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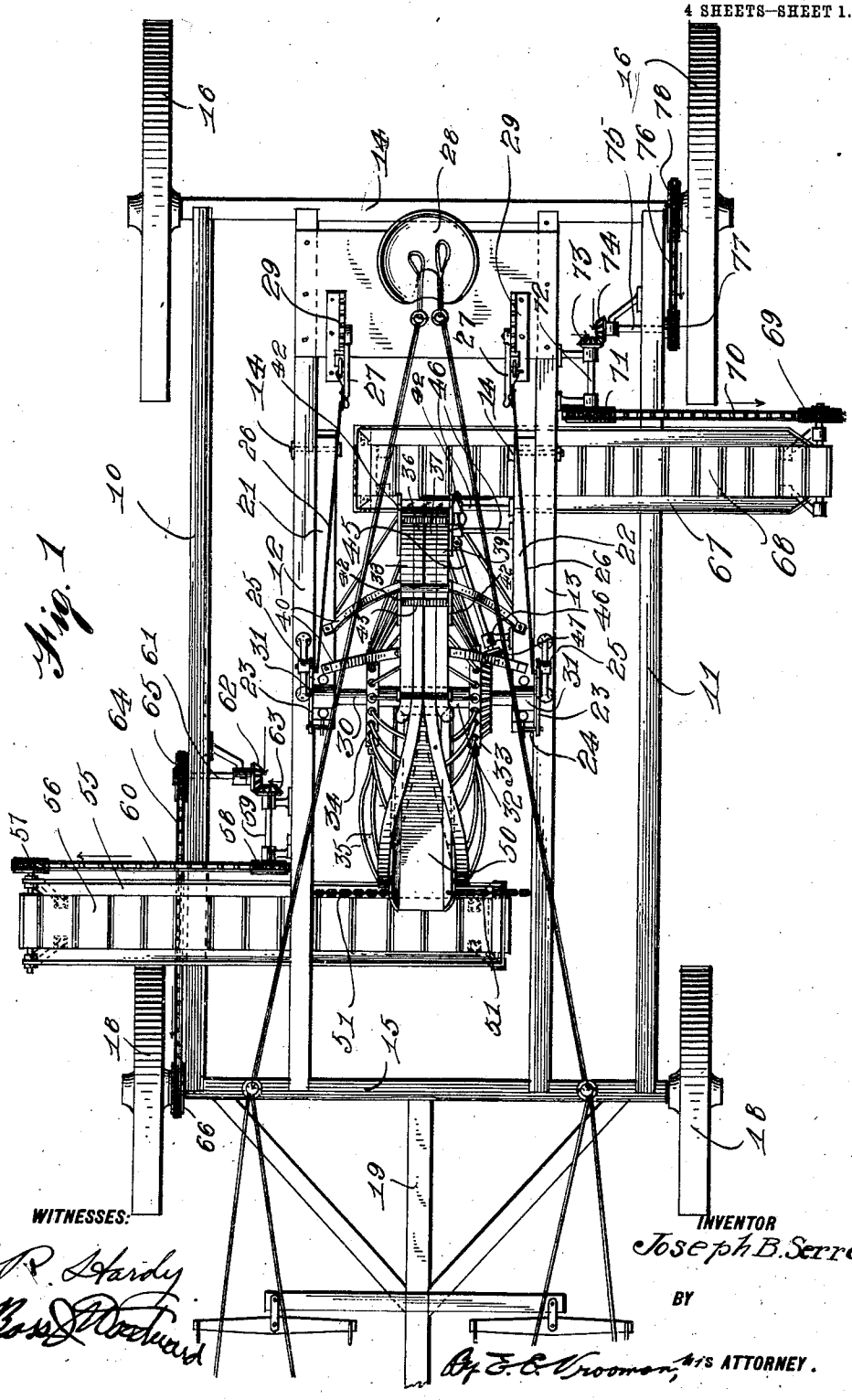
BEET PULLING AND TOPPING MACHINE.

APPLICATION FILED JAN. 21, 1913. RENEWED APR. 30, 1914.

1,114,390. Patented Oct. 20, 1914.

