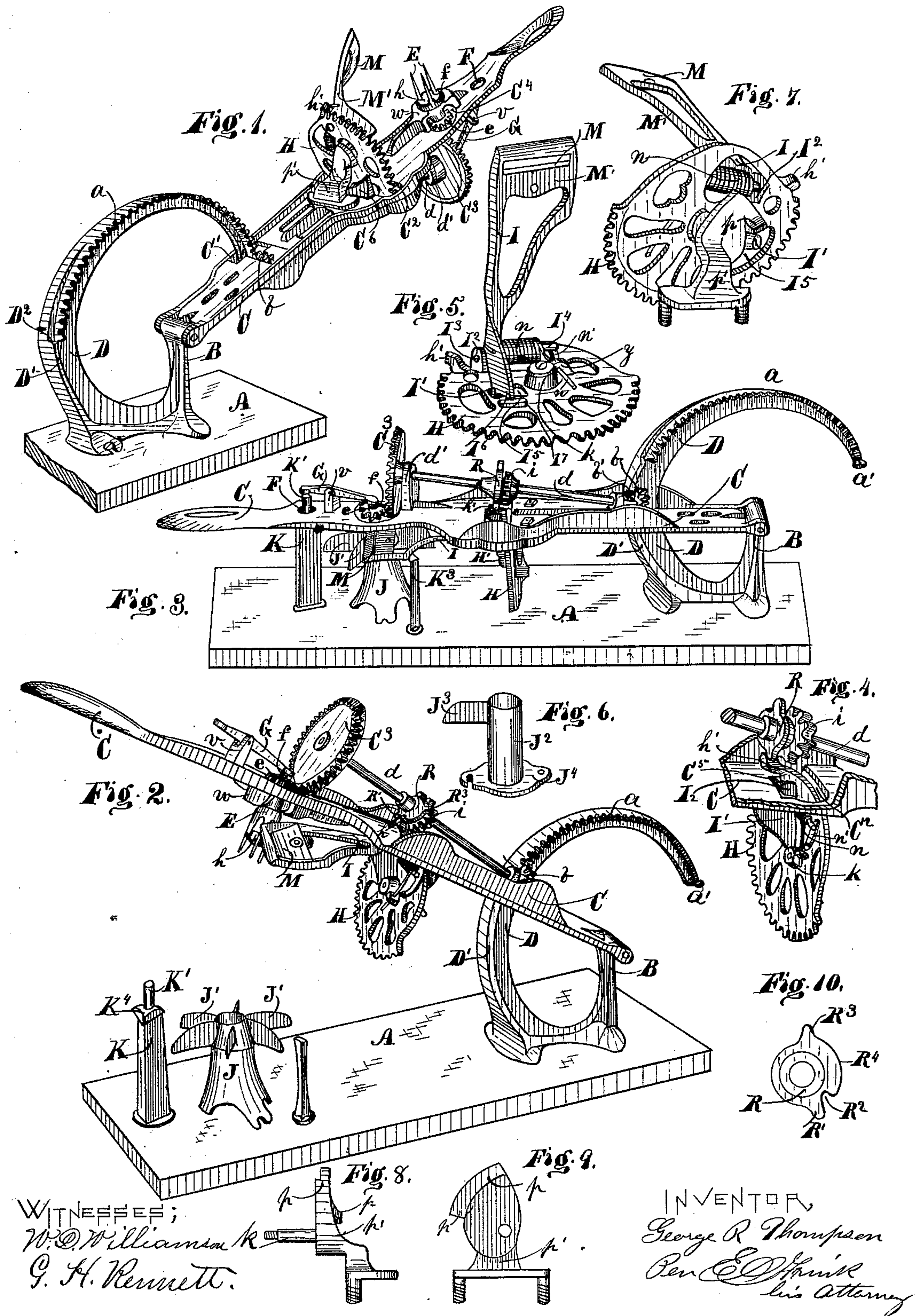


(Model.)

