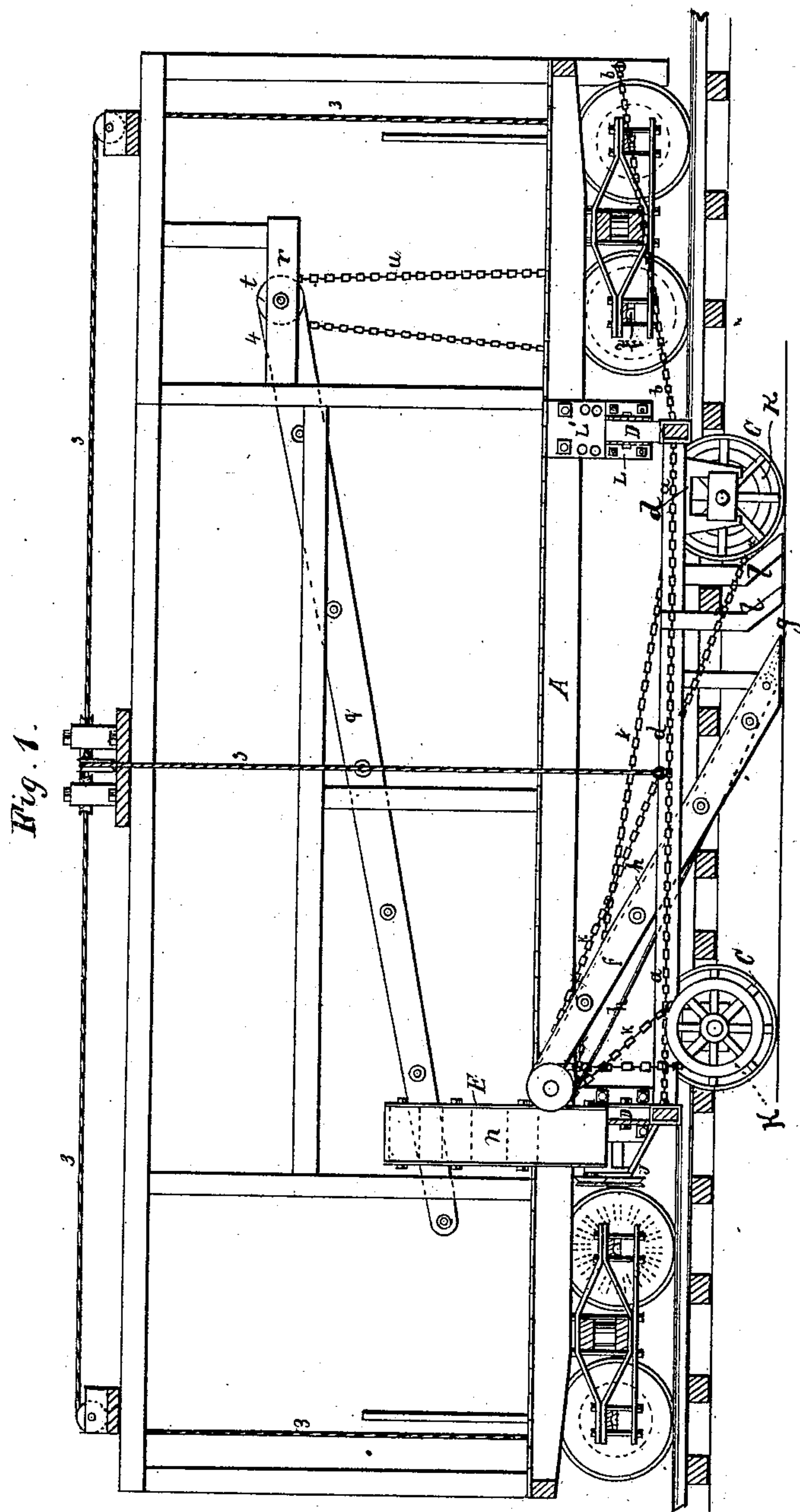


D. HORRIE.  
Railroad Ditching Machine.

**No. 215,611.**

**Patented May 20, 1879.