

S. L. COATES.
ATTACHMENT FOR APPLE PARING MACHINES.
APPLICATION FILED JUNE 6, 1911.

1,019,600.

Patented Mar. 5, 1912.

3 SHEETS—SHEET 1.

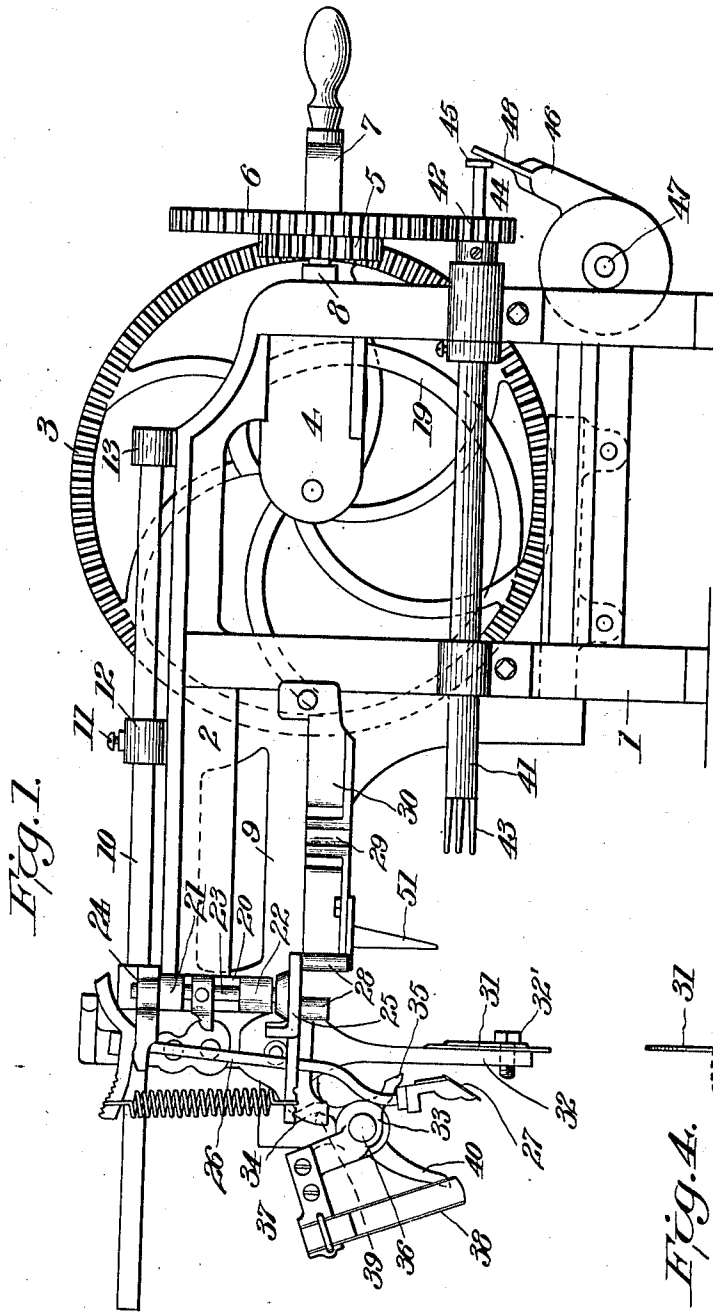


Fig. 1.

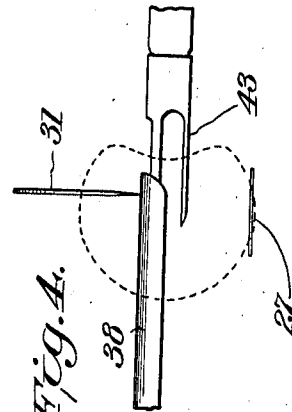


Fig. 4.

