

June 6, 1939.

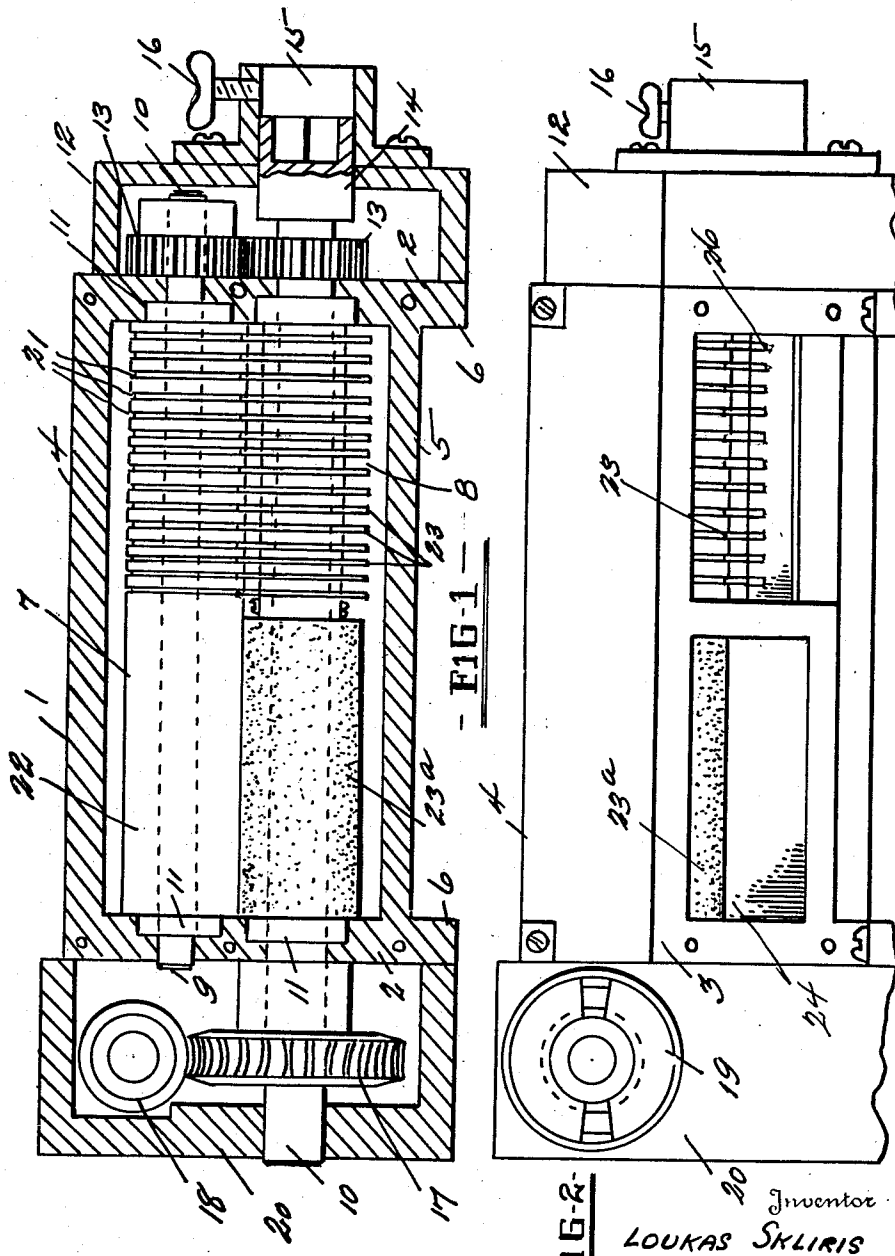
L. SKLIRIS

2,161,237

COMBINATION SLICING AND SHELLING MACHINE

Filed Nov. 9, 1937

4 Sheets-Sheet 1



Inventor  
LOUKAS SKLIRIS

By

*Wm. J. Kautsky*  
Attorney

June 6, 1939.

