

H. M. HAFF.
FRUIT PARING MACHINE.

(Application filed May 11, 1899.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.

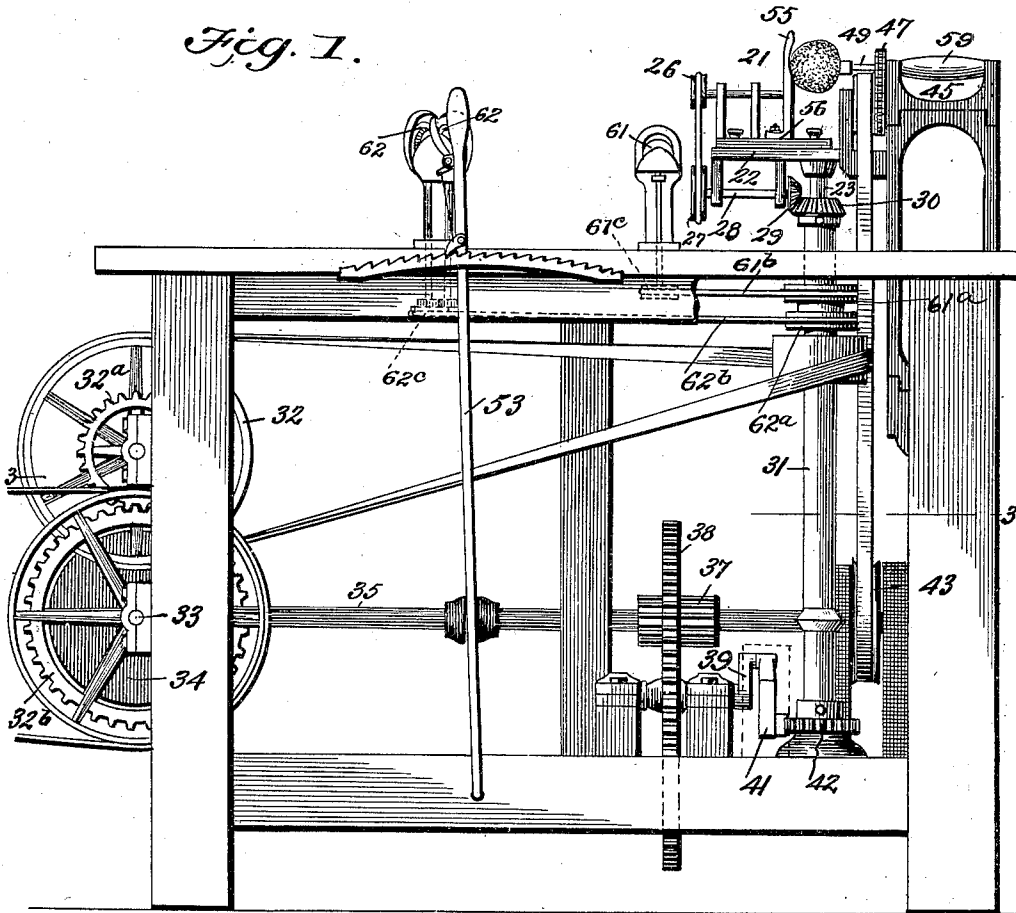
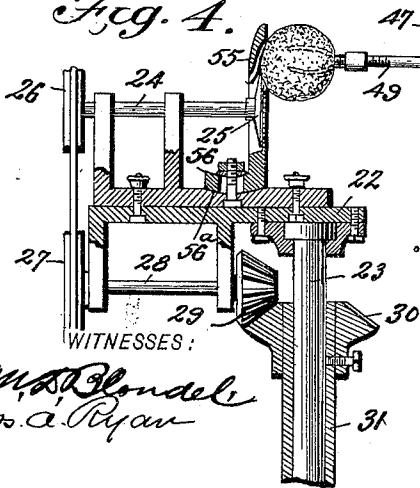


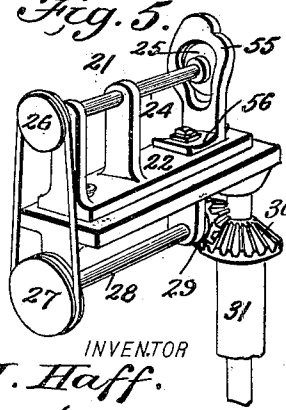
Fig. 4.



