H. D. PROSE.

BEET TOPPER.

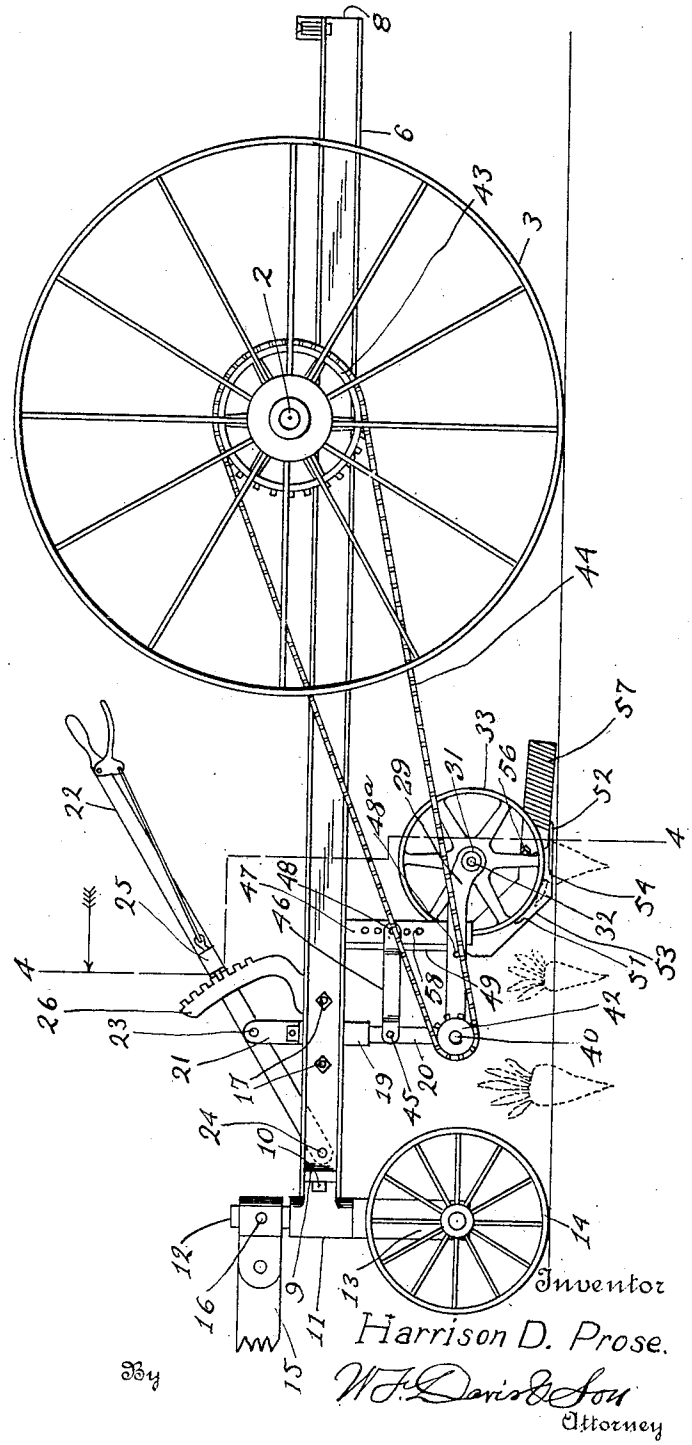
APPLICATION FILED OCT. 22, 1918.

1,376,461.

Patented May 3, 1921.

4 SHEETS—SHEET 1.

FIG. 1.



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4 SHEETS—SHEET 2.

