

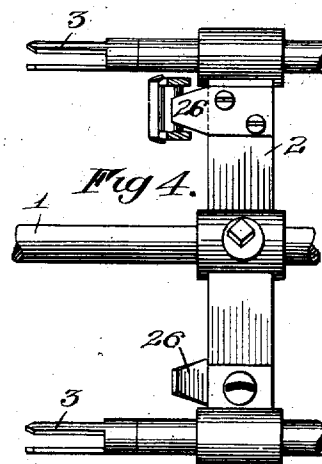
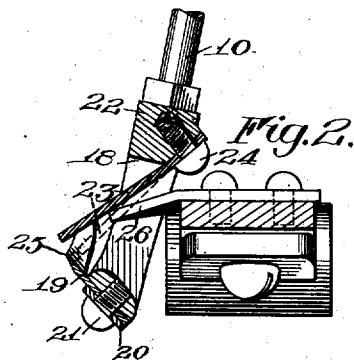
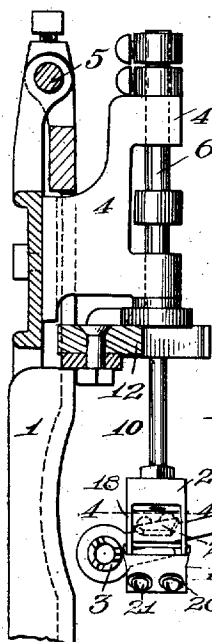
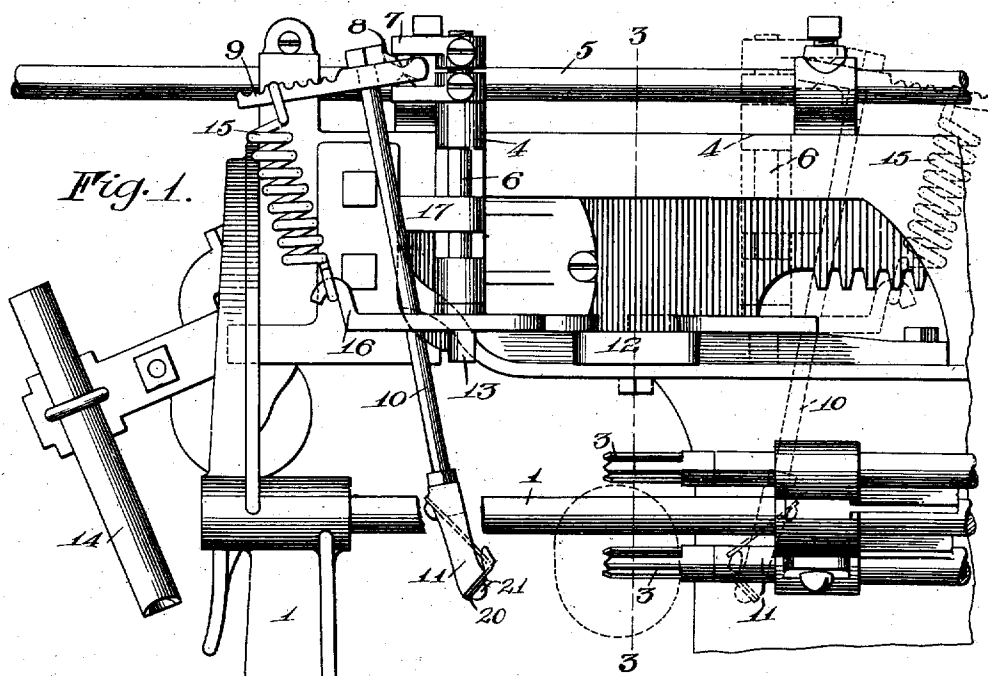
W. H. BOUTELL.

PARING APPARATUS.

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987,108.

Patented Mar. 21, 1911.



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PARING APPARATUS.

987,108.

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To all whom it may concern:

Be it known that I, WILLIAM H. BOUTELL, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Paring Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of the specification, and to the reference-numerals marked thereon.

My present invention relates to cutting and paring and it has for its object to provide a paring knife of cheap and simple construction, but having features of improvements by means of which it can be readily cleaned without disorganization.

My invention has for its further object to provide means in combination with the knife of a paring machine whereby this can be accomplished automatically, preferably after each paring operation, along with the other operations and with the regular movement of the parts of the machine.