WITNESSES:

M. D. Blondel
Jos. A. Ryan

Fig. 5.



INVENTOR

H. M. Haff.

BY *Mumford & Co.*

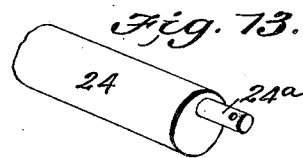
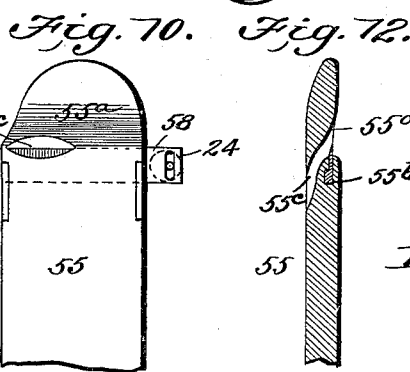
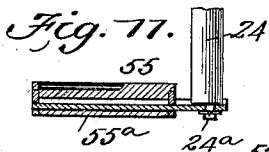
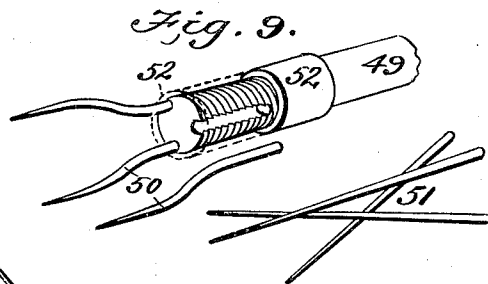
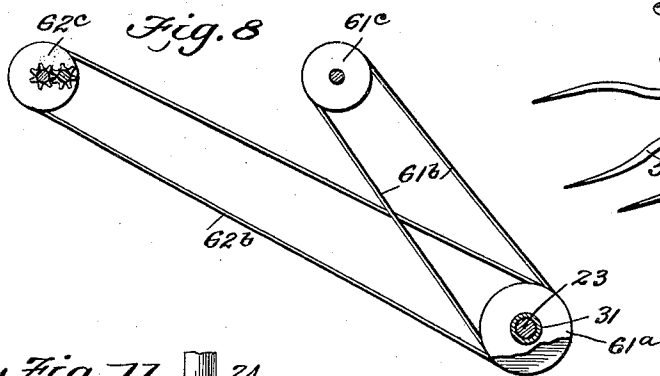
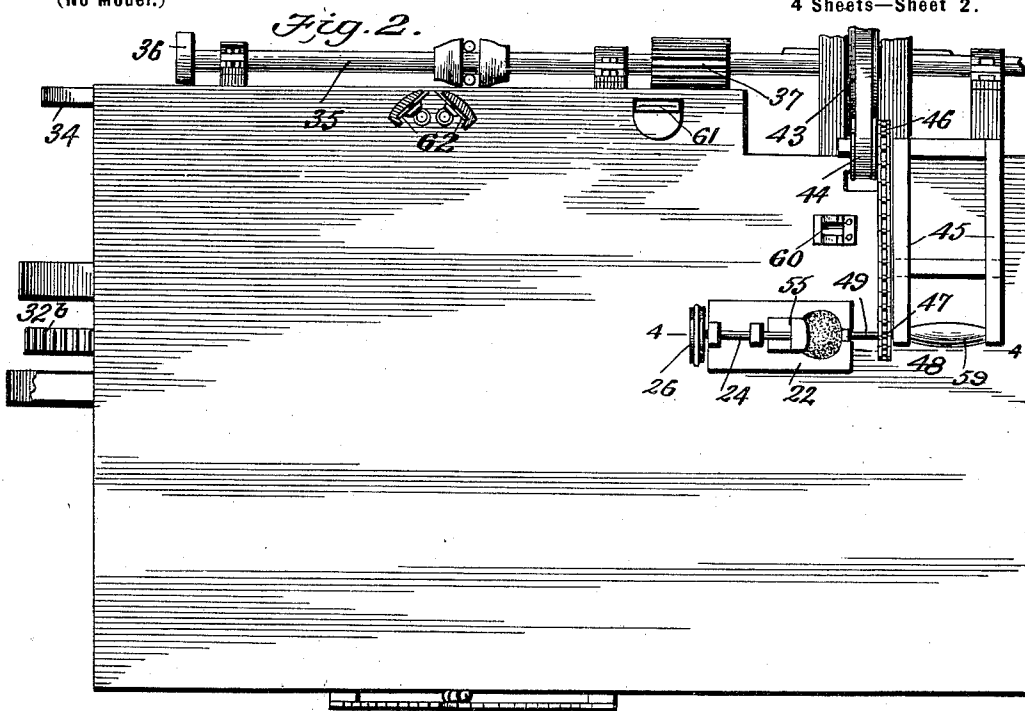
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4 Sheets—Sheet 2.



