

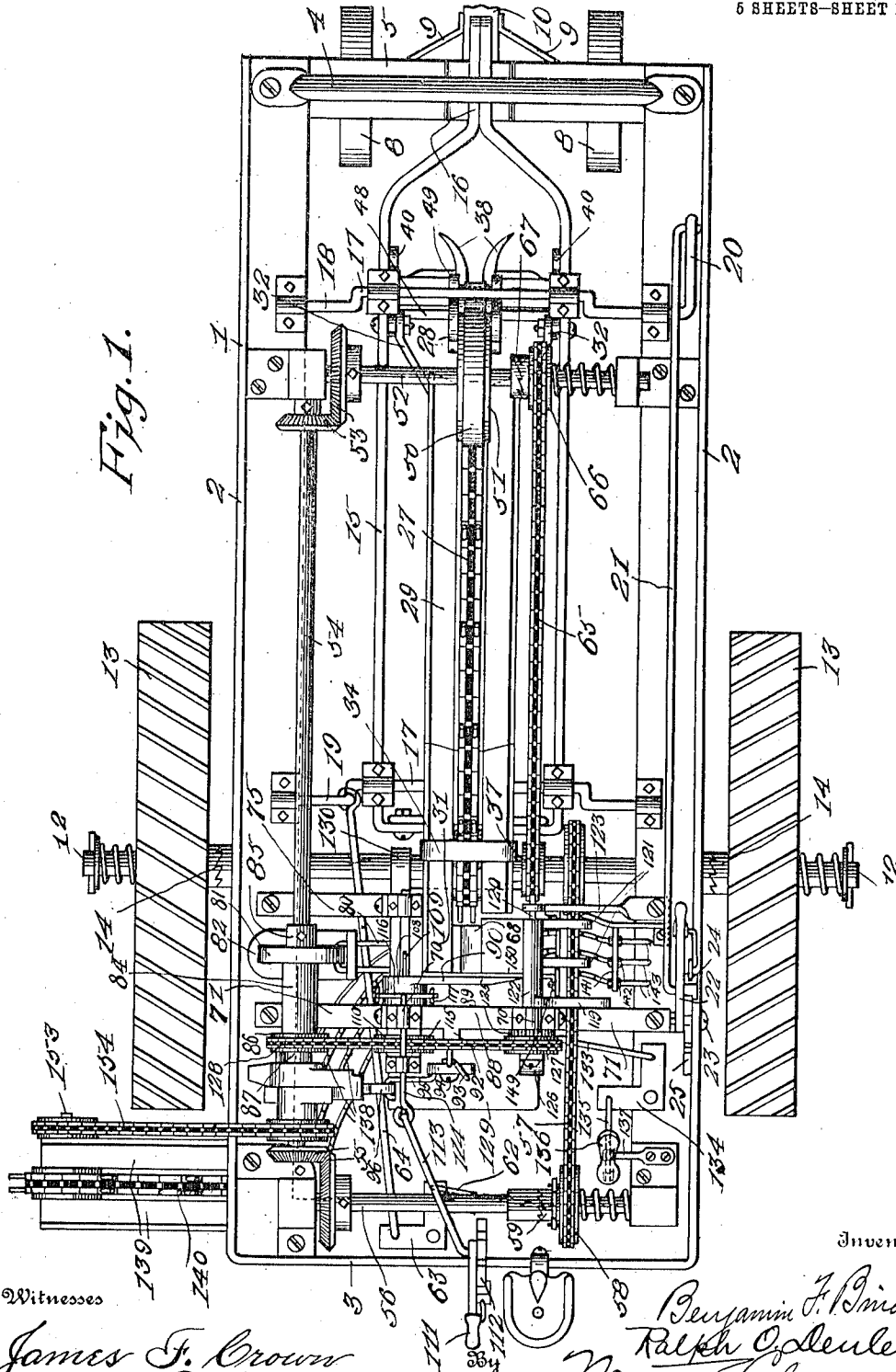
B. F. BINDER & R. O. DEULEN.
BEET TOPPER.

APPLICATION FILED MAR. 23, 1909. RENEWED AUG. 3, 1912.

1,041,003.

Patented Oct. 15, 1912.

5 SHEETS—SHEET 1.



Witnesses

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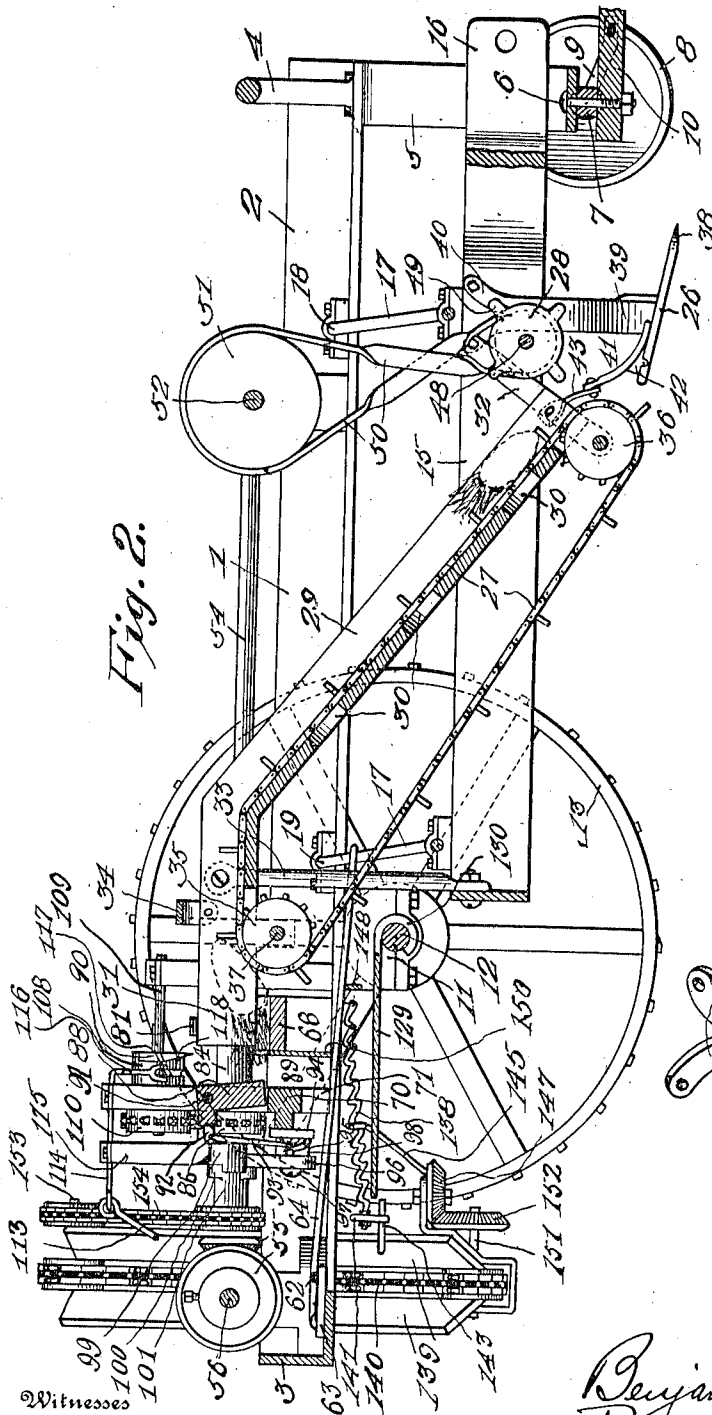


