(No Model.)

# A. J. HOAG.

## TRACTION ENGINE.

No. 303,516. Patented Aug. 12, 1884.

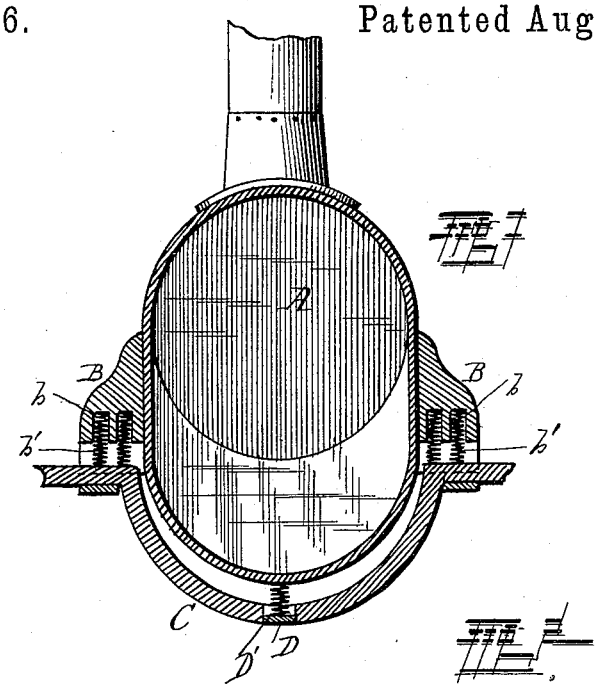


FIG. 1.

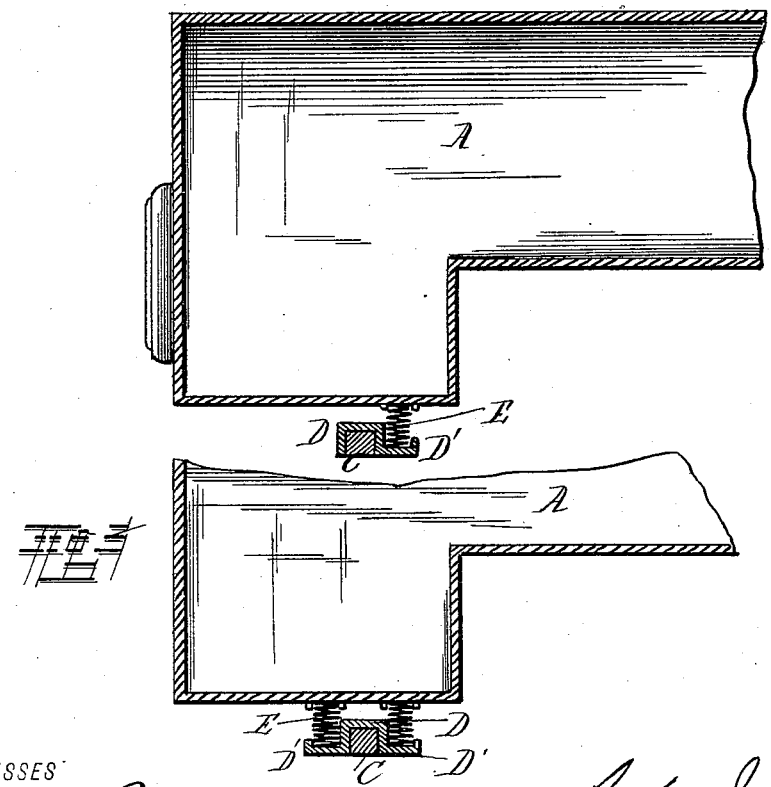


FIG. 2.

WITNESSES

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ANDREW J. HOAG, OF BATTLE CREEK, MICHIGAN, ASSIGNOR TO NICHOLS, SHEPARD & COMPANY, OF MICHIGAN.

## TRACTION-ENGINE.

SPECIFICATION forming part of Letters Patent No. 303,516, dated August 12, 1884.

Application filed June 9, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW J. HOAG, of Battle Creek, county of Calhoun, State of Michigan, have invented certain new and useful Improvements in Traction-Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to an improvement in the manner of supporting the boiler upon the axle, whereby the operating parts mounted on the boiler are relieved of the injurious effect consequent on the jarring of the machine in its movements over rough roads or in coming in contact with obstructions; and to this end my invention consists in the combination, with the crank-axle on which the traction-wheels are mounted, having a yielding connection with each side of the boiler through supporting-brackets connected thereto, of a yielding support for the boiler, arranged centrally of the axle, for removing the strain from the side brackets and forming a central support on the axle for the boiler.

It further consists in a novel construction of supporting-bracket for the central springs, whereby said springs may be made of a length to provide for proper elasticity without projecting below the axle.

It further consists in the combination, with the axle, of a supporting-bracket straddling the axle centrally of its length, and provided upon each side with projecting supports for permitting the use of a spring upon each side of the axle, upon which the boiler may rest.

Figure 1 is a transverse sectional view through the boiler, showing the form of axle and the manner of supporting the boiler thereon. Fig. 2 is a section through the fire-box of the boiler, showing one manner of applying the central supporting-spring; and Fig. 3 is a similar view, showing a spring arranged upon each side of the axle.

The boiler A is constructed in any usual or preferred manner, and has bolted to it near the forward portion of the fire-box, and upon each side, brackets B B, provided with pockets *b b* for receiving springs *b' b'*. These springs are shown as being made of metal in spiral form; but any other form of spring suitable for the purpose may be employed. The brackets B B are shown as being each provided with two pockets for the reception of springs; but the number of springs and the manner of connecting or supporting the axle at this point may be varied as occasion shall require.

The axle C, on which the traction-wheels are mounted, is made in inverted-arch form, and extends around under the boiler or fire-box thereof, being held up firmly in contact with the springs mounted in the side brackets by means of clips extending under the axle and bolted to the brackets. The curved portion of the axle conforms in its outline to the curved form of the fire-box, and at its upper ends fits nearly against the vertical side wall thereof, and curving down in such manner as to leave a space between its upper face and the lower face of the boiler of about one inch near the center. Upon the axle, midway its length, is mounted a bracket, D, which straddles the axle, and being secured thereto in any preferred way. This bracket is provided upon its depending ends with projecting lugs D', which project out therefrom to form supports or rests for the central supporting-springs, E, which rest upon said lugs and are supported thereby. The depending ends of the bracket extend down on both sides of the axle to a point on a line with the lower edge thereof, so that the lower face of the lug projecting therefrom shall be on a line with the lower edge of the axle. By this construction of support it will be seen that the springs can be made of sufficient length to provide for proper elasticity without projecting below the line of the axle, and as a consequence all liability of their becoming damaged or broken by contact with obstructions is effectually avoided.

The springs are shown as being made of metal, in spiral form; but it will be seen that any form of spring may be employed as the circumstances of the case shall require. The bracket is also shown as provided with a lug projecting out therefrom on each side of the axle, to provide for the use of a spring upon each side; but it will be readily seen that only one spring may be used, if found desirable.

Having now described my invention, I claim—

1. The axle made in crank or inverted-arch

form, having a yielding connection with each side of the boiler, in combination with a yielding vertical support for the boiler arranged centrally of the axle, substantially as and for the purpose described.

2. The bracket for the central spring, straddling the axle, and having a lug projecting from the depending end for the support of the spring on which the boiler rests, substantially as and for the purpose described.

3. The combination of the axle with the supporting-bracket straddling the same, and provided on each side with projecting supports for the boiler-supporting springs, substantially as and for the purpose set forth.

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Witnesses:
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