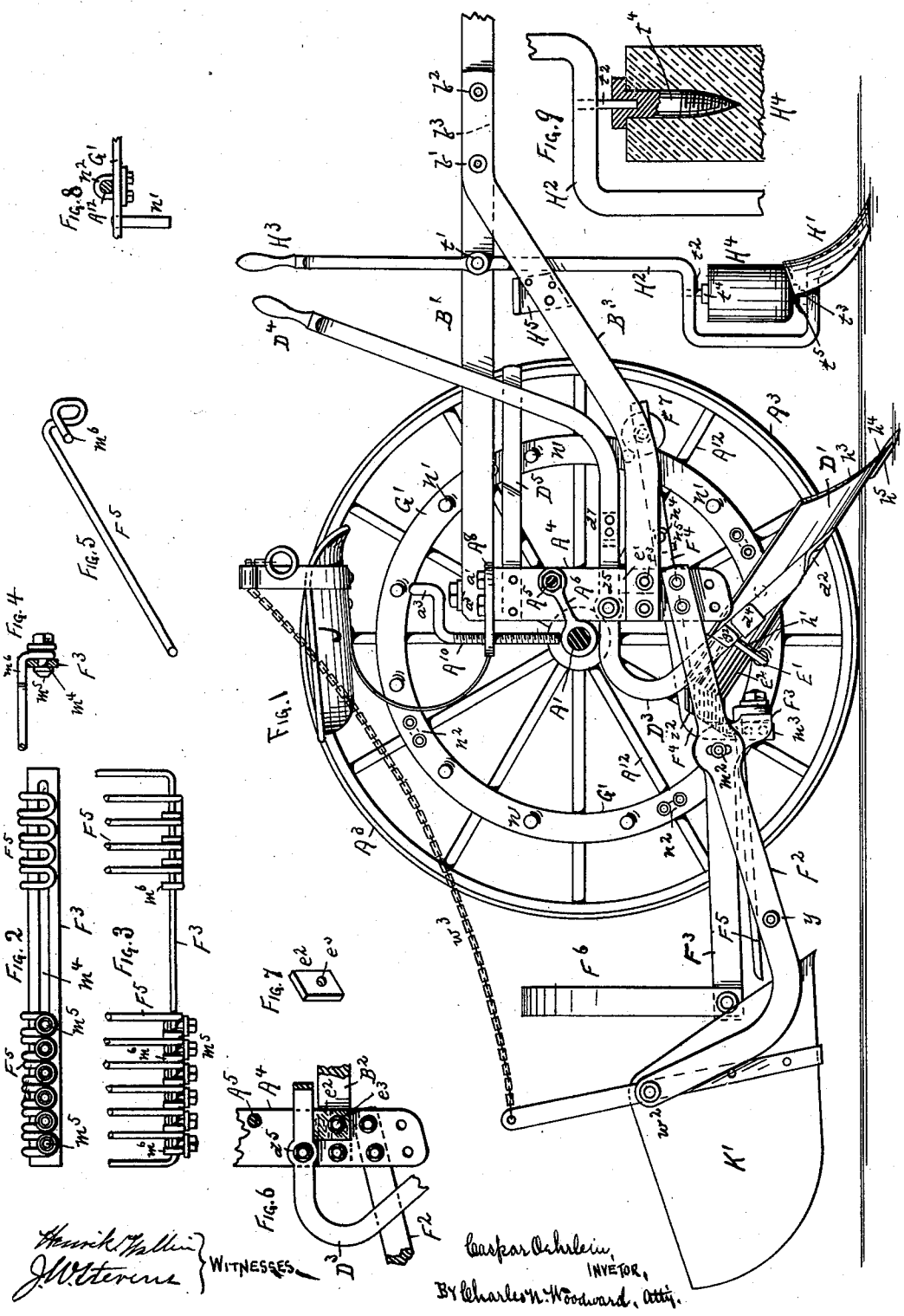
(No Model.)

2 Sheets—Sheet 1.

C. OEHRLEIN.

POTATO DIGGER.

No. 589,020. Patented Aug. 31, 1897.



