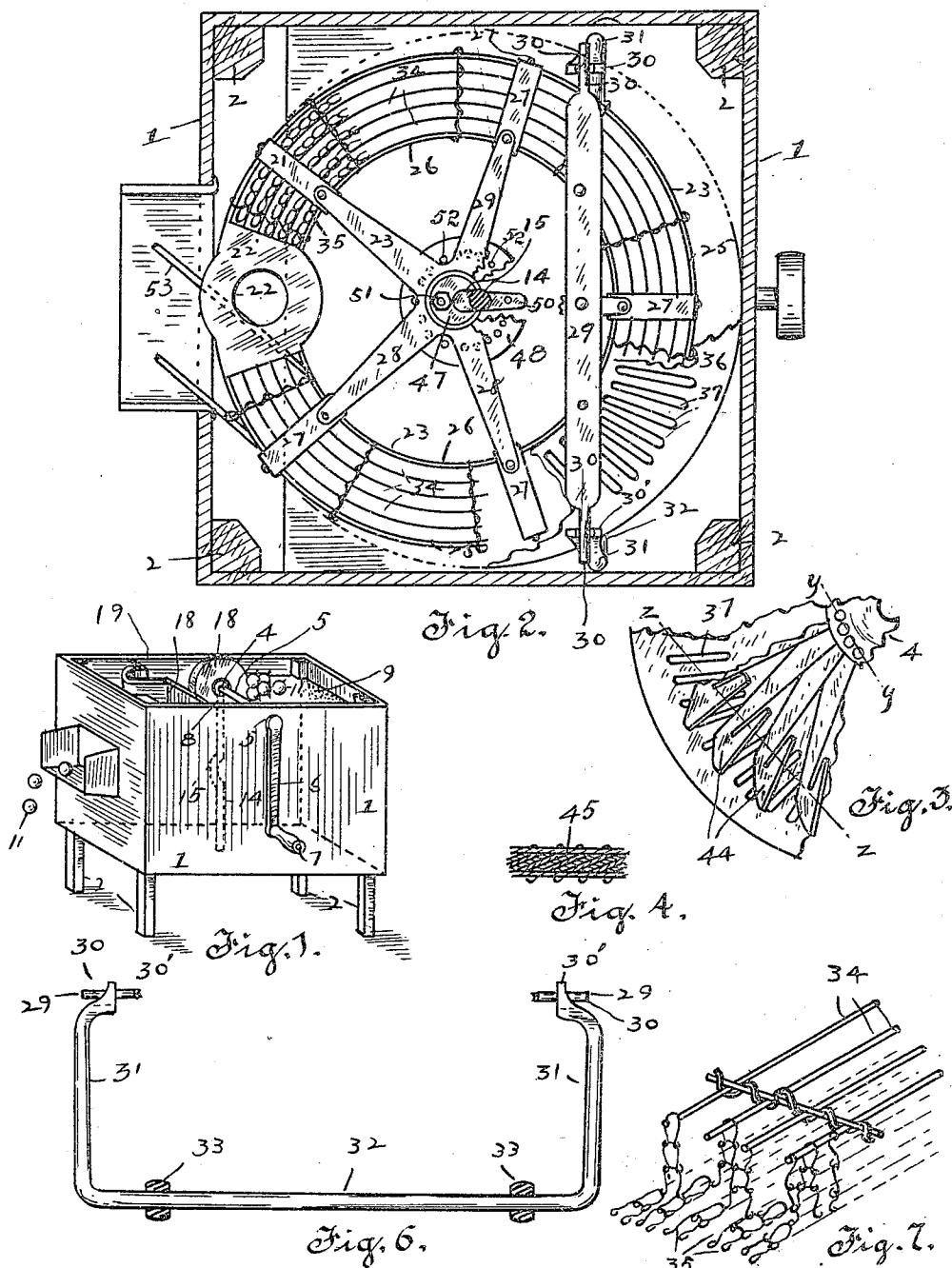


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BERRY STEM REMOVER.
APPLICATION FILED JULY 26, 1909.

949,454.

Patented Feb. 15, 1910.

