

ROBERT J. WILSON.

Improvement in Vacuum Brake for Railway Cars.

No. 120,922.

Patented Nov. 14, 1871.

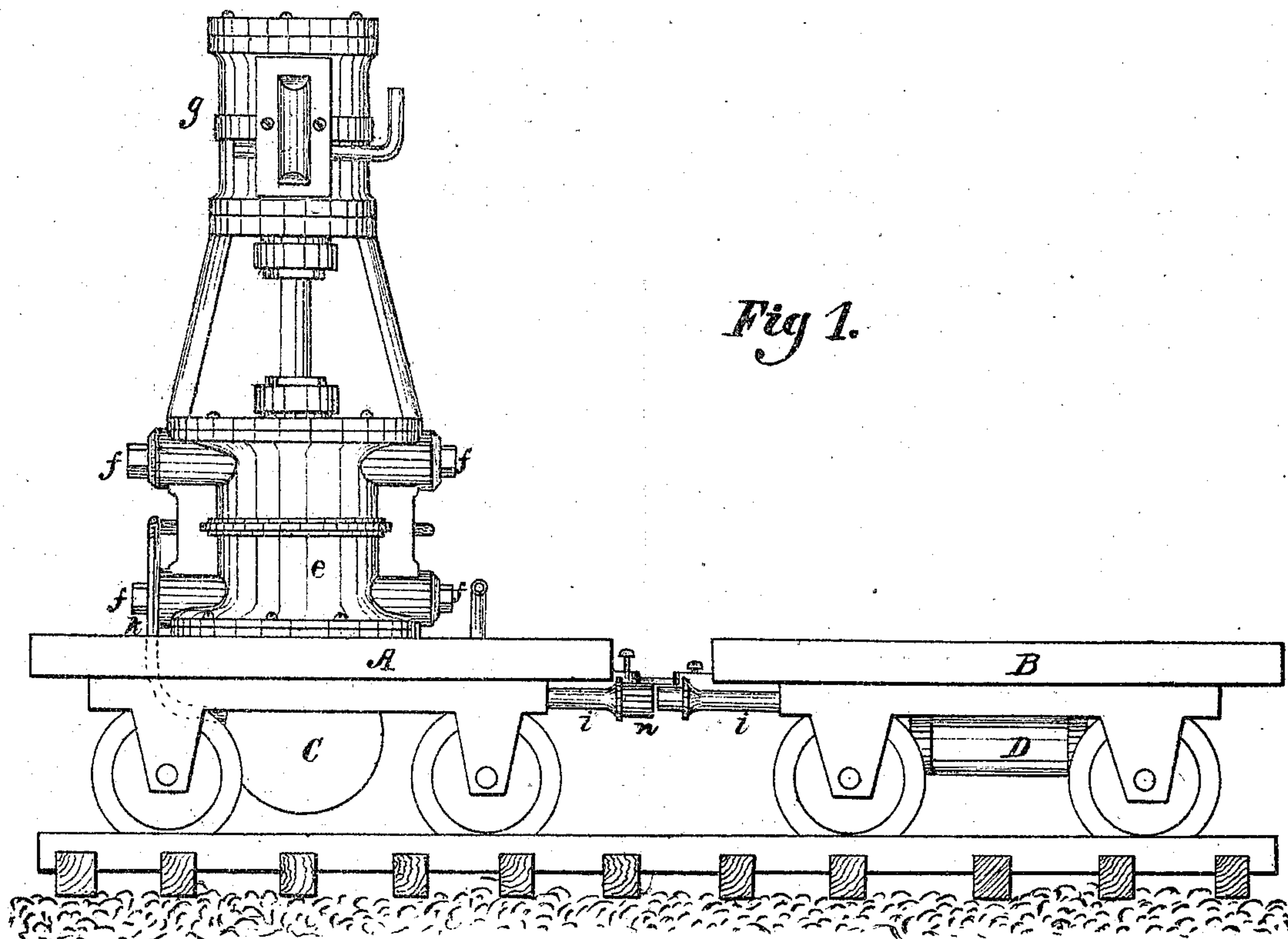
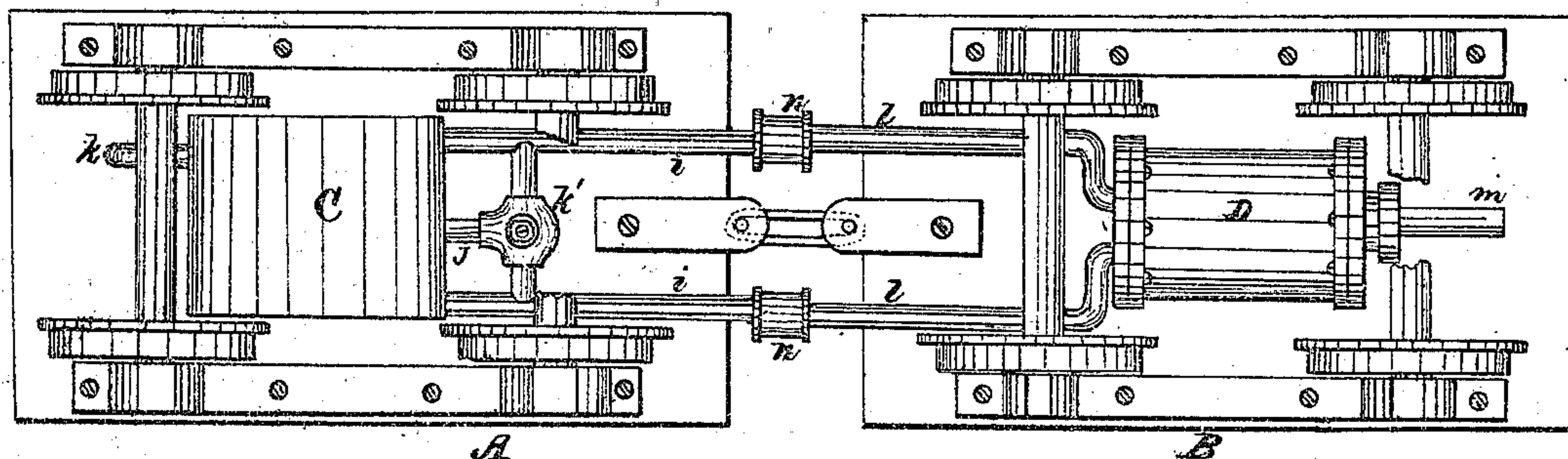