G. R. THOMPSON.
Apple Parer.

No. 233,955.

Patented Nov. 2, 1880.



UNITED STATES PATENT OFFICE.

GEORGE R. THOMPSON, OF QUINCY, ILLINOIS.

APPLE-PARER.

SPECIFICATION forming part of Letters Patent No. 233,955, dated November 2, 1880.

Application filed June 22, 1880. (Model.)

To all whom it may concern:

Be it known that I, GEORGE R. THOMPSON, a citizen of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented a new and useful Improvement in Apple Corers, Parers, and Dividers, of which the following is a specification.

My invention relates to that class of machines known as "apple parers, corers, and dividers," and is an improvement on my Patent No. 194,191, granted August 14, 1877; but in the essential features of construction and new results produced my present invention is radically different from that in many respects.

The object of my invention is to provide a system of newly constructed and arranged devices having new modes of operation for successively paring, coring, and dividing an apple and discharging the core from the forks by a single sweep of the lever.

I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents a perspective view of the entire machine for paring, coring, and dividing apples, showing the lever thrown back ready to receive an apple to be pared. Fig. 2 represents a perspective view of the same, showing the position of the lever after the fruit has been nearly pared, and at a position where the paring-knife ceases to be operated by the lever, and where the apple is yet to receive one more turn with the fork before being cored and divided. Fig. 3 represents a perspective view of the same after the apple has been pared, cored, and divided. Fig. 4 represents an enlarged perspective view of parts of the mechanism that operate the fork and the paring-knife. Fig. 5 is a perspective view of the paring-knife attached to part of its operative mechanism. Fig. 6 represents a coring-cylinder with one blade, to be used when it is desired to only pare and core the apple. Fig. 7 represents an enlarged perspective view of part of the mechanism that operates the paring-knife and fork reversed from that shown in Fig. 4. Figs. 8 and 9 are front and side views of the cam; and Fig. 10 is a front view of the stop-wheel.

A represents the base or board to which the

machine is attached. Near one end of the board A is secured a casting, B D a, the part B forming a standard to which the lever C is pivoted, while the part D curves upward, forming a ribbed quadrant, having one face or edge provided with cogs a and a lug or stop, a', at the extreme outer end. The cogs a extend around the edge of the quadrant from the end a' to D², and the rib or flange D' forms a smooth curved continuation flush with the outer end of the cogs a down to the base, which will be hereinafter described. The lever C is of peculiar construction, to wit: The rear end is provided with a hinge-joint, and is hinged to the standard B, the pivot of said hinge-joint being the center of the quadrant and at equidistance from the cogs a at all points, so as to permit the quadrant to operate through the hole or slot C' as the lever is turned either forward or backward, the slot C' being elongated so as to permit the cog-wheel b to work freely in the gear a, the side of the segment opposite the cogs a working against the side of the slot C', thus preventing the cogs a from slipping out of gear with the wheel b. A short distance from the slot C' is another slot, C², to permit part of the partial spur-wheel H to project through for connecting with the spur-wheel i, by which the wheel H is operated, as will be hereinafter described. Near the handle end of the lever is another hole, C⁴, in which operates the fork-pinion e, and beyond said hole is another hole, F, to permit the stem K' of the stud K to pass through and operate the lever G, while the shoulder K⁴ prevents the lever C from striking the coring-knife, as will hereinafter be described. The lever C is also provided with suitable studs or lugs, v, d', and w, for attaching various parts of the operating mechanism, as shown.

The cam-standard p is constructed similar to that shown in Figs. 1, 4, 8, and 9—i. e., the part p'—forming a bracket that is securely bolted or riveted to the lever C, so as to form a support for the partial spur-wheel H, which is mounted on a short shaft or stud, k, which is either inserted in or cast on the bracket p', as shown in Fig. 8, and the upper end is formed with a cam, p, for the end I' of the paring-knife arm I to operate against.