Fig. 2.

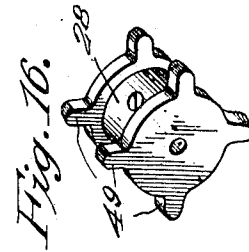


Fig. 16.

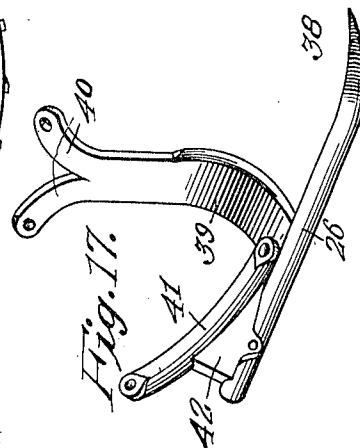


Fig. 17.

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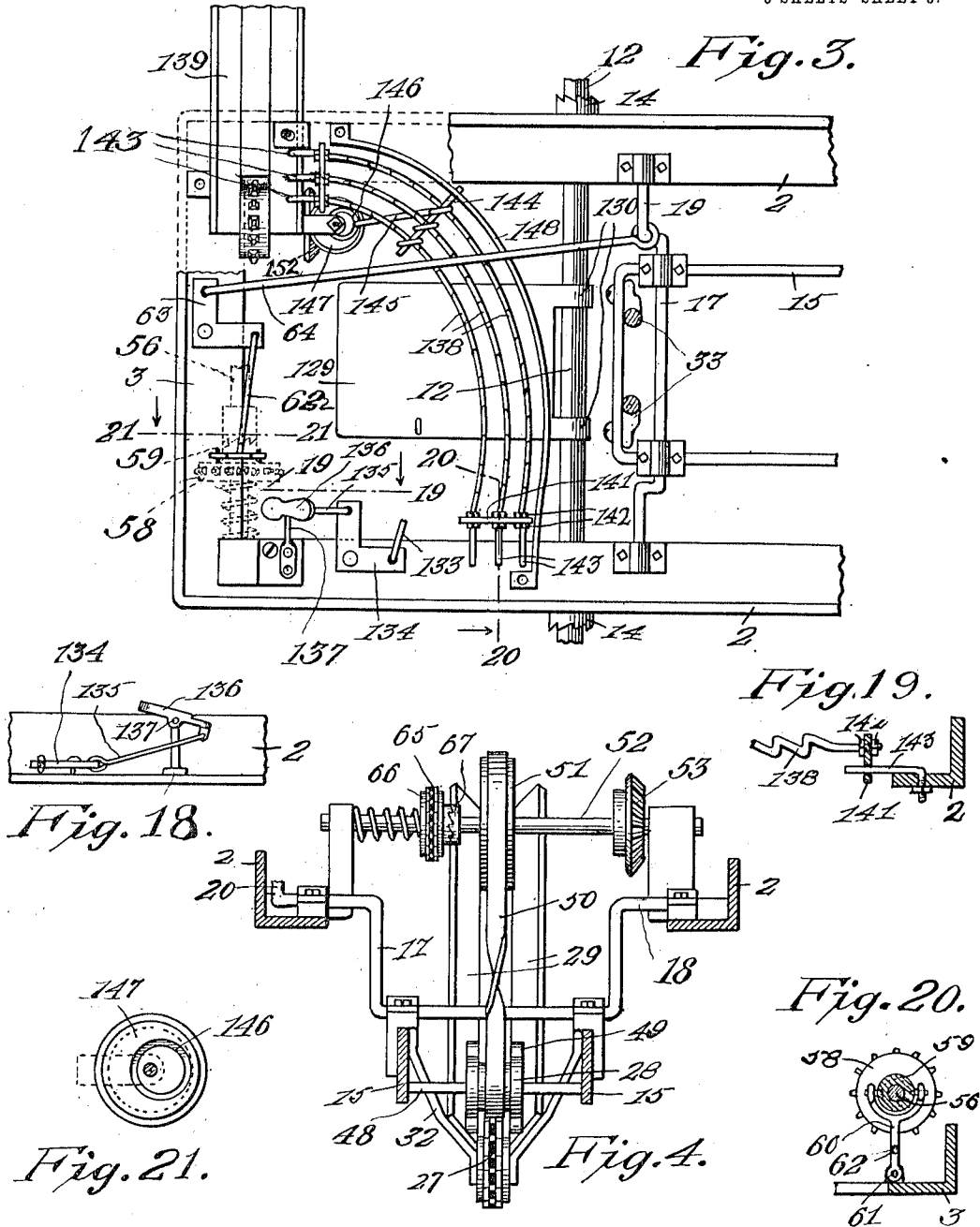
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5 SHEETS—SHEET 3.



