E. G. IRELAND.

VEGETABLE SLICING AND SHREDDING MACHINE.

APPLICATION FILED SEPT. 21, 1917.

1,255,013. Patented Jan. 29, 1918.

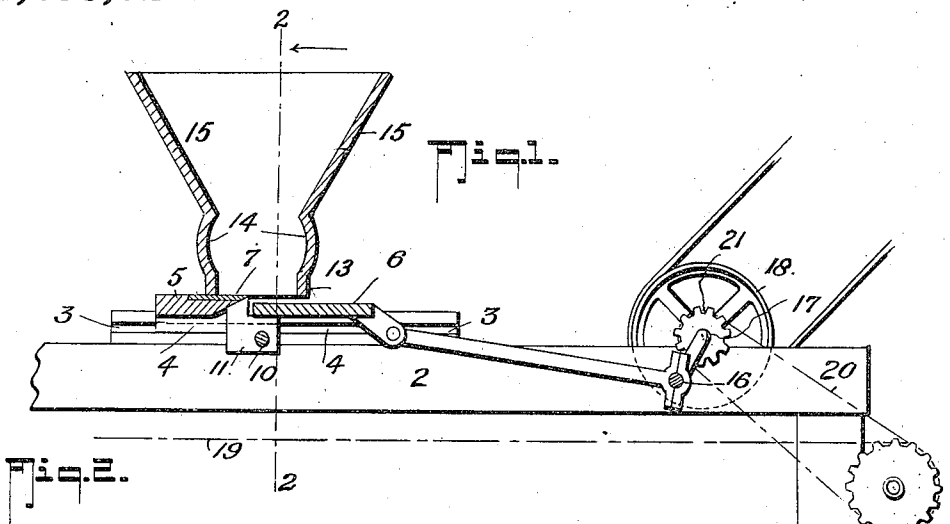
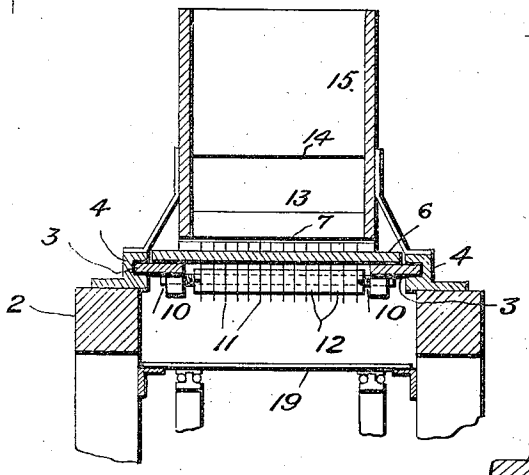


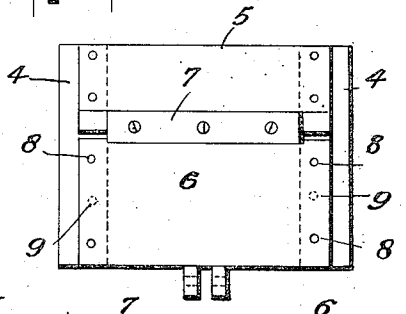
Fig. 1.

Fig. 2.



Fig. 3.





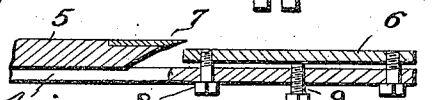


Fig. 4.

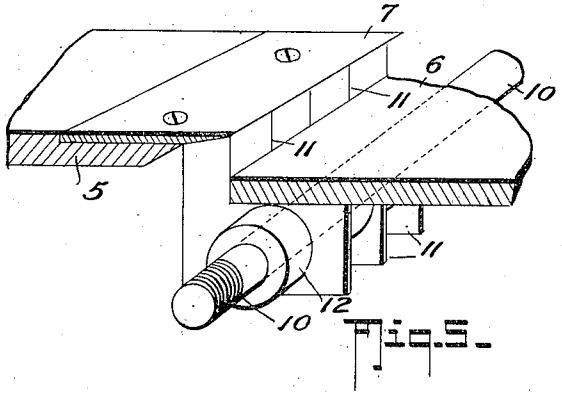


Fig. 5.

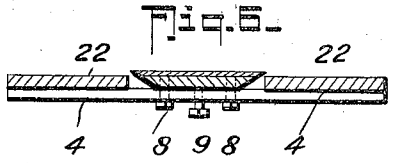


Fig. 6.

