2 Sheets—Sheet 1.

F. PLUMB.

Ditching-Machine.

No. 219,515. Patented Sept. 9, 1879.

Fig. 1.

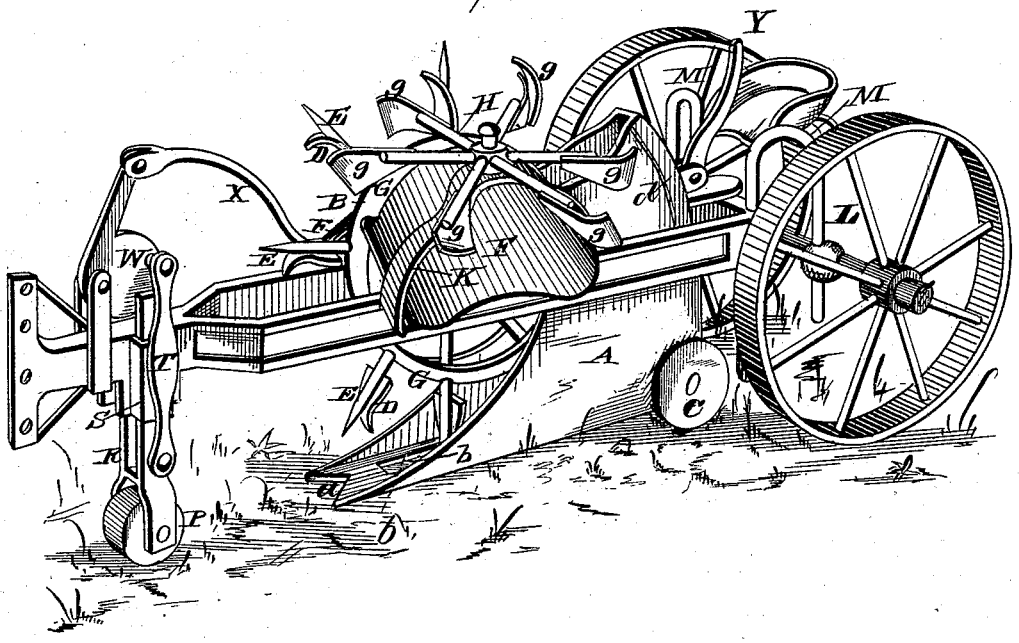
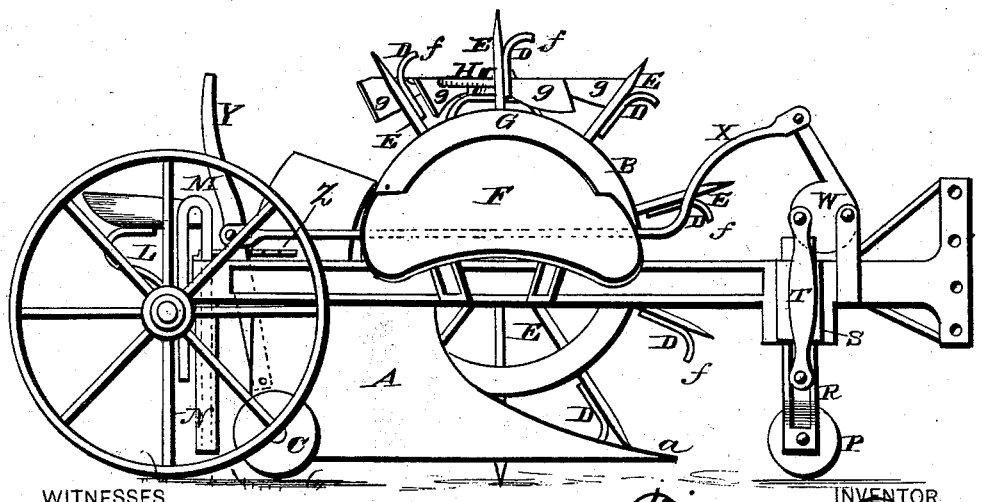


Fig. 2.