WITNESSES

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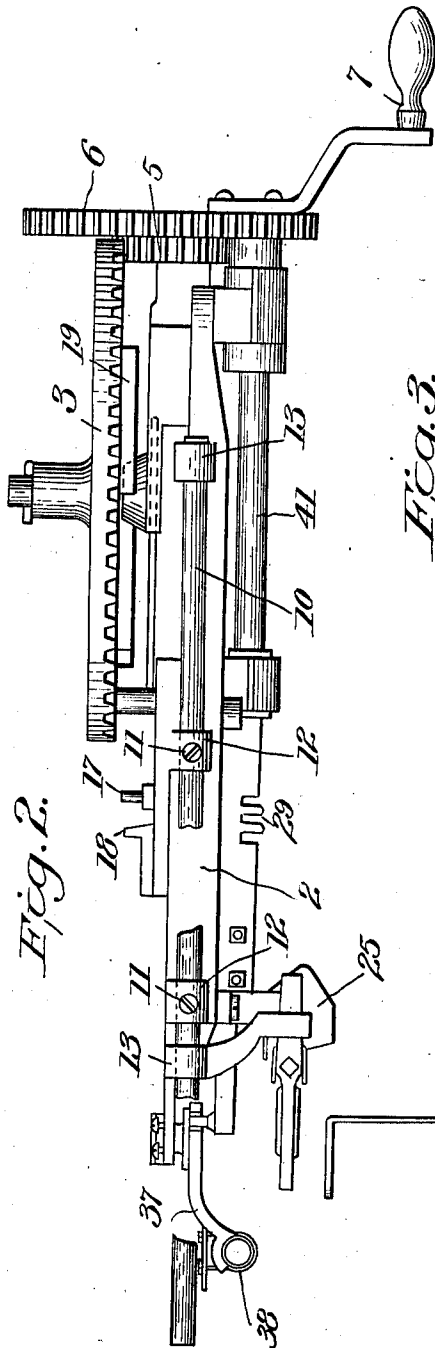


Fig. 2.

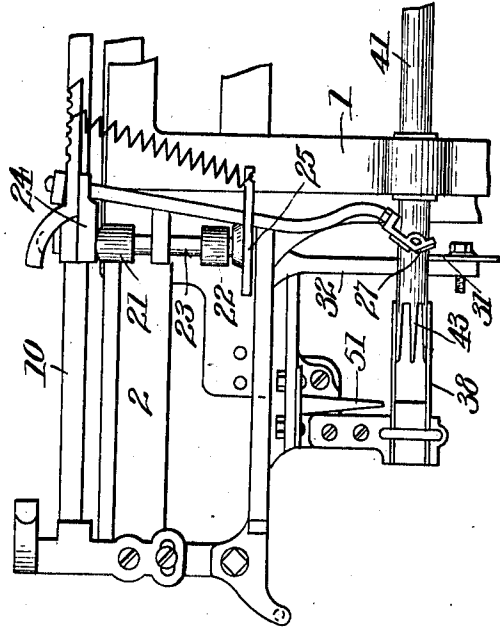


Fig. 3.

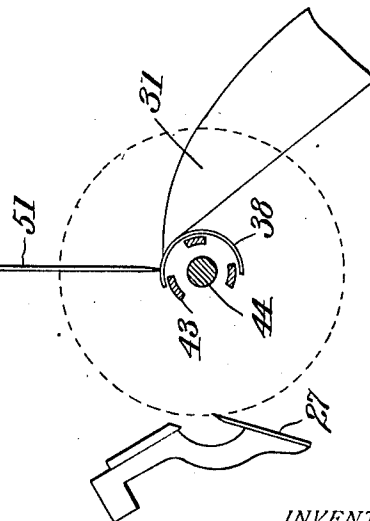


Fig. 5.

