

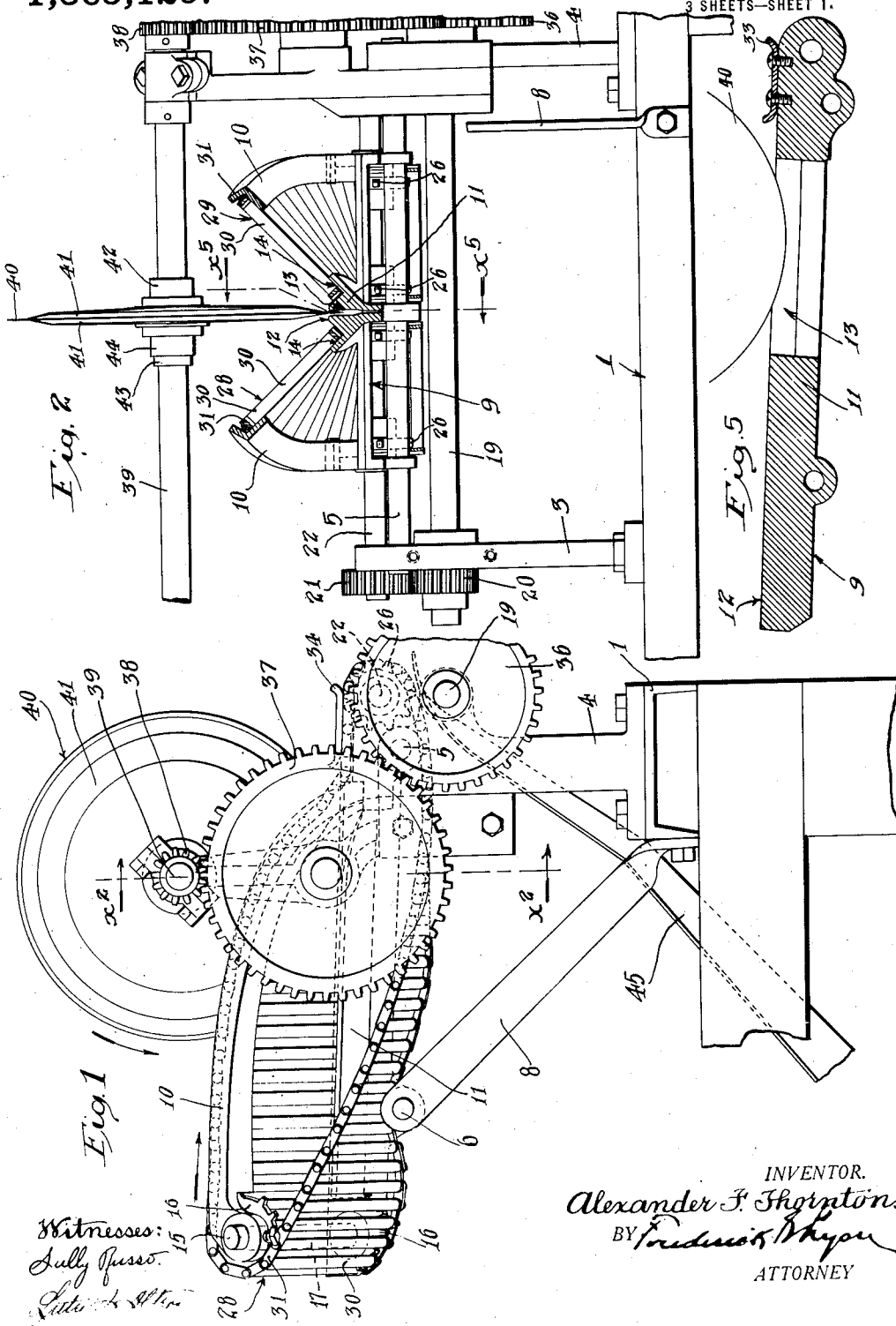
A. F. THORNTON.  
FRUIT CUTTING MACHINE.