To these and other ends the invention consists in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings: Figure 1 is a fragmentary side elevation of a paring machine, including the knife, constructed in accordance with and illustrating one embodiment of my invention, the knife and the other parts being in the positions assumed just prior to the paring operation; Fig. 2 is a detail vertical section taken in a plane extending through the paring knife and showing the operation of the trip device which automatically cleans the knife at the conclusion of the paring operation; Fig. 3 is a vertical section through the machine taken substantially on the line 3—3 of Fig. 1, showing the parts in the same position as Fig. 2, and Fig. 4 is a substantially horizontal section through the knife on the line 4—4 of Fig. 3, showing a top plan view of the work supporting reel upon which the trip devices are, in the present instance, mounted.

As to the general features of the paring machine in connection with which I have chosen to illustrate this invention, its design follows substantially the disclosure of my prior Patent, No. 892,393, for an apple

paring machine, granted July 7, 1908, to which reference is made for a more exact description of a machine of a type susceptible to the improvements and additions of this invention and illustrating a particular instance of its utility.

Referring more specifically to the accompanying drawings, 1 indicates the main frame of the machine upon which is mounted a rotary reel 2 provided with a plurality of intermittently driven work receiving forks 3, one of which is presenting the work in position for paring, while the other is receiving the subsequent work piece. The knife carriage 4 reciprocates horizontally above these devices on a guide rod 5 and has journaled therein a vertical spindle 6 provided with dogs 7 at its upper end that are formed with alined conical lugs 8 that constitute a rocking bearing for the knife arm 9 in which the shank 10 of the knife, indicated generally by 11 in Fig. 1, is secured. The knife is thus suspended just a little out of alinement with the forks 3 (Fig. 3) when in operative position and during the paring operation the knife swings toward the fork with a revolving motion imparted to it by a cam mechanism 12 on the frame that engages an eccentric projection 13 on the shaft 6 of the knife carriage. The knife travels through an arc of about 180° in rounding the rotating fruit or other work piece and then travels additionally toward the base of the fork with a rectilinear movement with the cutting edge toward the rear. Meanwhile the corer 14 swings in toward the fruit and then removes it from the fork. The knife traverses the same course in returning to its initial position and when free from the reel the latter rotates to bring the next work piece into position. The knife is held against the fruit under the yielding tension of a spring 15 connected to the frame at 16 and to the knife arm 9, but its inward movement is limited by engagement of the shank 10 with an abutment 17 on the knife carriage, which engagement occurs, for instance, after the knife has left the fruit at the completion of the paring operation.

I prefer to construct the knife proper as shown in Fig. 2 to comprise a substantially rectangular head or frame 18 secured to the shank 10 and having a suitable blade 19 detachably mounted on its outer or lower rail 20, as by the screw 21, the blade, of course,

being given a proper cutting inclination, while on the opposite or upper rail 22 is detachably secured a movable guard plate 23, as by the screw 24. The plate is rendered
 5 movable in the present instance by being made of resilient material, such as spring steel and its free end or edge is spaced from the blade 19 to form a throat through which the paring passes. The normal position of
 10 the guard plate is slightly in the rear of the cutting edge 25 of the blade, as shown in dotted lines in Fig. 2, so that it acts as a gage to control the depth of the cut, the rotating fruit or work piece being maintained
 15 in contact therewith.

I have found that in the operation of paring machines, particularly when used for paring apples, the throat of the knife is apt to clog with stems or apple skins, the latter
 20 often getting folded over the cutting edge of the blade and rendering it inoperative until cleared, which latter has necessitated a stoppage of the machine. This clogging is noticeable after the machine has been idle
 25 for a while and the juice and parings have dried in the knife. In the practice of the present invention opportunity for such clogging is removed by actuating the movable guard 23 forwardly at intervals relatively to
 30 and away from the blade 19 to widen the throat of the knife and allow any matter clogged therein to drop out, the plate at the same time passing transversely of the cutting edge of the blade in the capacity of a
 35 scraper that removes any matter clinging thereto. I effect such movement automatically at the conclusion of each paring operation of a machine by mounting a trip 26 in a position in which it will engage the resilient guard 23 from the rear during the short
 40 rectilinear movement of the knife, before described, after it has completed the paring of the apple and, in the present instance, while the corer is performing its function, the knife being reinforced against the contact thereof by the abutment 17. As the knife is movable in the present instance the trip device is preferably arranged in a relatively stationary position in the path of the
 50 knife, and in the present instance it is in the form of a plate or projection fastened on the reel 2, one being provided at or near the base of each fork 3, (Fig. 4). The abutting end of the plate that forms the trip is preferably
 55 tapered, as shown, to readily enter the head frame 18 of the knife and projects from the reel so that its point may be adjusted by bending to engage the guard plate 23 at a suitable point after the machine is assembled.
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The extreme simplicity of the parts described is extremely valuable in a machine of this character inasmuch as the fruit acid or juice is constantly attacking the parts and
 65 thereby makes it practicable to utilize in the

