

No. 610,508.

Patented Sept. 6, 1898.

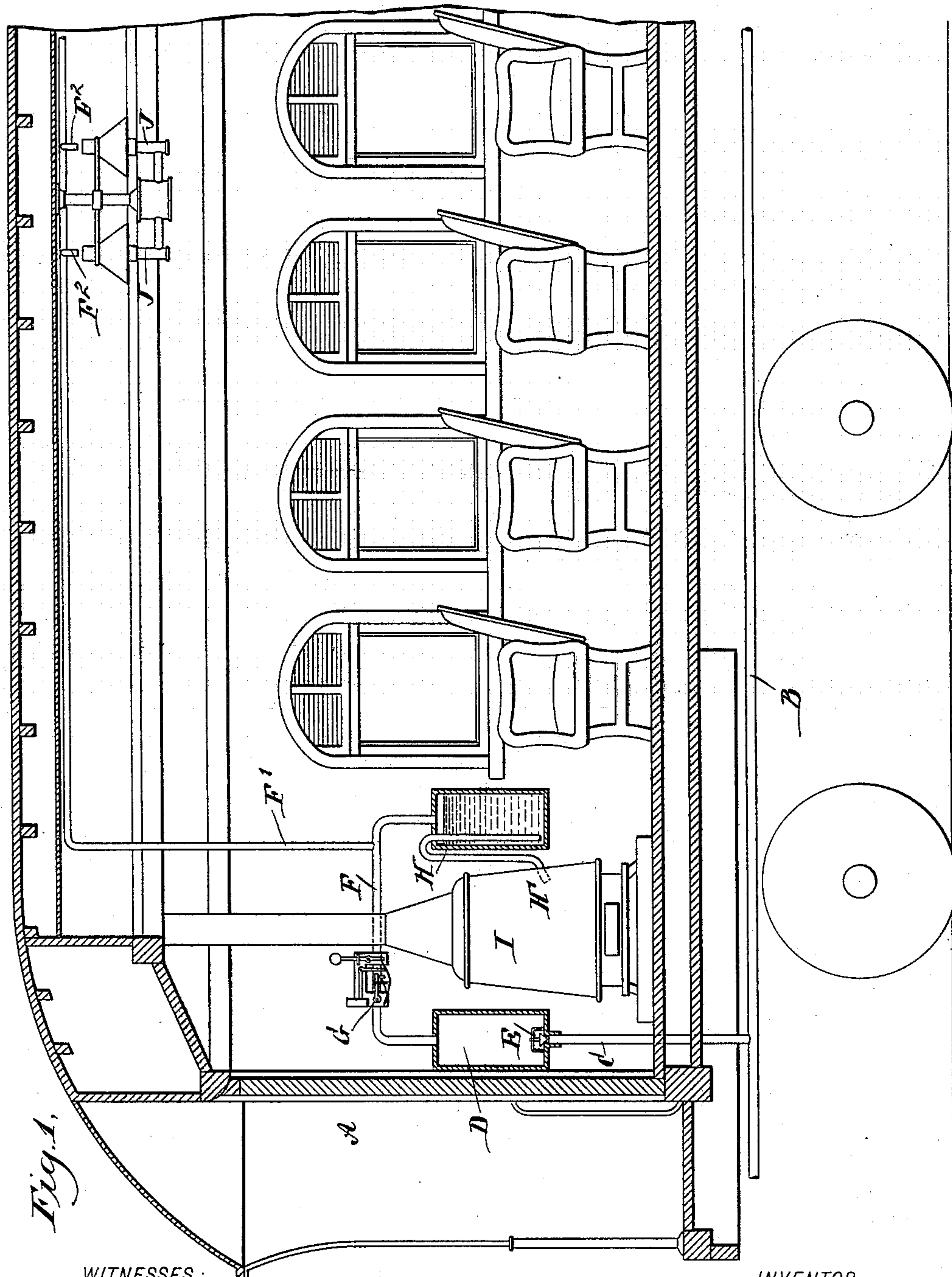
M. M. WILLIAMS.

AUTOMATIC FIRE EXTINGUISHER FOR PASSENGER COACHES.

(Application filed Nov. 22, 1897.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

Edward Thorpe.
Rev. J. Foster.

INVENTOR

M. M. Williams

BY

Mumford

ATTORNEYS.

No. 610,508.

Patented Sept. 6, 1898.

