

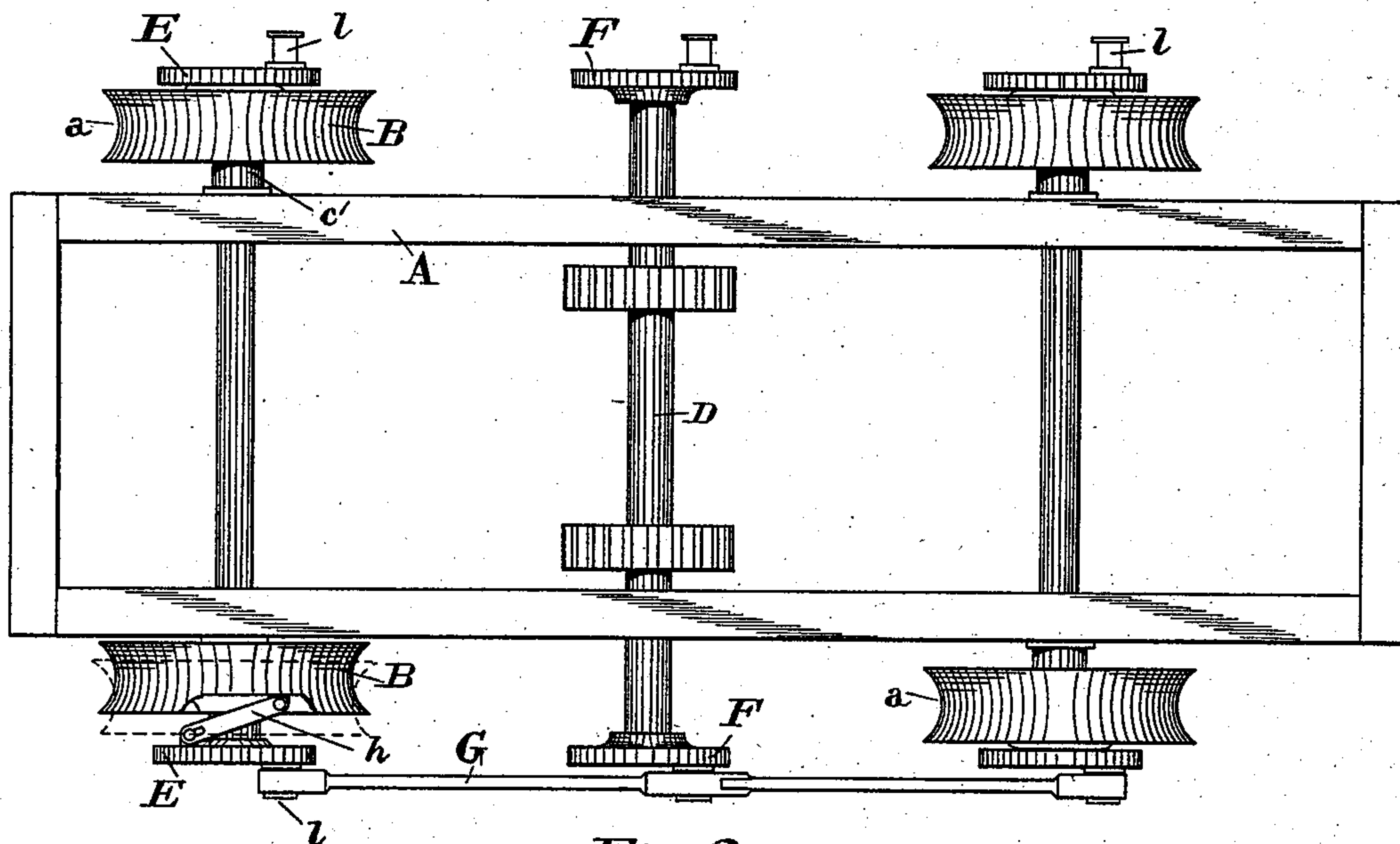
