(No Model.) 2 Sheets—Sheet 1.

W. H. BOUTELL.

APPLE PARER.

No. 305,280. Patented Sept. 16, 1884.

Fig. 1.

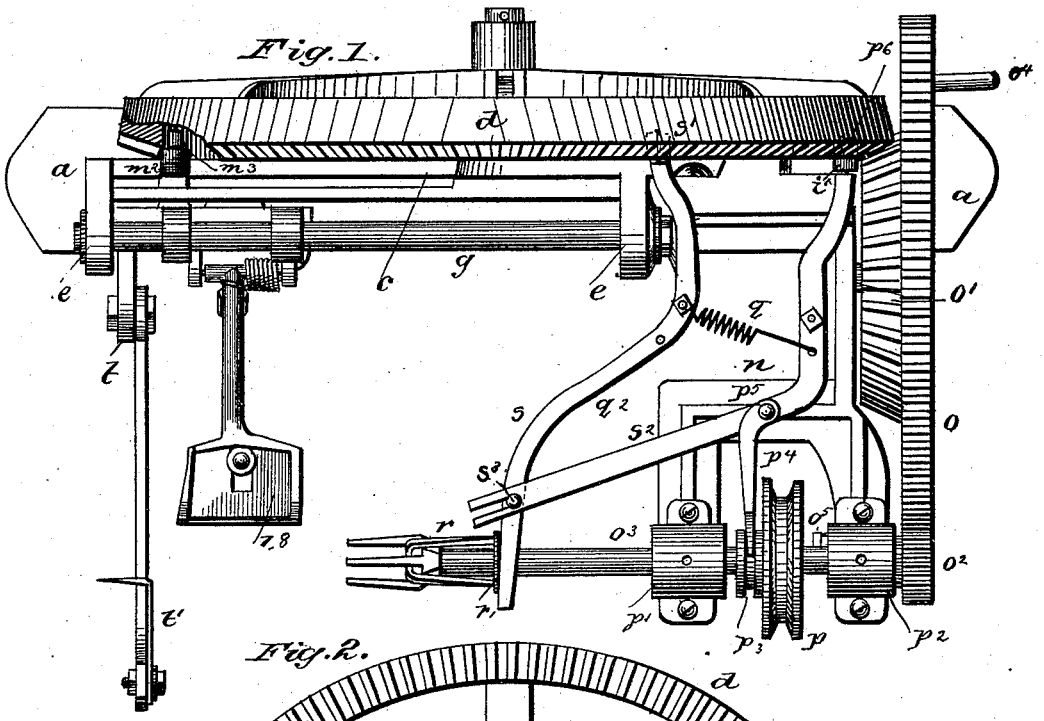
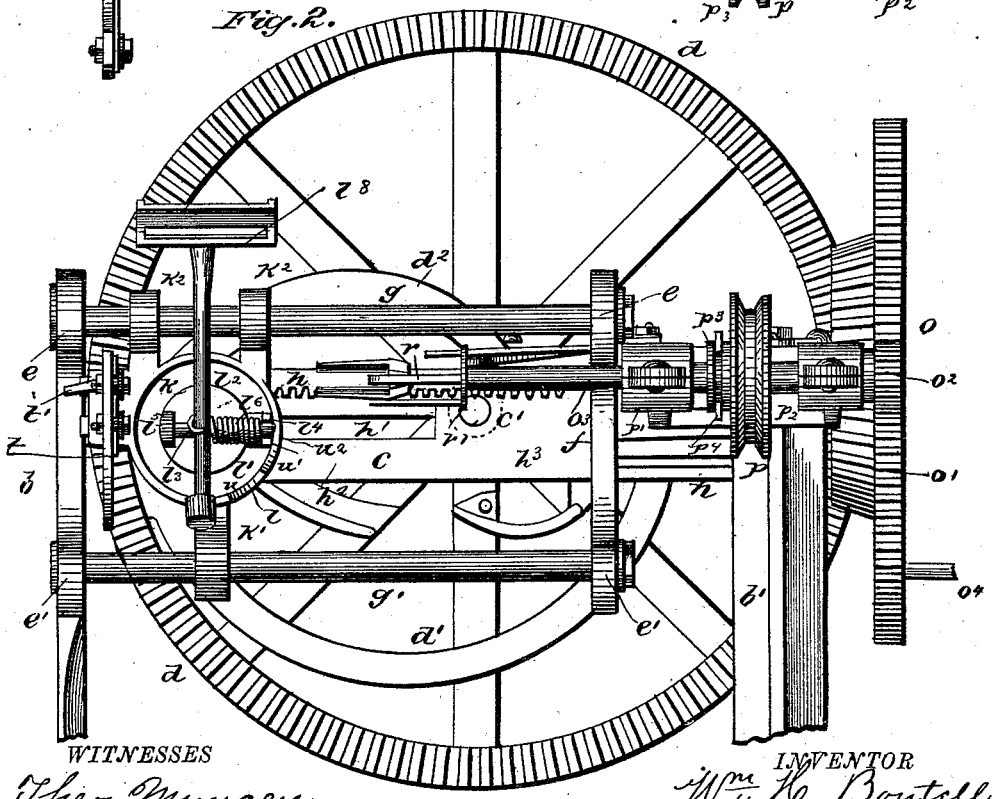