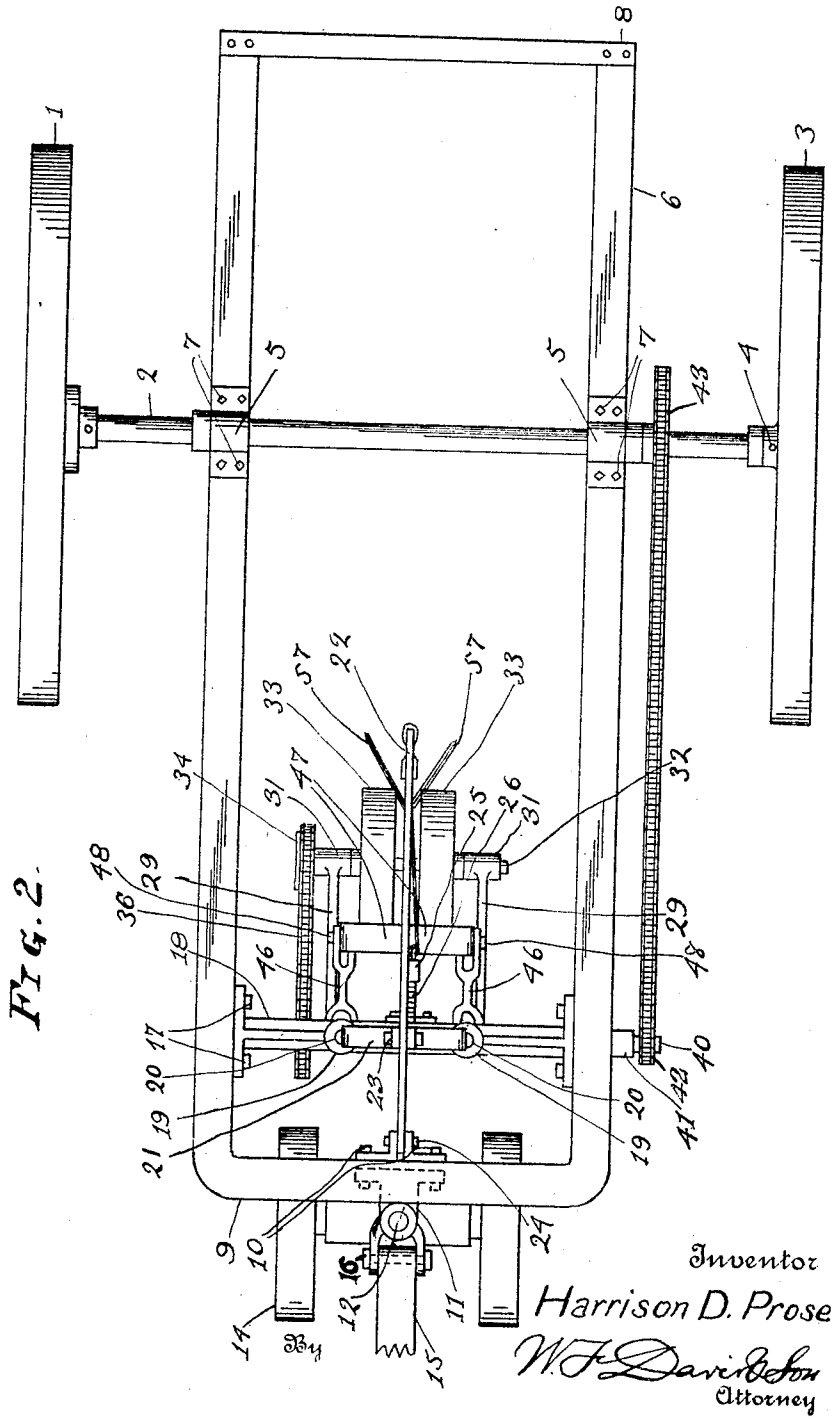


FIG. 2.

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4 SHEETS—SHEET 3.

FIG. 3.

