July 18, 1939. J. SWOFFORD 2,166,648

SLICING MACHINE

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Fig. 1

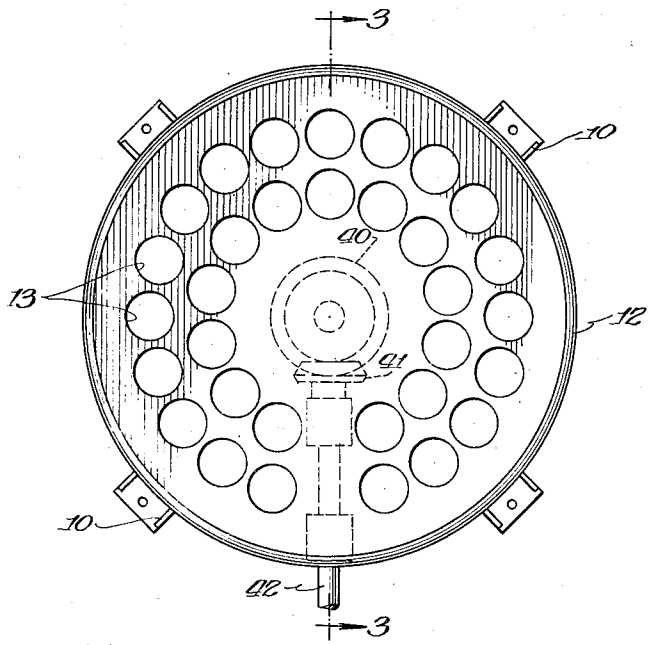
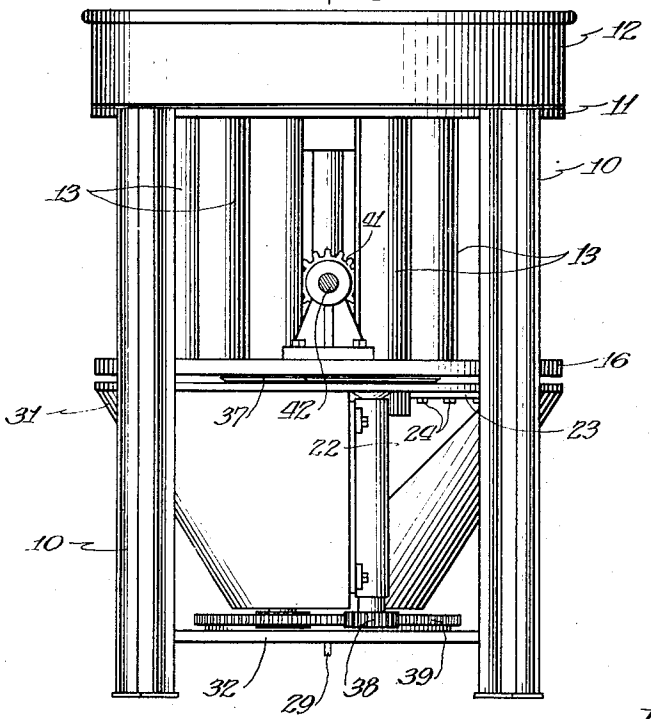