WITNESSES

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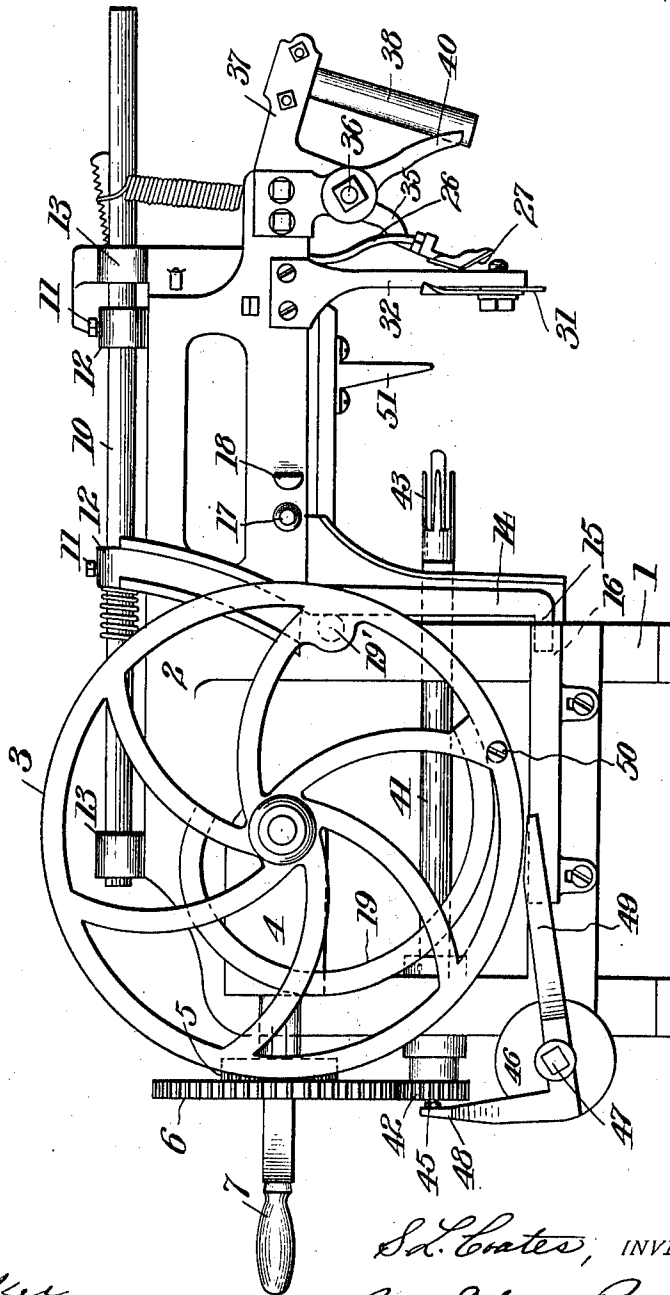
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3 SHEETS—SHEET 3.

Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR APPLE-PARING MACHINES.

1,019,600.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed June 6, 1911. Serial No. 631,589.

To all whom it may concern:

Be it known that I, SAMUEL L. COATES, a citizen of the United States, residing at Rickreall, in the county of Polk and State of Oregon, have invented certain new and useful Improvements in Attachments for Apple-Paring Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as it will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to apple paring machines and is in the nature of an attachment for a machine which is capable of paring, coring and spirally slicing an apple.

The function of my attachment is to cut the spiral slice into rings, and to do this automatically before the apple is discharged from the machine.

Heretofore, it has been necessary to cut the apple into rings as a separate and additional operation after it is discharged from the machine.

With my attachment, the machine does all of the work and, as the ring-shaped slices are discharged, they fall apart so that they can be much more quickly and easily spread upon the tray for drying, etc.

Other objects will become apparent from the following description.

The invention consists of a knife which is attached to the machine in such a position that it will pass radially through the apple after the same has been pared, cored and spirally sliced, and before it is discharged from the machine.

My invention also consists in the features of construction and combinations of parts hereinafter described, illustrated in the accompanying drawings, and specified in the appended claims.

In the accompanying drawing: Figure 1 is a front elevation of an apple paring machine with my improvement attached, showing the parts in the positions they assume after an apple, pared, cored, spirally sliced and cut into rings, has been discharged and the machine is ready to operate upon another apple. Fig. 2 is a plan view of the machine in the same position with portions of the reciprocating rod broken away. Fig. 3 is a front elevation of a portion of the machine in the position assumed when the apple has been pared, cored and spirally sliced but before it has been cut by my attachment into rings or removed from the

fork which support it during the operations referred to as having been completed. Fig. 4 is an enlarged horizontal detailed section showing the positions of the corer, parer and spiral slicer, during the operation. Fig. 5 is an enlarged detailed vertical section showing the position of my attachment or knife relative to the parer, corer and spiral slicer, and Fig. 6 is a rear elevation of the machine.

Referring more particularly to the drawings, 1 designates the stationary frame of a machine having its upper bar 2 extending a considerable distance beyond the main portion of said frame. A gear wheel 3 is supported upon an arm 4 on said frame and is engaged by a pinion 5 formed integral with the actuating wheel 6 which is provided with a crank 7. Said combined pinion and actuating wheel is mounted upon a stud 8 on the main frame.

A carriage 9 is mounted to slide longitudinally upon the frame 1, being supported by a horizontal rod 10 which is rigidly secured by means of the set screws 11 in the horizontally-bored projections 12 on the carriage and which slides in horizontally-bored projections 13 on the upper surface of the bar 2 of the stationary frame. Extending downwardly from the sliding carriage is a leg 14, the foot 15 of which slides in a horizontal groove 16 in the rear side of the frame.