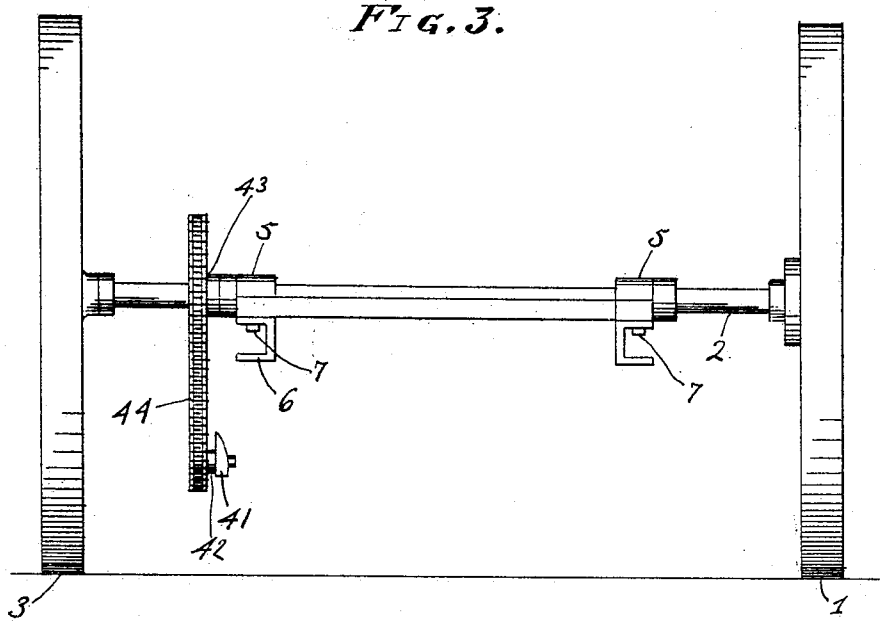
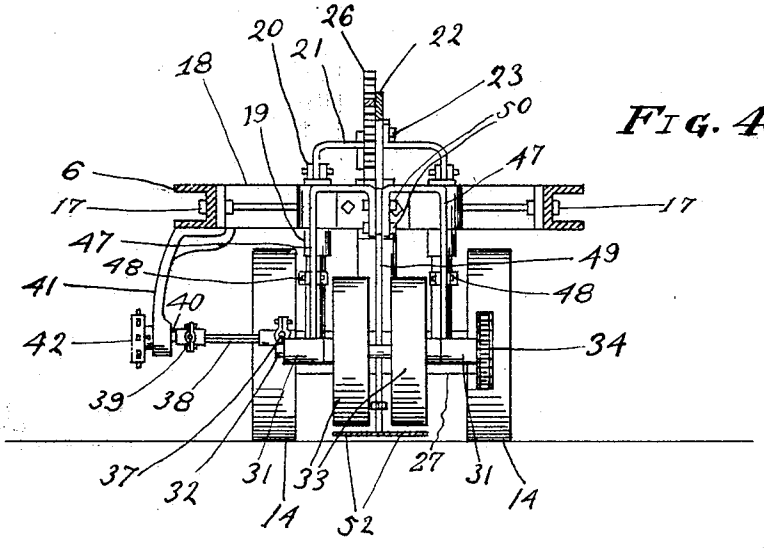


FIG. 4.



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4 SHEETS—SHEET 4.

FIG. 5.