Fig 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ROBERT J. WILSON, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN VACUUM-BRAKES FOR RAILWAY CARS.

Specification forming part of Letters Patent No. 120,922, dated November 14, 1871.

To all whom it may concern:

Be it known that I, ROBERT J. WILSON, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Vacuum-Brake for Railway Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of my invention consists in operating car-brakes through the medium of a cylinder, piston, and pipes connected with a vacuum-chamber, which is connected with an air-pump operated by an engine, said air-pump and pipes connected with the cylinder being provided with valves, which are so arranged as to be under the control of the engineer, who may at his pleasure open the valve of the pipes communicating with the cylinder and thereby bring the brakes to bear on the wheels of the railway cars.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawing which forms part of my specification, Figure 1 is a side elevation of two trucks for railway cars, said trucks being provided with my improvement for operating or applying the brakes to the wheels through the medium of the apparatus hereinafter described. Fig. 2 is an inverted view of the same.

A and B are two trucks for railway cars, and are of ordinary construction. To the under side of the truck A is secured a chamber, C, to which are attached pipes *i i j*, which are connected with pipes *l l* through the medium of couplings *n n*. The pipes *l l* are connected with the cylinder D, as shown in Fig. 2. The chamber C is connected with an air-pump, *e*, through the medium of a pipe, *k*. The air-pump is provided with valves *f*, and its plunger is operated through the medium of a cylinder, *g*, which receives its steam from the boiler of the locomotive and is so arranged as to be under the control of the engineer. The area of the piston-head should be less than the area of the piston-head of the

air-pump *e*, so that when a partial vacuum is formed in the chamber C the motor used for operating the plunger of the air-pump will not have sufficient power to operate the air-pump *e* after the desired vacuum is obtained. The cylinder or engine *g* and air-pump *e* may be constructed in any of the known forms suitable for combining them with the locomotive of railway cars, and they may be arranged with relation to the locomotive in any desired manner. The pipes *i i j* are provided with a valve, *k'*, which valve is used for the purpose of cutting off communication between the cylinder D and the vacuum-chamber C. This valve is arranged so as to be under the control of the operator, and may be opened and closed at his pleasure. To the piston-head of the cylinder D is attached a piston-rod, *m*, to which is connected levers, chains, or other devices for operating the car-brakes, which may be of any known construction suitable for being operated by rods, levers, or chains when connected to the piston-rod *m* of the cylinder D.

As the construction and arrangement of the several parts of my invention will readily be understood from the foregoing description and by reference to the accompanying drawing, I will, therefore, proceed to describe its operation, which is as follows: Steam from the locomotive-boiler is admitted to the cylinder or engine *g*, which will operate the air-pump *e* and thereby form a partial vacuum in the chamber C. Now, by opening the valve *k'* of the pipes *i i j*, the air or atmospheric pressure will act on the end of the piston-head of the cylinder D, carrying it forward toward the vacuum-chamber C, and with it will carry forward the piston-rod *m*, which, drawing upon the levers, rods, or chains connected with the brakes, will thereby bring the brakes to bear upon the wheels of the cars.

By reversing the action of the air-pump the piston-head of the cylinder D may be thrown back, thereby relieving the draft on the rods, levers, or chains connected to the piston-rod *m*, thus taking the force off the brakes.

It will readily be seen by the skilled mechanic that the force brought to bear on the brakes will depend upon the area of the pis-

ton-head of the cylinder D, and the size of the vacuum-chamber C, air-pump *e*, and cylinder or engine *g*.

Having thus described my invention, what I claim is—

The combination of air-pump *e*, vacuum-chamber C, and cylinder D, said parts being connected through the medium of pipes, and the

whole used for operating car-brakes through the medium of a vacuum, as hereinbefore described.

ROBT. J. WILSON.

Witnesses:

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