**



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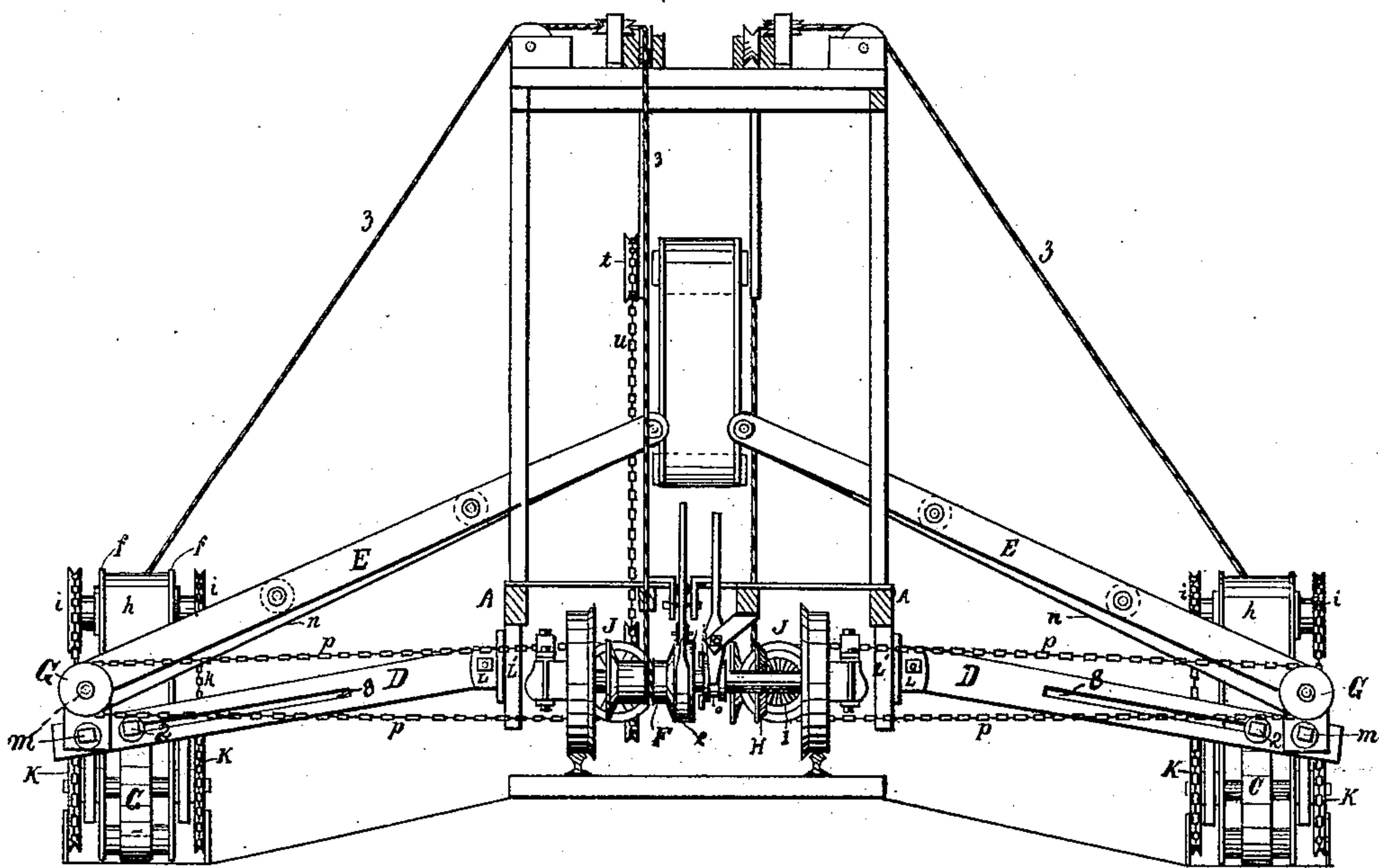
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Fig. 2



