J. W. FAUVER.

Ditching-Machines.

No. 142,222. Patented August 26, 1873.

Fig. 1.

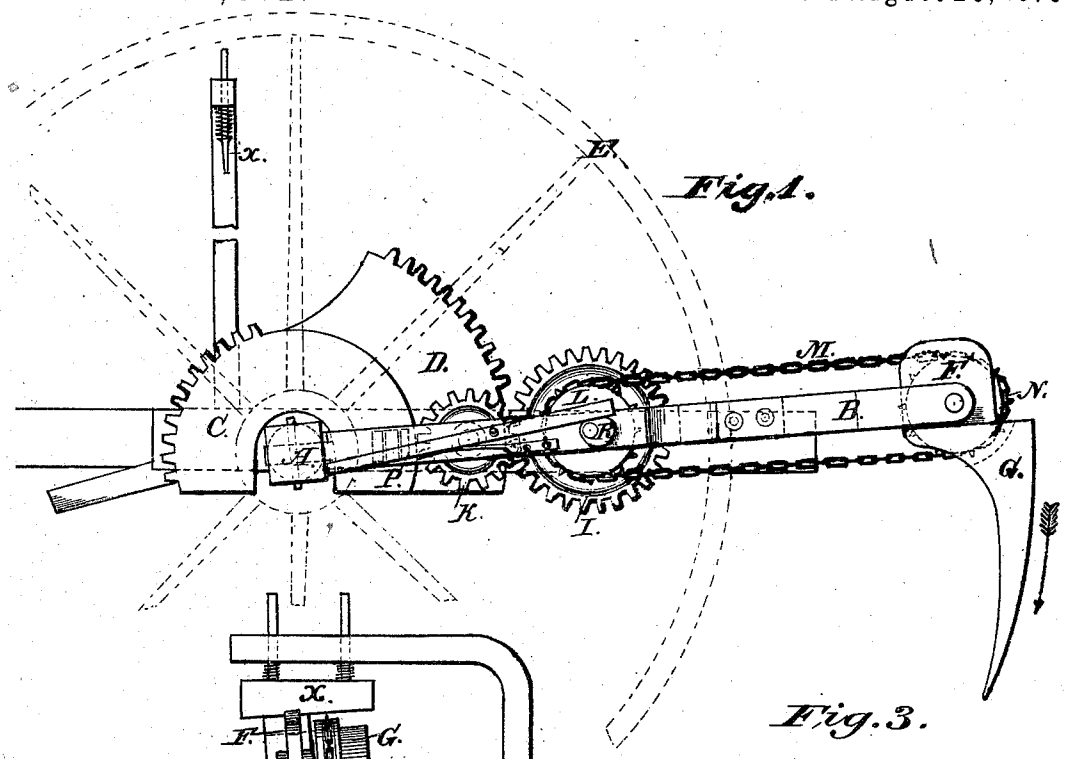

Fig. 2.

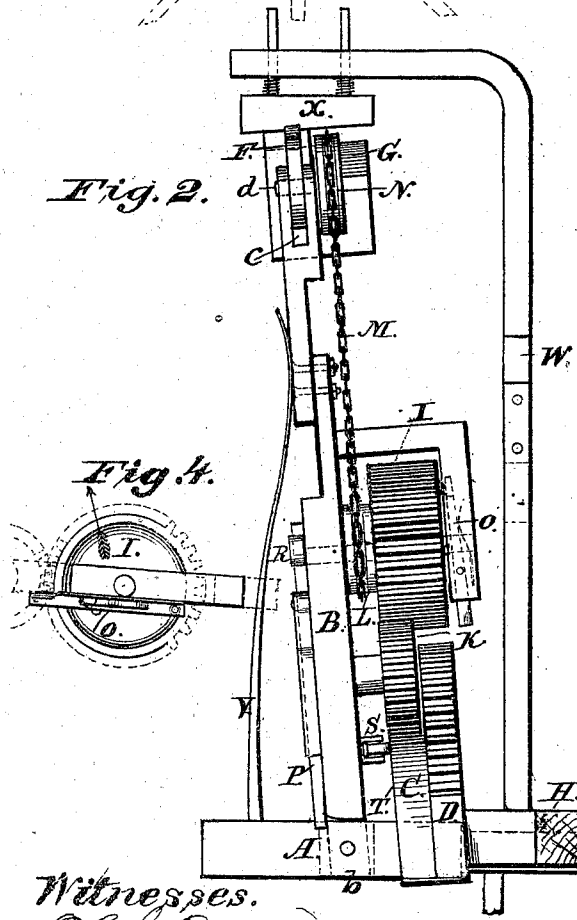

Fig. 3.

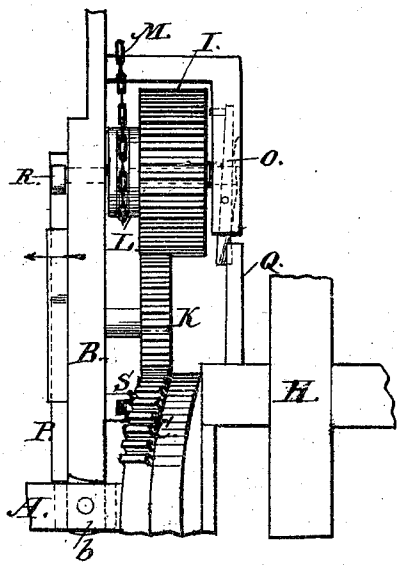

Fig. 4.