The partial spur-wheel H is provided with

a hole, I⁵, for the arm I' of the knife-arm to operate in, as shown in Fig. 7, and is further provided with a lug or ear, I², in which a journal, I³, formed at one side of the paring-knife arm I, operates. The paring-knife is also provided with a shaft, I⁴, projecting from the opposite side of the knife-arm I, the end of which comes in contact with the rib *n'* on the wheel H at I⁴, on which said shaft slides during part of the operation of the paring-knife, as will be hereinafter described.

On the shaft I⁴ is a coil-spring, *n*, one end of which is bent around the arm I of the paring-knife, and the other end inserted in a hole formed in the lug *y* of the wheel H, the spring *n* having a tension given to it sufficient to hold the arm I with the paring-knife in the position shown in Fig. 5, with the lip I⁶ of the arm resting on the rib I⁷ of the wheel H, on which rib said lip is free to slide, as the end of the shaft I⁴ slides on the rib *n*, and the pivot-journal I³ turns or twists in the hole formed in the lug I².

The partial spur-wheel H is provided at one end of the cogs with a long projecting lug or cog, *h'*, for operating on the wheels R *i*, as will be hereinafter described.

The paring-knife M is mounted in the head M' at the outer end of the arm I, as shown.

The rear end of the inclined shaft *d* is inserted in a step or bearing formed at the edge of the slot C' of the lever C, and the other end of said shaft is supported in a standard or bracket, *d'*, with the beveled wheel C³ secured on its extreme end. Said wheel C³ meshes in gear with the pinion *e*, and said pinion *e* is mounted so as to revolve in the hole C⁴, under the bracket *w*. The fork E is secured to the pinion *e*, so as to revolve with it above the bracket *w*. Between the prongs of the fork E is a plate, *h*, from the center of which a stem, *f*, projects and passes through the stem or shaft of the fork E and pinion *e*, so as to come in contact with the rear end of the lever G, thus forming a means of expelling the core from the fork and core-cylinder, as will be hereinafter described. On the shaft *d*, about midway between the pinion *b* and beveled wheel C³, is secured a pinion, *i*, for operating the partial spur-wheel H.

Between the pinion *i* and beveled wheel C³ is a stop-wheel, R, which is also secured to the shaft *d*, and is held close up to the pinion *i*, or forms part of said pinion. The wheel R is provided with a tooth, R', and a recess, R², next to it on one side, also a tooth, R³, nearly opposite the tooth R', while the body of the wheel between the recess R² and tooth R³ is a regular curve, as shown at R⁴, Fig. 10.

The recess R² is to receive the side projecting tooth, *h'*, of the wheel H, and the wheel H stops against the stop C⁵. The shaft *d* and wheel R still revolve, and the shaft *d* is sprung slightly upward as the tooth *h'* leaves the recess R², and the curved part R⁴ of the wheel slides on said tooth, thus producing friction

enough to prevent the wheel H from slipping or turning backward during the last revolution of the fork.

The pinion *b*, on the shaft *d*, is provided with a side tooth or cog, *b'*, and is secured on the shaft *d*, so as to work in the rack-teeth *a* of the quadrant. The wheel *b* revolves the shaft *d* until the lug *b'* strikes the projection D², then it stops revolving, and the lug *b'* slides down the flange D' as the lever is brought down. At the same time that the wheel *b* leaves the cogs *a* and the tooth *b'* commences to slide down the flange D' the shaft *d* ceases to revolve, and the tooth *b'*, by contact with the flange, prevents the shaft *d* from turning backward. Just before the shaft *d* ceases to revolve and the tooth *b'* begins to slide on the flange D' the tooth R' of the wheel R comes in contact with the side projecting cog, *h'*, of the wheel H on one side, and the tooth *h'* is received in the recess R², and as the tooth *b'* commences to slide down the flange D' the tooth *h'* of the wheel H is clamped between the cog R' of the wheel R and the stop C⁵ of the lever. Thus the wheel H and its connecting mechanism with the shaft *d* prevents the shaft *d* from turning forward. Thus the shaft *d* is held rigid. When the lever C is raised the lug *b'* slides over the end of the rib D'. At the same time the cogs of the wheel *b* engage with the cogs *a* and rotate the shaft *d*, thus carrying the paring-knife out of the way, as shown in Fig. 1.

