

G. W. ZASTROW.
MACHINE FOR TREATING PINEAPPLES.
APPLICATION FILED AUG. 31, 1907.

925,150.

Patented June 15, 1909.

3 SHEETS—SHEET 1.

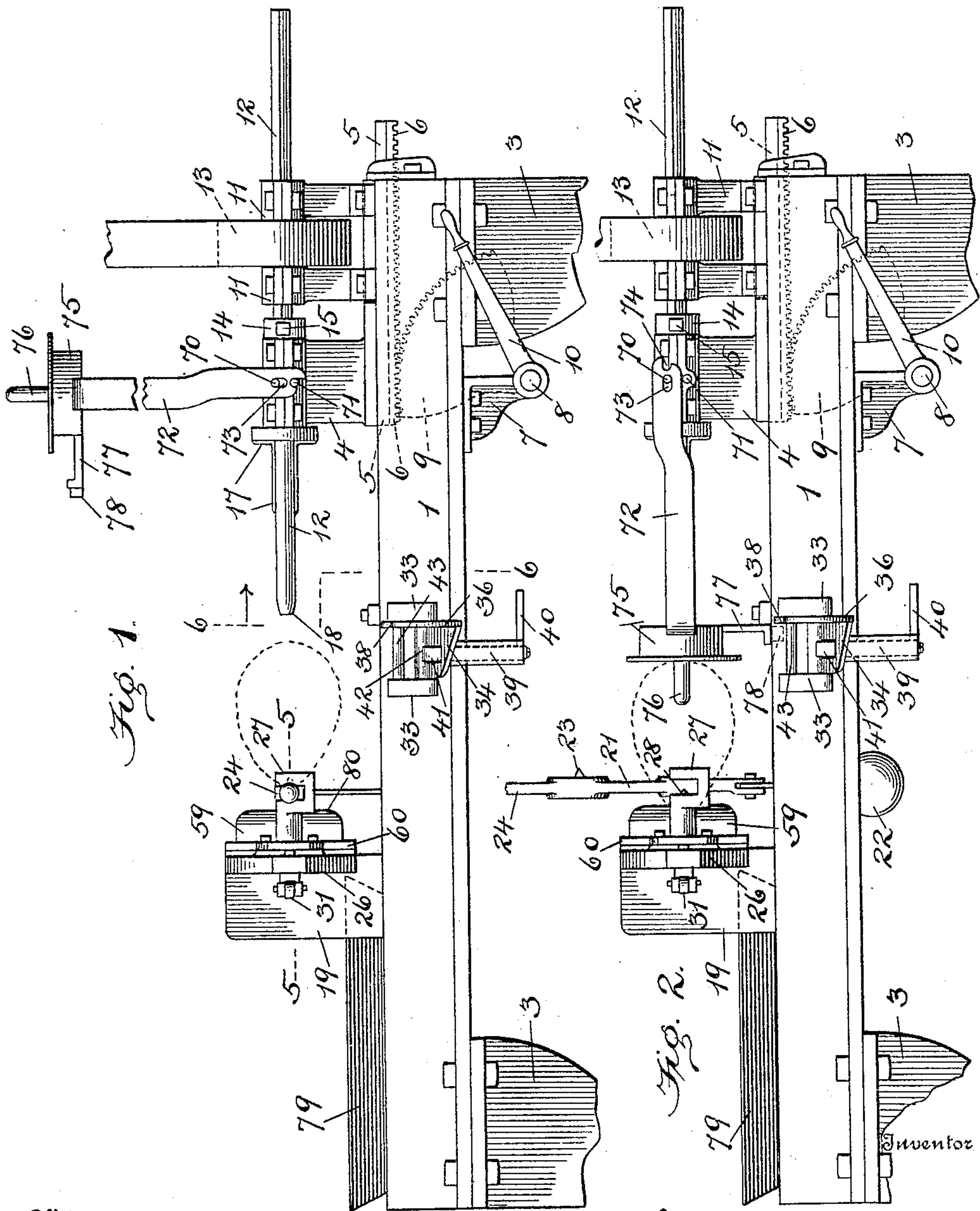


Fig. 1.

Fig. 2.

Witnesses

Edwin L. Bradford
G. Ferd. Vogt.