Fig. 2



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Fig. 3

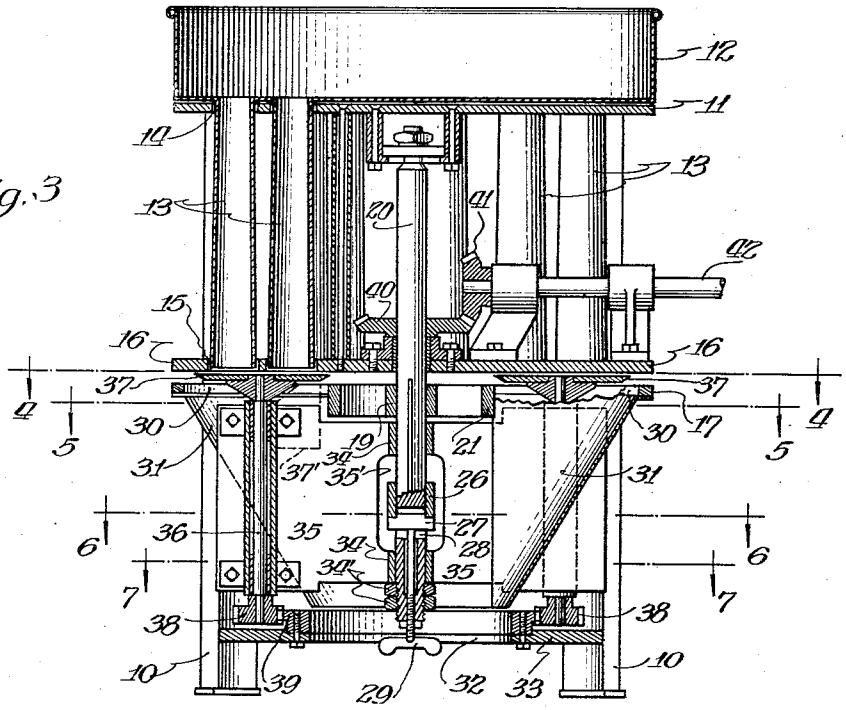
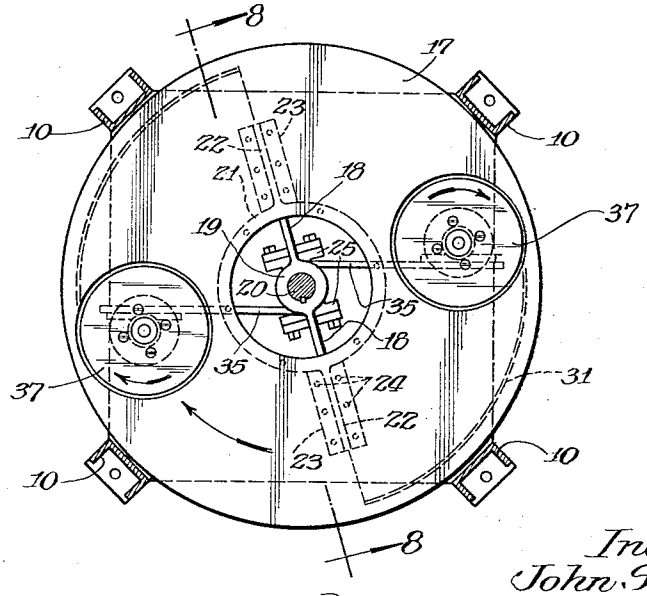


Fig. 4



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Fig. 5

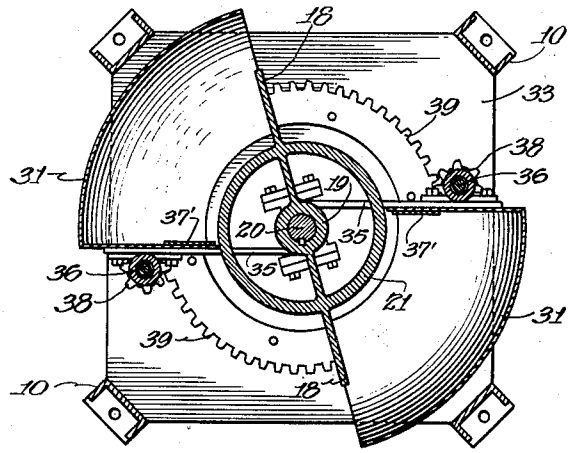


Fig. 6

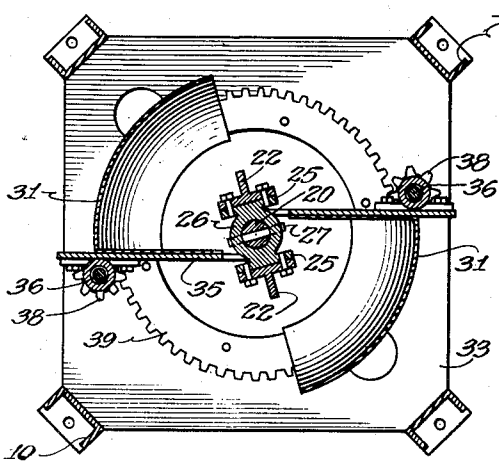
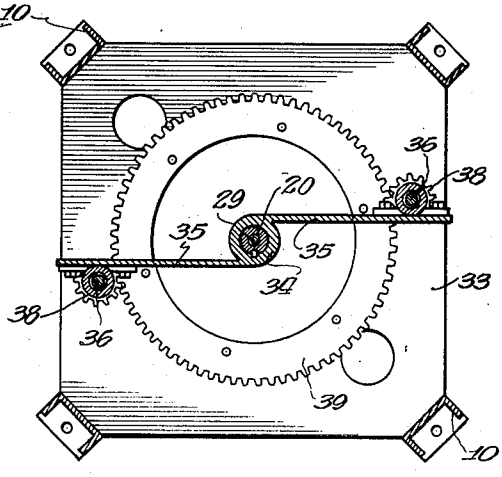