Fig. 2.



WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

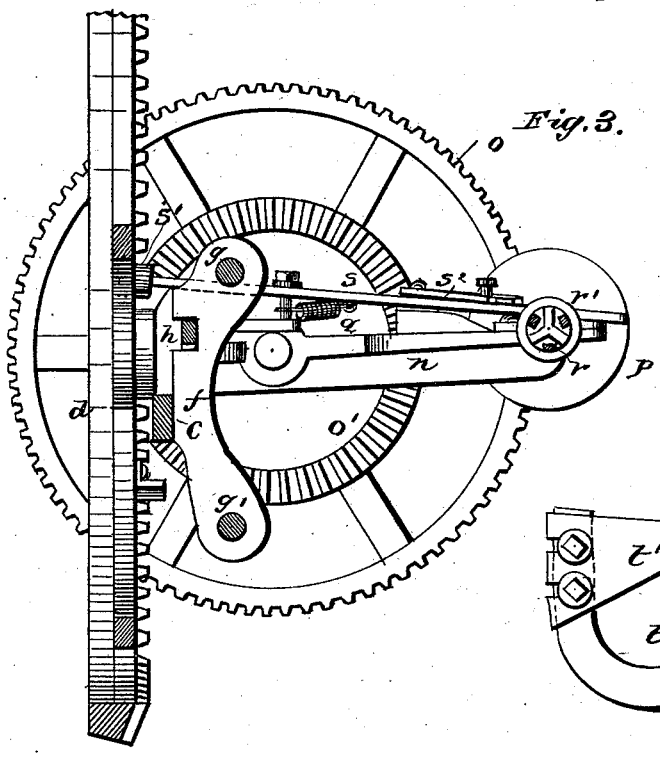


Fig. 6.

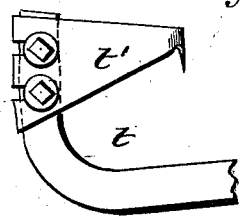


Fig. 5.

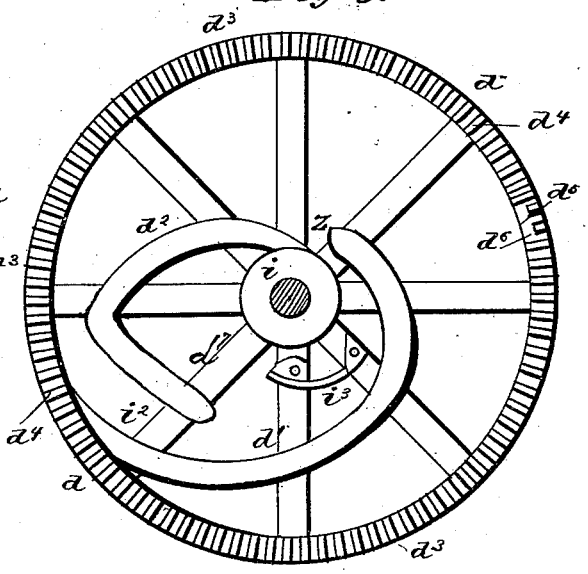
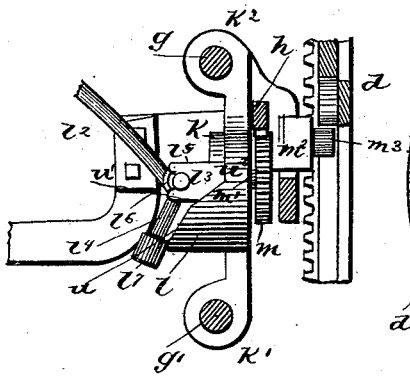


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM H. BOUTELL, OF ANTRIM, NEW HAMPSHIRE.