334

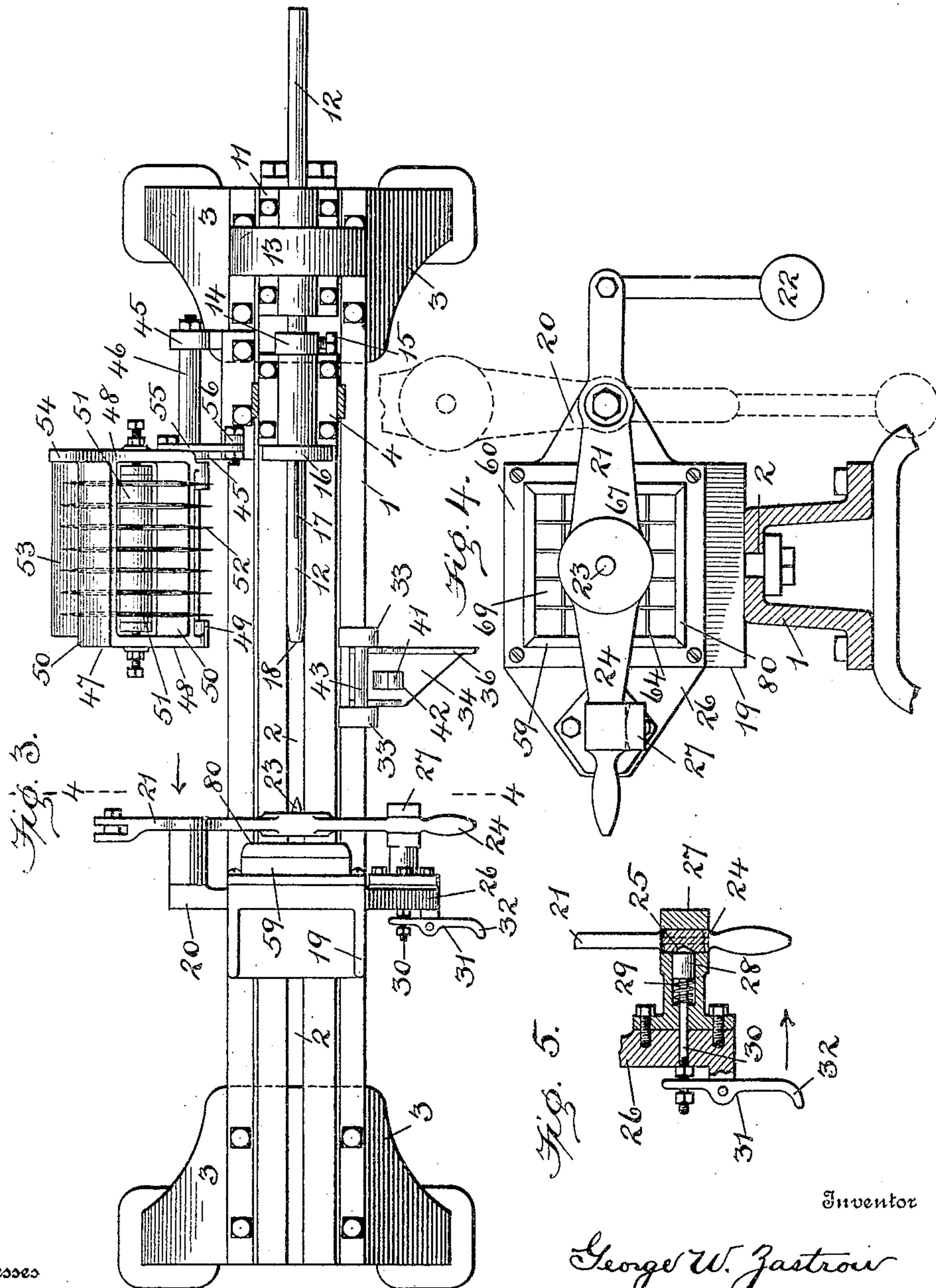
George W. Zastrow
Mann & Co.,
Attorneys.

G. W. ZASTROW.
MACHINE FOR TREATING PINEAPPLES.
APPLICATION FILED AUG. 31, 1907.

925,150.

Patented June 15, 1909.

3 SHEETS—SHEET 2.



Witnesses

Edwin L. Bradford
G. Ferd. Vogt.

