

M. FORTIN.
Traction-Engine.

No. 202,429.

Patented April 16, 1878.

Fig: 1.

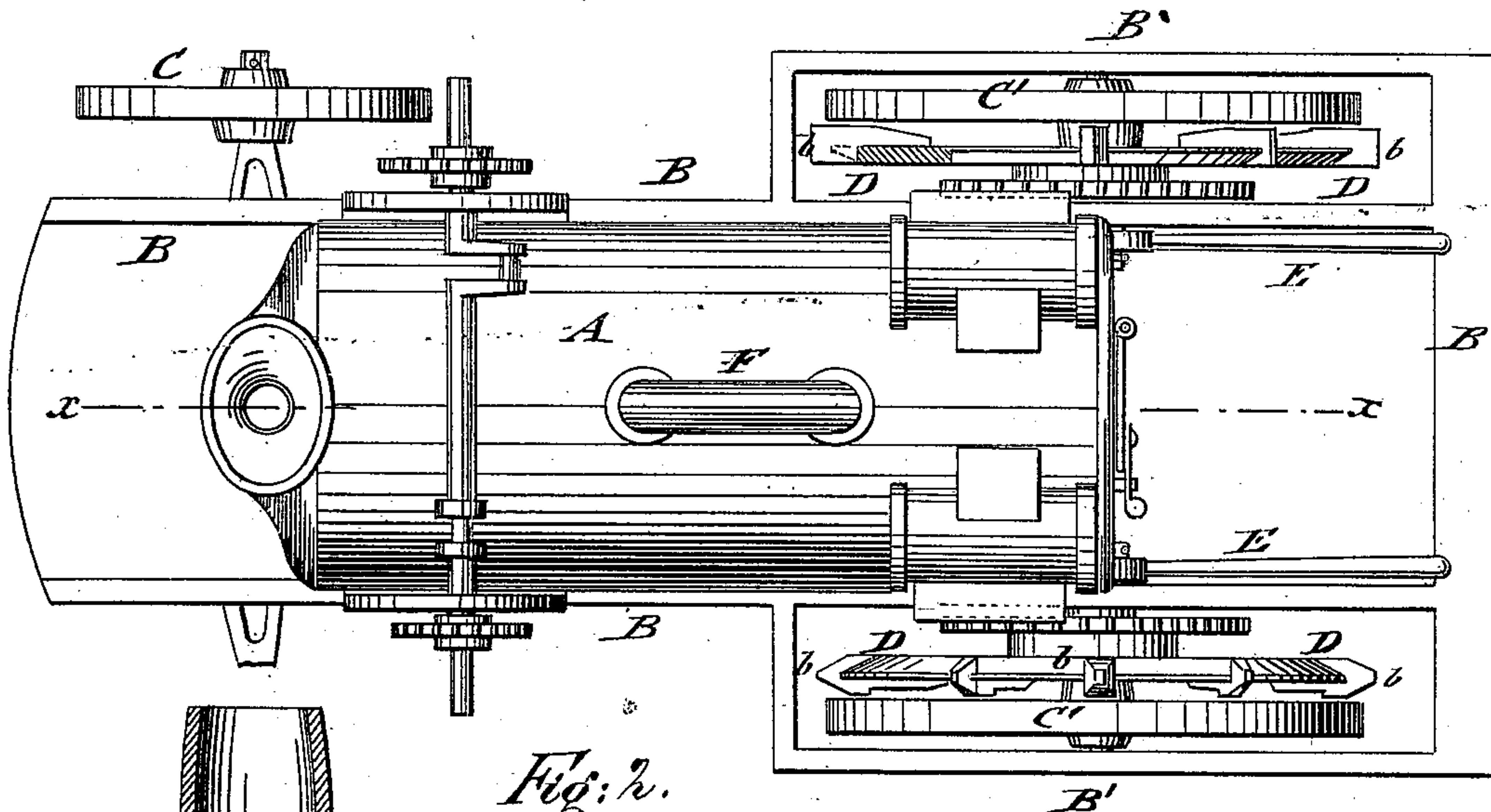
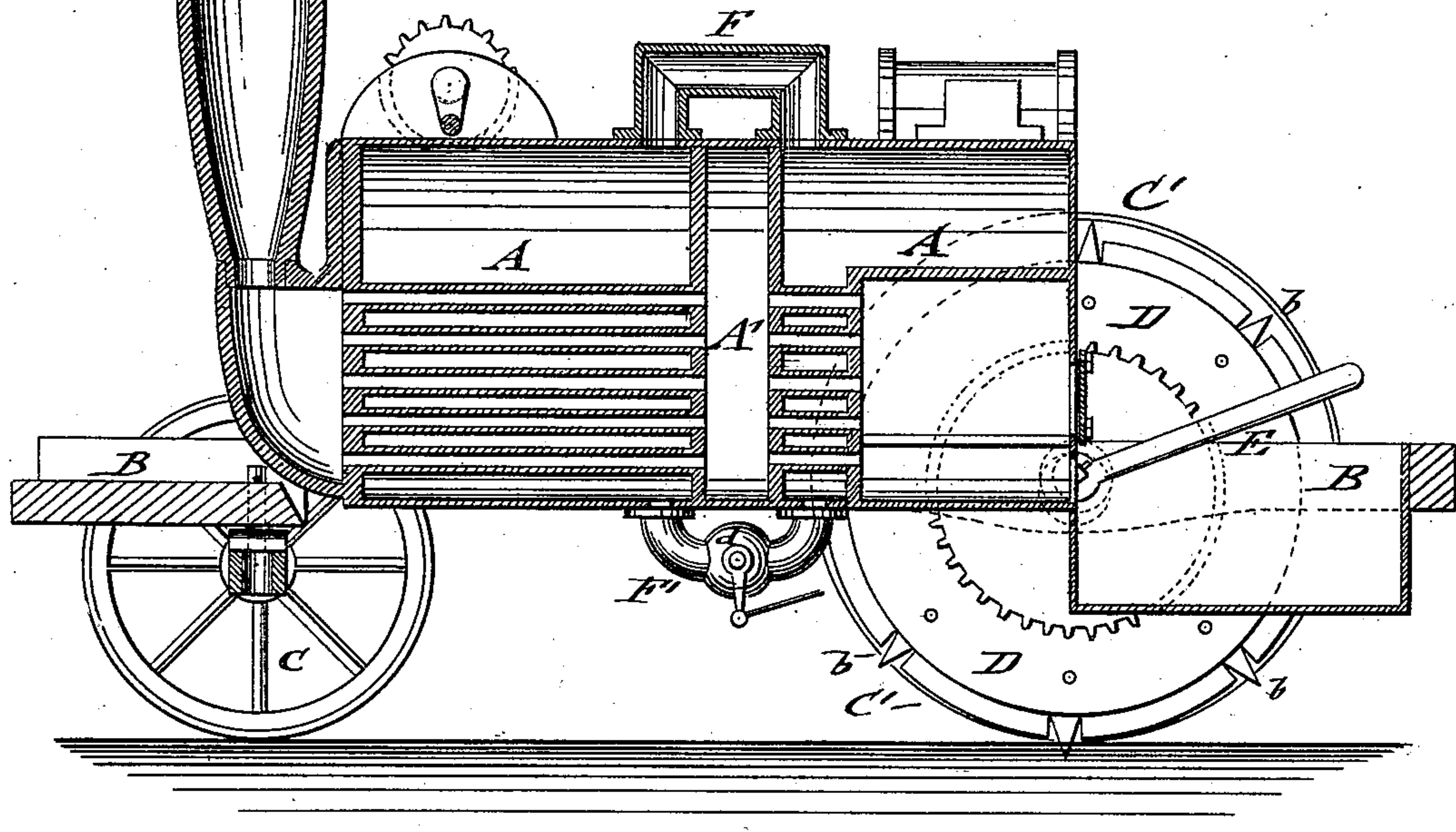


