(No Model.)

2 Sheets—Sheet 1.

E. J. TAYLOR.

TRACTION ENGINE.

No. 258,683. Patented May 30, 1882.

Fig. 1

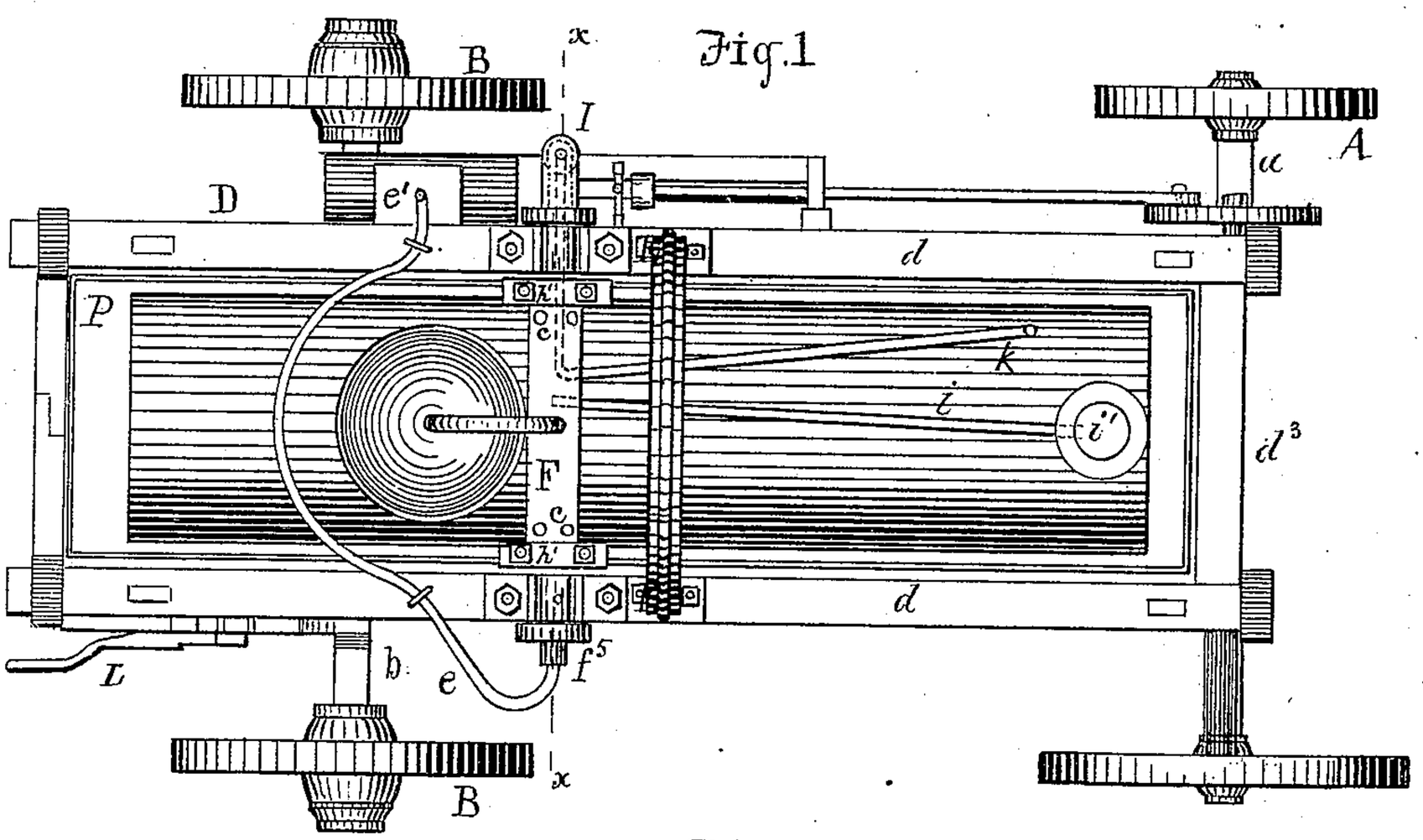

Fig. 2.

