A. RENETZKY.

Ditching-Machine.

No. 203,777. Patented May 14, 1878.

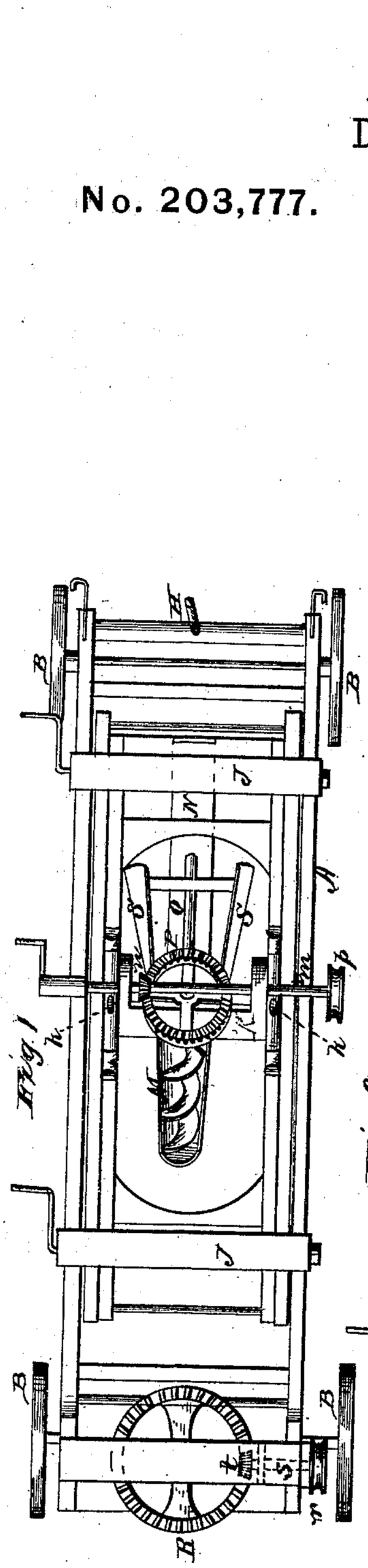

Fig. 1.

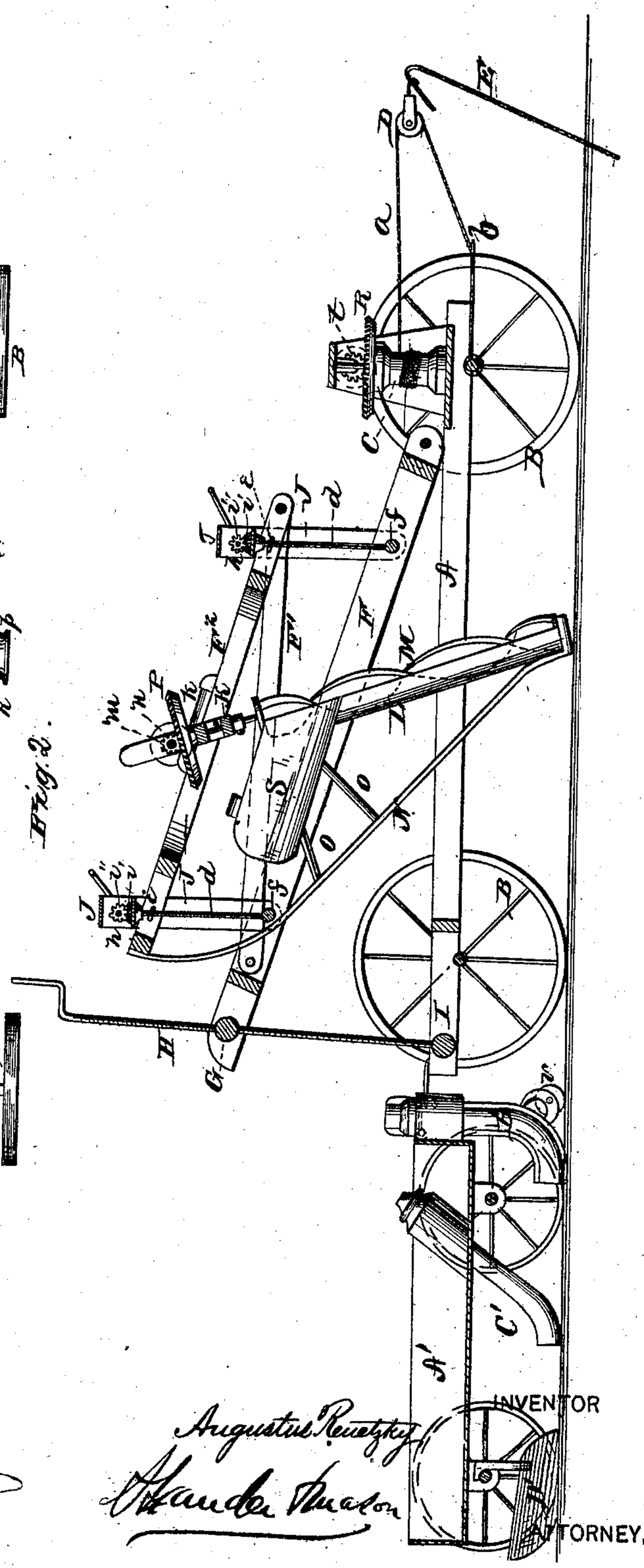

Fig. 2.