WITNESSES:
M. S. Cloude,
Jos. A. Ryan

INVENTOR
H. M. Haff.

BY *Munn & Co.*

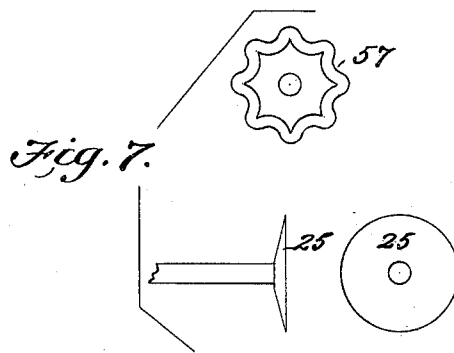
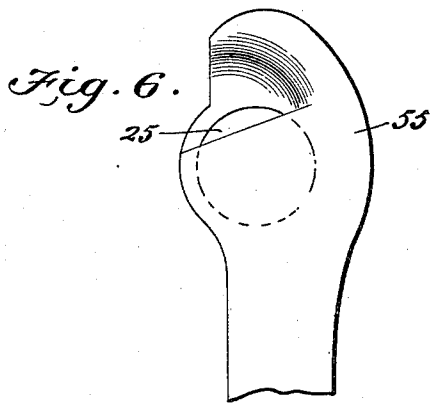
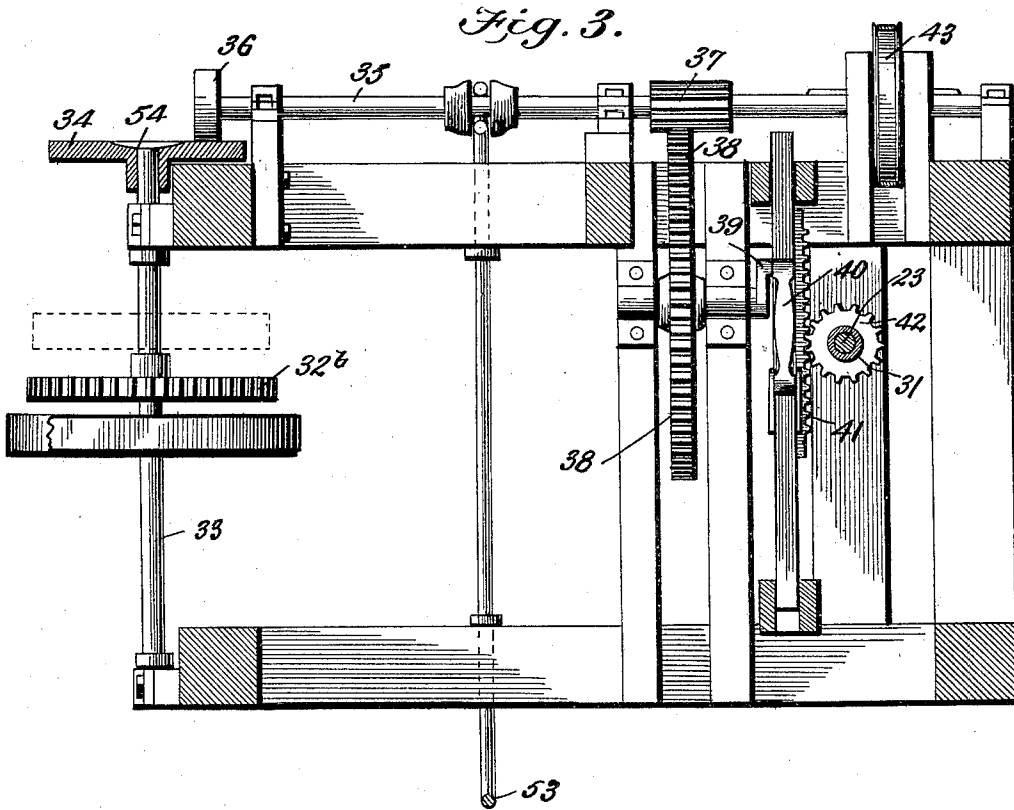
ATTORNEYS