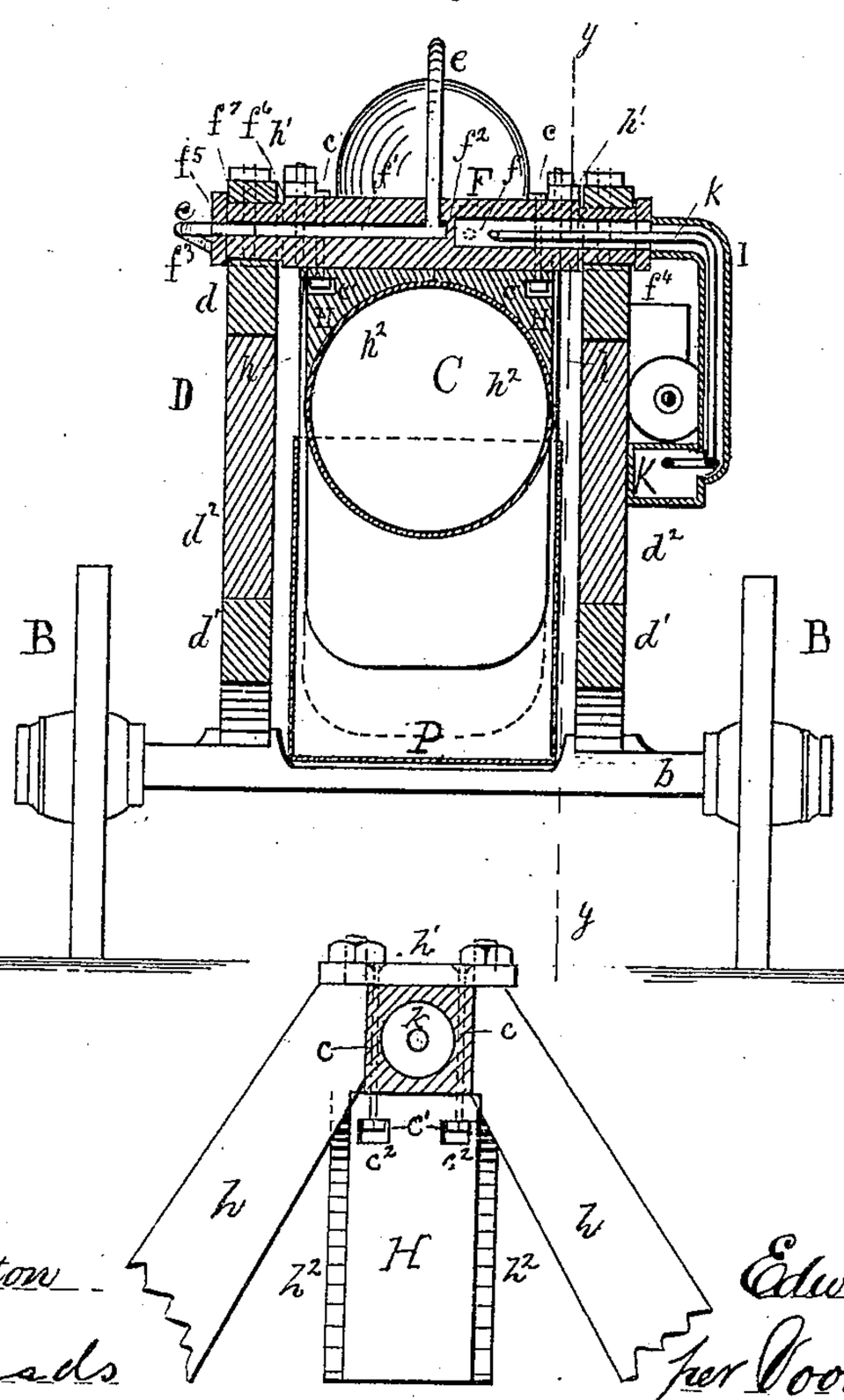

Fig. 3.

Attest

Wm R. Singleton

T. J. Edwards

Inventor

Edward J. Taylor

per Voorhees & Singleton

Attys

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2 Sheets—Sheet 2.