Fig. 7



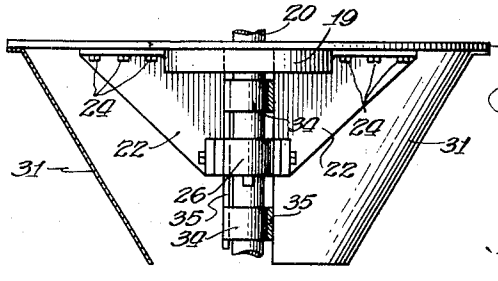


Fig. 8

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Patented July 18, 1939

2,166,648

UNITED STATES PATENT OFFICE

2,166,648

SLICING MACHINE

John Swofford, Eugene, Oreg., assignor to Eugene Fruit Growers Association, Eugene, Oreg., a corporation of Oregon

Application December 9, 1937, Serial No. 178,886

1 Claim. (Cl. 146—124)

The invention relates to improvements in slicing machines especially adapted for use in slicing beets or similar vegetables, the primary object of the invention being the provision of an improved machine of the character indicated which is of simple construction and highly efficient in use.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification and in which

Fig. 1 is a top plan view of a machine embodying the invention;

Fig. 2 a side view of the same;

Fig. 3 a vertical section taken substantially on line 3—3 of Fig. 1;

Fig. 4 a horizontal section taken substantially on line 4—4 of Fig. 3;

Fig. 5 a horizontal section taken substantially on line 5—5 of Fig. 3;

Fig. 6 a horizontal section taken substantially on line 6—6 of Fig. 3;

Fig. 7 a horizontal section taken substantially on line 7—7 of Fig. 3; and

Fig. 8 a vertical section taken substantially on line 8—8 of Fig. 4.

The embodiment of the invention illustrated in the drawings comprises four vertical legs or standards 10 having a horizontal supporting plate or table 11 at their upper ends. A feed hopper or pan 12 is positioned as shown on the table top 11 and is equipped with a plurality of downwardly flaring conical feed tubes 13, arranged as indicated with their axes in two concentric circles and passing freely through suitable openings 14 in the table top 11. The lower ends of the feed tubes 13 fit loosely into openings 15 in an intermediate plate 16 mounted on and supported by the standards 10. As will be noted, the feed tubes 13 are relatively small in size so that the articles to be sliced will fit loosely therein, in a single column, and whereby rolling or movement of said articles during the slicing operation will be prevented.

A revolving table 17 is mounted to revolve a short distance below the intermediate plate 16 and the lower or discharge ends of the feed tubes 13, as best shown in Fig. 3. The revolving table 17 is supported on two radiating webs or arms 18, radiating from a central hub 19 which is splined or feathered on a central operating shaft 20. A supporting ring 21 is formed integrally with the outer ends of the webs 18 and is positioned against and secured to the under side of the table 17 thereby serving as a support therefor. Additional radiating webs 22 are formed integrally with the ring 21 and are provided with flanges 23 secured to the under side of table 17 by bolts 24 thereby furnishing further support for said table. As best shown in Fig. 8, these triangular webs 22 extend downwardly and inwardly and are bolted as shown in Figs. 6 and 8 to flanges 25 on a hub 26 which is freely slidable on shaft 20 so as to permit of free vertical adjustments of the table 17 on shaft 20.