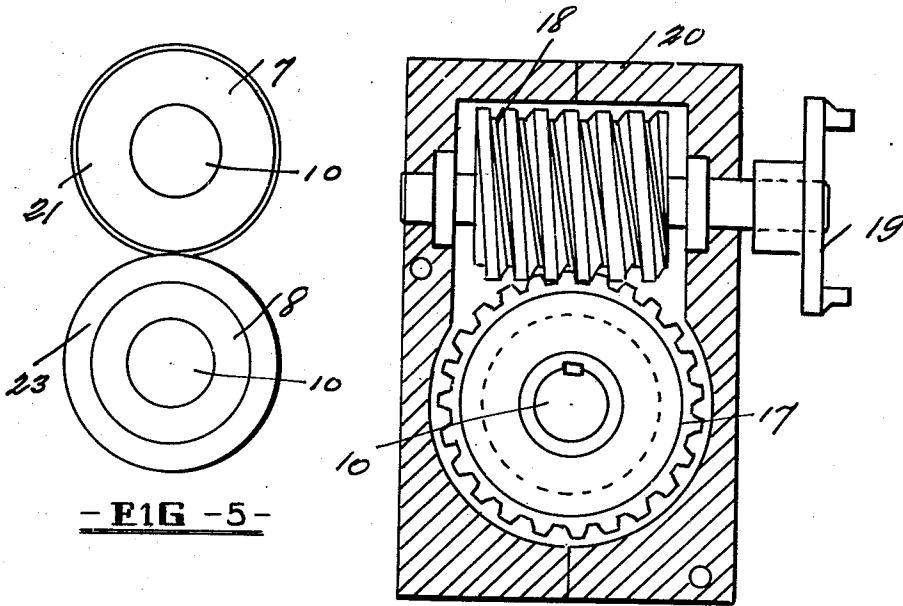
L. SKLIRIS

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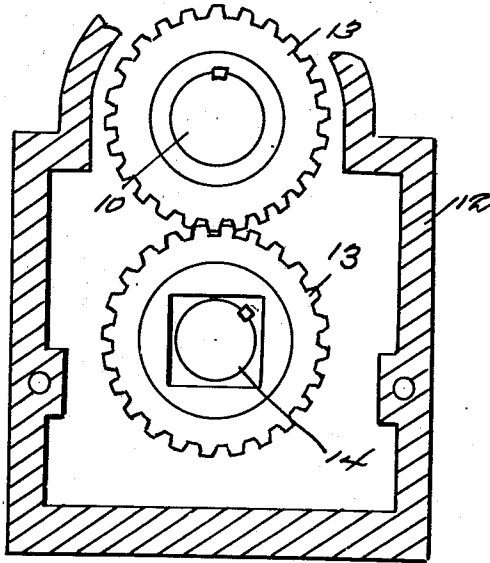
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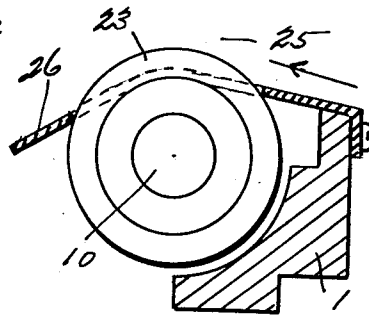


- FIG - 5 -



- FIG - 4 -

- FIG - 3 -



- FIG - 6 -

Inventor

LOUKAS SKLIRIS.

By *Wm J. Kautz*  
Attorney

June 6, 1939.

