W. W. TUCK.

VEGETABLE CUTTING APPARATUS.

APPLICATION FILED MAR. 31, 1919.

1,322,738.

Patented Nov. 25, 1919.

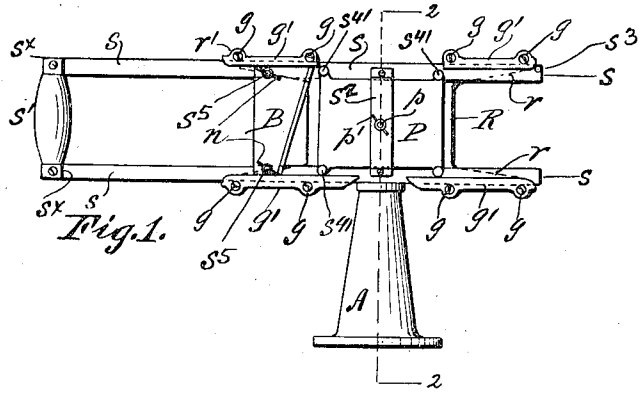


Fig. 1.

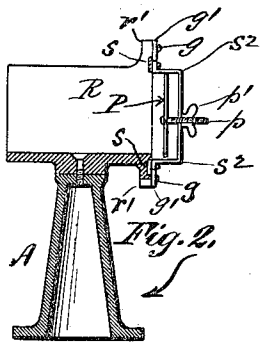


Fig. 2.

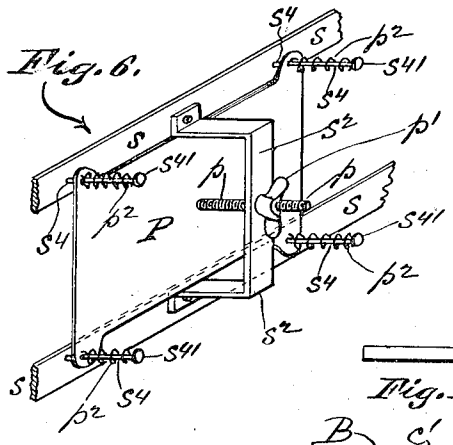


Fig. 6.

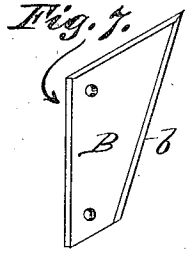


Fig. 7.

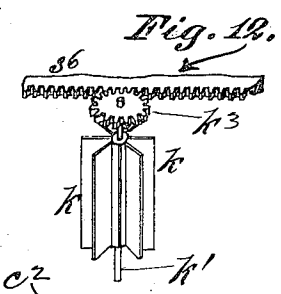


Fig. 12.

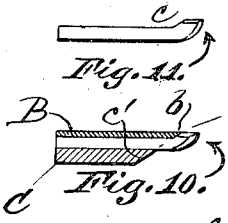


Fig. 11.

Fig. 10.

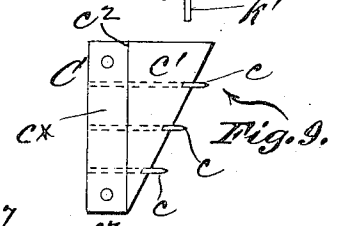


Fig. 9.

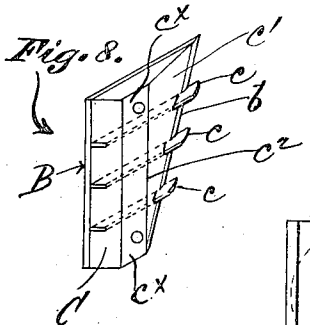


Fig. 8.

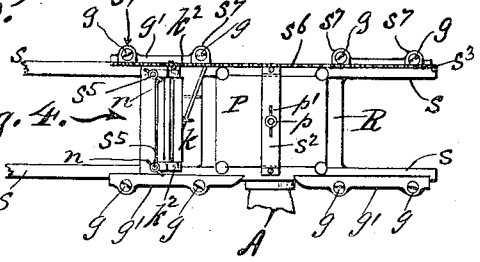


Fig. 4.

