

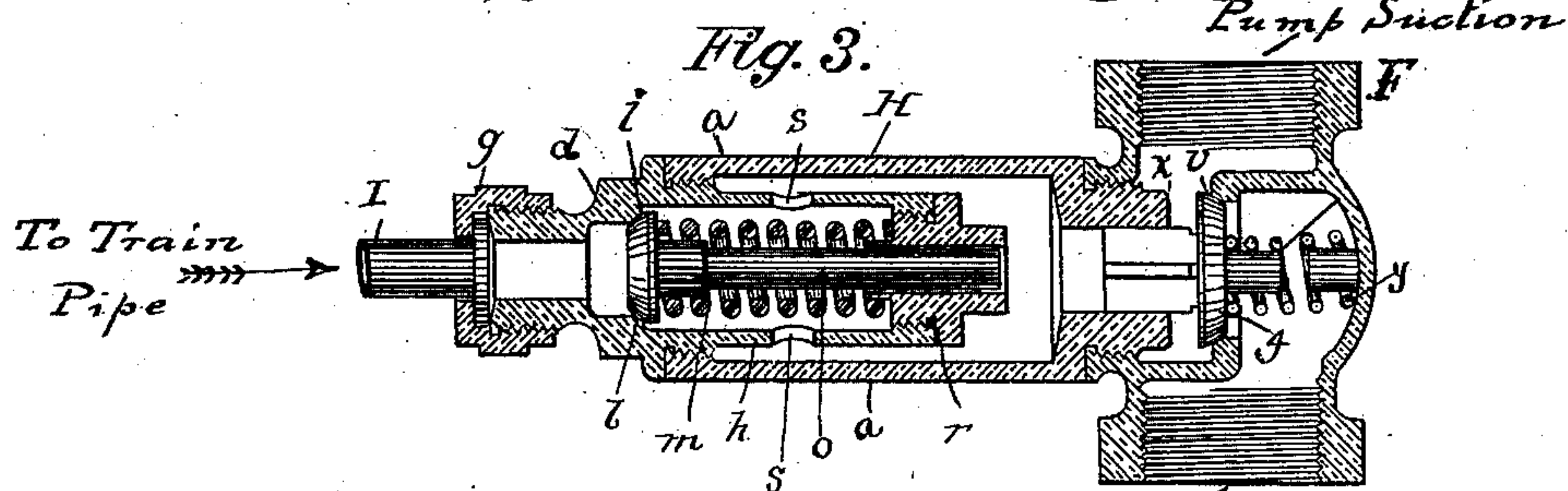
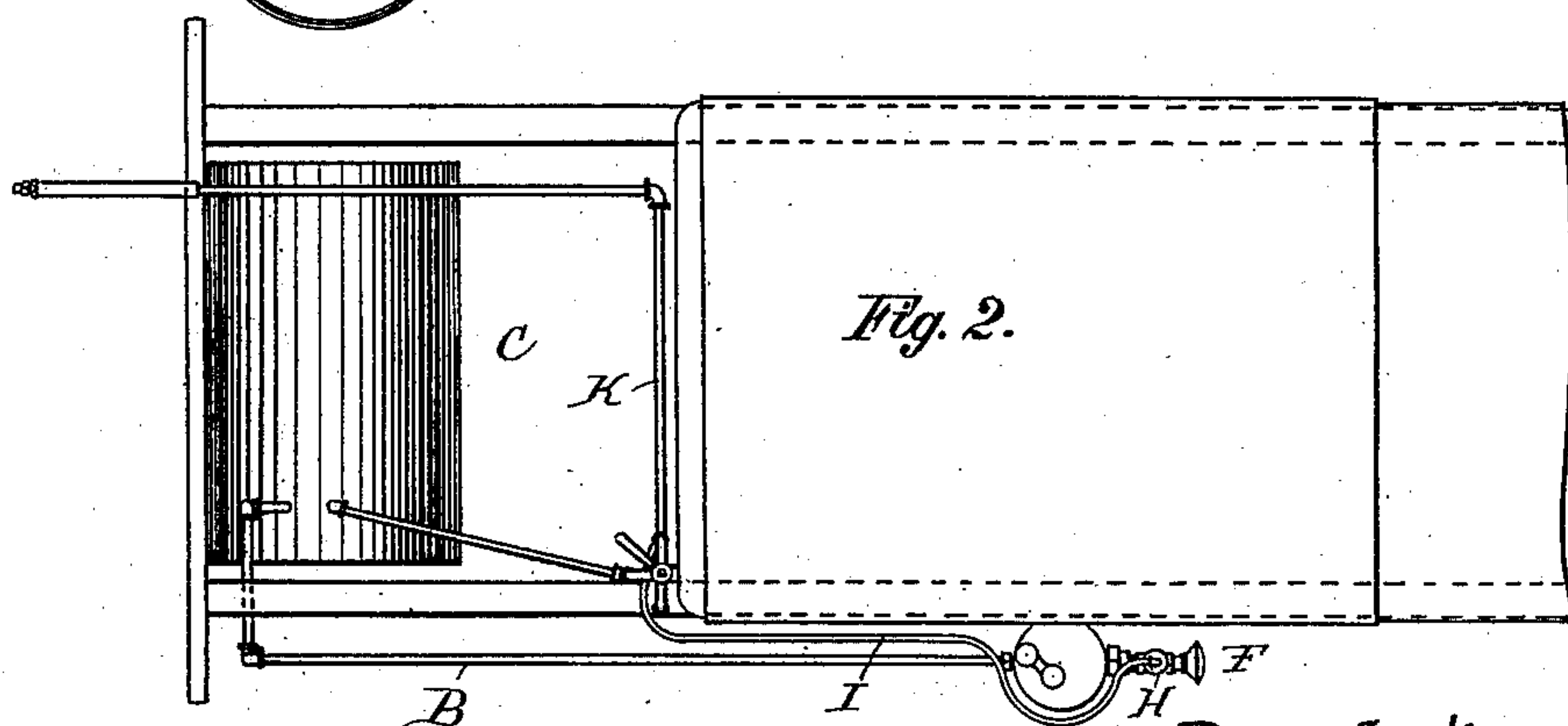
