

(No Model.)

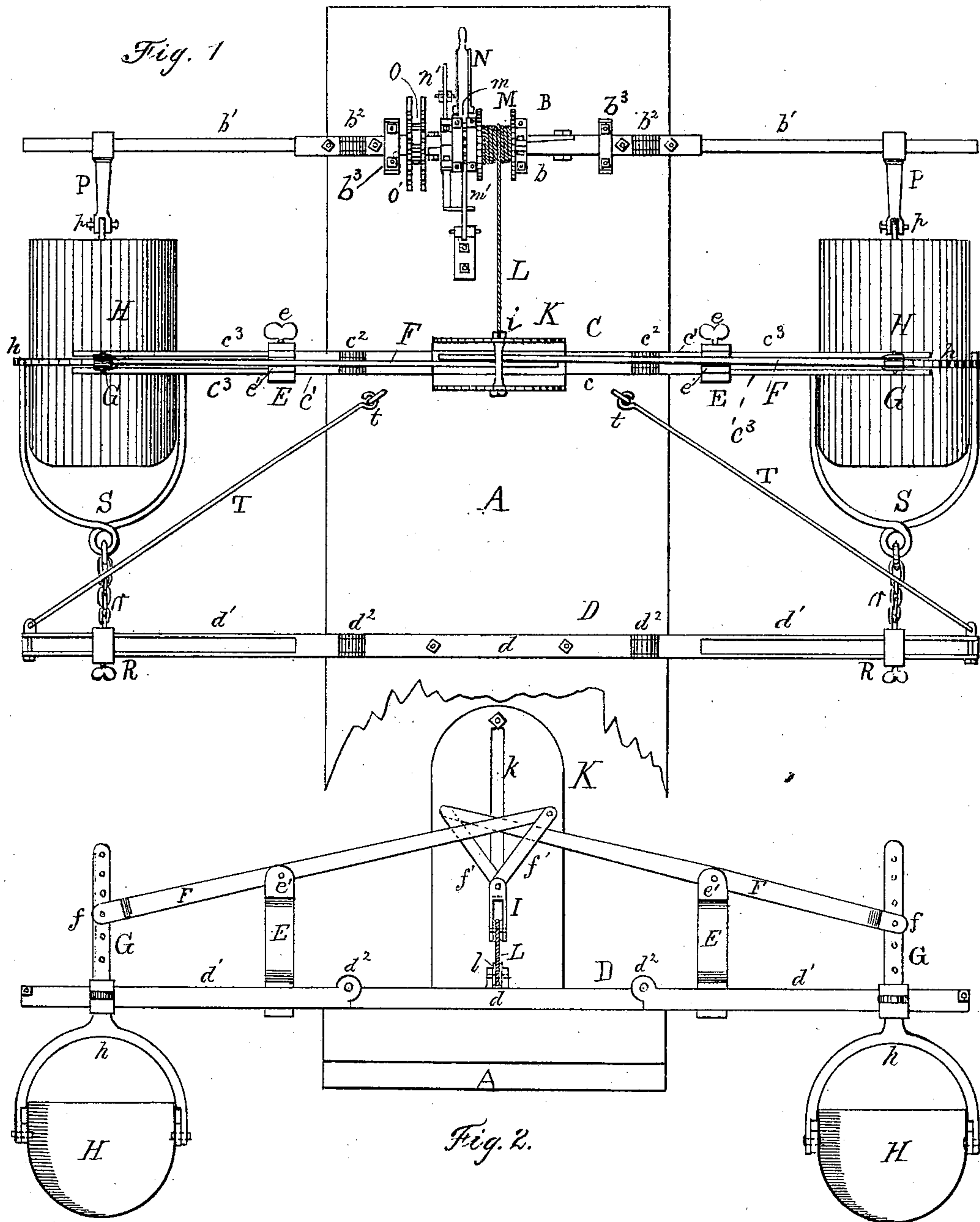
2 Sheets—Sheet 1.