Inventor

George W. Zastrow
Mann & Co.,

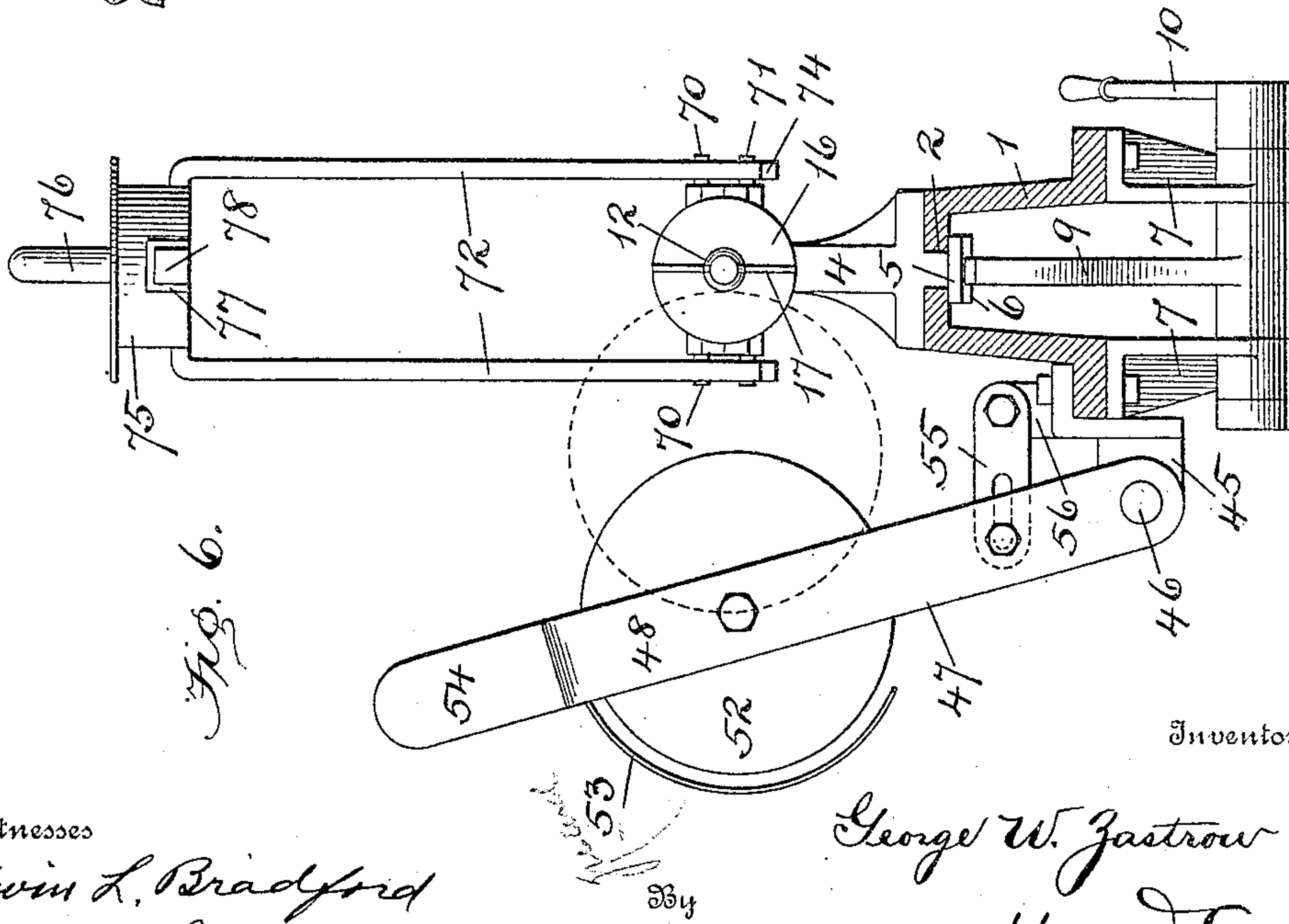
