F. P. ADDLEMAN.

BEET LIFTING AND DIGGING DEVICE.

APPLICATION FILED JULY 12, 1916.

1,211,030.

Patented Jan. 2, 1917.

3 SHEETS—SHEET 1.

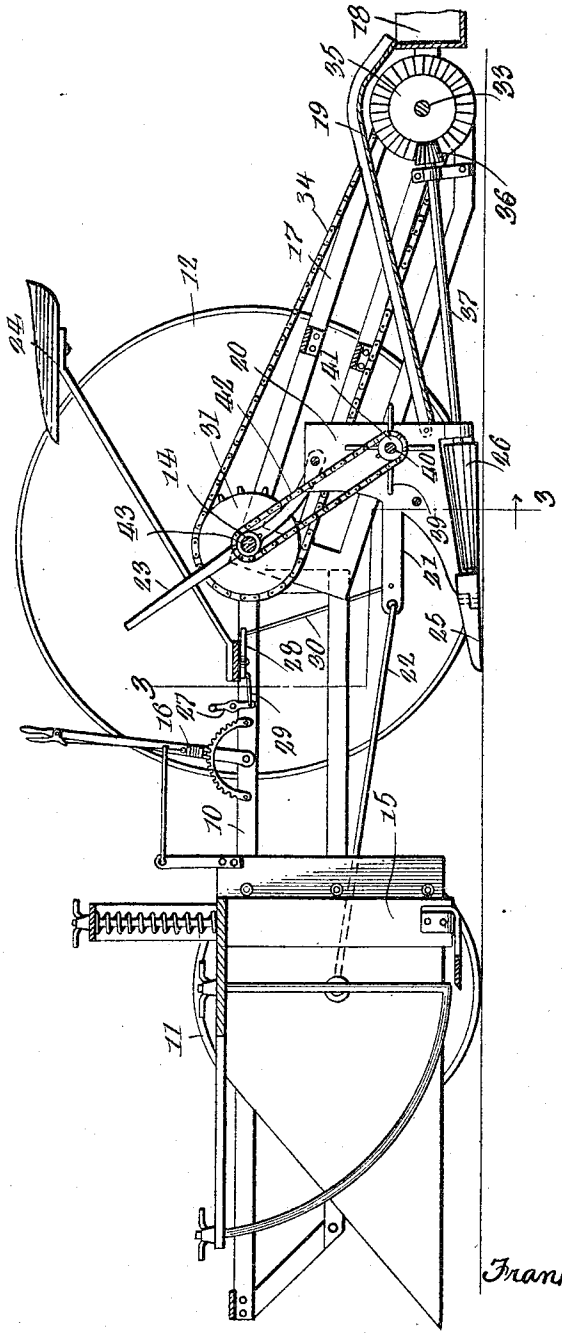


Fig. 1.

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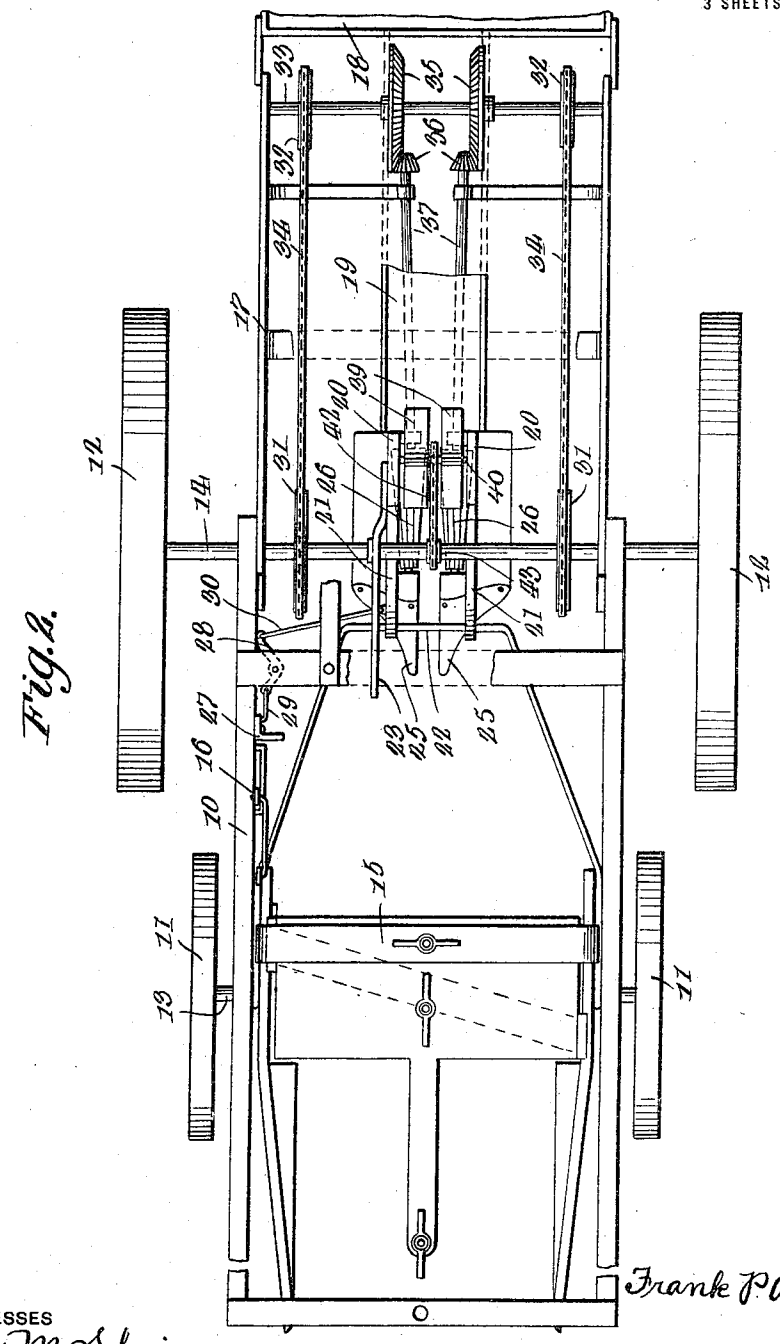


Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 3.

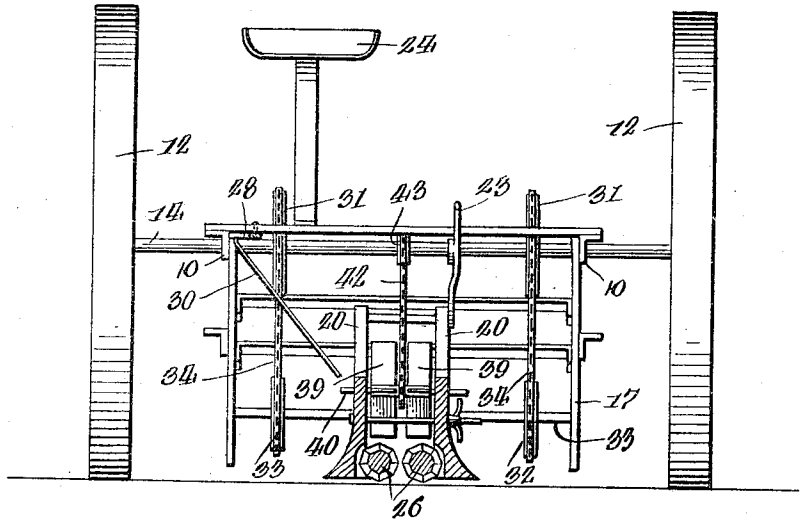


Fig. 4.

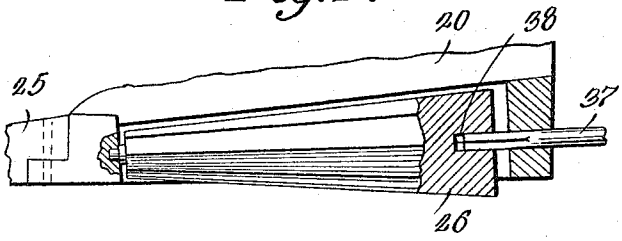
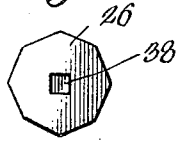


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRANK P. ADDLEMAN, OF AUSTIN, COLORADO.

BEET LIFTING AND DIGGING DEVICE.

1,211,030. Specification of Letters Patent. Patented Jan. 2, 1917.

Application filed July 12, 1916. Serial No. 108,897.

To all whom it may concern:

Be it known that I, FRANK P. ADDLEMAN, a citizen of the United States, residing at Austin, in the county of Delta and State of Colorado, have invented certain new and useful Improvements in Beet Lifting and Digging Devices, of which the following is a specification.

This invention relates to an improved beet lifter and the principal object of the invention is to provide improved digging and lifting means, the auxiliary frame for carrying the digging and lifting means being adjustably connected with the main frame or carriage of the machine and releasably held in an adjusted position.