On the board A, at the proper distance from the hinge of the standard B and lever C to receive the fork E, is located a coring-cylinder having radial blades J' for dividing the apple.

The coring and dividing device is mounted on a hollow conical standard, J, that is secured to the board A. This form of corer and divider is used when it is desired to pare, core, and divide an apple; but when it is required to only pare and core an apple then the device shown in Fig. 6 is used, consisting of a single cylinder, J², having a knife-edge and a single radiating blade, J³, all mounted on a base, J⁴, having a hole in its center to permit the cores to pass through.

The stud K³ is designed to engage with the arm I of the paring-knife and prevent the head M from coming in contact with the blades J' of the coring and dividing device when the lever is in the position shown in Fig. 3.

Having thus described the construction and arrangement of parts in my newly-organized machine, I will now describe its mode of operation, as follows, to wit: The lever C is raised or thrown back, as shown in Fig. 1, resting on the lug *a'*, in which position the paring-knife M is forced out of the way at one side by the arm I' coming in contact with the cam *p*, so that an apple can be placed on the fork E. An apple is then placed on the fork E. At the same time the apple presses the plate *h* and its stem *f* downward. The lever C is then moved

forward, and the cogs *a* in the quadrant cause the pinion *b*, shaft *d*, and pinion *i* to rotate, thus rotating the wheel *H* and causing the arm *I'* of the paring-knife to be operated in the cam *p*, and to move the knife *M* around the apple while paring. At the same time the wheel *C*³ revolves the pinion *e* and fork *E*. As the lever approaches a perpendicular position the lug *I'* of the paring-knife arm is released from the cam *p*, leaving the knife *M* free to turn on its pivoted bearings *I*³ and *n'*, and its lip *I*⁶ to slide on the slide *I*⁷ before completing the paring of an apple, so as to adjust the knife to the surface of the apple. At the same time the spring *n* holds the knife in close contact with the apple. As the lever *C* approaches the position shown in Fig. 2 the lug *I*² on the wheel *H* comes in contact with the stop *C*⁵, formed at the edge of the slot *C*², arresting the rotary motion of the wheel *H*, as shown in Fig. 4. The lug or cog *h'* of the wheel *H* at the same time enters the recess *R*², and the wheel *H* is stopped as the lug *I*³ comes in contact with the stop *C*⁵ of the lever. The shaft *d* still continues to rotate until the lug *b'* on the wheel *b* strikes the flange *D'*, giving the fork *E* one extra revolution to permit the knife *M* to pare closer to the stem. At the same time the curved part *R*⁴ of the wheel *R* slides on the lug *h'* of the wheel *H* until the cog *R*³ comes in contact with the opposite side of said lug *h'*, which arrests the rotary movement of the shaft *d* just as the lug *b'* of the wheel *b* commences to slide on the rib *D'*, and the cogs of the wheel *b* are disengaged from the cogs *a* of the quadrant, and the knife-head *M'* comes in contact with the fork. As the motion is reversed the lug *h'* slides on the curve *R*⁴ until it again enters the recess *R*², when the cog *R'* comes in contact with the lug *h'*, causing the wheel *H* to be brought again into gear with the wheel *i*. When the lever *C* leaves its perpendicular position, moving forward, the arm *I'* comes in contact with the eccentric curved flange *C*⁶, which is located between the cam-bracket *p'* and wheel *H*, and causes the arm *I'* to follow the cam *C*⁶ and the knife-arm *I* to twist around on its bearings *I*³, *I*⁷, and *n'*, so as to turn the knife into a position to pare the apple close to the stem. When the lug *b'* of the wheel *b* strikes the flange *D'* the shaft *d* and fork having an apple thereon cease to revolve, as before stated, and the apple is forced onto the coring and dividing knives *J J'*. The apple is cored and divided. The arm *I* strikes the stud *K*³, preventing the head *M'* from coming in contact with the edges of the dividing-blades *J'*. At the time that the core is separated from the apple the stem *K'*, passing through the hole *F*, strikes one end of the lever *G*, causing the other end of the lever to strike the stem *f* and press the plate *h* nearly out of the fork, thus expelling the core, after which the operation is again repeated.