construction thereof only rough or unmachined castings so far as possible. Uniform adjustment is therefore not present in different machines after assembling, at least in a degree ordinarily present in organized
 70 machines, but with the trip plate 26 arranged as shown it is a small matter to properly align its point and the latter has an area of considerable range on the resilient guard plate 23 anywhere within which it may contact and still operate successfully. The guard plate 23, itself, is a cheaply constructed part so that it may be renewed at a trivial expense when worn, and one reason why its movement is preferably derived from flexibility, rather than from a pivotal connection with its support, is that bearings, arranged at this point, would be constantly drenched with juice of the fruit and their period of utility would be limited.
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It will be noted that these improvements can be readily added at a small cost to paring machines now in general use, such as the one shown and described in my prior patent before referred to, the substitution of the
 90 new knife head and the addition of the trip devices being all that is required.

I claim as my invention:

1. In a paring machine, the combination with a paring knife comprising a blade and
 95 a guard arranged with reference thereto to form a throat through which the paring passes, one of said members being movable relatively to the other, of a trip cooperating with the movable part at the completion of
 100 the paring operation to actuate it away from the other and widen the throat of the knife.

2. In a paring machine, the combination with a paring knife comprising a blade and a movable guard normally held in operative position with reference thereto to form
 105 a throat through which the paring passes, of a trip cooperating with the guard at the completion of the paring operation to actuate it away from the blade and clear the
 110 throat of obstructions.

3. In a paring machine, the combination with a bodily movable paring knife comprising a blade and a guard movable relatively thereto but normally held in operative position with reference to the blade
 115 to form a throat through which the paring passes, of a relatively stationary trip engaged by the guard at the completion of the paring operation to cause the latter to move
 120 away from the blade and widen the throat to clear it of obstructions.

4. In a paring machine, the combination with a movable paring knife comprising a blade and a guard arranged with reference
 125 thereto to form a throat through which the paring passes, one of said members being movable relatively to the other, and a work receiving fork arranged to move the work into the path of the knife, of a trip mounted
 130

in fixed relation to the fork and cooperating with the movable part of the knife at the completion of the paring operation to actuate it away from the other and widen the throat to clear it of obstructions.

5 5. In a paring machine, the combination with a movable paring knife comprising a blade and a guard arranged with reference thereto to form a throat through which the
10 paring passes, one of said members being movable relatively to the other, and a rotary reel having a plurality of work receiving forks thereon to move the work
15 pieces into the path of the knife, of a plurality of tripping projections carried on the reel, one in fixed relation to each fork, each adapted to cooperate with the movable part
of the knife at the completion of the paring
20 operation to actuate it away from the other and widen the throat to clear it of obstructions.

6. In a paring machine, the combination with a bodily movable paring knife comprising a blade and a guard or gage arranged adjacent thereto, one of said parts
25 being movable to cause a relative movement of the guard and the cutting edge of the blade past each other, of a relatively stationary trip adapted to be engaged by said
30 movable member after the paring operation to actuate the same and clear the cutting edge of obstructions.

7. In a paring machine, the combination

with a paring knife comprising a blade and a cooperating member, one of said parts
35 being movable across the other to clear the blade of obstructions, of a trip cooperating with the movable part to actuate it after the paring operation.

8. In a paring machine, the combination
40 with a paring knife comprising a blade and a guard having a normal operative position in rear of the cutting edge of the blade, said guard being movable forwardly past the cutting edge to clear the latter of obstructions,
45 of a trip cooperating with the guard to actuate it at the completion of the paring operation.

9. In a paring machine, the combination
50 with a paring knife comprising a blade and a movable guard having a normal operative position in rear of the cutting edge of the blade, of means for imparting a revolving
movement to the knife during the paring
operation, means for imparting a subsequent
55 rectilinear movement thereto with the cutting edge toward the rear and a relatively stationary trip cooperating with the rear of
the guard during said latter movement to
actuate it past the cutting edge of the blade
60 to clear the latter of obstructions.

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