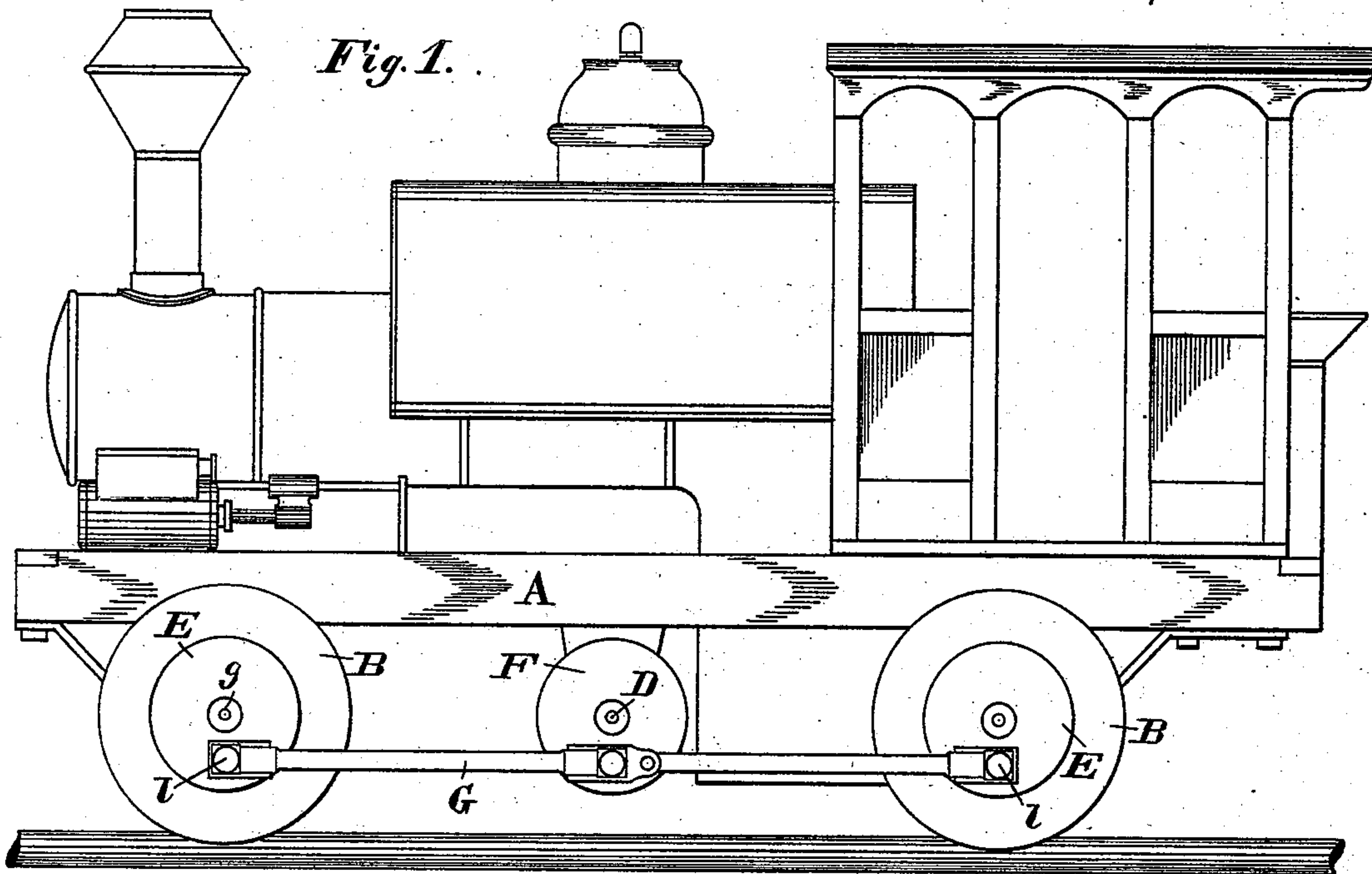
(No Model.)

