

(No Model.)

M. LAFEVER.
TRACTION ENGINE.

No. 339,194.

Patented Apr. 6, 1886.

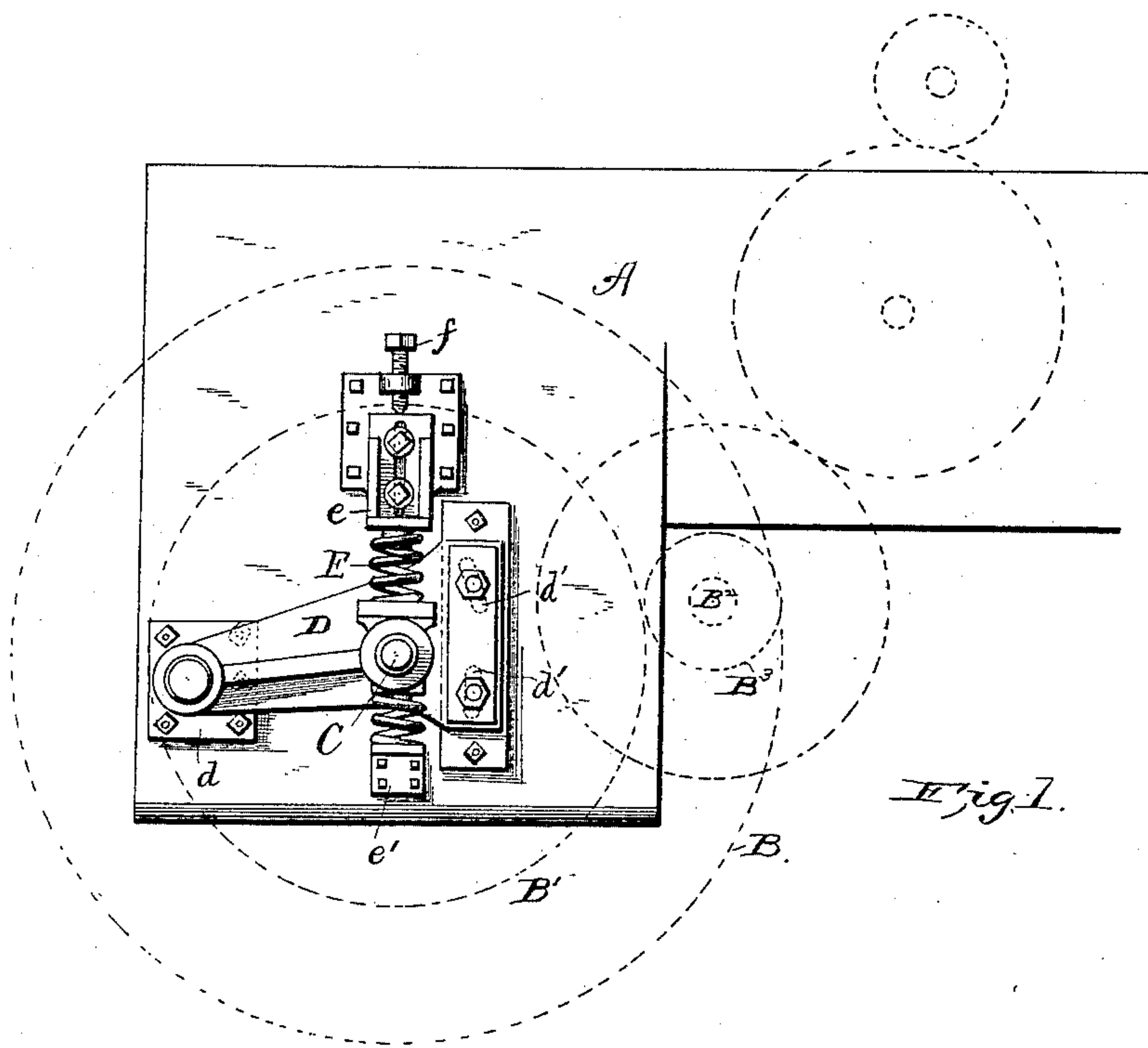


Fig. 1.