On the rear face of the carriage there are two studs or projections 17 and 18 which are engaged by a cam 19 on the front face of the gear wheel 3, said cam operating between said studs to move the carriage inwardly toward the actuating wheel. A stud 19' on the front face of the gear wheel 3, near the periphery thereof, is adapted to engage the leg 14 of the carriage for advancing the latter, that is for moving it in an outward direction away from the actuating wheel.

A bracket 20 is secured to the front of the carriage and has two horizontal arms 21 and 22 loosely supporting a post 23. Rigidly secured to this post are two arms 24 and 25 supporting a spring-pressed rod 26 carrying the paring knife 27 at its lower end. The lower arm 25 is provided on its under side with a plurality of projecting lugs or sprockets 28 adapted to engage the teeth 29 on a horizontal rack bar 30 rigidly secured in proper position upon the stationary frame.

The spiral slicing knife 31 is supported upon an arm 32 depending from the rear face of the carriage. Said knife is clamped rigidly upon its supporting arm by a nut 5 32' which, when loosened, will permit the knife to be moved out of its operative position in case it is not to be used.

On the outer end of the carriage, there is pivotally mounted a three-armed lever 33. 10 Two of the arms 34 and 35, respectively, of said lever, are arranged at one side of the pivot 36 and extend substantially in opposite directions. The third arm 37 extends at the other side of the pivot and carries the 15 coring knife 38. The arms 34 and 35 are adapted to engage the under surface of the rack bar 30 for holding the corer in rigid horizontal position as the carriage moves forward or toward the actuating wheel. 20 The outwardly extending arm 34 is adapted to engage a pin 39 on the outer end of the rack bar for turning the lever 33 so as to move the corer from a horizontal to a vertical position when the carriage reaches the 25 limit of its outward movement. A rigid rod 40 on the end of the carriage is adapted to automatically remove the apple from the coring knife as the latter is turned from horizontal to vertical position.

Mounted to turn in suitable bearings in the stationary frame is a tubular spindle 41 carrying on one end a pinion 42, meshing with the actuating wheel 6, and on its other end a fork 43 for supporting an apple to be 35 pared, cored and sliced by the machine. A rod 44 is arranged within the tubular spindle and is of a length equal to the spindle, its pinion, and the fork combined. Said rod is provided with a head 45 engaging the 40 face of the pinion 42. When an apple is placed upon the fork, this rod is moved rearwardly until its headed end projects beyond the pinion 42, as indicated in Fig. 1. A double armed lever 46 is pivoted upon the 45 stationary frame at 47 and has one of its arms 48 adapted to engage the headed end of the rod 44. The other arm 49 of said lever extends into the path of a pin 50 on the rear face of the periphery of the gear wheel 3. Said pin is adapted to engage said arm 50 49 after the coring knife has been withdrawn, for advancing the arm 47 and rod 44, the latter removing the core of the apple from the fork 43.

I am aware that the mechanism of the machine thus far described is old.

My improvement, namely, the knife 51 for cutting the spiral slice into rings, is rigidly attached to the rack bar 30 and extends 60 vertically downward therefrom into the plane of the upper edge of the coring knife when the latter is in its horizontal position. Said knife 51 is so positioned that it will be located at the attached end of the coring 65 knife when the latter is in its advanced po-

sition and has removed the apple from the fork 43. As said coring knife is moved away preparatory to its being thrown from horizontal to vertical position for removing 70 the apple, the knife 51 is caused to pass radially through the apple which is supported on said coring knife, thereby severing the spiral slice into rings. Prior to the knife 51 coming into operation, it will be understood that the apple has been pared, 75 cored, and spirally sliced by the mechanism described. The addition of the knife 51 to the machine makes it capable of turning out sliced apples in ring form ready for drying or marketing in fresh condition without any 80 further operations.