APPLICATION FILED SEPT. 8, 1919. RENEWED JUNE 28, 1920.

1,365,129.

Patented Jan. 11, 1921.

3 SHEETS—SHEET 1.



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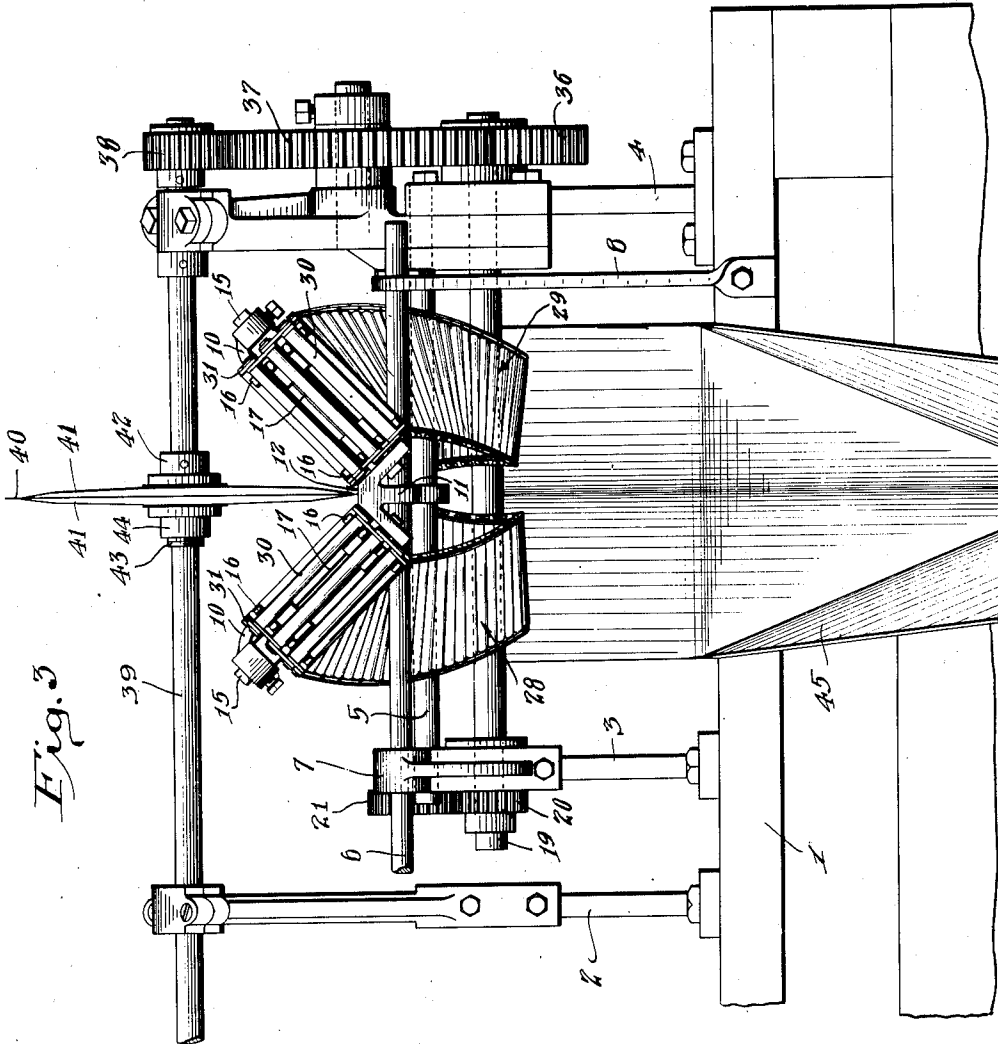
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3 SHEETS—SHEET 2.