2 SHEETS—SHEET 1.



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B. E. Richards

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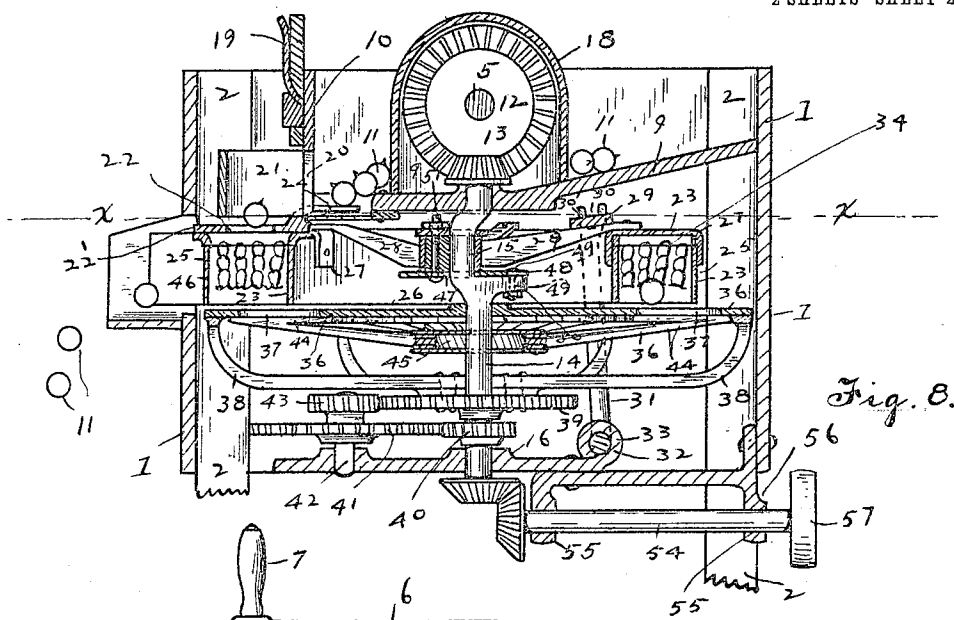


Fig. 8.

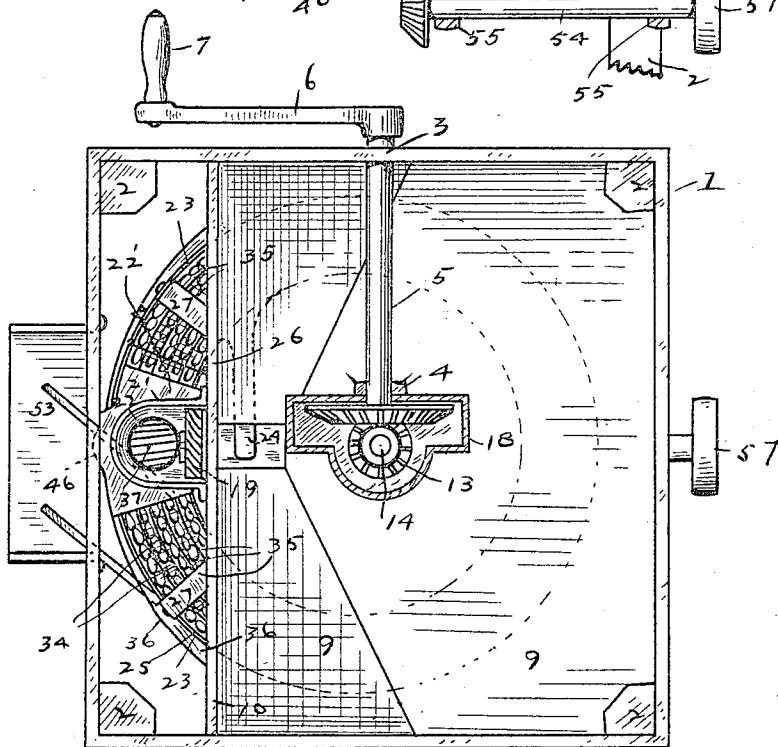


Fig. 9.

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UNITED STATES PATENT OFFICE.

WILLIAM E. URSCHEL, OF VALPARAISO, INDIANA.

BERRY-STEM REMOVER.

949,454.

Specification of Letters Patent.

Patented Feb. 15, 1910.

Application filed July 26, 1909. Serial No. 509,705.

To all whom it may concern:

Be it known that I, WILLIAM E. URSCHEL, a citizen of the United States, residing at Valparaiso, county of Porter, and State of Indiana, have invented certain new and useful Improvements in Berry-Stem Removers, of which the following is a specification.

My invention relates to improvements in devices adapted to remove the stems from berries, and consists in a machine for the purpose mentioned which will be hereinafter fully described.

The preferred form of my invention is illustrated in the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a perspective view of the complete machine, Fig. 2 is a horizontal section taken on line $x-x$ of Fig. 8, Fig. 3 is a bottom plan view showing the cutting mechanism of the machine, Fig. 4 is a detail section taken on line $y-y$ of Fig. 3, Fig. 5 is a detail section taken on line $z-z$ of Fig. 3, Fig. 6 is a detail view showing an oscillatory shaft, Fig. 7 is a detail perspective view of the chains employed for rotating the berries, Fig. 8 is a central vertical section of the machine, and Fig. 9 is a top plan view, a beveled gear housing being shown in section.