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EDWIN G. IRELAND, OF STEVESTON, BRITISH COLUMBIA, CANADA.

VEGETABLE SLICING AND SHREDDING MACHINE.

1,255,013. Specification of Letters Patent. Patented Jan. 29, 1918.

Application filed September 21, 1917. Serial No. 192,551.

To all whom it may concern:

Be it known that I, EDWIN G. IRELAND, a citizen of the Dominion of Canada, residing at Steveston, in the Province of British Columbia, Canada, have invented certain new and useful Improvements in Vegetable Slicing and Shredding Machines, of which the following is a specification.

This invention relates to a machine for simultaneously slicing and shredding potatoes or other vegetables preparatory to evaporation of the same, the object being to provide an effective mechanism for this purpose that will not be subject to irregularities in the character of the work done through bridging of the loose vegetables in the feed hopper above the knives.

Where an ordinary hopper is used to feed vegetables to a slicing machine of this character, the vegetables will occasionally bridge across between the sloping sides of the hopper, and though vibration will in time shake them down, while so bridged, those that are below the arch being unsupported will roll over under the action of the knife and produce an ineffective and irregular slice. This difficulty is overcome by the particular form of hopper which I use.

A further novel feature lies in the provision of shredding knives located adjacent the slicing knife so that each slice as cut is shredded before delivery.

The invention is particularly described in the following specification, reference being made to the drawings by which it is accompanied, in which:

Figure 1 is a vertical longitudinal section through the upper part of the machine.

Fig. 2, a vertical cross section on the line 2—2 in Fig. 1 looking in the direction of the arrow.

Fig. 3 is a plan of the knife frame.

Fig. 4, an enlarged section showing the adjustment plate.

Fig. 5, an enlarged perspective view showing the relation of the shredding knives to the slicing knife, and

Fig. 6, an enlarged section showing a modification of the slicing knife and knife frame.

In these drawings 2 represents the frame of the machine by which it is supported at the required height above the floor level. Mounted in slideways 3 on the upper part of the frame 2 to move lengthwise of it is a knife frame which is composed of longitudinal slide members 4 fitting the slideways 3, and a knife plate 5 secured across one of these and an adjusting plate 6 across the other end. The adjacent edges of these plates 5 and 6 are toward the midlength of the knife frame and along the edge of the knife plate is secured a thin knife blade 7, the cutting edge of which blade coincides with the upper side of the plate 5 to which it is secured. The adjusting plate 6 is secured to the side members 4 by the screws 8, threaded into the plate 6 and the adjustment of its upper surface below the cutting edge of the knife blade 7, which determines the thickness of the slice to be cut, is regulated by the screws 9 threaded into the side members 4 between the screws 8 and bearing against the underside of the plate 6.

Extending across between the slide members 4 of the knife frame beneath that end of the adjusting plate 6 which is toward the cutting edge of the knife 5, and secured to either the plate 6 or slide members 4, is a rod 10 on which a series of thin steel shredding knives 11 are secured. These shredding knives are maintained the required distance apart on the rod 10 by distance pieces 12 which determine the width of the shredded vegetables. These shredding knives 11 extend beyond the ends of the adjusting plate 6 and project upward against the bevel of the knife blade 7 and the edges of these knives are sharpened between the adjusting plate 6 and the cutting edge of the slicing knife 7.

Supported in any suitable manner above the knife frame and extending upward therefrom is a hopper, into which the potatoes, or such other vegetables as are required to be sliced and shredded, are delivered. The lower end 13 of this hopper, which is adjacent the plane of the slicing knife, is substantially rectangular in plan and conforms approximately to the width of the slicing knife and the length of its stroke in the slideway. This portion 13 is carried vertically upward for a short distance, and thereabove the forward and after sides of it are bellied or enlarged, as at 14, and thereafter are outwardly flared, as at 15, to form a capacious receiving hopper. The bellied form 14 of this hopper is an important feature of the invention, as it prevents the vegetables hanging up or bridging in proximity to the knife plate, and the short vertically walled portion 13, immediately adjacent the

plane of the knife, supports the vegetables under the slicing action of the knife and prevent them rolling over as they would tend to do if the slope of the hopper or curve of the bellied portion were carried down to the plane of the slicing knife.