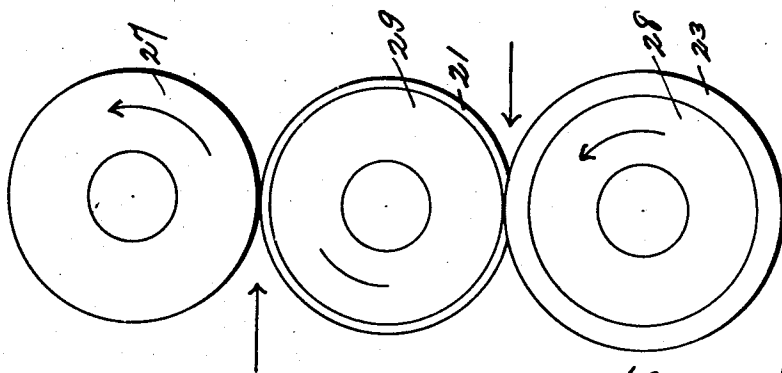
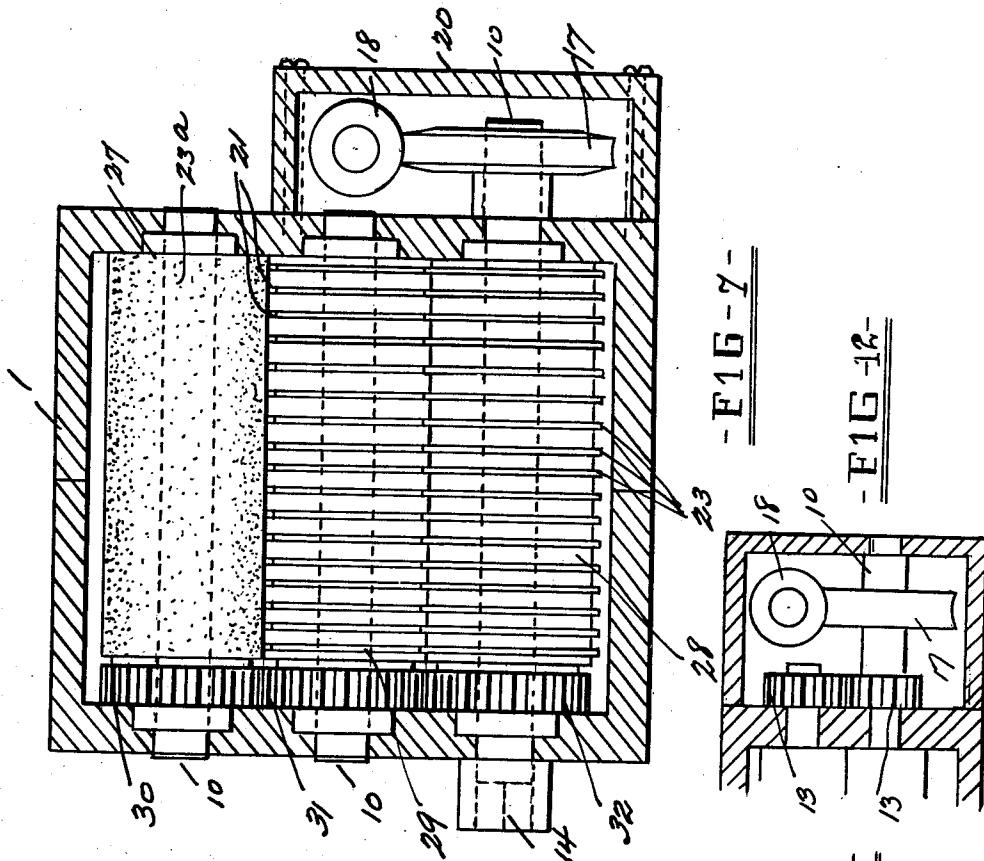
L. SKLIRIS

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COMBINATION SLICING AND SHELLING MACHINE

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4 Sheets-Sheet 3



Inventor

LOUKAS SKLIRIS,

By *Wm. J. Kenoh*  
Attorney

June 6, 1939.

