

Car Spring.

Patented Nov. 8, 1864.

Fig. 1.

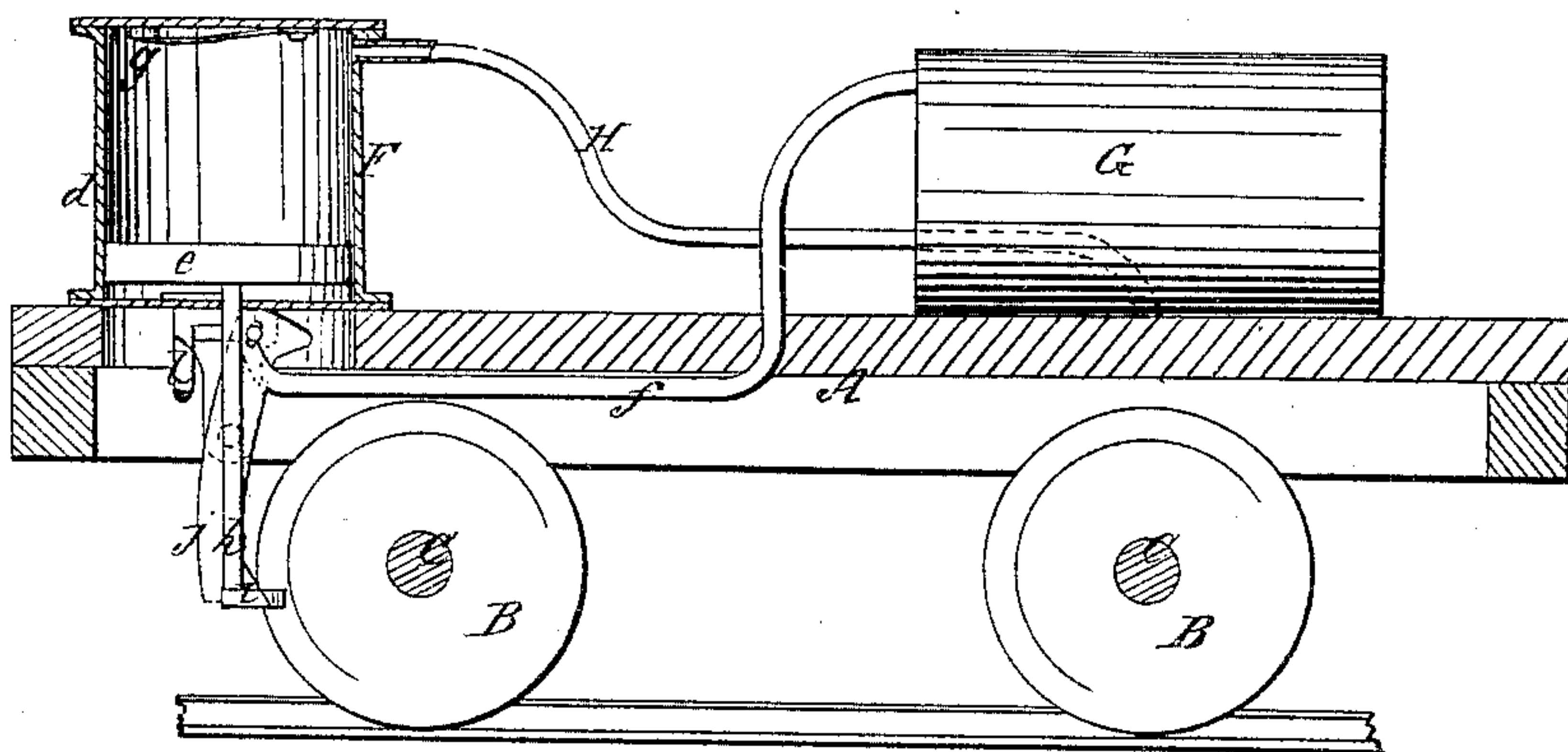


Fig. 2.