2 Sheets—Sheet 1.

J. BLASDALE.  
LOCOMOTIVE.

No. 380,168.

Patented Mar. 27, 1888.



WITNESSES:

*R. L. Clemmitt.*  
*John E. Morris.*

INVENTOR:

*John B. Bladale*

BY *Chas B. Mann*

ATTORNEY.

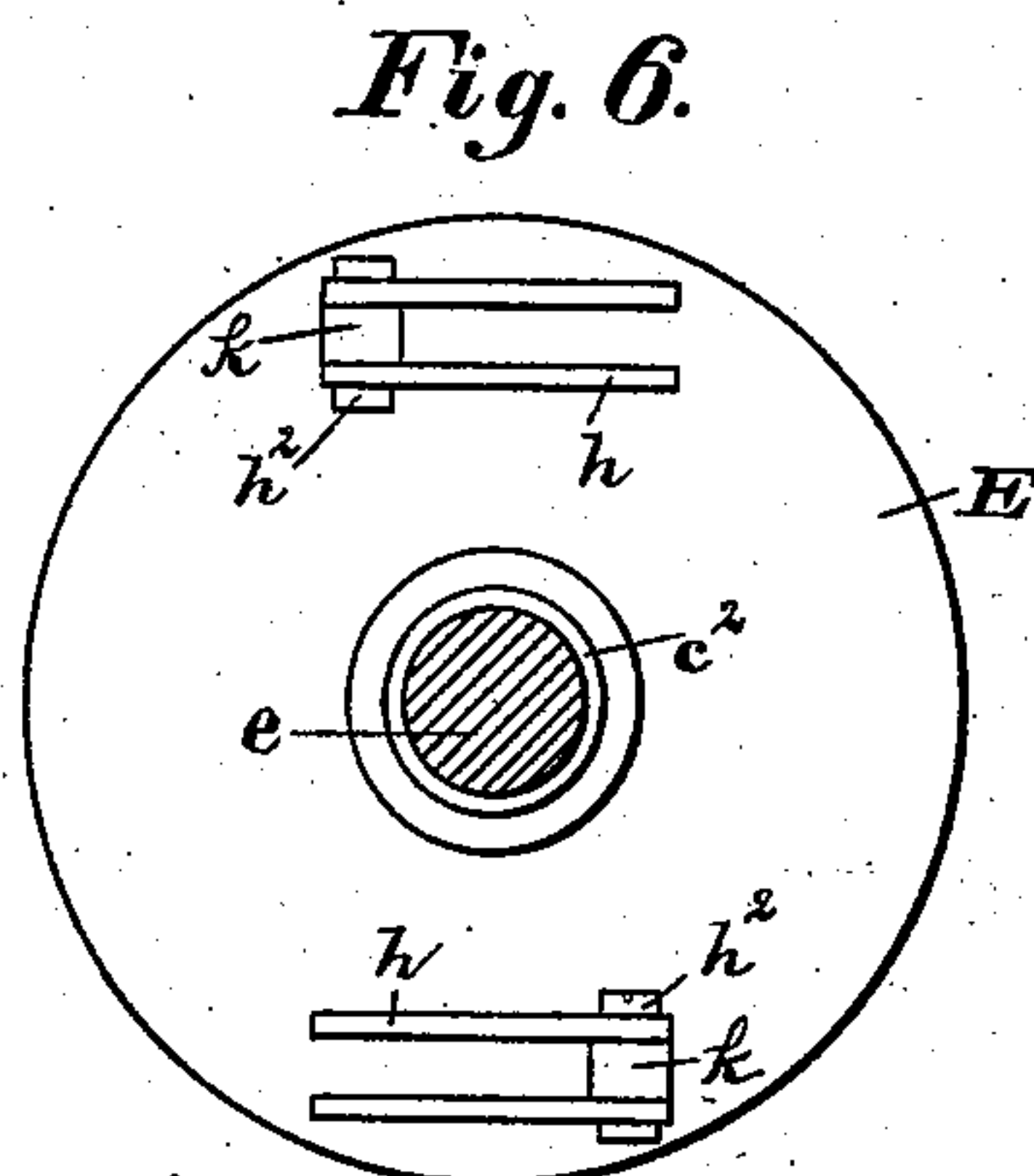