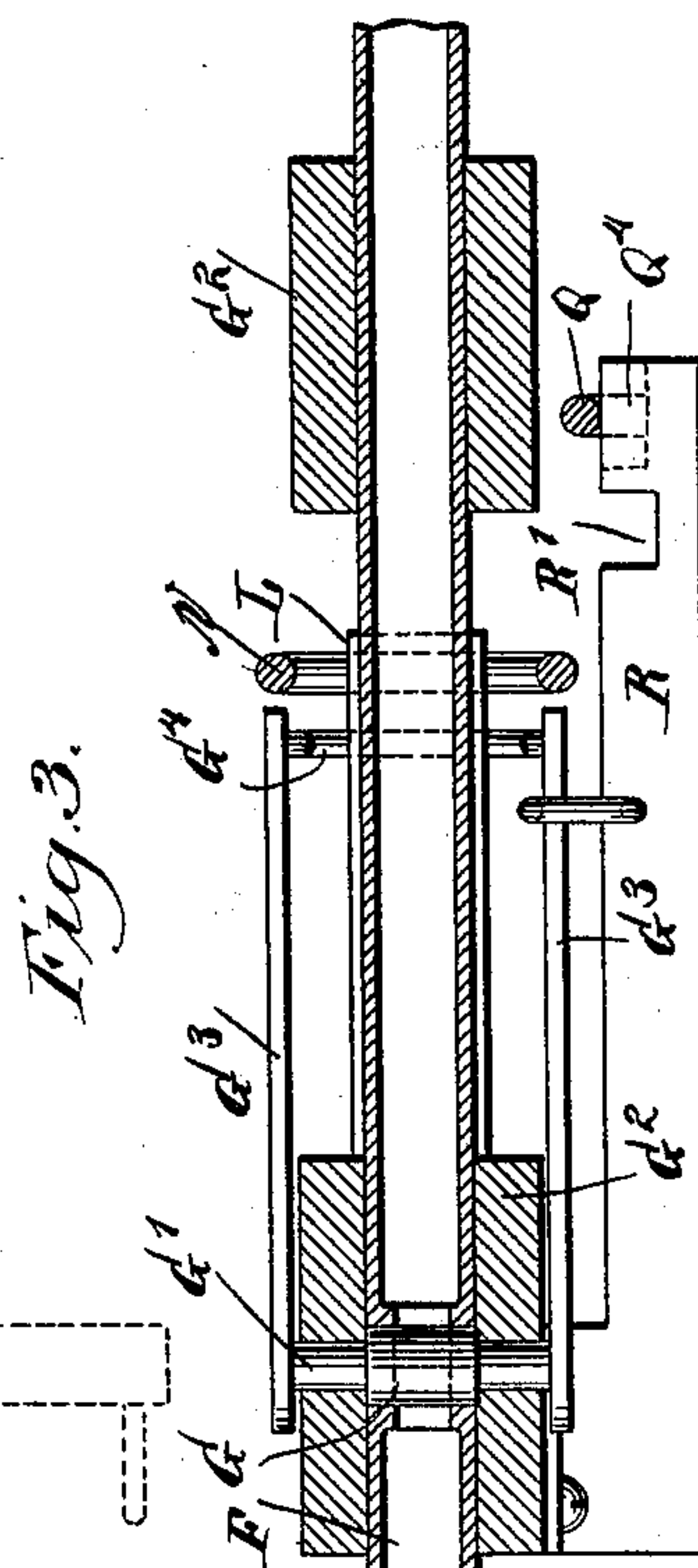