D. FREEL.

EXCAVATING OR DITCHING DEVICE FOR ATTACHMENT TO CARS.

No. 270,776.

Patented Jan. 16, 1883.



Witnesses

Wm R. Singleton
E. M. Schaeffer

Inventor

Alfred D. Freel,
per Voorhes & Singleton

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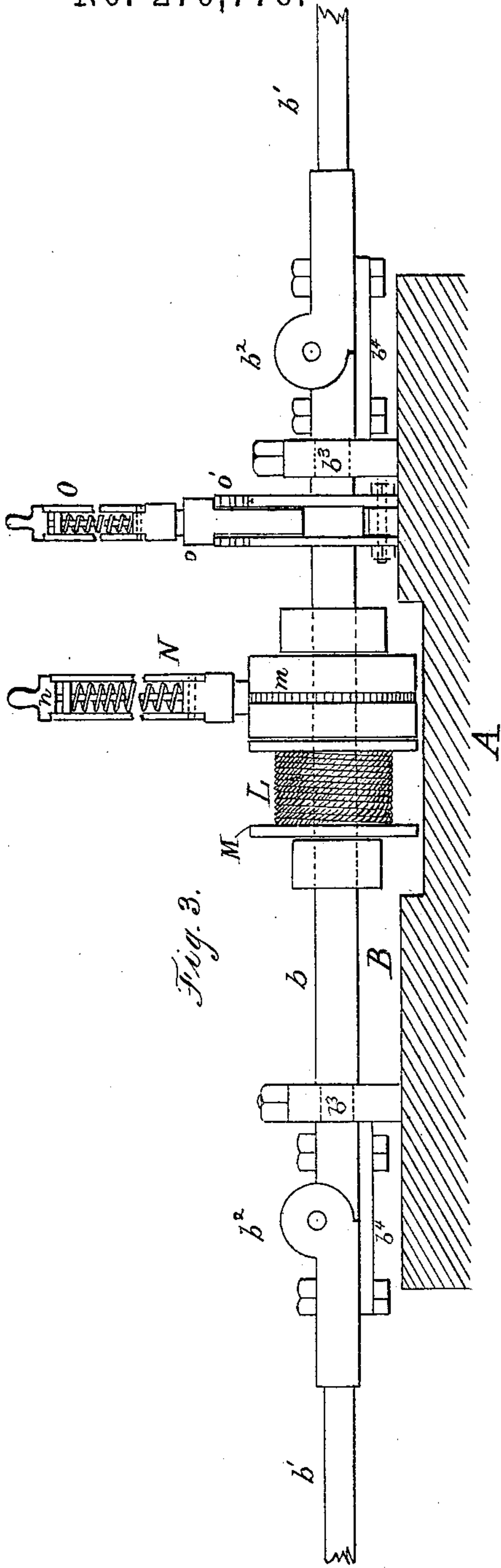


Fig. 3.