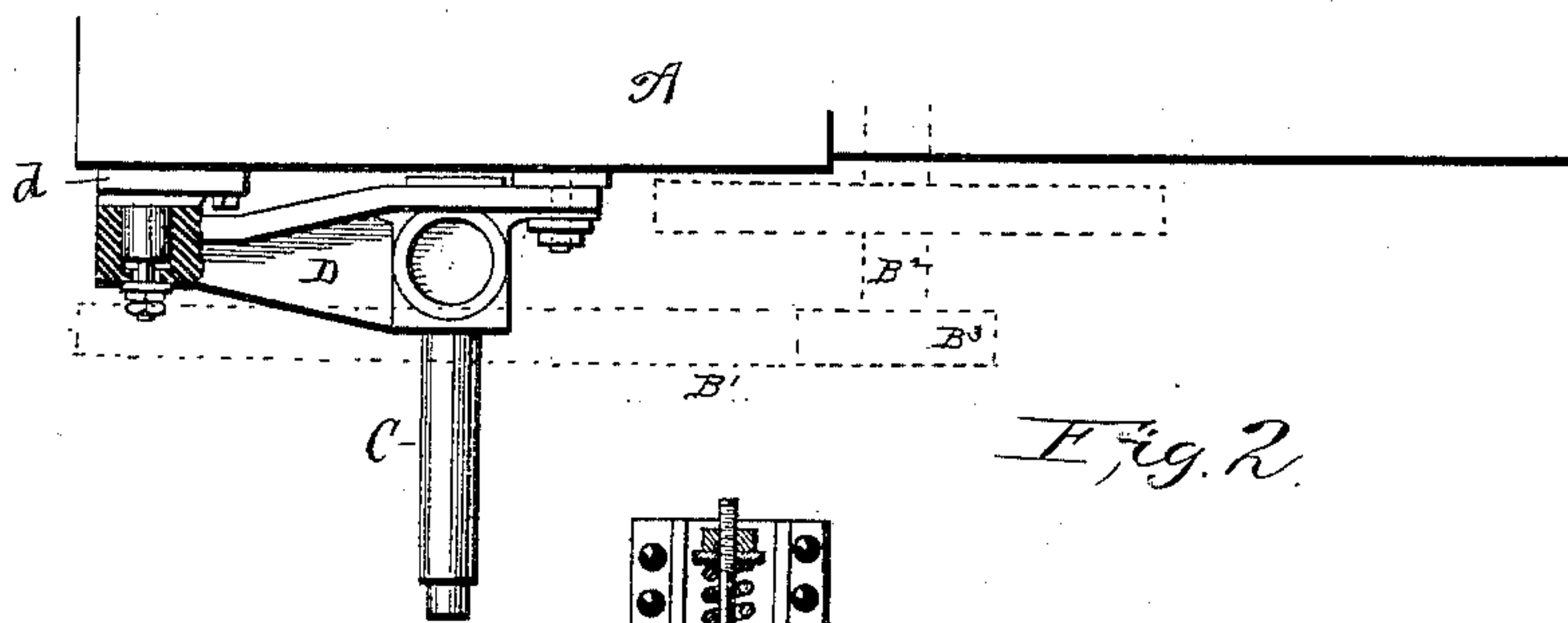


Fig. 2.