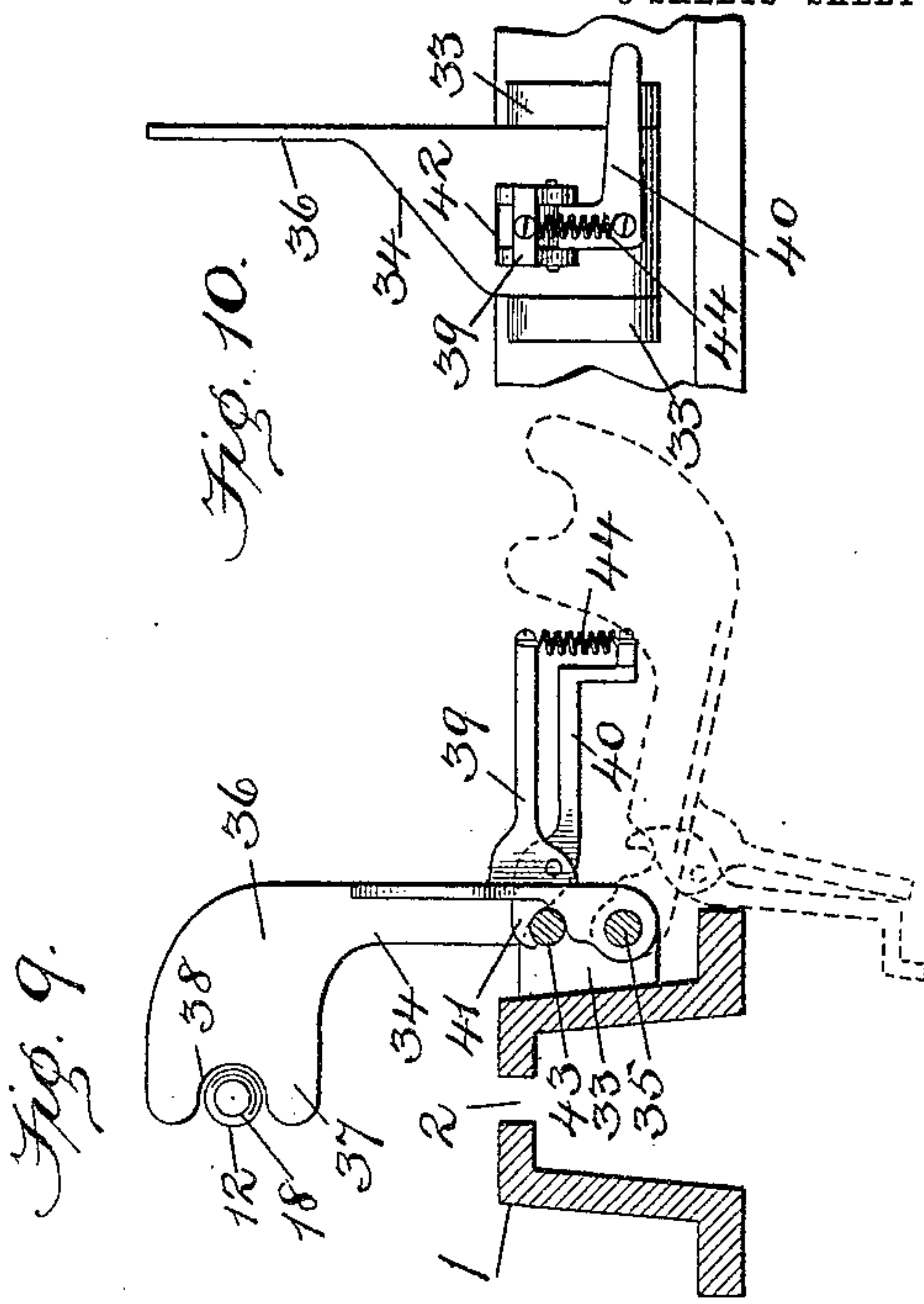
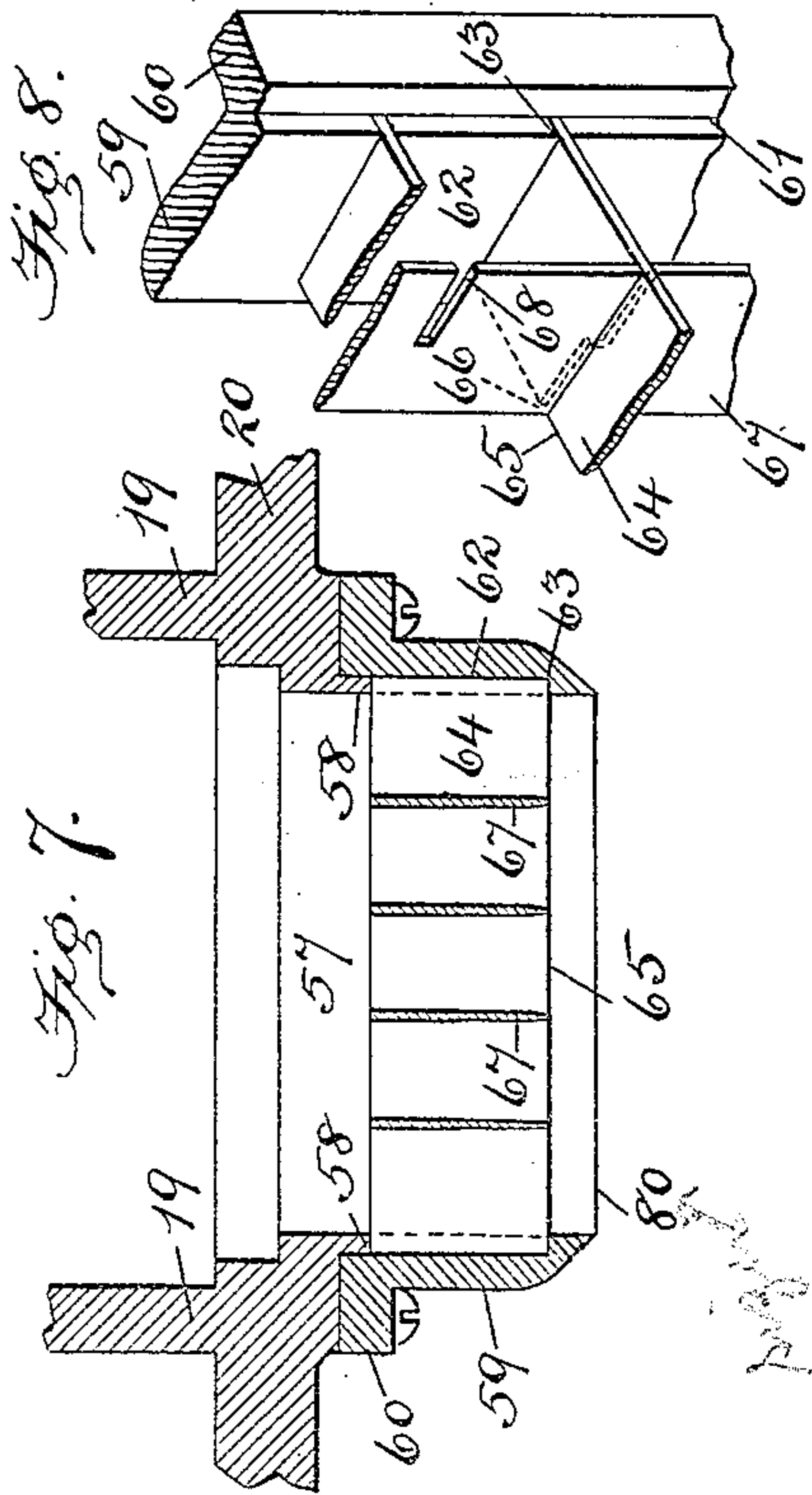
Attorneys.

