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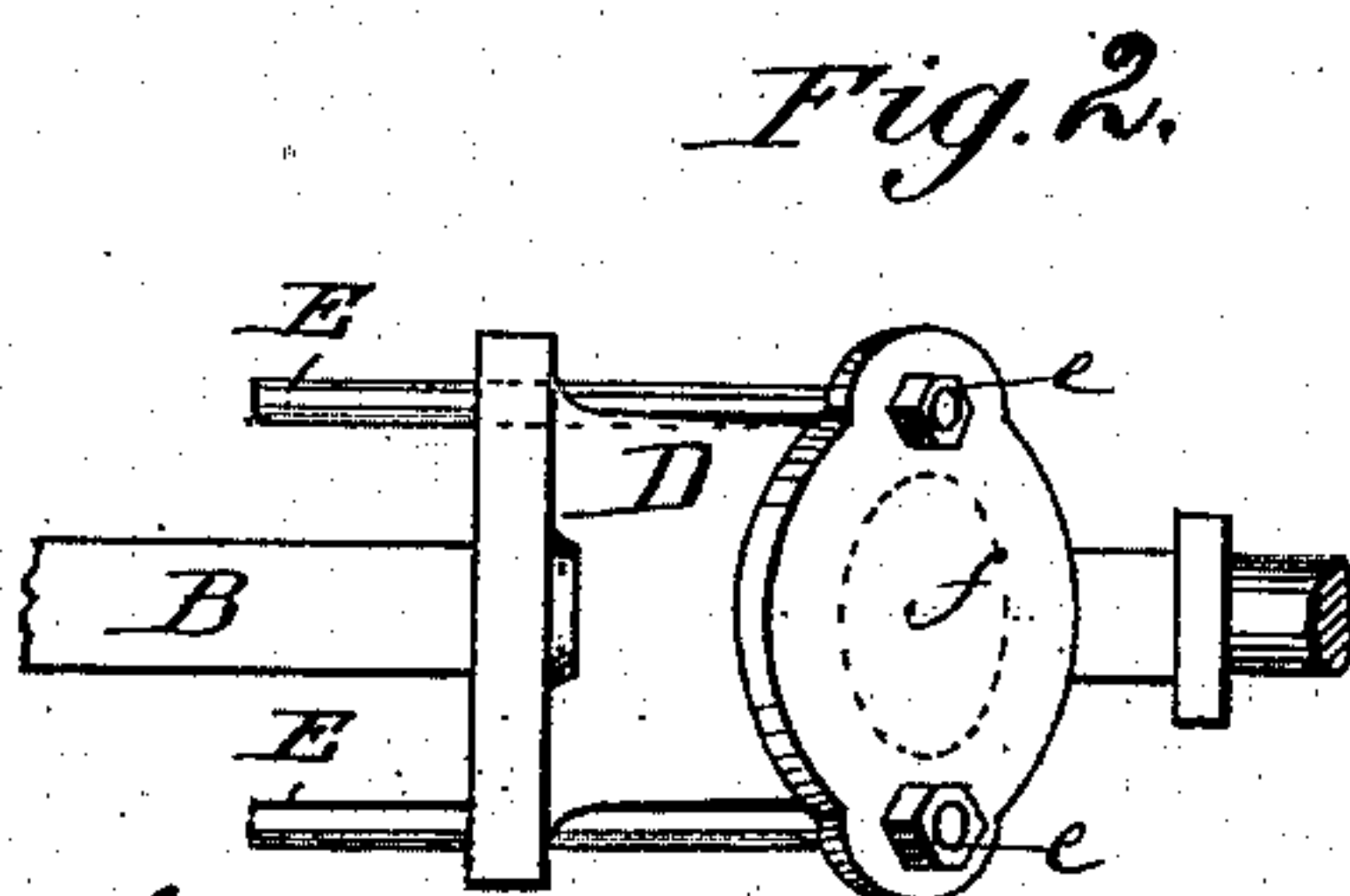