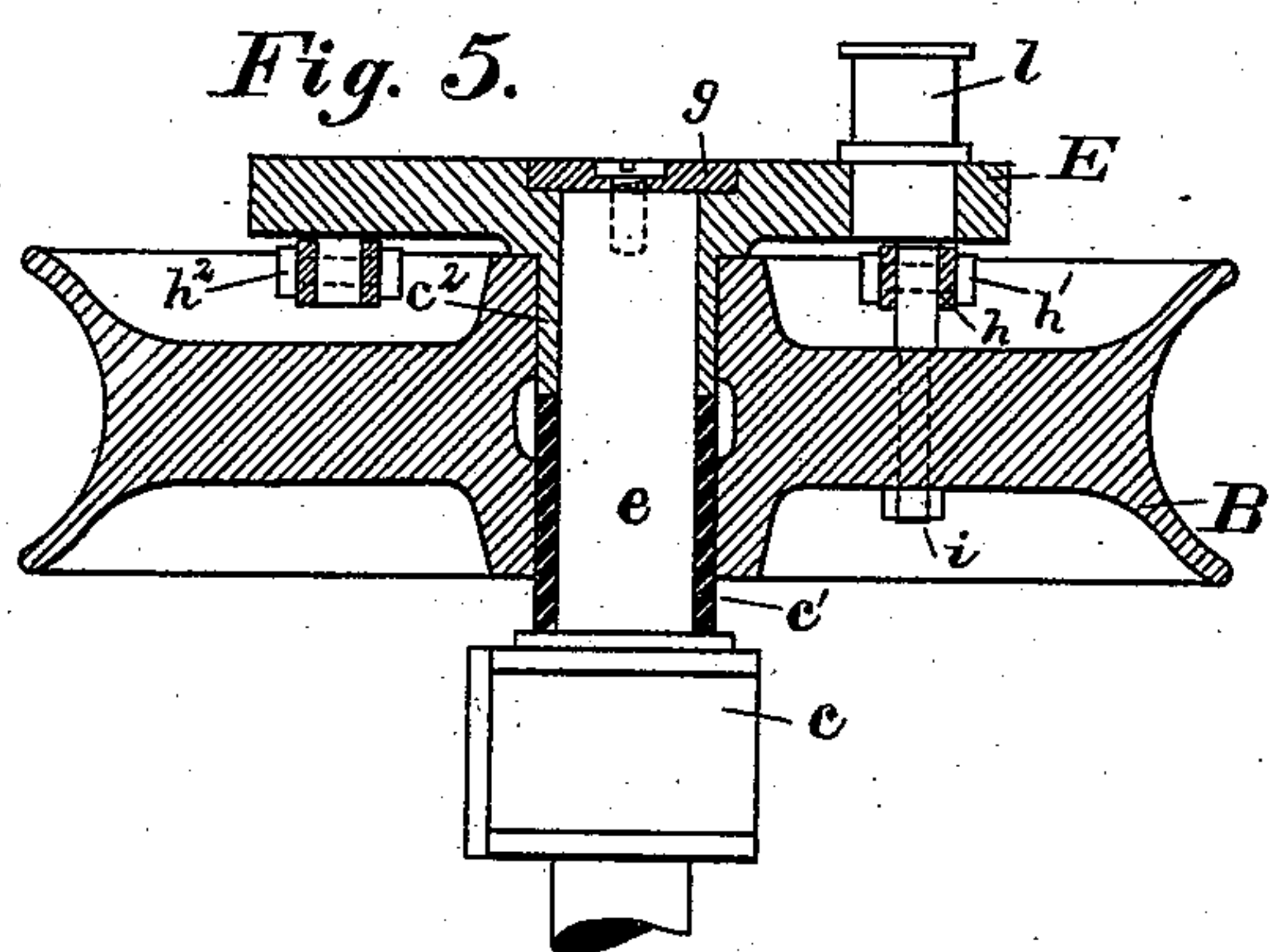
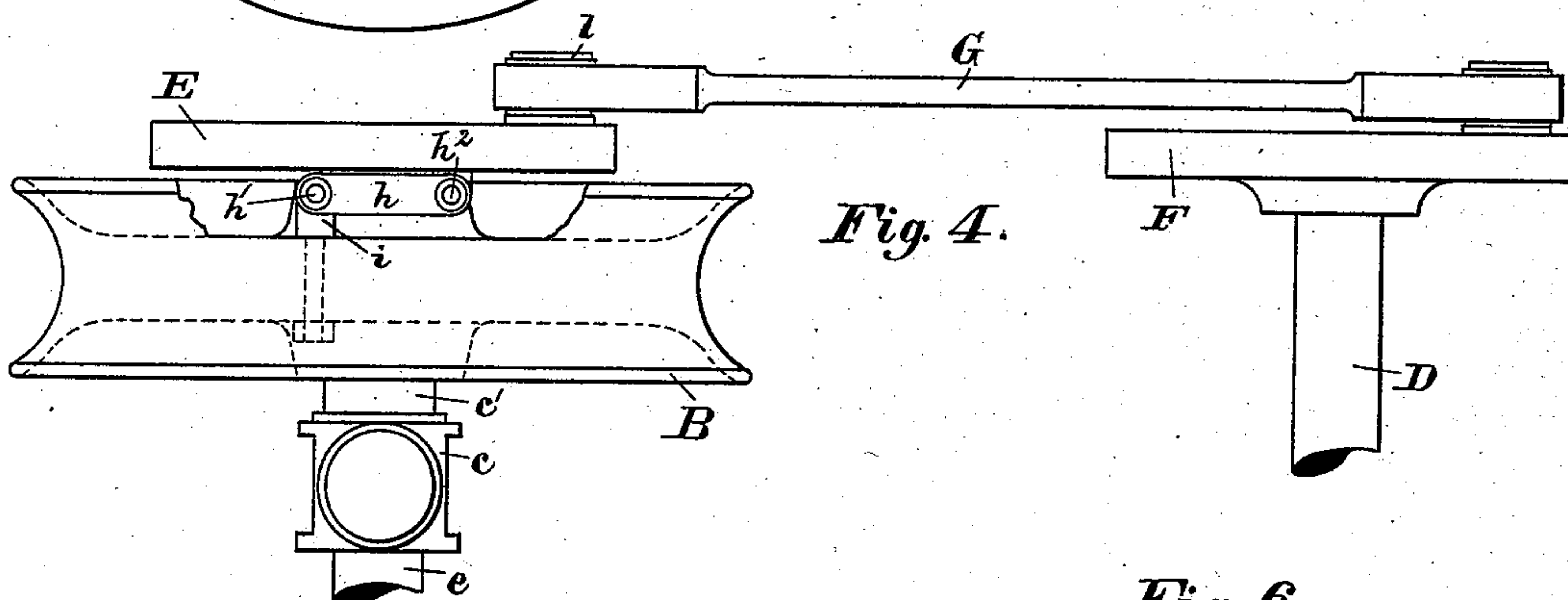
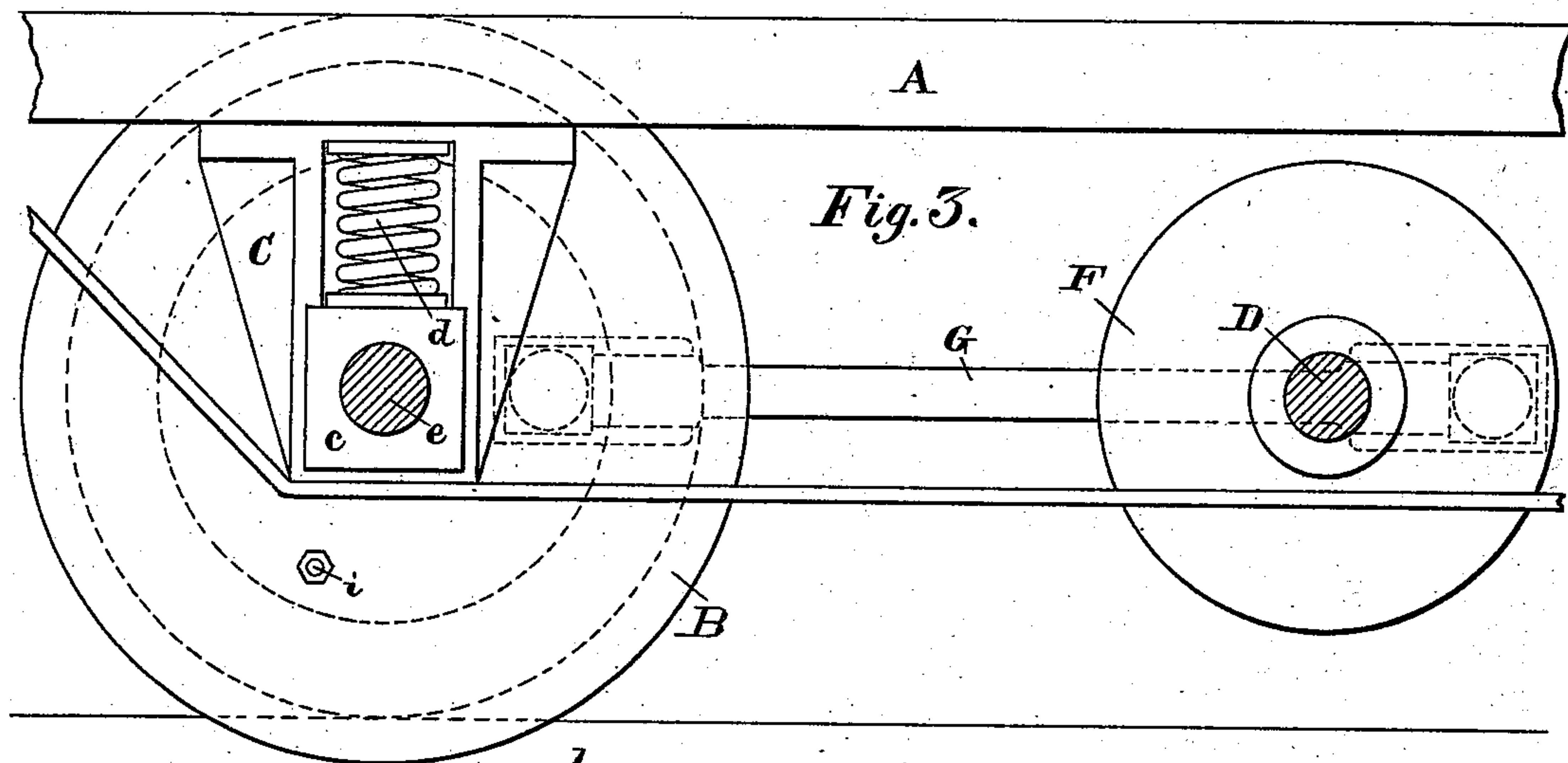
(No Model.)

