

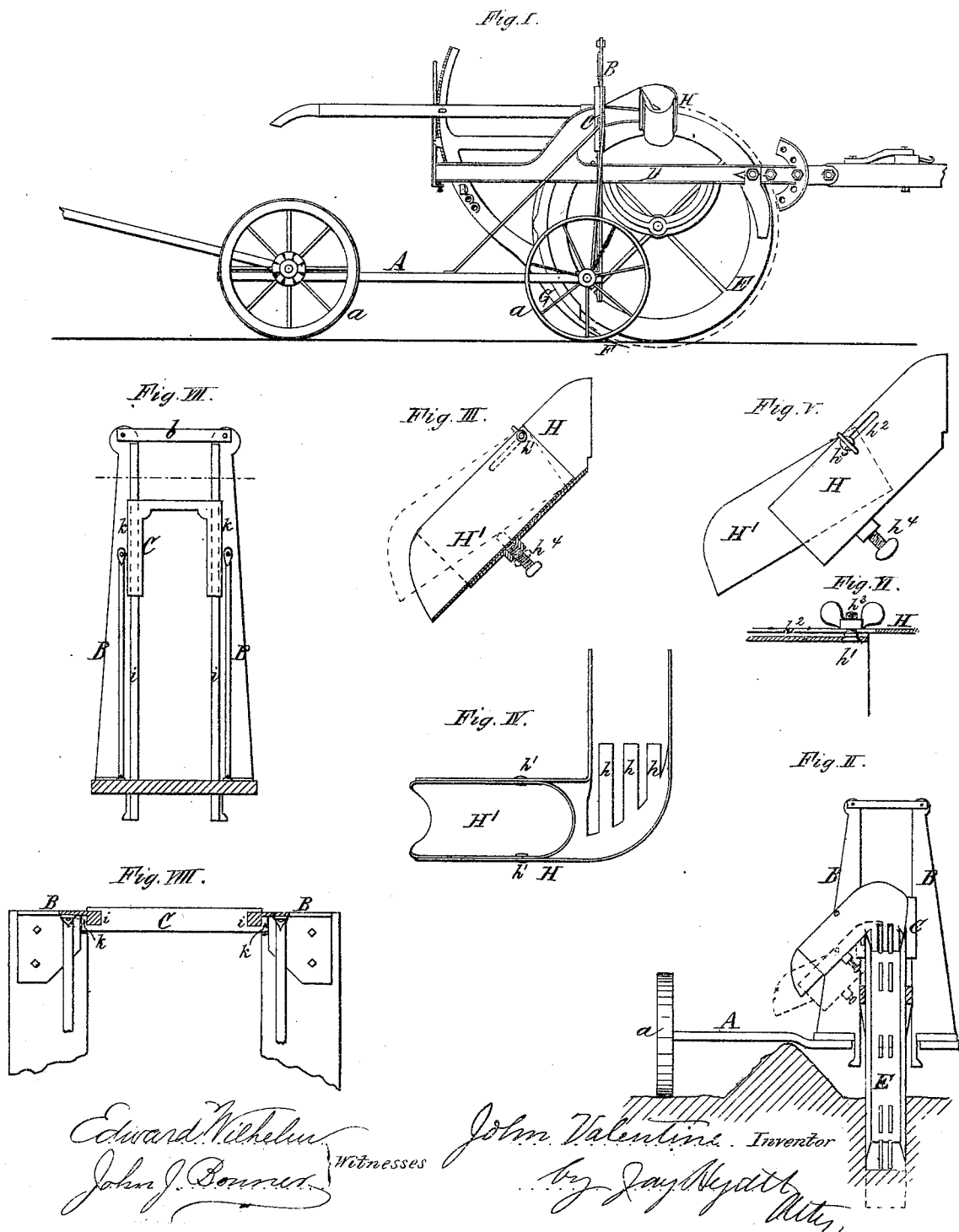
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JOHN VALENTINE.

Improvement in Ditching Machines.

No. 121,737.

Patented Dec. 12, 1871.



UNITED STATES PATENT OFFICE.

JOHN VALENTINE, OF BUFFALO, NEW YORK.

IMPROVEMENT IN DITCHING-MACHINES.

Specification forming part of Letters Patent No. 121,737, dated December 12, 1871.

To all whom it may concern:

Be it known that I, JOHN VALENTINE, of the city of Buffalo, in the county of Erie and State of New York, have invented certain Improvements in Ditching-Machines, of which the following is a specification:

