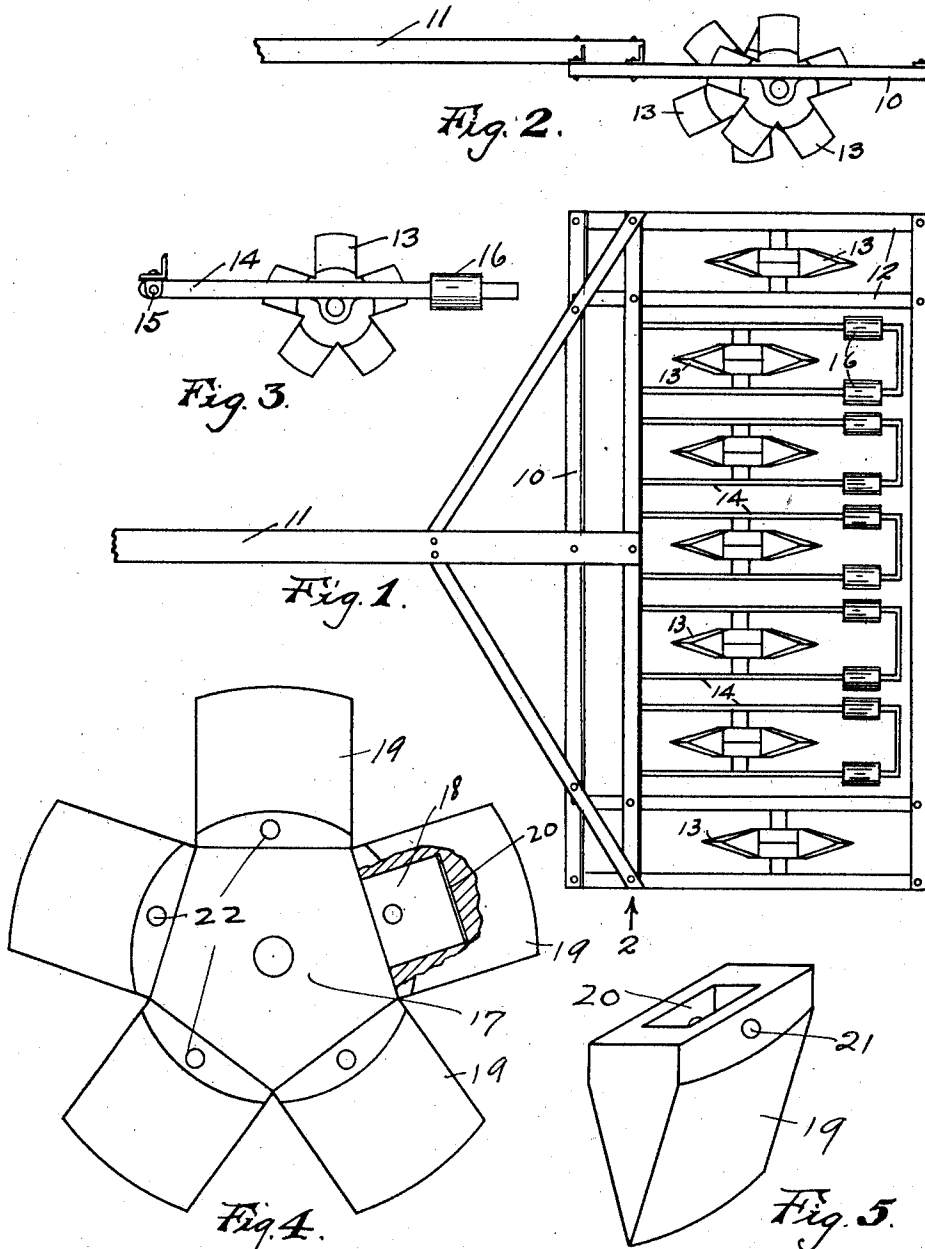


J. A. MAGILL.
MACHINE FOR PUNCHING HOLES IN THE GROUND FOR THE PURPOSE OF IRRIGATION.
APPLICATION FILED DEC. 28, 1910.

1,044,404.