4 SHEETS—SHEET 1.

Fig. 1



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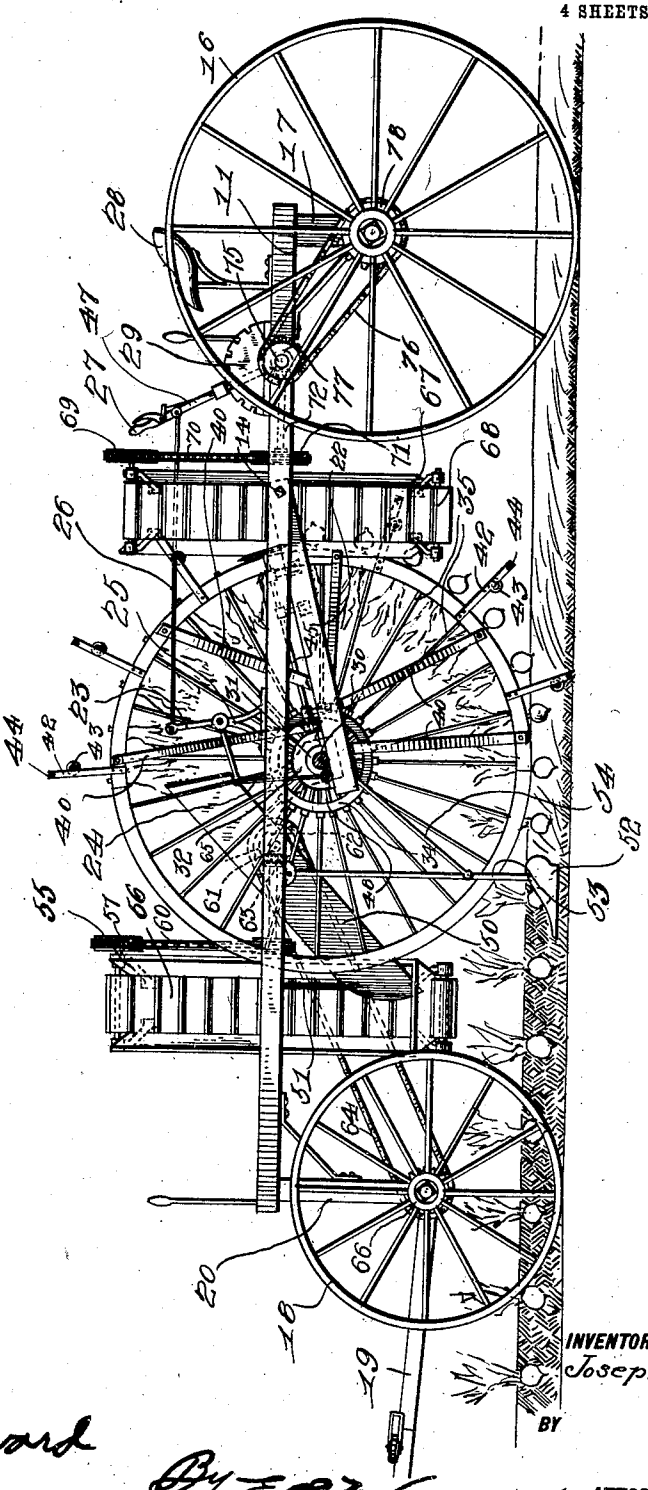
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4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