Witnesses,
J. W. Stevens

Caspar Oehrlein,
Inventor,
By Charles N. Woodward, Atty.

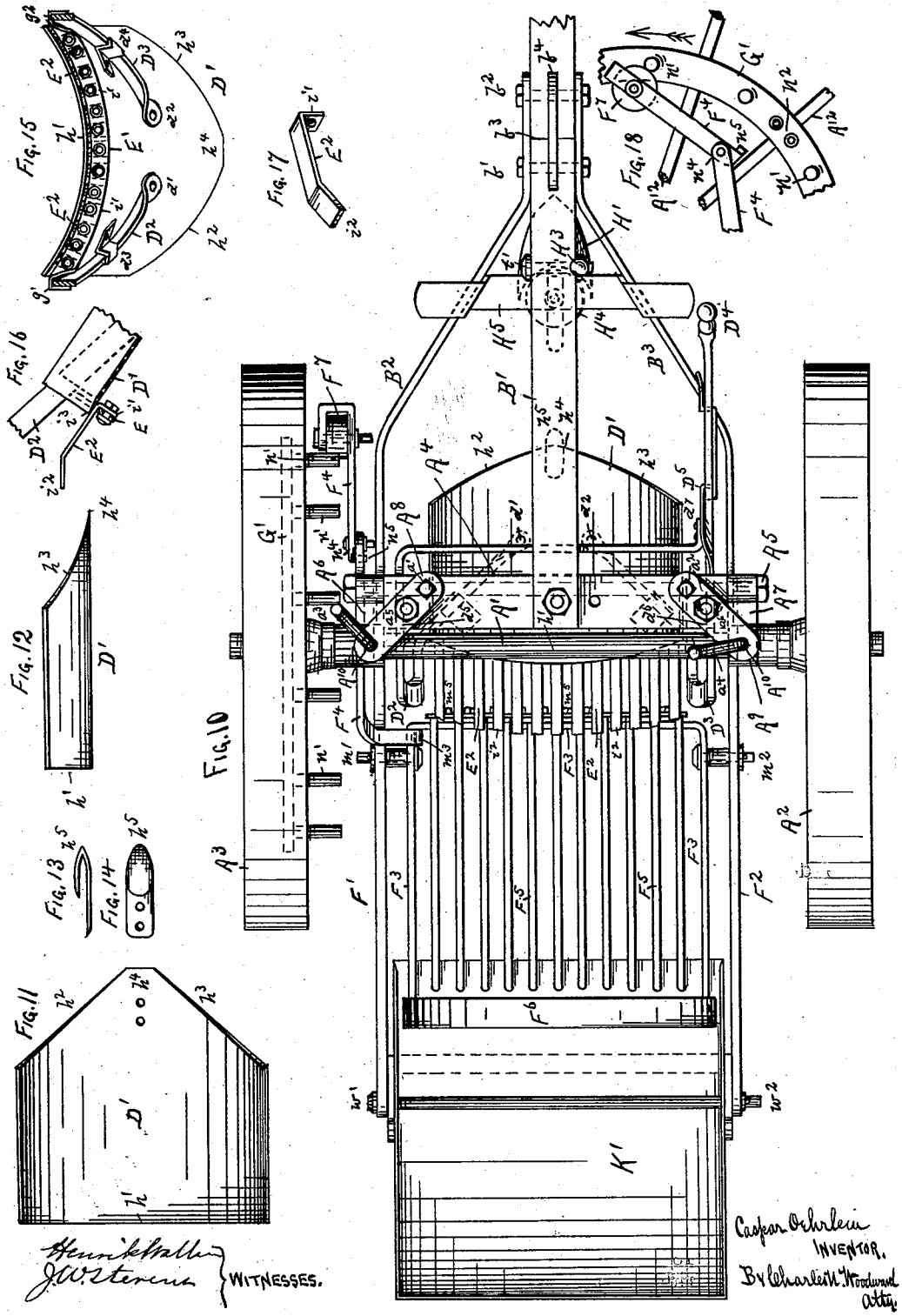
THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CASPAR OEHRLEIN, OF ST. PAUL, MINNESOTA.