Witnesses

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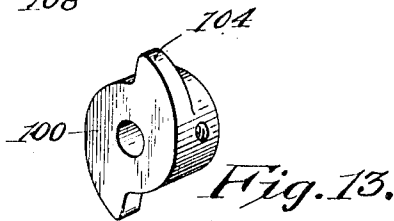
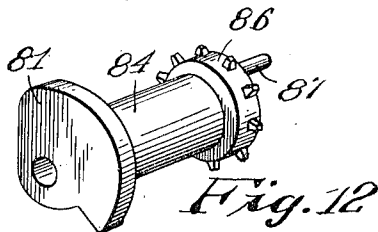
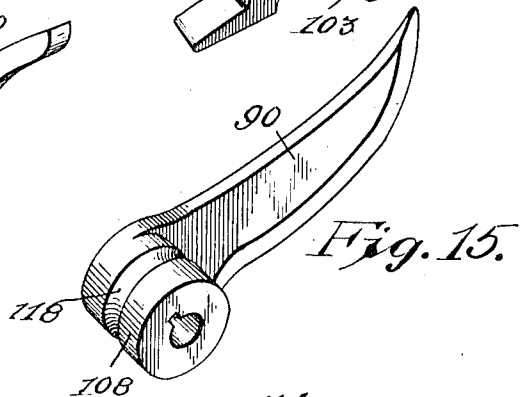
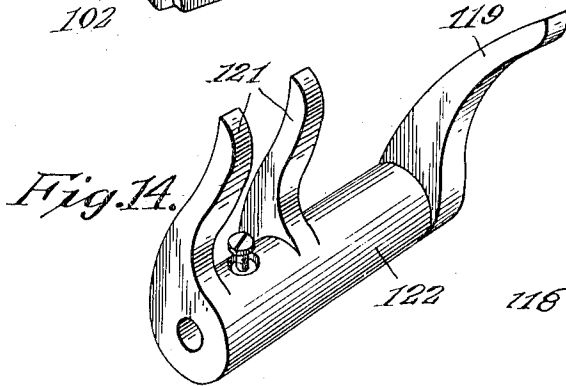
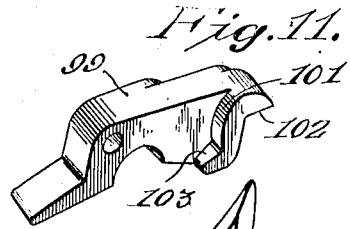
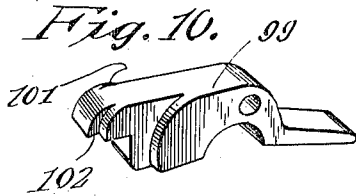
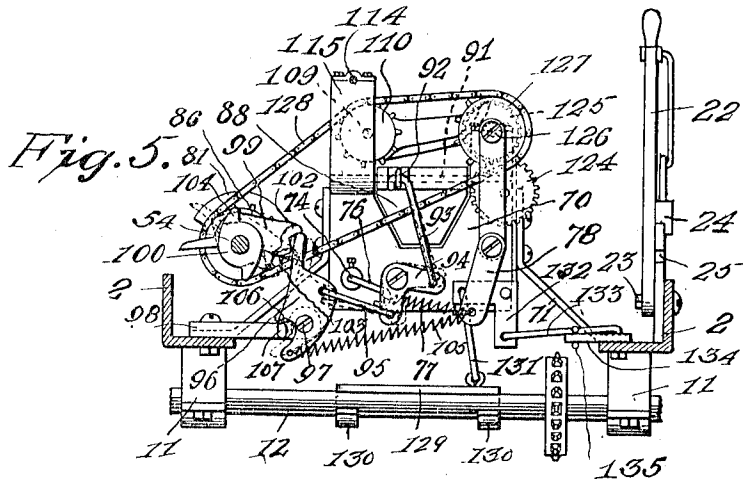
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5 SHEETS—SHEET 4.



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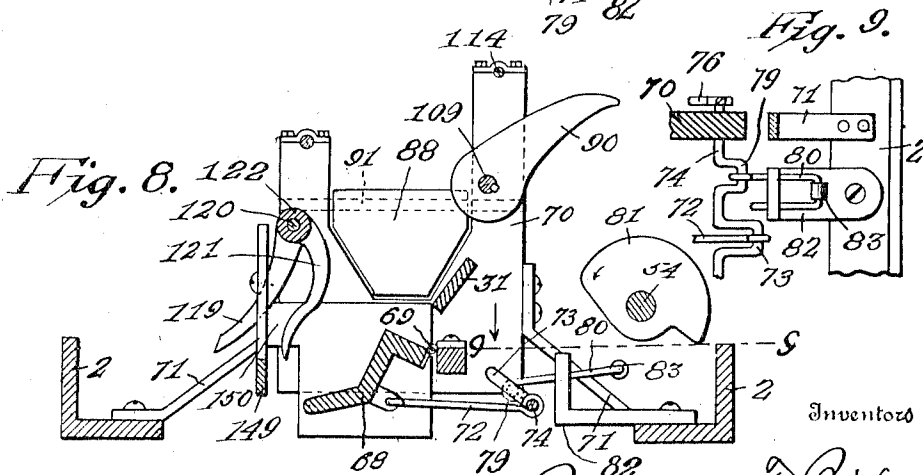
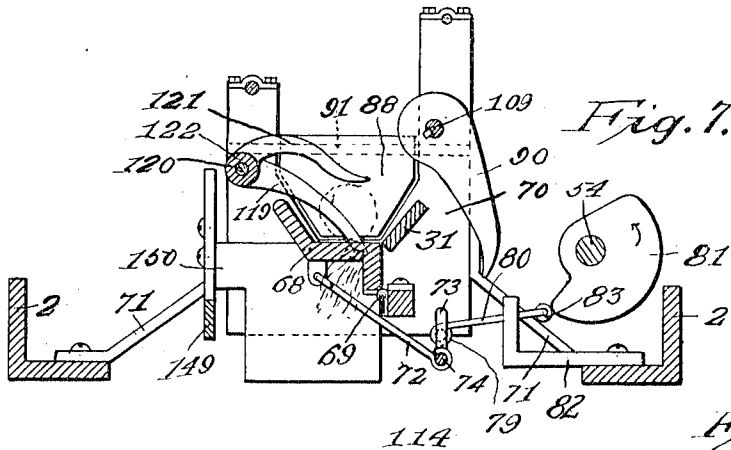
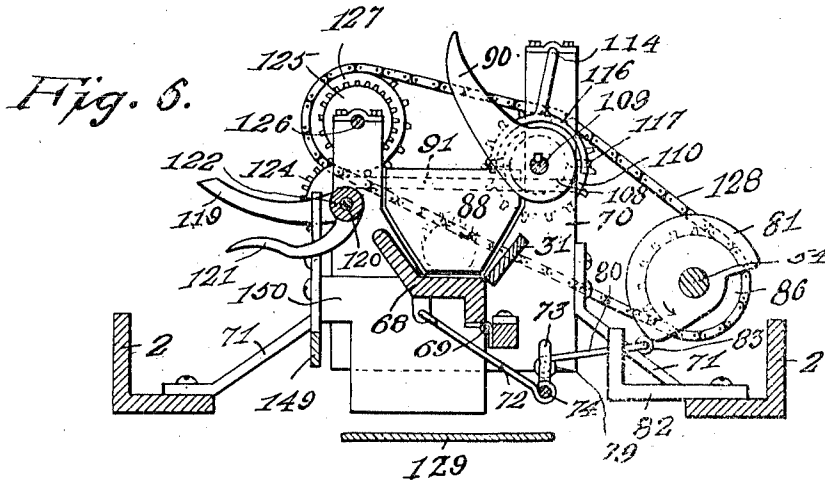
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