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

1. In a machine for paring, coring, and dividing apples, a hinged or pivoted lever, *C*, combined with the shaft *d*, having a pinion, *C*³, for operating the fork, a pinion, *i*, for operating the wheel *H* and paring-knife, a wheel, *R*, for holding the wheel *H* and paring-knife, and a stationary quadrant, with a cogged segment, *a*, as and for the purpose set forth and described.

2. The shaft *d*, provided with a pinion, *i*, combined with the wheel *R*, having cogs *R'* *R*³, a recess, *R*², and a curved part, *R*⁴, and the wheel *H*, having the side tooth, *h'*, whereby said shaft *d*, wheel *i*, and wheel *R* are permitted to revolve together until the wheel *H* is stopped, and then the shaft permitted to partially rotate until the fork has made an extra revolution, as and for the purpose specified.

3. In combination with the shaft *d*, provided with a pinion, *i*, the wheel *R*, with cogs *R'* *R*³, recess *R*², and curved part *R*⁴, the partial spur-wheel *H*, having a stop-lug, *I*², and a side tooth, *h'*, whereby the rotary motion of the wheel *H* is arrested while the shaft partially revolves, as described, for the purpose specified.

4. In combination with the hinged or pivoted lever *C*, carrying the fork and parer, and a stationary quadrant having flange *D'*, with cogged segment *a*, for operating the same, the shaft *d*, provided with cog-wheel *b*, having lug *b'*, the cog-wheel *i*, the wheel *R*, with cogs *R'* *R*³, recess *R*², and curved part *R*⁴, and the partial spur-wheel *H*, having a lug-stop, *I*², and long cog *h'*, and the paring-knife *M*, whereby the apple is revolved, the paring-knife operated to move around the apple until stopped by the lug *I*² of the wheel *H*, while the apple still revolves until the paring is complete, and the lug *h'* encounters the cog *R*³ of the wheel *R*, substantially as set forth and described.

5. In combination, the wheel *H*, the wheel *R*, the wheel *i*, shaft *d*, wheel *b*, having lug *b'* and cogged segment *a*, and the flange *D'*, whereby the lug *b'* of the wheel *b* is held against the flange *D'* when the cogs of the wheel *b* are out of the gear *a*, and the cogs of the wheel *b* thrown into gear with the segment-cogs *a* when the lug *b'* is moved up off of the flange *D'*, substantially as described and set forth.

6. The wheel *R*, having a recess, *R*², with a cog, *R'*, next to it or one side, and a tooth, *R*³, nearly opposite the tooth *R'*, also having a curved part, *R*⁴, between the recess *R*² and cog *R*³, combined with the shaft *d*, the wheel *i*, and the wheel *H*, having a side projecting tooth, *h'*, as and for the purpose specified.

7. The paring-arm *I*, with journal *I*³ *I*⁴, and arm *I'*, with lip *I*⁶, combined with the wheel *H*, spring *n* and cam *p*, and the bearing-sur-

faces n' and I' , whereby said arm, as the wheel H is revolved, is permitted to turn on its journals and swing or slide around on the bearings n' and I' while completing the par-
5 ing, so as to conform the movement of the knife M more to the surface of the apples and enable the knife to pare close to the stem, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two sub- 10
scribing witnesses.

GEORGE R. THOMPSON.

Witnesses:

E. O. FRINK,
GEORGE H. RENNETT.