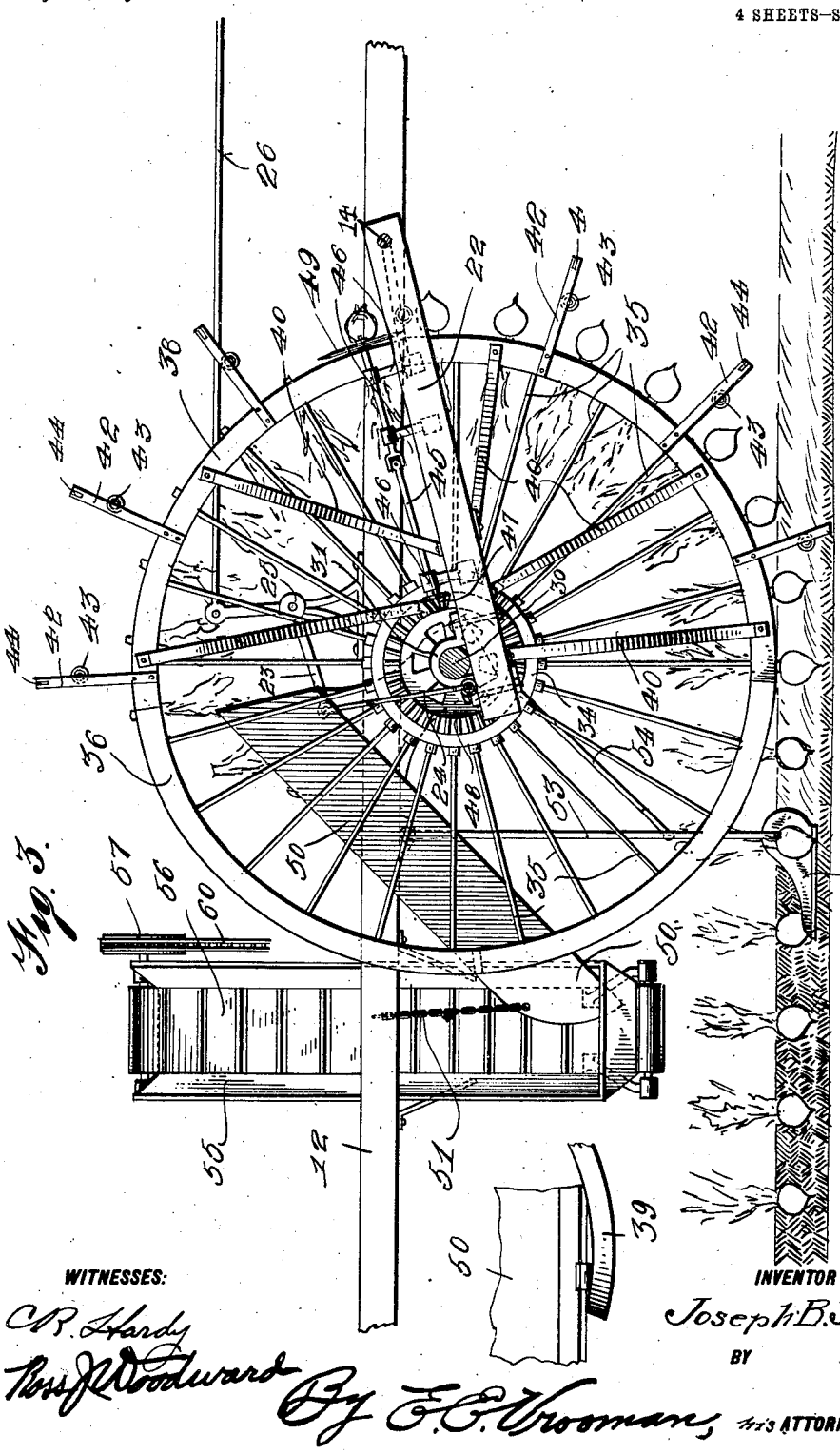


Fig. 3.

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4 SHEETS—SHEET 4.

Fig. 4.

