(No Model.)

F. PLUMB & S. WISE.

DITCHING MACHINE.

No. 341,941. Patented May 18, 1886.

FIG. 1.

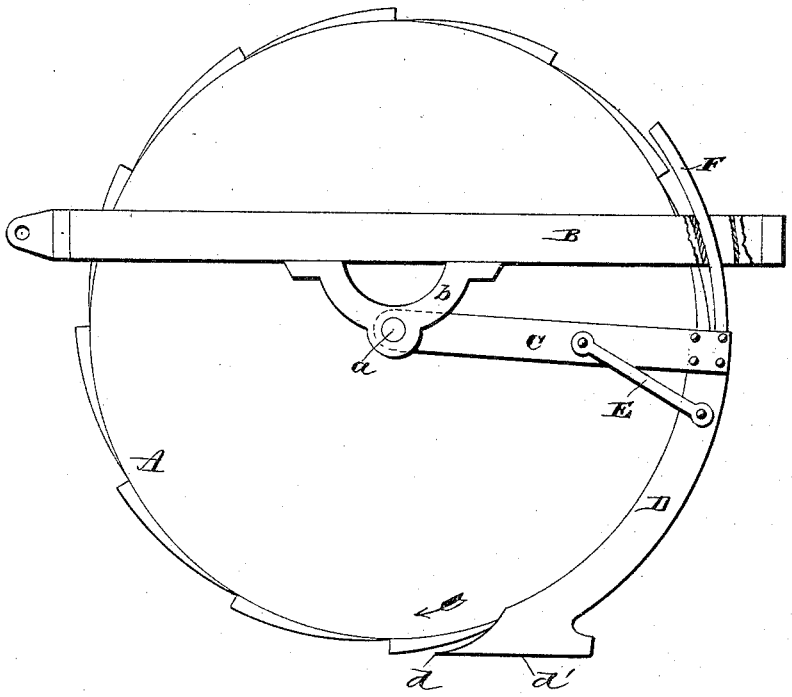

FIG. 2.

WITNESSES

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FAWCETT PLUMB, OF STREATOR, AND SOLOMON WISE, OF PRAIRIE HOME, ILLINOIS; SAID WISE ASSIGNOR TO SAID PLUMB.

DITCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 341,941, dated May 18, 1886.

Application filed September 15, 1885. Serial No. 177,178. (No model.)

To all whom it may concern:

Be it known that we, FAWCETT PLUMB and SOLOMON WISE, of Streator and Prairie Home, in the counties of La Salle and Shelby, respectively, and State of Illinois, have invented certain new and useful Improvements in Ditching-Machines; 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 ditching-machines, and more particularly to that class of ditching-machines in which a cutting and excavating wheel is employed. As the cutting and excavating wheel advances through the soil lumps of loose earth, stones, &c., are liable to fall into the ditch in the rear of the cutting-wheel, rendering the ditch unfit to receive the tile or partially destroying its effectiveness in carrying off water.

To clear the ditch of the loose earth, stones, &c., it has been customary to employ a depending curved arm rigidly secured to the frame of the ditcher and adapted to push the loose dirt and stones forwardly into engagement with the cutting and excavating buckets. The objection to this construction of ditch-cleaner has been that its position in the ditch was governed entirely by the position of the frame relatively to the wheel, and when the frame was ever so little tilted the cleaner would cut into the hard soil at the bottom of the ditch or run more or less above the bottom, in either case leaving an uneven grade, and often adding materially to the draft.

The object of our present invention is to provide a scraper or ditch-cleaner which shall automatically adjust itself to the bottom of the ditch regardless of the position of the frame, and which will run constantly on the bottom and thoroughly clean the ditch.

A further object is to provide a scraper or ditch-cleaner which shall constantly run on the bottom of the ditch cut by the wheel, and which shall at the same time shape the ditch to fit the tile which it is desired to use.

With these ends in view our invention consists in a curved arm secured to the ditching-machine in a freely-swinging adjustment and adapted to push the loose earth, stones, &c., forwardly into engagement with the excavating-wheel.

