

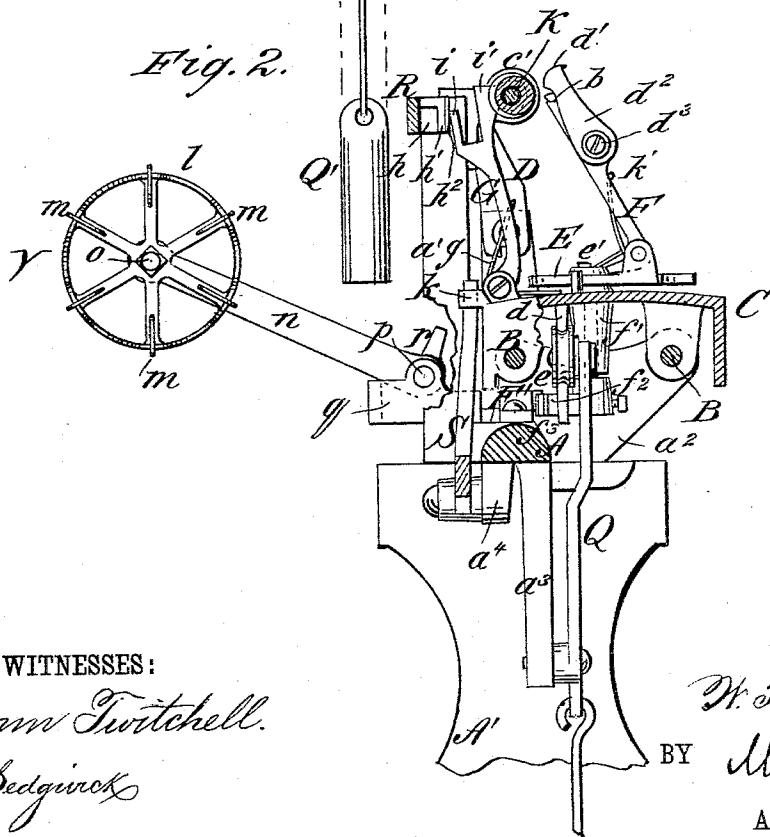
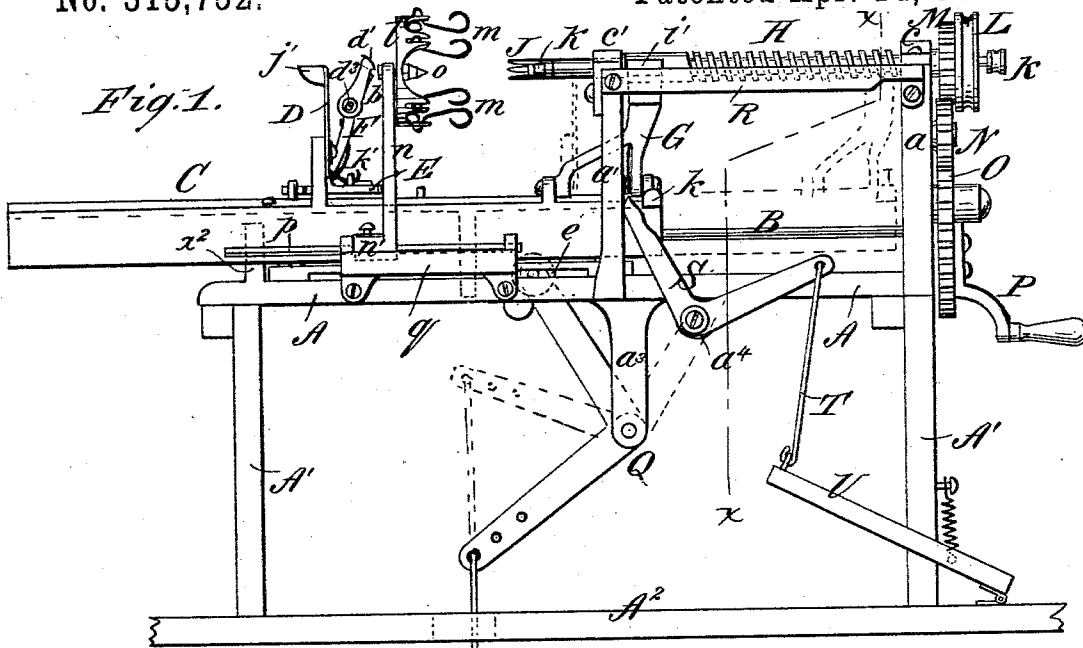
(Model.)