As best shown in Figs. 3, 6 and 8, the hub 26 is supported on a cross-bar 27 extending through a slot 28 in the shaft 20 and said cross-bar 28 is in turn supported by an adjusting screw 29 extending upwardly, as shown, through the center of the shaft 20 and whereby the vertical position of the table 17 may be adjusted as desired.

As best shown in Figs. 3, 4, 5, and 6, two diametrically opposed slice openings 30 are formed in the table 17 positioned to pass under the lower or discharge ends of the feed tubes 13 as shown and two inwardly inclined chutes or aprons 31 are secured to the under sides of the table 17 and arranged to direct slices falling through the openings 30 inwardly to pass through the central opening 32 in the lower plate 33 of the machine.

As best shown in Figs. 3, 5, and 7, two supporting hubs 34 are also splined or feathered on the shaft 20 and carry two outwardly extending tangential supporting plates or webs 35 slotted at 35' to pass around the hub 26, and whereby said supporting webs are capable of vertical adjustments on the shaft 20. Two diametrically positioned vertical shafts 36 are mounted as shown on the webs 35 in axial alignment with the centers of the slice openings 30, said vertical shafts 36 carrying at their upper ends circular slicing knives 37 positioned as shown just above the slice openings 30. At their lower ends, the vertical shafts 36 carry pinions 38 meshing with an external annular gear 39 secured, as shown, to the bottom plate 33 and whereby as said shafts 36 revolve about the annular gear 39 the slicing knives 37 are rotated on their own axes as well as revolved about the axis of the shaft 20 and whereby a proper slicing action is given to said knives. Stripper plates 37' are mounted on the forward sides of the webs 35 and have their upper ends shaped to fit approximately the under sides of the knives 37 and serve to strip slices from said knives and cause them to fall through

the openings 30 into the chutes 31 and thus pass through the discharge opening 32 of the machine.

The central operating shaft 20 is given suitable bearings, as shown, and is driven by a bevelled gear 40 by means of a bevelled gear 41 on operating shaft 42, as will be readily understood, and whereby the table 17 will be revolved and the knives 37 not only revolved about the axis of the shaft 20 but also rotated on their own axes.

In use and in operation the articles such as beets or the like, to be sliced are placed in the feed hopper or pan 12 and fed by hand into the feed tubes 13, said feed tubes being thus kept full or as nearly full as practicable with the articles to be sliced. As indicated, said feed tubes are downwardly flaring in form so that said articles will pass freely therethrough and will thus come to rest on the top of the table 17 which is constantly revolving thereunder. As the slicing knives 17 come in contact with the downwardly protruding portions of said articles, said portions are sliced therefrom and pass downwardly through the openings 30, chutes 31, and discharge opening 32, as will be readily understood. By vertically adjusting the table 17 and the knives 37, the thickness of these slices may be regulated as desired. Thus at each revolution of the table 17, a set of slices will be cut from the articles protruding from all of the tubes 13, thus slicing at each revolution a large number of articles and thereby producing a relatively large output of slices at each revolution of the table 17, and whereby articles such as beets or the like may be sliced with great economy and rapidity of operation.

While I have illustrated and described the preferred form of construction for carrying the invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I therefore do not wish to be limited to the precise details disclosed, but desire to avail myself of such variations and modifications as fall within the scope of the appended claim.

I claim:

A machine of the class described comprising a vertical drive shaft; a revolving table splined to said shaft, said table being supported on a depending frame, having a hub freely slidable on the lower portion of said shaft, there being a transverse slot in said shaft and a cross bar on said hub extending through said slot and freely adjustable therein; an adjusting screw mounted in the lower end of said shaft and extending upwardly therein to contact with and support said cross bar for vertical adjustments of said table; a feed hopper positioned above said table; a plurality of vertical feed tubes of relatively small sizes leading from said hopper and terminating at their lower ends a short distance above said table, there being a slice opening in said table positioned to pass under said tubes; a circular knife revolving with and vertically adjustable with respect to said table and positioned above said slice opening; a vertical drive shaft for said knife mounted on the supporting frame of said table; a driving pinion at the lower end of said shaft; an external annular gear meshing with said pinion; and a chute on said table frame under said slice opening and adapted and arranged to direct slices falling therethrough inwardly to pass through said annular gear.

JOHN SWOFFORD.