POTATO-DIGGER.

SPECIFICATION forming part of Letters Patent No. 589,020, dated August 31, 1897.

Application filed June 27, 1896. Serial No. 597,247. (No model.)

To all whom it may concern:

Be it known that I, CASPAR OEHRLEIN, a citizen of the United States, residing at the city of St. Paul, in the county of Ramsey and State of Minnesota, have made certain new and useful Improvements in Potato-Diggers, of which the following is a specification.

This invention relates to potato-diggers; and it consists in the construction, combination, and arrangement of parts, as hereinafter described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a side elevation with one of the main bearing-wheels removed. Fig. 2 is a front elevation, Fig. 3 is a plan view, and Fig. 4 is a cross-sectional view, of the "head-plate" and portions of the riddle-fingers, illustrating the manner of forming them and securing them adjustably in place. Fig. 5 is a perspective view of one of the riddle-fingers detached. Fig. 6 is a sectional detail of a portion of the main arch-frame and a portion of one of the plow-beams, illustrating the manner of adjusting the same. Fig. 7 is a perspective view of the beam-adjusting stop-plate detached. Fig. 8 is a detached detail of the clamp for connecting the riddle-agitating pin-ring to the spokes of the traction-wheel. Fig. 9 is an enlarged sectional detail illustrating the manner of pivoting the vine-clearing roller. Fig. 10 is a plan view of the machine complete. Fig. 11 is a plan view of the moldboard of the plow detached, and Fig. 12 is a side view of the same. Fig. 13 is a side view, and Fig. 14 is a plan view, of the "wear" or "nose" plate of the moldboard detached. Fig. 15 is a rear view of the moldboard; and Fig. 16 is a sectional side elevation of a portion of the moldboard and the stationary fingers, illustrating the manner of connecting them to the moldboard. Fig. 17 is a perspective view of one of the stationary fingers detached. Fig. 18 is a detached detail of a portion of the riddle-actuating bar and a portion of the pin-ring, illustrating the construction more fully.

A' represents the main axle, upon the ends of which the bearing-wheels A^2 A^3 are mounted, as shown.

A^4 is the arch-frame, having a horizontal bar A^5 journaled through its upright legs.

A^6 A^7 are arms, each attached by one end to the ends of the bar A^5 outside the legs of the arch-frame and embracing the axle A' by their other ends, as shown, so that the axle is free to move to a limited extent about the bar A^5 as a center.

A^8 A^9 are two brackets attached by bolts a' a^2 to the top of the arch-frame A^4 and having screws A^{10} A^{11} tapped through their outer ends and resting by their lower ends upon the ends of the arms A^6 A^7 above the axle A', so that the axle is limited in its upward movement by the screws and may be adjusted higher or lower with relation to the arch-frame by turning the screws to the right or left, the latter having cranks a^3 a^4 on their upper ends to facilitate their turning.

The brackets A^8 A^9 are each free to turn about the bolts a' a^2 to enable the lower ends of the screws to be always kept above the center of the axle, and set-screws a^5 a^6 are arranged in the brackets, as shown, to enable the brackets to be "set" at any point desired and held fixed in that position.

B' is the tongue, attached to the center of the arch-frame and suitably supported by side braces B^2 B^3 from the legs of the arch-frame, the forward ends of the braces being connected to the tongue by bolts b' b^2.

The tongue B' is divided between the bolts b' b^2, as shown at b^3, so that the forward portion may be bent downward. The joint at this point is strengthened by a central plate b^4.

D' is the moldboard, which is of the hollow or "scoop" pattern and is provided with two beams D^2 D^3, riveted by their lower ends at d' d^2 to the moldboard and further secured by clamps d^3 d^4 and carried backward and outward, and then curved forward and pivotally connected at d^5 d^6 to the legs of the arch-frame A^4, so that the nose of the moldboard may be elevated or depressed by swinging the beams upon their pivots.