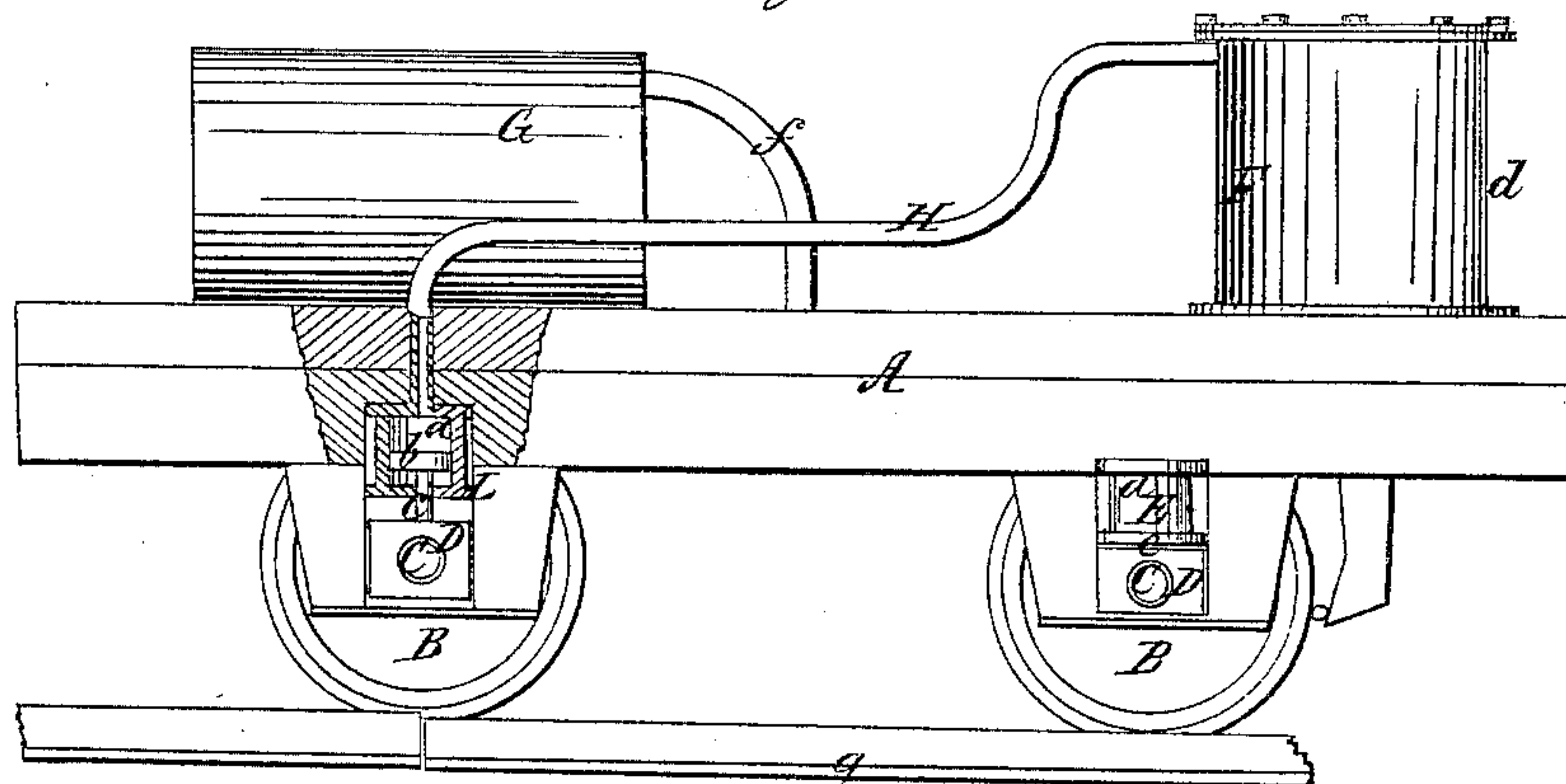