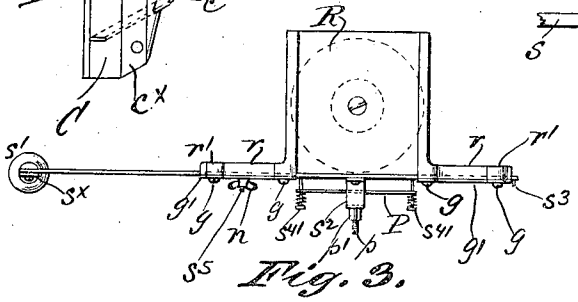


Fig. 3.

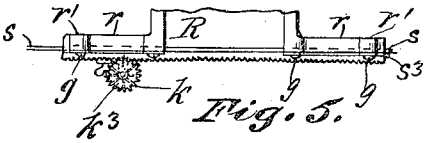


Fig. 5.

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By his Attorneys,
Leo. Fm Miatt

UNITED STATES PATENT OFFICE.

WILLIAM WALTER TUCK, OF RICHMOND HILL, NEW YORK, ASSIGNOR TO DEPCO CUBER COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

VEGETABLE-CUTTING APPARATUS.

1,322,738. Specification of Letters Patent. Patented Nov. 25, 1919.

Application filed March 31, 1919. Serial No. 286,416.

To all whom it may concern:

Be it known that I, WILLIAM WALTER TUCK, a citizen of the United States, and a resident of Richmond Hill, county of Queens, and State of New York, have invented certain new and useful Improvements in Vegetable-Cutting Apparatus, of which the following is a specification.

My invention relates to mechanism for cutting and shaping vegetables, particularly potatoes, substantially in the manner set forth in my concurrent application Serial No. 255,595, filed September 25, 1918, the apparatus described in said prior application being designed more particularly for power and speed and for dehydrating purposes, whereas the mechanism described and claimed herein, while susceptible of being power driven by coupling with suitable reciprocatory means, is designed more particularly for service as a hand machine for use in hotels, restaurants, and so forth, and even for household use, as in the case of boarding houses and establishments where relatively large quantities of vegetables are used for cooking purposes.

In the accompanying drawings,

Figure 1, is what may be designated as a front view of my apparatus;

Fig. 2, is a vertical section taken upon plane of line 2—2, Fig. 1;

Fig. 3, is a top view of the apparatus equipped as in Fig. 1;

Fig. 4, is a front view with stand and other parts broken away and showing cuber equipment;

Fig. 5, is a top view in part, showing details of the equipment shown in Fig. 4;

Fig. 6, is a perspective view on a larger scale, showing the spacing platen and connections;

Fig. 7, is a view of the slicing knife;

Fig. 8, is a view of the slicing knife with slit cutters superposed thereon;

Fig. 9, is a front view of the slit cutter attachment;

Fig. 10, is a cross section of the parts shown in Fig. 8;

Fig. 11, is a detail of one of the slit cutters;

Fig. 12, is a perspective on a larger scale of the cuber knives and gear drive.

A, represents any suitable standard or support for the vegetable receptacle R, which latter forms the basic structure upon which the operative parts are mounted, said vegetable receptacle R, being essentially a three sided box having at its open front side four laterally projecting bracket arms r, r, two upper and two lower, formed with vertical protuberant bosses r', r', which are screw tapped for the reception of screws g, g, by which the gib plates g', g', are held in position. The inner faces of the bracket arms are shouldered and finished to afford runways for the slide members s, s, which are held in said runways by the aforesaid gib plates g', g'. The slide members s, s, are rigidly connected by means of an intermediate handle s', at their outer extremities, and by means of a medial bridge piece s^2, positioned a suitable distance from their other free extremities,—said parts, *i. e.*, the slide members s, s, handle s', and bridge piece s^2, constituting collectively a rigid carrier frame on which the other operative parts are positioned. The forward or cutting thrust of the carrier frame is limited by the contacting of the handle shanks s^x, s^x, with the ends of the forward gib plates, and in like manner the retractile movement of the carrier frame is limited by the contacting of a pin s^3, on the rear of one of the slides s, with the rear end of one of the rear gibs, as shown in Fig. 1.