Referring now to the drawings, 1 designates the body or frame of the machine, and 2 legs adapted to support the body 1.

Bearings 3 and 4 are adapted to receive a shaft 5 to which a crank 6 is secured, said crank being provided with a handle 7 as shown. The bearing 3 is positioned as shown, and the bearing 4 is formed in the upper portion of a bracket 8, the latter projecting upwardly from a partition 9. Portions of the body sides, the partition 9, and the transversely extending members 10 form a suitable hopper for the berries 11. A beveled gear 12 is rigidly secured to the shaft 5 and is adapted to drive the bevel-pinion 13 secured to the crank-shaft 14. Said crank shaft is provided with an integral crank-pin 15 and is journaled in the partition 9 and in the bearings 16 provided in the bottom of the body 1. A suitably shaped housing 18 is placed over the beveled gear 12 and the pinion 13 to prevent the berries 11 from coming into contact therewith.

A vertically movable gate 19 of ordinary construction is mounted on one side of the hopper as shown in Figs. 1, 8 and 9, and an

opening 20 is provided in said hopper which is controlled by said gate, the inclosure 21 being provided adjacent said opening to guide the flow of the berries downward through the aperture 22 which is provided in the plate 22' of the berry agitating device 23. An arm 24 is secured to the agitating device 23 which projects into the path of the berries to keep them agitated, thus preventing clogging of the same, this feature being illustrated in Fig. 9.

The berry agitating device 23 comprises a pair of annular concentric rings 25 and 26 which are secured together by means of U-shaped members 27, the latter being secured to the outer extremities of the arms of a spider 28 which is mounted on the eccentric 47 and actuated thereby. The eccentric 47 causes all the portions of the agitating device 23 to have a small circular movement, but other movements such as revolving about said crank shaft are prevented by means of the bar 29 which is secured to the agitating devices 23 and provided with the reduced extremities 30 which engage the bifurcated ends 30' of the oscillatory arms 31 which are integral with the shafts 32 mounted in the stationary bearing 33. The reduced extremities 30 are mounted free to slide in the bifurcated ends 30' in order that the eccentric 47 may move the agitating device freely. Concentric wires 34 are provided in the agitating device and connected with said wires are flexible chains 35 which are adapted to rest on the berries 11, the latter resting on and being rolled by the circular plate 36 which is mounted at its center on the crank shaft 14 and is adapted to revolve slowly about the same. The plate 36 is provided with radial slots 37 through which the stems of the berries project downwardly, a cross section of the plate 36 showing the slots 37 being shown in Fig. 5. The plate 36 is supported by the radiating arms 38 which are secured to the spur gear 39, the latter being rotatably mounted on the crank shaft 14. A driving pinion 40 is secured to the crank shaft 14 which meshes with the intermediate gear 41 which is mounted on the stud 42. Integral with the gear 41 is a pinion 43 which drives the gear 39, thus the plate 36 is caused to rotate slowly about the crank shaft as aforesaid.

A plurality of flexible cutting knives 44 radiate from the hub 45 which is rigidly se-

cured to the crank shaft 14, these knives being adapted to sever the berry stems which project through the slots of the plate 36. The flexibility of the knives is such that they will jump over any small obstruction which they may encounter, such as small stones or bits of wire which might project through the slots 37. The knives 44 travel in the same direction as plate 36 but at a much higher speed so that the berry stems are readily severed when they project through the slots 37. An opening 46 is provided in the ring 25 through which the berries 11 may escape.

It will be noted that one edge of the slots 37 is beveled forming cutting edges and allowing the berries to come into close proximity with the knives 44.

The eccentric 47 mounted on the crank pin 15 is provided with adjustable means whereby its throw may be varied. Said means comprises a perforated circular plate 48 having a central aperture and mounted free to rotate on the crank-pin 15 except when secured by means of the screw 49 which is adapted to screw into the lug 50 provided on one side of the crank shaft 14. The eccentric 47 is secured to the plate 48 by means of the bolt 51 as shown in Fig. 8, thus, since the screw 49 may pass through any one of the perforations 52, the throw of the eccentric 47 may be varied. A deflecting plate 53 is secured in the agitating device 23 to deflect the berries upwardly through the opening 46 as shown in Fig. 9.

The machine may be power driven by means of the shaft 54 mounted in the bearings 55 and 56 and geared to the shaft 14, said shaft 54 having a pulley 57.