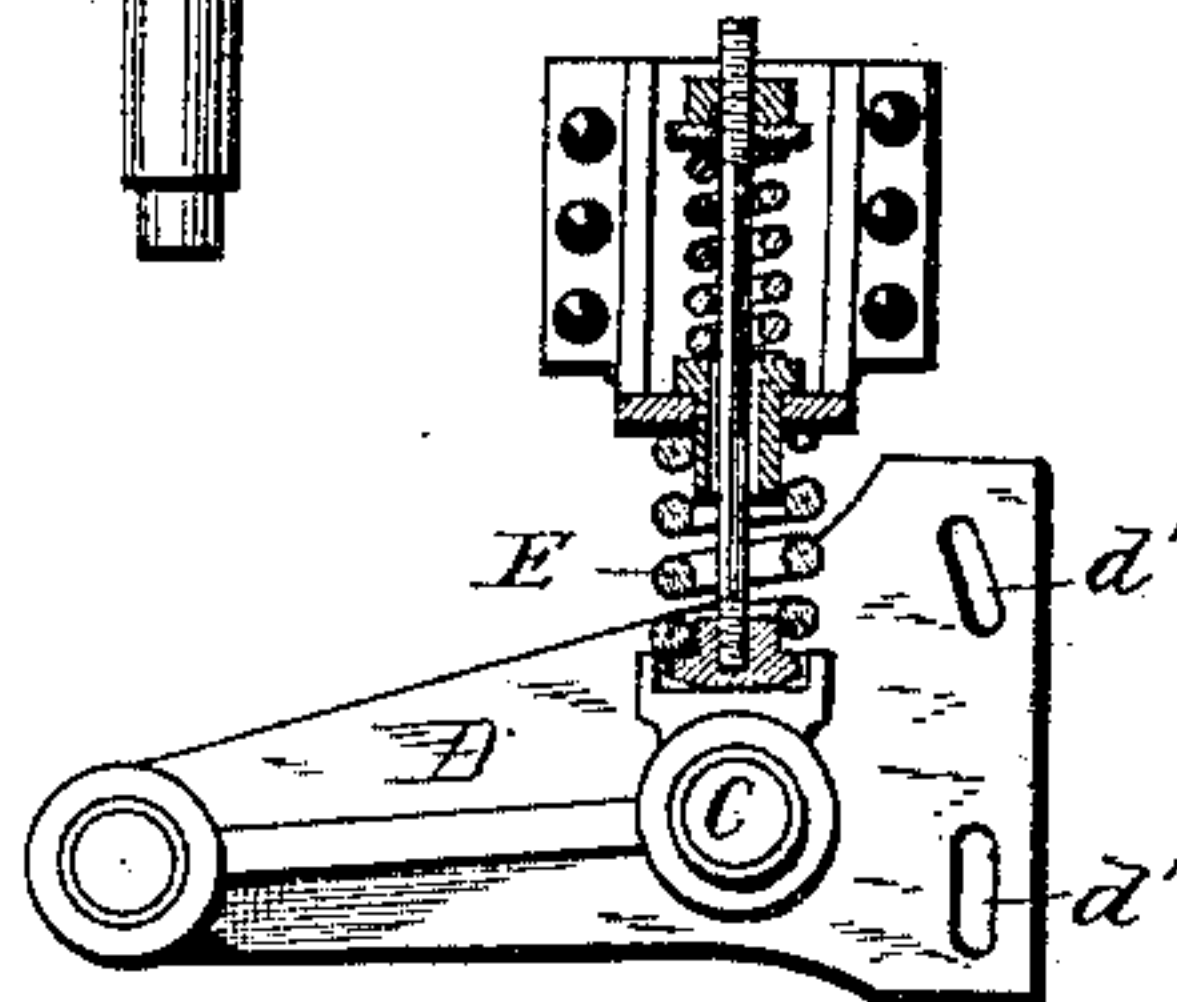


Fig. 3.

Witnesses
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MINARD LAFEVER, OF BATTLE CREEK, MICHIGAN.

TRACTION-ENGINE.

SPECIFICATION forming part of Letters Patent No. 339,194, dated April 6, 1886.

Application filed January 27, 1886. Serial No. 189,926. (No model.)

To all whom it may concern:

Be it known that I, MINARD LAFEVER, a citizen of the United States, residing at Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Means for Mounting Traction-Engines; and I do hereby declare the following to be 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.

My invention relates to means for mounting traction-engines, whereby the same are relieved from injurious jarring and jolting, to which they are otherwise necessarily more or less subjected, and whereby sudden and injurious strain on the gearing is avoided when the engine is started. To accomplish this, I mount each of the truck or drive wheels upon axles or spindles, which are rigidly secured to a vibrating arm or link. This arm is cushioned above and below by springs, which take up all jar and sudden strain.

