

C. KENT.
 AUTOMATIC JACK FOR ENGINE BOILERS.
 APPLICATION FILED JULY 30, 1909.

958,928.

Patented May 24, 1910.

FIG. 1.

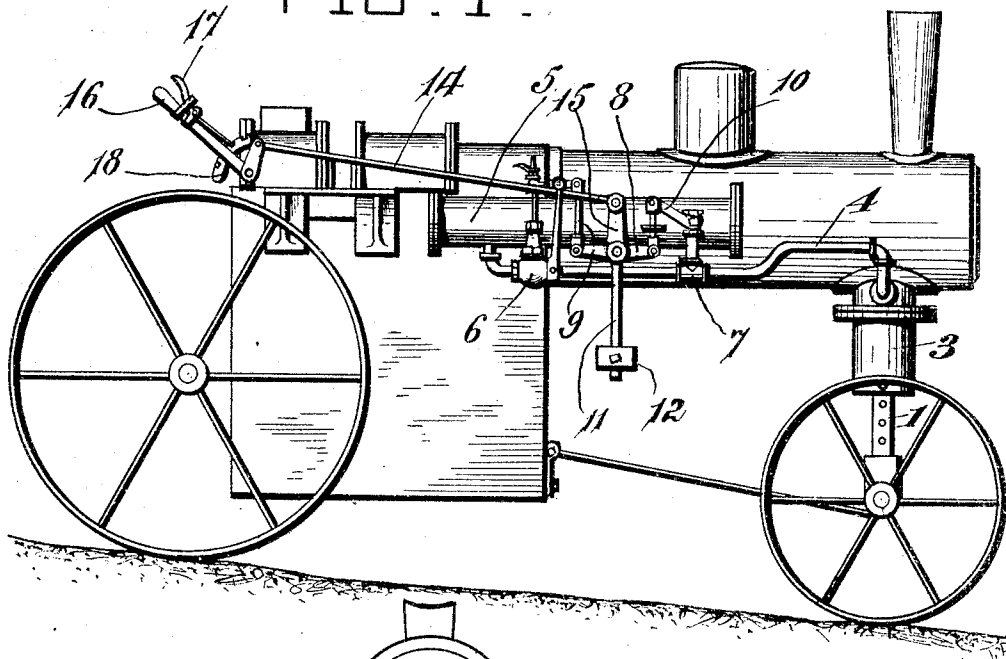


FIG. 2.

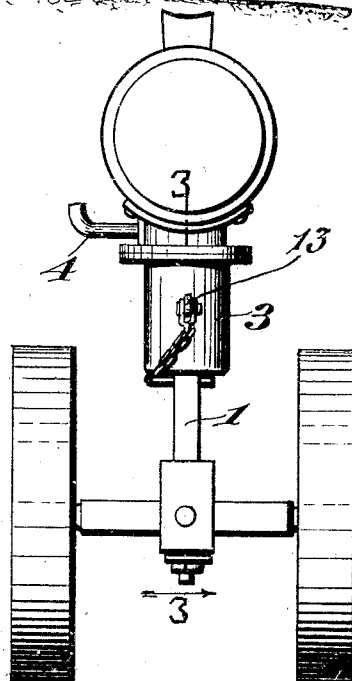
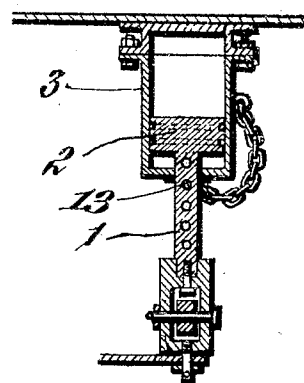


FIG. 3.



Witnesses:

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AUTOMATIC JACK FOR ENGINE-BOILERS.

958,928.

Specification of Letters Patent.

Patented May 24, 1910.

Application filed July 30, 1909. Serial No. 510,481.

To all whom it may concern:

Be it known that I, CHARLES KENT, a subject of the King of Great Britain, residing at Pevensey, county of Muskoka, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Automatic Jacks for Engine-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention to be hereinafter described relates to fluid operated lifting jacks, and particularly to the general class of such devices as are used in raising or lowering the ends of traction engine boilers, and the like.

Broadly speaking, it comprises a cylinder and coöperating piston connected respectively to an engine boiler and to the forward axle or under-framing of a traction engine, or the like; means for supplying fluid to the cylinder; means for controlling the supply of fluid; and means for automatically operating the controlling means.

In order to more clearly disclose the construction, operation and use of the invention, reference should be had to the accompanying drawings forming part of the present application.

Throughout the several figures of the drawings, like reference characters designate the same parts.

In the drawings: Figure 1 is a side elevation of a traction engine, showing the application of the invention; Fig. 2 is a front view of Fig. 1; and, Fig. 3 is a detail sectional view through the lifting cylinder, detached.