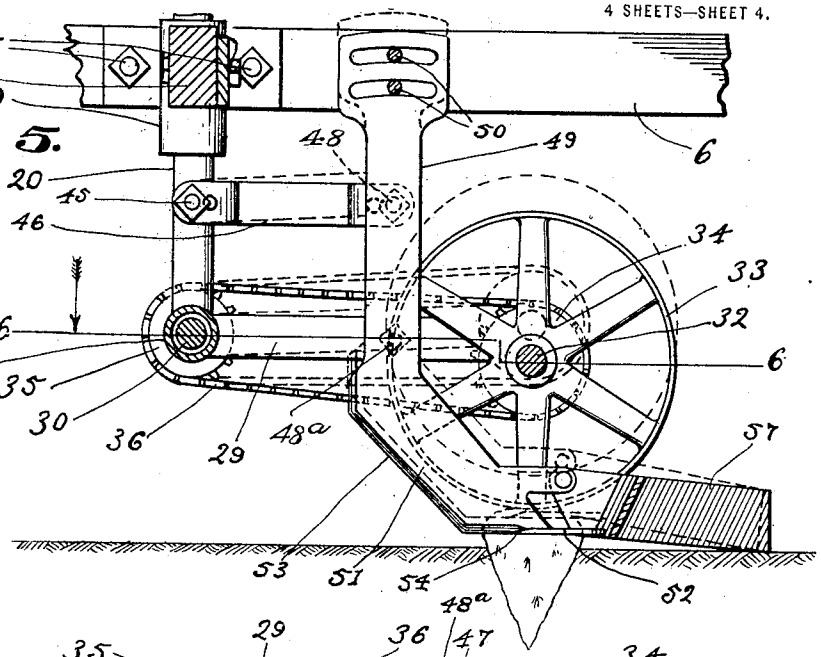
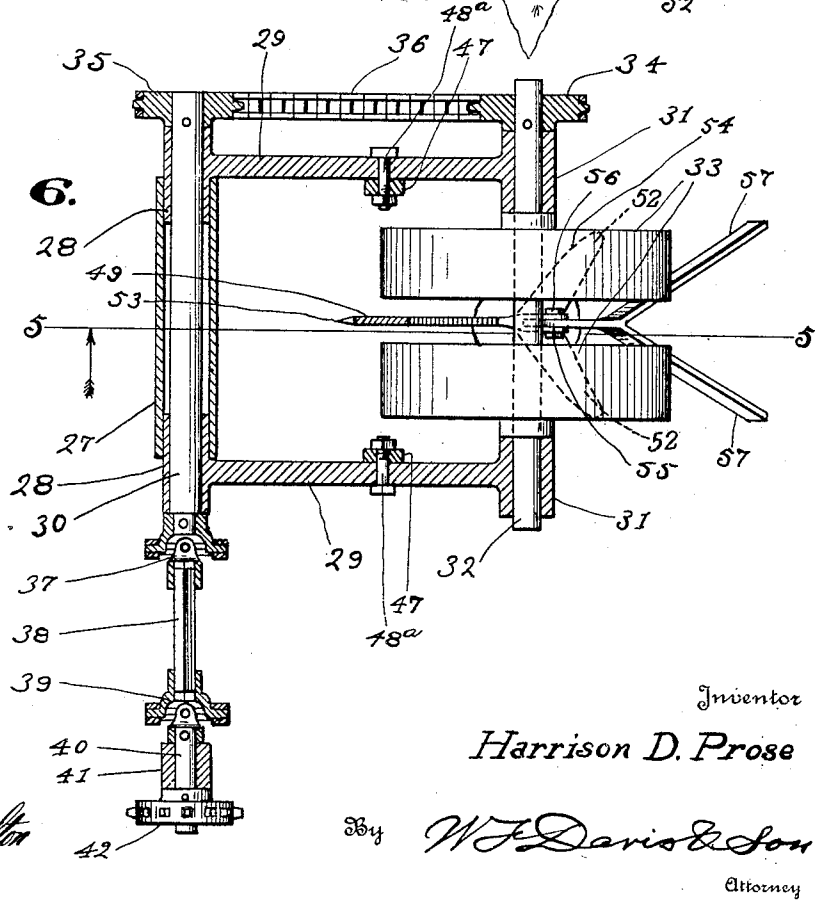


FIG. 6.



Witness:

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UNITED STATES PATENT OFFICE.

HARRISON D. PROSE, OF MACKSVILLE, KANSAS.

BEET-TOPPER.

1,376,461. Specification of Letters Patent. Patented May 3, 1921.

Application filed October 22, 1918. Serial No. 259,240.

To all whom it may concern:

Be it known that I, HARRISON D. PROSE, a citizen of the United States, residing at Macksville, in the county of Stafford and State of Kansas, have invented certain new and useful Improvements in Beet-Toppers, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to beet toppers and has provided a simple and efficient topper that will top the beets in proportion to the size of the beet, cutting a large portion from a large beet and a small portion from a small beet and removing the tops laterally from the path of the topper.

The present invention has provided an improved beet topper that will cut the upper part of the body of the beet from the lower part of the body and remove the part so cut away with the leaf tops, from the row of beets that are topped.