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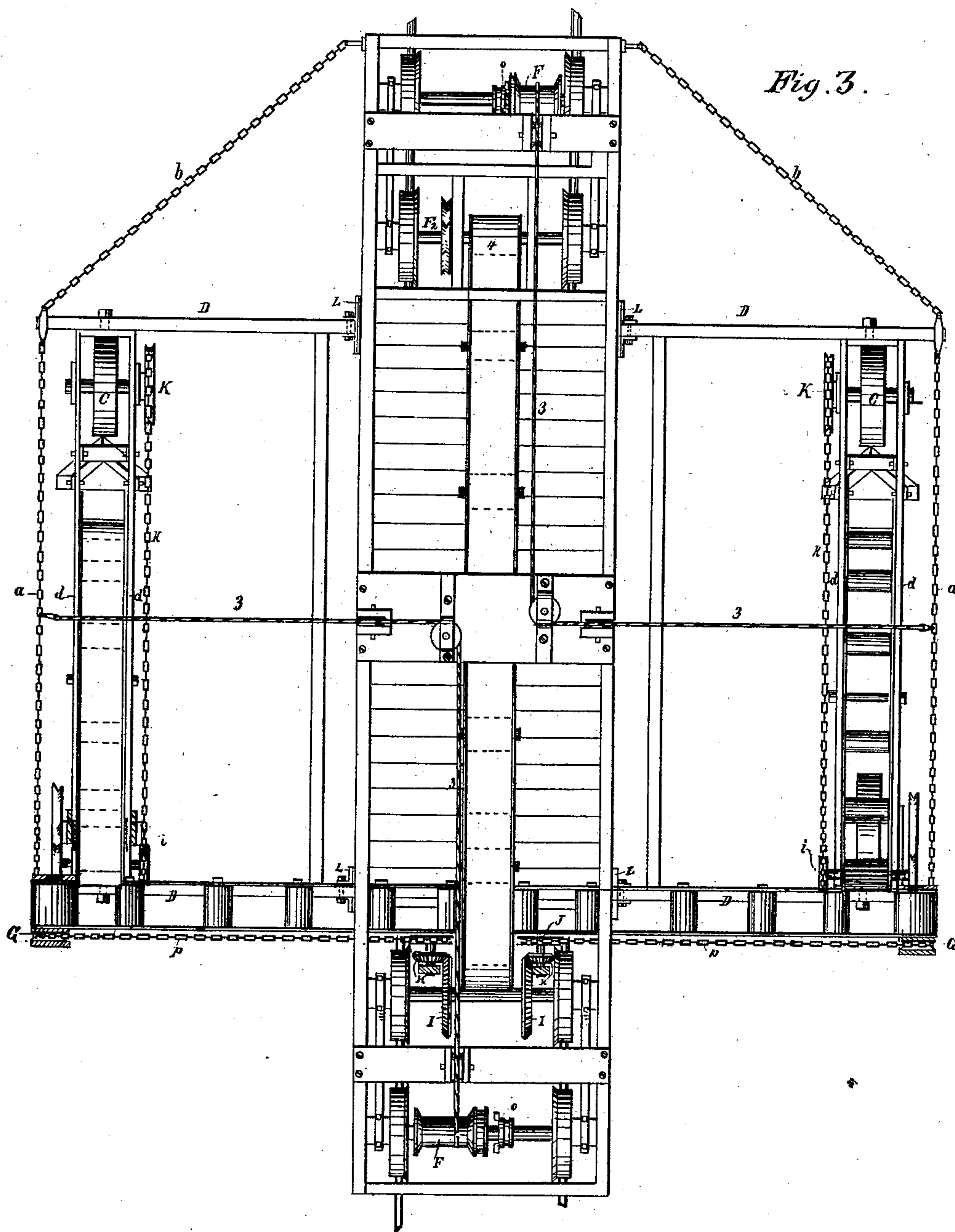


Fig. 3.

