

C. W. Brockaw.

Angle Press.

N^o 89,971.

Patented May 11, 1869.

Fig. 1.

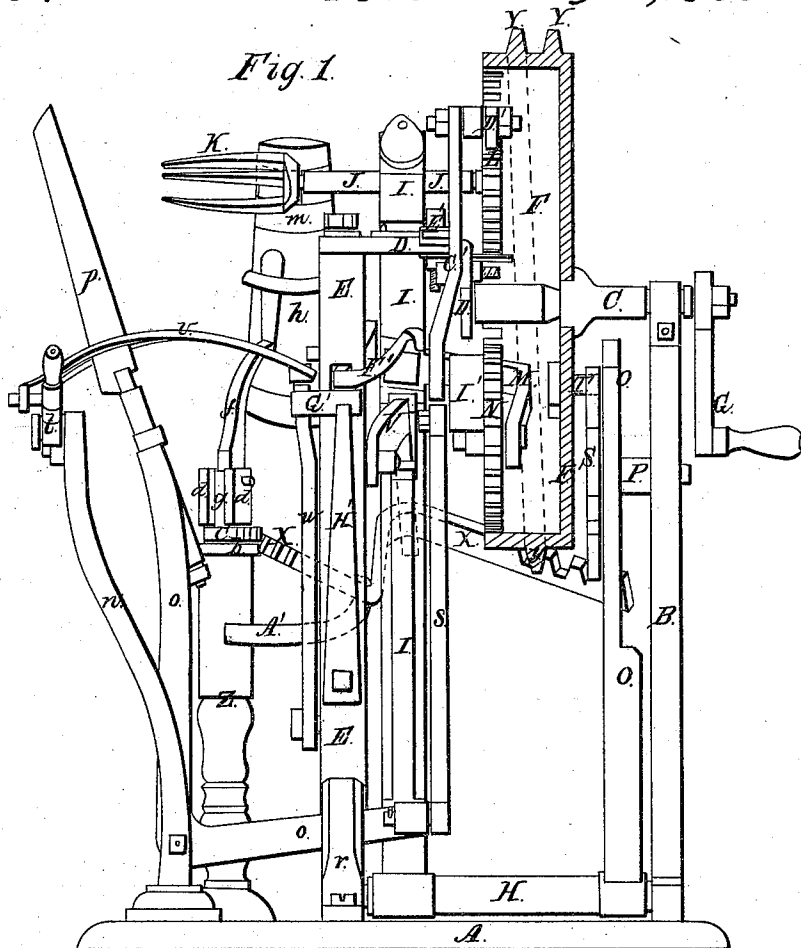
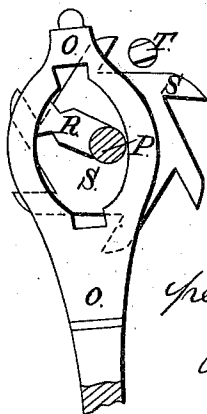


Fig. 2.



Witnesses

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Hyule Paper.

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Fig. 3.

