A. G. BIMSON.

BEET HARVESTER.

APPLICATION FILED SEPT. 12, 1917.

1,268,085.

Patented June 4, 1918.

2 SHEETS—SHEET 1.

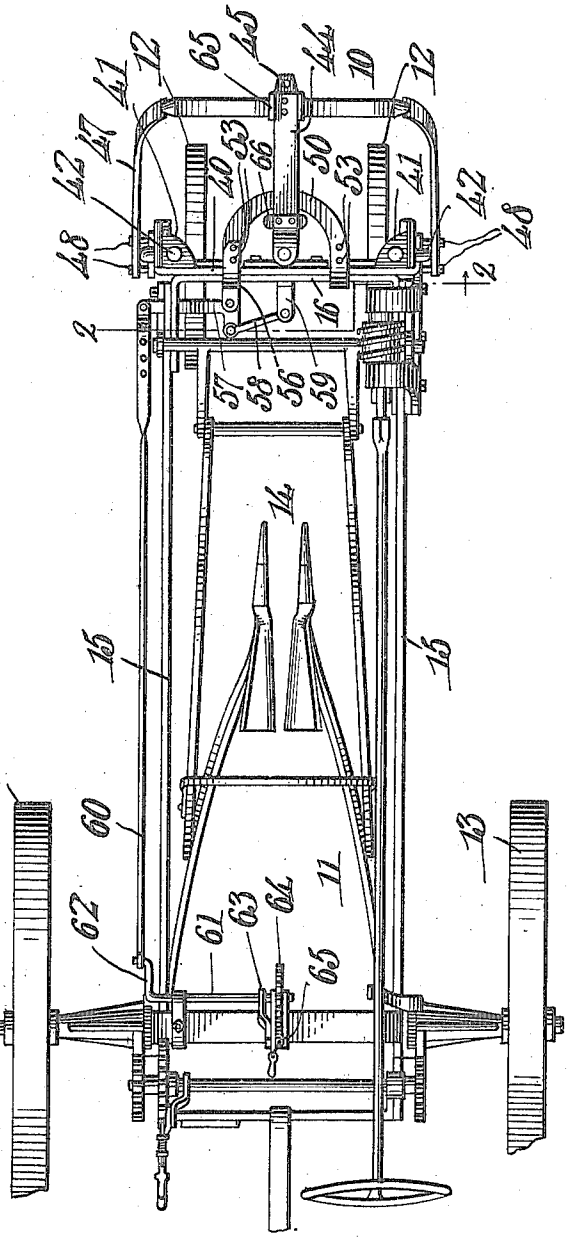


Fig. 1.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 2.

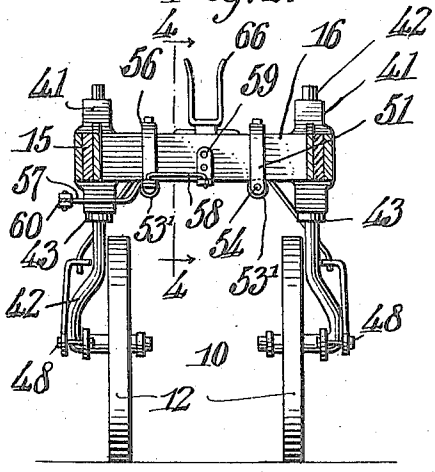



Fig. 5.

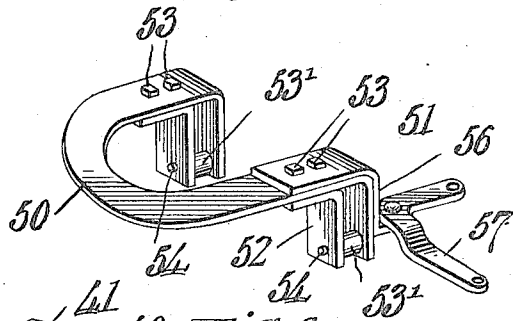



Fig. 6.