J. BLASDALE.  
LOCOMOTIVE.

2 Sheets—Sheet 2.

No. 380,168.

Patented Mar. 27, 1888.



**WITNESSES:**

R. L. Clemmitt.  
John E. Morris.

**INVENTOR:**

John Blasdale

BY *Chas B. Mann*  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

JOHN BLASDALE, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE RICHMOND LOCOMOTIVE AND MACHINE WORKS, OF RICHMOND, VIRGINIA.

## LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 380,168, dated March 27, 1888.

Application filed December 27, 1887. Serial No. 259,181. (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 that class of locomotives which are employed in lumbering regions and similar places, where the temporary track consists of poles or rough wooden stringers, which are rough and uneven. It is desirable in this class of locomotives to allow the driving-wheels to have a free lateral movement independent of each other.

The invention is fully illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a locomotive provided with my improvement. Fig. 2 is a plan view of the frame, showing the part relating to the invention. Figs. 3 and 4 are side and top views, respectively, of a driving-wheel, master-shaft, and connecting-rod. Fig. 5 is a diametrical section of a driving-wheel and its connections. Fig. 6 is an inner side view of a driving-disk.

The letter A designates the frame; B, the driving-wheels, which may or may not have grooved rims *a*. The frame rests on vertical pedestals C, and the axle-boxes *c* fit in the pedestals and may move therein vertically. A spring, *d*, is interposed between the frame and each axle-box. The wheels B turn loosely on the axle, and also have lateral movement endwise of the axle.