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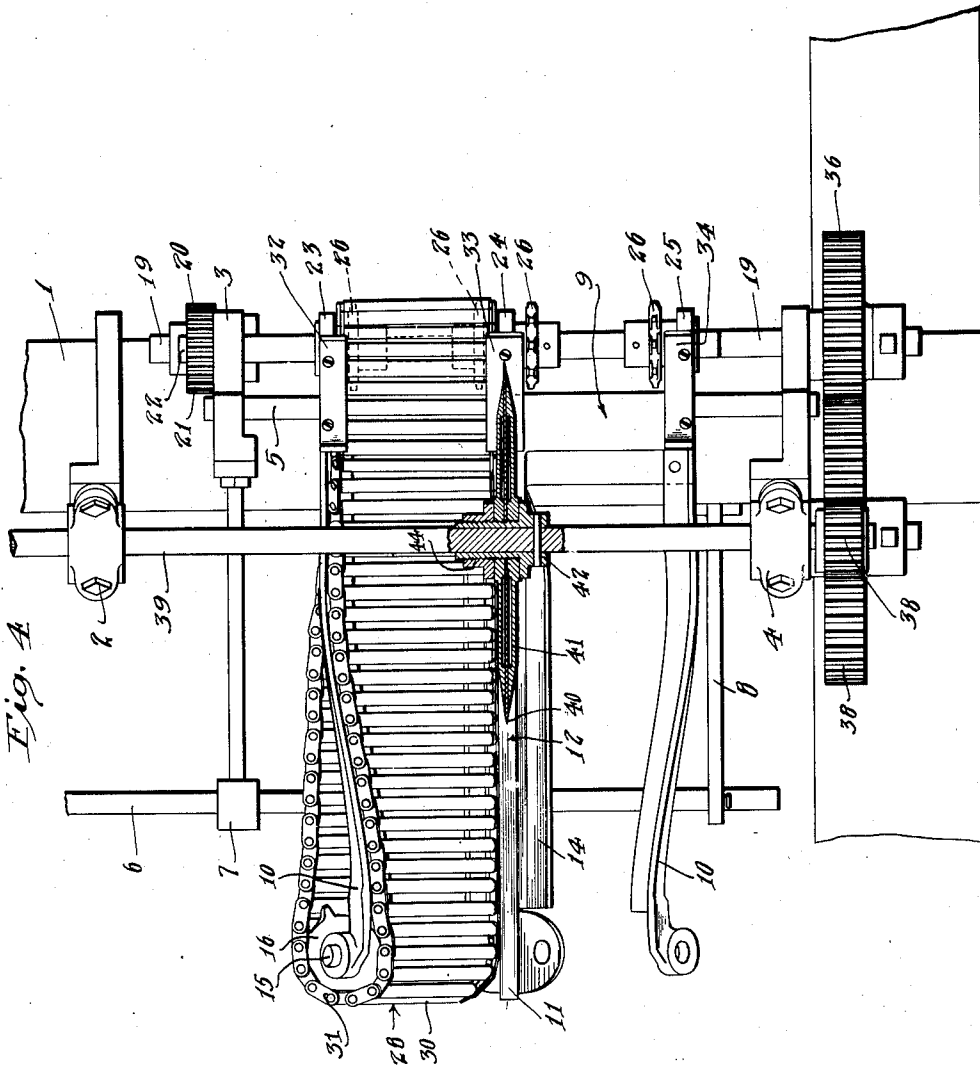
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3 SHEETS—SHEET 3



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# UNITED STATES PATENT OFFICE.

ALEXANDER F. THORNTON, OF LOS ANGELES, CALIFORNIA, ASSIGNOR OF ONE-HALF  
TO ROBERT C. DEVEREUX, OF ALHAMBRA, CALIFORNIA.

## FRUIT-CUTTING MACHINE.

1,365,129.

Specification of Letters Patent.

Patented Jan. 11, 1921.

Application filed September 8, 1919, Serial No. 322,242. Renewed June 28, 1920. Serial No. 392,518.

*To all whom it may concern:*

Be it known that I, ALEXANDER F. THORNTON, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Fruit-Cutting Machine, of which the following is a specification.

This invention relates to machines for cutting fruits, especially fruits devoid of hard pits, and has more particular relation to machines employing a rotary cutting knife.