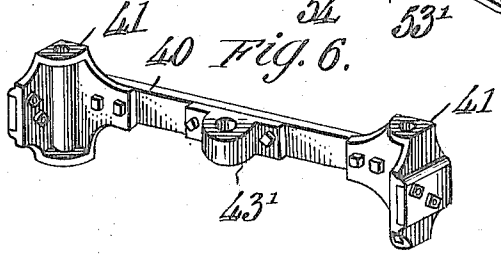



Fig. 3.

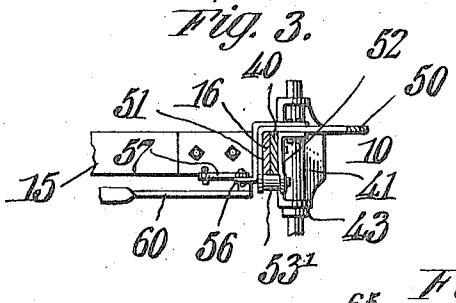



Fig. 7.

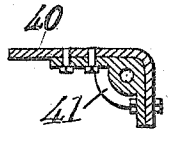
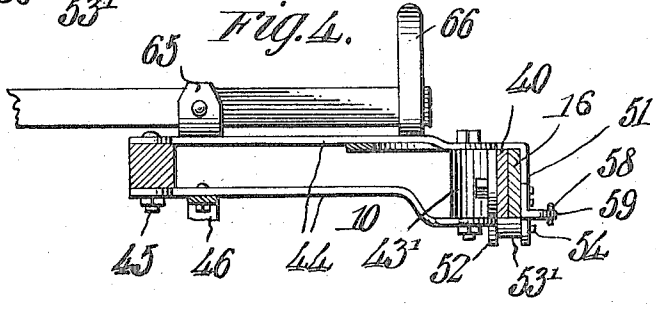



Fig. 4.




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# UNITED STATES PATENT OFFICE.

ALFRED G. BIMSON, OF BERTHOUD, COLORADO.

## BEET-HARVESTER.

1,268,085. Specification of Letters Patent. Patented June 4, 1918.

Application filed September 12, 1917. Serial No. 191,022.

*To all whom it may concern:*

Be it known that I, ALFRED G. BIMSON, a citizen of the United States, residing at Berthoud, in the county of Larimer and State of Colorado, have invented certain new and useful Improvements in Beet-Harvesters, of which the following is a specification.

This invention relates to beet pullers or harvesters, and aims primarily to simplify the construction and operation of devices of this character as well as to increase their efficiency.

A further object of the invention is to provide a beet puller which shall be of light weight so as to be capable of being easily drawn over the ground, and which has its plowing or harvesting points so arranged as to be under immediate and accurate control of the operator of the machine.

A further object of the invention is to provide a machine of the character set forth having plowing or lifting elements, and which is capable of being easily and accurately shifted laterally so as to properly position the plowing points one upon each side of the row of vegetables to be harvested.

With these objects in view together with others which will appear as the description proceeds the invention resides in the novel formation, combination, and arrangement of parts, all as will be described more fully hereinafter, illustrated in the drawings, and particularly pointed out in the claims.

In the drawings:—

Figure 1 is a top plan view of a beet puller or harvester constructed in accordance with the invention,

Fig. 2 is a sectional view taken upon line 2—2 of Fig. 1,

Fig. 3 is a detail fragmentary sectional view illustrating the connecting means for the front and rear vehicle frame portions,

Fig. 4 is a vertical sectional view taken substantially upon line 4—4 of Fig. 2,

Fig. 5 is a detail perspective view of a portion of the front or steering frame of the vehicle,

Fig. 6 is a similar view of the transverse plate of the front frame, and

Fig. 7 is a sectional view taken through one end of the front plate.

The invention relates particularly to vehicles of that type illustrated in my copending application, Serial No. 157,012, filed March 23, 1917, and wherein there is illustrated means for lifting vegetable plants from the ground. The machine constituting the subject matter of the aforesaid application includes a pair of spaced plowing elements adapted to enter the ground one upon each side of a row of growing plants, and as the vehicle advances these plowing elements lift or uproot the vegetables. The present invention relates to improved means for shifting the vehicle frame laterally so that the plowing elements may be held in proper alinement with the rows as the vehicle advances.

The vehicle comprises front and rear trucks or frames 10 and 11 respectively; the said frames being supported by wheels 12 and 13. The rear frame or truck carries the digging or plowing element indicated at 14.