In order to more clearly illustrate the invention and its application, it will be described as used in combination with a common form of traction engine. To the front axle of the engine is secured the piston rod 1, carrying the head 2, which travels freely in a piston cylinder 3 secured to the under surface of the engine boiler. To the upper end of this cylinder is connected one end of a fluid supply pipe 4, the opposite end of the pipe being connected to a tank 5, which may be filled by a suitable air pump, or the like. On each side of the approximate center of the pipe 4 is placed a valve. One of these valves 6 is adapted to open or close the pipe 4, as desired, while the other valve 7, in one position, allows passage of fluid

through the pipe 4 to the cylinder 3, its second position establishing communication between the cylinder 3 and the atmosphere, through the pipe 4, and so acting as a relief valve for the cylinder.

The device as a whole is adapted to automatically maintain the level of the engine boiler. To that end, a gravity device has been provided for actuating the valves 6 and 7. This device comprises a lever 8, pivotally supported on the boiler at a point substantially midway between the valves, rods 9 extending from the lever ends to the valve handles 10, and a pendulum bar 11 and weight 12 depending from the center of the lever. Consequently, as the engine travels up grade, the pendulum will operate to close the valve 6 and open the valve 7, allowing escape of fluid from the cylinder 3 and lowering the forward end of the boiler. In going down grade, the valves 6 and 7 will both be moved to allow a clear passage through the pipe 4, while at the same time preventing escape of fluid from the cylinder 3 through the valve 7.

If at any time it is desired to lock the boiler in its position while the engine is on an incline, and so prevent strains on the valves, piping, cylinder and other parts of the apparatus, it is only necessary to insert the pin 13 in one of the perforations of the piston rod 1 and allow enough fluid to escape from the cylinder 3 to permit it to rest upon the pin. In many instances, the grades, though uniform, will be rough, resulting in jolting and jarring. A sudden jolt, of course, will act to swing the pendulum rod and actuate the valves 6 and 7, resulting in raising or lowering the end of the boiler when not desired. To avoid this, a locking device has been provided. This locking device comprises a rod 14 connected at one end to an upward extension 15 of the pendulum rod 11, and similarly connected, at its opposite end, to an arm of a hand lever 16, which may be held in various positions by engagement of its catch 17 with the notched arc plate 18. By engagement of the catch 17 with the arc plate 18, movement of the pendulum bar 11 is prevented, and consequent operation of the valves 6 and 7 is avoided.

It is clear that changes may be made in the construction, arrangement and disposition of the several parts of the invention, without in any way departing from the field

and scope of the same, and it is meant to include all such within this application, wherein only a preferred form has been disclosed.

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

1. An automatic jack of the character described, comprising a cylinder, a piston 10 mounted therein, a compressed air tank, a pipe connecting said tank and cylinder, and automatic means operated by variations in the position of an engine boiler and adapted to control the flow of air through said pipe.

15 2. An automatic jack of the character described, comprising a cylinder adapted to be secured to the forward end of an engine boiler, a piston adapted to be secured to the running gear of the engine, a compressed 20 air tank, a pipe connecting said cylinder and tank, valves mounted in said pipe and adapted to control the flow of air from the tank to the cylinder and from the cylinder to the atmosphere, and pendulum operated means 25 for automatically actuating said valves to control the flow of air through said pipe and maintain the level of the engine boiler.

3. An automatic jack of the character described, comprising a cylinder adapted to be 30 secured to an engine boiler, a piston adapted to be secured to the running gear of the engine, a compressed air tank, a pipe connecting said tank and said cylinder, valves adapted to control the flow of air through 35 said pipe to said cylinder and through said pipe from said cylinder to the atmosphere, a lever for actuating said valves, and pendulum mechanism for operating said lever.

4. An automatic jack comprising a cylinder 40 adapted to be secured to an engine boiler,

a piston mounted therein and adapted to be secured to the running gear of the engine, a compressed air tank, a pipe connecting said compressed air tank and said cylinder, valves 45 for controlling the flow of compressed air through said pipe, means for automatically operating said valves as the level of the boiler changes, and means for locking said cylinder in its various positions.

5. An automatic jack of the character described, comprising a cylinder adapted to be 50 secured to an engine boiler, a piston mounted in said cylinder and adapted to be secured to the running gear of said engine, a compressed air tank, a pipe connecting said compressed air tank and said cylinder, valves for 55 controlling the flow of air through said pipe, pendulum mechanism for automatically operating said valves as the level of the boiler changes, and means for locking said pendulum mechanism in inoperative position. 60

6. An automatic jack comprising a cylinder adapted to be secured to an engine boiler, a piston mounted in said cylinder and adapted to be secured to the running gear of the 65 engine, a compressed air tank, a pipe connecting said compressed air tank and said cylinder, valves for controlling the flow of air through said pipe to said cylinder and from said cylinder through said pipe to the 70 atmosphere, and means for automatically operating said valves simultaneously as the level of the boiler changes.

In witness whereof I have hereunto set my hand in the presence of two witnesses. 75

CHARLES KENT.

Witnesses:

D. R. McLEAN,
ARTHUR KENT.