

(No Model.)

W. R. HITCHCOCK.
LEVELER FOR ROAD ENGINE BOILERS.

No. 506,691.

Patented Oct. 17, 1893.

Fig. 1.

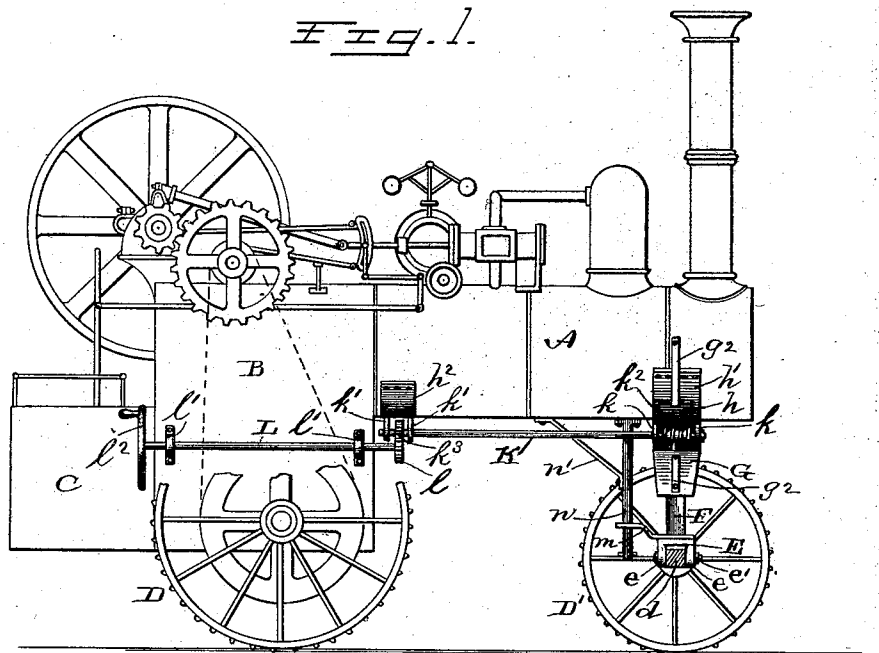


Fig. 2.

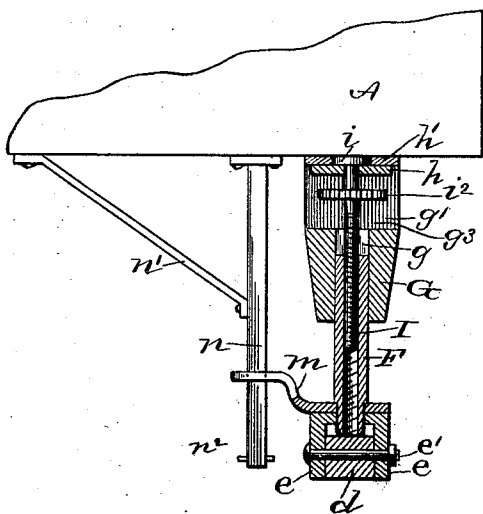
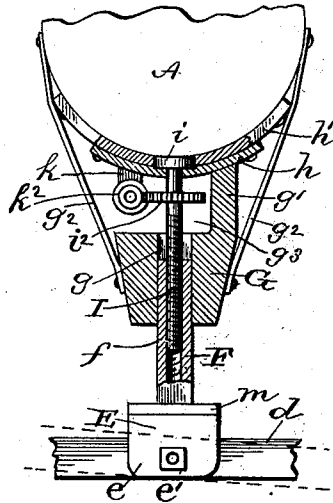


Fig. 3.



Witnesses:
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INVENTOR:
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his atty.

UNITED STATES PATENT OFFICE.

WILLIAM R. HITCHCOCK, OF DOUGLAS, ILLINOIS.

LEVELER FOR ROAD-ENGINE BOILERS.

SPECIFICATION forming part of Letters Patent No. 506,691, dated October 17, 1893.

Application filed January 6, 1893. Serial No. 457,447. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. HITCHCOCK, a citizen of the United States, residing at Douglas, in the county of Knox and State of Illinois, have invented certain new and useful Improvements in Supports and Levelers for Traction-Engine Boilers, of which the following is a specification.

This invention pertains to improvements in apparatus for supporting and leveling the boilers of traction engines, and the improvements consist in novel structural features and combinations of devices, the operation of which devices separately and in combination are hereinafter fully described, and the novel combinations of which devices are expressed in the claims hereto appended.

Mechanism showing the construction, arrangement, connection and mutual relationship of the parts of my improvement, and the greater part of an ordinary traction engine in which the improvements are incorporated, is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of an ordinary traction engine, with the near front wheel and part of the near hind wheel broken away, to better show the side elevation of my improvements which are incorporated therewith; Fig. 2, a side elevation of part of the boiler and part of the leveling and supporting mechanism, and sectional elevation of other parts of said mechanism, and sectional elevation of the axle; Fig. 3, a front elevation of part of the leveling and supporting mechanism partly in section, and front elevation of adjacent parts.

The same reference letter is used to designate the same part in the different figures of the drawings.

The traction engine shown is of an ordinary well known type, and need not be further herein described than merely to designate its main parts by reference letters; A designating the horizontal boiler; B the fire box; C the driver's stand; D the rear wheels, and D' the forward wheels, journaled on the axle *d*.

