T. N. & S. TURNER.

DITCHING-MACHINE.

No. 188,698. Patented March 20, 1877.

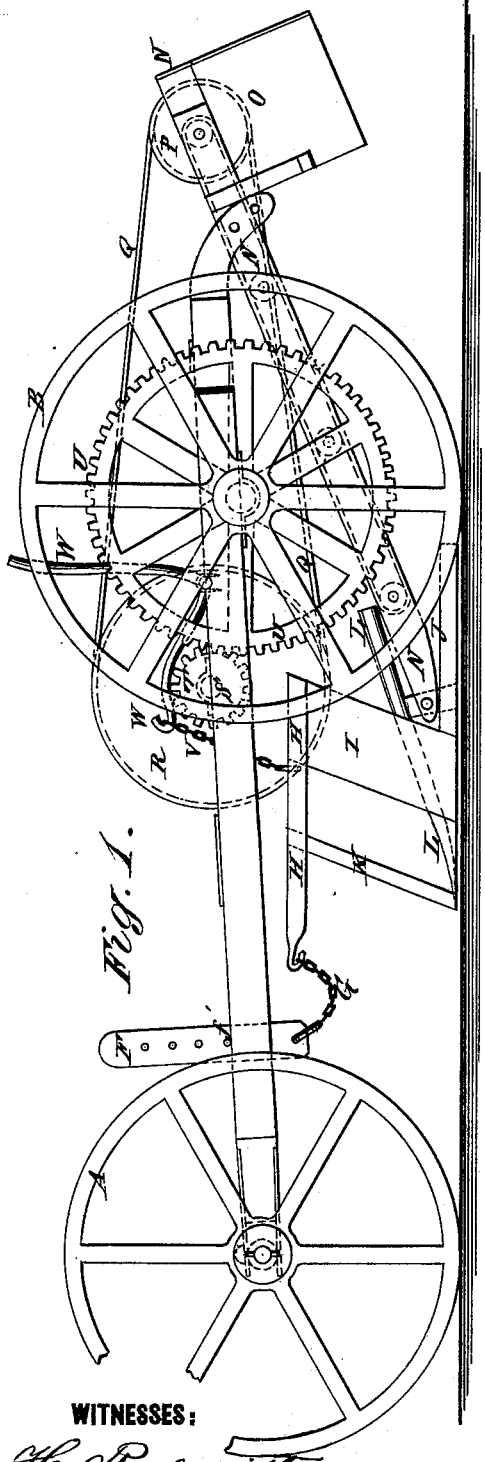

Fig. 1.

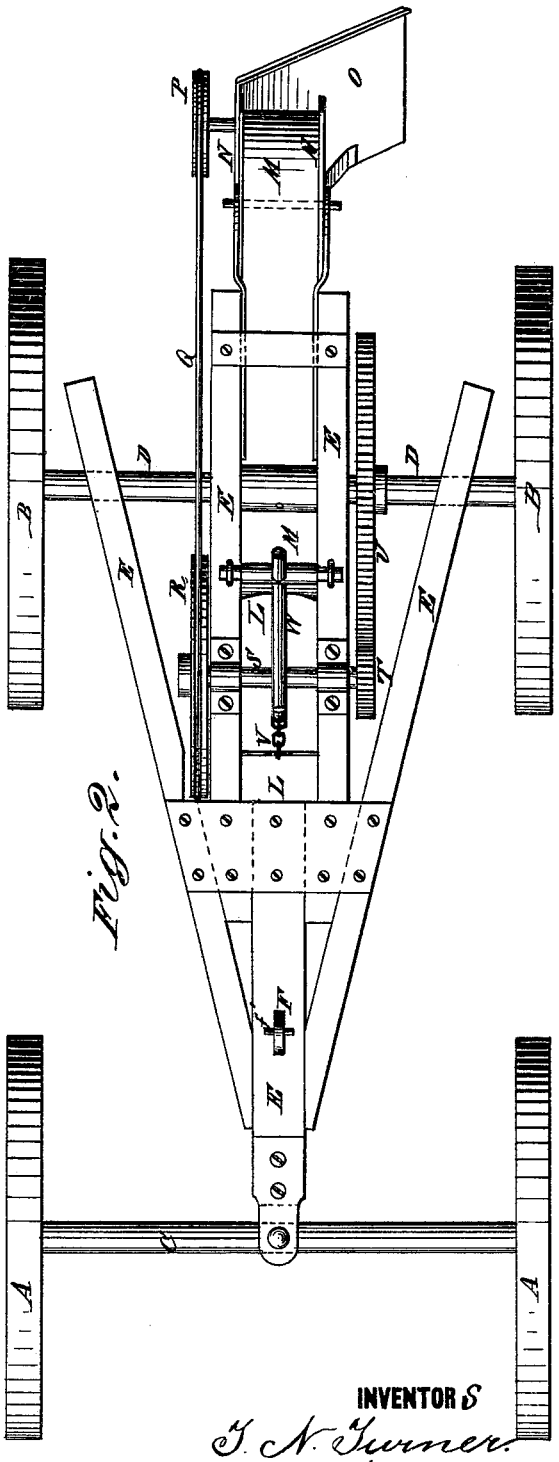

Fig. 2.