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# UNITED STATES PATENT OFFICE.

DAVID HORRIE, OF KEOKUK, IOWA, ASSIGNOR OF ONE-HALF HIS RIGHT  
TO A. G. WEBBER, OF SAME PLACE.

## IMPROVEMENT IN RAILROAD-DITCHING MACHINES.

Specification forming part of Letters Patent No. **215,611**, dated May 20, 1879; application filed  
November 4, 1878.

*To all whom it may concern:*

Be it known that I, DAVID HORRIE, of the city of Keokuk, in the county of Lee and State of Iowa, have invented a new and Improved Railroad-Ditching Machine, of which the following is a specification.

My invention relates to that class of ditching-machines which are adapted for excavating the ditches on each side of a railway-track, and which are carried upon a car moving upon the rails.

It consists, essentially, of laterally-adjustable frames hinged to the main frame of the car, and carrying secondary frames, which carry proper cutters and conveyers provided with endless conveying-belts for removing the earth from the ditches, said conveying-belts being driven by power derived from the axles of the supporting-wheels.

It also consists of special devices, which are hereinafter fully described, and specifically indicated in the claims.

In the drawings hereunto attached and forming part of this specification, Figure 1 is a side elevation of the whole apparatus as applied to the car. Fig. 2 is a rear end elevation, and Fig. 3 a plan view.

Referring to Fig. 1 of the drawings, it will be observed that A represents the platform of the car, having supporting frame-work built thereon, and mounted upon trucks in the ordinary manner, adapting it to move upon the rails of a railway-track. Hinged to this main frame A, upon each side thereof, is a strong supporting-frame, D. (Shown more clearly in plan view in Fig. 3, and also partially shown in Fig. 2.) These frames D D are hinged to the main platform of the car by bolts passing through the end pieces of said frames and through lugs L, which are attached to the plate L' upon the said platform A.

As shown in Fig. 1, the lugs L can be vertically adjusted on the plates L', in order to adapt the apparatus to form ditches of greater or less depth.

The outer sides of the frames D D are supported by wheels C, adapted to move upon the earth at the bottom of the ditches, said wheels C C being journaled within suitable bearings in cheek-pieces fixed to the supplementary

frame *d d*, which is adjustably bolted to the main frame D D.

The frames *d d* are laterally adjustable on the frames D D by means of the clamping-bolts 2 2 and slots 8 8. These frames D D are braced by chains or rods *a a* and *b b*, the former connecting the two end pieces of each frame to each other, and the latter connecting the frames at their outer and forward corners to the forward part of the car, in order to brace these frames more securely against the resistance of the earth when the machine is at work. These main frames D D may be raised out of the ditches by means of the ropes or chains 3 3, which run over suitable sheaves, as shown in Figs. 1 and 3, on the top of the car, and are carried one to the front and one to the rear, where they are connected to drums F, which revolve freely upon the axles of the front and rear wheels of the car. These drums may be connected to the axles, and made to revolve with them by means of clutches *o o*, which slide upon splines on these axles in the usual manner.

It is apparent from the construction shown that the revolution of the axles, when the clutches are in gear, will cause the rope or chains to be wound upon the drums F F and elevate the frames D D.

The frames may be lowered by throwing the clutches out of gear and applying a friction-brake, as shown at *e* in Fig. 2.