Fig: 2.



WITNESSES:

C. H. Nield
C. Sedgwick

INVENTOR:

M. Fortin

BY

Mumford

ATTORNEYS.

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Fig: 3.

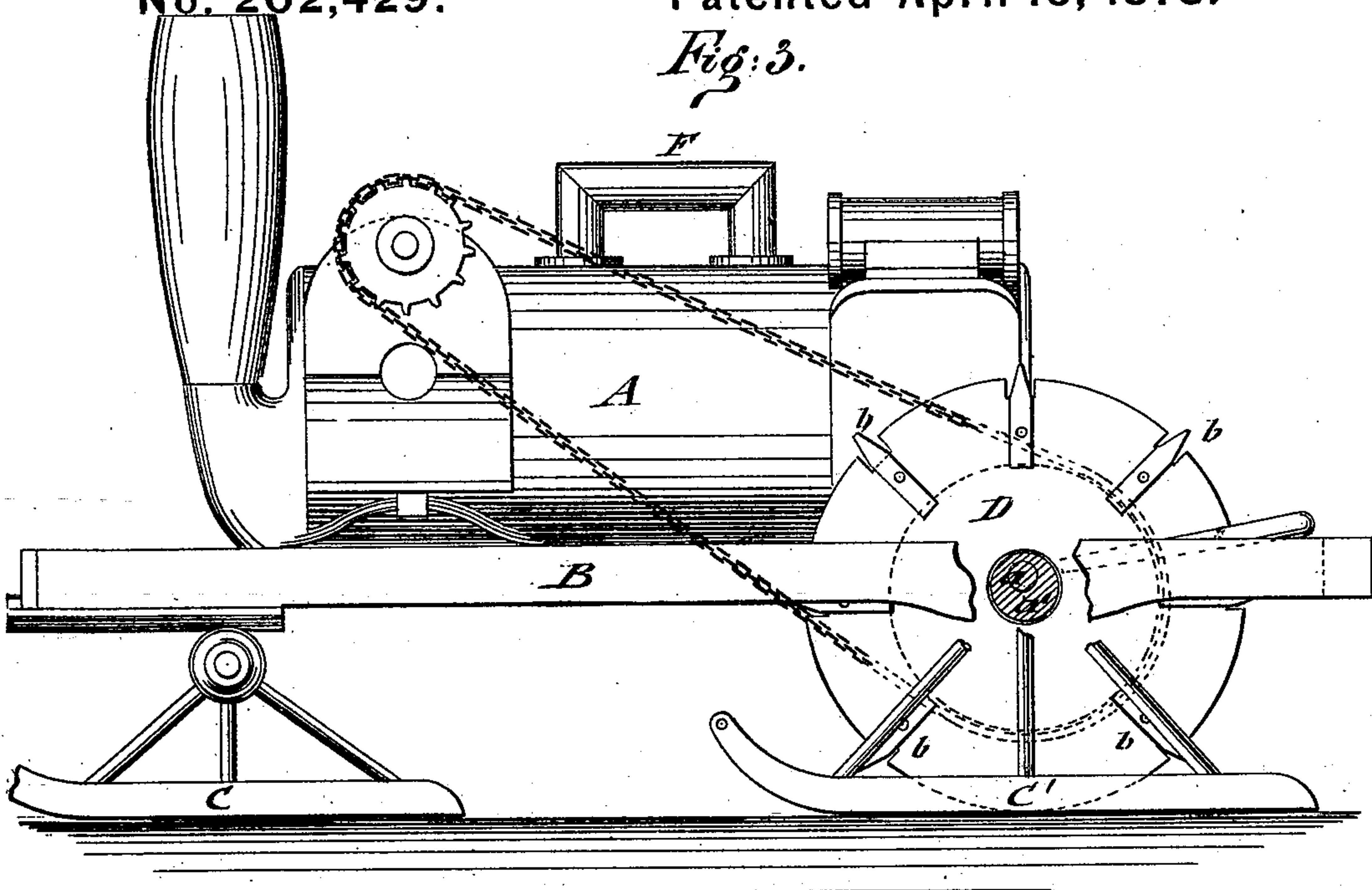
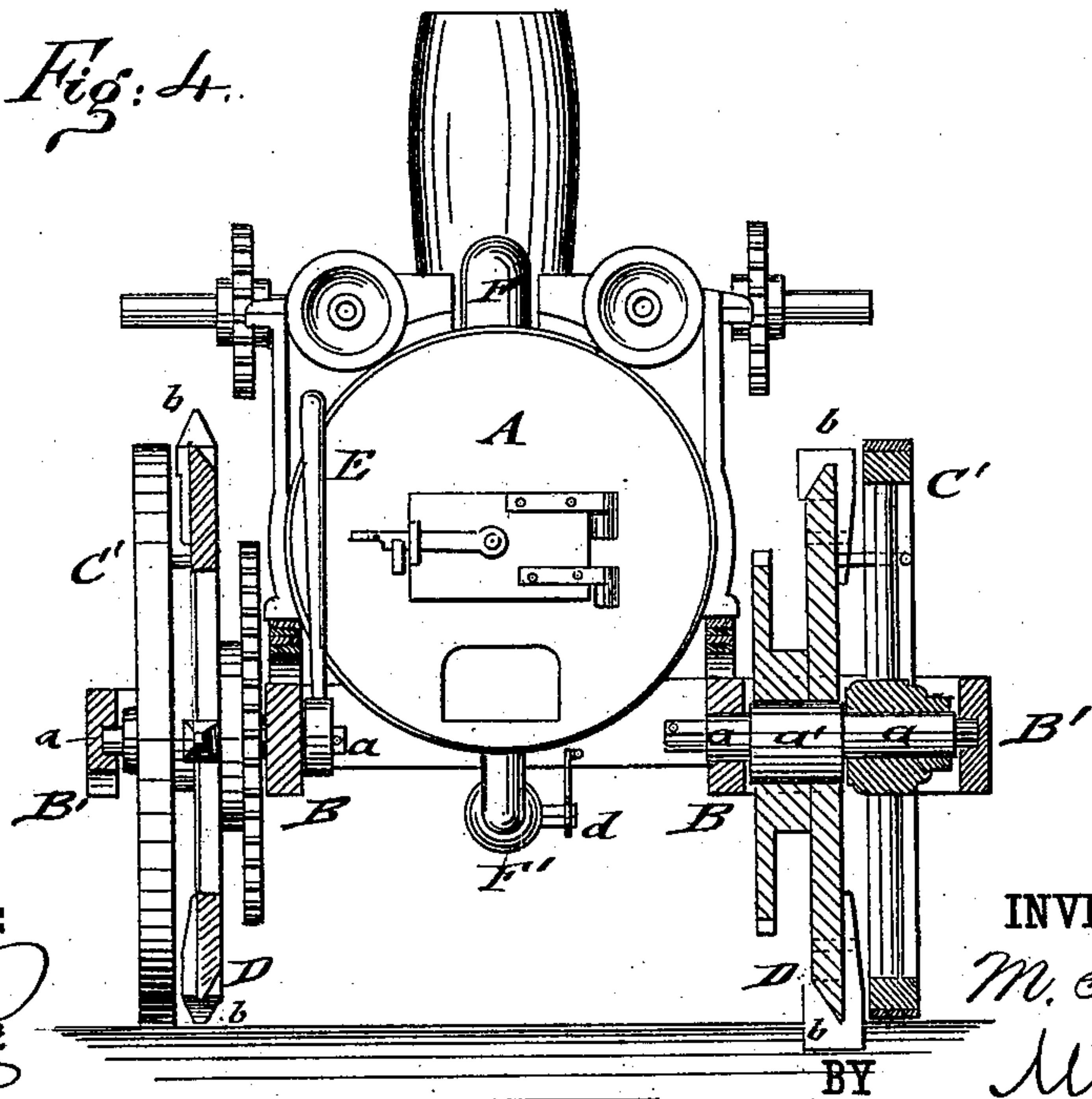