With these and other objects in view of the invention consists in the features of construction, combinations and arrangements of parts hereinafter set forth and more particularly pointed out in the appended claims, the accompanying drawings illustrating a form of the improved beet topper.

In the drawings:—

Figure 1, is a side view of the improved beet topper with the arm 41 removed to illustrate the hinge connections of the beet topper.

Fig. 2, is a plan view, with certain parts omitted.

Fig. 3, is a fragmentary rear end view.

Fig. 4, is a sectional view taken on line 4—4 of Fig. 1.

Fig. 5, is a fragmentary sectional view taken on line 5—5 of Fig. 6.

Fig. 6, is a fragmentary sectional view taken on line 6—6 of Fig. 5.

The rear wheel 1 is journaled on the axle 2, and the rear wheel 3 is rigidly secured to the axle by the key pin 4, the axle being journaled in the duplicate boxes 5, while the latter are bolted to the main frame 6 by the bolts 7 so that the wheels support the rear end 8 of the frame.

To the front end 9 of the frame is secured by the bolts 10, the trunnion bearing 11 in which is freely mounted the trunnion pin 12 which extends downward and terminates in the axle 13, the front wheels 14 being journaled on the axle and the tongue 15 secured to the trunnion pin by the key pin 16.

To the frame 6 is secured by the bolts 17, the cross bar 18 which is provided with the bosses 19, the latter having mounted therein so that they will slide freely, the hanger bars 20, the latter being connected to the yoke 21, and the yoke pivotally connecting to the lever 22 at 23. The lever is fulcrumed to the frame at 24 and provided with the latch 25 to engage the quadrant shaped latch bar 26, the latter being rigid with the cross bar 18, the purpose being to raise and lower the hanger bars 20 and the parts carried thereby.

The hanger bars 20 are integrally connected by the tubular portion 27 in which are pivoted the bosses 28 of the duplicate arms 29, and the shaft 30 is journaled in the latter bosses.

In the bosses 31 of the arms 29 is journaled the shaft 32 on which are rigidly mounted the beet topper wheels 33, and the sprocket wheel 34, while on the shaft 30 is rigidly mounted the sprocket wheel 35, the sprocket chain 36 connecting the wheels and driving the wheel 34 from the wheel 35 and driving the wheels 33.

On the opposite end of the shaft 30 from the sprocket wheel 35 is connected the universal joint 37, the shaft 38 connecting from the latter to the universal joint 39 which is connected to the shaft 40.

The shaft 40 is journaled in the arm 41 projecting from the frame 6 and has rigidly mounted thereon the sprocket wheel 42.

The shaft 38 is provided with end play in the universal joints and loosely fitted therein so that as the shaft 30 is lowered and raised by the lever 22 the slipping endwise of the shaft 38 will compensate for the varying difference in distance between the universal joints.

Rigidly mounted on the axle 2 is the sprocket wheel 43 from which connects the sprocket chain 44 to the sprocket wheel 42,

so that the wheels 33 are always driven by the wheel 3 and preferably as shown at a slightly higher or faster peripheral or rim speed.

These wheels 33 climb on top of each beet as it is cut as hereinafter described and it is an advantage to drive the rims thereof at a faster rim speed than the wheel 3 so that they will climb the beets and not push them over and break them.

Pivoted to the hanger bar 20 at 45 are the link bars 46, the opposite ends of the link bars being pivoted to the connecting yokes 47 at 48, the knife shank 49 of the beet cutting knife lying between the yokes, and the yokes and the shank being secured together by the bolts 50. The yokes 47 extend downwardly from the link bars 46 and are pivoted to the arms 29 at 48^a.

The knife shank 49 extends downward and is integral with splitting knife 51, which is integral with the topping knives 52 the latter projecting laterally in opposite directions from the splitting knife.

The cutting edge 53 of the splitting knife 51 angles downward and rearwardly from the knife shank 49 so that it will have a shearing cut, and the cutting edges 54 of the topping knife 52 angle rearwardly and laterally so that they will shear the beets horizontally.