The operation of the machine as a whole is as follows: The apple is placed upon the fork 43 when the parts of the machine are 85 in the positions illustrated in Fig. 1. As already explained, the forcing of the apple upon the fork retracts the rod 44 mounted within the tubular spindle, the headed end of said rod engaging the arm 48 of the double-armed lever 46 and operating to 90 raise the other arm 49 of said lever into the path of the pin 50 on the gear wheel 3. The actuating wheel 6 is then turned by means of its crank 7 and, as it revolves, it rotates the spindle by means of its engage- 95 ment with the pinion 42, and also rotates the gear wheel 3 by means of the engagement of the latter with the pinion 5 on said actuating wheel. The cam 19, on said gear wheel 3, moving between the studs 17 and 18 on the carriage, advances the latter to- 100 ward the actuating wheel. As the carriage advances, the paring knife 27 comes in contact with the apple first and performs its function, being moved in a semi-circular 105 path, conforming to the surface of the apple, by the sprocket lugs 28 engaging the teeth 29 on the rack bar. As the paring operation nears completion, the coring knife begins to enter the apple around the fork 110 which supports it and, as said coring knife is inserted, the spiral slicing knife performs its function so that by the time the corer has passed entirely through the apple, the latter has been completely sliced into spiral 115 form and is retained upon the corer by said spiral slicing knife. During the advance of the carriage, with its paring, coring and spiral slicing knives, the knife 51 has remained stationary and, at the termination 120 of the forward movement of the coring knife, is located at the opposite end of the apple from that engaged by the spiral slicing knife. Now, as the carriage moves back, away from the fork on the spindle, which 125 operation is caused by the lug 19 on the gear wheel 3, engaging the leg 14 of the carriage, the apple is moved against the cutting edges of the knife 51 until the latter has been passed entirely through said ap- 130

ple, cutting the spiral slice into rings. It will be understood that the spiral slicing knife confines the apple upon the coring knife during the operation of my knife.

5 By the time the knife 51 has passed entirely through the apple, the arm 34 of the three-armed lever 33 is ready to engage the fixed pin 39 so that, as the carriage is moved the remainder of its rearward stroke, said
10 lever is turned, swinging the coring knife, bearing the apple, from horizontal to vertical position away from the spiral slicing knife and the knife 51. As said coring knife is swung outward and upward, the
15 apple is removed therefrom by the knock off rod 40, and the machine is back again to the position illustrated in Fig. 1, ready for another apple.

I claim:

20 1. In an apple paring machine, the combination, with a paring knife, a coring knife adapted to remove the apple after it is cored, and a knife adapted to slice the apple spirally, of a knife adapted to auto-
25 matically cut the spiral into separate rings after the apple has been removed upon the slicing knife, and means to finally discharge the apple from said coring knife.

30 2. In an apple paring machine, the combination, with a stationary frame, of a carriage mounted on said frame, a fork for supporting an apple in position to be pared, means for rotating said fork and for re-
35 ciprocating said carriage, a paring knife, a coring knife, and a spiral slicing knife, all mounted on said carriage, and a fixed knife mounted on the stationary frame for auto-
40 matically cutting the spiral slice into separate rings.

45 3. In an apple paring machine, the combination, with a stationary frame, a revolvable fork mounted on said frame, a carriage adapted to reciprocate on the frame, par-
ing, coring and spirally slicing knives
45 mounted on said carriage and adapted to

perform their functions during the move-
ment of said carriage toward said fork, of
another knife fixed on the stationary frame
and adapted to cut the spirally sliced apple
into rings during the movement of the car- 50
riage away from the fork.

4. In an apple paring machine, the com-
bination, with a stationary frame, a revolu-
ble fork mounted on said frame, a carriage
adapted to reciprocate on the frame, par- 55
ing, coring and spirally slicing knives
mounted on said carriage and adapted to
perform their functions during the move-
ment of said carriage toward said fork, said
coring knife adapted to remove the apple 60
from said fork on the reverse movement
of the carriage, of another knife fixed on
the stationary frame and adapted to cut the
spirally sliced apple into rings during the
movement of the carriage away from the 65
fork.

5. In an apple paring machine, the com-
bination, with a stationary frame, a revolu-
ble fork mounted on said frame, a carriage
adapted to reciprocate on the frame, par- 70
ing, coring and spirally slicing knives
mounted on said carriage and adapted to
perform their functions during the move-
ment of said carriage toward said fork, said
coring knife adapted to remove the apple 75
from said fork on the reverse movement of
the carriage, said spirally slicing knife serv-
ing to retain the apple upon said coring
knife as they are withdrawn from said fork,
of another knife fixed on the stationary 80
frame and adapted to cut the spirally sliced
apple into rings during the movement of
the carriage away from the fork.

In testimony whereof, I affix my signa-
ture, in presence of two witnesses.

SAMUEL L. COATES.

Witnesses:

HORT C. EAKIN,
J. E. SIBLEY.