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W. T. ELLIOTT.
APPLE PARING AND SLICING MACHINE.

No. 315,752.

Patented Apr. 14, 1885.



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INVENTOR:

W. T. Elliott
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ATTORNEYS.

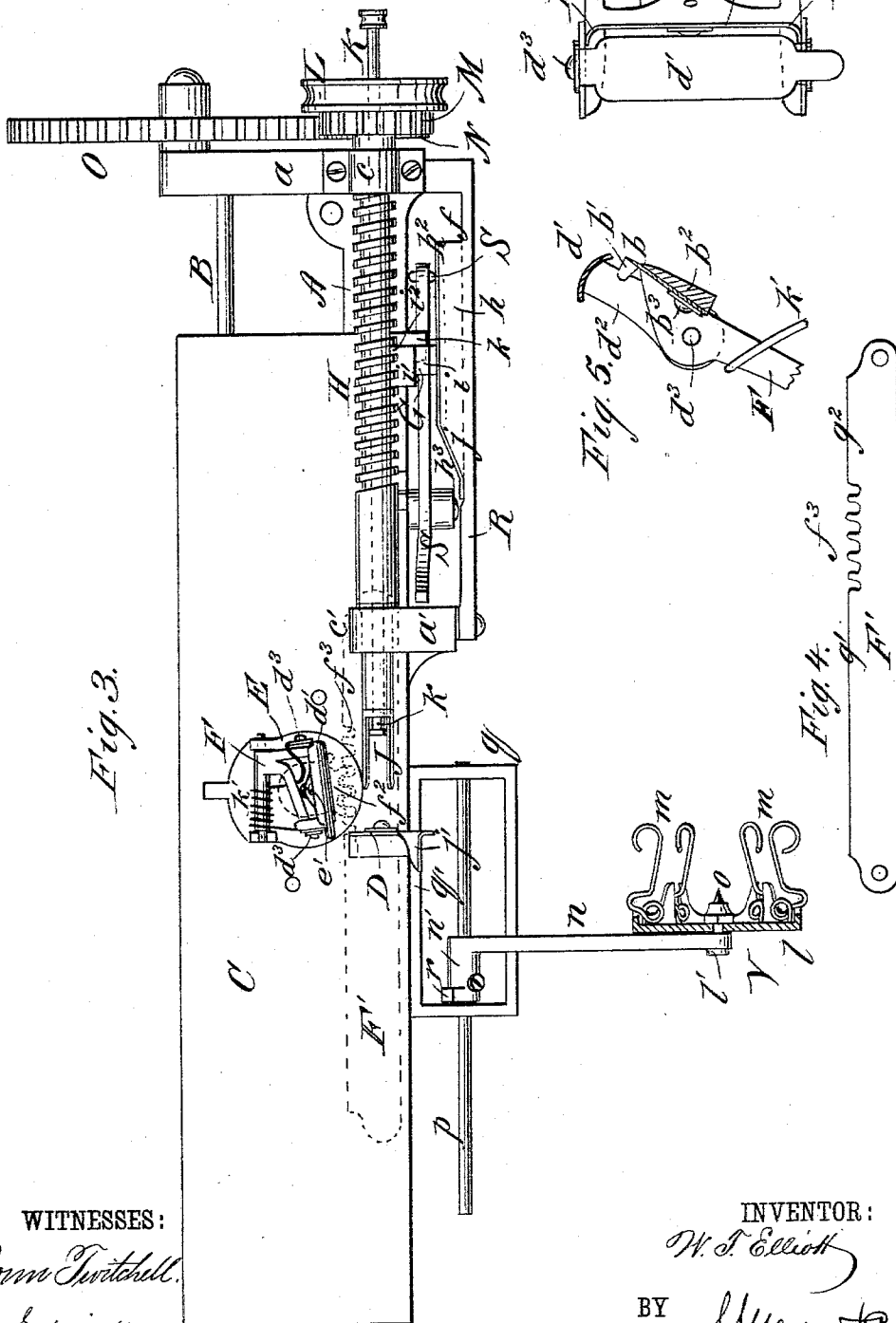
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UNITED STATES PATENT OFFICE.

