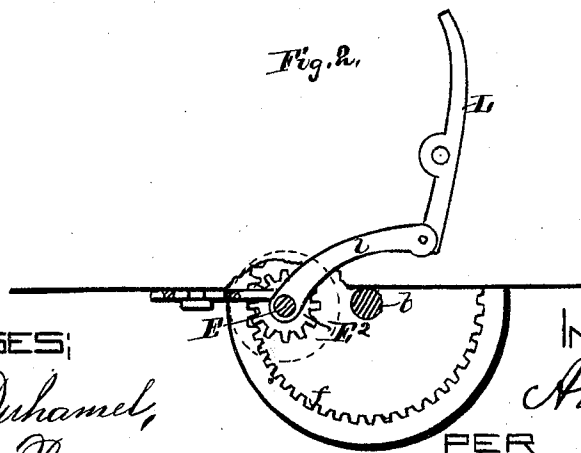
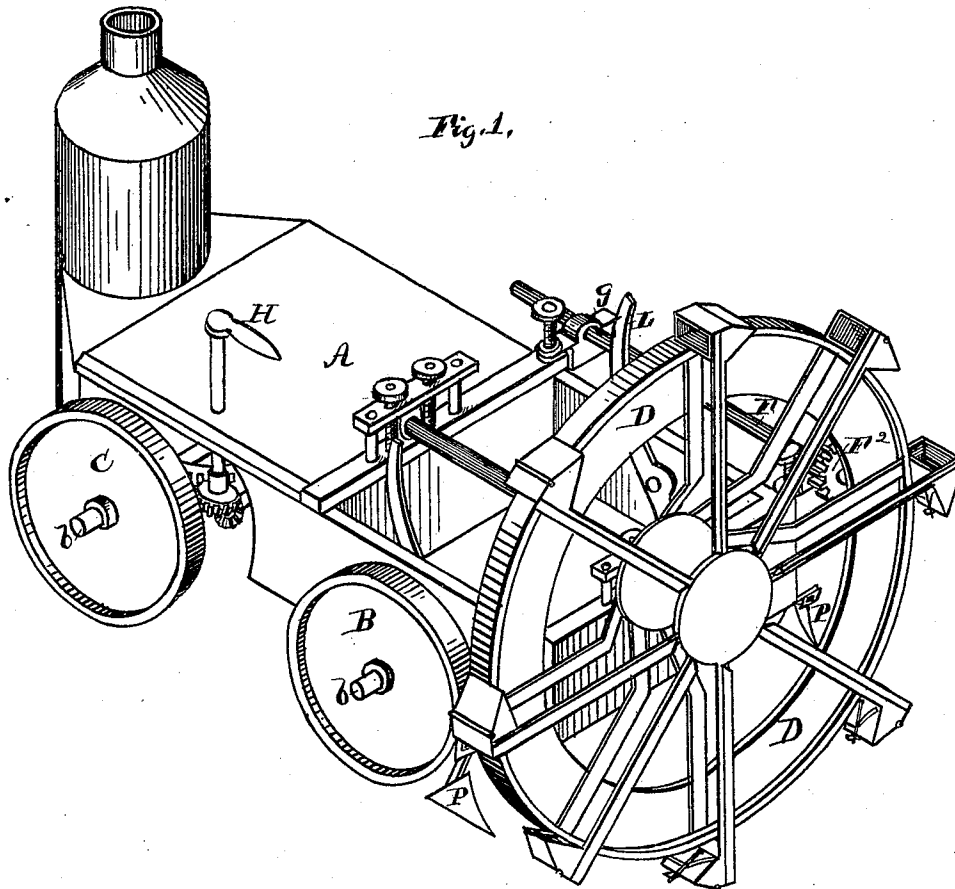


A. HAWLEY.
LOCOMOTIVE EARTH-EXCAVATOR.

No. 171,564.

Patented Dec. 28, 1875.



WITNESSES:
Jas. F. Duhamel,
Thomas. Baynes.