The object of the invention is to provide a cutting machine in which the material to be cut is fed along a table and automatically centered relative to the cutting knife.

Another object is to provide two cooperating conveyers which at one end of the machine are positioned to form a trough translating the material along the table in alignment with the cutting element and which travel in an elongated spiral path to a position of relative horizontal alinement allowing the cut material to fall free of the cutting element and be carried therefrom.

With these and incidental objects in view the invention consists of certain novel features of construction and combinations of parts, the essential elements of which are set forth in the appended claims and a preferred form of embodiment of which is hereinafter described with reference to the drawings which accompany and form part of this disclosure.

Of the drawings:

Figure 1 is a side elevation of the machine.

Fig. 2 is a transverse section on line  $x^2-x^2$  of Fig. 1.

Fig. 3 is an end elevation.

Fig. 4 is a top plan view with one conveyer removed and the knife in section.

Fig. 5 is a detail longitudinal section through the center of the table beam, taken on line  $x^5-x^5$  of Fig. 2.

The framework of the machine comprises a channel iron base 1 and upright bearing brackets 2, 3 and 4. A rear tie rod 5 extends between and is supported by the brackets 3 and 4 and a front tie rod 6 is supported in

a forward extension 7 of the bracket 3 and by a forwardly extending arm 8 which is secured to the base. Carried by the tie rods is a skeleton frame 9 comprising two opposed track rails 10—10 and an intermediate longitudinal beam 11 providing a table surface 12 slotted as shown at 13. On opposite sides of the table surface 12, the beam 11 is provided with tracks 14—14, and the respective pairs of tracks 10—14 are arranged in substantial elongated spiral formation, longitudinally.

Mounted in the forward ends of the track rails 10—10 and the beam 11 and on opposite sides of the table surface 12, are sprocket elements each consisting of an axle 15 and two sprockets 16—16 freely rotatable thereon and spaced apart by a suitable spacing sleeve 17.

A drive shaft 19 is rotatably journaled in the brackets 3—4, at the rear of the machine, and is provided with a gear pinion 20 positioned adjacent the bracket 3, said pinion meshing with a second pinion 21 secured to a conveyer shaft 22 which is journaled in the bracket 3 and in ears 23, 24 and 25 projecting rearwardly from the frame 9. Secured to the shaft 22 and respectively positioned on opposite sides of the ear 24 are sprocket elements, each consisting, in the present instance, of two sprockets 26—26.

It is obvious that instead of making each sprocket element of two separate sprocket wheels, as shown, they may be formed integral or may be in the form of a single sprocket extending the entire width of the conveyers and that the term "pair of sprockets," as hereinafter used, may properly refer to both sprocket elements at either end of the machine and on both sides of the medial table surface.

Entrained around the front and rear sprockets and on opposite sides of the table surface, respectively, I provide endless conveyers 28—29 each of which is formed of a series of parallel rollers 30 connected by chain links 31, with the top run of the conveyers engaging and guided by the respective pairs of tracks 10—14.

To maintain the conveyers in a horizontal plane at the rear portion of the machine there are provided plates 32, 33, 34 which are secured to the frame 9 in position to  
5 overlap the adjacent edges of the conveyers.

The drive shaft 19 extends beyond the brackets 4 and is provided with a drive gear 36 which may intermesh with connecting mechanism from any desired source of  
10 power, or the shaft may, if desired, extend far enough to accommodate a belt pulley.

Meshing with the gear 36 is an intermediate gear 37 journaled on the bracket 4 and meshing with the gear 37 is a pinion 38 secured to a knife shaft 39. Said shaft 39 is  
15 journaled in the upper ends of the brackets 2 and 4 and carries a disk knife 40 vertically disposed above the table surface 12 and in alinement with and projecting into the table  
20 slot 13.