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(Application filed May 11, 1899.)

(No Model.)

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WITNESSES:
M. S. Blouell
Jos. A. Ryan

INVENTOR
H. M. Haff.
 BY *Munn & Co.*

ATTORNEYS

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FRUIT PARING MACHINE.

(Application filed May 11, 1899.)

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4 Sheets—Sheet 4.

Fig. 74.

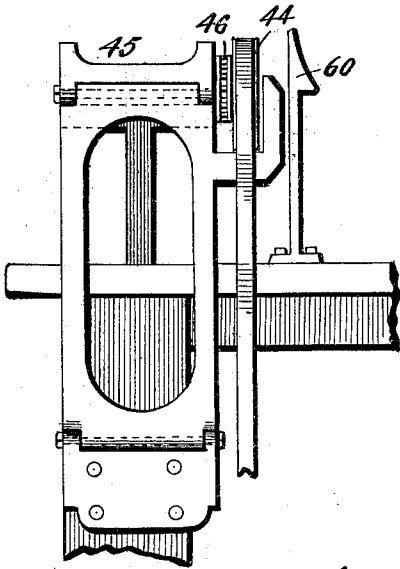


Fig. 75.

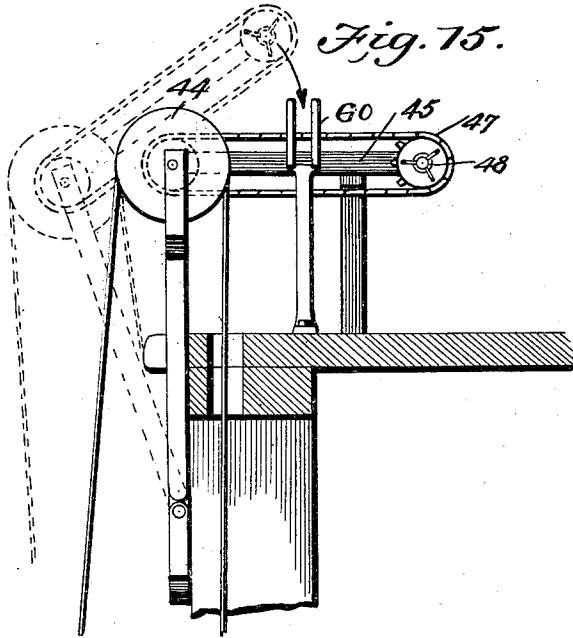


Fig. 76.

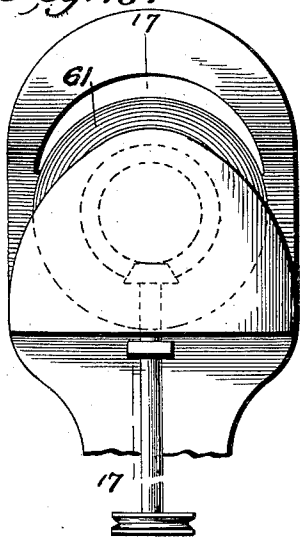


Fig. 77.

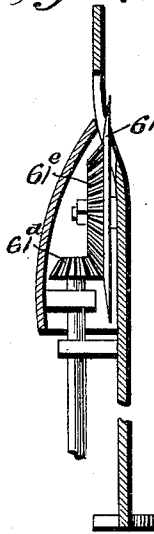


Fig. 78.