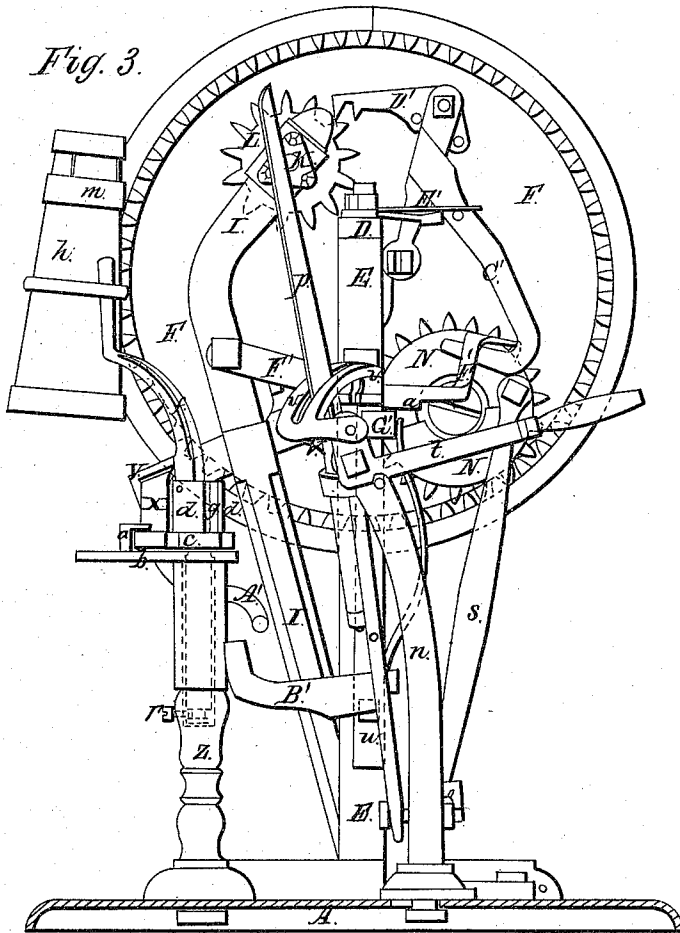
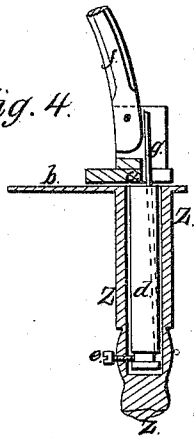


Fig. 4.



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United States Patent Office.

GEORGE W. BROKAW, OF LODI, NEW YORK.

Letters Patent No. 89,971, dated May 11, 1869.

IMPROVED APPLE-PARER AND SLICER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGE W. BROKAW, of Lodi, in the county of Seneca, and in the State of New York, have invented certain new and useful Improvements in Combined Apple-Parer and Slicer; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the construction and general arrangement of an apple-parer and slicer, which is adapted to any-sized apples, and will cut the apple closer to or further from the core, as may be desired.

In order to enable others skilled in the art to which my invention appertains, to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, which form a part of this specification, and in which—

Figure 1 is a side elevation of the machine;

Figure 2 is a side view of the mechanism which changes the machine from paring to slicing, and *vice versa*;

Figure 3 is a front elevation of the machine; and

Figure 4 is a vertical section of the standard which holds the paring-knife.

A represents a bed-plate, on which is an upright standard, B, of suitable height.

In the upper end of this standard B, one end of a shaft, C, has its bearing, the other end of said shaft having its bearing in an arm, D, which extends from the upper end of another standard, E.

On the shaft C is placed a hollow wheel or casing, F, which, on its front edge, is provided with a series of cogs, that operate both the parer and slicer.

This shaft is turned by a crank, G, on the rear side of the standard B.

Between the lower ends of the two standards, B and E, a shaft, H, is pivoted, which shaft is, near the standard E, provided with an arm, I, which extends upward, and its upper end curved inward.

Through the upper end of the arm I is placed a sleeve, J, in which revolves a shaft, which is, at its outer or front end, provided with a three-pronged fork, K, on which the apple is placed.

On the other end of this shaft is placed a small cog-wheel, L, which is made, at certain intervals, to gear with the cogs on the casing or wheel F, thus causing the fork K to revolve.

At a suitable point on the arm I is secured a bent bar, M, to the outer end of which is pivoted a cog-wheel, N, which is also, at certain intervals, made to gear with the cogs on the wheel or casing F, and operates the slicing-knife, as will be hereinafter fully set forth.

The arm I, with its bar M, is so arranged, that by turning the shaft H, either one or the other of the two cog-wheels, L and N, will be thrown in gear with the wheel F.

This is accomplished by an arm, O, secured to the shaft H, and extending upward to a suitable height, on the rear side of the wheel F.

The upper end of this arm is enlarged, and provided with an eccentric slot, having a notch in its upper and lower end, as seen in fig. 2.

A journal or small shaft, P, which has its bearing in the standard B, is so placed that an arm, R, placed on the same, will, when said shaft is turned, operate in the eccentric slot on the arm O, and consequently turn this arm, first to one side and then to the other.

This motion of the arm O rocks the shaft H, and causes the arm I also to move, first to one side and then back again, throwing the cog-wheels L and N, alternately, in and out of gear with the large wheel F.