BENJAMIN F. BINDER AND RALPH O. DEULEN, OF JULESBURG, COLORADO.

BEET-TOPPER.

1,041,003.

Specification of Letters Patent.

Patented Oct. 15, 1912.

Application filed March 23, 1909, Serial No. 485,289. Renewed August 3, 1912, Serial No. 713,160.

To all whom it may concern:

Be it known that we, BENJAMIN F. BINDER and RALPH O. DEULEN, citizens of the United States, residing at Julesburg, in the county of Sedgwick and State of Colorado, have invented certain new and useful Improvements in Beet-Toppers, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to improvements in beet topping mechanism.

The principal object of the invention is to provide a practical and efficient machine for topping beets.

15 Other objects of the invention are to provide an improved automatic beet topping mechanism; an improved power actuated but manually controlled topping knife, whereby beets of different sizes may be properly topped; improved means for supporting the beet while being topped and then automatically dropping it.

25 With the above and other objects in view, the invention consists in the combination and arrangement of parts and in details of construction hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

30 Figure 1 is a top plan view of our improved beet topper; Fig. 2 is a vertical longitudinal section through the same; Fig. 3 is a detail horizontal section, parts broken away and parts indicated in dotted lines; Fig. 4 is a detail vertical cross section taken through the front portion of the machine in advance of the rotary beet feeder; Fig. 5 is a detail vertical cross section taken through the rear portion of the machine and looking in a forward direction; Fig. 6 is a detail vertical cross section through the machine taken in the plane of the beet supporting table and looking rearwardly to show the arrangement of the beet topping, holding and discharging mechanisms; Figs. 7 and 8 are detail views similar to Fig. 6, showing the operation of the parts shown in Fig. 6; Fig. 9 is a detail horizontal section taken on the plane indicated by the line 9—9 in Fig. 8; Figs. 10 and 11 are detail perspective views of opposite sides of the pivoted locking member of the clutch; Fig. 12 is a similar view of the member which

carries the pivoted locking member or trip; Fig. 13 is a perspective view of the rotating dog of the clutch; Fig. 14 is a perspective view of the member or sleeve carrying the beet holding and discharging fingers; Fig. 15 is a perspective view of the topping knife; Fig. 16 is a perspective view of the rotary beet feeder; Fig. 17 is a perspective view of one of the beet elevating or lifting plows; Figs. 18, 19 and 20 are detail sectional views taken, respectively, on the planes indicated by the lines 19—19, 20—20 and 21—21 in Fig. 3; and Fig. 21 is a plan view of the gear having the eccentric groove for the pitman which operates the oscillatory beet feeding and separating rack.

The machine comprises a main frame 1 of rectangular shape and made from a piece of heavy angle metal cut and bent to provide side bars 2 and a rear cross bar 3. The front ends of the side bars 2 are united by an upwardly curved arch 4 and by a downwardly extending arch 5 to the center of which latter is connected, by a king bolt 6, the front axle 7. The latter has suitably journaled upon its ends supporting and steering wheels 8 and fixed to its center by means of the bolt 6 and braces 9 is a draft tongue 10 to which the draft animals are attached. The rear portions of the side bars 2 have secured to them bearings 11 for a rotary rear axle 12 which carries supporting and drive wheels 13. The wheels 13 have ordinary spring clutch connections 14 with the rotary axle 12, for the purpose of facilitating the turning of the machine at the ends of the rows of beets.

Arranged within the forward portion of the main frame 1 is a vertically adjustable frame 15 which carries the beet digging and elevating mechanisms. Said frame 15 is preferably formed from a single metal strap bent adjacent to its center and ends to provide a rectangular frame, as shown in Fig. 1, and having its ends brought together and united at the front of the machine, as shown at 16. The frame 15 is attached to and hung from the cranks 17 of front and rear crank shafts 18, 19 which are journaled in bearings upon the side bars 2 of the main frame, as seen in Figs. 1 and 2. The frame 15 is made vertically adjustable for the purpose

of adjusting the beet digging mechanism into the ground and lifting it out of the ground to an inoperative position and said adjustment of the frame is preferably effected by providing at one end of the forward crank shaft or rock shaft 18, a crank arm 20 which is connected by a link 21 to the intermediate portion of a hand lever 22. The latter is pivoted at its lower end, as shown at 23 in Figs. 1 and 5, and carries a hand retracted pawl 24 which co-acts with a stationary segmental rack 25, whereby said lever may be locked in any adjusted angular position for the purpose of retaining the frame 15 in adjusted position.

The frame 15 carries one or more beet digging plows or shovels 26, an endless carrier or elevator 27 which receives the beets from the plows and conducts them to the topping mechanism hereinafter described and also a rotary beet feeding member 28 which causes the beets to fall from the plows upon the endless carrier with the tops or foliage of the beets projecting rearwardly. The endless carrier or elevator 27 is preferably in the form of a sprocket chain having projecting beet engaging fingers and adapted to have its upper stretch travel through the bottom of an upwardly and rearwardly inclined conducting trough 29. The trough 29 is substantially V-shaped in cross section and has openings 30 in its bottom to permit dirt to drop therefrom. The upper portion of the trough is horizontally disposed and has upon one side an extension 31, for a purpose presently explained. The lower end of the trough is rigidly connected to the side portions of the frame 15 by brackets 32, as clearly shown in Figs. 2 and 4 and the upper end of said trough is similarly rigidly connected to the rear portion of the frame by inclined brackets or braces 33, as clearly shown in Figs. 2 and 3 of the drawings. The side portions of the top of the trough are further connected by an arched strap 34. The elevator chain 27 passes over upper and lower sprocket wheels 35, 36, the former of which is fixed to a transverse shaft 37 journaled in bearing brackets depending from the side portions of the upper end of the trough and the latter of which is journaled on a shaft arranged between the lower ends of the brackets 32.