Fig: 4.



WITNESSES:

Craw. Nida.
C. Sedgwick

INVENTOR:

M. Fortin
Mumbl

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

MICHEL FORTIN, OF STILLWATER, MINNESOTA.

IMPROVEMENT IN TRACTION-ENGINES.

Specification forming part of Letters Patent No. 202,429, dated April 16, 1878; application filed February 16, 1878.

To all whom it may concern:

Be it known that I, MICHEL FORTIN, of Stillwater, in the county of Washington and State of Minnesota, have invented a new and Improved Traction-Engine, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a plan view; Fig. 2, a vertical longitudinal section on line *xx*, Fig. 1; Fig. 3, a side elevation with parts broken off; and Fig. 4, a front elevation, partly in vertical transverse section, of my improved traction-engine, showing the same arranged as a steam-wagon and steam-sleigh.

Similar letters of reference indicate corresponding parts.

This invention has reference to an improved traction-engine that may be used with equal facility in the summer and winter seasons, with wheels or runners, also quickly stopped or started, and turned around curves without the least difficulty.

The water in the boiler is distributed in such a manner that in going up or down hill it will not be thrown all on one end, so as to burn the flues at the other end, nor throw all the weight of the water on one side.

Referring to the drawing, A represents the tubular boiler of my improved traction-engine, and B the horizontal frame on which the same is supported on cushioning-springs, in the usual approved manner. The horizontal frame B is placed on the axle of the front guide-wheels C, which are steered from the cab of the engine, at the back of the boiler, by any suitable lever mechanism. The rear part of frame B rests on hind wheels C', that turn loosely on separate axles *a*, having bearings in side extensions B' of frame B. The outer pieces of the side extensions B' are made detachable, so as to admit the removal of the wheels C' and their replacing by runners, so that, in connection with runners of the front axles, the traction-engine may be employed in the winter season as a sleigh.

The hind axles *a* are made, adjoining the journals of the supporting hind wheels C', with eccentric sections *a'*, on which the hubs of the spurred driving-wheels D are placed. The driving-wheels D are revolved by means of spur or gear wheel and chain connection

with a double-crank shaft of the engine, or by belt and pulley or other transmitting mechanism, the crank-shaft being revolved by two steam-cylinders on the top of the boiler, as shown in Figs. 1 and 3. The inner projecting ends of the axles *a* are made square, and hand-levers E secured thereto, by which the axles may be turned so that the eccentric portions may be carried in upward direction, raising thereby the driving-wheels above the supporting-wheels, and stopping the propulsion of the carriage by the engines; or they may be turned down so that the eccentrics and driving-wheels project below the lower parts of the supporting-wheels, and cause thereby the forward propulsion of the entire carriage.

The driving-wheels are made of heavy iron plates, of disk shape, which are tapered off at the circumference to a sharp edge, so that the earth or snow will not pack against it. The spurs or teeth *b* of the driving-wheels are set into recesses of the disks, and secured by iron bolts and staples, or in other reliable manner. These spurs are made tapering to a sharp edge when the engine is used with wheels as a wagon, but tapered to a point when used with runners as a sleigh.

The two hind axles and driving-wheels serve also for facilitating the turning of the engine in rounding curves, by raising one of the levers and wheels and letting the other down, so as to throw the force of the engine on the wheel that is lowered, which will then assist in turning the wagon or sleigh.

The quick and convenient raising and lowering of the driving-wheels by means of the eccentric-axles and crank-levers renders the governing of the engine very easy, whether in starting, turning, or stopping, and gives thereby a superior control of the same.

The boiler A of the engine is constructed with a center space, A', formed by two transverse partitions, that extend from the bottom to the top of the boiler and divide the same into two sections, with separate flue systems, one connecting with the smoke-stack, and the other with the fire-place. The two boiler-sections are connected at the top by a steam-drum, F, so that the steam has a chance to circulate all through the boiler, and at the bottom by a U-shaped pipe, F', with cock *d*, that

gives the water a chance to circulate and assume its level. The cock is operated by a lever-rod from the cab, and is shut off in going up or down hill, so that the water is confined in each boiler-section, and thereby prevented from running to either end. The water, being thus distributed in the two boiler-sections, will not uncover the flues at either end, so as to expose them to the danger of getting burned out, and, in the second place, will not throw the weight of the entire body of water to one end of the boiler.

This boiler construction is applicable to all portable engines, and I reserve the right to file a separate application for the same.

The lever simply raises either of the driving-wheels, so as to throw the power of the engine on one wheel to make a more rapid turn.

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

1. The combination, in a traction-engine, of axles a , having eccentric portion a' , with the detachable side extensions B' of the frame B , as and for the purpose specified.

2. The combination, in a traction-engine, with the wheels $C D$, of the separate rear axles a , having eccentric section a' and squared inner ends, provided with hand-levers, as and for the purpose set forth.

MICHEL FORTIN.

Witnesses:

L. E. THOMPSON,
GEORGE W. WALSH.