On the inner end of the shaft P, that is between the arm O and the wheel F, is placed a toothed wheel, S, which is turned by a pin, T, on the rear side of the wheel F, so that for each revolution of the main wheel, the small toothed wheel S is turned the distance of one of its teeth.

At a suitable point on the inner or rear side of the standard E, is pivoted a bent bar, V, which passes through a slot in the arm I, and is itself slotted at its outer end.

Through the slotted end of the bar V passes another bent bar, X, which is provided with cogs at both ends.

When the rocking shaft H is turned, so that the wheel L gears with the large wheel F, the movement of the arm I to one side or outward, raises the bar V, so as to bring the rear end of the rack-bar X in gear with a worm, Y, on the outer periphery of the wheel F.

The motion of this latter wheel causes the rack-bar X to move forward, and, as its front end is held by a loop, *a*, on a horizontal plate, *b*, at the top of a standard, Z, and gears into a cog-wheel, *c*, at the top of said standard, the motion of the large wheel F will consequently turn this wheel *c*.

The standard Z is hollow in its upper part, and a shaft, *d*, in the same, said shaft being, at its lower end, provided with a circumferential groove, so that a screw, *e*, which passes through the standard Z into said groove, may hold the shaft *d* down in its place, but, at the same time, allow it to revolve.

At the upper end of the standard Z is secured the plate *b*, and the cog-wheel *c* is placed on or secured to the shaft *d*, just above said plate.

The so-called cog-wheel *c* is, however, only a circular enlargement of the shaft, or a collar placed on the same, provided with cogs along half of its circumference.

Above the cog-wheel *c*, the shaft *d* is enlarged and slotted, and in this slot a bent arm, *f*, is pivoted, said arm being held in its proper upright position by a spring, *g*, which is embedded in a groove on the shaft *d*. The spring *g*, at the same time, as it holds the arm *f*, allows this arm to yield sufficient to accommodate the paring-knife to any-sized apple.

To the upper end of the arm *f* is secured a conical cylinder, *h*, which, near its upper end, is provided with a slot of suitable dimensions, and around the cylinder is placed a band, *m*, sharpened on its upper edge, so as to form the paring-knife. This sharpened portion is just above the lower edge of the slot in the cylinder *h*, as seen plainly in fig. 3.

The apple to be pared is placed on the three-pronged fork *K*, and the machine being put in motion by the turning of the crank *G*, the wheel *L*, gearing into the cogs on the main wheel *F*, causes the fork, with the apple, to revolve.

At the same time, the rack-bar *X*, being moved by the worm *Y*, turns the cog-wheel *c*, with the shaft *d*, arm *f*, and cylinder *h*, so that the knife *m*, being pressed inward by the spring *g*, will follow the circumference of the apple, and pare it.

From a suitable point on the bed-plate *A*, rises another curved standard, *n*, near the lower end of which is pivoted a bent lever, *o*, one end of which extends upward, and has, at its upper end, the slicing-knife *p* secured to it.

The other end of the lever *o* extends toward the rear, passing between the standard *E* and a guide, *r*, secured to the bed-plate near the foot of said standard, and this end of the lever *o* is, by a pitman, *s*, connected with the cog-wheel *N*.

At the top of the curved standard *n* is pivoted a lever, *t*, to a pin, on which is pivoted the curved and slotted knife-guide *v*.

The inner or rear end of this guide rests on a pin at the upper end of a bar, *w*, the lower end of which is pivoted to the front side of the standard *E*.

The slicing-knife *p* passes through the slot in the guide *v*, and by the use of the lever *t*, it will be seen that the position of the guide will be changed, so that the knife will cut closer to or further from the core of the apple, as may be desired.

The apple having been pared, as above described, the mechanism on the rear side of the wheel *F* will turn the rocking-shaft *H*, so that the wheel *L* is thrown out of gear, and the wheel *N* in gear, with the cogs on the wheel *F*.

To the rack-bar *X* is secured a bent rod, *A'*, the front end of which bears against a bent arm, *B'*, on the lever *o*, so that when the rack-bar is moving forward, turning the paring-knife, it will, at the same time, move the slicing or cutting-knife to the outer or front end of the guide *v*.

