No. 688,527. Patented Dec. 10, 1901.

H. KEMP & W. M. SCOTT.

BEET HARVESTER.

(Application filed Mar. 17, 1900.

(No Model.) 2 Sheets—Sheet 1.

FIG. 3.

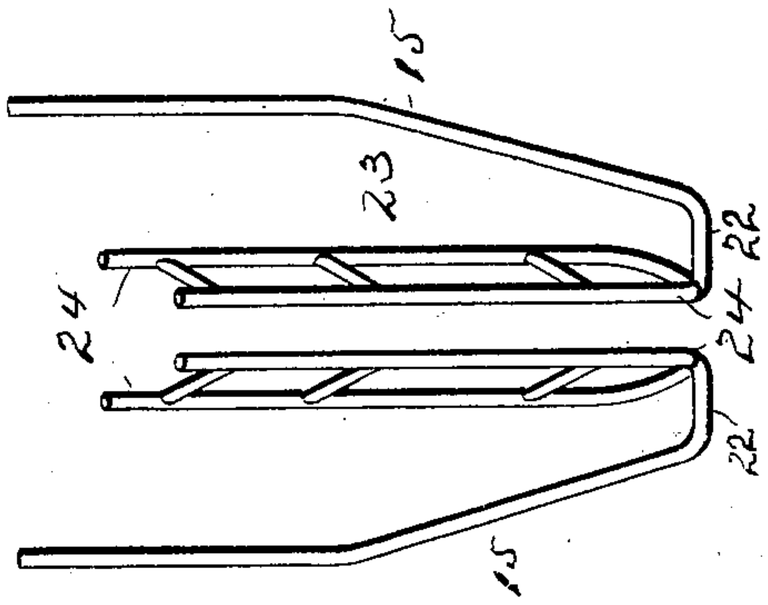

FIG. 1.

WITNESSES

E. J. Nottingham

G. F. Downing.

INVENTORS

H. Kemp and

W. M. Scott

By H. A. Seymour

Attorney

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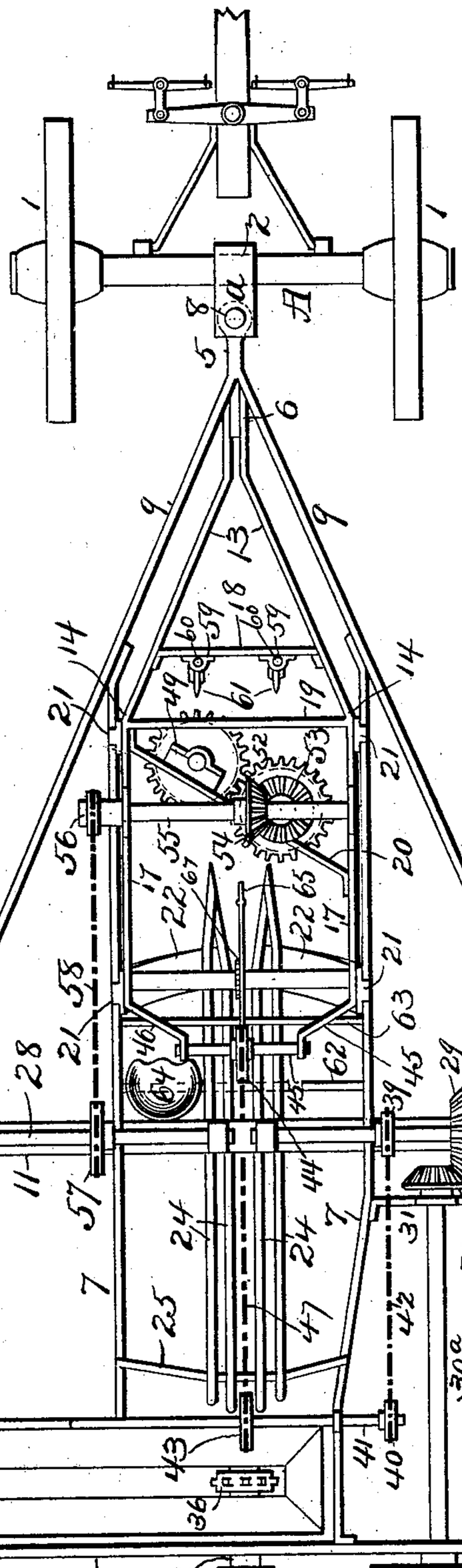

FIG. 2.

WITNESSES
E. J. Nottingham
G. F. Downing.

INVENTORS
H. Kemp and
W. M. Scott
By H. A. Seymour
Attorney

UNITED STATES PATENT OFFICE.

HARRY KEMP AND WILLIAM M. SCOTT, OF FREMONT, NEBRASKA.