WITNESSES

H. L. Durand

Frank Galt

Augustus Renetzky

INVENTOR

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

AUGUSTUS RENETZKY, OF LINCOLN, ILLINOIS.

IMPROVEMENT IN DITCHING-MACHINES.

Specification forming part of Letters Patent No. **203,777,** dated May 14, 1878; application filed March 12, 1878.

To all whom it may concern:

Be it known that I, AUGUSTUS RENETZKY, of the city of Lincoln, in the county of Logan, and in the State of Illinois, have invented certain new and useful Improvements in Ditching-Machines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a machine for making a ditch, laying tile, and covering the same, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a plan view of the ditcher. Fig. 2 is a longitudinal section of the entire machine.

A represents a bed-frame, of any suitable dimensions, mounted on wheels B B upon the ends of axles arranged in any convenient manner. On the front of the frame A is a stand containing a windlass, C, around which is wound a rope or chain, *a*. This is passed forward around a pulley and pulley-block, D, and then back again, and connected to a bail or clevis, *b*, connected to the front axle. The pulley-block D is connected to an anchor, E, which is to be fastened in the ground; or the pulley-block may be connected to any stationary object in front of the machine and in the line of its path.

Near the front end of the bed A is hinged a frame, F, which extends rearward, and in its rear end is swiveled a bar or roller, G, through the center of which is screwed an elongated screw-shaft, H, provided with a crank at its upper end, and the lower end of said screw-shaft rests in a recess made in a similar bar or roller, I, journaled in the rear end of the bed A. By this means the frame F can be easily adjusted at any angle desired without any strain upon the screw or either frame.

In the rear portion of the frame F is hinged or pivoted a frame, F^1, which extends forward a suitable distance; and a third frame, F^2, is hinged or pivoted at the front end of the frame F^1, and extends rearward again.

The frame F^2 is, near each end, on each side piece, provided with a nut, *e*, through which passes a screw-rod, *d*. The lower ends of each pair of these screw-rods rest in recesses made in a journaled bar or roller, *f*, having its bearings in the side pieces of the frame F. On the ends of this roller is attached a frame, J, which extends over the frames, and horizontally through the upper portion of this frame is passed a shaft, *h*, with crank at one end for turning the same. This shaft is, by means of bevel-gears *i i'*, connected with the upper ends of the screw-rods *d d*, so that by turning the shafts *h h* the ends of the frame F^2 may be adjusted as required, so as to set the auger, which is connected to said frame, either perpendicular or inclining forward or backward, as desired.

On the frame F^2 are arranged levels *k k*, for the purpose of leveling the ditch and adjusting the depth of auger, so as to make the bottom of the ditch level.

In the center of the adjustable frame F^2 is attached a cross-head, K, from which depends a half-casing, L, containing the auger M. This auger may have one, two, or more spiral blades, as desired. The half-casing L is connected from the rear with the frame F^2 by a curved beam, N, and braces O O, as shown.

The auger-shaft passes up through the cross-head K, and has a gear-wheel, P, secured on its upper end, to which motion is communicated by a pinion or gear, *n*, on a shaft, *m*, said shaft being turned by any suitable power.

On one end of the shaft *m* is a pulley, *p*, connected by a belt or chain with a pulley, *r*, on a shaft, *s*, in the windlass frame or stand at the front end of the carriage. On this shaft is a gear, *t*, which meshes with a large gear, R, on the top of the windlass C.

The ditch being started, so that the auger and its half-casing can enter as far as desired, (or this can be done by the auger itself,) and the windlass chain or rope *a* extended forward and anchored, as above described, power is applied to the shaft *m*, thereby rotating the auger, and at the same time slowly rotating the windlass. The machine will then be

moved forward, the auger cutting its way and carrying up the dirt to the top of the ditch, where scrapers or mold-boards S S, secured to the carriage, throw the same to either side, leaving the ditch free for the deposit of the tiling.

To the rear end of the bed A is connected a carriage, A′, for carrying the tiling, this tiling being deposited in the ditch through covered tubes B′ or C′, arranged, the former at the front of the carriage and the latter within the carriage. Either of these may be used, as is preferred.

When the front tube B′ is used, a small wheel, *u*, is connected thereto, as shown. The weight of the tile will carry them down and discharge them at the lower end of the tube, and lay them at the bottom of the ditch, end to end, ready to cover.

D′ is a V-shaped scraper, connected to the hind axle of the carriage A′, and serves to scrape the clay back into the ditch and cover the tile.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a carriage, A B, of the frames F F^1 F^2, the cross-head K, half-casing L, and auger M, with the screw-shaft K, passing through a roller, G, in the rear end of the frame F, and resting in a roller, I, on the carriage, for adjusting the auger, substantially as herein set forth.

2. In combination with the auger M and the adjustable frame F, connected to the carriage A, the frames F^1 and F^2, adjustable on the frame F by means of the screw-rods *d*, nuts *e*, bevel-gears *i i′*, and shafts *h*, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of February, 1878.

AUGUSTUS RENETZKY.

Witnesses:

D. H. HART,

J. T. JAMES.