Various slight changes might be made in the general form and arrangement of parts described without departing from my invention, and hence I do not restrict myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

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

1. In a device of the class described, a frame and shaft journaled in said frame, a crank formed on said shaft and means for driving said shaft, an eccentric on said crank, in combination with a radially slotted horizontal plate mounted on said shaft and adapted to rotate at a slower speed than the same, a pair of annular concentric rings connected with said eccentric mounted on said crank and adapted to be moved thereby, said rings inclosing a raceway the bottom of which is formed by the portion of said plate in which the slots are provided, means for introducing berries into said raceway, means for preventing said rings from re-

volving about said shaft, and a plurality of knives fixed to said crank shaft and rotatable therewith arranged beneath said slotted plate and adapted to coact therewith, substantially as described.

2. In a device of the class described, a frame, a shaft journaled in said frame, a crank formed on said shaft and means for driving said shaft, an eccentric on said crank, in combination with a plate provided with radial slots and loosely mounted on said shaft, arms connected to said plate at its periphery, and rigidly connected to a spur gear loosely mounted on and arranged coaxially with said shaft, a driving pinion secured to said shaft below said last named gear, intermediate gears mounted in said frame connected with said last named gear and said pinion and adapted to reduce the speed of said plate below that of said shaft, two concentric rings over said plate and, with said plate, forming a raceway over said radial slots, an operative connection between said rings and said eccentric, a hopper and means for guiding berries therefrom to said raceway, and a plurality of rotary knives arranged beneath said slotted plate and adapted to coact therewith for removing the stems from berries, one edge of each slot being beveled in order that said berries may rest in close proximity to said knives, substantially as described.

3. In a device of the class described, in combination with a frame and a drive shaft journaled therein, means for driving said shaft, a crank formed on said shaft, an eccentric on said crank, a raceway, a hopper and means for guiding berries therefrom to said raceway, a slotted circular plate loosely mounted on said shaft the slotted portions of which form the bottom of said raceway, a pair of annular concentric rings forming the sides of said raceway and connected with an eccentric mounted on said crank and adapted to be agitated thereby, means for driving said plate in the same direction and at a lower speed than that of said shaft, and a rotary cutting device arranged beneath said plate and adapted to coact therewith, the knives provided in said cutting device being flexible, substantially as described.

4. In a device of the class described, in combination with a frame, a drive shaft journaled in said frame and means for driving the same, a crank formed on said shaft, an eccentric adjustably mounted on said crank, a spider having radial arms mounted on said eccentric, a pair of annular concentric rings connected with the outer extremities of said arms, flexible chains mounted in connection with said rings, a circular plate mounted on said shaft and having radial slots in the periphery thereof and disposed beneath said chains, means for rotating said plate at a speed less than that of said shaft, and a

rotary cutter arranged beneath said slotted plate and adapted to coact therewith, substantially as described.

5 5. In a device of the class described, in combination with a frame and a drive shaft journaled therein, means for driving said shaft, a crank formed on said shaft, an adjustable eccentric on said shaft, a rotary slotted plate mounted on said shaft and
10 means for rotating the same at a speed less than that of said shaft, a pair of concentric rings arranged above said plate connected with and adapted to be agitated by said adjustable eccentric mounted on said crank,
15 means for preventing said rings from revolving about said shaft, and a rotary cutter arranged beneath said plate and adapted to coact therewith, substantially as described.

20 6. In a device of the class described, a frame and a shaft journaled therein, a crank formed on said shaft and means for driving said shaft, in combination with an adjustable eccentric mounted on said crank, a pair of concentric rings connected with said eccentric and adapted to be agitated thereby,
25 means for preventing said rings from revolving about said shaft comprising two arms formed integral with said shaft mount-

ed to oscillate in said frame, said arms extending upwardly and having their upper 30 extremities bifurcated, a bar connected to said rings having reduced extremities engaging said bifurcated extremities, a plate having peripheral radial slots adjacent said rings and mounted on said first named shaft, 35 and cutting knives mounted to coact with the slotted portions of said plate, substantially as described.

7. A device of the class described comprising a shaft, a slotted plate loosely mounted on said shaft, a speed reducing driving 40 connection between said plate and said shaft, rotary knives arranged beneath and in contact with said plate, raceway members arranged above said plate and connected with 45 said shaft, and pendent members supported by said raceway members adapted to roll berries provided on said plate, substantially as described.

In testimony whereof I have signed my 50 name to this specification in the presence of two subscribing witnesses.

WILLIAM E. URSCHEL.

Witnesses:

HELEN F. LILLIS,
JOSHUA R. H. POTTS.