Our invention further consists in a curved ditch-cleaning arm secured to the ditching-machine in a freely-swinging adjustment and provided with a circular V-shaped or other shaped point to correspond with the shape of the tile to be used.

Our invention further consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of the ditch-cleaner attached to a ditching-machine in position for use, and Fig. 2 is a detached view of the ditch-cleaner provided with V-shaped point.

A represents the cutting and excavating wheel of a ditching-machine. The wheel A is journaled in suitable bearings, *b*, attached to the main frame B.

a is the axle of the wheel A. The branches of a rearwardly-extending yoke, C, are loosely mounted on the axle *a* of the wheel A, one on each side of the wheel, and have the upper end of the scraper or ditch-cleaner D rigidly secured to their rear ends in close proximity to the cutters on the periphery of the wheel. The scraper or ditch-cleaner D extends downwardly, conforming nearly or quite to the curve of the wheel, and terminates in a point, *d*, having a flat under surface, *d'*, adapted to rest on the bottom of the ditch cut by the wheel and to slide along on the bottom without any tendency to dig or rise. The cross-section of the point, as represented in the accompanying drawings, is V-shaped and intended to prepare the ditch to receive a tile of similar shape in cross-section. The front face of the scraper is flat, or it may be slightly concave, and is adapted to gather the loose dirt which falls from the side of the ditch as the wheel advances and slide the same downwardly in a position to be taken up by the excavating-buckets on the cutting-wheel, which latter revolves in the direction of the arrow. A strengthening brace or braces, E, connect the shanks of the scraper D with one or both of the branches of the yoke C. A curved guide-arm, F, extends from the upper end of the scraper D upwardly through a slot, *f*,

(shown in dotted lines,) in the main frame, and serves to prevent the scraper from lateral displacement. The scraper is thus free to swing in a vertical plane, and readily adjusts itself to the bottom of the ditch as cut by the wheel A, riding smoothly along thereon, and having no tendency to dig or rise as the main frame is tilted. The result is, a ditch the bottom of which is on a perfect grade, and, whether for the introduction of tiles or not, allows the water to flow freely therein.

The simplicity of the construction and its adaptability to the many forms of wheeled ditchers in common use render it of great practical value.

It is evident that slight changes might be resorted to in the form and arrangement of the parts described without departing from the spirit and scope of our invention; hence we do not wish to limit ourselves strictly to the construction herein set forth; but,

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

1. The combination, with the cutting and excavating wheel, adapted to rotate in the direction indicated, and supporting-frame of a ditching-machine, of a bent arm located behind the wheel and secured to the ditching-machine in a free vertically-swinging adjustment, and adapted to force the loose earth, stones, &c., forwardly into engagement with the excavating-wheel, substantially as set forth.

2. The combination, with the cutting and excavating wheel, adapted to rotate in the direction indicated, and supporting-frame of a ditching-machine, of a scraper or ditch-cleaner located behind the wheel, secured to the ditching-machine in free swinging adjustment, and provided with a point adapted to open the ditch the required shape to fit the tile to be placed therein, substantially as set forth.

3. The combination, with the cutting and excavating wheel, adapted to rotate in the direction indicated, and the supporting-frame, of a scraper or ditch-cleaner located behind the wheel and pivotally secured on the axle of the cutting-wheel in a free vertically-swinging adjustment, and provided with a point adapted to open the ditch the required shape to fit the tile to be placed therein, substantially as set forth.

4. The combination, with the cutting and excavating wheel and the supporting-frame, of a scraper or ditch-cleaner secured on the axle of the cutting-wheel in a free vertically-swinging adjustment, and provided with a guide-arm extending through a slot in the main frame to prevent displacement of the cleaner, substantially as set forth.

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

FAWCETT PLUMB.
SOLOMON WISE.

Witnesses:
GEORGE GOULDING,
JOHN E. WILLIAMS,
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DAVID R. COULTER.