At this instant the change of the wheels *L* and *N* is effected, and the latter wheel being thrown in gear with the main wheel *F*, causes said wheel to revolve, which gives to the slicing-knife *p* the necessary backward and forward motion, the fork *K*, with the pared apple, being brought in proper position to be cut by said knife.

So that the apple should be cut on all sides, or perfectly cored, the apple ought to revolve, and for this purpose, I pivot a curved lever, *C'*, to the arm *D*, in which one end of the shaft *C* has its bearing, as above mentioned.

To the upper end of this curved lever *C'* is pivoted a pawl, *D'*, having two teeth at its outer end, as seen in fig. 3, which pawl gears with the cog-wheel *L* when the machine is brought in position for slicing.

The lower end of the curved lever *C'* is in such a position as to be acted upon by the upper end of the pitman *s* once during each revolution of the wheel *N*, whereby the pawl *D'* will turn the wheel *L* the distance of two of its cogs.

As soon as the head of the pitman *s* escapes from the lower end of the curved lever *C'*, a spring, *E'*, attached to the upper side of the arm *D*, and bearing against a pin on said lever, causes it to return to its

first position, to be again acted upon by the pitman at the next revolution of the wheel *N*.

It will be seen that the arm *V*, which supports the rack-bar *X*, is, by the change from paring to slicing, lowered, through the motion of the arm *I*, so that the rear end of said rack-bar is moved away from the worm *Y*, and the first stroke of the slicing-knife moves the rack-bar backward, again turning the paring-knife, so as to commence the operation of paring the next apple at the proper time.

This motion of the rack-bar is effected by the arm *B'* and rod *A'*, being exactly the reverse motion from that which brought the slicing-knife to the outer end of the knife-guide.

As soon as the first apple has been cut, the core is taken off, and a new apple put on, after the change of the rocking-shaft *H* has brought the wheel *L* into gear again.

This motion of the arm *I* raises the lever *V*, so as to throw the rack-bar *X* in gear again with the worm *Y*.

If the machine were constructed only as far as now described, then, it is evident, the first stroke of the slicing or cutting-knife *p* would cut a very large and thick slice, unfit to be dried on account of its size.

To avoid this, there is pivoted on the arm *I*, a lever, *F'*, which passes through a slot in the standard *E*, and is, at a suitable point on its under side, provided with a notch, *a'*, as seen in fig. 3.

When the machine is paring, this lever *F'* is drawn to one side, so that the notch *a'* will catch on a bar, *G'*, which is attached to the bar *w*, and rests against the side of the standard *E*.

When, now, the change is made from paring to slicing, and the arm *I* moves to the other side, the lever *F'* moves the upper end of the bar *w* slightly outward, which consequently carries the inner end of the guide *v* with it.

By this means the slicing-knife will, at its first stroke, cut a slice of the proper thickness to be dried.

As soon as the knife, after the first stroke, moves outward again, the headed bolt, which connects the pitman *s* to the wheel *N*, will strike against the outer end of the lever *F'*, raising it high enough to release the notch *a'* from the bar *G'*, when a spring, *H'*, which bears against said bar, will at once bring the knife-guide back again to its first place.

The wheel *N*, to which the pitman *s* is connected, is provided with an enlargement, *I'*, which acts as a balance for the wheel, so that while the operation of paring is going on, and the knife *p* is being moved to the outer end of the knife-guide, the wheel *N* will be put in the exact position required to cause the proper motion of the slicing-knife, as soon as said wheel is thrown in gear with the main wheel *F*.

If this were not the case, or if the wheel were not provided with such a balance, it would be very liable to turn, so as to be thrown into gear at a wrong point, causing the knife to cut larger pieces than it is intended to do.

The balance *I'* keeps the wheel always in such a position that the knife and the other parts of the machine will work in harmony.

The teeth on the wheel *S*, through which the necessary rocking motion is contributed to the shaft *H*, are of the peculiar construction shown in fig. 2, so that the pin or lug *T* will strike each tooth almost parallel with it, thereby commencing the motion of said wheel slowly, and increasing until the lug has moved off.

By this means, I avoid the sudden concussion which would inevitably follow if the teeth were of any other shape.