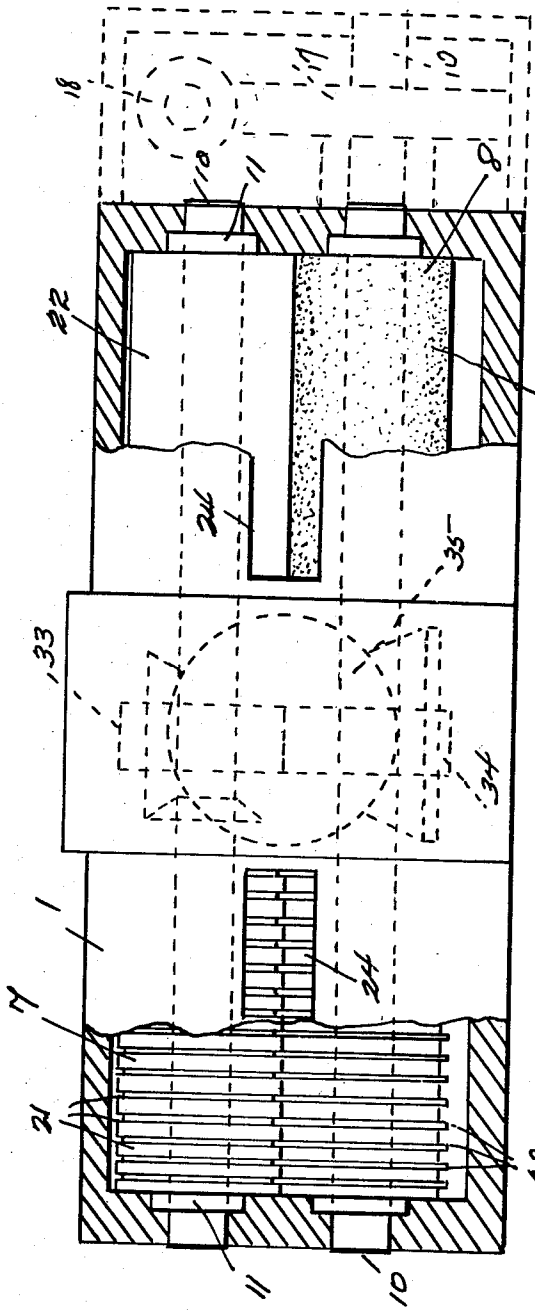
L. SKLIRIS

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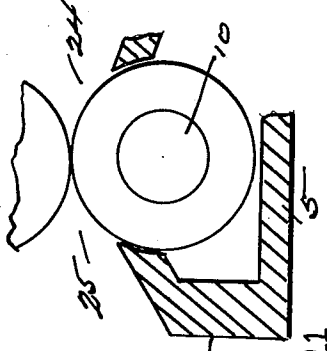
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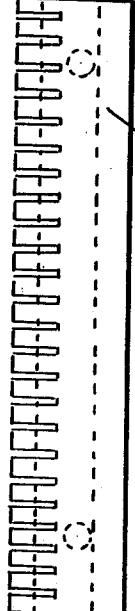
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- FIG-9 -



- FIG-11 -



- FIG-10 -

Inventor

LOUKAS SKLIRIS,

By *Wm. J. Kestel*  
Attorney

# UNITED STATES PATENT OFFICE

2,161,237

## COMBINATION SLICING AND SHELLING MACHINE

Loukas Skliris, Belmar, N. J.

Application November 9, 1937, Serial No. 173,705

5 Claims. (Cl. 146—122)

In its broad aspect my present invention is an improvement upon my prior patent upon Slicing machines granted June 22, 1937, #2,084,921, and wherein is described a machine for slicing vegetables and the like by means of rotary cutters; my present invention is an improvement upon my previously patented machine in a number of respects, as for instance the adaptation of the structure to both slicing and shelling, simplification of gears, compactness of machine arrangement, provision for a power takeoff, improvement in operation and construction and the like.

More particularly, my present invention aims to provide in a simple compact machine means for slicing beans, potatoes and the like as for instance to form Julienne potatoes, and means for shelling peas and the like, and means whereby power may be taken off of the machine to run a meat grinder or the like. Briefly stated some of the principal objects, in addition to those above outlined, are: First, to provide a machine of this character wherein the number of parts is reduced, there being in one form but two rolls having means for accomplishing both the slicing and shelling operations; second, to provide a simplified drive so that the cost is reduced and the machine rendered more compact, reasonable in price and less likely to become out of order or broken; third, to provide in another form of my invention means whereby three operating rolls are utilized to accomplish both slicing and shelling; fourth, to provide a power takeoff so that a meat grinder or the like may be coupled with and operated by the machine; fifth, to provide a simple, effective and easily cleaned housing; sixth, to provide a simplified and more efficient guard and cleaner for the rotary slicing mechanism; seventh, to provide means whereby the operating parts of my invention may be driven from either end or from the center thereof, and eighth, to provide for easy access to the parts for cleaning, to provide an improved arrangement of said parts and to generally simplify and render the structure more practical.