Witnesses.

H. L. Perine

M. A. Parks

Inventor:

John W. Fauver

C. M. Parks

Atty.

UNITED STATES PATENT OFFICE.

JOHN W. FAUVER, OF AUGUSTA COUNTY, VIRGINIA.

IMPROVEMENT IN DITCHING-MACHINES.

Specification forming part of Letters Patent No. 142,222, dated August 26, 1873; application filed June 27, 1873.

To all whom it may concern:

Be it known that I, JOHN W. FAUVER, of Augusta county, Virginia, have invented an Improvement in a Ditching-Machine; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a side view; Fig. 2, an end view; Figs. 3 and 4, detailed views.

My invention relates to that class of ditching-machines in which a spade is attached to the rotating axle of a carriage by means of a long arm, and at each revolution of the said axle the spade swings around and cuts a slice of earth from the ditch at the side of the carriage. My invention consists of one or more reversible spades located in the end of an arm projecting from the shaft of the driving-wheel of a carriage, said spade being reversed for the purpose of throwing the mud it contains back out of the way, and also to put it in position for being cleaned by a scraper. My invention also consists in applying to said ditching-machine a means of throwing the spade and its operating mechanism over outside of the line of the ditch, in order to throw the mud and earth in the rear of the machine, and yet not back into the ditch, but upon the ground on the opposite side of the ditch from where the carriage is located.

A represents the driving-axle, upon the outer end of which the spade-arm B is attached by a hinged connection, *b*. The shaft passes under the cams C and D, and is attached at the other end to the driving-wheel E, which may be geared, as desired, to increase or diminish the speed. Upon the outer end of the spade-arm is attached, by means of the slot *c* and shaft *d*, the spade-shank F, by which the spade is made to oscillate forward and backward, which will be more fully described hereafter. The spade G is constructed of solid metal, terminating in a sharp edge, and said edge may be made of any shape desired to adapt it to the material to be operated upon. Upon the frame H, which supports the driving-shaft, is rigidly placed two or more cams, C and D, with cogs constructed upon their peripheries, as shown; and upon the spade-arm are several loose cog-wheels, I and K, which are arranged to engage the cogs on the cams. The cog-wheel I is a broad wheel, the width of the sum of the thickness of the cams C and D, and upon its shaft is placed a pulley, L, over which a chain-belt, M, passes, and upon the end of the shaft to which the shovel-shank is attached is another pulley, N, over which said chain-belt also passes. Below said broad cog-wheel I, and arranged to engage the cogs on the cam C, is a small loose cog-wheel, which, by also engaging the cogs on the cog-wheel I, reverses its motion.

The operation of my ditching-machine is as follows: Power being applied to the driving-shaft A by drawing the carriage forward, the spade-arm is made to move forward, carrying the spade with its edge forward, which spade is secured in this position by a stop-catch, O, upon the side of the frame engaging a notch inside of the broad cog-wheel I, and preventing its revolution. While this catch is in this position the spade-edge is in position to enter the earth. The lower end of spring-catch P upon the outside of the spade-arm also rests against the upper face of the driving-shaft to prevent the hinged spade-arm from moving outward, which may be seen at Fig. 3. The spade then enters the earth, being gaged to a proper depth by any of the known means of lengthening or shortening the spade-arm, one of which means is shown in the drawings. The spade, on emerging from the ground filled with earth, is released from its rigidity by a stop, Q, on the frame, which releases the spring-catch O from its notch in the broad cog-wheel I. The cogs of the small cog-wheel K immediately engage the cogs on the cam C, which, through the wheel I, chain-band M, and pulleys L and N, throw the spade backward to disengage the earth from it. The spring-catch P is disengaged by means of a small cam, R, attached to the shaft of the cog-wheel I, thus allowing the spade-arm to be forced out laterally, in order to throw the dirt beyond the line of the ditch and behind the machine by means of an arm, S, upon the spade-arm, which travels over the inclined surface T of the side of the cam C, an anti-friction wheel being placed upon the end of said arm S. A spring, V, acting against the outside of the spade-arm keeps the parts in gear. As the spade-arm

passes forward the cogs of the broad wheel I engage the cogs on the cam D, and, by means of the chain-band and pulleys, the spade is again brought forward, and the catches brought into place, and the whole again prepared for another passage into the earth. Upon the frame H is placed another frame, W, which extends above the spade when it is in its highest position. Upon this second frame is placed over the spade a steel blade, X, which, by means of a spring, is made to pass over the face of the spade, and any earth which may remain in the spade is scraped out, and the spade cleaned for its entrance into the earth.

A different means may be used to remove the earth from the spade while it is in its reversed position, which may be operated by additional cams and pulleys; but this we do not claim in this application.

Diggers may be geared to this apparatus to go in advance of the ditching-machine to loosen hard earth.

What I do claim, and desire to secure by Letters Patent, is—

1. The combination of the hinged spade-arm B, spring V, arm S, and inclined surface T of the cam C, substantially as and for the purpose set forth.

2. The combination of the oscillating spade G, cams C and D, pulleys L and N, chain-band M, and wheels I and K, as set forth.

3. The combination, with the reversible spade G, of the spring-blade X, substantially as and for the purpose set forth.

The above specification of my said invention signed and witnessed at Washington, D. C. this 21st day of June, A. D. 1873.

JOHN W. FAUVER.

Witnesses:
C. M. PARKS,
M. A. PARKS.