BEET-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 688,527, dated December 10, 1901.

Application filed March 17, 1900. Serial No. 9,102. (No model.)

To all whom it may concern:

Be it known that we, HARRY KEMP and WILLIAM M. SCOTT, of Fremont, in the county of Dodge and State of Nebraska, have invented certain new and useful Improvements in Beet-Harvesters; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to an improvement in beet-harvesters, the object of the invention being to provide a machine of the above-mentioned character which will effectually top the beets, remove them from the ground, and convey them to a suitable point for dumping.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation, illustrating our improvements. Fig. 2 is a plan view of the same, and Fig. 3 is a detail view.

A represents the front axle, carried by wheels 11, and on which is mounted a bracket 2, having two recesses 3 4 in its rear face for the reception of bars 5 6, respectively, forming a part of the frame of the machine. Both of said bars 5 and 6 are pivotally secured in the bracket 2 by means of a removable pin 8, and the lower recess 4 is made wedge shape, as shown, to permit upward movement of the bar 6, as will more fully hereinafter appear. The upper bar 5 extends rearward a short distance, where it is secured to two diverging members 9 9, bent, as shown at 10, and extending rearward in a straight line parallel with each other to a point in rear of the rear axle 11, where they are connected together by a cross-bar 12. Bars 7 are secured at their forward ends to the diverging portions of members 9 9, between the ends of the latter, and extend rearward approximately parallel with each other and are secured to the rear cross-bar 12. The lower bar 6 is secured at its rear end to two diverging bars 13, which are bent at 14 and extend parallel rearward and are secured to arms or uprights 15 and between their ends are provided with upwardly-projecting arms 16, connected at their upper ends to the upper ends of the uprights 15 by bars 17, and said bars 13 and 17 are connected by cross-bars 18 and 19 and a diagonally-disposed bar or bars 20, all forming a movable frame and provided with enlargements 21 at its upper edge normally supported on the bars 7 of the rigid frame.

The lower ends of the uprights 15 are provided with inwardly-projecting cutters or knives 22, on which is supported the forward end of an inclined combined trough and plow 23, composed, preferably, of four rods 24, arranged in the form of a trough, and the inner ends of the lower bars of said combined trough and plow project outward and are secured to the outer or upper rods to form a mouth or guide to force the beets into the trough. The rear end of the combined trough and plow 23 is supported on a U-shaped rod 25, secured at its ends to the bars 7 and in proximity to an inclined trough 26, secured to the stationary frame and extending transversely across the same for a purpose more fully hereinafter explained.

The rear axle 11 is rigidly secured to the stationary frame and is supported at its ends in wheels 27, having an internal hub-gear 27^a on their inner faces meshing with small gear-wheels 27^b on short shafts 28, revolubly secured on top of the axle 11 and parallel therewith. The shaft 28 on one side of the machine is provided with a bevel-gear 29, meshing with a bevel-gear 30 on a longitudinally-disposed shaft 30^a, mounted at one end in a bar 31, secured at its respective ends to the bars 7 and 9 and at its other end in the rear cross-bar 12 and projecting beyond the same. On the extreme rear end of the shaft 30^a is secured a sprocket-wheel 32, connected with a sprocket-wheel 33, secured on a shaft 34, mounted in the lower end of the trough 26, by means of a sprocket-chain 35. The shaft 34 is also provided between its ends with a sprocket-wheel 36, connected with an idle sprocket-wheel at the upper end of the trough by means of a sprocket-chain 37, carrying a series of cups or receptacles 38 to convey the beets to one side of the machine and dump them into a wagon driven alongside the same. A sprocket-wheel 39 is mounted on said shaft 28 and is connected with a sprocket-wheel 40

on a transversely-disposed shaft 41, mounted on the bars 7, by means of a sprocket-chain 42. The shaft 41 is provided between its ends with a sprocket-wheel 43, and an idle sprocket-wheel 44 is mounted on a shaft 45, supported above the forward end of the combined trough and plow 23 by means of arms 46, secured to the movable frame. An endless sprocket-chain or conveyer 47 passes over the sprocket-wheels 43 44 and is provided throughout its length with a series of sharpened fingers 48 to grasp the beet and convey it along the trough to the lower end of trough 26.

The diagonal bar or bars 20 are provided with bearings 49 for upright shafts 50, carrying at their lower ends horizontally-disposed disks 51, having sharp cutting edges disposed against each other, so as to effectually cut the tops from the beets. The shafts 50 are provided with intermeshing gears 52, and one of said shafts is provided near its upper end with a bevel-gear 53, meshing with a bevel-gear 54 on a transversely-disposed shaft 55, mounted in the movable frame and provided on one end with a sprocket-wheel 56, connected with a sprocket-wheel 57 on a shaft 28 by a sprocket-chain 58, so as to transmit motion to revolve the cutters 51.

