(No Model.)

U. BLICKENSDERFER.

DITCHING MACHINE.

No. 384,419. Patented June 12, 1888.

Fig. 1.

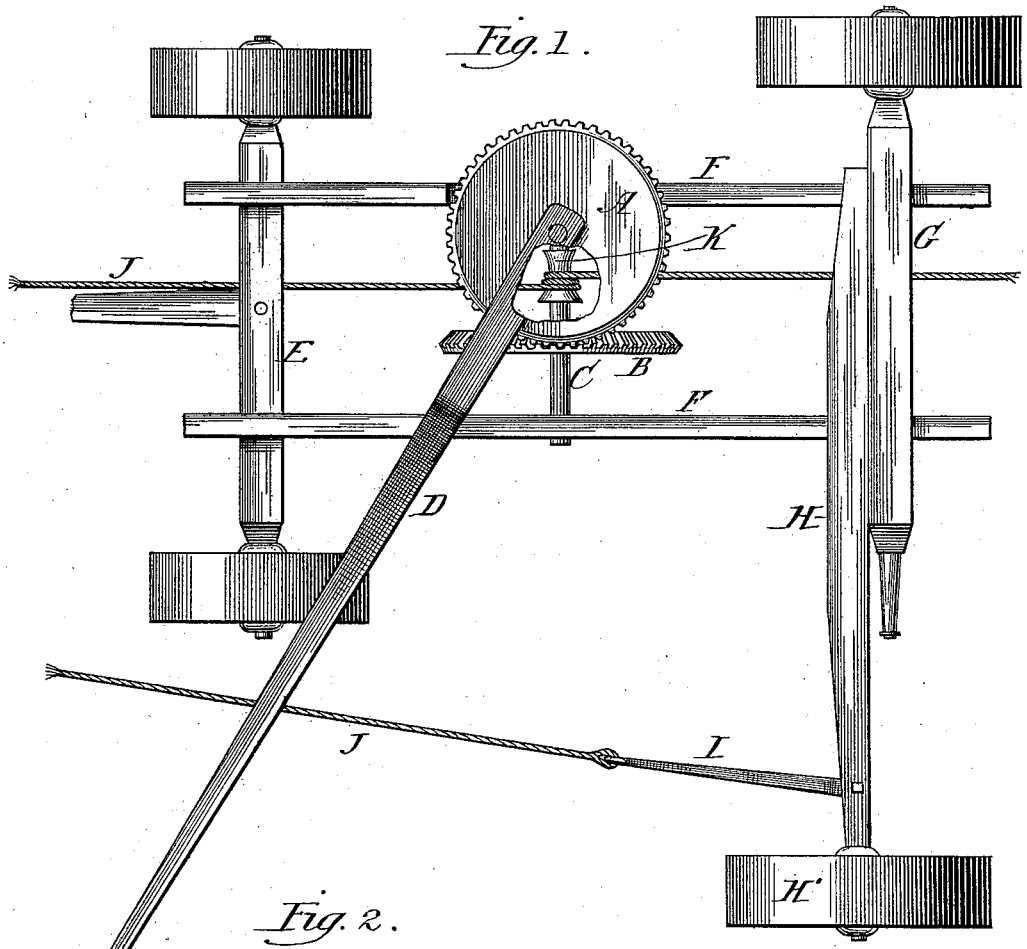

Fig. 2.

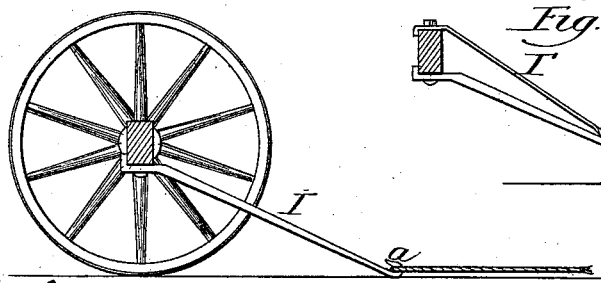

Fig. 3.

Witnesses:
Albert H. Adams.
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UNITED STATES PATENT OFFICE.

ULRIC BLICKENSDERFER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE BLICK ENSDERFER MACHINE COMPANY, OF SAME PLACE.

DITCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 384,419, dated June 12, 1888.

Application filed September 21, 1887. Serial No. 250,330. (No model.)

To all whom it may concern:

Be it known that I, ULRIC BLICKENSDERFER, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented a new and useful Improvement in Ditching-Machines, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a top or plan view. Fig. 2 is a section showing the side draft-bar. Fig. 3 is a detail in section, showing the side draft-bar and a brace therefor.

This invention relates to that class of ditching-machines in which the excavating-wheel, formed of a series of buckets, is operated by means of suitable gearing driven from a sweep by a team traveling around the machine. The excavating-wheel in this class of machines is located necessarily to one side of the vertical driving-shaft of the gearing, and consequently is at one side of the power which drives the gearing, and from such an arrangement the application of the power produces a side draft, or a tendency to twist the excavating-wheel and to turn around sidewise in the same direction that the power or sweep is moving, and this side draft causes the rear end of the excavating-wheel to bind against the side of the ditch being excavated. A long axle is employed in machines of this class in order that the carrying-wheel may run clear of the pile of earth thrown out by the excavating-wheel, and this location of the carrying-wheel so far to one side of the center of the excavating-wheel still further increases the side draft. A tow-line is employed for moving this class of machines forward, and this tow-line runs over a spool-shaped drum, thence back to a winding-drum, and its forward end is securely fastened to an anchor. The spool-shaped drum is located on the carriage of the machine, at one side of the excavating-wheel, and in use the effect of the tow-line is to increase still more the side draft. The extension-axle and the spool-drum are located on opposite sides of the excavating-wheel, and were it practical to locate these devices opposite to that which they must be located in in order to move the machine forward and clear the excavated earth, it is obvious that the axle and spool-drum would tend to counteract to a considerable degree the side draft caused by the sweep; but as the parts must be located as stated and as shown in the drawings it is evident that they all tend to twist or turn the machine around sidewise, and all operate in the same direction, the result being that the aggregate tendency and the side draft produced will tend to prevent a successful and practical working of the machine.

The object of my invention is to overcome the side draft produced from the causes stated, and its nature consists in providing on the extension or long axle a depending draft-bar, to which one end of the tow-line is secured after being passed through a pulley at the anchor end of the line, by which arrangement the line will counteract the tendency of the several forces named to swing the machine around.

In the drawings, A represents the horizontal beveled driving-gear.

B is the vertical beveled driving-gear.

C is the shaft on which the excavating-wheel is secured.

D is the sweep by which the driving-gear A is driven.

E is the front axle having a spindle at each end for the carrying-wheels; G, the rear axle having a spindle at each end for the carrying-wheels and connected to the axle E by the bars F.

H is the extension or long axle with a spindle at its outer end for the carrying-wheel H′, which runs outside of the deposit of earth.

I is a draft-bar, secured by bolts or otherwise to the extension or long axle H, near its outer end, and having, as shown, a downward slant, by which its hook *a* is brought close to the ground, so that the tow-line or rope, when attached to the hook, will lie close to the ground and not interfere with the travel of the team for the sweep D. As shown in Fig. 2, the draw-bar I is not braced; but, if desired, a brace-bar, I′, as shown in Fig. 3, may be provided, attached to the axle at one end and to the draw-bar at the other.

J is a tow-line the end of which is secured on the hook *a* of the draw-bar I. This tow-line runs forward around a pulley at its anchor, (not shown,) and thence back over the spool-drum K to the winding-drum at the rear

end of the machine, (not shown.) The draw-bar I being located near the outer end of the extension of the long axle H, and the tow line or rope pulling thereon, the power applied will have a tendency to pull or draw the long or extension axle forward, and against the tendency of the sweep, driving-gear, and tow-line to draw the axle backward, the result being that the tendency to draw backward is overcome by the power of the tow line, through the draft-bar to the axle, to draw the axle forward.

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

1. The combination, with a long or extension axle of a ditching-machine, of a draw-bar, I, for overcoming the side turning or twisting of the machine in use, substantially as specified.

2. The combination, with the long or extension axle of an excavating-wheel ditching-machine, of the draw-bar I and tow-line J, for preventing side turning or swinging of the rear end of the wheel in use, substantially as set forth.

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Witnesses:
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