The knife consists of the blade disk 40 and two reinforcing disks 41 having tapered peripheral edges and respectively engaging the opposite sides of the knife. A shouldered sleeve 42 having a threaded barrel 43,  
25 is secured to the knife shaft 39 and the knife disk 40 and reinforcing disks 41 are clamped against the shoulder of the sleeve 42 by a nut 44 having a screw-threaded engagement with the barrel 43 of said sleeve.  
30

It will be noted that the forward pair of sprocket elements are relatively disposed in respective planes converging inwardly and downwardly toward the table surface of the  
35 frame in trough formation and that the rear pair of sprocket elements is horizontally alined, with the top runs of the conveyers traveling in an elongated spiral path, first forming a trough conveying the material to be cut along the table surface in  
40 alinement with the knife. As the knife acts on the material the conveyers begin to assume a more nearly horizontal position allowing the cut portions of the material to  
45 fall away from the knife and be carried to the rear of the machine for delivery into a suitable container or to other machinery for subsequent operations.

To entrain the juices produced by the cutting operation there is provided a trough 45 extending across the machine below the conveyers and leading downwardly to any suitable container, not shown.

The machine herein illustrated may be  
55 used for cutting in half, any kind of fruits or vegetables which do not contain hard pits such as would injure the knife, and while I have shown and described a machine having only a single knife for halving the fruit it is entirely within the present invention to provide a plurality of relatively spaced knives for slicing the fruit, if desired.

I claim:

65 1. In a device of the class described, the

combination of a frame providing opposed pairs of spirally disposed parallel tracks and having an intermediate table surface, endless conveyers respectively engaging each pair of tracks, and a rotary knife vertically  
70 disposed above the table surface.

2. In a device of the class described, the combination of a frame providing opposed pairs of spirally disposed parallel tracks and having an intermediate slotted table  
75 surface, endless conveyers respectively engaging each pair of tracks, and a rotary knife vertically disposed above the table surface and projecting into the slot thereof.

3. In a device of the class described, the combination of a frame providing opposed pairs of spirally disposed parallel tracks and having an intermediate table surface, sprockets journaled in opposite ends of the  
80 frame, endless conveyers respectively engaging each pair of tracks and entrained around said sprockets, and a rotary knife vertically disposed above the table surface.

4. In a device of the class described, the combination of a frame providing opposed  
90 pairs of spirally disposed parallel tracks and having an intermediate slotted table surface, sprockets journaled in opposite ends of the frame, endless conveyers respectively engaging each pair of tracks and entrained  
95 around the sprockets, and a rotary knife vertically disposed above the table surface and projecting into the slot thereof.

5. In a device of the class described, the combination of a frame providing opposed  
100 pairs of spirally disposed parallel tracks and having an intermediate table surface, endless conveyers respectively engaging each pair of tracks and formed of series of parallel rollers and connecting chain links,  
105 and a rotary knife vertically disposed above the table surface.

6. In a device of the class described, the combination of a frame providing opposed  
110 pairs of spirally disposed parallel tracks and having an intermediate slotted table surface, endless conveyers respectively engaging each pair of tracks and formed of series of parallel rollers and connecting chain links, and a rotary knife vertically  
115 disposed above the table surface and projecting into the slot thereof.

7. In a device of the class described, the combination of a frame providing opposed  
120 pairs of spirally disposed parallel tracks and having an intermediate table surface, sprockets journaled in opposite ends of the frame, endless conveyers respectively engaging each pair of tracks and entrained around the sprockets, said conveyers being  
125 formed of series of parallel rollers and connecting chain links, and a rotary knife vertically disposed above the table surface.

8. In a device of the class described, the combination of a frame providing opposed  
130

pairs of spirally disposed parallel tracks and having an intermediate slotted table surface, sprockets journaled in opposite ends of the frame, endless conveyers respectively engaging each pair of tracks and entrained around the sprockets, said conveyers being formed of series of parallel rollers and connecting chain links, and a rotary knife vertically disposed above the table surface and projecting into the slot thereof.