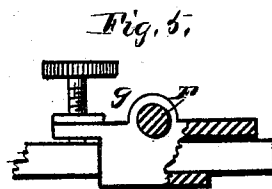
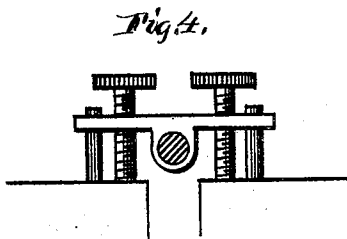
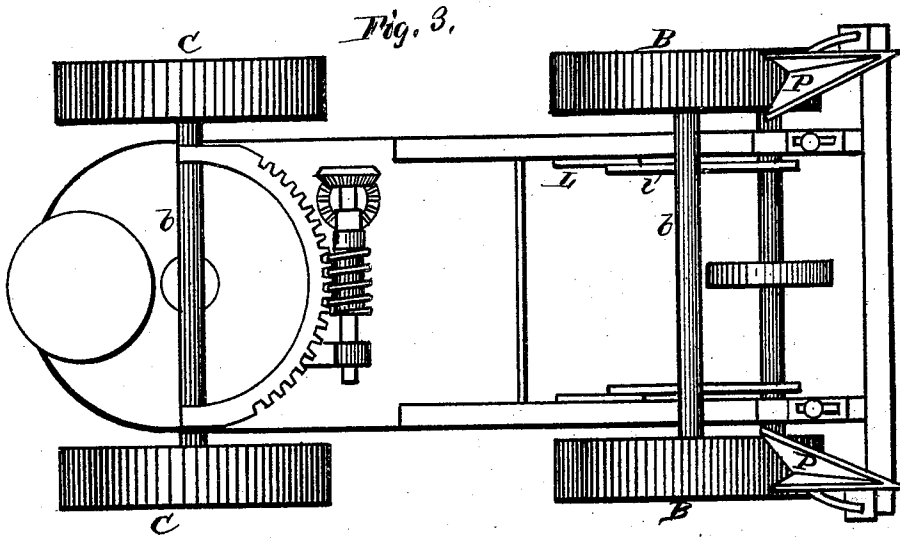
INVENTOR:
Abel Hawley.
PER

H. H. Abbott.
ATTORNEY.

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UNITED STATES PATENT OFFICE.

ABEL HAWLEY, OF GALVESTON, TEXAS.

IMPROVEMENT IN LOCOMOTIVE EARTH-EXCAVATORS.

Specification forming part of Letters Patent No. **171,564**, dated December 28, 1875; application filed December 8, 1875.

To all whom it may concern:

Be it known that I, ABEL HAWLEY, of Galveston, in the county of Galveston and State of Texas, have invented certain new and useful Improvements in Locomotive Earth-Excavators, of which the following is a specification:

The object of this invention is to provide an earth-excavator, principally for use in making the road-beds of railroads, which shall not only do its work continuously, but which shall be equally efficient in throwing up an embankment or in making a deep cut.

To this end, therefore, this invention consists of a locomotive traction-engine, carrying a rotary boring-wheel provided with radial cutters and peripheral buckets, said wheel being operated by the engine as the machine advances up to its work, the details of all of which will be hereinafter fully described.

In the drawing, forming part of this specification, Figure 1 is a perspective view of the whole machine. Fig. 2 shows the adjustable connection of the driving-shaft with one driving-wheel. Fig. 3 is a plan of the bottom of the machine. Figs. 4 and 5 show the means of adjusting the height of the boring-wheel, and the position, horizontally, of its driving-pinion.

In all the figures like letters indicate the same parts.

A is the main frame or body of the machine, upon which is carried, in any convenient position, a boiler and any suitable engine or engines. B B are the driving-wheels, and C C the truck or steering wheels. D is the boring-wheel, provided with radial cutters *d d* and peripheral buckets *d² d²*. This boring-wheel is of the same general construction as that shown in my rotary dredging-machine, and is vertically adjustable, to suit the depths of its cuts, by means substantially the same as employed in said machine. E is a shaft of the machine, which is actuated by the engine or engines, either by the intervention of ordinary connecting-rods and cranks, by gearing, or by means of pulleys and belts. On the shaft E are two pinions, E² E², which mesh into the internal gearing *f f* of the driving-wheels B. The pinion F², for driving the boring-wheel D, is laterally adjustable by

means of sliding bearings *g g*, in which its shaft F is journaled. The plows P P are secured to the frame of the machine by any suitable means. Said plows are placed in front of the driving-wheels B B, and, by virtue of such position, cut a clear path for the tread of said wheels. The axles *b b* of all the wheels, and the frame carrying the plows P P, may be independently lengthened, so that when it is desired to cut down by the wheels D into the earth, below the tread of the wheels B B C C, the said wheels will be supported by the earth on each side of the cut made by said wheel D. H is a lever, connected to the steering-gear of the machine, which gear may be of any approved form. In the drawing said gear consists of a toothed sector, worm-shaft, and pinion, operated by the lever H. L l are levers for throwing in and out of gear the pinions E² E².

Having thus fully described this locomotive earth-excavator, as of my invention I claim—

1. A locomotive earth-excavator consisting of a traction-engine of any approved form, having mounted thereon, in adjustable bearings, a rotary boring-wheel carrying radial cutters and peripheral buckets, all arranged and operating substantially in the manner hereinbefore described, for the purposes set forth.

2. The adjustable shaft E and its pinions E² E², in combination with the driving-wheels B B, whereby either one of said wheels may be rotated alone, or both at the same time, at the will of an operator, substantially in the manner hereinbefore described, for the purposes set forth.

3. The adjustable driving-shaft F and its pinion F², in combination with the boring-wheel D, whereby said pinion is thrown in and out of gear with the boring-wheel, and adjusted to mesh into the gearing on said wheel at the varying elevations of the wheel, all substantially in the manner hereinbefore described, for the purposes set forth.

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

ABEL HAWLEY.

Witnesses:

JAS. F. DUHAMEL,
THOMAS BYRNE.