When the machine is to be used for harvesting beets, two digging and lifting plows or shovels, such as shown more clearly in Fig. 17, are employed. Each of said plows consists of a downwardly inclined member having an outwardly curved forward end 38 and also having its intermediate portion fixed to a curved plate 39 provided with a beveled or sharpened front edge and with attaching arms 40 adapted to be bolted to the side portions of the frame 15. Project-

ing from the lower portion of the plate 39 is a rearwardly and upwardly inclined arm 41 between which latter and the rear portion of the member or bar 26 is a tapered plate 42. The parts 26, 41, 42 of the two opposing plows or shovels form inclines up which the beet travels as the machine moves forwardly. The arms 41 are connected by straps 43 to the side portions of the trough 29, as shown in Fig. 2.

A rotary feeder 28 for directing the beets from the plows or shovels onto the elevator is shown more clearly in Fig. 16 of the drawings and consists of a cylinder or drum fixed to a transverse shaft 48 arranged between the side portions of the frame 15. The drum or wheel 28 has at its ends radially projecting flanges formed with fingers or teeth 49 which engage the tops of the beets and throw them rearwardly. The central portion of the wheel or feeder 28 serves as a pulley wheel around which passes a drive belt 50 whereby said feeder is rotated. The belt 50 is crossed and passes over a pulley 51 on a transverse shaft 52 journaled in bearings on the side bars 2 of the main frame.

The shaft 52 is connected by a beveled gearing 53 to a longitudinal shaft 54 journaled in suitable bearings upon one of the side bars 2 and having its rear end connected by beveled gearing 55 to a transverse shaft 56 journaled in bearings upon the rear cross bar 3 of the frame. The shaft 56 is driven from the rear axle 12 by sprocket chain gearing 57, which latter includes a sprocket wheel 58 having a spring clutch connection 59 with the shaft 56, as clearly shown in Fig. 1 of the drawings. Said spring clutch is adapted to be automatically operated when the frame 15 is lifted out of the ground, the same being effected by providing said clutch 59 with an ordinary clutch shifting lever 60 which is pivoted at its lower end, as shown at 61 in Fig. 21, and has its intermediate portion connected by a link 62 to a bell crank 63. The latter, as shown in Figs. 1 and 3, is connected by a link 64 to the crank 17 of the rear crank shaft 19. It will be seen that when the frame 15 is raised the link 64 will be moved forwardly and the bell crank 63 will cause the link 62 to force the clutch shifting lever 60 outwardly, whereby the two spring pressed members of the clutch will be separated, as will be readily understood upon reference to Fig. 1.

The drive shaft 37 of the elevator 27 is driven from the shaft 52 by a sprocket chain gearing 65 which is shown in Fig. 1 of the drawings and which includes a sprocket wheel 66 having a spring clutch connection 67 with said shaft 52. Said spring clutch connection relieves the driving chain and

other parts of the gearing of strain and prevents breakage in the event of the stoppage of the elevator chain 27 by any obstruction.

The beets drop from the upper end of the elevator 27 onto a beet supporting table 68 which is preferably of angular shape in cross section and arranged opposite the extension 31 of the trough, as shown in Figs. 1, 2, 6, 7 and 8 of the drawings. Said table 68 is hinged, as shown at 69, for downward and outward swinging or tilting movement, said hinge being arranged upon a transversely disposed upright plate 70 supported by brackets 71 from the side bars 2 of the main frame, as shown in Figs. 6, 7 and 8. The tilting table 68 has its bottom portion connected by a link 72 to a crank 73 on a longitudinally extending rock shaft 74 journaled in the lower portion of the plate or support 70 and in a bearing bracket 75 projecting from the side bar 2 of the main frame as shown in Figs. 1, 6, 7, 8 and 9 of the drawings. Upon the rear end of the shaft 74, as shown in Fig. 5 of the drawings, is a crank arm 76 having connected to it one end of a coil spring 77, the other end of which is fixed to a bracket arm 78 secured to the rear face of the plate 70. Said spring actuates the crank or rock shaft 74 in one direction so that the link 72 will yieldably support the beet table 68 in elevated position, shown in Fig. 6. For the purpose of rigidly supporting said table during the cutting or topping of the beet, the rock shaft 74 is provided with another crank 79 which has connected to it a link 80 adapted to be engaged and held stationary by a cam 81. As illustrated in Fig. 9, the link 80 is of substantially U-shape and is arranged for sliding movement in an angular bracket 82 secured to one of the side bars of the main frame. An anti-friction roller 83 is journaled upon the U-shaped link 80 and is adapted to be engaged by the cam 81, which latter is substantially semi-circular in shape, as shown. Said cam is carried by one end of an intermittently operated member or sleeve 84 loosely arranged on the shaft 54 and adapted to be intermittently operated, as presently explained. Said sleeve or member 84 is held against longitudinal movement on the shaft by a stop collar 85, as shown in Fig. 1, and carried by the other end of said member or sleeve is a sprocket wheel 86 from one side of which projects an eccentrically disposed pivot 87.

When the beet is deposited upon the table 68 by the endless elevator, the latter forces the top or foliage of the beet against an end gate or stop 88 arranged vertically in rear of the table 68 and at a suitable distance from the rear edge of the latter, whereby a space 89, shown in Figs. 1 and 2, is provided to permit the top to drop downwardly after