In the drawings wherein are illustrated the principal form and several important modifications of my invention:

Figure 1 is a sectional side elevation of the principal form;

Figure 2 is a fragmentary side view of the back of the machine (showing the casing) shown in Figure 1;

Figure 3 is a sectional end view of the gear box and worm gear leading to a power element such as an electric motor (not shown);

Figure 4 is a sectional end view of the gears connecting the rolls for simultaneous rotation in the principal form of my invention, and showing the power take off connection to a meat grinder or the like;

Figure 5 is an end view of the rotary slicing roll portion thereof showing the rotary slicing knives and grooves;

Figure 6 is a view (sectional) through the combined guard and cleaner showing its relationship to the knifed slicing rolls;

Figure 7 is a sectional side view of a slightly modified form of my invention having three rolls arranged one above the others in a vertical series to accomplish both a slicing and a shelling operation;

Figure 8 is a diagrammatic view of the rolls showing the method of operating the same;

Figure 9 is a side view, partly broken away, of another important modification of my invention which shows the drive for the same located between the ends of the machine;

Figure 10 is a view of my combined guard and cleaner, and

Figure 11 is a fragmentary view showing the formation of the openings in the housing and the platforms leading up to the rolls to facilitate feeding material to the rolls and taking material away from the rolls;

Figure 12 is a view of a modified drive in which the worm gear and reduction gear and roll gears are on the same side of the machine.

Like characters of reference are used to designate like or similar parts throughout the several views.

The numeral 1 designates the casing which is divided centrally lengthwise and has end walls 2; side walls 3, a top 4, and a bottom 5 with feet 6 located on the bottom. This casing is preferably a light casting. In the casing are arranged lengthwise two rolls 7 and 8 with ends 9 of the supporting shafts 10 therefore fitted with roller-bearing mountings 11 journalled in the end walls 2 of the casing. At one end of the casing is a housing 12 into which the ends 9 of the shafts 10 extend and each carries a gear 13 which are intermeshing, and the lowermost of which has a connection 14 for attachment to a meat grinding machine or the like. The connection 14 is preferably a quick detachable, square socket type guarded by a detachable fitting 15 having a thumb nut 16 for engaging the collar of a meat grinder or the like. The other end of the lower shaft 10 carries a large reduction gear 17 which intermeshes with a worm gear 18 having a quick

detachable fitting 19 used for coupling my machine to a suitable source of power, such as an electric motor, or the like, not here shown. A suitable housing 20 encloses gears 18 and 17 and the ends of the shafts 10 adjacent thereto are mounted in roller bearings as indicated heretofore so that the rolls, gears, and shafts may be driven from a source of power with a minimum frictional loss.

Referring now to the rolls 7 and 8 specifically; it will be noted that the upper roll 7 has uniformly spaced grooves 21 throughout approximately a half of its length. The remaining portion 22 of the roll being smooth. This roll is preferably formed of aluminum or the like. The lower roll 8 carries a series of equally spaced circular knives 23 which fit into the grooves 21, and the remaining half of the roll carries a soft rubber drum or platen 23<sup>a</sup> which contacts with the smooth portion 22 of roll 7. In operation, potatoes or the like which are fed into the rotary knives are sliced, and peas or the like which are fed between the smooth part 22 and rubber platen 23<sup>a</sup> are shelled. Referring to Figures 2 and 11, it will be noted that the casing is formed with openings in front and back, designated respectively 24 and 25 and that the walls of the casing adjacent the rolls slope upwardly and inwardly as shown in Figure 11 to form floors to facilitate inserting peas, beans, potatoes and the like into the machine, and removing them after they have been operated upon, either for slicing or shelling. A guard and cleaner 26, see Figures 6 and 10, has slots through which the knives 23 fit as shown in Figure 6 and is bent to somewhat conform to the curvature of the roll so that the guard itself serves to facilitate passage of material through the machine as well as keeping the knives clean.

The operation of the form of my invention shown in Figures 1 to 6 is apparent from the foregoing since if it is desired to slice a potato or the like it is merely inserted in suitable pieces between the cutter portion of the rolls, whereas peas and the like may be shelled by passing them between the rubber platen and smooth portion of the roll. A meat grinder or the like may be attached to the power takeoff and the entire machine driven through a suitable attachment to a power element not shown. All parts may be inspected and cleaned by simply removing a part of the casing or by removing either of the housings and there are not parts to get out of order or which are likely to become clogged.