APPLE-PARER.

SPECIFICATION forming part of Letters Patent No. 305,280, dated September 16, 1884.

Application filed September 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BOUTELL, a citizen of the United States, residing at Antrim, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Apple-Parers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a plan view of my improved apple-parer. Fig. 2 is a front view of the same. Fig. 3 is a vertical sectional view. Fig. 4 is a sectional detail view showing the sliding disk. Fig. 5 is a front elevation of the revolving cam-wheel, and Fig. 6 is a detail view of the slicer and corer.

This invention has relation to apple-parers designed to be operated either by hand or by power; and it consists in the construction and novel arrangement of devices, as will be hereinafter fully described, and particularly pointed out in the claims appended.

Referring by letter to the accompanying drawings, *a* designates the base of the main frame, and *b* and *b'* are the webbed uprights rising from the base, and connected by the cross-rail *c* near their upper ends. The rear face of the connecting-rail *c* is provided at its middle with the journal *c'* for the revolving cam-wheel *d*, which is provided on its front face with the irregular broken cam *d'*, and also a short curved cam, d^2, secured to or formed with the spokes of the revolving cam-wheel within the circumference of the irregular broken cam *d'*. The purposes and outline of these cams will be hereinafter explained. The upright *b* is provided in its front web with an upper bearing, *e*, and a lower bearing, *e'*; and a vertical bracket, *f*, formed on the inner face of the cross-rail *c*, is provided with corresponding bearings, *e e'*, in which the upper and lower horizontal guide-rods, *g* and *g'*, are secured. A rack, *h*, is formed with or forms the upper portion of the cross-rail *c* from the bracket *f* to the upright *b*. The teeth of the rack *h* are in its under edge and extend nearly to the bracket *f*. There is a rectangular space, *h'*, between the rack *h* and the lower portion, h^2, of the cross-rail *c*, said space *h'* extending from near the journal of the revolving cam-wheel to the upright *b*. The rack *h* is not in the same vertical plane with the lower portion, h^2, but projects slightly forward from the face of the heavier portion h^3 of the cross-rail *c*. The rim d^3 of the revolving cam-wheel *d* is provided with miter-teeth d^4, sloping from without inward and forward on its front face. These teeth d^4 are of even length, except at d^5, where they are shortened (two or more of them) to form a recess, d^6, for the reception of a friction-roller, the location and purpose of which will be hereinafter explained.

The irregular, broken, or double cam *d'* is cast with the wheel *d*, and when said wheel is in its normal position—*i. e.*, when the parts of the machine are in position to place the apple on the fork properly—it commences at the rim d^3 at a point slightly below the terminus of the horizontal diameter at the left side of the wheel *d*. It then curves downwardly, inwardly, and upwardly past the axis of the wheel, then upwardly and inwardly toward the left of the wheel until it comes above and nearly to the axial line of the wheel, where it is broken or stops. The cam d^2 starts from the inner hub, *i*, of the wheel *d* at the upper side of the hub *i*, and curves upwardly toward the left side of the wheel, then downwardly and outwardly, and terminates at the spoke d^7 just near enough to the rim d^3 to permit a friction-roller, *i'*, to pass through space i^2 between the cam *d'* and d^2. This friction-roller *i'* also passes through the space i^3 in the irregular cam *d'* at a certain time during the revolution of the wheel *d*, as will be hereinafter explained.