being severed by a topping knife 90. The swinging stop or gate 88 is arranged in the recessed upper portion of the transverse plate 70 and is hung from a horizontal pivot 91, whereby its lower end may swing rearwardly and upwardly, as will be understood upon reference to Figs. 2 and 6 of the drawings. Projecting rearwardly from the swinging gate or stop 88 is an arm 92 which is connected by a link 93, as shown in Fig. 5, to a bell crank 94 pivoted on the rear face of the plate 70 and in turn connected by a link 95 to a trip supporting lever 96 pivoted at 97 on a bracket 98 projecting from the side bar 2 of the main frame. Said lever has an upwardly projecting end or finger adapted to engage a clutch member or trip 99 which is pivoted on the pivot pin 87 and adapted to swing transversely of the shaft 54 and to co-act with both the lever 96 and a rotary dog or clutch member 100 which is fixed to the shaft 54. The trip 99 is formed upon one side of its large or weighted end with a laterally projecting enlargement 101 forming a lower shoulder 102 to be engaged by the upper end of the lever 96 and also forming a shoulder 103 adapted to be engaged by one of the two lugs or projections 104 on the constantly rotating dog or clutch member 100. The shape of the trip 99 is such that when the upper end of the lever 96 is disposed under the shoulder 102 said trip will be supported in an elevated position shown in full lines in Fig. 5 so that the shoulder 103 will be out of the path of movement of the projections 104 on the dog or member 100, and that when the lever 96 is retracted to permit the weighted end of the trip to drop by gravity to the dotted line position shown in Fig. 5, said shoulder 103 will be disposed in the path of one of the projections 104 so that the dog 100 will cause the trip 99 and hence the sleeve or member 84 which supports it, to rotate with the shaft 54. The lower end of the lever 96 is formed with a projecting arm to which is connected one end of a coil spring 105, the other end of which latter is fixed to the bracket arm 78. The spring 105 actuates the upper end of the lever outwardly or to a position beneath the path of the shoulder 102 and such swinging movement of the lever 96 is adapted to be limited by the engagement of a finger or projection 106 on said lever with a stop lug 107 on the bracket 98, as clearly shown in Fig. 5 of the drawings.

The topping knife 90 has a beveled cutting edge with a longitudinally curved outer end and its inner end is provided with a hub 108 which is keyed to rotate with but is longitudinally slidable upon a forwardly and rearwardly extending shaft 109 rotatable in bearings upon the plate 70 and the

bracket 75, as shown in Figs. 1 and 2 of the drawings. The rear end of the knife shaft 109 has fixed upon it a sprocket wheel 110, whereby said shaft is rotated to swing the knife past the rear end of the beet supporting table 68 for the purpose of cutting the tops from the body portions of the beets. The knife is made longitudinally slidable on the shaft 109 so that a greater or less amount of the body of the beet may be cut off with the top or foliage and so that the machine will effectively operate upon beets of different sizes. Said sliding or shifting movement of the knife is adapted to be manually operated by means of a hand lever 111 which has the usual pawl and ratchet locking device, as shown at 112 in Fig. 1 and which is connected intermediate its ends by a link 113 to a rod 114 which slides in bearings upon the top of the plate 70 and the top of an angular bracket 115 arranged on said plate, as will be understood upon reference to Figs. 1 and 2 of the drawings. The forward end of the rod 114 has a forked lower end 116, as shown in Fig. 6, and the ends of the arms of said fork are bifurcated to receive the ends of a semi-circular yoke 117 which is seated in an annular groove 118 formed in the hub 108 of the knife 90, as will be understood upon reference to Figs. 1, 2, 6 and 15 of the drawings. It will be seen that when the hand lever 111 is moved forwardly and rearwardly, the knife 90 will be shifted in a forward or rearward direction for the purpose of enabling the beets to be properly topped.

For the purpose of first forcing the cut top or foliage of the beet downwardly through the space 89 and then discharging the body portion of the beet from the table 68, a beet top discharging finger 119 is fixed to a forwardly and rearwardly extending shaft 120, which latter also carries one or more fingers 121 for engaging the body of the beet and forcing the same from the tilted table 68. The arms 119, 121 are preferably formed integral with a sleeve 122, as shown in Fig. 14, which sleeve is fixed to the shaft 120. Said shaft 120 is journaled in a bearing in the plate 70 and in a bearing bracket 123 fixed to one of the side bars 2 of the main frame, as shown in Fig. 1. Fixed to the rear end of the shaft 120 is a gear 124 which meshes with a gear 125 on a short shaft 126 to which latter is also fixed a sprocket wheel 127. The three sprocket wheels 127, 110 and 86 are connected by a sprocket chain 128, as shown in Figs. 5 and 6, whereby the knife, the beet top and beet body discharging fingers and the holding cam for the tilting table will be simultaneously operated at intervals or when the trip or clutch mechanism locks the

rotary member or sleeve 84 to the shaft 54, 65 as hereinafter more fully explained.

The beet tops as they are forced through the space 89 by the discharging finger 119 drop upon a platform 129 or other suitable support, from which latter they may be dumped or discharged from time to time. As illustrated, the platform 129 is in the form of a rectangular plate hung for swinging movement from the rear axle 12, as shown at 130 in Figs. 2 and 5 of the drawings. The rear edge of the platform is connected by a link 131 to a bell crank 132 pivoted upon the plate 70 and in turn connected by a link 133 to a bell crank 134 pivoted to one of the side bars 2 of the main frame, as shown in Figs. 1 and 3. Said bell crank 134, as shown more clearly in Fig. 19, is connected by a link 135 to the rear or heel portion of a foot lever 136, which latter is pivoted intermediate its ends on a bracket 137 projecting from the main frame. It will be seen that when the heel portion of the foot lever 136 is depressed, the link 131 will be lowered to incline the rear portion of the platform downwardly so that the beet tops will slide off of the same and be deposited in a pile upon the ground.

The body portions of the beets when discharged from the tilting table 68 fall upon an oscillatory feeding and separating rack 138 consisting of a plurality of rods connected together and mounted for oscillatory or reciprocatory movement. Said rods, as shown more clearly in Figs. 2 and 3 of the drawings, are bent into zig zag shape, whereby the beets will be fed longitudinally from end to end of the rack and they are also curved transversely so as to conduct the beets into the trough 139 of a transversely extending elevator 140, which latter discharges them into a wagon driven alongside of the machine. The rack bars 138 have their ends passed through connecting bars 141 and fixed thereby by means of nuts 142, as shown in Figs. 3 and 20 of the drawings. Said connecting bars 141 are apertured to receive and slide upon a plurality of supporting and guide rods 143 fixed to and projecting from one of the side bars 2 of the main frame and one of the sides of the trough 139. The intermediate portions of the rack bars 138 are also connected to a cross bar 144 which is in turn connected to one end of an eccentric rod 145. The latter has its other end bent downwardly and arranged in an eccentric groove 146 formed in the top of a gear 147, as shown in Figs. 3 and 22 of the drawings. It will be seen that when the gear 147 is rotated the rod 145 will be oscillated and its oscillatory movement will be imparted to the rack 138 so that the beets will be fed by the latter from beneath the tilting table 68 around into the

lower end of the trough 139. A longitudinally curved and upwardly projecting guard plate 148 is provided around the forward edge of the rack 138 so as to prevent the beets from working off of said rack, said guard or side rail 148 being fixed to the main frame, as clearly shown in Fig. 3.