G. W. ZASTROW.
MACHINE FOR TREATING PINEAPPLES.
APPLICATION FILED AUG. 31, 1907.

925,150.

Patented June 15, 1909.

3 SHEETS—SHEET 3.



Witnesses
Edwin L. Bradford
J. Ferd. Vogt.

Inventor
George W. Zastrow
Mann & Co.,
Attorneys

UNITED STATES PATENT OFFICE.

GEORGE W. ZASTROW, OF BALTIMORE, MARYLAND.

MACHINE FOR TREATING PINEAPPLES.

No. 925,150.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed August 31, 1907. Serial No. 390,870.

To all whom it may concern:

Be it known that I, GEORGE W. ZASTROW, a citizen of the United States, residing at Baltimore, in the State of Maryland, have
5 invented certain new and useful Improvements in Machines for Treating Pineapples, of which the following is a specification.

This invention relates to improvements in machines for treating fruit, such as pineap-
10 ples, to prepare them for canning.

The improvements are shown as applied to a type of machine illustrated and described in Letters Patent of the United States Number 805,178 granted to me No-
15 vember 21st, 1905 in which the pineapple is cored, then sized and sliced.

The present invention differs from the devices shown in my said former invention both in construction and operation and has
20 among its objects to provide an improved construction of machine that will core the pineapple, then slice the cored apple and finally force the sliced apple through stationary cutter-blades to cut the slices into
25 blocks or shapes.

The invention consists in the improved construction, combination and arrangement of the devices to quickly perform the several steps in the operations on the pine-
30 apple.

The invention is illustrated in the accompanying drawings in which,—

Figure 1, illustrates a side elevation of the improved machine with the slicing device removed, the parts being in position to perform the coring operation on the pineapple. Fig. 2 shows another side elevation of the machine also with the slicing device removed but with the parts in the position
40 they assume at the beginning of the cubing operation. Fig. 3 illustrates a plan view of the machine. Fig. 4 shows a vertical sectional view through the machine,—the section being taken on the line 4—4 of Fig. 3
45 looking in the direction of the dart. Fig. 5, illustrates a horizontal sectional view through the spring latch device that holds the centering bar in the operative position,—said sectional view being taken on the line
50 5—5 of Fig. 1. Fig. 6, shows a vertical sectional view of the device for feeding the pineapple through the cubing device and also an end elevation of the slicing cutters,—this section being taken on the line 6—6 of
55 Fig. 1 looking in the direction of the dart. Fig. 7, illustrates a horizontal sectional view

through the cubing device to show the cutter blades. Fig. 8, shows an enlarged perspective detail of the cubing cutter blades. Fig. 9, illustrates the stop device against
60 which the end of the cored pineapple is placed during the operation of forcing it over the coring tube to the slicing position, and Fig. 10, shows a side elevation of the same.
65

Referring to the drawings by numerals, 1, designates the bed of the machine, which in the present instance consists of a hollow casting with a central longitudinal slot, 2, in its top and this bed is supported on suit-
70 able legs, 3.

A carriage or head, 4, is supported on top and at one end of the bed and is provided with a bottom guide rib, 5, which projects down into the slot of the bed and said car-
75 riage is movable on said bed, being guided thereon by the rib, 5. A rack, 6, is provided on the bottom of the guide rib and therefore has position within the hollow bed, as plainly seen in Fig. 6.
80

Beneath the bed and secured to the latter there is provided a bracket bearing, 7, which supports a horizontal shaft, 8, and a segment gear, 9, is carried on this shaft which latter may be oscillated by a hand lever, 10,
85 on the outer side of the bed. By oscillating the shaft, 8, through the movement of the hand lever the carriage or head, 4, may be moved back or forth on top of the bed.

Bearings, 11, are rigidly mounted on the
90 end of the bed and a tubular shaft, 12, extends through the said bearings and also through the carriage or head, 4. This tubular shaft is revoluble in both the head, 4, and the bearings, 11, and while it has no
95 lengthwise movement with respect to the head it is capable of longitudinal movement through the said bearings. Thus it is to be understood that the shaft moves with the head.
10

A pulley, 13, is mounted on the shaft, 12, between the bearings, 11, and by means of an ordinary spline and feather connection the pulley and shaft may be revolved with-
10 out interfering with the longitudinal move- ment of the shaft.

In order to prevent the shaft from moving lengthwise through and independently of the head, I provide a collar, 14, at one side of the head which is secured to the shaft
11 by means of a set screw, 15. At the other side of the head the tubular shaft is pro-

vided with a stop disk or circular head, 16, which is rigid with respect to and revolves with the shaft. By means, therefore of the disk, 16, and the collar, 14, at opposite sides of the head the shaft is prevented from moving lengthwise independently of the head.

By reference to Figs. 1 and 6 it will be noted that the disk, 16, and the shaft adjacent thereto are provided with ribs, 17, which latter by being embedded in the pineapple, serve to impart a rotary movement to the latter during the slicing operation, as will presently be fully described.