The form of my invention shown in Figures 7 and 8 operates on a principal similar to that of the principal form except that three rollers are used; the top roller 27 carries the rubber platen, and the bottom roller 28 the circular slicing knives, while the middle roller 29 is grooved to receive the knives, and at the same time serves a dual purpose of cooperating with and completing the function with the rubber roller to shell peas and the like. However, by reference to the diagram in Figure 8, it will be noted that since the three rollers are driven by three intermeshing gears 30, 31 and 32 respectively, vegetables and the like designed for slicing must be fed into the opposite side of the machine from peas and the like which are to be shelled since the direction of action is reversed by the three intermeshing gears. The power take-off is at a suitable separate housing at one side of the casing, and the power take off and connections for the same and

the gear drive are the same as in the principal form.

In the form of my invention shown in Figure 9, the arrangement of rollers and their operation is similar in all respects to that of the principal form except that the drive is located midway between the ends of the casing, and operates upon the rollers between the respective sections thereof; for instance, there is a gear—33 in dotted lines—between the grooved and smooth part of roller 7, and an intermeshing companion gear—34 in dotted lines—between the rubber platen and the slicing knives of the lower roll 8; these are driven by suitable gearing including a drive gear and intermeshing mitre gears—shown at 35 in dotted lines—from a suitable source of power not shown. In operation, the shelling and the slicing operations are carried on at either side of the drive mechanism—or put in another way, at either side of the machine, and all gearing may be on one side as in Figure 12.

It will be noted that the sections of the casing and the housings are assembled by suitable screws so that all may be readily taken down, and that all moving parts are carried in suitable anti-friction bearings; also that the number of parts are reduced to a minimum.

It is believed that the operation and advantages of my invention will be apparent from the foregoing, but it is emphasized that the scope of my invention should only be determined by reference to the claims appended hereto and which form a part of this application, and that changes in form, shape, size, arrangement and position of parts may be made provided they fall within the scope of said claims.

#### I claim:

1. A combination kitchen utensil comprising a plurality of rotatable elements, at least one of which is provided with spaced apart continuous grooves formed in its outside surface and forming a series of spaced continuous ribs therebetween; a rotatable element having a series of spaced circular knives therein fitting in said grooves, a member having a slightly resilient surface covering contacting the rotatable member carrying the grooves and rotatable in cooperation therewith, and means for actuating said rotatable elements.

2. A combination kitchen utensil comprising rotatable elements, one of which is provided with a series of uniformly spaced apart continuous grooves and raised ribs between the grooves, another having a series of spaced circular knives fitting in said grooves, an element having a resilient surface mounted for contact with the element provided with a series of uniformly spaced apart grooves, said elements being rotatably mounted, and means for rotating said elements.

3. A combination kitchen utensil comprising a frame, a plurality of spaced, parallel shafts mounted in said frame in vertical alignment, means for actuating said shafts, transmission means to cause said shafts to rotate in unison, the lowermost shaft carrying a series of spaced apart circular knives, the uppermost shaft carrying a resilient platen or drum, and the intermediate shaft carrying a drum formed with alternating grooves and ribs; the ribs contacting the surface of the resilient platen or drum, and the grooves receiving the cutting edges or peripheral edges of the knives whereby said intermediate drum cooperates with the resilient drum and the member carrying the knives for the purpose defined.

4. A combination kitchen utensil comprising a supporting frame, a plurality of vertically aligned, spaced, parallel shafts journaled in said frame, means for simultaneously rotating said shafts, 5 each shaft carrying a drum-like element, a series of spaced apart, circular knives carried by one of said shafts, a member having a resilient surface carried by another drum-like element, and a drum like element carried on a shaft 10 between the aforementioned shaft carrying the knives and the shaft carrying the resilient drum like element, said latter drum-like element having a series of alternating grooves and ribs

formed in its surface, the ribs contacting the surface of the resilient drum-like element, and the grooves receiving the circular knives, whereby to cooperate with said resilient member and said knives to provide respectively means for shell- 5 ing peas and the like and means for slicing vegetables and the like.

5. The structure defined in claim 4, and means whereby vegetables, peas and the like are fed to said drums and knives and removed therefrom, 10 and means whereby said knives are cleaned.

LOUKAS SKLIRIS.