier for severing said stem adjacent said heart, transfer means for receiving each artichoke from said carrier after said stem has been removed, means for ejecting each such artichoke from said carrier onto said transfer means, means for moving each artichoke on said transfer means at a discharge point therealong, artichoke holders movable past said discharge point formed to receive each artichoke discharged from the latter and each holder including leaf engaging elements adapted to hold each artichoke with its outer leaves compressed against its heart at points therearound, means for moving said holders along a path away from said discharge point upon an artichoke being moved into each holder whereby said artichokes will be carried along said path, means at spaced points along said path for respectively severing the ends from each artichoke in each holder and for severing the outer leaves from said heart and for splitting the sheath formed by said outer leaves around said heart longitudinally of the axis of said heart.

4. In a machine for removing the outer leaves of an artichoke from its heart, transfer means comprising an elongated receiver for receiving an artichoke therein with the axis of said artichoke extending longitudinally of said receiver, power means for moving said artichoke longitudinally of said receiver with the butt end of said artichoke trailing, a tubular member adjacent said receiver for receiving said artichoke therein, artichoke engaging elements on said member slantingly disposed relative to the axis of said member and projecting radially inwardly of said member for urging the outer leaves of said artichoke against the body of the artichoke, and a tubular holder adapted to receive said artichoke from said member when said artichoke is so moved by said power means.

5. In a machine for removing the outer leaves of an artichoke from its heart, transfer means comprising an elongated receiver for receiving an artichoke therein with the axis of said artichoke extending longitudinally of said receiver, power means for moving said artichoke longitudinally of said receiver with the butt end of said artichoke trailing, a tubular member adjacent said receiver for receiving said artichoke therein, artichoke engaging elements on said member slantingly disposed relative to the axis of said member and projecting radially inwardly of said member for urging the outer leaves of said artichoke against the body of the artichoke, and a tubular holder adapted to receive said artichoke from said member, when said artichoke is so moved by said power means, said holder comprising a plurality of radially inwardly projecting teeth adapted to frictionally engage the outer leaves of said artichoke, said teeth being tapered with their radially inwardly directed sides slantingly disposed relative to the axis of said holder.

6. Apparatus for the described purpose comprising: a chuck having a central opening for holding an artichoke around the outer periphery of the annular ring of outer leaves of said artichoke, reciprocating means for inserting an artichoke into said chuck, a pair of cutting elements for cutting said artichoke transversely of its central axis at spaced points along said axis defining the ends of the heart of said artichoke, a cutter for severing said outer leaves from said heart at the circumferentially extending juncture between said heart and said outer leaves, means for moving said cutter in a direction longitudinally of said axis of said artichoke into the latter, means for rotating said cutter about said axis

for so severing said juncture during said movement and means for removing said cutter from said artichoke, a knife supported for reciprocatory movement into said opening for cutting said ring transversely of its length and means for removing said heart and ring from said chuck.

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