(No Model.) 2 Sheets—Sheet 1.

J. BLASDALE.

LOCOMOTIVE.

No. 367,335. Patented July 26, 1887.

Fig. 1.

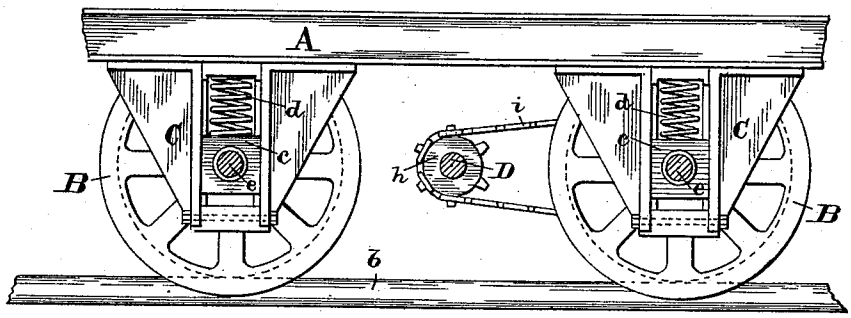


Fig. 2.

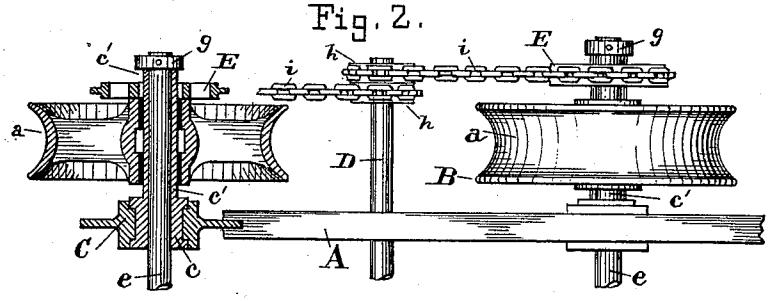


Fig. 3.

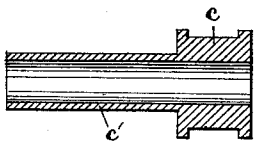


Fig. 4.

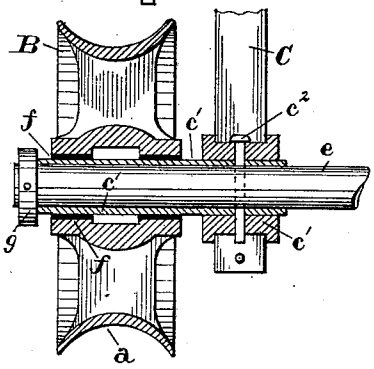
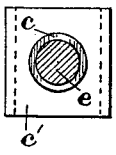


Fig. 5.



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(No Model.) 2 Sheets—Sheet 2.

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LOCOMOTIVE.

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Fig. 6.

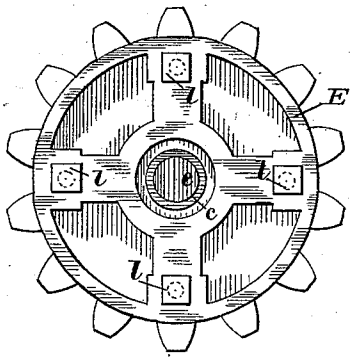


Fig. 7.

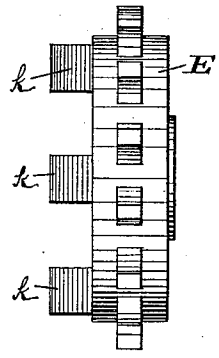


Fig. 8.

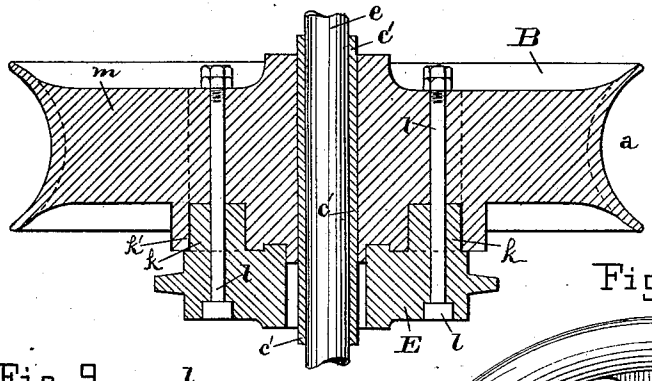


Fig. 10.

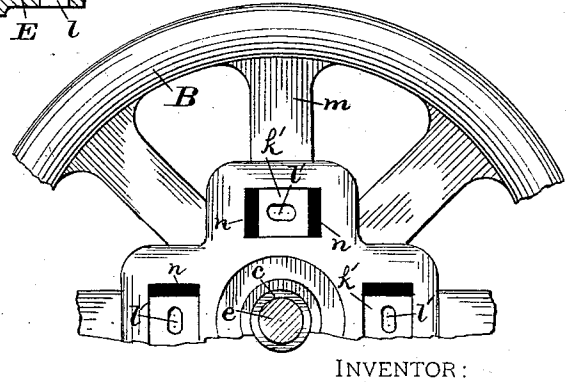
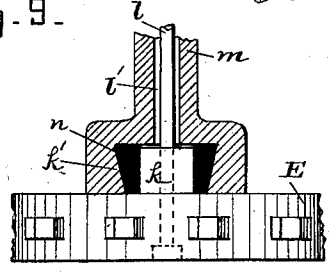


Fig. 9.