These improvements relate to the machine known as Carter's ditching-machine, for which Letters Patent of the United States were granted to Henry Carter, November 23, 1869. The machine consists of a truck supporting a vertical frame, in which slides a gate or cross-head, which carries a plow for loosening the earth, and a wheel provided with buckets for elevating the same to the top of the machine, whence it is discharged through a spout to one side of the ditch. For a full description of the construction and operation of the machine, reference is here made to the schedule annexed to the said Letters Patent. This machine has been found defective in two particulars: First, as the ditch increases in depth, and the distance between the mouth of the discharge-spout and the ground becomes less, the excavated earth is discharged gradually nearer the ditch and against the side of the ridge which it forms, from whence a considerable portion thereof rolls into the ditch, partially filling up the same. To prevent this is the object of one part of my invention, which consists of an adjustable mouth-piece hinged or secured to the discharge-spout, so as to permit the lower and outer end of the former to be gradually raised as the ditching mechanism descends for changing the inclination thereof, thereby causing the excavated earth to be discharged further from the ditch at each subsequent operation or passage of the machine. My invention further consists in the combination of the said mouth-piece with the fixed portion of the spout in such a manner as to permit the former to be adjusted longitudinally for increasing the length of the spout for the purpose of better adapting the machine to the various kinds and conditions of soil. The second defect which has been experienced in the use of the aforesaid patented machine is the want of a rigid connection of the lower ends of the vertical ways between which the sliding gate and ditching mechanism are arranged. In cutting at a considerable depth the gate descends and is held between the lower portions of the vertical ways, whose rigidity is not sufficient to resist

effectually the strains and shocks to which it is subjected from the working parts of the machine. These ways are consequently spread apart and twisted out of their true position at their lower ends, whereby the sliding gate becomes loose therein, and the working of the machine is greatly impaired. To overcome this difficulty is the object of another part of my invention, which further consists, of the vertical ways of said ditching-machine, when constructed each with a longitudinal rib, in combination with the sliding gate provided with lips or projections which fit on and overlap said ribs, so as to prevent the ways spreading at their lower ends when the gate and ditching-mechanism descend.

In the accompanying drawing, Figure I is a side elevation; and Fig. II a front elevation of a ditching-machine provided with my improvements. Fig. III is a detached elevation of the spout, and Fig. IV a plan view thereof; Fig. V, an elevation of the discharge-spout. Fig. VI is a fragmentary sectional view, showing the hinge thereof. Fig. VII is a detached elevation of the vertical ways and gate; and Fig. VIII is a section on line *x x*, Fig. VII.

Like letters designate like parts in each of the figures.

A is the platform of the machine, and *aa* the wheels supporting the same. B are the upright ways or standards, secured to the platform and connected at the top by a cross-piece, *b*. C is the gate or cross-head sliding between the ways B, and carrying the frame D, in which is mounted the elevating-wheel E. F is the plow, arranged with the latter; G, the chute, and H the fixed portion of the spout provided with fingers *h*. All of these parts are old and well known. H' is the adjustable mouth-piece of the spout, corresponding in shape with the stationary portion in which it fits, so as to form a continuation of the same and be capable of longitudinal adjustment for increasing the length of the spout when required. It is secured partially within the spout H by means of two screw-bolts, *h*¹, one on each side. These bolts are inserted from the inside, the heads being countersunk or riveted in the portion H', so as to be held in place therein, while the bolts pass outward through slots *h*² in the stationary spout, and are provided with thumb-nuts *h*³, as shown most clearly in Figs.

V and VI. h^1 is a set-screw, which passes through the spout H, by which the outer end of the piece H' may be raised so as to give it less inclination than the fixed portion of the spout. In commencing a ditch the hinged portion H' lays snugly on the fixed spout, forming a continuation of the same, as shown in the drawing. As the ditch increases in depth the outer end of the portion H' is gradually raised by means of the set-screw h^1 , or an equivalent device, whereby the excavated earth is discharged at a point further removed from the ditch at each subsequent operation, as clearly shown in Fig. II. The rolling back of part of the excavated earth into the ditch is in this manner effectually prevented. In a wet clay soil the earth is not discharged as freely from the spout, owing to its sticky character, and piles up in a higher ridge than when the earth is dry or of a sandy or looser nature. In such case an extension of the spout becomes desirable, which is effected by loosening the thumb-nuts and sliding the portion H' lengthwise, which the slots h^2 permit, as shown in Fig. V, when the nuts are tightened and the mouth-piece adjusted, as to its inclination, by the screw h^1 , as just described, thus insuring the proper discharge of the earth under all circumstances. In Figs. VII and VIII, i are the longitudinal ribs formed on the upright ways or standards B; and k the projections

or lips arranged on the gate C, so as to fit on and overlap the ribs i . When the gate, in moving between the ways B, assumes a position between the lower disconnected portions of the latter, the lips k engaging with the ribs i , receive all strains from the working parts of the machine, tending to spread the standards B, and prevent dislocation of the latter.

I claim as my invention—

1. An adjustable mouth-piece, combined with the fixed discharge-spout of a ditching-machine in such a manner as to allow the inclination of the mouth-piece to be changed as the ditching progresses, substantially as and for the purpose set forth.

2. The combination of the mouth-piece H' and spout H of a ditching-machine with the bolts and slots h^1 h^2 , or equivalent device, by which the former is secured to the spout and rendered longitudinally adjustable, substantially as hereinbefore set forth.

3. The vertical ways B of a ditching-machine, provided with ribs i , in combination with the sliding gate C provided with lips or projections k , substantially as and for the purpose hereinbefore set forth.

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Witnesses:

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