For the purpose of preventing the body portions and tops of the beets from being thrown off of the rack 138 and platform 129, by the discharge fingers 121, 119, respectively, an upright forwardly and rearwardly extending stop plate 149 is secured to the plate 70, as shown in Figs. 1 and 6 of the drawings. Said plate 149 is slotted to permit the fingers 119, 121 to pass therethrough and to it is secured another stop plate or partition plate 150, which latter is arranged immediately at the rear edge of the tilting table 68, as shown in Fig. 6, and is adapted to prevent the beet tops from falling onto the rack 138.

The discharge trough 139 is suitably secured to one side of the rear portion of the main frame and is inclined upwardly and outwardly so that the endless elevator chain 140 which travels through it will discharge the beets into a wagon adapted to be driven through the field alongside of the machine. Said elevator chain 140 has its lower end passing over a sprocket wheel fixed to a shaft 151 which has also fixed to it a beveled gear 152 which meshes with the beveled gear 147, as shown in Fig. 2 of the drawings, whereby the motion of said elevator will be imparted to the rack 138. The upper end of the elevator chain 140 passes over a sprocket wheel on one end of a shaft 153, which latter is connected by a sprocket chain gearing 154 to the shaft 54, as clearly shown in Figs. 1 and 2.

The operation of the machine is as follows: Assuming the parts to be in normal operative position shown in Figs. 1 and 2 of the drawings, when the machine is drawn forwardly over a row of beets by the draft animals, the shovels or plows 26 will travel through the earth and lift the beets out of the same. As the beets ride up the inclined rear portions of said plows, the fingers or teeth of the feed wheel 28 throw the tops of the beets rearwardly and their body portions are caught by the fingers or projections on the elevator chain 27, which latter moves the beets upwardly through the trough 29 and deposits them on the table 68. As a beet is forced rearwardly on said table by the elevator, its foliage strikes the stop gate 88 and swings the latter rearwardly, whereupon, the trip supporting lever 96 is swung inwardly from beneath the gravity actuated trip 99. The latter drops so that its shoulder 103 will be caught by one of the projections 104 on the constantly

rotating dog 100 and the rotary member or sleeve 54 will be locked to the shaft 54 and will make one rotation therewith. The instant the member 84 begins to turn with the shaft 54, the chain 128 will cause the topping knife 90 to rotate and in swinging downwardly across the rear end of the platform 68 will sever the projecting top of the beet, the amount of the top severed depending upon the longitudinal adjustment of the knife on its shaft, which adjustment is controlled by the hand lever 111, as above explained. While the knife 90 is cutting a beet on the platform 68 the large portion of the holding cam 81 engages the roller 83 on the link 80, thereby holding the rock shaft 74 against movement so that the tilting platform 68 will not be forced downwardly by the beet. After the knife travels past the rear end of the table 68, the beet top discharging finger 119 swings past the same, as shown in Fig. 7, and forces the beet top down upon the platform 129 and then the fingers 121 engage the body portion of the beet and force the latter downwardly off of the table 68, which latter is automatically tilted at the proper time by the action of the spring 77. The holding cam 81 is so shaped and arranged that it will leave the roller 83 a little before the beet discharging fingers 121 engage the beet so that the spring 77 will cause the table 68 to tilt to the position shown in Fig. 8, whereupon, the fingers 121 will force the beet off of the table 68 and onto the rack 138. The instant the beet top is forced downwardly by the finger 119, the spring 105 will return the lever 96 to its normal position shown in full lines in Fig. 5 so that as the trip 99 comes around with the shaft 54, said lever will engage its shoulder 102 and support it elevated with its shoulder 103 out of the path of the projections 104 on the dog 100, which latter will continue to rotate with the shaft 54 while the knife, fingers and cam will remain stationary until the clutch device is tripped by the next beet. The beets deposited on the rack 138 will be fed by the latter to the discharge elevator 140 and in moving around on said rack they will be agitated so that any earth clinging to them will drop from the same. Since the rack 138 is open, any leaves or foliage of the beets which may drop upon the rack with the body portions of the beets, will drop through the rack and upon the platform 129. The beet tops and leaves on said platform may be dropped from time to time by the operator who sits upon the seat provided at the rear of the main frame and who has his foot on the lever 136. When the machine is to be turned around or moved from place to place, the lever 22 is operated to elevate the frame 15 and thereby lift the

plows or shovels 26 out of the ground. When the frame 15 is elevated all the different parts of the machine will be simultaneously thrown out of operation since all parts are driven through the spring clutch 59, which latter is disconnected when said frame is raised.

While we have shown and described in detail the preferred embodiment of the invention, it will be understood that we do not limit ourselves to the construction set forth since various changes in the form, proportion and arrangement of parts and the details of construction may be resorted to without departing from the spirit and scope of the invention.

Having thus described the invention what is claimed is:

1. In a beet topping machine, the combination of a supporting frame, a tilting beet supporting table, a holding means for said table, a beet topping knife, means for feeding beets on to said table, a trip adapted to be engaged and actuated by a beet, and an actuating means controlled by said trip for intermittently operating said knife, and said table holding means.

2. In a beet topping machine, the combination of a supporting frame, a tilting beet supporting table, a beet engaging trip adjacent said table, means for feeding beets on to said table and against said trip, a rotary beet topping knife, a holding means for said table, a constantly moving drive shaft, and means actuated from said shaft and controlled by said trip for intermittently rotating said knife, and controlling said table holding means.

3. In a beet topping machine, the combination of a supporting frame, a tilting beet supporting table, a beet engaging trip adjacent said table, means for feeding beets on to said table, a holding means for said table, beet body discharging means, a constantly rotating shaft, and means actuated from said shaft and controlled by said trip for intermittently rotating said knife, actuating said beet body discharging means, and controlling said table holding means.

4. In a beet topping machine, the combination of a supporting frame, a tilting beet supporting table, a beet engaging trip adjacent said table, means for feeding beets on to said table, and against said trip, a rotary beet topping knife, holding means for said table, beet body discharging means, beet top discharge means, a constantly rotating shaft, and means actuated from said shaft and controlled by said trip, for intermittently rotating said knife, actuating said beet top and beet body discharging means, and controlling said table holding means.