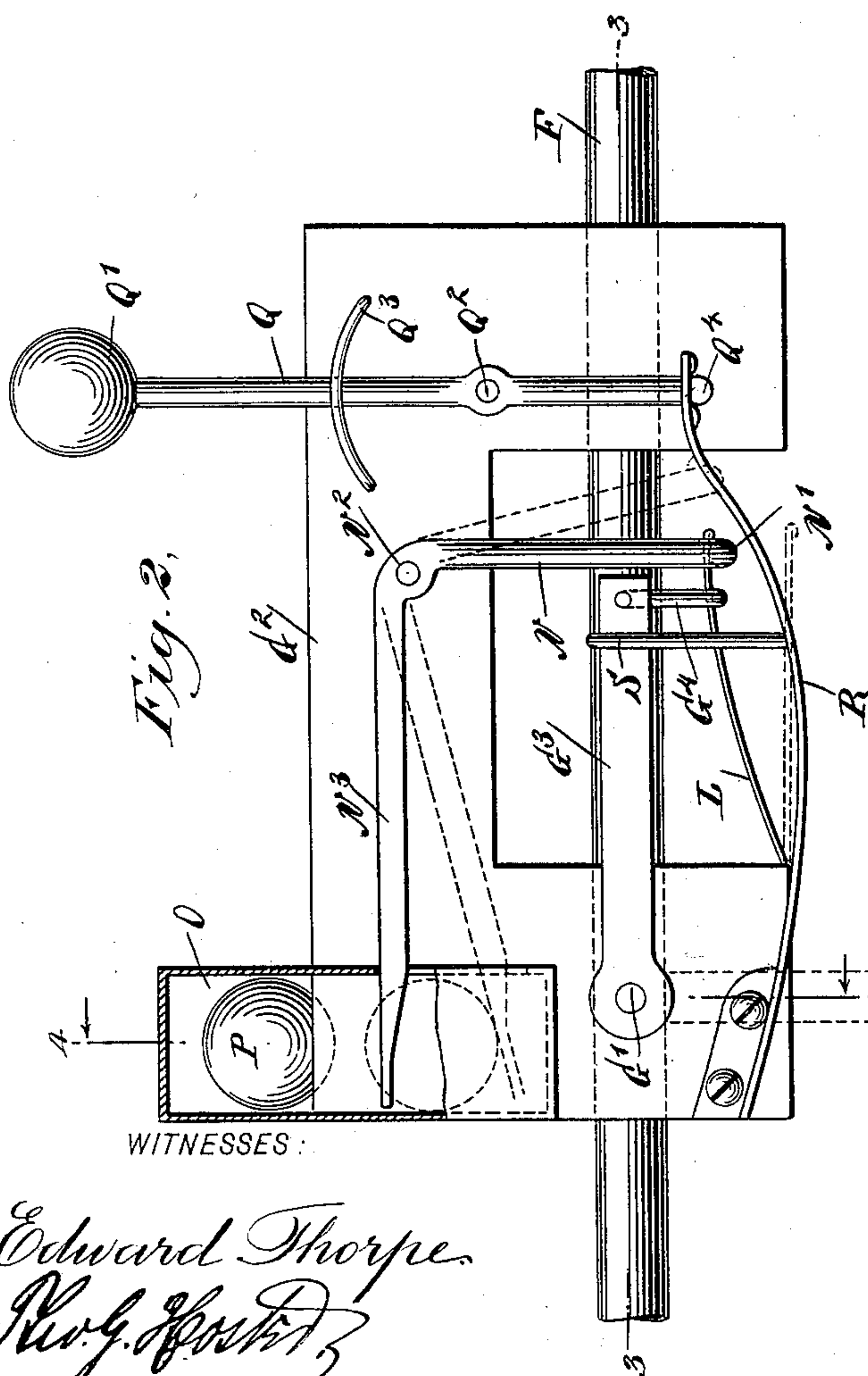
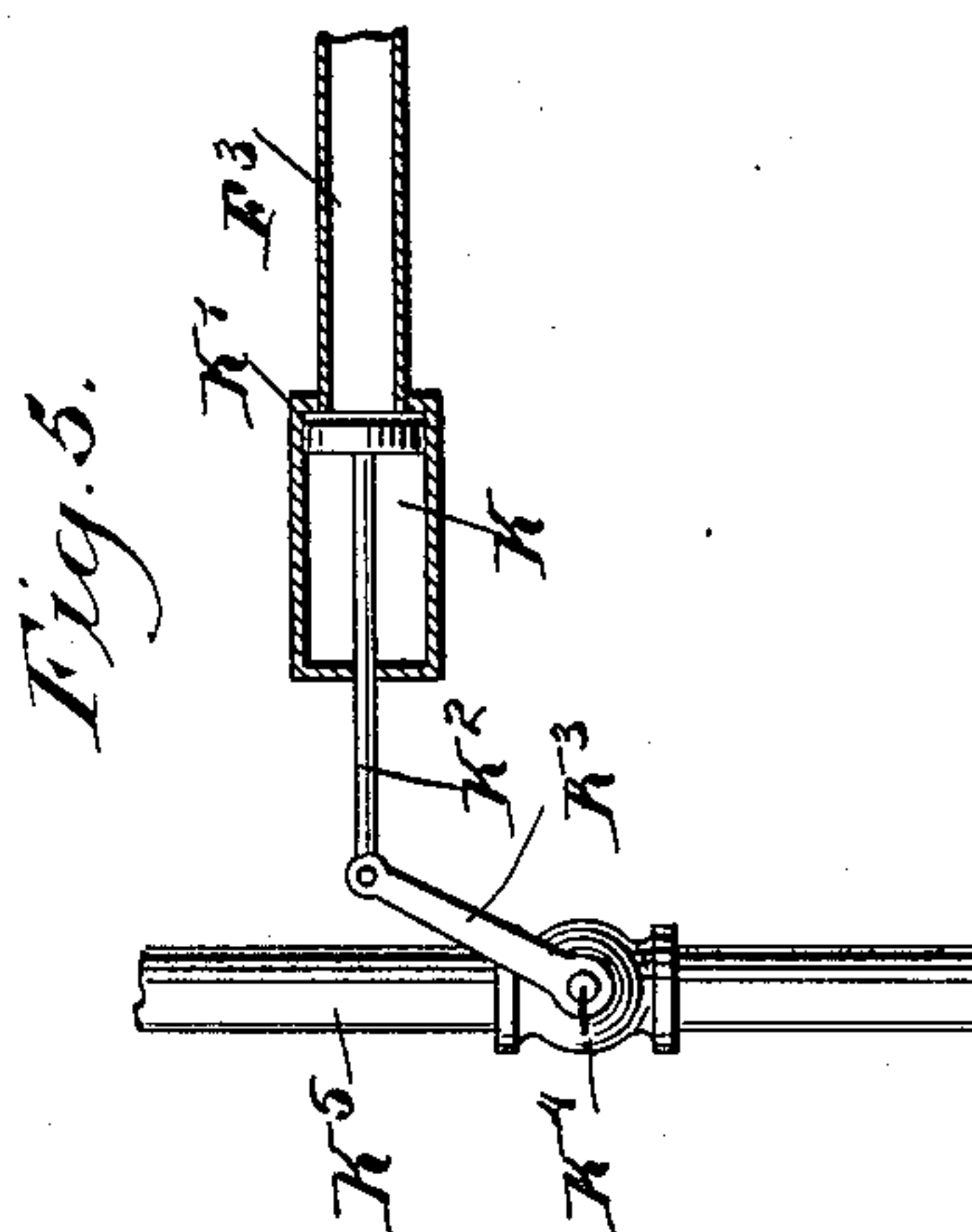