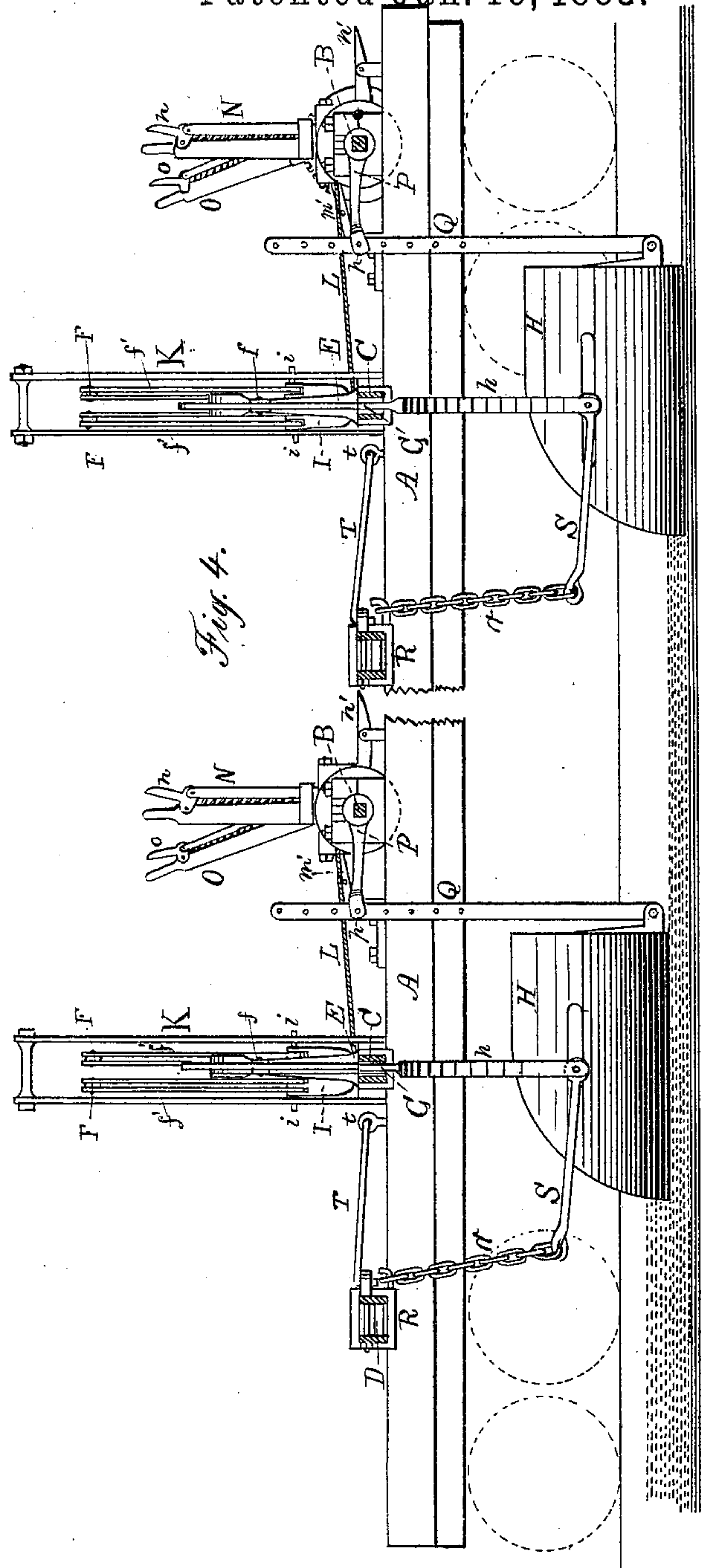


Fig. 4.

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UNITED STATES PATENT OFFICE.

DENNIS FREEL, OF CHARITON, IOWA.

EXCAVATING OR DITCHING DEVICE FOR ATTACHMENT TO CARS.

SPECIFICATION forming part of Letters Patent No. 270,776, dated January 16, 1883.

Application filed August 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, DENNIS FREEL, of Chariton, in the county of Lucas and State of Iowa, have invented certain new and useful Improvements in Excavating or Ditching Devices for Attachment to Railroad-Cars; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 represents a plan view of the device; Fig. 2, a front end view; Fig. 3, an enlarged detail of the winding and turning mechanism at the rear bar, looking from behind. Fig. 4 is a side view, showing two of the attachments in position upon a car.

The invention herein contained relates to a ditching device for attachment to the construction or other cars of a railroad, arranged to be operated by the moving train to make or clean out the ditches alongside of the track, and specially for cleaning out ditches in deep cuts when they have become suddenly filled up by heavy rains, and when haste in cleaning is specially necessary.

The invention consists in the construction and arrangement hereinafter set forth.