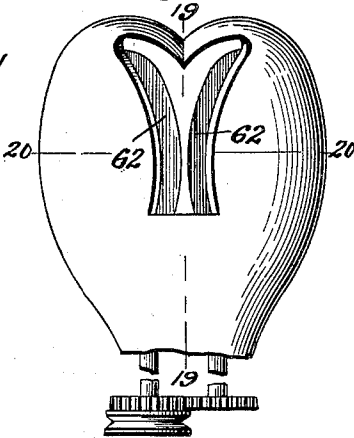
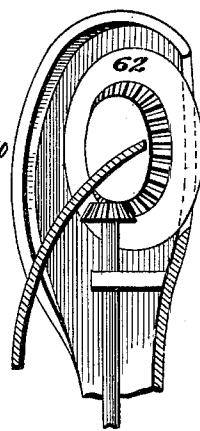


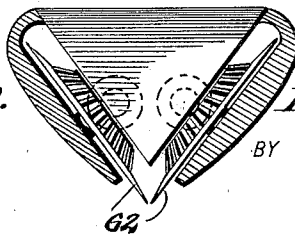
Fig. 79.



WITNESSES:

M. D. Blondel.
Jos. A. Ryan

Fig. 20.



INVENTOR
H. M. Haff.
BY *Munn & Co.*

ATTORNEYS

UNITED STATES PATENT OFFICE.

HAVEN MARSHALL HAFF, OF LUDINGTON, MICHIGAN.

FRUIT-PARING MACHINE.

SPECIFICATION forming part of Letters Patent No. 652,181, dated June 19, 1900.

Application filed May 11, 1899. Serial No. 716,417. (No model.)

To all whom it may concern:

Be it known that I, HAVEN MARSHALL HAFF, of Ludington, in the county of Mason and State of Michigan, have invented a new and useful Improvement in Paring-Machines, of which the following is a specification.

My invention relates to machines for paring peaches and other fruit and vegetables; and it has for its object such a machine in which the paring may be done expeditiously and with little waste.

The invention consists in certain arrangements and assembling of parts of the complete machine and certain details of construction, which I shall first describe and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a side elevation of my machine. Fig. 2 is a plan view thereof. Fig. 3 is a horizontal section on line 3 3 of Fig. 1. Fig. 4 is a sectional side elevation taken about on the line 4 4 of Fig. 2. Fig. 5 is a detail perspective view of the cutter-head. Fig. 6 is a detail front view of the parer-guard. Fig. 7 is a detail view illustrating some of the different forms of paring-disks employed. Fig. 8 is a detail view illustrating the operating means for parers shown in Figs. 16 to 20, inclusive. Fig. 9 is a detail perspective view of the fruit-holding spindle and prongs. Fig. 10 is a detail face view of a drag-knife attachment used in paring very soft peaches. Fig. 11 is a horizontal section of the same. Fig. 12 is a vertical transverse section of the same. Fig. 13 is a detail view of part of the paring-spindle when arranged for the drag-knife. Fig. 14 is a view of the pivoted frame on which the peach-holding spindle is mounted. Fig. 15 is a similar view at right angles to Fig. 14, showing the manner of unloading the fruit from the parer. Fig. 16 is a detail face view of the device for paring depressions in fruit. Fig. 17 is a section on the line 17 17, Fig. 16. Fig. 18 is a face view of the device for paring the "valley" of a peach. Fig. 19 is a vertical section on line 19 19, Fig. 18. Fig. 20 is a horizontal section on the line 20 20, Fig. 18.

