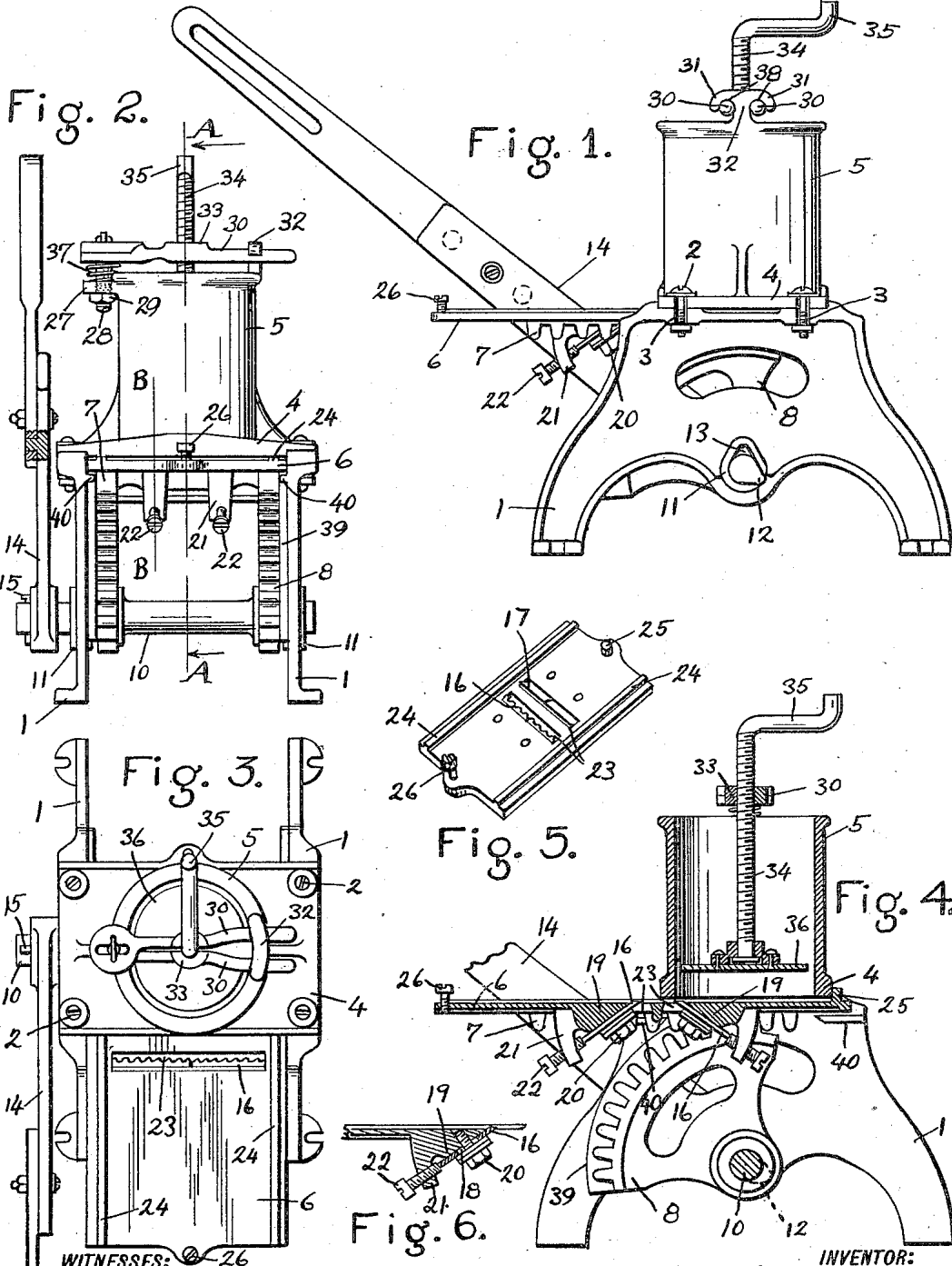


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MACHINE FOR CUTTING UP GREEN BONES, VEGETABLES, &c.
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MACHINE FOR CUTTING UP GREEN BONES, VEGETABLES, &c.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GELSTON C. SANFORD, a citizen of the United States, residing in Newark, in the county of Essex and State of New Jersey, have invented certain Improvements in Machines for Cutting Up Green Bones, Vegetables, &c., of which the following is a specification.

This invention relates more particularly to that type of machines having a hopper to receive the bones or other material and reciprocating blades in the slidable bottom of said hopper.