The knife frame 3 is endwise reciprocated in its slideway by a connecting rod from a crank 16 bent from the crank shaft 17 which is rotatable in bearings secured in the frame 2 of the machine and is rotated in any suitable manner, say by a belt from an external source of power taking over a pulley 18.

Supported in any convenient manner from the frame 2 beneath the slidable knife frame is an endless conveyer 19 which is driven at one end by a chain 20 from a sprocket 21 on the crank shaft 17.

The vegetables as fed into the hopper will rest on the plates 5 and 6 of the knife frame, and as that frame reciprocates slices will be removed by the blade 7 and as these slices pass through between the edge of the adjusting plate 6 and the knife 7 the slices will be shredded by the shredding knives 11 and will fall on the conveyer 19 for removal from the machine.

If considered desirable the slicing knife 7 may be double edged, as shown in Fig. 6, in which case the plane of its edges will be adjustable vertically above that of the dead plates 22 at each end, between which there will be a delivery aperture over which the slicing knife is secured. By this means the output of the machine will be doubled, as it will slice or slice and shred with each backward and forward movement of the knife frame.

I do not desire to be confined to the particular construction of the several parts as here described and illustrated as the same may be varied to meet the requirements of workshop construction.

Having now particularly described my invention, I hereby declare that what I claim as new and desire to be protected in by Letter Patent, is:

1. In a vegetable slicing and shredding machine which includes a suitable frame, a hopper, a knife frame horizontally slidable across the underside of the hopper, the said frame having a plate across each end with a space between the adjacent edges, the planes of the upper surfaces of the plates being parallel to one another and in which means is provided for adjusting the distance between the surface planes of the two plates; a knife blade secured along the edge of the upper plate which is adjacent the lower plate, and a series of shredding knives fixedly located with relation to said slicing knife across the underside of the lower plate and projecting upward against the underside of the slicing knife.

2. In a vegetable slicing and shredding machine in which is included a suitable frame, a hopper, a slicing knife horizontally movable across the lower end of the hopper; a series of shredding knives carried on a bolt with distance pieces holding the knives the required distance apart, each of said knives being shaped to project upward beyond the end of the lower plate into contact with the underside of the slicing knife, means for securing the rod of shredding knives to the underside of the knife frame, and means for securing said shredding knives against rotation on said rod and in fixed relation to said slicing knives.

3. A vegetable slicing and shredding machine, comprising the combination with a suitable frame, of a hopper within which the vegetables to be sliced and shredded are retained, a slicing knife horizontally movable across the lower end of the hopper, and a series of shredding knives carried on a bolt with distance pieces holding the knives the required distance apart, each of said knives being shaped to project upward beyond the end of the lower plate into contact with the underside of the slicing knife, means for securing the rod of shredding knives to the underside of the knife frame and means for securing said shredding knives against rotation on said rod and in fixed relation to said slicing knife.

4. In a vegetable slicing and shredding machine in which is provided a suitable frame, a hopper in which the vegetables to be sliced and shredded are retained, a knife frame adapted to lie under the hopper and having its surface adjacent the hopper formed in two levels, a horizontal knife sustained by the upper level; a series of vertical shredding knives carried by said frame and adapted to project up from the lower to the upper level to present vertical cutting edges between the two levels, the cutting edges of the shredding knives lying normal to the cutting edge of the horizontal or slicing knife and means for imparting motion between the knife frame and the hopper, said shredding knives adapted to lie in engagement with said horizontal knife and having portions to project under the lower level of the surface of the knife frame whereby to hold said shredding knives rigidly and fixedly in place.

5. In a vegetable slicing and shredding machine in which is provided a supporting frame, a hopper fixedly sustained on said frame, a knife frame horizontally movable beneath the hopper, guides on the supporting frame for sustaining the knife frame, said knife frame having a plate across each end with a space between the adjacent edges, one of said plates being at a lower level than the other plate whereby to form a "stop," a horizontal slicing knife on the upper plate whose cutting edge lies adjacent to the stop,

means for adjusting the distance between the surface planes of the two plates and means for imparting reciprocation to the knife frame, a rod projecting across the knife frame, a plurality of shredder knives mounted on the rod spacing elements between the shredder knives, each of said shredder knives including a body adapted to lie under the lower knife frame plate and including knife elements projecting upwardly into engagement with the under side of the slicing knife, the cutting edges of said shredder knives lying substantially normal to the cutting edge of the slicing knife.

In testimony whereof I affix my signature.

EDWIN G. IRELAND.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents Washington, D. C."