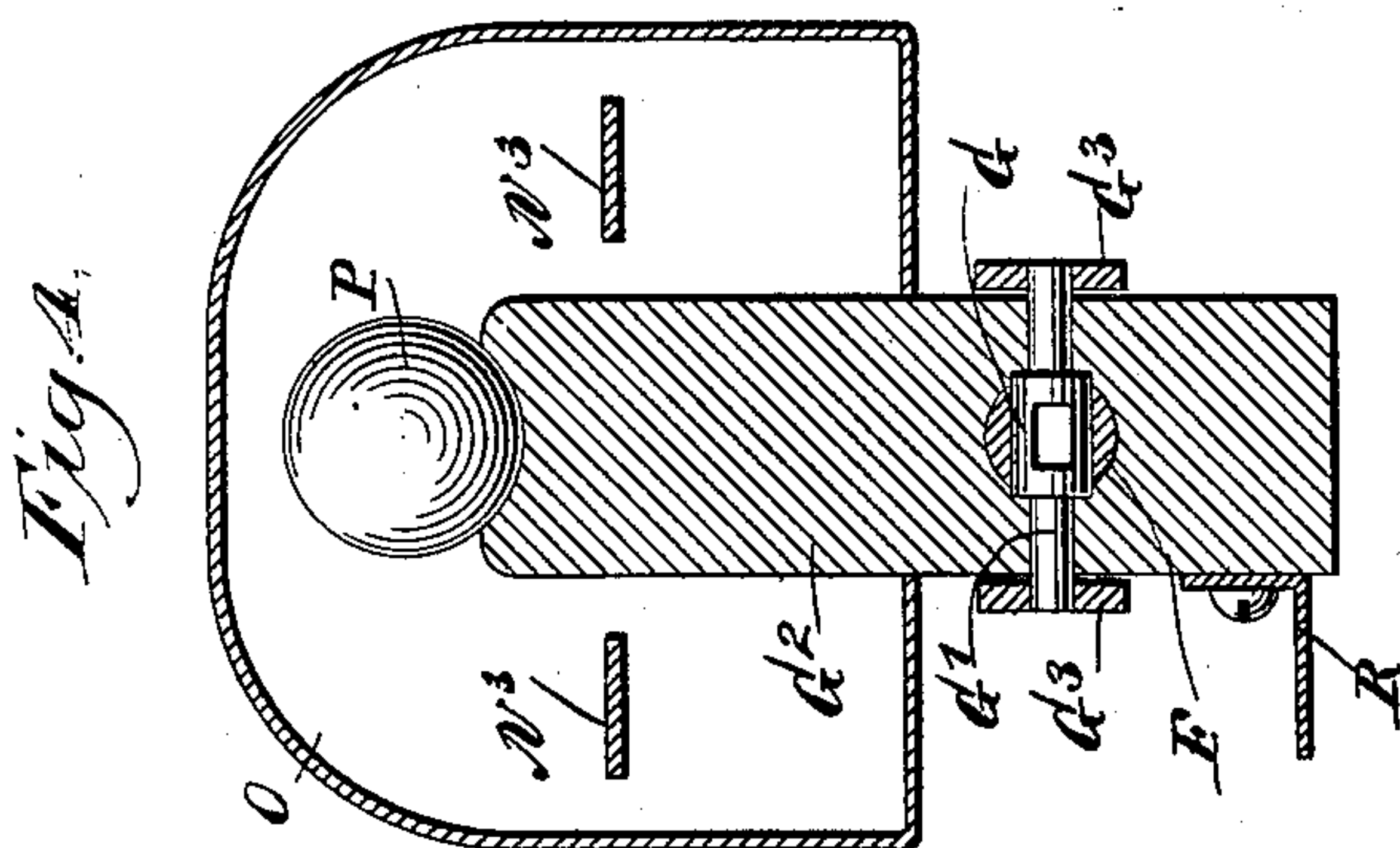
M. M. WILLIAMS.