The rear frame 11 includes a pair of longitudinally spaced bars 15, connected at their forward ends by a laterally disposed plate or bar 16 and in order that the plowing element 14 may be properly alined with the rows of vegetation, the rear frame 11 is made laterally shiftable, while the front or forward frame 10 remains stationary.

The front or forward frame or truck 10 includes a transverse bar or plate 40, to the ends of which bearing blocks 41 are bolted. These bearing blocks, in the present instance, are castings and rotatably support the vertically disposed wheel standards 42. Each standard has a collar 43 for limiting the upward movement of the standards within the bearing blocks, and any preferred means may be employed for preventing the standards moving downwardly. The lower ends of the standards are bent inwardly, and upon their extremities the front or steering wheels 12 are rotatably mounted.

Pivoted at their inner ends at the upper and lower extremities of the bearing member 43′ bolted to the forward face of the plate 40 intermediate the ends thereof, are tongue irons 44. These irons project forwardly from the truck 10, and are secured together in spaced relation at their forward extremities by a suitable connecting bolt 45. A guide bar 46 is secured to the lowermost of the tongue irons adjacent the free end thereof and extends at its extremities outwardly and downwardly therefrom. The free ends of this guide bar are pivotally connected to wheel rods 47 projecting forwardly from the wheel standards 42; the

said rods being secured to the said standards by means of bolts 48. The uppermost of the tongue irons is supported upon a fifth wheel 50 secured to the plate 40. This fifth wheel may be formed of an arcuate strap iron, the extremities of which project rearwardly beyond the plate 16 and turn downwardly to constitute supporting brackets 51. Angle irons 52 are bolted as at 53 to the fifth wheel, and extend from the under face thereof downwardly and in close contact with the front face of the plate 40. The lower ends of the angle irons and bracket portions 52—51 are disposed below the lower edge of the plate 40, and rollers 53′ are mounted for rotation upon suitable axles 54 carried by the angle irons and bracket portions adjacent the lower ends thereof.

The connecting plate 16 for the forward ends of the side bar 15 of the rear frame 11, passes within the bracket or support portion 51 of the fifth wheel, and rests at its lower edge upon the rollers 53′ supported by the fifth wheel ends. This particular arrangement forms a positive connection between the front and rear frames of the vehicle, but permits of the rear frame being moved laterally independently of the front frame. One of the ends of the arcuate member constituting the fifth wheel is provided with a rearwardly projecting member 56, upon which is pivoted a bell crank lever 57, and one end of this bell crank lever is connected by a link 58 with a lug or angle member 59 carried by the plate 16. The opposite end of the bell crank lever is connected to a shifting rod 60, the latter extending to the rear end of the vehicle. A rock shaft 61 is mounted for rotation in suitable bearings upon the rear axle of the vehicle, and the rod 60 is connected to a crank 62 at one end of the said shaft. A hand lever 63 controls the rocking movements of the shafts 61, and travels by a segment 64. The lever is provided with a suitable latch 65 to engage with the segment to hold the shaft in any of its adjusted positions. It will be observed that the forward end of the rod 60 is provided with spaced apertures, so that the degree of throw of the bell crank 57 may be regulated.

It is obvious from the foregoing that when it is desired to shift the frame laterally to accurately aline the digging element with a row, the lever 63 may be moved. This movement of the lever creates rocking movement in the shaft 61, and the crank 62 on said shaft causes the rod 60 to be advanced or retracted, according to the direction of rotation of the shaft. This movement of the rod causes the bell crank 57 to rock upon its support, and the link 58 causes the forward end of the frame 11 to move laterally. The rollers 53′ support the forward end of the frame 11, and friction of the parts at the juncture of the front and rear frames is minimized.