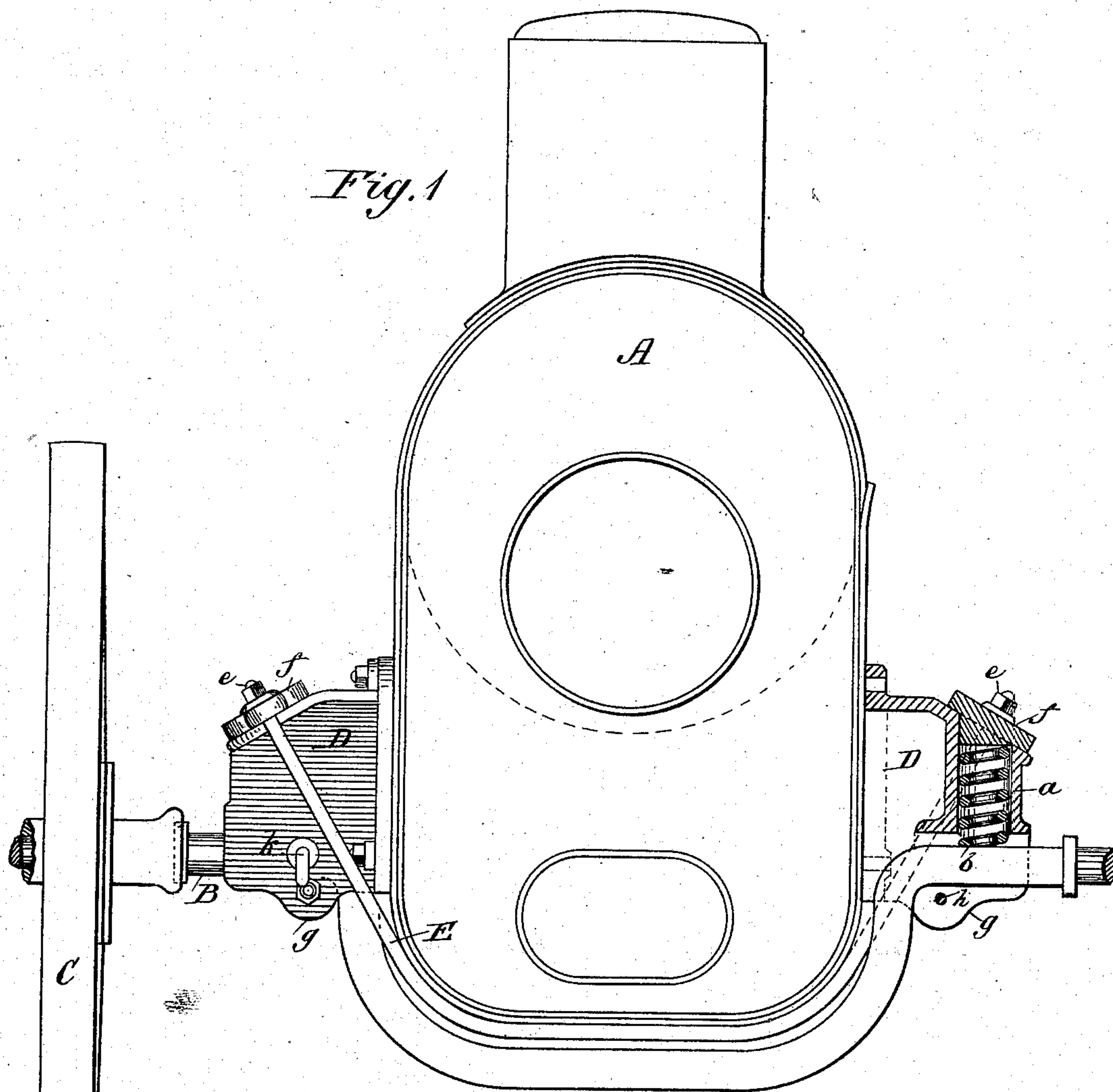
2 Sheets—Sheet 1.