WITNESSES:

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THOMAS N. TURNER AND SANTFORD TURNER, OF RUSHVILLE, INDIANA.

IMPROVEMENT IN DITCHING-MACHINES.

Specification forming part of Letters Patent No. **188,698**, dated March 20, 1877; application filed January 13, 1877.

To all whom it may concern:

Be it known that we, THOMAS NEWTON TURNER and SANTFORD TURNER, of Rushville, in the county of Rush and State of Indiana, have invented a new and useful Improvement in Tile-Ditcher, of which the following is a specification:

Figure 1 is a side view of our improved tile-ditcher. Fig. 2 is a top view of the same.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved machine for opening tile-ditches which shall be simple in construction, convenient in use, and effective in operation, cutting the ditch accurately and to any desired depth.

The invention will first be described in connection with the drawing, and then pointed out in the claims.

A are the fore wheels. B are the rear wheels. C is the fore axle, and D is the rear axle, of the carriage. To the center of the fore axle C is pivoted the forward end or angle of the V-shaped frame E, which is formed by attaching the forward ends of two inclined bars to the opposite sides of the forward part of the draw-bar, and the forward ends of two parallel bars to the opposite sides of the rear part of the said draw-bar. To the rear part of the frame E are attached bearings, in which the rear axle D revolves. In a mortise in the central or draw bar of the frame E is placed a bar, F, through which are formed a number of holes about six inches apart, and which is secured in place by a pin, *f'*, passed through one or the other of the said holes, and which rests upon the upper side of the said draw-bar. To the lower end of the bar F is attached the draw-chain G, which is also attached to the forward end of the plow-frame. The plow-frame consists of the top bars or beams H, the side bars or standards I, and the base-bars or feet J.

The sides of the ditch are cut by the colters K, the upper ends of which are attached to the top bars or beams H, and their lower ends are attached to the forward corners of the share or plow-plate L. The forward or cutting edge of the share L is made V-shaped, and its rear part is inclined upward, so as to deposit the dirt upon the endless belt M of the elevator, the side bars of the frame N of which project upward to keep the dirt from falling off the sides of the belt M. The belt M should have cross-bars attached to it, to keep the dirt from sliding back as it is being carried upward. The forward end of the elevator-frame N is attached to the plow-frame, and its upper part is supported from the rear end of the frame E. To the upper end of the elevator-frame N is attached a chute, O, to receive the dirt from the upper end of the belt M, and discharge it at the side of the ditch. The endless belt M passes around rollers pivoted to the frame N, and to the end of the journal of the upper roller is attached a pulley, P, around which passes a band, Q. The band Q also passes around a larger pulley, R, attached to the end of a short shaft, S, which revolves in bearings attached to the frame E, and to the other end of which is attached a small gear-wheel, T. The teeth of the gear-wheel T mesh into the teeth of a larger gear-wheel, U, attached to the rear axle D, so that the elevator may be operated by the advance of the machine.

With this machine a slice about six inches deep may be taken from the bottom of the ditch at each passage, and by passing back and forth a sufficient number of times the ditch may be sunk to any desired depth.

To the top bars or beams H of the plow-frame is attached a chain, V, the other end of which is attached to the short arm of the bent lever W. The lever W is pivoted at its angle to the frame E, so that by operating the lever W the plow may be made to cut a slice of any desired depth, from one to six inches.

This arrangement is especially convenient for smoothing off the bottom of the ditch.

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

1. The combination of colters K and share with a plow-frame consisting of top bars H, standards I, and feet J, the colters K being

attached to the top bars H at the upper end, and to share at the lower end, as and for the purpose specified.

2. The combination of the pulleys and band P R Q and the gear-wheel T U with the elevator M N, the frame E, and the rear axle D, substantially as herein shown and described.

3. The combination of the chain V and the bent lever W with the plow-frame H I J, and with the carriage-frame E, substantially as herein shown and described.

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Witnesses:
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