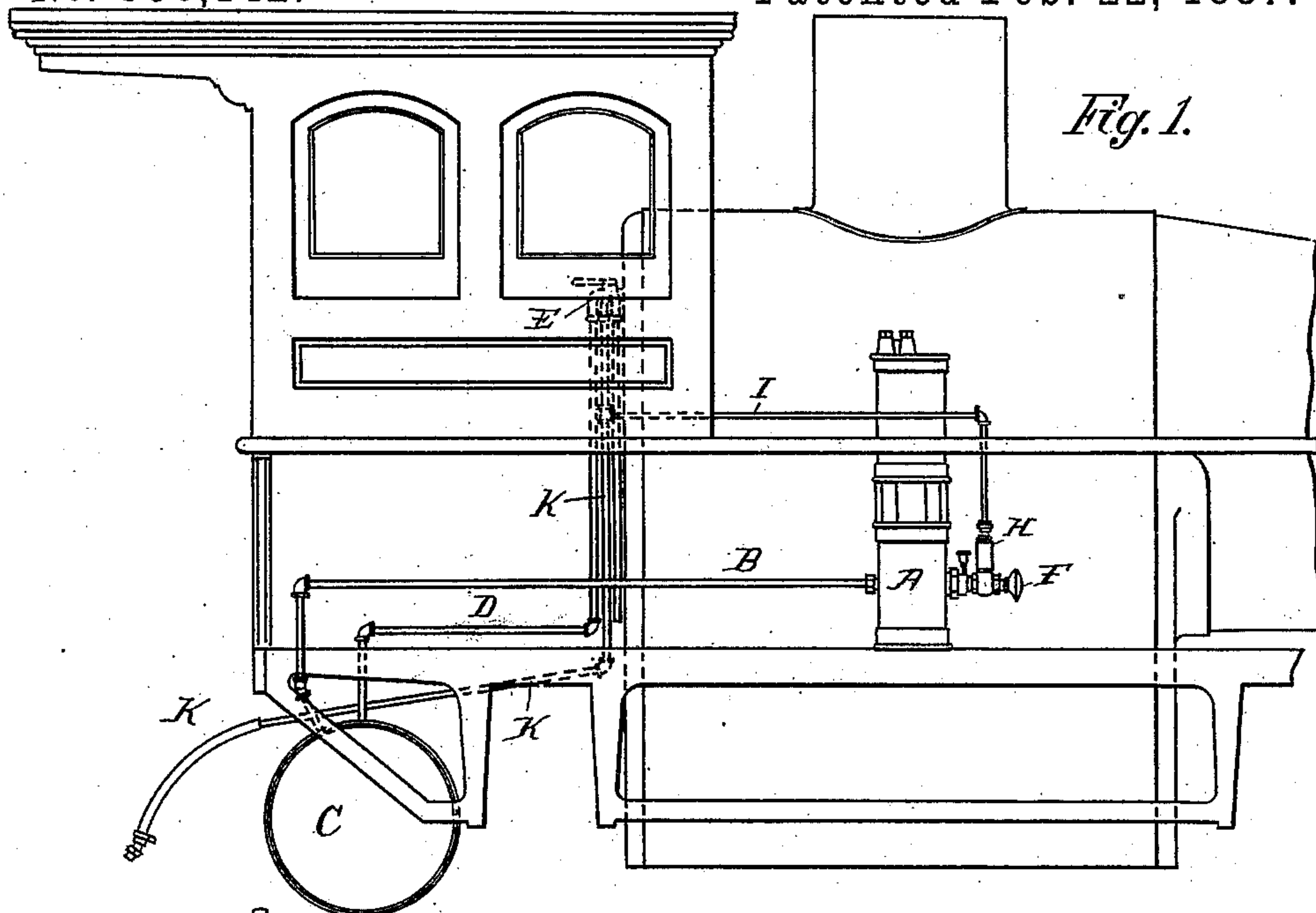
(No Model.)