In the annexed drawings, in which the same letters refer to identical parts, the letter A designates a frame to which the ditching device is secured, this frame being attached to a car when the device is to be used. Across this frame A are placed three bars or sets of arms, B C D, consisting of middle sections, *b c d*, and projecting or end sections, *b' c' d'*, the latter being hinged to the former, as shown at *b² c² d²*. Held adjustably to the end sections *c'* of bar C by screws *e* are supports E, having the forks *e'*, in which are pivoted levers F, carrying in their forked ends *f* the rods G, adjustable therein. These rods pass between the forks *c³* of the ends *c'*, and carry the bails *h* of the ditching-shovels H, so that the shovels have all necessary vertical and side movement, but no end-play, and hence do their work firmly. The inner ends of the levers F are connected by links *f'* to a cross-head, I, the arms *i* of which work in guide-slots *k* of a housing, K.

Attached to this cross-head I is a cord, L, which passes under a sheave, *l*, and is secured to a spool, M, sleeved upon the middle section of arm B. This spool is provided with a ratchet, *m*, which is straddled by a lever, N, turning loosely upon section *b* of bar B, and having a spring-pawl, *n*, to engage the ratchet. The spool is rotated by the action of this lever, and is held from a reverse movement by a click, *m'*, which can be thrown off by a treadle or other lever, *n'*.

By the construction thus described the height of the shovels is regulated. By moving the lever N back and forth the spool M is turned, winding up the cord L, and through the cross-head I and levers F the shovels are lifted the desired distance. To lower them it is only necessary to release the spool, when the weight of the shovels will pull them down.

Secured to the section *b* at one side of the winding apparatus is a lever, O, having a spring locking-pawl, *o*, which engages a rack, *o'*, secured to the frame A, so that when the bar or arm B is turned in its bearings *b³* it can be held at any point. Upon the ends *b'* of the arm B are placed rods P, which can slide along said ends, but cannot turn thereon. To the ends *p* of these rods P are adjustably held rigid straps Q, which are hinged to the rear of the shovels H at the bottom, as shown in Fig. 4. In this way, by operating the lever O the arm B can be turned, and through rods P and the straps Q any desired inclination can be given the shovel for cutting or dumping. To render the arm B rigid, straps *b⁴* are bolted under the hinges *b²*; but they can be loosened at one end and swung aside when the hinge is to be used. (See Fig. 3.)

To the ends *d'* of the front bar or arm, D, are held adjustably sliding boxes R, from which run chains *r*, connecting with swinging handles S, attached to the shovels H, by which means the shovels are supported in front and resist any downward dragging tendency in their operation. The ends *d'* are held firmly by braces T, which are secured to the frame A at *t*.

In Fig. 4 is clearly shown the way in which the device operates. Several of the attachments are placed upon a car, one behind the other. Two are shown in the figure; but more

can be used. The shovels are adjusted vertically, as already described, and, if needed, rods G may be adjusted in the forks of levers F. Each shovel is a little lower than the one in front, the amount varying according to conditions, the sum of the differences representing the depth to be dug. The car containing these attachments is drawn in the usual way along the track, and the shovels one after another cut a slice from the ground or in clearing from the ditch, and leave behind a clean and completed furrow or ditch. When filled the shovels can be lifted up, and by tilting them in the rear can be dumped wherever desired or into suitable receptacles.

By making the various parts adjustable the height of the shovels, their pitch in cutting, their distance from the track, &c., can all be regulated, and any exact and nice position can be readily attained.

When desired the arms can be folded up by turning the end sections on the hinges, thus bringing the whole device inboard, which is very desirable in transportation and housing.

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

1. The combination of the lever N, spool M, cord L, cross-head I, levers F, and rods G with their connecting mechanism for adjusting vertically the shovels, as set forth.

2. The combination of the adjustable supports E, levers F, sliding rods P, and sliding boxes R with the bars B C D and connecting mechanism for adjusting the shovels laterally, as set forth.

3. The combination of the lever O, bar B, and slides P and R with their connecting and locking mechanism for giving any desired inclination to the shovels and for dumping same, as set forth.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

DENNIS FREEL.

Witnesses:

HENRY B. MUNN,
A. N. COOPS.