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GROUND WORKING MACHINE.

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1,054,659.

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Fig. 1.

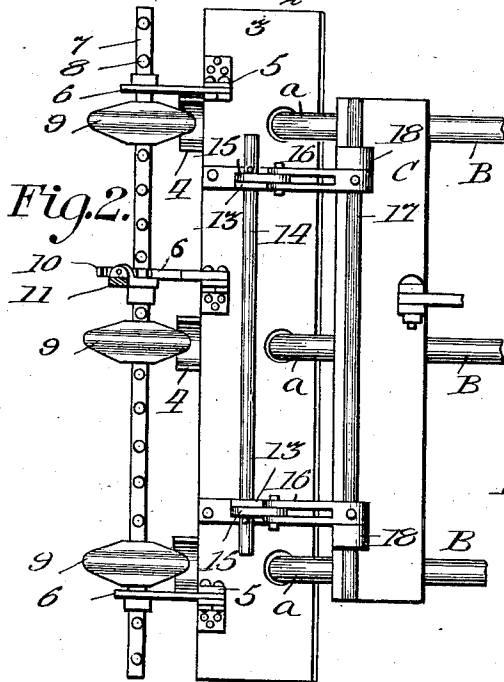
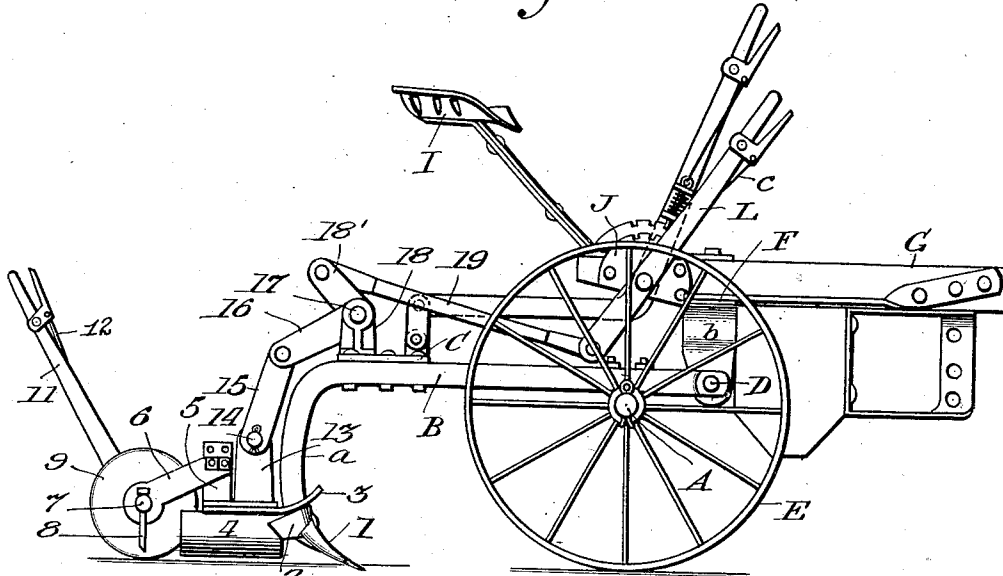


Fig. 2.

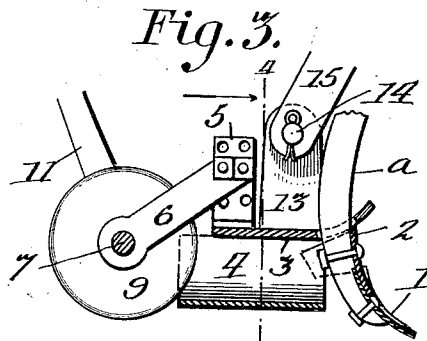
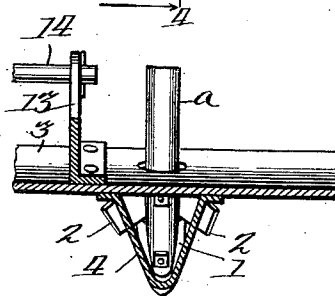


Fig. 3.

Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

BENJAMIN F. LUKE AND CHARLES L. ALLEN, OF ORANGEVILLE, UTAH; EMILY J. LUKE, E. H. SPARKS, JR., AND C. L. ALLEN ADMINISTRATORS OF SAID BENJAMIN F. LUKE, DECEASED; SAID ADMINISTRATORS (EXCEPT EMILY J. LUKE, DECEASED,) AND SAID CHARLES L. ALLEN ASSIGNORS TO UTAH PATENT & IMPLEMENT CO., OF SALT LAKE CITY, UTAH, A CORPORATION OF UTAH.

GROUND-WORKING MACHINE.

1,054,659.

Specification of Letters Patent.

Patented Feb. 25, 1913.

Original application filed August 17, 1910, Serial No. 577,543. Divided and this application filed March 9, 1911. Serial No. 613,257.

To all whom it may concern:

Be it known that we, BENJAMIN F. LUKE and CHARLES L. ALLEN, citizens of the United States, residing at Orangeville, in the county of Emery and State of Utah, have invented new and useful Improvements in Ground-Working Machines, of which the following is a specification.