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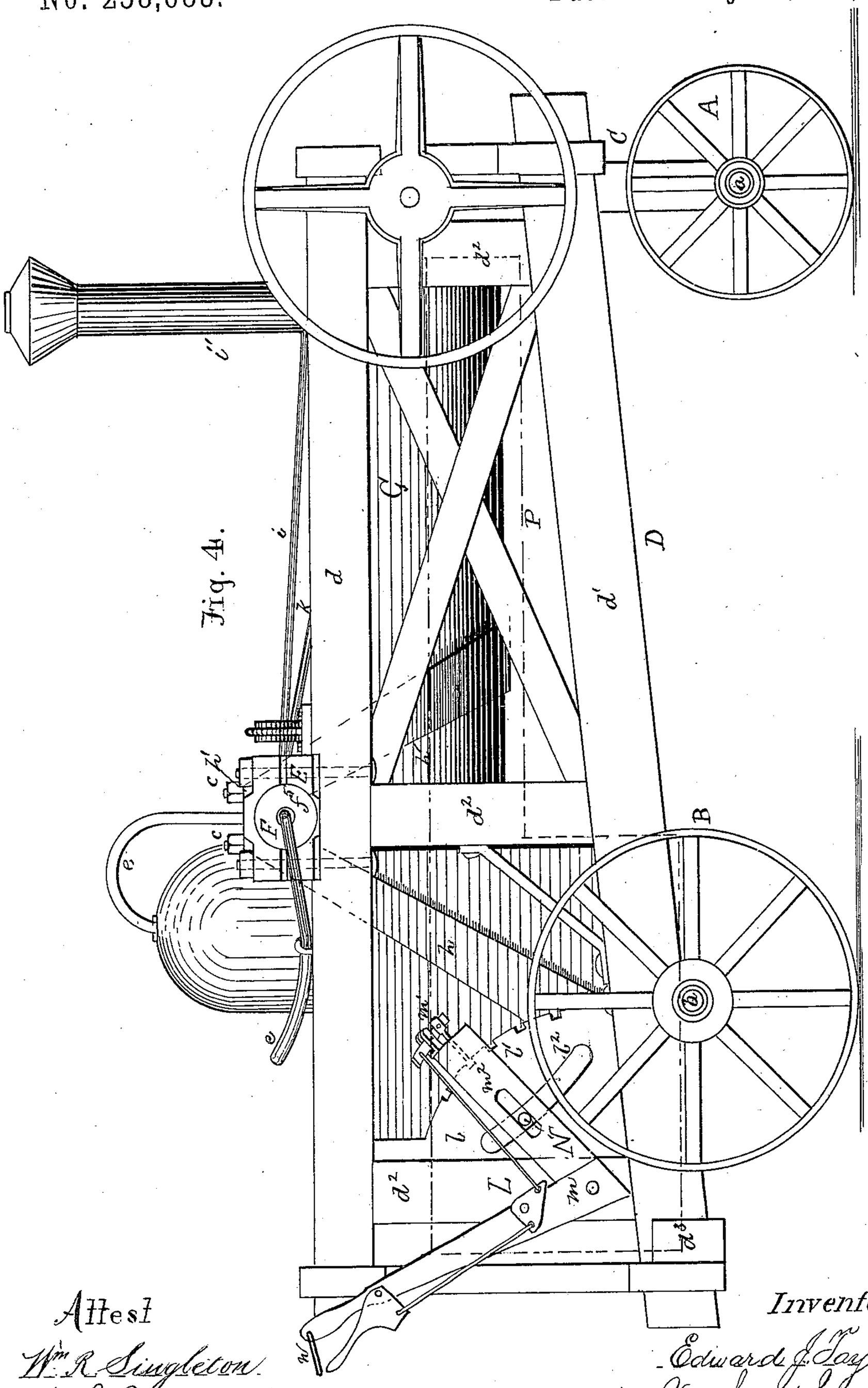

Fig. 4.

Attest

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UNITED STATES PATENT OFFICE.

EDWARD J. TAYLOR, OF FRANKFORT, WEST VIRGINIA.

TRACTION-ENGINE.

SPECIFICATION forming part of Letters Patent No. 258,683, dated May 30, 1882.

Application filed April 7, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. TAYLOR, of Frankfort, in the county of Mineral and State of West Virginia, have invented certain new and useful Improvements in Traction-Engines; 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 top view of the device; Fig. 2, a vertical transverse section on line *x x*, Fig. 1, showing in dotted lines the fall of the fire-box; Fig. 3, a sectional detail on line *y y*, Fig. 2, showing an end elevation of one of the castings; Fig. 4, a side view of the device, showing in dotted lines the position of the shield or apron.

This invention relates to improvements in traction-engines, and is especially useful in that class which is employed for thrashing, sawing, &c. The object of the invention is to furnish such engines with a boiler which will automatically adjust itself without the use of any attachment to differences of level, which can be locked and held at any point after its self-adjustment, and to provide means for protecting the boiler in crossing streams.

To these ends the invention consists in the construction and arrangement herein set forth.

In the annexed drawings, the letters A and B represent the front and rear wheels of a traction-engine supporting the axles *a* and *b*, the former carrying the head-block C. Supported upon the axle *b* and head-block C is a frame, D. This frame consists of longitudinal beams *d d'* and vertical and cross-beams d^2 d^3, and is to be properly and suitably braced, as shown in the drawings. Upon the top of its beams *d*, at the proper distance lengthwise, there are secured the journal-boxes E E, the said beams *d* being recessed to receive them. Journaled in these boxes E E is a rock-shaft, F, by which the boiler G is suspended within the frame.

To each side of the boiler is secured a hanger, consisting of the straps *h* and tie-plate *h'*. This latter rests on top of the shaft F, and the straps are bolted thereto, as shown. This forms the primary supports of or connection between the boiler and the shaft. As an auxiliary means, castings H are securely bolted by their flanges h^2 to the boiler immediately under the shaft F. Bolts *c* pass down through this shaft into the castings, where they are held by nuts *c'*, the casting being recessed out at c^2 to receive such nuts. By these devices the boiler is not only supported upon the shaft by the hangers, but held closely up thereto by the bolts taking into the castings.