A spacing platen P, consists of a flat plate mounted loosely upon and between guide studs s^4, s^4, which are rigidly attached to the slide members s, s, as shown more particularly in Fig. 6, of the drawings. Riveted to the center of the plate P, is a screw stud p, which protrudes through a hole made for the purpose in the bridge s^2, and engages with a spacing wing-nut p', by which the inward thrust of said platen plate P, is limited,—said inward thrust being imparted to the platen plate P, by means of compressed springs p^2, p^2, encircling the guide studs s^4, s^4, and interposed between the heads s^{41}, s^{41}, thereof, and the said platen plate, said springs p^2, tending constantly to expand, and hence to hold the spacing nut p', against the bridge s^2, and thereby yieldably holding the spacing platen normally in prescribed parallel alinement with the open inner end of the vegetable receptacle R.

The shape and area of the spacing platen P, is approximately at least equal to the shape and area of delivery opening through the said inner end of the receptacle R, so that when the carrier frame is in retracted position, as in Figs. 1 and 4, said delivery

opening will be opposed to and closed by the platen P, excepting only at the edges of said opening for a space prescribed by the adjustment of the normal position of the platen P, by means of the spacing nut p', as before set forth. Hence the vegetable matter fed through the delivery end of the receptacle R, and against the platen P, cannot protrude beyond a prescribed plane as related to the slicing plane, or plane of severance. It will be understood that the vegetable matter is herein presumed to be forwarded through the receptacle R, by hand pressure by which the material is held and advanced as required, so that there need be no interference with the retractile movement of the carrier frame.

An essential feature of my invention in this connection consists in the use of the yieldable and adjustable spacing platen P, mounted upon the carrier frame and traveling therewith. The yieldance provided for by the elastic resilient pressure of the springs p^2, enables the platen to adapt itself to slight variations in pressure, and facilitates adjustment because by the use of the four corner guide studs and springs one central regulating screw p, and nut p', is sufficient for the purpose.

s^5, s^5, are screw studs rigidly protuberant from the slide members s, s, and n, n, are wing-nuts engaging therewith, and affording means whereby the cutting devices are bound to the said slide members, as desired for use.

The slicing blade B, is preferably formed with an oblique cutting edge b, the upper part of the blade being the widest as shown particulary in Fig. 7. This insures a shearing action, and tends to press the material being cut toward the far side and bottom of the vegetable pocket or receptacle R, thereby holding such material firmly in position during the severance stroke of the slide frame.

I will herein describe my apparatus as used in connection with potato products, it being understood that I do not limit myself thereto, and that other vegetables may be treated in like manner.

When simple slices, as for "chips", are required, the slicing blade B, is alone secured to the slide members s, s, by means of the screw studs s^5, s^5, and nuts n, n, and performs its function alone. When strips, as for "French fried" are required, the gang of slit cutters c, c, are added. These slitters c, c, are mounted in transverse grooves in a block or holder C, adapted to fit upon the slicing blade B, and to be secured thereto and to the slide members s, s, in like manner by the screw studs s^5, and nuts n. The forward edge of the block C, is oblique and parallel to the cutting edge b, of the slicing blade B, but slightly to the rear thereof; and its front portion is formed with the incline or bevel c', terminating in a straight vertical cutting edge c^2, for a purpose hereinafter set forth. The cutting edges of the slitters c, c, protrude beyond the cutting edge b, of the slicing blade B, as shown in Figs. 8 and 10, but upon the same plane therewith so that in the formation of potato strips (as for French fried) the slitting precedes slightly the slicing, thereby preserving the integrity of material as far as possible, and preventing such damage and waste as would be apt to occur were the slicing severance effected first. In other words, I thus present a solid and firmly supported mass of material to the action of the cutting edges of the slitters c, which in no wise interferes with the immediately subsequent action of the slicing edge, whereas if the slicing preceeded the slitting operation the sliced material would lack lateral support and the result would not be as perfect as that attained by my method and means as above set forth.