C. A. BASS.

AUTOMATIC REGULATOR FOR AIR BRAKES.

No. 358,142.

Patented Feb. 22, 1887.



Witnesses:

L. C. Curtis.
A. W. Munday.

Inventor:

Chas. A. Bass
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Atty.

UNITED STATES PATENT OFFICE.

CHARLES A. BASS, OF CICERO, ILLINOIS.

AUTOMATIC REGULATOR FOR AIR-BRAKES.

SPECIFICATION forming part of Letters Patent No. 358,142, dated February 22, 1887.

Application filed July 22, 1886. Serial No. 208,790. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. BASS, a citizen of the United States, residing in the town of Cicero, in the county of Cook and State of Illinois, have made certain new and useful Improvements in Automatic Regulators for Air-Brakes, of which the following is the specification.

Figure 1 is a side elevation of a locomotive, showing my improvement applied to the air-pipes. Fig. 2 is a plan view of Fig. 1, with the cab removed, showing my improvement. Fig. 3 is a detail of my regulator.

In the use of air-brakes it is a very common occurrence for such a high pressure to be applied to the brakes as to cause the wheels to slide, and in this event they become flattened and unfit for further service. Frequently this pressure is so great as to break or more or less injure different parts of the braking device. This excessive pressure is caused by too great a quantity of air being forced into the train-pipes by the pump. Air-brakes are so adjusted that a certain pressure is the maximum pressure required to operate the brakes, and all pressure in excess of this fixed amount or standard causes the brake-shoes to be forced with too great a pressure against the wheels. To regulate or to neutralize this pressure in excess of the maximum pressure fixed upon to properly work the brakes is the object of this invention. Only such parts of an air-brake are shown in the drawings and described as will show the working of my invention.

A, Fig. 1, is the air-pump of any system of air-brakes. B is the pipe leading from the pump to the drum C.

D is the pipe leading to the three-way cock E. This cock is worked by the engineer.

F is the inlet-pipe.

H is the automatic regulator, placed on and connected to the inlet-pipe F in front of the pump. From this automatic regulator leads the pipe I to the train-pipe K.

In Fig. 3 is shown the construction of the regulator. It consists of the shell *a*, connected to the inlet-pipe F. At the upper end of this shell, and extending into it, is the case *d* and nut *g*, above which joins the pipe I to the regulator. In case *d* is the valve *i*, pressed against the seat *l* by the spring *m*, around the stem *o*.

This spring *m* is adjusted or set at the maximum pressure fixed for working the brakes. The fixed point of this spring *m* is the nut *r* at lower end of case *d*. The stem *o* extends through a hole in nut *r*. *s s* are holes through case *d*, making an opening from interior of case *d* to interior of shell *a*.

t is a double-seated valve, placed in inlet-pipe F, one side of which rests on the seat *v* and the other side works against the seat *x*. *y* is a coiled spring on under side of valve *t*.

The operation of my invention is as follows: When the pressure in the train-pipe exceeds the maximum pressure fixed for working the brakes, the valve *i* will open and the valve *t* will close. The closing of the valve *t* prevents air entering the pump and opens a passage from the regulator into the front of the pump, and the opening of the valve *i* connects or opens a communication from the inlet-pipe in front of the pump with the train-pipe around the pump and on the opposite side thereof. The valve *i* will remain open and the valve *t* will remain closed just so long as the pressure in the train-pipe is in excess of the maximum pressure fixed as a limit for working the brakes. This will be only a very short time, as no air enters the pump to increase the pressure. The compressed air in the pipes is forced into the train-pipe, then through pipe I into the regulator, thence into the inlet-pipe, then into the pump, and so on over again until the excess is removed and valve *i* closes and valve *t* opens. This excess of pressure is removed by applying the brakes or by the leakage which occurs at the joints of the air-pipes. At no time does the gage indicate any considerable pressure above the maximum pressure fixed when this improved regulator is used, while without it the gage will indicate at times a pressure a little below the boiler-pressure, at which time, if the brakes are applied, too great a pressure will be applied to the wheels, which will cause them to slide, and other damages to the brake machinery will follow. The spring *y* is just strong enough to lift the valve up and hold it against the upper seat, *x*, while air is being pumped into the brake-cylinders, thus preventing its pounding on its two seats.

It will be observed that I make a communication direct from the inlet-pipe to the train-

pipe, with no intervening valve between the train-pipe and inlet-pipe, excepting the regulator shown in Fig. 3, and located on the inlet-pipe in front of the pump. It will also be observed that the regulating of the pressure of the air in the brake-cylinders is done by means of the regulator, and that it is entirely automatic and requires no manipulating by the engineer.

10 I claim—

1. In combination with an air-brake, the automatic regulator H, attached to the inlet-

pipe in front of the pump, and pipe I, connecting regulator and inlet with the train-pipe in rear of pump, substantially in the manner and for the purpose shown. 15

2. In combination with the automatic regulator, the valve *t* and spring *y* in inlet-pipe, substantially in the manner and for the purpose shown.

CHARLES A. BASS.

Witnesses:

JAS. A. COWLES,
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