The axle-box *c* is provided with an extension or sleeve, *c'*, which surrounds the axle *e*, and projects outward similar to that shown, described, and claimed in Letters Patent of the United States No. 367,335, granted to me July 26, 1887.

A driving-disk, E, is mounted to turn loosely on the axle, and has position on the end of the axle outside of the wheel B. This driving-disk may be confined from coming off in any suitable way by a collar or plate, *g*, for instance, made fast to the end of axle. The driving-disk turns, but has no lateral movement on the axle.

My invention consists of a flexible connection between the driving-wheel B, mounted on the axle or on the sleeve *c'*, so as to have lateral

movement endwise of the axle, and the driving-disk E, mounted on the axle, but immovable laterally or endwise of the axle. The flexible connection in the present instance consists of the links *h*, one end of which is jointed at *h'* to the driving-wheel B and the other end jointed at *h''* to the driving-disk E. The link *h* may consist of a single bar, or, as shown, of two parallel bars. (See Fig. 6.) Two links *h* are used to connect each disk E with a wheel, B; but three or four might be employed, if desired. The particular construction hereshown for joining the links consists of two eyebolts, *i*, secured to the wheel, and two ears, *k*, secured to or cast on the disk. The link-bars *h* are then jointed, as already stated, to the said eyebolt and ear. Motion imparted to the disk E will cause the driving-wheel B to revolve on the axle *e*, (or, as it is in the present instance, on the sleeve *c'*), and at the same time the link-connection will allow said driving-wheel to have play or movement in a direction endwise of the axle. This movement is indicated by broken lines on one of the wheels B in Fig. 2.

The extension or sleeve *c'*, attached to the axle-box *c*, and on which the wheel B revolves, is not necessary to my present invention. I show it, however, and it is slightly modified in form from that shown in my patent aforesaid. In this instance the said sleeve *c'* extends toward the end of the axle far enough to receive a part only of the thickness of the hub of the driving-wheel B, and the driving-disk E, as here shown, has a similar sleeve, *c''*, which enters the hub of the wheel B and meets the axle-box sleeve *c'*. Therefore the driving-wheel B, as here shown, revolves on the axle-box sleeve *c'* and the disk-sleeve *c''*. Both of these sleeves may be dispensed with.

I may also state that my invention of the flexible or link connection may be used with the driving-disk E, revolving loosely on the axle or fixed tight thereon. In the present instance it is loose.

A master-shaft, D, is suitably mounted on the frame A, intermediate of the front and rear driving-wheels, B, and has at each end a crank, F. Each of the driving-disks E is provided with a crank-wrist, *l*, and a connecting-rod, G, connects the said driving-crank F with each crank-wrist *l*.



The master-shaft D may be driven by any suitable or well-known gearing that is employed in locomotives, which, however, has no immediate connection with my invention.

5 It will be noticed that normally the center of master-shaft D and the center of the driving-axes *e* are on the same horizontal plane, and the axle-boxes *c* will therefore move vertically in the pedestals C.

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

1. In a locomotive, the combination of an axle, *e*, driving-wheels B, which have movement endwise of the axle, a driving-disk, E, on the axle immovable in a direction endwise of the axle, and a flexible connection between the said driving-wheel and driving-disk, whereby rotary motion imparted to the driving-disk will revolve the driving-wheel and allow the latter to move endwise of the axle.

2. In a locomotive, the combination of an axle, *e*, driving-wheels B, which have movement endwise of the axle, a driving-disk, E,

on the axle immovable in a direction endwise of the axle, and one or more links, *h*, connecting the said driving-wheel and driving-disk, said links having one end jointed to the driving-wheel and the other end jointed to the driving-disk. 25 30

3. In a locomotive, the combination of a master-shaft, D, provided with a driving-crank, F, an axle, *e*, driving-wheels B, which have movement endwise of the axle, a driving-disk, E, on the axle outside of the driving-wheel, immovable in a direction endwise of the axle, and provided with a crank-wrist, *l*, a flexible connection between said driving-wheel and driving-disk, and a connecting-rod, G, between the said driving-crank F and crank-wrist. 35 40

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

JOHN BLASDALE.

Witnesses:

JOHN E. MORRIS,

ROBERT L. CLEMMITT.