A sliding disk, *k*, having bearing-lugs k' k^2 k^3 and an angular arm, k^3, is provided on its front face with an irregular annular cam, *l*, and is centrally bored to form a bearing for a rotating disk, *l'*, which carries the knife-arm l^2. The knife-arm l^2 is secured to a short shaft, l^3, working in bearings in arms or studs l^4 l^5, extending from the face of the rotating disk *l'*. The short shaft l^3 extends at a right angle to the axial line of the rotating disk *l'*, and the knife-arm l^2 and the friction-arm l^4 are secured to the short shaft l^3, in line with the axial line

of the rotating disk l'. The knife-arm l^2 is engaged by the end of a coil-spring, l^6, which encircles the short shaft l^5, the other end of the coil-spring engaging the rotating disk l', to hold the friction-roller l^{10} on the end of the friction-arm l^4 in engagement with the irregular annular cam l while the disk l' is being rotated. A pinion, m, on the rear end of the shaft m' of the rotating disk l', engages the rack h, and when the sliding disk k is moved on the guide-rods k' k^2 k^2 it causes the disk l' to rotate and carry the knife l^3 around the apple to pare it, as will be further explained. The rear face of the angular arm k^3 is provided with a projecting arm, m^2, carrying a friction-roller, m^3, which engages the irregular cam d' on the revolving wheel d, to operate the sliding disk k forward and back upon the guide-rods k' k^2 k^2. A bracket, n, is secured to the front side of the cross-rail c, between the upright b' and the vertical bracket f, and extends forward to form the bearings for the driving mechanism and the fork-shaft. A gear-wheel, o, having a miter-gear hub, o', is journaled on the bracket n, and its periphery engages a pinion, o^2, on the end of the fork-shaft o^3, while its miter-geared hub engages the miter-teeth on the rim of the revolving cam-wheel d. When operated by hand-power, a crank, o^4, is provided, and the wheel o operates the pinion and the wheel d.

When the machine is driven by power other than hand-power, a clutch-pulley, p, grooved in its periphery, as shown, is placed on the fork-shaft o^3, between the bearings p' p^2, and its grooved hub p^3 is engaged by the bifurcated end of a clutch-lever, p^4, pivoted on a standard, p^5, and carrying a friction-roller, p^6, at its rear end, which roller engages the inner periphery of the rim d^3 of the cam-wheel d, to hold the clutch-pulley p in engagement with the pin o^5 on the fork-shaft o^3 until such time as the friction-roller p^6 is opposite the recess d^6 in the rim d, when a retracting-spring, q, connected to the clutch-lever p^4 between its fulcrum and the clutch-pulley p at one end, and to a standard, q', on an arm, q^2, at its other end, will draw the pulley out of engagement with the pin o^5, and throw the friction-roller p^6 into the recess d^6, and stop the machine at each revolution of the cam-wheel d.

A knock-off slide, r, for knocking the core of the apple from the fork after the apple has been pared and sliced, consists of a collar, r', sliding on the fork-shaft o^3 between the fork and the shaft-bearing p', and provided with connected arms, which slide between the tines of the fork. A curved knock-off lever, s, is fulcrumed on the standard q', and provided at its rear end with a friction-roller, s', which engages the short curved cam d^2 on its outer side, and causes the outer end of the knock-off lever s to throw the knock-off slide toward the tines of the fork, and thereby force the core off the tines at the proper time. A bar, s^2, pivoted to the clutch-lever at one end, is bifurcated at the other end, and a screw, s^3, is passed through the bifurcation into the knock-off lever s a short distance from its point. An arm, t, curved downwardly, forwardly, and then upwardly, is secured to the forwardly-projecting arm k^4 of the angular arm k^3 of the sliding disk k. The outer end or forward end of the arm t is provided with the angular slicer and corer t'. By this construction the knife is located on one side of the apple when the latter is on the fork, and the slicer and corer are on the opposite side of the apple, thereby equalizing the pressure on the apple and preventing its breaking. The bar s^2, before referred to, is to operate the clutch-lever to slide the clutch-pulley into gear when the knock-off is slid back against the knock-off lever in putting the apple on the fork. It requires only one revolution of the cam-wheel d to peel an apple, and the machine will be automatically thrown out of gear at the time the apple is peeled, no matter what the size of the apple may be, the friction-roller on the clutch-lever entering the recess in the rim d^3 of the revolving cam-wheel d at the end of each revolution for this purpose.