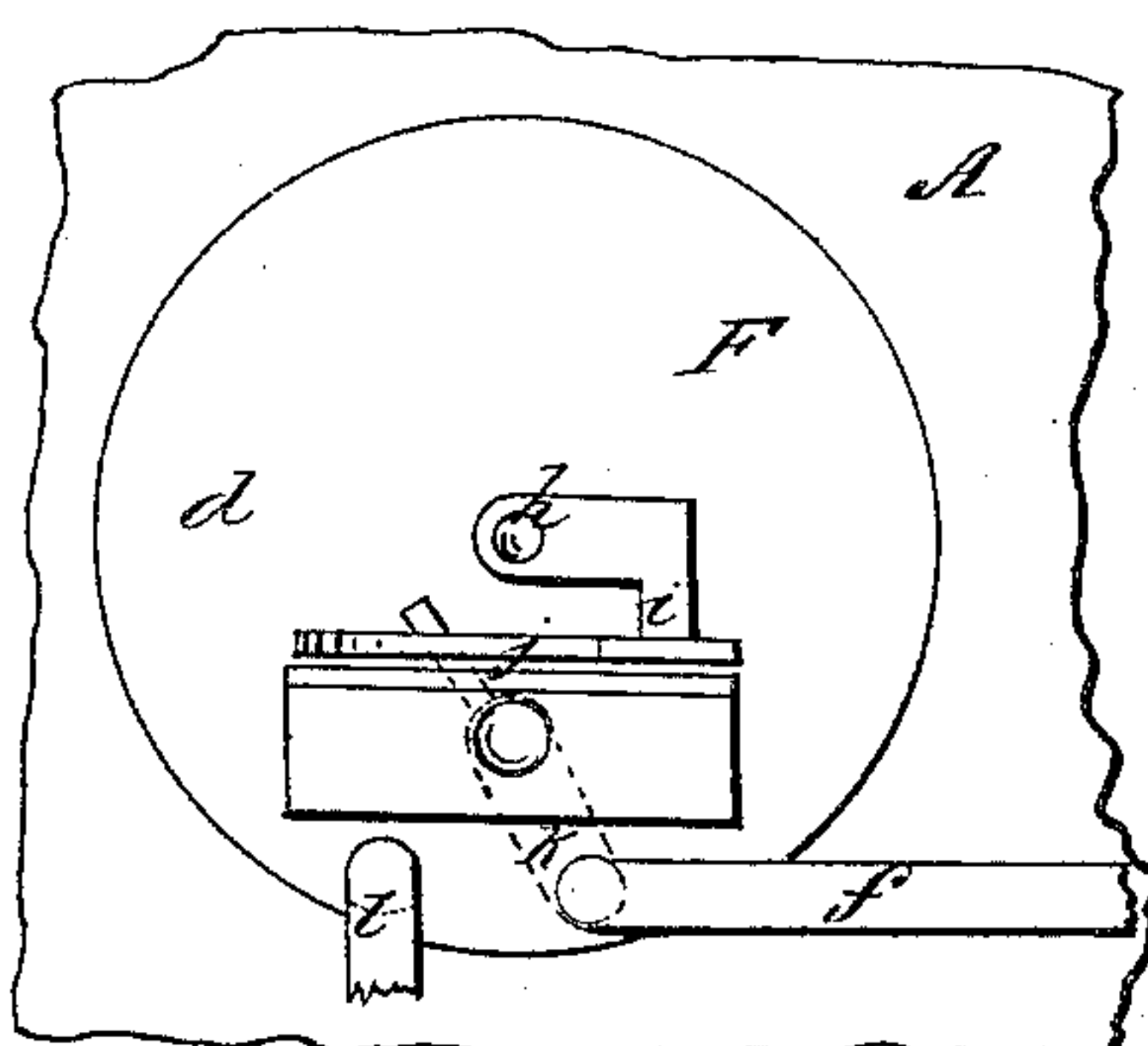