Another object of the invention is to so construct the lifting means that the rollers constituting the same may be rotated to engage a beet after the digging blades have passed upon opposite sides of the same and lift the beet from the ground to a position where it may be engaged by paddles which move the beet upon a conveyer platform.

Another object of the invention is to provide improved paddles and operating means for engaging the beets to move the same onto the conveying platform.

Another object of the invention is to provide improved actuating means for the lifting rollers and paddles, the actuating means being so constructed that they may be operated from the wheel carrying axle of the frame.

This invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a longitudinal sectional view through the improved beet lifting machine, Fig. 2 is a top plan view of the improved beet lifting machine, Fig. 3 is a transverse sectional view taken along the line 3—3 of Fig. 1, Fig. 4 is an enlarged fragmentary view showing the manner of mounting one of the lifting rollers, and Fig. 5 is a view looking at one end of one of the rollers.

The main frame of the machine is indicated in general by the numeral 10 and is supported by the forward wheels 11 and rear wheels 12, the forward wheels being mounted upon the axle 13 and the rear wheels upon the axle 14 which serves as a driving shaft for the paddles and lifting rollers. This main frame carries the topping mechanism which is indicated in general by the numeral 15 but is not described specifically as it has been covered by prior patents. An adjusting lever 16 has been provided for this topping mechanism so that it may be adjusted according to the point at which it is desired to cut the top.

The auxiliary frame 17 is pivotally connected with the axle or driving shaft 14 and carries the receptacle 18 into which the beets will be deposited. A conveyer trough 19 leads to this receptacle 18 and has its forward end portions connected with the supports or plates 20 which plates are provided with arms 21 mounted upon the bridge of the yoke 22. This yoke has its arms extended forwardly and mounted upon the axle 13 and it will thus be seen that the plates or supports 20 are pivotally mounted. A lever 23 is mounted upon the shaft 14 and is connected with one of the supporting plates 20 and it will thus be seen that the operator who occupies the seat 24 by pressing upon the lever 23 can swing the supports 20 upwardly thus elevating the cutting blades 25 and lifting rollers 26 carried by the supporting plates 20. It will be further noted that there is provided a foot lever or treadle 27 which is connected with the bell crank lever 28 by means of links 29, the bell crank lever having a second arm connected with one of the arms 21 by means of the rods 30 so that when the foot treadle 27 is moved, the supporting plates may be shifted transversely of the machine and thus kept in the proper position for following the row of beets.

Sprocket wheels 31 are mounted upon the axle or shaft 14 and are positioned in alinement with sprocket wheels 32 carried by a shaft 33 at the rear end portion of the auxiliary frame. Sprocket chains 34 pass around these sprocket wheels 31 and 32 and therefore when the machine is in motion, rotary movement will be transmitted from the axle 14 to the shaft 33. This shaft 33 carries the gears 35 which mesh with the beveled gears 36 carried by the shafts 37 and as these shafts have their forward end portions squared and fitted into the sockets 38 of the rollers 26, the rollers will be rotated. These rollers will rotate in opposite directions and will have a tendency to engage a beet positioned between the same and lift it from the ground. Paddles 39 are carried by the shafts 40 upon opposite sides of the sprocket wheels 41 about which passes the sprocket chain 42, the sprocket chain 42 passing around a sprocket wheel 43 on axle 14 and it will thus be seen that as the axle

14 rotates, rotary movement will be transmitted to the shafts 40 and thus the paddles moved to engage the beets and move them upon the conveyer trough 19.

When in use this machine is drawn across a field and the beet tops will be removed by the topping mechanism indicated in general by the numeral 15. The blades 25 will pass upon opposite sides of the row of beets and will loosen the soil about the beets so that they may be easily removed from the ground. The beets will pass between the rollers 26 and as these lifting rollers rotate, they will engage the beets and raise them out of the ground. As soon as the beets reach the rear end of the rollers 26, they will be engaged by the paddles 39 and moved onto the conveyer trough 19. Each beet will serve to engage the beet previously moved upon the platform and thus the beets will be moved along the trough and into the receptable 18. It will thus be seen that the beets can be easily removed from the ground and deposited in the receptacle. It should be further noted that when desired the supporting plates 20 may be raised through the medium of the lever 23 in order to raise the blades 25 and rollers out of engagement with rocks or other obstructions in the fields. It will be still further noted, that if desired, the blades 25 can be removed by withdrawing the fasteners and further that when so desired, the shaft 37 can be shifted longitudinally out of engagement with the rollers 26 thus releasing these rollers.