Projecting rearwardly from the splitting knife 51 and over the intersection of the topping knives 52 is the bifurcated jaw 55 in which are pivoted by the bolt 56, the spreader arms 57, the latter spreading rearwardly.

From the foregoing it will be understood that the splitting knife 51 separates the leaves of the beet commonly called the top, and splits that portion of the beet that is to be cut away by the topping knives 52, and that the latter knives cut from the body of the beet that part which is undesirable for manufactured beet products such as sugar and the like.

The lever 22 is employed to raise and lower the hangers 20 and the shaft 30 for the purpose of regulating the distance vertically between the beet topper wheels 33 and the beet topping knives 52.

The arms 29 being pivoted at one end to the shaft 30 and to the axle shaft at the opposite end thereof, and pivoted intermediate the ends to the yokes 47, and the link 46 being pivoted to the hanger bars 20 and to the yoke 47, the wheels 33 will move upward and downward about twice as far as the knives 52, so that if the wheels 33 lower to extreme position they will rest on the knives 52 and if the wheels rise to extreme position they will be at a considerable distance above the knives 52.

In Fig. 5 the positions of the wheels 33 and knives 52 are indicated in full lines not greatly separated, while in dotted lines of the same figure the wheels are indicated raised to a considerable distance, while the knives are indicated raised to about one half the distance the wheels are raised.

The beet topper is propelled along the rows of beets in any suitable manner and in a direction that will cause the beet topper wheels to follow the front wheels 14.

It will be understood from the foregoing that the wheels 33 will pass over and bear upon the top of the body of each beet; as the leaves are very pliant they will be mashed down along side the beet, the wheels lifting as they contact with each beet and the knives 52 will be lifted a proportional distance depending on the position of the pivoted connections of the arms 29 and link bars 46, this distance being approximately one half the lift of the wheels in the construction shown; the proportional movement however between the wheels 33 and knives 52 can be changed by any ordinary mechanic without invention.

The holes 58 are shown in the yoke 47 for the purpose of shifting the pivotal connection 48 to different locations with reference to the yoke, it being understood that if this connection 48 be raised the knives 52 will be farther from the wheels 33 with reference to any certain position of the latter and if the connection 48 is lowered the knives 52 will be nearer to the wheels 33 at any certain position of the latter.

The small beets do not protrude from the ground so far as the large ones and as the wheels 33 must lift to a greater distance to pass over the large beet, a larger portion of the beet will be cut way, the wheels always being farther from the knives 52 when lifted over a large beet than when lifted over a small one that does not protrude so far above the ground.

From the foregoing it will be understood that the knives 51 and 52 will cut the upper portion of the body and the leaf tops from the remaining portion of the beets and that the spreader arms 57 will remove the parts so cut from the path of the topper.

The knives 52 will cut more from a large beet than from a small one and the amount cut from both, while remaining proportionally approximately the same may be adjusted by changing the pivotal connection 48 of the link bars 46, the holes 58 being provided in the yokes 47 for this purpose.

The improved beet topper has been tested in the field topping beets and has proven both practical and satisfactory to those who harvest beets. The beet topper is of particular advantage to the beet producing industry and will result in considerable lowering of the cost of producing beet sugar and other beet products. It is obvious that numerous changes may be made in the con-

struction as set forth without departure from the essentials of the invention.

What I claim as new, and desire to secure by Letters Patent, is:—

1. In a beet harvester, a frame, means to support said frame, horizontally disposed arms pivotally connected to said frame, a beet engaging means connected to said arms, a knife pivotally connected to said arms intermediate said beet engaging means and the pivotal connections of said arms, and said knife pivotally connected to said frame.

2. In a beet harvester, a frame, means supporting said frame, connecting members in said frame, arms pivotally connected to said connecting members, a beet engaging means mounted by said arms, a knife pivoted to said arms intermediate said beet engaging means and the pivotal connection of said arms to said connecting members, said knife extending above said arms, and link bars pivotally connecting said connecting members and said knife.