My improved parer is mounted on a suitable framework and consists of a cutter-head

21, secured upon the cranked arm 22 of the vertical shaft 23, mounted to rotate in suitable bearings in the bed-plate and base of the framework. The said cutter-head 21 is provided with a horizontal spindle 24, mounted in uprights and rotatable about its longitudinal axis. A paring-disk 25 (shown in detail in Fig. 7) is fixed on one end of the spindle, and on the other end of said spindle is keyed a pulley 26, connected by a belt with a pulley 27 on one end of a short horizontal shaft 28, held in depending arms secured to the cranked arm 22, the opposite end of said latter shaft having a bevel-pinion 29 gearing with a bevel-pinion 30 on the upper end of a hollow shaft 31, surrounding the shaft 23, but movable independently thereof. The outer shaft 31 is rotated by a pulley-and-belt connection with a large band-wheel 32, mounted on a shaft journaled in bearings on uprights of the framework, this wheel in turn having connected with it a gear-wheel 32^a, which meshes with a second though larger gear-wheel 32^b on a shaft 33, which shaft is the main shaft of the entire machine and may be operated by an engine or by any other suitable power. On the shaft 33 at one side of the large gear-wheel 32^b is fixed a friction-disk 34, with which a horizontal and longitudinally-slidable shaft 35 engages by means of a suitable leather or other friction drum 36 on its adjacent end, and the latter shaft extends longitudinally of the framework of the machine some distance beyond the vertical shafts 31 and 23. Between its ends the shaft 35 is provided with a wide pinion 37, arranged to mesh with a gear-wheel 38, mounted between short posts on the base of the framework, the shaft of said gear-wheel carrying a crank 39, connected by a wrist-pin with a pitman 40, which is connected with a rack 41, meshing with a pinion 42, secured on the lower end of the cutter-head shaft 23. A flanged pulley 43 is splined on the shaft 35 and is connected by a belt with a second flanged pulley 44, mounted on a tiltable frame 45. Adjacent to the pulley 44 and preferably integral therewith is a sprocket-wheel 46, connected by chain with a sprocket-wheel on the fruit-carrier 48, consisting of a rotatable spindle 49 and a series of prongs 50 or 51, held thereon by a collar 52, as best shown

in Fig. 9, the prongs 50 being better adapted for peaches and the prongs 51 for apples. The peach, say, being impaled on the prongs of the fruit-carrier, the shaft 33 is set in motion. Motion is thereby communicated through the wheel 32 to the shaft 31 and thence through the train of gearing described above to the parer-disk 25, which normally revolves very rapidly. At the same time, it will be observed, motion is also communicated through the friction-disk 34 to the shaft 35, which in turn moves the gear-wheel 38 comparatively slowly. The pitman 40 is thereby caused to move the rack to turn shaft 23, carrying the cutter-head, which as the pitman reciprocates will move the paring-disk half-way around the peach and then back again. All this time the peach has been rotating by means of the rotatable carrier and its pulley-and-belt connection with the shaft 35, and in order to vary the rate of movement of the peach I mount a "throw-off" lever 53 in the base of the framework, the said lever extending upwardly between two collars on the shaft 35, whereby to move the drum on the latter into closer or wider engagement with the friction-disk. In order to stop the shaft 35 altogether, the friction-disk is formed with a central recess 54, into which the drum may be carried, so as to be entirely free from contact with the said disk. During this operation of paring it is expedient that the thickness of the paring be carefully adjusted, and to this end I mount a guard 55 (best seen in detail in Fig. 6) on the bed-plate of the cutter-head. The guard is placed in front of the paring-disk, and through its face the paring-disk comes in contact with the fruit. It is of such shape that where the center of the paring-disk comes against it from the rear the guard is bulged slightly inward, so that no matter if the guard be considerably changed in position the edge of the disk will not come into contact with the metal face of the guard. At its lower end the guard is formed with a curved foot 56, formed with an elongated slot in which works a clamp, whereby the guard is held in a correspondingly-curved recess 56^a in the bed-plate of the cutter-head. By this construction when the foot is moved forward the upper portion of the guard will be thrown back and the parings will be thicker. If the peaches happen to be very soft, a paring-disk 57 (see Fig. 7) may be used, the said disk having a wavy edge, and when peaches are more than usually soft a drag-knife 58 (shown in Fig. 10) may be used. Referring to Figs. 10, 11, and 12, it will be seen that this drag-knife is operated and supported by the same devices described above in connection with the paring-disks. To this end the upper portion of the cutter-head is slipped somewhat to one side, the paring-disk removed, an eccentric crank-pin 24^a is secured in the end of the spindle 24, a guard of the form shown at 55^a is secured to the cutter-head, the said guard being formed with an undercut slot 55^b and