The objects of the invention are to provide an improved drive for the reciprocating plate carrying the cutters, whereby the pressure exerted within the hopper will not affect the ease of operation of said drive; to provide an improved and adjustable arrangement of blades or cutters whereby their manipulation is rendered most efficient; to provide improved means for exerting pressure upon the uncut contents of the hopper; to provide such a means which is readily removed, applied and adjusted; to secure simplicity of construction and operation, and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings, in which like numerals of reference indicate the same parts throughout the several views, Figure 1 is a side elevation of the device, the reciprocating plate carrying the cutters being shown at the extreme end of its stroke away from the operator; Fig. 2 is a rear elevation of the same; Fig. 3 is a plan of the same; Fig. 4 is a section on line A—A of Fig. 2, looking in the direction indicated by the arrows; Fig. 5 is a perspective view of the reciprocating blade-carrying plate, and Fig. 6 is a section on line B—B of Fig. 2.

In the specific embodiment of the invention illustrated in the said drawings, 1, 1 indicate a pair of legs or supports in spaced and parallel relation. Secured to the tops thereof in any suitable manner, as by screws 2 in the laterally open slots 3, is a bridge 4 preferably formed integral with an upwardly extending hopper 5, said hopper being without top or bottom except as hereinafter specified. In place of the bottom to said hopper and immediately below said bridge 4, is a slidable or reciprocating plate 6 having preferably formed integral therewith, near its longitudinal edges, racks 7, 7. A pair of segmental gears 8 to engage said

racks to reciprocate the plate 6 are mounted upon a transverse shaft 10 journaled in suitable bearings 11, 11 in the legs 1, 1. In order to prevent any tendency of the legs to spread, I provide lugs 12, 12 on the shaft adapted in assembling to pass through upward extensions 13 of the bearings in the legs 1, 1 as shown in Fig. 1, so that one lug shall be upon the outer side of one leg and adjacent thereto and the other lug shall be in similar relation to the other leg. It will be understood that the lugs are inserted by turning the shaft into abnormal position, so that normally the lugs overlap upon the legs as shown. One end of the shaft 10 extends outside the leg thereat and is preferably squared to receive an operating lever or handle 14 held thereon by a pin 15 or other suitable means. It will be evident, therefore, that by swinging the handle 15 back and forth a resulting reciprocatory movement of the plate 6 is obtained.

A pair of opposed blades or cutters 16, 17 project inclinedly upward toward each other through said plate 6 with cutting edges extending transversely of the plate and separated one from the other at their cutting edges by only a narrow strip of the plate 6. Each of said blades is furthermore longitudinally divided into halves or sections and each of such sections provided with a slot 18 for adjustably clamping the blade to the plate. For obtaining this clamping an inclined boss 19 is formed on the underside of the plate for each of the blades, the inclination of said bosses being the same slope which the blades are to be given. A bolt 20 for each section of the blades extends into the boss perpendicularly to the inclined surfaces thereof and through the slot in the blade section, thereby adjustably clamping the section to the plate. Suitable lugs 21, 21 project downward from the said plate 6 past the lower end of the blades, and screws 22, 22 in the same plane as the blades are threaded through said lugs so as to engage the lower ends of the blades to hold them against slipping down in operation, and to obtain a means for forcing said blades up farther through the plate 6 when desired.

It will be understood that the blades 16, 17 are transversely arranged with respect to the plate 6 and that the said plate is suitably apertured as at 23, 23 to admit the presentation of the cutting edge of the

blades immediately above the surface of the plate. To prevent these ground edges of the blades from inadvertently coming into contact with the metal bridge 4, I provide
 5 a pair of longitudinal beads or tracks 24, 24 upon the plate 6 adjacent its side edges which will always retain said plate in spaced relation to the bridge. Furthermore, to prevent the propulsion of the plate
 10 6 farther than necessary a lug 25 at one end and a screw 26 at the other end of the plate are adapted to engage the bridge, the screw being removable in order to withdraw the plate 6 when desired for cleaning purposes. It will also be noted that I
 15 prefer to employ one blade with a straight edge and one blade with a scalloped or corrugated edge, this second-mentioned blade cutting a grooved or corrugated surface in
 20 the contents of the hopper and upon the return stroke the straight edged blade cuts the corrugations therefrom, so that neither blade makes an entire slice transversely. Attention is directed at this time to Fig. 3
 25 where one of said blades, viz, the scalloped blade 16, is there shown projecting through the plate 6, and wherein it can be seen that the blades as I preferably construct them are of a width at least as great as the diameter of the hopper, so that the greatest
 30 efficiency is obtained.