3. In a beet harvester, a frame, means to support said frame, connecting members in said frame, a pair of arms pivotally connected to connecting members, a beet engaging means connected to said arms, a knife pivotally connected to said arms between said connecting members and said beet engaging means, said knife extending above said arm, pivotally connected connecting link bars connecting said connecting members and said knife above said arms, said knife extending below said arms and the width of said knife disposed transversely to the axis of said pivotal connections, and said knife disposed horizontally below said beet engaging means.

4. In a beet harvester, a frame, means to support said frame, a vertically disposed connecting member in said frame, a pair of horizontally disposed arms pivotally connected to said connecting member, a pair of wheels revolubly connected to said arms, a knife pivotally connected to said arms, between said connecting member and the revoluble connections of said wheels to said arms, said knife arranged between said wheels, the width of said knife disposed transversely to the axis of said wheels, and said knife projecting horizontally beneath said wheels.

5. In a beet harvester, a frame, means to support said frame, a connecting member in said frame, a pair of horizontally disposed arms pivotally connected to said connecting member, a pair of wheels revolubly connected to said arms, a knife pivotally connected to said arms intermediate said connecting member and the revoluble connections of said wheels to said arms, a pair of link bars above said arms and pivotally connecting said connecting member to said knife, said knife arranged between said wheels, and said knife projecting horizontally beneath said wheels.

6. In a beet harvester, a frame, ground engaging wheels supporting said frame, a connecting member in said frame, a pair of horizontally disposed arms pivotally connected to said connecting member, a pair of wheels revolubly connected to said arms, a knife pivotally connected to said arms intermediate said connecting member and said wheel connections, a pair of link bars connecting said knife and said connecting member above said arms, the cutting edge of said knife disposed transversely to the axis of said wheels, the width of said knife disposed transversely to the axis of said wheels and then projecting in opposite directions underneath said wheels, and means to drive said wheels.

7. In a beet harvester, a frame supported by ground engaging wheels, a vertically adjustable connecting member in said frame, means to vertically adjust said connecting member, a pair of horizontally disposed arms pivotally connected to said connecting member, a pair of wheels revolubly connected to said arms, a knife pivotally connected to said arms intermediate said connecting member and the axis of said wheels, a pair of link bars above said arms and pivotally connecting said connecting member and said knife, said knife extending below said wheels and projecting laterally in opposite directions, and a connecting means to drive said pair of wheels from one of said ground engaging wheels.

8. In a beet harvester, a frame, means to support said frame, a knife carried by said frame and arranged to split and remove the upper part of the body of beets standing in the field, and a pair of arms forming a V shape pivotally connected to said knife with the connecting ends of the arms disposed forwardly and resting on the ground to remove from the path of said knife the parts of the beet cut from the remaining body portion.

9. In a beet harvester, a frame, ground engaging wheels supporting said frame, a knife carried by said frame and arranged to remove the upper part of the body of beets standing where grown, said knife movable toward and away from said frame, a pair of beet engaging wheels adjacent said knife, and hinged connections connecting said knife and said beet engaging wheels and said frame whereby said beet engaging wheels will roll over each beet and the higher said wheels are lifted by the beet the farther said knife will be below said wheels.

10. In a beet harvester, a frame, means to support said frame, a knife carried by said frame, a pair of beet engaging wheels connected by hinged connections to said frame,

said knife and said beet engaging wheels movable vertically, and said connections so arranged that the higher said beet engaging wheels are lifted by the beet the farther the knife will be below the wheels so that said knife will cut a large portion from a large beet and a small portion from a small beet.

11. In a beet harvester, a frame, means to support said frame, a knife carried by said frame, a pair of beet engaging wheels connected by hinged connections to said frame, said knife and said beet engaging wheels vertically movable, said connections so arranged that the raising of said beet engaging wheels is always greater than the raising of said knife and means to adjust the variable distance between said knife and said beet engaging wheels.

HARRISON D. PROSE.