WILLIAM TAYLOR ELLIOTT, OF MEREDITH, ASSIGNOR TO HIMSELF AND
ARTHUR THOMPSON, OF WARNER, NEW HAMPSHIRE.

APPLE PARING AND SLICING MACHINE.

SPECIFICATION forming part of Letters Patent No. 315,752, dated April 14, 1885.

Application filed June 10, 1884. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM T. ELLIOTT, of Meredith, in the county of Belknap and State of New Hampshire, have invented a new and Improved Apple Paring and Slicing Machine, of which the following is a full, clear, and exact description.

My invention relates to improvements in apple paring and slicing machines; and it consists in the peculiar construction and arrangement of parts, as hereinafter fully described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my new and improved apple paring and slicing machine. Fig. 2 is a transverse sectional elevation of the same, taken on the line *x x* of Fig. 1. Fig. 3 is a plan view of the machine, showing the apple-forking attachment in section and swung outward to the position it occupies while the apple is being pared and sliced. Fig. 4 is a plan view of the stationary rack for turning the knife-stock. Fig. 5 is a sectional elevation of the head of the knife-stock, showing the form of paring-knife I prefer to use, and Fig. 6 is a plan view of the same.

A represents the frame of the machine. This is cast or provided with the end upright plate, *a*, the central side upright arm, *a'*, the end flange, *a''*, and the central depending arms or projections, *a'''* *a''''*, and in this instance the frame A is mounted upon the standards A' that rise from the platform or floor A².

In suitable corresponding openings made in the end upright plate, *a*, and the flange *a''* are secured the parallel rods B B, which form practically a part of the main frame of the machine, and upon these rods B B is placed the traveling table C, which carries the slicing-knife D, and the rotary reciprocating knife-plate E, to which is pivoted the knife-stock F, which carries the paring-knife *b* at its upper end. The table C carries also the pivoted and spring-actuated dog or clutch G, which is adapted to engage with the worm-shaft H for causing the worm-shaft H to draw the table

C forward for bringing the knives *b* D into contact with the apple held upon the fork J, for causing the knives to pare and slice the apple. The worm-shaft H is journaled in the corresponding bearings *c c'*, formed in or secured to the end plate, *a*, and central upright arm, *a'*, of the frame of the machine, and in this instance the fork J is attached to the inner end of the worm-shaft H, so as to revolve with it, and the shaft H and fork J are made hollow for receiving the push-rod K, by which the apple-cores may be conveniently pushed off from the fork J.

When the machine is intended to be run by a foot or other power, the outer end of the worm-shaft H will be provided with the small pulley L, over which a belt coming from any suitable motive power may be passed.

When the machine is intended to be run either by hand or power the worm-shaft H will be provided also with the pinion or small cog-wheel M, with which meshes the idler N, which latter meshes with the large cog-wheel O, which is adapted to be revolved by the crank P for operating the machine. The idler N may be omitted when the machine is intended only for a hand-machine. In this instance a bell-crank, Q, pivoted to the arm *a''*, and weight Q', attached to the lower end of the bell-crank, are employed for returning the table C to its normal position—the position shown in full lines in Fig. 1—where it remains at rest after the paring and slicing of each apple, the upper end of the bell-crank acting constantly against a suitable stud or arm, *d*, attached to or formed upon the under surface of the table C, and the upper end of the bell-crank Q is provided with the grooved wheel *e*, which runs against the arm or stud *d* to avoid unnecessary friction.

Instead of the bell-crank Q and weight Q', a spring might be used for returning the table C, or a weight attached with a cord or small chain arranged to be drawn over a pulley with the forward movement of the table might be used, thus avoiding the use of the bell-crank Q; but I prefer to use the bell-crank Q and weight Q', since with these parts arranged as shown there is no liability of the return motion getting out of order.