Our invention has to do with ground-working machines, and consists in the peculiar and advantageous construction, novel combination and adaptation of parts hereinafter described and particularly pointed out in the claim appended.

In the drawings which are hereby made a part hereof: Figure 1 is a side elevation of so much of a ground-working machine as is necessary to illustrate our present invention. Fig. 2 is a detail plan of the same. Fig. 3 is a detail longitudinal-vertical section showing one of the furrow-formers and the parts adjacent thereto. Fig. 4 is a detail transverse section taken in the plane indicated by the line 4—4 of Fig. 3, looking forward.

Similar letters and numerals of reference designate corresponding parts in all of the views of the drawings.

The main frame of the machine comprises an axle A, three (more or less) longitudinal beams B fixed to the axle A and having shanks or depending portions *a* at their rear ends, a cross-bar C fixed on the beams B, adjacent the depending portions *a* thereof, and a cross-rod D connecting the forward portions of the beams B.

Loosely mounted on the ends of the axle A are ground wheels E, one only being shown, through the medium of which the described main frame is supported, while loosely mounted on the cross-rod D of said main frame are the supports *b* of a cross-bar F on which is fixed a tongue G in the manner fully disclosed in our contemporary application filed August 17, 1910, Serial Number 577,543, of which the present application is a division. On the rear portion of the tongue G is fixed a driver's seat I, and a segmental rack J, and fulcrumed at one side of the tongue is a hand lever L which carries

a detent *c* for cooperating with the rack J.

On the lower ends of the depending portions *a* of beams B pointed shovels 1 are fixed, and fixed to each of the portions *a*, at a point immediately above the shovel 1, thereon is a pair of rearwardly diverging blades 2. Movable bodily up and down on the said depending portions *a* of beams B is a lump-crushing and ground pulverizing and smoothing shoe 3, which is slightly convex at its underside, Figs. 1 and 3, and carried at the underside of the said shoe 3 are longitudinally-disposed furrow-formers 4, channel-form and preferably V-shape in cross section, which are open at their forward and rear ends. When the shoe 3 is lowered, each of the furrow-formers 4 assumes a position in rear of and in longitudinal alinement with one of the shovels 1, and with its forward end disposed between the blades 2 of the pair above said shovel 1, and then when the machine is drawn forward, the mentioned shovel 1, blades 2 and furrow-former 4 serve to produce a furrow designed to conduct and distribute water when the ground is irrigated.

Fixed on the shoe 3 are standards 5, and fixed to and extending rearward and downward from the said standards are arms 6 capable of vertical adjustment. These arms 6 carry a rock-shaft 7, equipped with harrow teeth 8, and on the said rock-shaft 7 are loosely mounted disks 9 which partly rest and are designed to turn in the rear ends of the furrow-formers 4, this with a view of preventing the harrow-teeth 8 or the plate 3 from filling up the furrows produced by the shovels 1, blades 2 and furrow-formers 4 in the manner before described. One of the arms 6 is provided with a segmental rack 10 that is fixed thereon, and to the rock-shaft 7 is fixed a hand-lever 11, equipped with a detent 12 for cooperating with said rack 10. When said lever 11 is thrown forward and secured in said position, the harrow-teeth 8 will be secured in a rearwardly extending and idle position, while when the lever 11 is adjusted and adjustably-fixed in a rearwardly-inclined position

sition, the harrow-teeth 8 will be secured in a depending and working position. In the latter position, the said teeth 8 serve to pulverize the ground and loosen the surface thereof after the shoe 3 has passed over the ground.

The shoe 3 is provided with uprights 13 in which is arranged a transverse rod 14. This transverse rod 14 is connected through links 15 with crank-arms 16 on a rock-shaft 17 that is journaled in standards 18 on the cross-bar C of the main frame. The rock-shaft 17, in turn, is provided with a third crank arm 18' that is connected through a rod 19 with the lower arm of the hand lever L. From this it follows that when the upper arm of the lever L is thrown toward the rear, the shoe 3 and the parts carried thereby will be raised to an idle position, while when the upper arm of lever L is thrown forward the shoe 3 and the parts carried by said shoe will be moved down to their working position. It will also be understood that by putting the detent of the lever L in engagement with the adjacent rack J on tongue G, the shoe 3 and the parts carried thereby may be secured in the lower and upper positions.

In practice, when the machine is drawn forward, the ground will be crushed, leveled and pulverized by the shoe 3 and then further pulverized and loosened by the teeth 8.

It will also be understood that during the described operation of the shoe 3, the shovels 1, blades 2 and furrow-formers 4 will produce furrows or laterals for the distribution of water.

The machine may also be used to advantage in the cultivation of alfalfa.

While we have shown and described one form of our invention, it is to be understood that we are not limited to the details or the form or relative arrangement of parts disclosed, but that extensive modifications may be made therein, without departing from the spirit thereof.

Having described our invention, what we claim and desire to secure by Letters-Patent, is:

In a machine for the purpose described, the combination of wheel-supported longitudinal bars having depending rear portions, shovels carried at the lower ends of said portions, a shoe movable vertically on the portions, and means for adjustably fixing said shoe.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

BENJAMIN F. LUKE.
CHARLES L. ALLEN.

Witnesses:

A. G. JEWKES, Jr.,
J. F. KILLIAN.