As hereinbefore described the apparatus is adapted to the provision of potato products for the making of "chips" or slices, and for strips for the making of "French fried" potatoes, and is so furnished to the trade. When cubical products are desired the apparatus is further equipped with an attachment for this purpose, consisting primarily and essentially of a series of rotatable knives arranged to sever the strips of potato transversely as delivered from the slitters c, c. Thus, in the drawings, a series of six cube cutters k, k, are affixed radially to a common rotatable shaft k', mounted in bracket bearings k^2, adapted to be secured to the outer face c^x, of the slitter block C, as shown in Figs. 4 and 5, by means of the aforesaid screw studs s^5, and wing-nuts n, n. A gear k^3, on the shaft k', meshes with a stationary longitudinal rack s^6, supported on bracket lugs s^7, which are secured to the bosses r', r', by means of the screws g, which also secure the gibs g', to said bosses r', r', on the bracket arms r, r, as hereinbefore set forth. Thus, when the slide frame is reciprocated the cuber knives k, are rotated, and during the forward or severance thrust of said frame cut the potato strips as delivered from the slitters c, c, into cubes. In order to accomplish this satisfactorily the cuber knives k, are so positioned with relation to the edge c^2, on the slitter block C, that the strips of potato as delivered from the slitter blades c, over the inclined surface c', are sheared off by the cuber knives k, on a line coincident with said cutting edge c^2, thereby insuring a clean and well defined cut. The bevel or inclined plane c', on the block C, between the cutter edge c^2, and the slitters c, c, feeds the potato strips most advantageously to and between the cutter edge c^2, and

the cuber knives *k*, by keeping control of said potato strips and deflecting them gradually and evenly to the cutting edges named, thus preventing the potato strips from wabbling or breaking apart before being cubed.

It is to be noted that for convenience of description in the claims, etc., the several cutting means are designated as being positioned on the reciprocatory carrier at the rear of the platen P.

What I claim as my invention and desire to secure by Letters Patent is,

1. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory carrier frame slidably mounted with relation thereto, a yieldable platen plate on said reciprocatory carrier frame, and a slicing blade mounted on said slidable carrier adjacent to and at the rear of said platen, for the purpose described.

2. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory carrier frame slidably mounted with relation thereto, a yieldable platen plate on said reciprocatory carrier frame, and a slicing blade mounted on said slidable carrier frame adjacent to and at the rear of said platen, said slicing blade being formed with an oblique cutting edge, for the purpose described.

3. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory carrier frame slidably mounted with relation thereto, a yieldable platen plate on said reciprocatory carrier frame, means for adjusting said platen as related to the said vegetable feed receptacle, and a slicing blade mounted on said slidable carrier frame adjacent to and at the rear of said platen, for the purpose described.

4. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory carrier frame slidably mounted with relation thereto, a yieldable platen plate on said reciprocatory carrier frame held in prescribed position by elastic resilient pressure, means for adjusting said platen as related to the said vegetable feed receptacle, and a slicing blade mounted on said slidable carrier frame adjacent to and at the rear of said platen, for the purpose described.

5. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory carrier frame slidably mounted with relation thereto, a platen plate adjustably mounted upon said carrier frame, said platen being formed with a centralized screw stud extending through a bridge piece on the carrier frame, said bridge piece, a wing-nut engaging the said screw stud and bearing against said bridge piece, headed guide studs rigidly protuberant from said carrier frame and extending through holes in the platen, springs interposed between the heads of said guide studs and said platen, and a slicing blade mounted on said carrier frame adjacent to and at the rear of said platen, for the purpose described.

6. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory carrier frame slidably mounted with relation thereto, a yieldable platen plate on said reciprocatory carrier frame, a slicing blade mounted on said slidable carrier frame adjacent to and at the rear of said platen, and a series of slit cutters mounted on said slicer blade and carrier frame, for the purpose described.

7. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory carrier frame slidably mounted with relation thereto, a yieldable platen plate on said reciprocatory carrier frame, a slicing blade mounted on said slidable carrier frame adjacent to and at the rear of said platen, and a series of slit cutters mounted on said slicer blade and carrier frame in transverse alinement as related to the cutting edge of the slicer blade, for the purpose described.

8. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory carrier frame slidably mounted with relation thereto, a yieldable platen plate on said reciprocatory carrier frame, a slicing blade mounted on said slidable carrier frame adjacent to and at the rear of said platen, and a series of slit cutters mounted transversely on and with relation to said slicer blade with their cutting edges protuberant beyond the cutting edge of said slicer blade, for the purpose described.

9. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory carrier frame slidably mounted with relation thereto, a platen plate on said reciprocatory carrier frame, a slicing blade mounted on said slidable carrier frame adjacent to and at the rear of said platen, a series of slit cutters mounted in grooves in a holding block secured to the slicer blade and to the carrier frame, the slit cutters being positioned transversely as related to and protruding beyond the cutting edge of the slicer blade, and said slit cutter holding block formed with a beveled surface adjacent to and behind the aforesaid cutting edges, for the purpose described.

10. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory car-

rier frame slidably mounted with relation thereto, a yieldable platen plate on said reciprocatory carrier frame, a slicing blade mounted on said slidable carrier frame adjacent to and at the rear of said platen, a series of transverse slit cutters mounted on said slicer blade and carrier frame, and a rotatable cuber knife mounted to act in conjunction therewith, for the purpose described.

11. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory carrier frame slidably mounted with relation thereto, a yieldable platen plate on said reciprocatory carrier frame, a slicing blade mounted on said slidable carrier frame adjacent to and at the rear of said platen, a series of transverse slit cutters mounted on said slicer blade and carrier frame, and a plurality of rotatable cuber knives mounted to act in conjunction therewith, for the purpose described.

12. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory carrier frame slidably mounted with relation thereto, a platen plate on said reciprocatory carrier frame, a slicing blade mounted on said slidable carrier frame adjacent to and at the rear of said platen, a series of transverse slit cutters mounted on said slicer blade and carrier frame, a plurality of cuber knives attached to a shaft mounted in bearings secured indirectly to the carrier frame, a pinion on said cuber knife shaft engaging with a stationary rack, and said stationary rack rigidly supported on the vegetable feed receptacle, for the purpose described.

13. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory carrier frame slidably mounted with relation thereto, a platen plate on said reciprocatory carrier frame, a slicing blade mounted on said slidable carrier frame adjacent to and at the rear of said platen, a series of transverse slit cutters mounted in grooves in a holding block secured to the slicer blade and to the carrier frame, the slit cutters being positioned transversely as related to and protruding beyond the cutting edge of the slicer blade, said slit cutter holding block formed with a beveled surface adjacent to and behind the aforesaid cutting edges, a plurality of cuber knives attached to a shaft mounted in bearings secured to said slit cutter holding block and to the carrier frame, said cuber knife shaft being positioned in alinement with the cutting edge on the holding block forming the apex of the aforesaid beveled surface thereon, a pinion on said cuber knife shaft engaging a stationary rack, and said stationary rack rigidly supported on the vegetable feed receptacle, for the purpose described.

14. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory carrier frame slidably mounted thereon, and consisting of slide members united transversely by a handle and a bridge piece, runways on the vegetable feed receptacle and gib pieces for confining the edges of the slide bars thereto, a platen plate mounted on said reciprocatory carrier frame, a resilient mounting for said platen, and a slicing blade also mounted on said carrier frame adjacent to and at the rear of said platen, for the purpose described.

15. In vegetable cutting apparatus of the character designated, in combination, a vegetable feed receptacle, a reciprocatory carrier frame slidably mounted thereon, and consisting of slide members united transversely by a handle and a bridge piece, screw studs rigidly protuberant from slide members, wing nuts engaging therewith, a platen plate mounted on said reciprocatory carrier frame, a resilient mounting for said platen and a slicing blade also mounted on said frame adjacent to and at the rear of said platen and secured to the slide members by means of said screw studs and wing nuts, for the purpose described.

WILLIAM WALTER TUCK.

Witnesses:
EDWARD S. EATON,
ROBERT S. TUCK.