WITNESSES

E. J. Nottingham

D. P. Cowl

INVENTOR

Fawcett Plumb

By H. A. Seymour

ATTORNEY

2 Sheets—Sheet 2.

F. PLUMB.

Ditching-Machine.

No. 219,515. Patented Sept. 9, 1879.

Fig. 3.

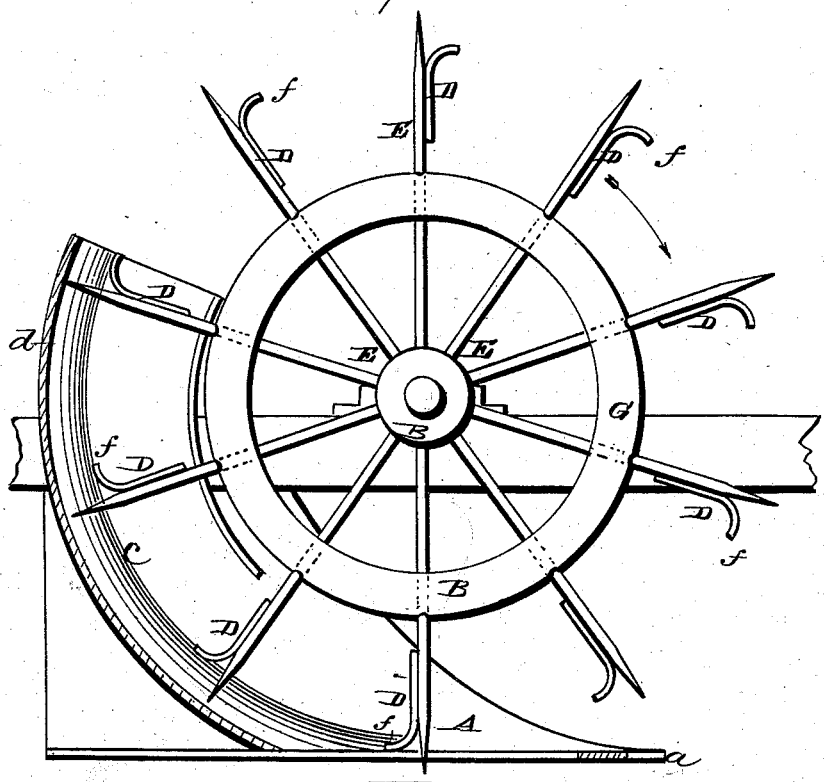
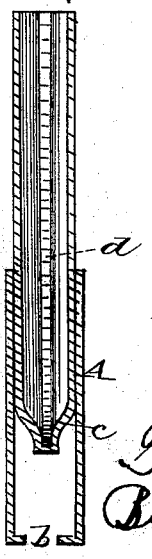


Fig. 4.



WITNESSES

C. L. Nottingham

A. P. Cowl

INVENTOR

Dawsett Plumb

By H. A. Seymour

ATTORNEY

UNITED STATES PATENT OFFICE.

FAWCETT PLUMB, OF STREATOR, ILLINOIS.

IMPROVEMENT IN DITCHING-MACHINES.

Specification forming part of Letters Patent No. **219,515**, dated September 9, 1879; application filed April 25, 1879.

To all whom it may concern:

Be it known that I, FAWCETT PLUMB, of Streator, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Ditching-Machines; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to ditching-machines; and consists in the construction hereinafter described and claimed.

Referring to the drawings, Figure 1 is a view, in perspective, of the machine. Fig. 2 is a view, in elevation, of the side not shown in the preceding view. Fig. 3 is a detail view, showing the interior of the double plow, as the same forms a conductor, within which the excavated dirt is carried upward to be discharged. Fig. 4 is a cross-section of the plow and mold-board, showing the groove at the rear.

The double plow A is formed with the double working-point *a*, made in V shape, which gives strength, and also adapts the point to cut off roots and other matter which would be liable to clog the plow farther back on the same. A longitudinal opening, *b*, is made in the bottom of the plow, through which the ends of the spokes of the wheel B project, to engage with the ground, and thereby automatically rotate said wheel by the travel of the machine. Two rotary cutters or circular colters, C, are journaled, respectively, on both sides of the double heel of the plow, and serve to cut down the sides of the ditch preparatory to further excavation, and also to reduce the friction at the bottom of the plow.