For permitting the table C to be drawn backward by the weight Q' and crank Q, the clutch G must of course be disengaged from the worm-shaft H, and in order that this may be done at the proper time the rail R, which is secured to the end plate, *a*, and upright arm *a'* of the frame of the machine parallel with the worm-shaft H, and serves to close the clutch against the worm H and to hold it in contact therewith the proper length of time, as hereinafter described, is cut away, as shown at *f*, near the outer end of the worm-shaft H, so that when the clutch G reaches this point in traveling along the worm-shaft the spring *g* on the clutch will act to force the clutch outward away from the worm H, and the rail R is channeled upon its under surface, as shown at *h*, to form a free passage back to the inner end of the worm-shaft H for the projection *i*, to travel in, the projection *i'* of the clutch passing between the worm H and the inner surface of the flange *h'* of the rail R, which flange is formed by forming the channel *h*. The inner surface of the rail R is cut away also to form the incline or cam portion *j*, (shown in Fig. 3,) and over this and along the inner surface of the flange *h* is placed the switch spring or plate *h²*, the free bent end *h³* of which is adapted to drop behind the projection *i* of the clutch G as this projection issues from the channel *h* in the backward movement of the table C, so that when the table is next brought forward the projection *i* will not run back into the channel *h*, but will chafe against the plate *h²*, which will force the upper end of the clutch G forward, so that the teeth *i²* thereof will engage with the worm-shaft H, as shown clearly in Fig. 3, so that this shaft, being revolved, will cause the table C to travel forward against the action of the weight Q' until the clutch G reaches the cut-away place *f*, when it will be disengaged from the worm-shaft H, permitting the weight Q' to return the table C to its original position, as above mentioned.

For starting the table C forward to cause the upper end of the clutch G to come against the bent end *h³* of the switch-plate *h²* for causing the clutch to be forced forward to engage with the worm-shaft H, I pivot to the lug or short arm *a⁴* of the frame A of the machine the bell-crank lever S, the lower end of which is connected by the rod T to the treadle U, and the upper end of which stands in line with the projection *k* on the table C, so that by pressing downward upon the treadle U with the foot the upper end of the bell-crank lever S will be thrown forward against the lug *k*, which will cause the table C to be started forward, as required.

V represents the device for placing the apples one by one upon the fork J, which device is composed of the circular cup or frame *l* and wire holding-arms *m m*, the frame *l* being centrally and loosely pivoted upon the hand-piece or arm *n*.

In the center of the frame *l* is formed the centering-point *o* for centering the apple between the arms *m*. The arm *n* is made fast upon and at right angles to the rod *p*, which is held parallel with the frame A in the rectangular frame *q*, secured to the side of the main frame A, and the rod *p* is held loosely in its bearings in the frame *q*, so that the rod may be easily moved longitudinally, and also easily turned axially, thus permitting the arm *n* to be swung from the position shown in Figs. 2 and 3 to that shown in Fig. 1, where it stands exactly in front of the fork J, and then to be moved forward toward the fork J for placing the apple held by the arms *m* properly upon the fork J. The forward axial movement of the arm *n* is limited by the stop-lug *r*, formed on the sleeve *n'* of the arm *n* coming against the edge *q'* of the frame *q*, so that when the arm *n* is thrown forward the stud *o* of the frame *l* will stand immediately in front of the center of the fork J, so that when the arm and rod are moved forward for forking the apple the same will always be properly centered upon the fork J, and since the frame *l* turns freely upon its pivot *l'* the instant the tines of the fork J touch the apple the frame *l* and the apple, if the machine is in motion, will revolve with the fork, so that by pressing forward upon the arm *n* the apple may be forced fully upon the tines of the fork without stopping the machine. The apple being thus forced fully upon the fork, by drawing backward upon the arm *n* the rod *p* will slide in the frame *q* in a direct line backward, thus withdrawing the frame *l* from the apple, leaving it upon the fork. The arm *n* and frame will then be swung to one side away from in front of the fork J while the apple is being pared and sliced, and while this operation is being performed another apple will be placed in the frame *l*, ready to be placed in like manner upon the fork J.

The plate E, which carries the knife-stock F, is secured upon the upper end of the short vertical shaft *e'*, which has its bearing in the hollow stud *f'*, formed upon the under side of the table C, and to the lower end of the vertical shaft *e'* is secured the segmental rack *f²*, which is adapted, as the table C is moved backward and forward, to mesh with the rack-teeth *f³*, formed upon the bar F', secured to the frame A beneath the table C, as shown in full lines in Fig. 2 and in dotted lines in Fig. 3, so that from the movement of the table C and the intermeshing of these gears the plate E will receive the required rotary reciprocating movement for causing the paring-knife *b* to follow the oval form of the apple, as in ordinary paring-machines. The bar F' has the faces *g' g²* formed upon it, which reach out nearly the same length as the cog-teeth *f³*, formed in the bar, so that when the segmental rack *f²* is carried past the teeth *f³* the outer tooth at each side of the segmental rack will run against the face *g'* or *g²* at the end of the