waste-slot 55^c, and the crank-pin works in an elongated slot in the knife. It is obvious, then, that when the spindle 24 is rotated it will reciprocate the drag-knife 58. After the peaches have been pared by one of the disks or knife the operator, whose hand grasps a loose handle 59 on the fruit-carrying spindle, throws the frame 45 to the right, as shown in dotted lines in Fig. 15, which causes the upper pulley 44 to turn down and the belt to become slack, thereby stopping the fruit-carrying spindle. The fruit is then "unloaded" on the fork 60. As is usually the case with peaches, the fruit may have one or more depressions in its surface which the paring-disks will be unable to reach. In such cases the operator holds the peach in his hand against a very small disk 61 on an upright permanently located on the bed of the framework, the said disk being actuated from the shaft 31 by means of a pulley 61^a on the shaft 31, connected by a belt 61^b with a pulley 61^c on the shaft of the attachment, and the said shaft extends upward and terminates in a small pinion 61^d, which meshes in a circle of cogs 61^e on the back of the disk 61, as best shown in Fig. 17, or when the valley of the peach is left untouched by the main parer I preferably employ two disks 62, set at an angle of about forty-five degrees with respect to each other, said disks being also actuated from the shaft 31 by a pulley 62^a on said shaft, connected by the band 62^b with a pulley 62^c on one of the shafts of this latter attachment, as shown in Figs. 8 and 18, the other shaft of the said attachment being connected to the first named by cog-wheels, as shown. The guards employed to regulate the size of parings and to protect the operator's hand in these instances are of the form shown in Figs. 16 to 20, inclusive.

While I have described my paring-machine in connection with peaches, it is manifest that it is equally as applicable to apples or other fruit and vegetables, such as potatoes or the like.

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

1. In a fruit-paring machine, the combination with the framework of the machine, of the vertical shaft mounted in said framework and provided with a cranked arm at its upper end, a cutter-head secured upon said cranked arm, a horizontal spindle mounted in bearings on said cutter-head and carrying a parer, a horizontal shaft mounted in arms depending from said cranked arm, such shaft being provided with a bevel-pinion and having an operative connection with said parer-carrying spindle, a second vertical shaft mounted in said framework and having a bevel-pinion meshing with the first-named pinion, means for imparting a continuous rotary motion to such second vertical shaft, and means for oscillating said first-named vertical shaft, as set forth.

2. In a machine for the purpose described, the combination with the framework of the machine, of the vertical shaft mounted therein and carrying a cutter-head, means for imparting a back-and-forth motion to said shaft whereby to oscillate said cutter-head, a rotatable parer mounted on said cutter-head, a hollow shaft surrounding said first-named shaft and operatively connected with said parer, and means for imparting a continuous rotary motion to said hollow shaft, as set forth.

3. The combination in a fruit-paring machine with the framework of the machine, of a vertical shaft mounted in said framework and carrying a cutter-head, means for turning said shaft back and forth whereby to oscillate said cutter-head, a rotatable parer mounted on said cutter-head, a second vertical shaft mounted in said framework and connected with said parer to rotate the same, and means for imparting continuous rotary movement to said second shaft, as set forth.

4. In a machine for the purpose described, the combination with the framework of the machine, of a vertical shaft mounted in said framework, and provided with a bevel gear-wheel, a second vertical shaft mounted in said framework and carrying a cutter-head, a rotatable paring-disk carried on said cutter-head, a horizontal shaft held on said cutter-head, such shaft being provided with a bevel pinion meshing with said gear-wheel, and operatively connected with said paring-disk, means for imparting a continuous rotary motion to the first-named vertical shaft, and means for imparting a back-and-forth movement to the other vertical shaft whereby to oscillate the cutter-head, as set forth.