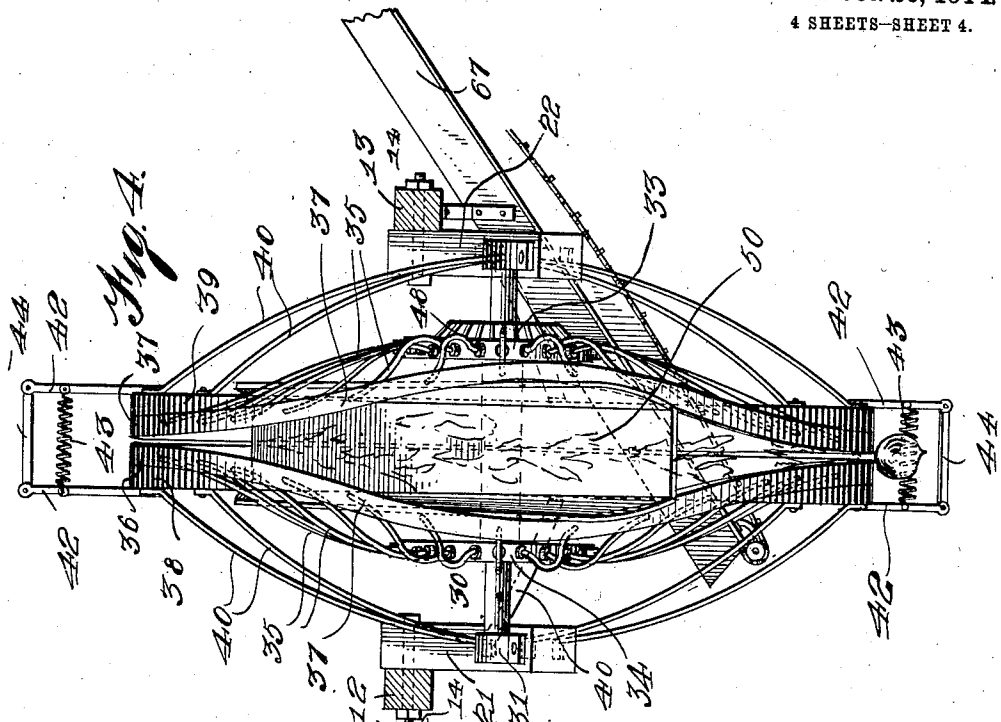
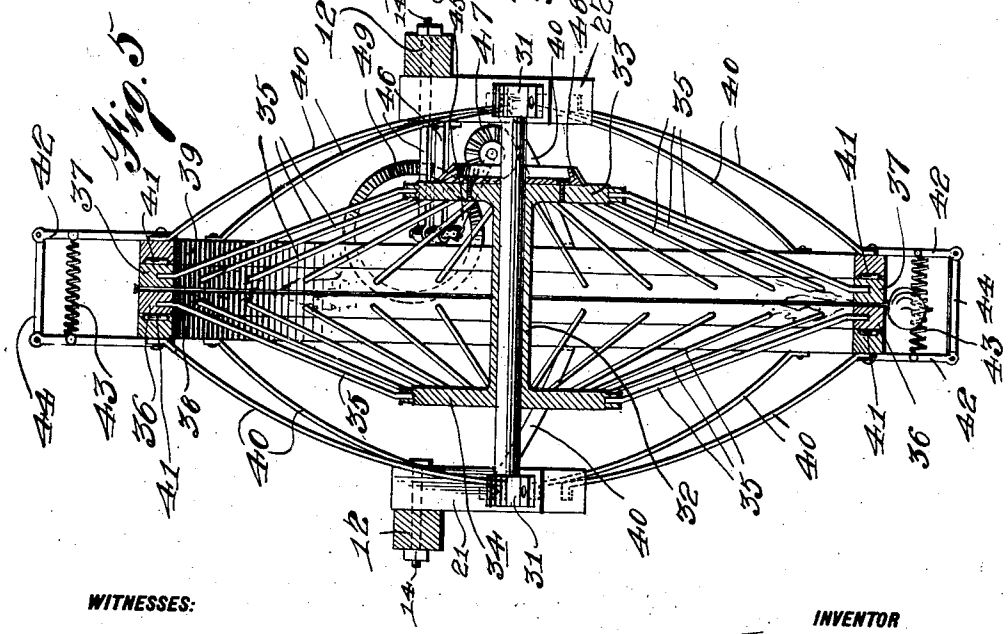


Fig. 5.



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BEET PULLING AND TOPPING MACHINE.

1,114,390. Specification of Letters Patent. Patented Oct. 20, 1914.

Application filed January 21, 1913, Serial No. 743,385. Renewed April 30, 1914. Serial No. 835,542.

To all whom it may concern:

Be it known that I, JOSEPH BERNARD SERRES, a citizen of the United States of America, residing at Houltonville, in the parish of St. Tammany and State of Louisiana, have invented certain new and useful Improvements in Beet Pulling and Topping Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to beet pulling and topping machines, and the principal object of the invention is to provide a device which will cut the beets from the hill, separate the root from the top and after dropping the root in a conveyer carry the top to a chute and drop the top, the tops traveling down the chute to a second conveyer.

Another object of the invention is to provide an improved type of wheel which engages the top of the loosened beet and carries the beet to the point where the root is severed from the top and to the point where it is released and permitted to drop into the chute.

Another object of the invention is to provide an improved means for holding the two sections of the gripping wheel in operative relation.

Another object of the invention is to provide a machine of the character described in which the bars supporting the gripping wheel are adjustably mounted to permit the wheel to be vertically adjusted, thus accommodating itself to the row of beets being harvested.

Another object of the invention is to provide an improved type of device for cutting the roots from the tops.