In place of the mechanism herein described, for changing the machine from paring to slicing, and *vice*

versa, I may move the arm I, by means of the worm on the outside of the wheel F, operating in a rack, with catch coming in contact with the lug T, in which case a spring would be provided to throw the arm I back again.

The arm *f*, which supports the paring-knife, is provided with an eccentric, against which the spring *g* operates; and it will be seen that by this means the pressure of the paring-knife will be exactly the same, at whatever angle the arm *f* may be placed, and consequently bear with equal force against the apple on the fork K, whether this apple is large or small.

In all other paring-machines the pressure of the paring-knife is greater, the larger the apple is, but in mine the pressure is invariably the same.

It will also be seen that the slicing-knife, from the peculiar arrangement of the devices which operate the same, has a drawing as well as cutting-stroke, which is very important, as it has been found, by experience, that a knife having a purely cutting-stroke will not penetrate a bruised or soft apple, while one having a drawing-stroke will cut such an apple equally as well as a hard one. Then the slicing-knife, running in the curved guide, follows the core of the apple, thus saving the greatest amount of the apple, at the same time cutting the pieces in a curved shape, so that they cannot lie flat on the board, and consequently dry quicker.

In a working-machine, I dispense with the bed-plate A, and arrange the standards in such a manner that the machine can be attached to the edge of a tub or box.

Having thus fully described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The wheel or casing F, constructed as described, with cogs on its inner edge, and a worm on its periphery, substantially as and for the purposes herein set forth.

2. The combination of the shaft H, arm O, having at its upper end a notched eccentric or cam-shaped slot, the shaft H, arm R, toothed wheel S, and pin T, all constructed as described, so as to give the shaft H a rocking motion, substantially as and for the purposes herein set forth.

3. In combination with the shaft H and a mechanism for giving said shaft a rocking motion, the arm I, with its bar M, each being provided with a cog-wheel, as described, so as to be alternately thrown in and out of gear with the cogs on the main wheel F, all substantially as and for the purposes herein set forth.

4. The arrangement of the lever V, pivoted to the standard E, and passing through a slot in the arm I, its outer end supporting the rack-bar X, so that by the

motion of the said arm the rack-bar will be thrown in and out of gear with the worm Y on the main wheel F, substantially as and for the purposes herein set forth.

5. The arrangement of the shaft *d* within the hollow standard Z, when said shaft carries or supports the paring-knife, and receives its motion from a worm on the outside of the main wheel F, by means of a movable rack-bar, X, and cog-wheel *c*, substantially as herein set forth.

6. The arm *f*, carrying the paring-knife *m*, when pivoted to the shaft *d*, and provided with an eccentric against which the spring *g* presses, so as to cause the paring-knife to have an equal pressure on the apple, at whatever angle said arm is placed, that is, whether the apple is large or small, substantially as herein set forth.

7. Constructing an apple-parer and slicer in such a manner that the mechanism which operates the paring-knife will set the slicing-knife in proper position, and *vice versa*, substantially as herein set forth.

8. The arrangement of the bent lever *o*, carrying at one end the slicing-knife *p*, and at the other end connected, by a pitman, *s*, to the cog-wheel N, whereby the slicing-knife obtains a drawing as well as cutting-stroke, substantially as herein set forth.

9. The curved and slotted guide *v*, constructed as described; so as to guide the slicing-knife in a semi-circular course, following the shape of the core, substantially as herein set forth.

10. The knife-guide *v*, constructed as described, its inner end resting on a suitable pivot, and its outer end adjusted by means of the lever *t*, when combined and arranged substantially as and for the purposes herein set forth.

11. The arrangement of the notched latch F', bar G', lever *w*, which supports the inner end of the knife-guide *v* and spring H, or their equivalents, whereby the slicing-knife is made to cut the first piece thin, substantially as herein set forth.

12. The arrangement of the bent lever C', pawl D', and spring E', the lever worked by the head of the pitman *s*, for the purpose of turning the apple while slicing, substantially as herein set forth.

13. Providing the cog-wheel, through which motion is communicated to the slicing-knife, with a balance, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing, I have hereunto set my hand, this 21st day of April, 1869.

GEO. W. BROKAW.

Witnesses:

A. N. MARR,
LEOPOLD EVERT.