Patented Nov. 12, 1912.
2 SHEETS—SHEET 1.



WITNESSES
Nannie Meem.
L. Morril

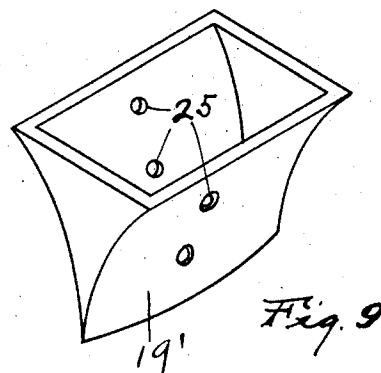
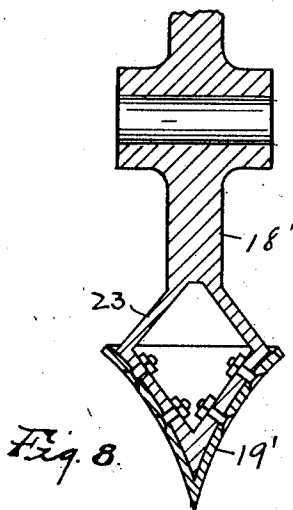
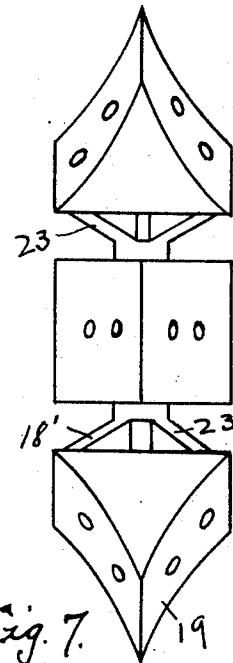
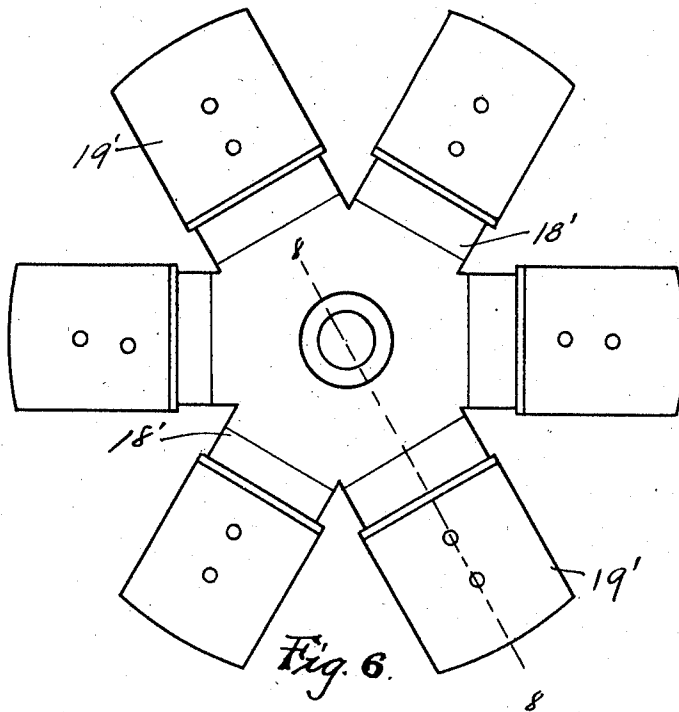
INVENTOR.
Joseph A. Magill.
BY *Masan Januwa Lawrence*
ATTORNEYS.

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L. Morrill

INVENTOR
Joseph A. Magill
BY *Masamune & Laurina*
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOSEPH A. MAGILL, OF GOVAN, WASHINGTON.

MACHINE FOR PUNCHING HOLES IN THE GROUND FOR THE PURPOSE OF IRRIGATION.

1,044,404.

Specification of Letters Patent.

Patented Nov. 12, 1912.

Application filed December 28, 1910. Serial No. 599,739.