With these and other objects in view this invention consists of certain novel combinations, constructions, and arrangements of parts as will be hereinafter fully described and claimed.

In the accompanying drawings: Figure 1 is a top plan view of the machine. Fig. 2 is a side elevation of the machine. Fig. 3 is an enlarged side elevation of the gripping wheel and the adjoining portions of the machine. Fig. 4 is a front elevation of the gripping wheel and shows the manner in which the chute separates the two sections of the wheel, to permit the tops to drop to the chute. Fig. 5 is a vertical sectional view through the wheel.

This invention comprises a frame having the longitudinally extending bars 10 and 11 and intermediate bars 12 and 13, the longitudinally extending bars being connected by the transversely extending bars 14 and 15. Rear wheels 16 are mounted upon an axle carried by the bolster 17, and the front wheels 18 are mounted upon an axle carried by the draft frame 19 which is pivotally connected with the forward bolster 20.

Supporting bars 21 and 22 are pivotally connected with the intermediate longitudinally extending bars 12 and 13 by means of bolts 14 so that these supporting bars may be vertically adjusted. A bell crank 23 is mounted upon each of the bars 12 and 13 and these have their forward ends connected with the supporting bars by means of the rods 24. These bell cranks 23 are pivotally mounted in supporting brackets 25 and are pivotally connected with operating rods 26 which have their rear ends pivotally connected with latch levers 27 mounted adjacent the driver's seat 28. Each of these levers 27 is provided with a rack 29 so that when the supporting bars have been vertically adjusted to the height desired the latch levers may be held in the adjusted position and thus the bars prevented from moving.

An axle 30 is mounted in the journals 31 at the free ends of the supporting bars 21 and 22 and the gripping wheel has its hub 32 rotatably mounted upon the axle. The hub is provided with end disks 33 and 34 which disks have their peripheries provided with sockets in which the spokes 35 are pivotally mounted. This construction permits the spokes to have the necessary side play in order that the device will grip the beets and lift them from the ground. The spokes have their outer ends connected with the rim of the wheel. From an inspection of the figures of the drawings it will be seen that this rim comprises the two sections 36 and 37 which are formed from heavy rubber or other suitable material. It will thus be seen that since the rim sections are formed of flexible material the rim sections may be very readily spread apart and brought together again as shown in Figs. 4 and 5, and that since the rim sections are not formed of metal or other hard substance there will be no danger of the beet tops being cut off and the roots left in the ground.

A pair of semicircular frames 38 and 39 extend partially around the rim of the wheel and are supported by the brackets 40 carried by the supporting bars 21 and 22. These supporting brackets hold the rear portion of the wheel with the rim sections in close relation as shown in Fig. 5, rollers 41 being provided so that the wheel will travel between the frames easily. U-shape brackets 42 have their arms secured to the frames 38 and 39 and connected by means of a spring 43 which holds the frames in the proper position, but permits the frames to give slightly if a beet with an unusually large top is engaged by the wheel. It is of course obvious that the bridge 44 of the U-shape bracket must be pivotally connected with the arms in order to permit this expansion.

A shaft 45 is rotatably mounted in the supporting brackets 46 and is provided at its inner end with a beveled gear 47 which meshes with a gear plate 48 carried by the disk 33. It will thus be seen that as the wheel rotates the plate 48 will transmit rotary movement to the shaft 45 thereby causing the cutting blade 49 carried at the outer end of the shaft 45 to be rotated in order to cut the beet roots from the tops.

A chute 50 is pivotally mounted between the two sections of the wheel with its forward end extending between the rim sections and supported by the chain 51. By this construction the chute will at all times have its forward end positioned to deposit the beet tops in the conveyer and have its upper end positioned so that the beet tops will fall into the chute. A plow blade 52 is supported at the lower end of the vertical rod 53 which rod is braced by the diagonal braces 54 having their upper ends connected with the supporting bars 21 and 22. The vertical adjustment of the bars 21 and 22 will, therefore, not only vertically adjust the wheel, but will also vertically adjust the plow blade and chute so that the plow blade may cut into the ground the required distance in order to prevent the beets from being injured and so that the beet tops will at all times fall into the chute.