rack, and thus hold the plate E from getting out of position and from turning, except as it is operated by the movement of the table C and the rack-teeth f^2 . In this manner the movement of the plate E is made positive, and after passing the apple the paring-knife is made to cease turning, while the table C is drawn along to finish slicing the apple. The knife-stock F is hinged to the plate E, and is pressed forward by the coiled spring k' in the ordinary way, and it is provided at its upper end with the above-mentioned paring-knife b and the guard d' for the knife, which guard is concaved and secured to the stock F by the side plates, d'' d''' , and the screws d'' d''' . The knife b is straight in the center and curved at its ends, as shown at b' , so that it will drop or reach into the cavities at the ends of the apples and pare them close to the core, so that little or no trimming will be required, and the knife b is secured to the plate or cross-piece b^2 of the stock F by the screw b^3 , as shown clearly in Fig. 5. The slicing-knife D is of ordinary construction, formed with the lip j' , which acts to cut the spiral slices formed by the main part of the knife D off from the core of the apple, leaving only the core upon the fork J, which may be discharged by pressing inward upon the push-rod K without stopping the machine.

In operation, an apple being placed upon the fork J and the machine set in motion, the attendant will first swing the forking device V to the position shown in Figs. 2 and 3, and then press downward upon the treadle U, which will operate the bell-crank lever S and draw forward the table C, which movement will bring the clutch G against the bent or cam portion h^3 of the switch-plate h^2 , which will act to force the upper end of the clutch forward into engagement with the worm-shaft H, where it will be held by the rail R, as will be understood from Fig. 3. The clutch G being engaged with the worm-shaft H, and this shaft being revolved, it will revolve the fork J and the apple thereon, and at the same time, acting through the clutch G, will draw the table C forward, causing the paring and slicing knives to approach and travel past the apple upon the fork, paring and slicing the apple, leaving the core of the apple upon the fork J. The forward movement of the table C will also raise the weight Q'. The knives having been carried fully past the fork J, completely paring and slicing the apple, the clutch G will at this time have reached the cut-away place f in the rail R, whereupon the clutch G will be cast off from the worm-shaft H, and the weight Q' and bell-crank Q will then act to return the table C and knives to their origi-

nal positions. The plate E will be turned both in the forward and backward movement of the table by the action of the cogs f^2 f^3 through one half a revolution, to cause the paring-knife to properly follow around the apple, as in ordinary apple-paring machines. The face g^2 of bar F' serves to hold the plate E and paring-knife and stock F from backward movement until the slicing of the apple by the knife D is completed, and the face g' serving to hold the plate E and knife-stock and paring-knife firm while approaching and paring the end of the apple, and until the segmental rack f^2 reaches the cog-teeth f^3 . While the apple is thus being pared and sliced the attendant will place an apple in the cup or frame l , and when the table C reaches the limit of its backward movement the push-rod K will first be forced inward for forcing off the core, and then the arm n and frame l containing the apple will be swung forward by the attendant in front of the fork J, and then shoved forward toward the fork J, thus pressing the apple upon the fork, and this, as above described, may be done without stopping the machine, so that the machine is very rapid in its action, as well as practical, durable, and effective in its work.

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

1. The rail R, provided with the bent switch-plate h^2 , and cut away at f , in combination with the worm-shaft H, carrying the fork, and sliding knife-carrying table C, provided with the clutch G, arranged substantially as and for the purposes set forth.

2. The combination, with the clutch G and the worm-shaft H, of the rail R, cut away at f , channeled at h , and inclined at j , and provided with the bent switch-plate h^2 , substantially as and for the purposes set forth.

3. The combination, with the fork J, of the apple-forking device V, composed of the cup or frame l , pivoted loosely to the hand-piece n , the cup being adapted to receive and hold an apple and to revolve with the fork, substantially as and for the purposes set forth.

4. The frame A of the paring-machine provided with the frame g , in combination with the rod p , arm n , and revolving cup l , substantially as and for the purposes set forth.

5. The combination, with the fork J, of the revolving frame l , provided with the holding-arms m , for receiving and holding an apple, substantially as and for the purposes set forth.

WILLIAM TAYLOR ELLIOTT.

Witnesses:

S. A. LADD,
S. M. NOYES.