9. In a device of the class described, the combination of a frame providing opposed pairs of spirally disposed parallel tracks and having an intermediate table surface, a pair of sprockets journaled in one end of the frame on opposite sides of the table surface and relatively disposed in respective planes converging inwardly and downwardly, a second pair of sprockets journaled in the opposite end of the frame on opposite sides of the table surface and in horizontal alinement, endless conveyers respectively engaging each pair of tracks and entrained around their cooperating sprockets, and a rotary knife vertically disposed above the table surface.

10. In a device of the class described, the combination of a frame providing opposed pairs of spirally disposed parallel tracks and having an intermediate slotted table surface, a pair of sprockets journaled in one end of the frame on opposite sides of the table surface and relatively disposed in respective planes converging inwardly and downwardly, a second pair of sprockets journaled in the opposed end of the frame on opposite sides of the table surface and in horizontal alinement, endless conveyers respectively engaging each pair of tracks and entrained around their cooperating sprockets, and a rotary knife vertically disposed above the table surface and projecting into the slot thereof.

11. In a device of the class described, the combination of a frame providing opposed pairs of spirally disposed parallel tracks and having an intermediate table surface, a pair of sprockets journaled in one end of the frame on opposite sides of the table surface and relatively disposed in respective planes converging inwardly and downwardly, a second pair of sprockets journaled in the opposite end of the frame on opposite sides of the table surface and in horizontal alinement, endless conveyers respectively engaging each pair of tracks and entrained around their cooperating sprockets, said conveyers being formed of series of parallel rollers and connecting chain links, and a rotary knife vertically disposed above the table surface.

12. In a device of the class described, the combination of a frame providing opposed pairs of spirally disposed parallel tracks and having an intermediate slotted table

surface, a pair of sprockets journaled in one end of the frame on opposite sides of the table surface and relatively disposed in respective planes converging inwardly and downwardly, a second pair of sprockets journaled in the opposite end of the frame on opposite sides of the table surface and in horizontal alinement, endless conveyers respectively engaging each pair of tracks and entrained around their cooperating sprockets, said conveyers being formed of series of parallel rollers and connecting chain links, and a rotary knife vertically disposed above the table surface and projecting into the slot thereof.

13. In a device of the class described, the combination of a frame having a longitudinal medial beam providing opposed tracks and an intermediate table surface, a pair of sprockets journaled in one end of the frame on opposite sides of the beam and relatively disposed in respective planes converging inwardly and downwardly, a second pair of sprockets journaled in the opposite end of the frame on opposite sides of the beam and in horizontal alinement, endless conveyers respectively engaging each track and entrained around their cooperating sprockets, and a rotary knife vertically disposed above the table surface.

14. In a device of the class described, the combination of a frame having a longitudinal medial beam providing opposed tracks and an intermediate slotted table surface, a pair of sprockets journaled in one end of the frame on opposite sides of the beam and relatively disposed in respective planes converging inwardly and downwardly, a second pair of sprockets journaled in the opposite end of the frame on opposite sides of the beam and in horizontal alinement, endless conveyers respectively engaging each track and entrained around their cooperating sprockets, and a rotary knife vertically disposed above the table surface and projecting into the slot thereof.

15. In a device of the class described, the combination of a frame providing a longitudinal medial table surface, endless conveyers positioned respectively on opposite sides of the table surface, the conveyers at one end being relatively disposed in respective transverse planes diverging upwardly and outwardly from the table surface with the angle of divergence increasing longitudinally to the opposite ends of the conveyers which are horizontally alined, and a rotary knife vertically positioned above the table surface intermediate the ends of the conveyers.

16. In a device of the class described, the combination of a frame providing a longitudinal medial slotted table surface, endless conveyers positioned respectively on opposite sides of the table surface, the conveyers

at one end being relatively disposed in respective transverse planes diverging upwardly and outwardly from the table surface with the angle of divergence increasing longitudinally to the opposite ends of the conveyers which are horizontally alined, and a rotary knife vertically positioned above the table surface intermediate the

ends of the conveyers and projecting into the table slot. 10

Signed at Los Angeles, California, this 2d day of September, 1919.

ALEXANDER F. THORNTON.

Witnesses:

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