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LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 367,335, dated July 26, 1887.

Application filed April 20, 1887. Serial No. 235,452. (No model.)

To all whom it may concern:

Be it known that I, JOHN BLASDALE, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Locomotives, of which the following is a specification.

My invention relates to improvements in locomotives which are intended to travel on rough and uneven tracks, and where, for obvious reasons, it is necessary the driving-wheels should have a free lateral movement independent of each other.

The invention is illustrated in the accompanying drawings, in which Figure 1 is a side elevation showing the frame, axles, pedestals, and driving-wheels. Fig. 2 is a plan of one side of the frame, showing one driving-wheel in section. Fig. 3 is a section of one of the axle-boxes. Fig. 4 is a section of one wheel and axle-box, the latter constructed somewhat different from the one shown in Fig. 3. Fig. 5 is a view of a pedestal axle-box. Fig. 6 is an elevation of a driven sprocket, larger scale. Fig. 7 is an edge view of a driven sprocket. Fig. 8 is a section of a driving-wheel and sprocket. Figs. 9 and 10 show the manner of attaching the driven sprocket to a wheel so as to have an elastic connection.

The letter A designates the frame, which may be of channel-iron, flat bar-iron, or any other suitable section; B, the driving-wheels, which have grooved rims or tires *a* to take on the pole-track *b*. The frame rests on pedestals C, and the axle-boxes *c* fit in the pedestals and may move up and down, while a spring, *d*, is interposed between the frame and axle-box. The axles *e* do not turn, but each driving-wheel B turns loosely on the axle.

One feature of my invention is the axle-box extension or sleeve *c'*. This box-extension or sleeve is attached rigidly to the axle-box *c* and projects outward for the wheel B to turn on. The box extension surrounds the axle *e* and serves as a re-enforce for the axle. Each driving-wheel by preference, though not necessarily, has a bushing, *f*, of suitable metal, in its hub, which is in contact with the box extension or sleeve *c'*. These bushings are interchangeable. A collar, *g*, is on the end of the axle *e* to confine the driving-wheel B. It will be seen the hub of the driving-wheel revolves on the box-extension and not on the axle and has room for play or lateral movement between the collar *g* and the face of the axle-box *c*. The box extension or sleeve *c'* protects the axle from wear and abrasion, which is so great and rapid in this class of locomotives as to be very expensive.

The box extension or sleeve *c'* is preferably made separate from the axle-box *c*, but secured rigidly thereto, as shown in Fig. 4, where a pin, c^2, is shown passing through the axle-box *c*, sleeve *c'*, and axle *e*. When thus made, the sleeve may be renewed at little expense and without removing the axle. The sleeve may, however, be made integral with the axle-box, as shown in Fig. 3.

A master-shaft, D, may have motion imparted to it in any suitable way by a train of gearing driven by an ordinary reversing-engine. Each end of the master-shaft is provided with two drive-sprockets, *h*, and each driving-wheel B has a driven sprocket, E, attached to it. Each drive-sprocket *h* is connected with one of the driven sprockets E by a drive-chain, *i*. The driven sprockets E are secured to the driven wheels B by a special construction. (Shown in Figs. 6 to 10, inclusive.)

Each driven sprocket E has on one side two or more lugs, *k*, (in the present instance four are used,) located equidistant around the hub. A hole for a bolt, *l*, passes through the body of the sprocket-wheel, and also through the lug. The driver-wheel B has on one side two or more sockets, *k'*, (in the present instance four.) The sockets are larger than the lugs, and each socket receives one of the said lugs *k*. The bolt-hole *l'* through the driver-wheel spoke *m* is elongaed in the direction of a circular plane of which the axle is the center. Two sides of each sprocket *k'* are lined with rubber, *n*. It will thus be seen that while the bolt *l* secures the driven sprocket E to the wheel B, the said sprocket is not rigidly secured thereto, as the lugs *k*, the sockets with rubber lining *n*, and the elongated bolt-hole *l'* provide an elastic connection. When the driver-engine is started, stopped, or reversed, instead of all of the shock and strain coming on the drive-chains *i*, the driven sprocket E will yield by the compression of the

rubber lining *n*, and thereby the liability of breaking the drive-chains, a thing of common occurrence, is obviated.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination of the axle, the axle-box *c*, having an extension or sleeve, *c'*, and the wheel turning freely on the said sleeve.

2. The combination of the axle, an axle-box, *c*, a sleeve, *c'*, around the axle and attached by one end to the axle-box, a confining-collar, *g*, on the end of the axle, and a wheel, B, turning freely and also having lateral movement on the said sleeve.

3. The combination of the axle, the axle-box *c*, having an extension or sleeve, *c'*, which surrounds the axle, a wheel, B, provided with a bushing, *f*, and turning freely and also moving laterally on said sleeve.

4. The combination of a wheel having sockets *k'*, provided with an elastic lining, and a sprocket-wheel, E, having lugs *k*, each of which occupies one of the elastic-lined sockets.

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

JOHN BLASDALE.

Witnesses:

B. F. BOYDEN,

JNO. T. MADDOX.