The double mold-board of the plow extends upward at its rear, to provide a conductor for the excavated dirt, the same being provided with the vertically-curved interior lateral projections, *c*, formed thereon to prevent the dirt from falling off the shovels and returning to the ditch. A vertically-curved groove, *d*, is formed in the extreme rear portion of this double plow, in which the ends of the shovel-spokes E fit and have free movement. The shovels have angular ends *f*, which serve to take up the dirt from the ditch and carry same upon said shovels until the dirt is discharged therefrom onto the two oppositely-inclined chutes F, from which latter it falls to both sides of the ditch, conveniently at hand for use in filling up the latter after the tile has been laid.

The annular rim G, which is secured to the spokes of the wheel just within the circular plane at which the shovels are secured to the spokes, is adapted to fit over the opening formed between the two inclined chutes, and thereby prevent the dirt from returning to the ditch after being discharged from the shovels. The form of this ring in transverse section is V-shaped, so that it fits closely over the contiguous portions of said chutes and corresponds with their inclination.

A horizontal rotary scraper, H, is pivoted on the arch-standard K, which latter is secured to one of the chutes. The radial arms of this scraper are respectively provided with the angular blades *g*, adapted to clean from the shovels whatever dirt may have a tendency to cling thereto. This scraper is rotated by the engagement of the blades with the shovels, so as to be operated automatically during the working of the machine.

The sulky attachment L prevents the machine from tipping over, and is so connected with the latter as to permit its wheels to run on the surface-ground, while the working parts of the machine have independent movement, to rise and fall as may be necessary.

Two standards, *m*, made in inverted U form, have their rear arms secured to the sulky-axle, one on each side of the sulky-seat. The forward arms of said standard work loosely in vertical sleeves N, secured to the rear end of the plow-frame. The plow-frame is thereby permitted to rise and fall, corresponding to the inequalities of the ground, without reference to and independent of the movement of the sulky; but the latter prevents any lateral tipping of the plow-frame, and maintains the latter in operative upright position.

The forward wheel, P, is adapted to grade the ditch and regulate the depth of cutting. The double standard R, to which it is secured, has free vertical movement in the sleeves S formed on the plow-beam. Vertical links T

connect the lower portions of said double standard with the lever M, which is pivoted to the plow-beam.

A horizontal connecting-rod, X, extends rearward, and is fastened to hand-lever Y, which latter is adapted to be maintained in desired position by the notched plate Z.

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

1. In a ditching-machine, the combination, with the double plow, whose bottom is made with the longitudinal opening, of the wheel, whose spokes are provided with shovels, the ends of said spokes projecting through said plow-opening and engaging with the ground to rotate said wheel, substantially as set forth.

2. The combination, with the double plow, having the united double point made in V form, and whose bottom is longitudinally slotted, while its mold boards extend rearward and upward in vertical planes, of the shovel-wheel, whose spoke ends work in said slotted bottom, and the rotary cutters journaled to the lower rear portion of said mold-boards, substantially as set forth.

3. The combination, with the wheel, whose spokes carry angular shovels secured thereto, so that the spoke ends project beyond said shovels, of the double plow, whose mold-boards have lateral inward projections, which prevent the dirt from falling off the shovels, and are, further, formed with the rear vertically-curved groove, in which said projecting spoke ends fit, substantially as set forth.

4. The combination, with the wheel-spokes, carrying the independent angular shovels, having the described curved extremities, of the annular rim, having holes, through which said spokes project, said rim being V shape in cross-section, and fitting down on the chutes over their joint-openings, substantially as set forth.

5. The combination, with the plow-frame and the sulky attachment, of the two standards made in inverted U shape and located on opposite sides of the sulky-seat, the rear arms of said standards being secured to the sulky-axle and the forward arms having free sliding movement in vertical sleeves secured to the rear end of said plow-frame, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of April, 1879.

FAWCETT PLUMB.

Witnesses:
JAY BAKER,
NELSON PLUMB.