The shaft F has two bores, *f f'*, the latter somewhat smaller, and there is a partition, f^2, between the two.

Into the bore *f'* the steam-supply pipe *e* enters, and, passing through, comes out at the end f^3 of the shaft F and passes over to the steam-chest *e'*; or, if preferred, there may be two pipes, one passing from the steam-dome down to the bore *f'* and the other from the bore to the steam-chest, the bore itself acting as a part of the supply-conduit. The latter is perhaps the preferable way, as it avoids the necessity of forming a joint in pipe *e* within the shaft of such a nature as to allow the boiler to swing.

Sleeved to the end f^4 of the shaft F is the exhaust-pipe I, connecting directly with the bore *f*, a pipe, *i*, carrying the exhaust-steam to the stack *i'*. Passing through the valve-box K, up through pipe I, and through bore *f* is the feed-water supply-pipe *k*, which passes out of shaft F to the boiler, as shown. By this device the supply is heated by the exhaust-steam. At its end outside of the boxes the shaft F is provided with collars f^5, and within the boxes with shoulders f^6, forming the journals f^7 between. Now, the length of the journals between the collars and the shoulders is such that in case of any side motion of the engine the collar at the upper side will catch against its box before the shoulder on the lower side will strike its box and will prevent this latter result, and hence the boiler will be held at the upper side.

By the construction thus indicated and described it will be seen that the boiler G is hung within the frame D below its top, and being firmly held to the shaft F, it has a full swinging movement in the boxes E E. Hence, as the engine passes up and down hill, the boiler, affected simply by gravity, freely swings upon its pivots and accommodates itself automatically to

change of level. No attachment or devices are necessary to accomplish this result; but it is done by simple weight of the boiler itself. The various connections between the boiler and the driving mechanism are all arranged so as not to be affected or harmed by this swinging motion.

When it is desired to use this engine at a given place for working some machine—such as a thrashing-machine—it is desirable to secure the boiler fixedly in a level position. For this purpose a locking device, L, is located at one corner of the frame, preferably at the rear. This consists of a plate, *l*, having a rack, *l'*, and an oblique slot, l^2, and a lever, *m*, having a spring-pawl, *m'*, and slot m^2. A pin, N, secured to the boiler, passes through the slots l^2 and m^2, as shown. A rod or two rods control the spring-pawl *m'*, and it may be held from the rack by a ring, *n*, or other device. In traveling the pawl is held away from the rack, so as to allow the boiler to swing freely. When the engine is stationary and the boiler comes to a level it is locked by letting the pawl engage the rack.

In all engines of this kind great annoyance has been found in crossing streams by the water putting out the fires. To avoid this I secure to the frame D, all around the boiler G, a shield or apron, P, of any desired height, and provide it with a slide-door for obtaining access to the fire-box.

If desired, a level may be placed upon the boiler, so as to indicate when the latter is true. This forms a device of great utility and possessing decided advantages. As the engine passes up and down hill the boiler preserves its level and the water within remains in proper position. When one end or the other of the boiler rises, as in stationary boilers, the water runs down to the other end, leaving the upper end most exposed to the heat of the fire. As the engine comes to a level the water flows back and injures the metal, and may cause the boiler to burst, particularly if there should be a fresh supply of cold water at that time. The boiler is hung within the frame and below the top of the latter, which brings the center of gravity low down, and in case of side motion the greater part of the weight is suspended from the upper or higher side of the frame.

With this device it is only necessary, in using it to work a machine, to have the hind wheels level, as the boiler will swing and the connecting-gear be true.

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

1. A traction-engine having a frame provided with journal-boxes at the top, in combination with a boiler suspended within such frame below the level of the boxes, and a rock-shaft secured to the boiler and resting in said boxes, as set forth.

2. A traction-engine having a frame provided with journal-boxes, in combination with a self-adjusting boiler suspended within the frame, and a rock-shaft, bored as described, and provided with connections for the steam and water supply and the exhaust, as set forth.

3. In a traction-engine, a self-adjusting boiler, in combination with means, substantially as described, for locking it at any desired point after it is leveled, as set forth.

4. In a traction-engine, the shield or apron located at the sides and beneath the boiler, as and for the purpose set forth.

5. A traction-engine provided with a frame having the journal-boxes, as described, in combination with a self-adjusting boiler suspended within the frame, and a rock-shaft secured to the boiler, resting in the boxes, and provided at its ends outside of the boxes with the collars, whereby, in the event of one side of the engine being higher than the other, the greater part of the weight of the boiler will be sustained by the upper side of the frame, as set forth.

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

EDWARD J. TAYLOR.

Witnesses:
GEO. A. GRAHAM,
L. C. YOUNG.