To all whom it may concern:

Be it known that I, JOSEPH A. MAGILL, a citizen of the United States, residing at Govan, in the county of Lincoln and State of Washington, have invented certain new and useful Improvements in Machines for Punching Holes in the Ground for the Purpose of Irrigation; and I 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.

This invention relates to land tilling devices and has for an object to provide a device adapted to puncture the surface of the land with depressions and openings adapted to receive and retain moisture.

A further object of the invention is to provide a device adapted to be moved over the surface of the land and embodying a plurality of devices for puncturing the surface of the land with cups or receiving depressions for preventing the too ready escape of surface water.

A further object of the invention is to provide a mechanism consisting of a plurality of star wheels having penetrating removable bits and with means for regulating the pressure upon such wheels.

With these and other objects in view the invention comprises certain novel constructions, combinations and arrangements of parts as will be hereinafter more fully described and claimed.

In the drawings: Figure 1, is a top plan view of the improved improvement. Fig. 2, is a view of the improvement in end elevation as indicated by arrow 2 at Fig. 1. Fig. 3, is a view of the means for regulating the pressure upon the penetrating points. Fig. 4, is a view in elevation of one of the star wheels with parts broken away. Fig. 5, is a perspective view of one of the bits. Fig. 6, is a view in elevation of one of the star wheels with a different form of bit. Fig. 7, is a view in edge elevation of the embodiment of the star wheel shown at Fig. 6. Fig. 8, is a view in section of the star wheel shown and taken on line 8—8 of Fig. 6. Fig. 9, is a view in perspective of one of the bits removed.

Like characters of reference designate corresponding parts throughout the several views.

A frame 10 is provided of any approved

length and other dimensions and provided with a tongue or pole 11 by which draft is applied. The frame 10 is provided with a plurality of strips 12 adjacent the ends of such frame between which are journaled star wheels shown as a whole at 13 upon a rigid axle. Between the inner strips 12 a plurality of bars 14 are mounted pivoted as at 15 and carrying sliding weights 16. Between such bars 14 other star wheels 13 are journaled the action being that the star wheels pivoted between such bars may rise and fall as the unevenness of the soil requires and the weight exerted upon each of the star wheels may be varied by moving the weights 16 nearer to or farther from their pivots.

The star wheels as shown at Fig. 4 comprise a hub 17 having integral studs or short spokes extending radially therefrom with bits 19 each provided with a socket 20 proportioned to receive the stud 18 and with a hole 21 adapted to receive a bolt or rivet 22 by which the bit is maintained in position upon the spoke 18.

Instead of constructing the star wheel as shown at Figs. 4 and 5 the spokes 18' may be made longer as shown at Figs. 6, 7 and 8 and terminate in an expanded or lozenge shaped portion 23 to receive the bit 19' shown in perspective at Fig. 9 to which it is secured by means of bolts 24 inserted through holes 25 in the sides of such bits.

Whatever the specific construction of the star wheels the frame and mounting is the same as shown at Figs. 1, 2, and 3 and the device is drawn over the surface of the ground which results in puncturing the surface with a great number of V-shaped openings or depressions.

In the case of irrigated land or land which receives surface water from any source the puncturing of the surface is found of very great assistance for retaining the water and also as forming an opening to the soil which permits the ready absorption of the water by the soil.

I claim:

1. In a device of the class described, a frame, star wheels journaled adjacent opposite ends of the frame, auxiliary frames having their forward ends pivoted to the frame intermediate the star wheels and other star wheels journaled in the auxiliary frames.

2. In a device of the class described, a frame, wheels journaled in the opposite ends of the frame and provided about their peripheries with spade points in alinement
5 with the circumference of the wheels, auxiliary frames having their forward ends pivoted to the forward part of the frame intermediate the supporting wheels, and other wheels pivoted to the auxiliary frames

having similar spade points similarly arranged. 10

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

JOSEPH A. MAGILL.

Witnesses:

H. E. SMITH,
V. A. BECHT.

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