The vehicle in the present instance is designed to be drawn by draft animals, and clips 65 and 66 are secured in spaced relation upon the uppermost of the tongue irons 44, and these clips are adapted to accommodate a draft tongue. A whiffle or double tree may be confined between the upper and lower tongue irons 44, and is limited in its forward movement by the bolt 45 connecting the forward ends of the said tongue irons. By securing the draft tongue to the vehicle in this manner, it is obvious that the draft animals will be relieved of all violent vertical thrusts of the tongue as the vehicle travels over uneven ground. It is also apparent that the weight of the draft tongue itself is all that the animals must bear. The particular construction of the front truck or frame permits of the vehicle being quickly turned, and it will be observed that the specific mounting of the steering wheels enables the latter to be turned almost at right angles to the direction of travel.

The invention is illustrated and described as being used in conjunction with a beet harvesting machine, but it is apparent that the structure may be advantageously used upon other types of agricultural machinery.

While the present is a disclosure of the preferred embodiment of the invention, it is to be understood that the invention is not limited thereto, but that various changes in the minor details of construction, proportion, and arrangement of parts may be resorted to if desired without departing from the spirit of the invention as defined by the appended claims.

I claim:—

1. In a device of the class described, a vehicle comprising front and rear laterally movable frames connected together at their rear and front ends respectively, and means for shifting one of said frames.

2. In a device of the class described, a vehicle comprising front and rear frames connected together at their rear and forward ends respectively, one of said frames being capable of being shifted laterally, and means on said movable frame for shifting the same.

3. In a device of the class described, a vehicle comprising front and rear running gear frames connected together at their rear and front ends respectively, the said frames being capable of being moved laterally relative to each other, a bell crank lever pivoted upon one of said frames, a link connecting one arm of said lever with the other of said frames, a hand operated lever on one of said frames, and a connection between said hand operated lever and said bell crank.

4. In a device of the class described, a

vehicle comprising front and rear frames, one of said frames being capable of being moved laterally of the other, a support carried by one of said frames and extending beneath the adjacent end of the other frame, rollers on said support for engagement with the other frame, and means for moving the said movable frame laterally.

5. In a device of the class described, a vehicle comprising front and rear frames, laterally disposed plates at the rear and front ends of said frames respectively, supports on the front frame inclosing the plate of the rear frame, rollers carried by said supports for bearing said rear frame plate, and means on said rear frame for shifting the same laterally.

6. In a device of the class described, a vehicle comprising front and rear frames secured together end to end, a lever pivoted on one of said frames, a link connecting the said lever with the other of said frames, and means for rocking said lever.

7. In a device of the class described, a vehicle comprising front and rear frames secured together end to end, a lever pivoted upon one of said frames so as to move horizontally, a link connecting said lever with the other of said frames, and means for swinging said lever.

8. In a device of the class described, a vehicle comprising front and rear frames, a bracket secured to one of said frames, a roller carried by said bracket and supporting the adjacent end of the other frame, a lever pivoted upon one of said frames, and a connection between said lever and the other frame.

9. In a device of the class described, a vehicle comprising front and rear frames, a bracket secured to the front frame at the rear end thereof, a roller at the lower end of said bracket disposed beneath and supporting the adjacent end of the rear frame, means for holding said frames together, and means for moving said rear frame laterally.

10. In a device of the class described, a vehicle comprising front and rear frames having their adjacent ends abutting, brackets secured to said front frame and loosely inclosing the forward end of the rear frame, rollers in said brackets supporting the forward end of said rear frame, a bell crank lever pivoted upon one of said brackets and being capable of swinging horizontally, a link connecting one arm of the said bell crank with the forward end of said rear frame, a hand lever on said rear frame, and a link connecting the said hand lever with the other arm of said bell crank lever.

11. In a device of the class described, a vehicle comprising front and rear frames, one of said frames being capable of moving laterally of the other, a bearing block on each side of said front frame, wheel standards rotatably mounted in said blocks, a tongue pivoted on said front frame, a connection between said tongue and each of said standards, and means for attaching a draft apparatus to said tongue.

12. In a device of the class described, a vehicle comprising front and rear frames having adjacent rear and front laterally disposed plates, a fifth wheel on said front frame, supporting brackets depending from said fifth wheel in the rear of the said plates, rollers carried by the lower ends of said brackets and supporting the said plates, and means for moving the said rear frames laterally.

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

ALFRED G. BIMSON.

Witnesses:

JAMES A. TURNER,

WILLIAM C. BUNYAN.

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