Fig. 3.



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IMPROVEMENT IN APPARATUS FOR SUPPLYING THE PNEUMATIC SPRINGS OF RAILROAD-CARS.

Specification forming part of Letters Patent No. 44,972, dated November 8, 1864.

To all whom it may concern:

Be it known that I, S. G. RANDALL, of the city, county, and State of New York, have invented a new and useful Improvement in Apparatus for Keeping Air-Springs Supplied with Air; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a longitudinal vertical section of my invention. Fig. 2 is a sectional side elevation of the same. Fig. 3 is an inverted plan of the pump detached.

Similar letters of reference indicate corresponding parts.

The object of this invention is to arrange an apparatus for keeping the air springs of locomotives and railroad-cars supplied with air in such a manner that it can be operated by the direct action of the steam from the boiler of the locomotive, whether the train be in motion or not, in contradistinction to an apparatus for the same purpose on, which a patent was granted me April 15, 1859, and the operation of which depends upon the motion of the train, but which will not operate when the train stands still.

The nature of my present invention and its peculiar advantages will be readily understood from the following description.

A represents the platform of a locomotive-engine tender or car, supported by wheels B B, the axles C of which have their bearings in boxes D, which are provided with pneumatic springs. These springs consist simply of an air-tight cylinder, *a*, (see Fig. 2,) in which a piston, *b*, moves, and the piston-rod *c* is connected to the box D. The piston *b* bears on the body of the air contained in the upper part of the cylinder, and this air forms an effective spring as long as it is not allowed to exhaust itself.

In order to prevent the exhaustion of the air, and to enable the engineer to keep up a regular supply at any moment, whether the engine or train be moving or not, I have applied an air-pump, F, which is secured to the platform A, and operated by the direct action of steam taken from the boiler G of the locomotive. A series of pipes, H, conduct the air forced out by the action of the air-pump to the several air-springs E, and in case the cars

are also provided with such springs a large pipe or trunk is extended throughout the entire length of the train, which is supplied with air from the air-pump, and from which the air is conducted by a number of branch pipes to all the air-springs of the cars. The air-pump employed for this purpose may be constructed of a cylinder, *d*, which is firmly secured to the platform, and in which a piston, *e*, moves, as shown in Fig. 1 of the drawings. A pipe, *f*, admits steam from the boiler under the piston, and a valve, *g*, in the upper head of the cylinder admits air when the piston descends. By the action of the steam on its under side the piston is forced up, and the air is forced out through the pipe or pipes H to the air-springs. The piston-rod *h* of the piston *e* extends through the platform, and is provided with a tappet, *i*, which acts upon the curved edge of a hinged cam-lever, *j*, and by the action of the cam-lever motion is imparted to the valve *k*, which opens and closes the steam-pipe *f* and the exhaust pipe *t*. The cam-lever *j* is so arranged that the steam-pipe is closed and the exhaust-pipe opened as soon as the piston reaches its highest point in the cylinder, and when the steam exhausts said piston descends by its own gravity. On approaching its lowest point the valve is changed, the exhaust is closed, and the steam-pipe opened, and the piston ascends. By these means the pump is set in motion by the direct action of the steam from the boiler, and the air-springs can be supplied with air at any moment, and whenever the engineer may consider it necessary to set the pump in motion he is at liberty to do so, whether the train be in motion or not, simply by admitting steam to the air-pump.

What I claim as new, and desire to secure by Letters Patent, is—

The combination of an air-pump, F, with the platform A of a locomotive tender or car, and with the boiler G and air-springs E, constructed and operating substantially as herein specified, so that the air-springs can be supplied with air by the action of steam derived from the boiler, whether the engine or car be in motion or not.

SILAS G. RANDALL.

Witnesses:

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M. M. LIVINGSTON.