The beam D^3 is carried forward and upward in the form of a lever-arm and ends in a handle D^4, by which the moldboard may be actuated, a spring stop-bar D^5 being provided to support the handle in its forward or backward position, as desired, to hold the moldboard in its elevated or depressed position. The other beam D^2 is carried forward and

thence over to the other beam D^3, to which it is secured at d^7, the two beams being thus securely connected together, so that one lever-arm will actuate the moldboard.

The limit of the downward movement of the beams D^2 D^3 is governed by plates e' e^2 attached to the legs of the arch-frame A^4, preferably by the bolts which secure the braces B^2 B^3 to the arch-frame, as shown more clearly in Figs. 6 and 7. The plates e' e^2 are somewhat oblong and with the hole e^3, by which they are secured not central to the plate, so that by turning the plate to present their different sides upward to the beams the latter will be held higher or lower, according as the distance varies between the center of the hole e^3 and the edge of the plate next the beam. Thus by merely removing the nut from the bolt which holds the plate, removing the plate, and turning it around and replacing it the limit of the downward movement of the beams may be regulated.

The moldboard is formed from a sheet of steel, with a straight rear edge h', double-angled, and front edge h^2 h^3, and then curved, as shown in Figs. 11, 12, and 15. Upon the forward point h^4 is secured a nose or wear plate h^5 to receive the first pressure or wear, so that the main edges of the moldboard are protected. When the nose is worn out, it can be easily replaced and without throwing away the whole moldboard, which would result were there no such wear-plate. Supported by its ends g' g^2 upon the beams D^2 D^3, close beneath the rear upper edge of the moldboard D', is a bar E', curved to conform to the moldboard, as shown in Fig. 15.

E^2 are fingers attached by their ends i' to the rear of the bar E' and projecting rearward and bent downward at i^2, one of them being shown in Fig. 17 detached. The upper surfaces of the fingers come close beneath the bottom of the rear edge of the moldboard, which is cut away to a sharp edge at l^3, as shown in Fig. 16, so that smooth and even joints occur between the rear edge of the moldboard and the fingers where they pass beneath the moldboard to prevent any obstruction being formed at this point to retard the passage of the earth over the moldboard.

F' F^2 are two bars attached by their forward ends to the arch-frame A' and projecting backward and slightly downward at an angle, as shown.

F^3 is a U-shaped frame pivoted by its legs at m' m^2 to the side bars F' F^2 and with an arm F^4 attached near one end at m^3, as shown.

The forward member of the frame F^3 is formed with a slot m^4, as shown in Fig. 2, to enable riddle-fingers F^5 to be secured thereto by bolts m^5, as shown. These riddle-fingers are formed, as shown in Fig. 5, (which represents one of them detached,) with their fastened ends bent downward, thence off to one side, thence upward, and thence backward for a short distance parallel with the main body portion of the finger, as at m^6, so that one bolt m^5 will firmly secure each finger, the backwardly-projecting portion m^6 preventing any lateral movement while at the same time permitting the fingers to be readily adjusted to any extent. By means of the slot m^4 the fingers may be readily adjusted laterally to any extent. One or more of the fingers may be removed without interfering with any of the others, and the distance between them may be varied to any desired extent.

In Figs. 2 and 3 I have shown the frame F^3 with a number of the riddle-fingers removed and with those upon one side without the holding-nuts to illustrate the construction more fully.

The rear ends of frame F^3 are connected by a bow-frame F^6 to properly support them.

The arm F^4 is extended forward and with a roller F^7 journaled in its forward end, as shown, and adapted to be struck by pins n', projecting from a ring G' on the wheel A^3, the ring being connected to the spokes A^{12} of the wheel by clips n^2. (Shown more clearly in Fig. 8.) By this means when the wheel A^3 is revolved as the machine is drawn forward the pins n' striking the roller F^7 force the arm F^4 downward and tilt the frame F^3 upon its pins m' m^2 and throw the rear ends of the fingers F^5 upward, and then as the pin runs off from the roller the frame F^3 and its fingers drop by gravity, and so on, the continued action of the pins upon the roller causing the fingers to be rapidly agitated to sift the earth from the potatoes as they pass over from the moldboard. The fingers E^2 also aid in the separation of the potatoes from the earth.