In its normal position the friction-roller on the friction-arm l^4 is resting on the foremost projection of the irregular cam l. When the sliding disk k has been moved forward on the guide-rods g and g' until the pinion on the rotating disk l' has, through the medium of the rack, carried the friction-roller on the arm l^4 along the incline on the foremost projection u to the next short incline u' of the irregular cam l, the paring-knife will have moved to a position to commence paring the apple. The continued rotation of the disk l' carries the friction-roller around the plane or nearly plane portion of the cam l until the depression u^2 has been reached, the knife having been carried around at the same time until the stem portion of the apple has been reached, at which time the friction-roller on the arm l^4 drops into the depression u^2 in the cam l and causes the knife to be turned backward, to prevent gouging of the apple at this point, which would otherwise occur were the depression u^2 omitted from the cam l. By continuing the rotation of the disk l' until the base of the foremost projection of the cam l is reached the knife will have completed the paring of the apple, and will, during the last-mentioned transit of the friction-roller, have been turned downwardly away from the apple. To complete this much of the operation, the first section of the irregular double cam d' will have been traversed, and the space i^3 will have been reached. The friction-roller i' then drops or passes through the space Z and comes in contact with the second section of the cam d', which causes the sliding disk k to travel upon its guide-rods back toward its starting-point, and in its passage back to rotate the disk l' in the opposite direction through the rack and pinion, and thereby carry the friction-roller back over the irregular cam l to its normal position.

It should be observed that the normal posi-

tion of the knife-arm and the paring-knife is above the fork and out of the way of the operator who places the apples on the fork. The knife need not be handled or pulled back, but automatically assumes this position, and all the other necessary positions required to properly peel the apple, by simply driving the revolving cam-wheel *d* in one direction. When driven by hand it is not necessary to stop the machine automatically, as the operator has complete control. When power is used, however, the stop mechanism is necessary to avoid accidents; but the means for throwing the machine in gear by simply forcing the apple upon the fork are so simple that the machine may be operated with great rapidity.

It is necessary, in order to make the knife operate properly while the friction-roller on the friction-arm l^4 is passing along the first incline from its normal resting-place, that the first section of the cam d' should be double for a short distance to engage the roller i' with certainty; otherwise the spiral spring on the short shaft would carry the knife around against the apple, which is already revolving, and the knife would pare at the same point for more than one revolution of the apple.

The knife-arm is secured on the axial line of the rotating disk l' for the reason that were it at any other point, when the knife reached a vertical position under the apple, instead of being rotated and carried back from the apple, the continued rotation of the disk l' would carry it up in contact with the fork-shaft and either stop or break the machine.

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

1. In an apple-parer, the combination, with the revolving cam-wheel having a short recess in the inner periphery of the miter-gear rim, of the pivoted clutch-lever carrying a friction-roller at its rear end, a fork engaging the clutch-pulley on the fork-shaft at the other end, and a spiral spring for holding the friction-roller in engagement with the cam-wheel, and mechanism for operating the same, substantially as specified.

2. In an apple-parer, the combination, with the revolving cam-wheel having the recess in the inner periphery of the geared rim and the short curved cam i^3 on its inner face, of the clutch-lever provided with the friction-roller and retracting-spring, the clutch-pulley, the fork-shaft provided with a pinion engaging the rim of a gear-wheel having a miter-gear hub engaging the gear of the revolving cam-wheel, a knock-off lever carrying a friction-roller at its rear end and connected by a pivoted push-bar to the clutch-lever, and the knock-off slide engaging the fork-shaft and the tines of the fork, substantially as specified.

3. The combination, in an apple-parer, with the knock-off on the fork-shaft and the knock-off lever and clutch-lever connected together by the push-bar, of the grooved pulley-clutch on the fork-shaft, whereby the mechanism may be thrown in gear by slipping an apple on the fork when the machine is driven by power, substantially as specified.

4. In an apple-parer, the combination, with the rotary fork and rotary fork-shaft and the rotary sliding knock-off, of the automatic knock-off lever, bifurcated lever carrying a friction-roller at its inner end, and mechanism for operating the same, substantially as specified.

5. In an apple-parer, the combination of the irregular cam-faced sliding disk mounted on guide-rods and carrying the centrally-located revolving knife-arm and the angular arm carrying the downwardly, forwardly, and upwardly curved arm provided with the slicer and corer at its outer end, and mechanism for operating the same, substantially as specified.

6. In an apple-parer, the combination of the sliding disk carrying the irregular cam, the centrally-located revolving knife-arm, the rear arm carrying the friction-roller engaging the irregular cam, the pinion for engaging the rack, and the revolving cam-wheel having the irregular sectional or double cam, with mechanism for operating the cam-wheel, substantially as specified.

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

W. H. BOUTELL.

Witnesses:
THEO. MUNGEN,
JOSEPH DORSEY.