AUTOMATIC FIRE EXTINGUISHER FOR PASSENGER COACHES.

(Application filed Nov. 22, 1897.)

(No Model.)

2 Sheets—Sheet 2.



INVENTOR

M. M. Williams

BY

mm/3

ATTORNEYS.

UNITED STATES PATENT OFFICE.

MAHLON MONROE WILLIAMS, OF RICO, COLORADO.

AUTOMATIC FIRE-EXTINGUISHER FOR PASSENGER-COACHES.

SPECIFICATION forming part of Letters Patent No. 610,508, dated September 6, 1898.

Application filed November 22, 1897. Serial No. 659,454. (No model.)

To all whom it may concern:

Be it known that I, MAHLON MONROE WILLIAMS, of Rico, in the county of Dolores and State of Colorado, have invented a new and Improved Automatic Fire-Extinguisher for Passenger-Coaches, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved automatic fire-extinguisher more especially designed for use on passenger-coaches and arranged to automatically extinguish the fire in the heaters, blow out the light in the oil-lamps, or shut off the gas from the gas-burners in case of a wreck or other accident to prevent the coach from being set on fire.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of a passenger-coach provided with the improvement. Fig. 2 is an enlarged side elevation of the valve-controlling mechanism, with parts in section. Fig. 3 is a section on the line 3 3 of Fig. 2. Fig. 4 is a transverse section of the same on the line 4 4 of Fig. 2, and Fig. 5 is an enlarged sectional side elevation of the device for shutting off the gas.

The passenger-coach A, as shown, is equipped with the usual fluid-pressure brake mechanism, of which the train-pipe B is shown, the said pipe being connected by a branch pipe C with an air-reservoir D. The latter is provided with a check-valve E over the entrance of the branch pipe C for retaining the air in the said reservoir after the same is filled to prevent a withdrawal of the air upon the ordinary application of the brakes by the engineer.

From the reservoir D leads a pipe F, containing a normally-closed valve G, to a receptacle H, containing water or other suitable fire-extinguishing solution, the said receptacle being connected by a pipe H' with a heater I, so that air-pressure delivered into the receptacle causes the extinguishing fluid to pass into the heater and extinguish the fire therein.

The pipe F is also provided with a branch pipe F', leading along the roof of the coach, with branch pipes F² extending therefrom into the chimneys of lamps J, so that when air passes through the pipe F' and the branch pipes F² into the lamps the light thereof is extinguished.

In case gas is used instead of oil for illuminating purposes I provide a pipe F³, leading from the pipe F and connecting with a cylinder K, (see Fig. 5,) containing a piston K', connected by its piston-rod K² with an arm K³ on the valve-stem K⁴ of a valve contained in the pipe K⁵, connecting the gas-reservoir with the gas-burners in the coach. The valve K⁴ is normally open; but when air passes into the pipe F and the pipe F³ then the air-pressure forces the piston K' outward, so as to shift the valve and close the same to cut off the supply of gas from the burners, thereby extinguishing the lights in the coach.