The extreme inner end of the tubular shaft is provided with a cutting edge, 18, for the purpose of cutting its way around the core of the pineapple.

The first operation of the machine is to remove the core of the pineapple by forcing the cutting edge, 18, of the tubular shaft through the apple. In order to facilitate this operation I find it preferable to employ a suitable centering device which will serve both as a stop or abutment for the end of the pineapple and at the same time as a centering means therefor, and this device is interposed between the cubing device, which is to cut the pineapple into blocks, and the end of the coring tube or shaft. A similar device is shown in my former patent 805,178 hereinbefore referred to but from experience I have found how to simplify the construction of the device therein shown in order that the same may be operated by one hand, both in placing said device in position and in releasing it to permit its removal from the path of the coring tube.

By reference to Figs. 1, 2, 3, 4 and 5 it will be seen that this centering stop device has position in front of and in the present instance is supported from the casing, 19, of the cubing device. In the present instance a bracket, 20, projects laterally from the vertical side of the casing and to this bracket I pivot a bar, 21, so as to permit the same to be swung in a vertical plane in front of the casing. A weight, 22, is provided at one end of the bar, 21, in order that the latter may automatically be moved to a vertical position when its operating end is released. At the center or in line with the end of the coring tube, this bar, 21, is provided with pointed centering pin, 23, while at its operating end, 24, said bar has a conical cavity, 25, in its vertical side. A bracket, 26, projects laterally from the side of the casing adjacent the operating end of the bar and an arm, 27, is bolted to said bracket and projects laterally therefrom. The end of this arm, 27, is provided with a vertical cross-slot which latter receives the operating end, 24, of the bar, 21, and a conical bolt, 28, projects through the wall of the arm and into the conical cavity, 25. In order to keep the bolt, 28, pressed

forward a spring, 29, is provided which fits into a recess behind the bolt and presses outwardly against the latter. A stem, 30, projects freely through the bracket, 26, and also through the arm, 27, and has its inner end connected with the bolt while the outer end of said stem is provided with screw threads and nuts for the purpose of adjusting the throw of the stem and bolt. A lever, 31, is pivoted to the outer end of the bracket, 26, and its inner end engages the stem, 30, so that by moving the free end, 32, of the lever the bolt will be withdrawn and the bar released. Upon releasing the free end of the bar, 21, the weight 22, at the opposite end will cause said free or operating end to swing upward to a vertical position and out of the path of the coring tube. By merely pulling the bar down again it will ride over the conical bolt until the latter enters the cavity therein. It will thus be seen that with one hand the operator can either engage or release the operating end of the bar, 21. After the pineapple has been centered by having its core forced over the pin, 23, the operator will support the pineapple with the left hand so the core will aline with the coring tube, while with the right hand the lever, 10, is oscillated to cause the gear, 9, to move the carriage or head, 4, and coring tube or shaft, 12, toward the centering pin, 23. During the travel of the tube through the pineapple it will be understood that the tube is being revolved but the pineapple is held against revolution by being pressed against bar, 21, and the tube will readily cut its way around the core of the pineapple. During this operation the cutting edge, 18, of the tube is driven entirely through the center of the pineapple and the core thereof will pass through the tube while the pineapple to be sliced and cubed will remain around the exterior of the tube. The carriage or head is then retracted by a reverse movement of the lever, 10, and as the coring tube or shaft travels backward it carries the pineapple with it.

The operation would leave the cored pineapple on the outer smooth end of the tube in front of the ribs, 17, and while in this position the pineapple would be loose on the shaft and would not be positively revolved with the latter. To effect the next operation on the pineapple, which is the slicing operation, it is desirable that the apple be revolved, and to effect this I provide means for forcing the pineapple backward on the tubular shaft so that it may be engaged and positively revolved by the ribs, 17, on the shaft and disk, 16. The device for forcing the pineapple rearwardly on the shaft will therefore now be described, reference being made particularly to Figs. 1, 9 and 10. Spaced apart stationary lugs, 33, are provided at the side of the bed and in a vertical plane imme-

diately in front of the tubular shaft and a swinging bracket, 34, is pivotally mounted on a rod, 35, between said lugs. The bracket is provided at one side with a broad flat plate or arm, 36, which, when the bracket is in the operative position, extends vertically from the side of the bed and has its upper end, 37, curved inwardly so as to project over the upper surface of the bed. The edge of this arm-end, 37, is provided with a concave recess, 38, which registers with, receives and partly surrounds the tubular shaft when in the raised position as shown in Fig. 9.

In order to maintain the arm, 36, in the elevated position during the operation of forcing the pineapple rearwardly on the tubular shaft I have provided a clamp device which comprises an arm, 39, rigid with, and projecting laterally from the side of the bracket, 34, and a clamping bar, 40, pivoted to the arm, 39, and having a finger, 41, that projects through a slot, 42, in the bracket. A horizontal rod, 43, is supported between the two lugs, 33, and the finger of the clamping bar, 40, engages this rod and holds the bracket in the vertical operative position. A spring, 44, serves to keep the finger, 41, in engagement with the rod.