5. In a machine for the purpose described, the combination with the framework of the machine, and the main driving-shaft mounted therein, of a rotatable fruit-holder on said framework, a shaft 35 driven by said main shaft, having a pulley-and-belt connection with said fruit-holder and having a pinion 37 secured thereon, a gear-wheel 38 mounted in the framework and meshing with said pinion, a pitman secured to a crank on the shaft of said gear-wheel, a rack-bar connected with said pitman, a cutter-head shaft mounted in the framework and having a pinion meshing with said rack-bar, and a parer carried by said cutter-head shaft as set forth.

6. In a machine for the purpose described, the combination with the framework of the machine, the rotatable fruit-holder, the oscillating cutter-head and the rotatable parer thereon, of a main driving-shaft in said framework operatively connected with the parer, the slidable shaft mounted in bearings in said framework and operatively connected with the fruit-holder and cutter-head, a friction-disk on said driving-shaft, a wheel on the slidable shaft arranged for frictional engagement with said disk and means for sliding said shaft whereby to vary or stop the motion of the cutter-head and fruit-holder, as set forth.

7. In a machine for the purpose described, the combination with the framework of the machine, and the parer thereon, of a frame pivoted on the framework of the machine, a rotatable fruit-holding spindle mounted in said pivoted frame, a pulley on said pivoted frame having a belt connection with a second pulley on an operating-shaft, a connection between said pulleys and said spindle, and a handle loosely fitted on said spindle whereby the pivoted frame may be turned on its pivot, as and for the purpose set forth.

8. In a machine for the purpose described, the combination with the framework of the machine, of the two vertical shafts mounted therein, a cutter-head provided with a rotatable paring-disk and held on one of said shafts, a connection between the other shaft and the said disk whereby to rotate the latter, means for rotating said latter shaft, a wheel fitted in bearings in the framework below the cutter-head and provided with a pitman carrying a rack, and a pinion held on the cutter-head shaft, and meshing with said rack, as set forth.

9. In a machine for the purpose described, the combination with the framework of the machine, and the paring device mounted thereon, of a frame pivotally mounted on said framework and carrying a rotatable fruit-holder, a pulley on said pivoted frame, said pulley being arranged to operate the fruit-holder and a driving-pulley mounted in fixed bearings in the framework of the machine and connected by belt with the pulley of the pivoted frame, whereby when the frame is moved on its pivot the belt will slacken and the movement of the fruit-holder cease, as set forth.

10. In a machine for the purpose described, the framework of the machine, the two vertical shafts mounted therein, one of which carries a cutter-head and the other operating a parer held on said cutter-head, a horizontally-disposed shaft mounted to slide in bearings on the framework, a main driving-shaft on said framework and provided with a friction-disk adapted to engage a wheel on the slidable shaft, means for sliding said shaft to increase, decrease, or stop the rotation of the fruit-holder and the oscillation of the cutter-head without interfering with the speed of the cutting disk or parer, a pinion on said shaft, a gear-wheel meshing with said pinion and provided with a pitman connected with the cutter-head shaft to oscillate the same, a pulley splined on said horizontal shaft, a frame pivoted on the framework and carrying a rotatable fruit-holder, a pulley on the pivoted frame for operating the fruit-holder, and a band connection between the pulley of the pivoted frame and the splined pulley whereby when the frame is moved the band will slacken and the fruit-holder cease to move, as set forth.

11. In a machine for the purpose described, the cutter-head, the rotatable paring-disk

mounted thereon, and a guard through which the edge of said disk is arranged to project, the said guard having a curved foot held in a corresponding recess in the cutter-head 5 whereby when the foot is moved the upper end of said guard will expose more or less of the disk, as set forth.

12. In a machine for the purpose described, the combination with the framework of the 10 machine, of a paring-disk on said framework, a pivoted frame on said framework, a fruit-holder on said pivoted frame and having a pulley-and-band connection with an operat-

ing-shaft, whereby when the frame is moved backward and forward the fruit being pared 15 is respectively removed from the paring-disk or pressed against the same, thus enabling the hand of the operator to adjust the pressure against the paring-disk to correspond with the firmness or softness of the 20 fruit, as set forth.

HAVEN MARSHALL HAFF.

Witnesses:

E. C. HAFF,
THOS. P. McMASTER.