A. O. FRICK & W. H. SNYDER.

ROAD ENGINE.

No. 273,978.

Patented Mar. 13, 1883.



WITNESSES:

W. W. Hollingsworth
Edw. W. Pyne

INVENTOR:

A. O. Frick
Wm. H. Snyder
BY *Mann & Co.*

ATTORNEYS.

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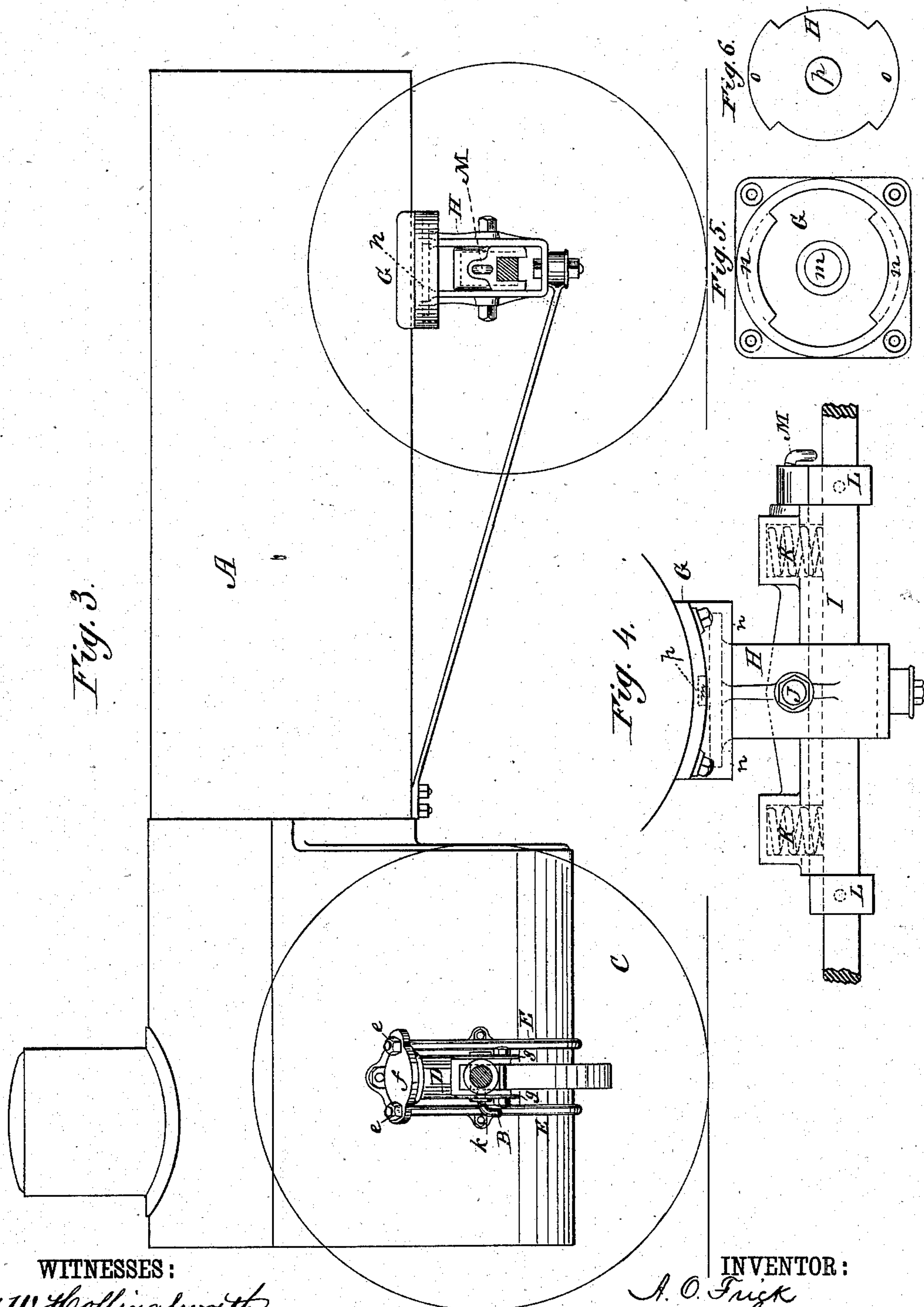
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UNITED STATES PATENT OFFICE.

ABRAHAM O. FRICK AND WILLIAM H. SNYDER, OF WAYNESBOROUGH,
PENNSYLVANIA.

ROAD-ENGINE.

SPECIFICATION forming part of Letters Patent No. 273,978, dated March 13, 1883.

Application filed January 25, 1883. (No model.)

To all whom it may concern:

Be it known that we, ABRAHAM O. FRICK and WM. H. SNYDER, of Waynesborough, in the county of Franklin and State of Pennsylvania, have invented a new and useful Improvement in Portable Engines; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a rear end view, partly in section. Fig. 2 is a top view of one of the spring-boxes. Fig. 3 is a side view of the engine with the axles in section. Fig. 4 is an end view of the front coupling between the boiler and axle. Figs. 5 and 6 are face views of the two parts of turn-table or fifth-wheel.

Our invention relates to certain improvements in portable engines, which are applicable to all engines of the portable class, whether the same be self-propelling engines or mounted engines, which are designed to be transported by a team.

Our invention has reference to the manner of mounting the boiler upon the running-gears, and its object is mainly to relieve the boiler-plates of the strain at the rivets which connect the boiler to the spring-boxes; and to this end it consists in passing beneath the rear end of the boiler one or more stirrup-rods, which carry the weight of the rear end of the boiler, which stirrup-rods are connected at their ends to a cap which rests above the springs in the spring-boxes, which springs are mounted upon the top of the axle, on each side, and which boxes are fastened to the boiler-plates, and serve to guide and hold the boiler in its vertical oscillations on the axle.

Our invention also consists in means for locking the boiler, so as to preclude the action of the springs when the engine is stationary on its wheels and at work, and also in the means for mounting the forward end of the boiler, as will be hereinafter fully described.