A trough 55 is supported by the longitudinally extending bars 10 and 12 and an endless conveyer belt 56 passes along the bottom of this trough and around the rollers which are provided at each end of the trough. A sprocket wheel 57 is mounted upon the axle of the upper roller and is connected with a sprocket wheel 58 mounted upon the shaft 59 by means of a sprocket chain 60. A transversely extending shaft 61 transmits rotary motion to the shaft 59 by means of the beveled gear 62 which meshes with the beveled gear 63. A sprocket chain 64 connects the sprocket wheel 65 mounted upon the outer end of the shaft 61 with a sprocket wheel 66 mounted upon the hub of one of the front wheels of the machine. It will thus be seen that when the machine is in motion rotary motion will be transmitted to the conveyer belt 56 thus causing it to travel up the trough and convey the beet tops over the side of the machine. A second trough 67 is supported by the longitudinally extending bar 11 and has its inner end positioned to receive the beets cut from the top by the blade 49. An endless conveyer belt 68 passes through the trough and over rollers at each end of the trough so that the beets will be carried over the side of the machine and deposited where they can be easily collected. It is of course obvious that if desired a receptacle may be carried beneath the outer end of the trough 67 in which the beets will be deposited. A sprocket wheel 69 is mounted upon the axle of the outer roller of the conveyer belt 68 and is rotated by a sprocket chain 70 which connects the sprocket wheel 69 with the sprocket wheel 71 mounted upon one end of the shaft 72. A beveled gear 73 is mounted upon the opposite end of the shaft 72 and meshes with the beveled gear 74 mounted upon the inner end of the shaft 75. A sprocket chain 76 connects the sprocket wheel 77 at the outer end of the shaft 75 with a sprocket wheel 78 mounted upon the hub of one of the rear wheels 16. It will thus be seen that when this machine is in motion the conveyer belt 68 will also be operated, thus causing the beets to be conveyed over the side of the machine.

When operating this machine, the machine is conveyed to the field which is planted with the beets and after the levers 27 have been adjusted to place the plow blade 52 at the desired position the machine is drawn across the field so that the plow blade passes beneath the row of beets as shown in Figs. 2 and 3 thereby opening the hill and loosening the beets. As the machine passes over the hill the beet tops pass between the two rim sections so that when the rim sections are closed by the frame mounted at the rear of the wheel the beet tops will be grasped and the beets thus lifted from the ground and carried upwardly with the wheel. This wheel receives its rotary motion by frictional engagement with the ground over which it passes and also to a certain extent from grasping the beets. As the beets are carried upwardly they pass the rotating cutting blade 49 which severs the root from the top thus permitting the root to fall into the trough 67 out of which it is conveyed by the conveying belt 68. The tops continue to the top of the frame which holds the rim sections together and are then dropped into the chute 50 by the rim sections separating in order to pass the chute. These beet tops slide down the chute into the

trough 55 out of which they are conveyed by the conveying belt 56. The beet tops can be left upon the field and plowed under to fertilize the soil or be collected and used for any purpose desired. The beets may be permitted to drop upon the field to one side of the machine or may be deposited in a suitable receptacle carried by the machine and positioned beneath the outer end of the trough 67.

Having thus described the invention what is claimed as new, is:—

1. In a machine of the character described, a digger, a revolving gripping wheel provided with a split rim adapted to engage the tops of the beets, arcuate bands extending partially around the circumference of said wheel, supporting strips for holding said bands in position, clamps for holding said bands in engagement with the split rim of said wheel, means for separating the beet roots from the beet tops, and a chute separating the sections of the wheel rim to release the beet tops and being adapted to guide the released beet tops away from said wheel.

2. In a machine of the character described, a supporting frame, a digger carried by said frame, a rotatably mounted beet gripper wheel carried by said frame, said wheel being provided with a split rim, arcuate bands extending partially around the circumference of said wheel, supporting means for said bands connecting said bands with said frame, resilient brackets for yieldably holding said bands in engagement with the split rim of said wheel, and a chute for guiding the unconnected portions of said wheel rim to release the beet tops from said gripping wheel.

3. In a machine of the character described, a supporting frame, a digger carried by said frame, a rotatably mounted gripping wheel carried by said frame, said wheel being provided with a split rim, guiding bands extending partially around the circumference of said wheel, resilient means for yieldably holding said bands in engagement with the split rim of said wheel, and means for separating the unconnected portions of said wheel rim.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JOSEPH BERNARD SERRES.

Witnesses:
O. P. GOLDATE,
JOSEPH ROTOLO.