5. The combination of a beet support, a beet topping knife, and a rotary member

having two fingers disposed one in advance of the other with reference to the pivotal axis of said member so that one of said fingers engages the body and the other the top of the beet, the beet top engaging finger being disposed ahead of the beet body engaging finger with reference to the direction of revoluble movement of the said rotary member, so that said beet top engaging finger engages and discharges the beet top and the other finger immediately thereof engages and discharges the beet body.

6. The combination of a beet support, a movable beet-topping knife, means for feeding beets upon said support, means for intermittently actuating said knife, a trip mechanism controlled by a beet on said support for controlling the knife-actuating means, and an intermittently actuated rotatable member for discharging the beet from said support after the beet has been topped by the knife.

7. In a machine of the class described, the combination with beet supporting and beet topping means, a rotary member comprising a sleeve having a beet top engaging and discharging finger at one end and a beet body engaging and discharging finger at the other end, the said beet top engaging and discharging finger being disposed in advance of the beet body engaging and discharging finger in the direction of rotary movement of the said sleeve.

8. The combination of a tilting beet support, a co-acting topping knife, means for actuating said knife and means for tilting the support to discharge the beet after it has been topped by the knife.

9. The combination of a tilting beet support, said support being spring actuated to its tilted position to discharge the beet, a topping knife, means for actuating the latter and means for holding said beet support in elevated position during the topping of the beet.

10. The combination of a tilting beet supporting table, a spring for actuating the same to tilted position, a holding means for said table, a co-acting topping knife, beet top discharging means, beet body discharging means, and intermittently operated means for simultaneously actuating said table holding means, said knife and said beet top and beet body discharging means.

11. The combination of a tilting beet supporting table, a spring for actuating the same to tilted position, a holding means for said table, a co-acting topping knife, beet top discharging means, beet body discharging means, means for feeding beets upon said table, a constantly moving driving means, means for simultaneously actuating said table holding means, said knife and said beet top and body discharging means.

and a trip controlled connecting means operated by the beet upon the table and adapted to operatively connect the last mentioned actuating means with said constantly moving driving means.

12. The combination of a tilting beet supporting table, means for feeding beets thereon, a co-acting topping knife, means for discharging the body portions and tops of the beets after the operation of the topping knife, a constantly rotating shaft, operating connections for said knife and discharge means, a clutch for connecting the latter to said driving connections for the knife and discharge means and a trip mechanism actuated by a beet upon the table for controlling said clutch.

13. The combination of a downwardly tilting beet support, a co-acting topping knife, means for actuating said knife, and means for holding the support in elevated position during the topping of the beet.

14. The combination of a downwardly tilting beet support, a co-acting beet-topping knife, a double crank shaft, a link connecting one crank of said shaft to said tilting support, a second link connected to the other crank of said shaft, and a rotary cam co-acting with said second link.

15. The combination of a downwardly tilting beet support, a co-acting beet-topping knife, a double crank shaft, a link connecting one crank of said shaft to said tilting support, a second link connected to the other crank of said shaft, means for guiding said second link, a rotary cam to co-act with said second link, an arm upon said double crank shaft, and a coil spring having one end anchored and its other end connected to said arm.

16. The combination of a downwardly tilting beet support, means for feeding beets upon the latter, a rotary topping knife, a rotary beet discharging finger, a rotary member, means controlled by the latter for retaining the beet support in elevated position, and means for simultaneously rotating said member, said knife and said finger, and a trip mechanism controlled by a beet on said support and adapted to control said means for rotating said member, knife and finger.

17. The combination of a tilting beet supporting table, a holding means for said table, a topping knife to co-act with said table, beet discharging means to co-act with said table, and means for simultaneously actuating said table holding means, said knife and said beet discharging means.

18. The combination of a tilting beet supporting table, a holding means for said table, a topping knife to co-act with said table, beet discharging means to co-act with said table, and intermittently operated

means for simultaneously actuating said table holding means, said knife and said beet discharging means.

19. The combination of a tilting beet supporting table, a holding means for said table, a topping knife to co-act with said table, beet discharging means to co-act with said table, means for simultaneously actuating said table holding means, said knife and said beet discharging means, means for feeding beets upon said table, a constantly moving driving means, and a trip-controlled connecting means actuated by a beet on said table and adapted to operatively connect said constantly moving driving means to said actuating means.

20. The combination of a tilting beet-supporting table, means for feeding beets thereon, a topping knife to co-act with said table, means for holding said table elevated, and means for simultaneously actuating said table-holding means and said knife.

21. The combination of a tilting beet-supporting table, means for feeding beets thereon, a topping knife to co-act with said table, means for holding said table elevated, and intermittently operated means for simultaneously actuating said knife and said table holding means.

22. The combination of a tilting beet-supporting table, means for feeding beets thereon, a topping knife to co-act with said table, means for holding said table elevated, means for simultaneously actuating said knife and said table-holding means, a constantly moving driving means, and a trip-controlled connecting means operated by a beet on said table and adapted to operatively connect said actuating means to said constantly moving driving means.

23. The combination of a beet support, a rotary topping knife to co-act therewith, a constantly rotating driving shaft, a rotary dog fixed to said shaft, a rotary element loose on said shaft and having an eccentric pivot, means for imparting the motion of said element to said knife, means for feeding beets upon said beet support, a swinging clutch member mounted on said eccentric pivot and having a shoulder to move into the path of said dog, a supporting member for engaging and supporting the clutch member with its shoulder out of the path of said dog, a movable trip adapted to be engaged and actuated by a beet upon said beet support, and operative connections between said trip and said supporting member.

24. The combination of a beet support, a rotary topping knife to coact therewith, a constantly rotating driving shaft, a rotary dog fixed to said shaft, means for imparting the motion of said element to said knife, means for feeding beets upon said beet support, a swinging clutch member mounted on,

said eccentric pivot and having a shoulder to move into the path of said dog, a spring pressed supporting lever adapted to engage and support said clutch member with its shoulder out of the path of said dog, a swinging trip adapted to be engaged and actuated by a beet upon said beet support, and operative connections between said trip and said supporting lever.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

BENJAMIN F. BINDER.
RALPH O. DEULEN.

Witnesses:

ROBERT M. ADAMS,
R. E. BARRETT.