In the drawings, A represents the boiler of a portable engine, and B is the rear or main axle, mounted upon wheels C and cranked or bent downwardly in the center. Upon each side of the rear end of the boiler is bolted a cast-metal box, D, which is formed with a cy-

lindrical chamber, *a*, in which is contained the spiral spring *b*, which, upon each side, sustains the weight of the boiler. Both the upper and the lower end of this chamber *a* are open, and the spring bears at the bottom against the top of the axle, and bears at the top against a metal cap, *f*, whose upper surface is inclined, and which has on its under side a round lug, *c*, fitting within the chamber, and which bears upon the top of the spring. To these caps, outside the box D, we fasten by nuts *e* the ends of the stirrup-rods E, of which we prefer to use two, which stirrup-rods pass under the rear end of the boiler, and when the nuts *e* are tightened up carry the weight of the rear end of the boiler, which weight is by means of the caps *f* placed upon the springs. The boxes D are provided with downwardly-projecting sides *g g*, which pass below the axle and form guides for the vertical movement existing between the boiler and the axle, the axle being prevented from bouncing out from under the boxes by means of a bolt, *h*, that passes from one side *g* to the other.

When the engine is no longer moving on its running-wheels, and is stationary and normally at work, it is desirable to prevent the vibratory movement of the boiler, incident to mounting it on springs, and for this purpose a binding-screw, *k*, is tapped through one of the sides *g* of each box, and is made to bind or pinch the axle when it is desired to stop the action of the springs. This binding-screw is located on the side, and advances to its bearing in a horizontal direction, so that in case it is forgotten to release the screw when the engine is to be transported the threads of the screw are not stripped off by the bouncing of the boiler, as they would be if the screw were placed in a vertical position. This screw is also provided with a bent end, forming an offsetting or weighted head, which by preserving always its pendent position from gravity is not liable to become unscrewed and lost from the jolting of the engine in transportation.

For supporting the front end of the boiler a plate, G, Fig. 5, is bolted to the under side of the same, and is formed with a central hole, *m*, and opposite undercut segments or flanges, *n n*, which, with the lugs *o* and boss *p*, Fig. 6,

of the upper surface of yoke H, form a species of turn-table or fifth-wheel, the yoke H being connected to the plate G by turning it at right angles to its normal position, in which position the lugs *o* pass between the segments *n*, while the boss *p* enters the hole *m*, after which the yoke may be turned to its true position, in which the lugs *o* rest beneath the segments or flanges *n*. The yoke H is connected to the hollow casting I by a pivot-bolt, J, which hollow casting rests upon the top of the axle, and has spring-boxes, in which are springs K, that make an elastic connection between the hollow casting and the axle. L are collars fixed rigidly to the axle to hold the hollow casting I from moving endwise, and M is a set-screw to lock the hollow casting to the axle, so as to stop the action of the springs, for the same purpose before described.

With regard to the front bearing for the boiler, we do not claim here the yoke, hollow casting, and springs, as these are shown in a prior patent, granted July 5, 1881, No. 243,881, but only the peculiar construction of the upper portions of the yoke H and its combination with the plate G.

Instead of using two stirrup-rods, but one may be used.

Having thus described our invention, what we claim as new is—

1. The stirrup-rod passing under and supporting the boiler, combined with supporting-springs arranged between the ends of said rods and the axle, substantially as described.

2. The stirrup-rod passing under and supporting the boiler, combined with a box or casting fixed to the side of the boiler, and a

spring arranged in the box or casting beneath the stirrup-rod, so as to carry the strain of the boiler, substantially as described.

3. The box D, having chamber *a* for the spring, combined with the stirrup-rod supporting the boiler, a cap connecting to the ends of the stirrup-rods, and spring bearing upwardly against said cap and downwardly upon the axle, as shown and described.

4. The combination, with the axle and the spring-supported body of a portable engine, of a horizontal binding-screw for locking the body rigid to the axle, the said screw being provided with a weighted or gravitating head, as described.

5. The box D, having spring-chamber *a*, downwardly-extending walls *g g*, and bolt *h*, in combination with the axle, the spring *b*, the cap, and the stirrup-rods, substantially as shown and described.

6. In a portable engine, the combination, with the axle and a box or chamber connected to the boiler, and having a spring-connection with the axle, of a binding-screw or locking device for preventing the resilient action of the springs, as set forth.

7. The combination, with the boiler having plate G, with undercut segmental flanges *n n* and central hole, *m*, of the yoke H, having lugs *o o* and boss *p*, the bolt J, hollow casting I, springs K, and collars L, substantially as shown and described.

ABRAHAM O. FRICK.
WILLIAM H. SNYDER.

Witnesses:

D. M. GOOD, Jr.,
FRED. FRICK.