In the drawings illustrating my invention, Figure 1 is a side elevation of the rear portion of a traction-engine with my improved mechanism attached, the dotted lines indicating the perimeter of a truck-wheel, and the pitch-lines of a pinion and gear for driving the same. Fig. 2 is a plan of one side of the engine, showing my device with the upper spring and bracket removed. Fig. 3 shows a modified arrangement of springs.

Both truck-wheels are mounted in the same way, so that a description of one will answer for both.

A represents the fire-box and boiler; B, the perimeter of the truck-wheels, each having an attached gear-wheel, the pitch-line of which is represented by a dotted line, B'. This gear is driven by the shaft B² through the pinion B³. The truck-wheel is mounted on a spindle, C, which is firmly secured in the free end of a link or arm, D. The link or arm is pivoted, as shown in Fig. 2, to any part of the fire-box or boiler through the medium of the casting d, which is bolted thereto. This casting or pivot is preferably placed in a line with the axle-spindle and the driving-shaft B², so that the up and down movement of the axle will not materially vary its distance from the center of

the driving-shaft B². The free end of the arm is provided with slots d', through which pass bolts, which are secured to a plate bolted to the fire-box, as shown. These slots allow a vertical movement of the arm and prevent any twisting or lateral movement of the same.

On the upper and lower sides of the axle-base there is provided sockets to receive the ends of coil-springs E, the upper spring bearing against an adjustable bearing, e. This bearing is provided with a slot, through which pass headed bolts connected with a plate bolted to the fire-box to hold it in place and permit vertical adjustment. A set-screw, f, operates on the top of the bearing to adjust it to its proper position and regulate the tension of the spring. The lower spring rests against the bracket e', which is secured to the fire-box.

The free end of the spindle-carrying arm is held between strong springs under considerable tension, so that the movements may not be too free, and the adjustable bearings permit of setting up the springs to suit different conditions in use as well as to afford a convenient way of assembling the parts.

In Fig. 3 I have shown another arrangement of springs for the purposes above described. A bolt or spindle is secured into the rock-plate, upon which the main supporting-spring rests, and extends through a sleeve in the upper bearing. On the upper end of this bolt is arranged a spring, as shown, above which is a nut for giving the initial tension to the springs. In this case the rock-plate is locked in its socket. This arrangement, like that shown in Fig. 1, keeps the boiler from jumping, the upper spring acting as an elastic stop, and yields so as to bring the strain gradually on the gearing.

By pivoting the spindle-carrying arm D to a bracket secured to the boiler or fire-box, instead of to the driving-shaft, I am enabled to bring the train-gearing into the same plane with the arm, and thus spring-mounted engines are secured within the dimensions of those without springs, and the length and leverage on the axles or spindles C is reduced to a minimum, the traction-wheels being brought as close to the boiler as the gearing will permit, whether a vibrating spindle-carrying arm is used or not.

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

- 5 1. The combination, in a traction-engine, of traction-wheel spindles or axles and links or vibrating arms carrying said spindles pivoted to the body or fire-box shell at a point opposite the driving pinion shaft, substantially as described.
- 10 2. The combination, in a traction-engine, of links pivoted at one end to the body or fire-box shell at a point opposite the pinion-shaft, and sustained at their spindle ends upon springs for giving a yielding support to the machine,
- 15 as specified.
3. The combination, as set forth, of links pivoted to the body or fire-box shell at a point opposite the pinion-shaft, provided with slots for support against lateral movements, and
- 20 springs for elastic or yielding vertical support, substantially as described.

4. The combination of spindle-carrying arms or links pivoted at one end to the body or fire-box shell at a point opposite the pinion-driving shafts, of supporting-springs above 25 and below the movable head on said links, and means for sustaining them against lateral strain, substantially as described.

5. The combination, with the free end of a vibrating spindle-carrying arm pivoted to the 30 fire-box shell or boiler, of a spring, and an adjustable spring-support for giving the springs an initial tension, substantially as described.

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

MINARD LAFEVER.

Witnesses:

B. T. SKINNER,
A. G. HIGHAM.