The valve G is held normally closed by its frictional contact with its casing, but is adapted to be opened automatically in case of a wreck or other accident to the coach, the said valve being for this purpose provided on its stem G' with arms G³, mounted to swing up and down on the sides of the frame G², carried by the pipe F. The arms G³ are connected with each other at their free ends by a bail G⁴, pressed on by the free end of a spring L, attached to the frame G² and engaging the connecting-arm N' of a double lever N, fulcrumed at N² on the said frame G² and having its two arms N³ extending into a casing O, carried on the frame G².

The frame G² supports within the casing O a ball P, preferably made of heavy material, such as iron, so that the ball normally remains on its seat on the frame, as indicated in Fig. 4; but in case of an accident to the coach the ball will roll off its seat upon one of the arms N³, the weight of the ball imparting a swinging motion to the lever N, as indicated in dotted lines in Fig. 2, to release the spring L, which on pressing the bail G⁴ causes a downward-swinging motion of the arms G³ to turn the valve into an open position. When this takes place, the air-pressure from the reservoir D passes to the receptacle H for forcing the contents thereof into the fire-box of the heater to extinguish the burning fuel therein.

At the same time part of the air-pressure blows out the light in the lamps J or shuts off the gas-supply in case gas is used for illuminating purposes, as previously mentioned.

5 In case a sudden jar is given to the coach in a longitudinal direction which is not sufficient to dislodge the ball F from its seat I provide an additional device for opening the valve G in such an emergency. This device
10 consists of a lever Q, fulcrumed at Q² on the frame G² and extending vertically and having a heavy weight Q' at the upper end. The lever Q is free to swing in a guideway Q³ and is provided at its lower end with a foot Q⁴,
15 normally engaging the free end of a spring R, attached to one side of the frame G². The spring R is provided with a hook S, normally engaging the top edge of the arm G³ for opening and closing the valve G, so that when a
20 sudden jar is given to the coach the lever Q will move either forward or backward, and in doing so the foot Q⁴ will become disconnected from the free end of the spring R either by
25 sliding off the extreme end thereof or by passing into a notch R', formed in the spring, as shown in Fig. 3. Thus when the spring R is released its resiliency will cause it to move downward, so that the hook pulls on the arm G³, and the latter in swinging downward opens
30 the valve G to allow the fluid-pressure to pass to the receptacle H, the lamps J, or the cylinder K for the purpose previously mentioned.

Now it is evident that when the fluid has passed out of the reservoir D and the pressure within the reservoir is below that of the
35 train-pipe B then air will be exhausted from the train-pipe past the valve E into the reservoir D, so that the reduction of the train-pipe pressure causes an application of the
40 brakes to bring the train to a standstill irrespective of any action on the part of the engineer or conductor. Thus in case of a wreck or other accident to the coach the fires in the heaters, as well as the lights in the coaches,

are extinguished and the brakes are applied 45 to bring the train immediately to a standstill.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The improved apparatus for extinguishing fire in a car, comprising a reservoir for compressed air, a pipe leading from the reservoir, a normally-closed valve in said pipe, an arm extended from the valve-shaft, two 50 links pendent from the arm, springs connected with the respective links, two pivoted levers detachably connected with the free ends of the respective springs, and weights for co-acting with the upper ends of said levers, in 60 the manner shown and described.

2. An apparatus for extinguishing fire or lights in a car, comprising a reservoir for compressed air, a pipe leading from the reservoir, a normally-closed valve in said pipe, 65 an arm extended from said valve, a link connected with the arm, a spring connected with said link, a vertically-disposed pivoted lever normally, but detachably, engaging the spring, and a weight on the upper end of said 70 lever, to release it from engagement with the spring in case of accident to the car, substantially as specified.

3. A fire-extinguisher, comprising a pipe connected at one end with an air-reservoir 75 and at the other end with means for extinguishing fire or illuminating devices in a car or coach, a valve in said pipe, arms extended from the stem of said valve, springs pressing on the said arms, levers for engaging with 80 and normally holding said springs, and means for imparting motion to said levers to release the springs in case of accident to a coach or car, substantially as specified.

MAHLON MONROE WILLIAMS.

Witnesses:

JAMES P. CASSEDY,
JAMES F. LINKER.