After the pineapple has been cored and the tube on which the pineapple is carried has been retracted to a point beyond the swinging bracket, 34, which latter is then down as shown in Figs. 1, 2 and 3, the said bracket is then raised so that the flat plate, 36, will form an abutment at the end of the tubular shaft. While the bracket is in this elevated position the lever, 10, is moved to cause the shaft and head to again travel forward and in making this movement the plate, 36, will contact with the pineapple and hold it against forward movement while the ribs, 17, are embedded in the apple and cause the latter to revolve with the shaft,—the plate, 36, being flat will in no way prevent the apple from revolving with said shaft. When the shaft has been moved sufficiently to cause the apple to seat against the disk, 16, the bracket, 34, is released and dropped, and the shaft with the revolving pineapple thereon is returned toward the pulley, 13. The pineapple, at this point in the operation, will be revolving with the tubular shaft and while it is thus traveling I provide means for slicing it prior to the final operation of cutting it into cubes. The slicing mechanism will now be described.

At the side of the bed and adjacent the bearings, 11, are bracket bearings, 45, as seen in Figs. 3 and 6. A horizontal rod, 46, is supported in the bearings, 45, and extends in a direction parallel with the tubular shaft, 12, and a cutter carrying frame, 47, is mounted on said rod at the side of the bed. This cutter frame comprises parallel side bars, 48, having bearings, 49, at their

lower ends which fit over the rod, 46, and horizontal cross-bars, 50, that connect the upper and lower ends of said side bars.

A cutter shaft, 51, is supported by the frame, 47, and has position between the side and cross bars thereof and a plurality of cutter blades, 52, of any suitable form but which in the present instance are circular disks are mounted on said shaft, 51, so as to have position between the upper and the lower cross bars. A curved plate, 53, extends from the upper cross bar downwardly and partly around the cutters to serve as a guard or fender for the cutters while a hand grasp, 54, is provided at the upper end of one of the side bars to permit the frame and cutters to be rocked on the rod, 46. A link, 55, connects the frame, 47, with a lug, 56, on the bed and limits the rocking movement of the frame.

The operation of slicing the revolving pineapple is simple and as follows: Immediately upon the return of the tubular shaft, 12, with the revolving pineapple thereon to the position shown in Fig. 3, the operator will take hold of the hand grasp, 54, and draw the frame, 47, and cutters carried thereby toward the pineapple on the shaft. As the pineapple revolves the cutters which upon contacting with the pineapple will revolve and enter the pineapple from the side and make a series of uniform spaced-apart circumferential cuts therein. These circumferential cuts in the pineapple do not extend entirely to the center but leave a slight film adjacent the hole made by the coring tube so as to hold the slices together during the subsequent operation. After the slicing operation the pineapple is to be cut into cubes.

By reference to Figs. 1, 3, 7 and 8 it will be noted that the casing, 19, has the form of a hollow block with an opening, 57, at the front and has a vertical flange, 58, at opposite sides thereof as seen in Fig. 7. A frame, 59, fits around the opening, 57, of the casing and is provided with a flange, 60, by means of which it may be secured to said casing. At opposite sides and at the rear thereof this frame is provided with a vertical recess 61 which when the frame is in position around the opening, 57, receives the flanges, 58, on the casing. The inner wall, 62, of the frame is provided with parallel slots, 63, which extend from the rear toward the outer side thereof. Cutter blades, 64, slide horizontally into the slots in opposite sides of the frame and said blades are provided along their cutting edges, 65, with spaced apart slots, 66, which slots extend half way across the width of the blades. Vertical blades, 67, are also provided in the frame, 59, and these blades are also provided with slots, 68, which extend from their rear side forward. These slots also extend half way

through the blades. By reference to Fig. 8 it will be seen that the slots, 66, of the horizontal blades, and the slots, 68, of the vertical blades are brought into register so that one blade by overlapping half way onto the other will cause the vertical edges of the blades to become flush so that when all of the blades are in position in the frame and the latter is secured to the casing, 19, the flanges, 58, will retain the blades from backward movement, as seen in Fig. 7. When all the blades are in position in the frame the spaces between the blades will be in the present instance square as seen clearly at, 69, in Fig. 4. It is the shape of these spaces that determines the shape of the pineapple after the final cut. The frame, 59, has a sharp cutting edge, 80, around the opening in which the sliced pineapple is to be forced during the cubing operation and this cutting edge serves to size the pineapple as the latter is forced through the opening adjacent said edge. In order to make the final cut, the sliced pineapple must be forced through the spaces between the cutter blades and to do this effectually I provide a device against which the sliced pineapple is placed that will push it over the cutters.