The jaws *e* of a block E are pivoted mid-length of and astride the axle *d* by a bolt *e'* in such manner that the axle may be tilted or either wheel D' raised in passing over an ob-

stacle or an uneven surface, while the block E remains in its horizontal position, as shown by dotted lines at Fig. 3. The lower end of a hollow standard F is journaled in the upper part of the block E, see Fig. 2, and its upper square portion *f* is seated to slide lengthwise of itself, in a passage way *g* through a frame block G, one side *g'* of which block G is extended and fixed to a plate *h* which is bolted to a similarly curved plate *h'* that is seated upon and is fixed to the lower side of the boiler. The frame block G is braced laterally of the boiler by rods *g²* which extend upwardly from it to the boiler. The hollow standard F is screw threaded to receive a screw threaded shaft I, which is journaled at its upper end in a bearing in the plate *h*, and has a head *i* on its upper end which rests above the plate *h* and in an aperture in the plate *h'*. A pinion *i²* is fixed to the shaft I a short distance below the plate *h*, and within the recess *g³*, formed by the cut away portion of the block G, as shown best at Fig. 3.

K is a shaft which is journaled at its forward end in bearings *k* fixed to the plate *h* and is journaled at its rear end in bearings *k'* fixed to a similar plate *h²*, which is bolted to the boiler near the front side of the fire box B. The shaft K has a worm gear *k²* on its forward end, which gears with the pinion *i²*, and has a pinion *k³* on its rear end, which gears with a pinion *l* on the front end of a shaft L, which has journal bearings *l'* on the side of the fire box, and the rear end of which carries a hand crank wheel *l²*, located within easy reach of the engine driver from his stand C.

The block G, and standard F, in fact the entire support between the boiler and axle *d*, and the operating mechanism which it carries is braced lengthwise of the boilers as follows: A curved bracket *m*, journaled on the standard F to swing thereon with the block E, extends rearwardly and has a hole through which a pendant *n* passes that is fixed at its upper end to the boiler, and is braced by a rod or bar *n'* that is fixed to the pendant *n* at its lower end, and to the boiler at its upper end. Rotation of the shaft I in one direction will screw it downwardly into the standard F, and thereby carry the block G downwardly, and lower the forward end of the boiler A, while rotation

of the shaft I in an opposite direction will raise or elevate the forward end of the boiler in an evident manner, and it will also be evident that the engine driver in his stand C
 5 can by taking hold of the crank wheel k^2 , rotate the shaft L, and thereby the shaft K, and through the worm gear k^3 and pinion i^3 in gear therewith rotate the shaft I to raise and lower the forward end of the boiler as may
 10 be found necessary to maintain the boiler in a horizontal position, and thereby maintain a uniform depth of water at both ends of the boiler when the engine is passing over obstacles or uneven surfaces of any kind that
 15 will elevate it at one end. The same means can also be used to level the boiler properly when the engine is located to be used in a stationary position.

In raising and lowering the forward end of the boiler the bracket m will slide freely on the pendant n , so that the brace formed by said bracket and pendant, and the rod n' will be effective in all adjustments of the leveling mechanism, and the pins n^2 at the lower
 25 end of the pendant n , will limit the movement upwardly of the block G and shaft I. The bracket m not being fixed to the block E will permit the block E and axle d to swing or turn on the standard F in turning the engine or for any other purposes. The block
 30 or clip E hinged at e' to the axle, will permit either wheel to raise or lower as shown by dotted lines at Fig. 3, without disturbing the vertical position of the support connecting
 35 said block with the boiler, and without movement of the boiler.

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

40 1. In a traction engine, the combination with an axle and boiler, of a hollow standard mounted on the axle having a threaded interior, a threaded shaft secured to the boiler and working in the standard, a wheel on the
 45 shaft, means for actuating the wheel and a block fixed to the boiler and having a vertical opening therein through which the standard works, substantially as described.

50 2. In a traction engine boiler level and support, and in combination substantially as hereinbefore described, with an axle and the

boiler, a block E, hinged to the axle, a hollow screw threaded standard F journaled at its lower end in the block E, a block G fixed
 55 to the boiler, and having a passage way g for the standard F, and a screw threaded shaft I secured to the boiler substantially as described, and screwing into the standard F, for the purpose of raising and lowering the forward end of the boiler. 60

3. In a traction engine boiler and support, and in combination substantially as described, with the axle and the boiler, a block E hinged to the axle, hollow standard F, block G, screw threaded shaft I, bracket m , pendant n , and
 65 brace n' , all operating as and for the purpose described.

4. In a traction engine boiler and support, and in combination substantially as described, with the axle and the boiler, the blocks E
 70 and G, the hollow standard F journaled in the block E, and arranged to slide in a passage way in the block G, the screw threaded shaft I secured to the boiler substantially as shown, screwed into the hollow standard F,
 75 and having a pinion i^3 which gears with a worm gear k^2 , carried on a shaft K the rear end of which has a pinion k^3 fixed thereon, and means for rotating said shaft in either direction, which extend to the engine driver's
 80 stand.

5. In a traction engine boiler and support, and in combination substantially as described, with the axle and the boiler, the blocks E
 85 and G, the hollow standard F journaled in the block E, and arranged to slide in a passage way in the block G, the screw threaded shaft I secured to the boiler substantially as shown, screwed into the hollow standard F, and having a pinion i^3 which gears with a
 90 worm gear k^2 , carried on a shaft K the rear end of which has a pinion k^3 fixed thereon, means for rotating said shaft in either direction, which extend to the engine driver's stand, and a brace consisting of the bracket
 95 m , pendant n , and rod n' .

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM R. HITCHCOCK.

Witnesses:

ROBERT KELLY,
 ZELOTES COOLEY.