The forward cross-bar 18 on the movable frame is provided with brackets 59, in which forked shafts 60 are supported, and said shafts carry upright sharpened disks 61 to cut off any outwardly-projecting portion of the beet-top which might otherwise entangle the cutters.

Cross-bars 62 and 63 are secured at their ends to the bars 7, one of which supports a seat 64 and the other a lever 65 in proximity to the seat, and said lever is connected to the movable frame by a link or chain 66. A segment 67 is provided on said bar 63, and the lever 65 is provided with a detent 68, adapted to engage the segment and lock the lever thereto and against movement.

The operation of our improvements is as follows: The machine is drawn along the ground by draft-animals, and the cutting-disks 61 will sever all branches of the top of the beet which project to one side and the cutters 51 will sever the remaining portion of the top from the beet. The forward end of the combined plow and trough 23 will engage the bottom portion of the beet, the ground around which being in the meantime loosened by the knives 22, and the beet will be forced up into the trough 23 and be engaged by one of the fingers 48 on the conveyer 47 and carried along the trough to the trough 26, into which it will drop by its own weight and be carried upward and to one side of the machine by the conveyer 37 and dropped into a wagon driven alongside the machine for the purpose. When the harvester is to be transported from place to place, the lever 65 is operated to raise the movable frame and parts carried thereby out of contact with the ground.

It will be seen that our improved machine tops the beets, removes them from the ground, and conveys the topped beets to a suitable discharge-point, thus resulting in an improved device far superior to anything of similar character heretofore known.

Various slight changes might be resorted to in the general form and arrangement of the several parts described without departing from the spirit and scope of our invention, and hence we would have it understood that we do not wish to limit ourselves to the precise details set forth, but consider ourselves at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of our invention.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a beet-harvester, the combination with a fixed frame and a vertically-movable frame, of arms depending from said movable frame, a trough provided at its forward end with a plow supported by said depending arms and a bar at the rear end of the fixed frame, on which the rear portion of said trough loosely rests.

2. In a beet-harvester, the combination with a fixed frame and a vertically-movable frame, of arms depending from the movable frame and having inwardly-projecting members at their lower ends, and a combined plow and trough supported at the plow end upon the inwardly-projecting members of the depending arms and loosely supported at its other end by the fixed frame.

3. In a beet-harvester, the combination with a fixed frame and a vertically-movable frame, of a plow supported by the movable frame, and knives projecting transversely under the plow rearwardly of the point.

4. In a beet-harvester, the combination with a frame, of a trough comprising two members, each member terminating at the forward end in a plow-point, means for loosely supporting the rear end of said trough in an elevated position and means for raising and lowering the forward plow end of the trough.

5. In a beet-harvester, the combination with a fixed frame mounted on wheels, of a frame pivotally connected at its forward end with the fixed frame, a plow, arms depending from the pivoted frame and supporting the plow, means carried by the same pivoted frame for topping the beets, and means for raising and lowering said frame to simultaneously raise and lower the plow and topping devices.

6. In a beet-harvester, the combination with a fixed frame and a frame pivotally connected with the fixed frame, of an inclined trough loosely supported at its rear end by the fixed frame, a plow at the forward end of said trough, means depending from the pivoted frame and supporting said plow, a sprocket-wheel mounted on the fixed frame, a sprocket-wheel mounted on the

pivoted frame, and a chain having fingers, passing over said sprocket-wheels and over said trough.

7. In a beet-harvester, the combination with a fixed frame mounted on wheels at its forward end and at a point between its ends, of a laterally and upwardly projecting conveyer supported by the rear end of the frame, an inclined trough loosely supported at its rear end in proximity to said conveyer and adapted to discharge thereinto, the forward end of said trough having plow-points, a vertically-movable frame, arms depending from the movable frame and supporting the forward end of the trough and plow-points, means for raising and lowering said vertically-movable frame, and means carried by the last-mentioned frame for topping the beets.

8. In a beet-harvester, the combination with a fixed frame, and vertically-movable frame, of two parallel vertically-disposed shafts mounted in the movable frame and geared together, one of said shafts disposed in a plane in advance of the other, horizontal cutters secured to the lower ends of said shafts, means for transmitting motion to one of said shafts, and a combined trough and plow disposed in rear of said shafts and supported at its rear end by the fixed frame and at its forward end by the movable frame.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

HARRY KEMP.
WILLIAM M. SCOTT.

Witnesses:
J. C. COOK,
FRANK DOLEZAL.