A joint is formed in the arm F^4 at n^4, with a stop n^5, so that the arm will be rigid when moved downward by the pins striking the roller from above, but which will yield and bend upward if the motion of the wheel A^3 is reversed and the pins n' strike the roller from below in event of the machine being run backward. The construction of this joint is shown more clearly in Fig. 18.

H' is the furrow-opener, which is attached to a frame H^2, pivoted to the tongue at l' and extended into a lever-arm with a handle H^3, so that the furrow-opener may be turned upward beneath the tongue when not in use or when not required. Pivoted by its ends in an upright position in the frame H^2 is a roller or drum H^4, preferably of wood, to catch the vines and weeds as they run up over the moldboard of the furrow-opener and turn them to one side, so that they do not gather in a mass and obstruct the main moldboard.

The frame H^2 is formed, as shown, with a bend in it to receive the drum H^3 and with pins t^2 t^3 projecting down into the heads of lag-screws t^4 t^5, screwed into the centers of the ends of the drum, so that the drum will freely turn on its pins. Attached across beneath the braces, just in the rear of the frame H^2, is a bar H^5 to form a "stop" to the frame H^2 to limit the backward movement of the furrow-opener and keep it down to its work.

The ends of the stop-bar H^5 are extended, as shown in Fig. 10, to form steps to enable the operator to mount to his seat J.

The pins n' will be of steel, while the ring G' will be of iron, and the pins will be secured in place by driving them through holes in the iron ring, the holes being of the same size or slightly smaller than the pins, the contraction of the iron holding the pins firmly in place without further fastening.

K' is a "basket" or receptacle suspended from the upwardly-curving rear ends of the bars F' F^2 and with its front edge projecting beneath the rear ends of the riddle-fingers, so as to receive the potatoes as they pass from the riddle-fingers. This receptacle is suspended from two points only, $w' w^2$, so that it may be dumped when desired by a chain w^3, leading to a point convenient to the driver.

The bars F' F^2 will have stop-pins y to limit the downward movement of the frame F^3 and its attached riddle-fingers.

Having thus described my invention, what I claim as new is—

1. In a potato-digger, an arch-frame supporting the draft-tongue and with the bearing-wheels journaled to its depending ends, a concave moldboard having beams attached to its under side and curving upward and forward and pivotally connected to the depending portions of said arch-frame, an irregular block attached to said arch-frame beneath each of said beam members, whereby by turning said blocks said beam members may be adjusted to alter the draft of said moldboard, substantially as set forth.

2. In a potato-digger, the combination of an arch-frame, the axle and bearing-wheels supported from said arch-frame, a concave moldboard, beams attached to the under side of said moldboard and curving backward and upward and pivotally connected to said arch-frame, riddle-fingers connected to and projecting beyond the rear edge of said moldboard, side frames rigidly connected to the lower ends of said arch-frame and projecting backward beyond said moldboard, a U-frame pivoted by its bends to said side frames, a series of riddle-fingers connected to the transverse member of said U-frame, an arm extended from said U-frame, and means whereby said arm may be actuated by the revolution of the bearing-wheels to vibrate said U-frame and its attached riddle-fingers, substantially as set forth.

3. In a potato-digger, a framework mounted on wheels, a concave moldboard having beams attached to its under side and curving upward and forward and pivotally connected to said framework, fingers connected to and projecting beyond the rear edge of said moldboard, side frames secured to said wheel-frame and projecting backward therefrom, a U-frame pivotally connected to said side frames and having riddle-fingers connected by one end thereto, means for agitating said riddle-fingers as the machine is drawn forward, a receptacle pivotally suspended from the rear ends of said side frames and adapted to receive the potatoes passing over said riddle-fingers, and means for dumping said receptacle to discharge its load, substantially as set forth.

4. In a potato-digger, a standard pivoted to the tongue in advance of the moldboard, and with a furrow-opener attached to its lower end and with its upper end extended into a handle, a stop upon the tongue-frame to limit the backward movement of the standard, and a weed-roller pivoted into a recess in the standard above the furrow-opener, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CASPAR OEHRLEIN.

In presence of—
LEWIS D. MANN,
C. N. WOODWARD.