Connected to the supplementary frame *d d* on each side of the machine, as shown in Figs. 1 and 3, is a conveyer-frame, *f*, fixed in an inclined position and securely braced, as shown more clearly in Fig. 1. The lower and forward end of it is of such shape as to give proper form to the ditch, and is provided with a scraper, *g*, adapted to cut the soil. At the upper end of this conveyer-frame *f* is a drum, adapted to support and give motion to an endless belt, *h*, which passes down over a roller in the lower end of the conveyer-frame, and is supported at intermediate points by intermediate rollers within the said frame. The drum at the upper end of the conveyer-frame is provided with sprocket-wheels *i i*, which are driven by chains *k k* passing over the wheels K K on the shafts of the sup-



porting-wheels C C. In advance of the frame *f* are cutters *l l*, and in addition to these, or in place of them, right and left hand plows may be used, if desired. These cutters and the lower end of the conveyer-frame should be adjusted in relation to the supporting-wheels C, so as to cut at a proper depth.

The earth so cut and carried by the motion of the machine backward to the conveyer is still farther carried by the endless belt *h* up the incline of the conveyer. From this point it may be carried in any desired direction by suitable chutes, or by additional conveying-belts through to the car, or upon the track or roadway, or it may be thrown upon the earth outside of the ditches.

In order to convey the earth thus removed from the bottom of the ditches to the platform of the car, I provide additional transverse conveying-frames E E. (Shown in Figs. 1 and 2.) These frames E E are pivoted at their outer ends, as shown at *m m*, upon suitable supports upon the frames D D.

The transverse conveyer-belts are driven by drums in the same manner as the belts heretofore described. These drums receive their motion through sprocket-wheels G G, fixed upon the ends of their shafts, and driven by chains *p p*, as clearly shown in Fig. 2. These chains *p p* are carried to sprocket-wheels J J, which are mounted in suitable bearings underneath the frame of the car. These are driven by beveled gears H H, which mesh into the beveled gears I I upon one of the axles of the car. The forward motion of the car imparting a rotary motion to the axle will drive the endless belts *n n* of these transverse conveyers E E inwardly toward the center of the car.

If it be deemed desirable to carry the earth and deposit it between the rails a third conveyer, *q*, (shown in Figs. 1 and 3,) may be used. This is pivoted upon suitable bearings in the frame *r*, and projects over the forward end of the platform, as shown at 4, Figs. 1 and 3, where it may dump the earth. This third conveyer is provided with an endless belt and propelling-drum in the same manner as the others which have been heretofore described.

A sprocket-wheel, *t*, is provided, which is driven by a chain, *u*, passing over another sprocket-wheel upon the axle F<sup>2</sup>, Fig. 1.

The inner ends of the transverse conveyers E E and the forward end of the third may be adjusted at any desired angle and supported in any convenient manner.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a ditching-machine adapted to move upon a railway, the main frames D D, hinged to the platform of the car, in combination with the conveyers *f f*, the supporting-wheels C C, and the driving mechanism for the conveyer-belt, as set forth.

2. The main frames D D, in combination with the supplementary frames *d d*, the supporting-wheels C, the driving mechanism, and the conveyer, as set forth.

3. The supplementary frames *d d*, mounted upon the wheels C C, and adjustably connected to the main frames by means of the slots and bolts, as set forth.

4. In combination with the main frames D D, carrying a conveyer and supported upon the wheels C C, the bracing rods or chains *a b b*, as set forth.

5. In combination with the hinged frames D D, the ropes or chains 3 3 and the drums F upon the axles, with intermediate sheaves for the rope or chain, all constructed and arranged as set forth.

6. In combination with the secondary conveyers, hinged to the supports upon the outer corners of the frames D, and provided with drums, as described, the sprocket-wheels and chains and the beveled gears upon the axle, the parts being constructed and arranged as and for the purpose set forth.

7. A railway-ditching machine provided with lateral frames, connected to the platform of the car by vertically-adjustable hinges supported on the outside, when in operation, on wheels, and carrying cutters and elevating devices, as set forth.

DAVID HORRIE.

Witnesses:

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WILLIAM D. PATTERSON.