Referring to Figs. 1, 2 and 6 it will be seen that the head or carriage, 4, is provided at each side with two pins, 70, and, 71, the pins, 70, being in a vertical plane over the pins, 71. Parallel arms, 72, are provided at their lower ends with slots, 73, through which the pins, 70, project so as to pivotally connect the arms, 72, with a portion of the head or carriage. The extreme lower ends of the arms, 72, are provided with notches, 74, which, when the arms are raised, as in Fig. 1, will receive the lower pins, 71, and thus hold the arms in a raised or vertical position and prevent them from falling during the movement of the carriage back and forth in the previous operations. The ends of the arms, 72, support a circular head, 75, from the outer surface of which a prong, 76, projects, and at one side the head carries a supporting bar, 77, which is provided with a lug, 78, at its end. Assuming the arms, 72, and head, 75, to be in the position shown in Fig. 1, in order to lower them it is only necessary to first raise them slightly to disengage the notch, 74, from the lower pin, 71, whereupon said arms and head may be swung downward until the head has position in front of the tubular shaft, 12. When in this lowered position the lug, 78, on the bar, 77, will project into the slot, 2, of the bed while the end of said bar will rest upon said bed and sustain the head and arms in the horizontal position shown in Fig. 2.

Immediately before the lowering of the head, 75, the operator will slide the sliced pineapple off from the tubular shaft and hold the same in the hand the thin film left

by the circular cutters serving to hold the slices together during their removal from the shaft. The head is then lowered and when in the horizontal position the end of the cored and sliced pineapple is fitted over the prong, 76,—the operator however sustaining the connected slices by one hand while with the other hand the lever, 10, is again drawn forward to impart a forward movement to the carriage, 4, and a similar movement to the arms, 72. During this forward movement of the arms, the lug, 78, will travel in the slot of the bed and guide the forward end of the arms and also the head in a horizontal line as they travel toward the cutter blades and force the sliced pineapple through the spaces, 69, to cut them into cubes or other shapes that will be discharged at the rear of the casing, 19, where they drop into a suitable receptacle, 79, beyond the cutters.

It should be understood that the cutter blades, 64, and, 67, may be arranged with respect to each other to cut the pineapple into shapes other than cubes.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is,—

1. In a machine for treating pineapples the combination with a bed, of a coring tube mounted so as to move longitudinally on the bed; means for holding the pineapple; a plurality of spaced-apart circular cutters at one side of the coring tube for slicing the pineapple, and cutters beyond the holding and slicing cutters for cutting the sliced pineapple into shapes.

2. In a machine for treating pineapples the combination with a base, of means for holding and centering the pineapple; a coring tube for entering the pineapple; means for moving the coring tube toward and from the holding means; a plurality of slicing cutters at the side of the coring tube; means for revolving the tube and pineapple; means for bringing the slicing cutters into contact with the revolving pineapple, and means for cutting the sliced pineapple into shapes.

3. In a machine for treating pineapples the combination with a base, of means for holding the pineapples; a coring tube movable above the base and toward the holding means; a plurality of cutters at one side of the coring tube and one of said two latter devices being revoluble with respect to the other; means for moving the cutters toward the coring tube to slice the pineapple, and means on the base and beyond the coring tube for cutting the sliced pineapple into shapes.

4. In a machine for treating pineapples the combination with a base, of a tubular coring shaft sustained above the base; means for revolving said shaft; means in advance of the shaft against which the pineapple

may be placed; means for forcing the revolving shaft through the pineapple to core it; circular cutters at the side of the shaft for slicing the cored pineapple; means for cutting the sliced pineapple into shapes, and means for forcing the sliced pineapple over the latter cutters.

5. In a machine for treating pineapples the combination with a base, of a rotary and longitudinally movable coring tube sustained by the base; a bar pivotally sustained so as to extend crosswise of said tube and against which the pineapple may be seated; means at the side of the rotary tube for slicing the pineapple, and means also sustained by the base beyond the pivoted bar for cutting the sliced pineapple into shapes.

6. In a machine for treating pineapples the combination with a base, of a rotary and longitudinally movable tube sustained above the base; a bar pivoted with respect to the base so as to extend in front and crosswise of said tube; means whereby the bar may be moved from in front of said tube, a plurality of cutters at the side of the rotary tube for slicing the pineapple and means for moving the cutters toward the tube.

7. In a machine for treating pineapples the combination with a base, of a coring tube; stationary cutter blades in front of the tube; means movable between the stationary cutters and the tube for centering the pineapple during its attachment to the tube, and means movable into position between the

35 tube and cutter blades for forcing the pineapple past the stationary cutters.

8. In a machine for treating pineapples the combination with a base, of a coring tube sustained above and movable longitudinally with respect to the base; a bar pivotally sustained in front of the coring tube and against which the pineapple may be seated during the coring operation; cutter blades above the base and beyond the bar, and means movable into position between the tube and cutter blades for forcing the pineapple over the cutters.

9. In a machine for treating pineapples the combination with a base, of means for centering the pineapple; a coring tube sustained above the base; means for revolving the tube; a plurality of cutters at the side of the coring tube for slicing the pineapple; stationary cutters above the base and in front of the coring tube for cutting the sliced pineapple into shapes; means movable to and from a position in front of the tube to force the sliced pineapple over the stationary cutters, and means for moving the forcing means toward the said stationary cutters.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. ZASTROW.

Witnesses:

CHARLES B. MANN, Jr.,
G. FERDINAND VOGT.