Into a suitable ear 27 at an upper peripheral point of the hopper is preferably threaded a stud bolt 28 retained in adjusted
 35 position by a lock nut 29 beneath said ear, and pivotally mounted upon this stud bolt to swing in horizontal plane are a pair of arms 30, 30 extending diametrically across the top of the hopper and having ends
 40 adapted to enter beneath the opposite flukes 31, 31 of a double hook 32 integrally formed with said hopper. When so positioned and held by the hook 32, the said arms 30, 30 form at their middle portions a central
 45 threaded sleeve 33 in which works a screw 34 arranged upright and centrally of the hopper 5. At the upper extremity of this screw 34 is a suitable actuating means, here shown as a handle 35, and at the lower end
 50 of the said screw is carried a follower 36 which preferably fits loose within the hopper. It will be evident that as the contents of the hopper are cut away, the follower is screwed down to force the remaining
 55 contents of the hopper against the cutters, and when the hopper is empty the two arms 30, 30 are swung apart so that it is possible to raise the screw and follower entirely out of the machine in order to refill
 60 the hopper. When the screw is reinserted in position, the arms are closed together and the threaded sleeve 33 engages the screw, the necessary movement up or down for the threads to mesh being permitted by
 65 the insertion of a spring 37 on the stud

bolt 28 between the ear 27 and the arms 30, 30. The arrangement of flukes 31, 31 of the hook 32 is such that after the arms 30 are swung under their ends they can rise
 upward into the pockets 38 formed by the 70 hook shape of the said flukes, and hence it will be seen that the harder the screw is operated downward against resistance, the more securely held are the arms 30 by the
 over-lapping of the flukes 31 against any 75 upward or outward tendency of displacement.

In order to reduce the friction of reciprocation of the plate 6 as much as possible, and yet avoid the use of oil or ball bearings which are impracticable and expensive
 80 in a machine of this nature, I employ an annular or arcuate shoulder 39 in connection with each of the gears 8, the said shoulder being of greater radius than a circle through the outer ends of the teeth of
 85 said gear and also being preferably formed integrally with the said gear. The perpendicular thrust upon the plate 6 is therefore transmitted at the tangential point of contact of the arcuate shoulder 39 with said
 90 plates, and inasmuch as the said shoulders rotate in unison with the gears, the pressure acting perpendicular to the arcuate shoulder creates no relative friction between the said shoulder and the plate. To
 95 prevent wobbling of the plate 6, segmental portions 40, 40, of track, preferably formed integral with the legs 1, are placed sufficiently below the plate 6 to provide clearance
 100 when the plate is in operation.

Having thus described the invention, what I claim is:—

1. In a machine of the character described, the combination with a frame having
 105 opposite side supports, a hopper mounted on said frame, a cutter plate forming a bottom for said hopper and adapted to slide between said side supports, said cutter plate having on its under side series of
 110 rack teeth each spaced at a distance from an outer edge of the cutter plate, short segments of track on the inner faces of said side supports projecting beneath the margins of the slide plate at opposite ends of
 115 the same and leaving the middle portion of its length exposed, gears engaging said racks on the cutter plates and having annular shoulders tangentially engaging the margins of said cutter plate outside said
 120 racks between the said segments of track, a shaft for said gears perpendicular to and intersected by the center line of the hopper extended, means for oscillating said shaft, and means for feeding the contents
 125 of the hopper against said cutter plate.

2. In a machine of the character described, the combination of a hopper having
 at an upper circumferential point a pair of inverted hooked fingers the outer 130

ends of which are in spaced relation to the upper edge of said hopper, a pair of arms hinged to the upper edge of the hopper opposite said hooked fingers and adapted to swing under and be engaged by said fingers, said arms having cooperating screw threaded portions intermediate to their ends forming a socket, a screw adapted to work in said socket, and a follower in the hopper adapted to be pressed against the contents by said screw.

3. In a machine of the character described, the combination of a hopper having at an upper circumferential point a

pair of inverted hooked fingers the outer ends of which are in spaced relation to the upper edge of said hopper, a headed pivot on said edge of the hopper diametrically opposite said hooked fingers, a pair of arms hinged to said pivot and adapted to swing under and be engaged by said fingers, and a spring on said pivot adapted to normally hold said arms upward against said head.

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Witnesses:

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