I have thus provided a beet lifting and digging machine which will be very easy to operate and which will comprise a comparatively small number of parts.

What is claimed is:—

1. A beet digging and lifting machine comprising a main frame having a forward axle and a rear axle, the rear axle constituting a driving shaft, a yoke connected with the forward axle, an auxiliary frame pivotally mounted upon said axle and extending behind said main frame, a receptacle carried by said auxiliary frame, a trough leading to said receptacle, supporting plates connected with the forward end of said trough and provided with forwardly extending arms connected with said yoke to pivotally mount the supporting plates, an adjusting lever rotatably mounted upon said driving shaft and connected with one of said supporting plates, cutting blades carried by said supporting plates and extending in spaced relation, lifting rollers rotatably mounted upon said supporting plates to the rear of said cutting blades and having their rear end portions provided with sockets, shafts rotatably carried by said auxiliary frame and having their forward end portions squared and fitting into the sockets of said rollers, a driven shaft rotatably carried by said auxiliary frame, means for transmitting rotary motion from said driven shaft to the roller shafts, means for transmitting rotary motion from said driving shaft to said driven shaft, a driven shaft carried by said supporting plates, paddle wheels mounted upon said last mentioned driven shaft, and means for transmitting rotary movement from said driving shaft to said last mentioned driven shaft.

2. A beet digging and lifting machine including a main frame, a driving shaft carried by said main frame, an auxiliary frame pivotally mounted upon said driving shaft, a driven shaft carried by said auxiliary frame, supporting plates pivotally mounted beneath the forward end portion of said auxiliary frame, an adjusting lever pivotally mounted upon said driving shaft and connected with said plates, cutting blades carried by said supporting plates, lifting rollers carried by said supporting plates, a driven shaft carried by said plates, paddle wheels mounted upon said last mentioned driven shaft, means for transmitting rotary movement from the driving shaft to the last mentioned driven shaft, shafts rotatably carried by said auxiliary frame and supporting plates and having their forward end portions connected with said rollers, means for transmitting rotary movement from the driven shaft of said auxiliary frame to said last mentioned shafts, means for transmitting rotary movement from said driving shaft to the driven shaft of said auxiliary frame, and a conveyer trough leading from said supporting plates back of said paddle wheels.

3. A beet digging and lifting machine including a main frame, an auxiliary frame connected with said main frame, a driving shaft carried by said main frame, a driven shaft carried by said auxiliary frame, means for transmitting rotary movement from said driving shaft to said driven shaft, supporting plates mounted beneath the forward end portion of said auxiliary frame, cutting blades carried by said supporting plates in spaced relation, lifting rollers rotatably carried by said supporting plates and rotated from said driven shaft, a driven shaft carried by said supporting plates, paddle wheels carried by said driven shaft of the supporting plates, a conveyer trough leading from said supporting plates, and means for transmitting rotary movement from said driving shaft to the driven shaft of said supporting plates.

4. A beet digging and lifting machine including a main frame, an auxiliary frame pivotally connected with said main frame, supporting plates movably mounted beneath the forward end portion of said auxiliary frame, means for vertically adjusting said supporting plates, means for transversely

adjusting said supporting plates, cutting blades carried by said supporting plates, lifting rollers carried by said supporting plates, a driven shaft carried by said auxiliary frame, means for transmitting rotary movement from said driven shaft to said rollers, and means for transmitting rotary movement from said driving shaft to said driven shaft, a driven shaft carried by said supporting plates, a paddle wheel carried by said last mentioned driven shaft, and means for transmitting rotary movement from said driving shaft to the last mentioned driven shaft.

5. A beet lifting and digging machine including a main frame, an auxiliary frame carried by said main frame, supporting plates positioned beneath said auxiliary frame, a conveyer trough connected with said supporting plates, digging means carried by said supporting plates, lifting means carried by said supporting plates, propelling means carried by said supporting plates for moving beets upon said conveyer trough, and actuating means for said lifting means and propelling means.

6. A beet digging and lifting machine including a main frame, an auxiliary frame, supporting means carried by said auxiliary frame, means for vertically adjusting said supporting means, means for horizontally adjusting said supporting means and releasably holding the same in an adjusted position, digging means carried by said supporting means, lifting means carried by said supporting means, a conveyer carried by said auxiliary frame, propelling means carried by said supporting means for moving beets upon said conveyer, and actuating means for said lifting means and propelling means.

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

FRANK P. ADDLEMAN.

Witnesses:
H. N. McFADDEN,
J. E. BECKLEY.

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