

(No Model.)

2 Sheets—Sheet 1.

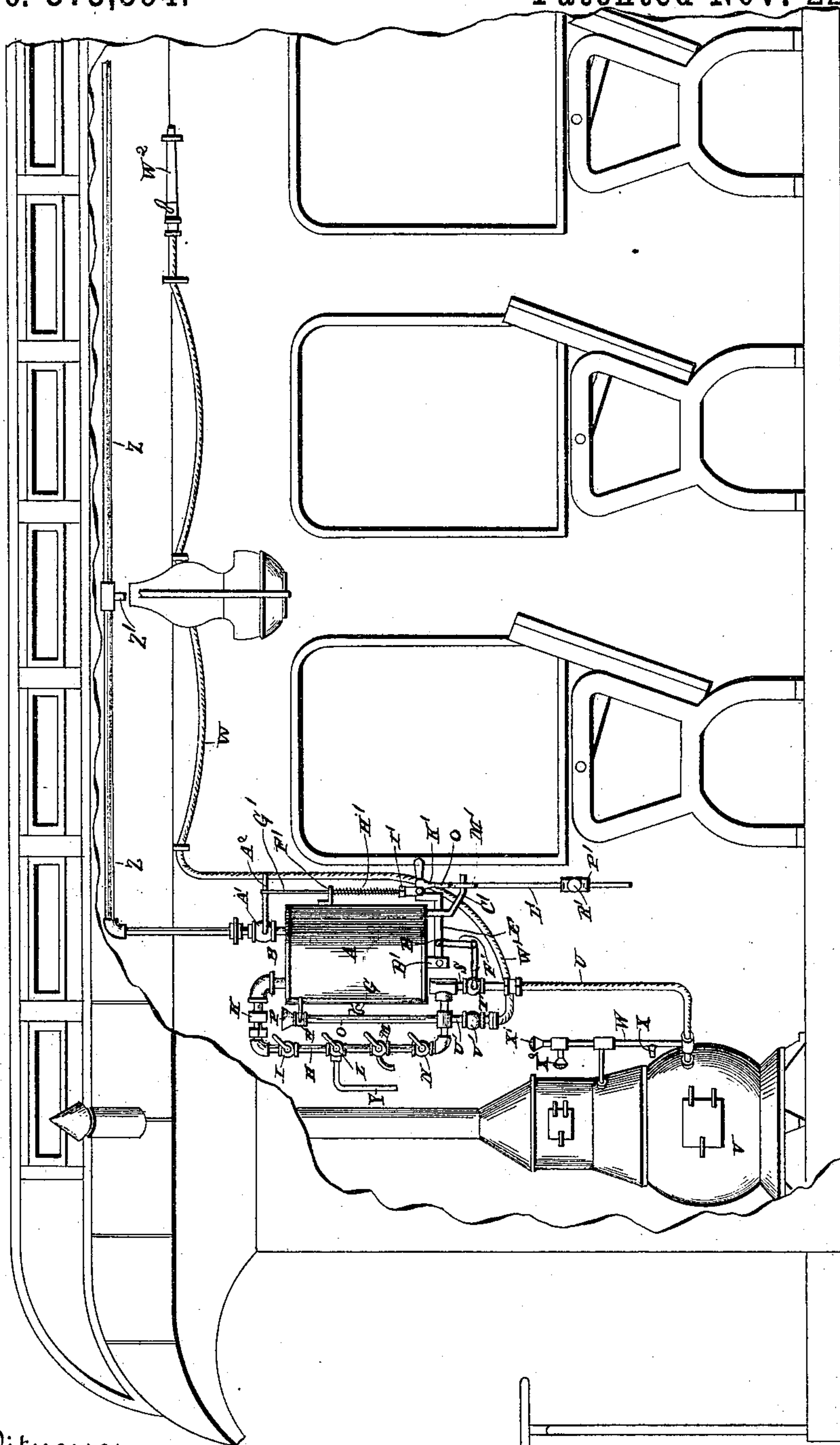
J. N. MATLOCK & J. B. FRITZ.

AUTOMATIC FIRE EXTINGUISHER FOR RAILWAY CARS.

No. 373,594.

Patented Nov. 22, 1887.

Fig. 1.



Witnesses
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(No Model.)

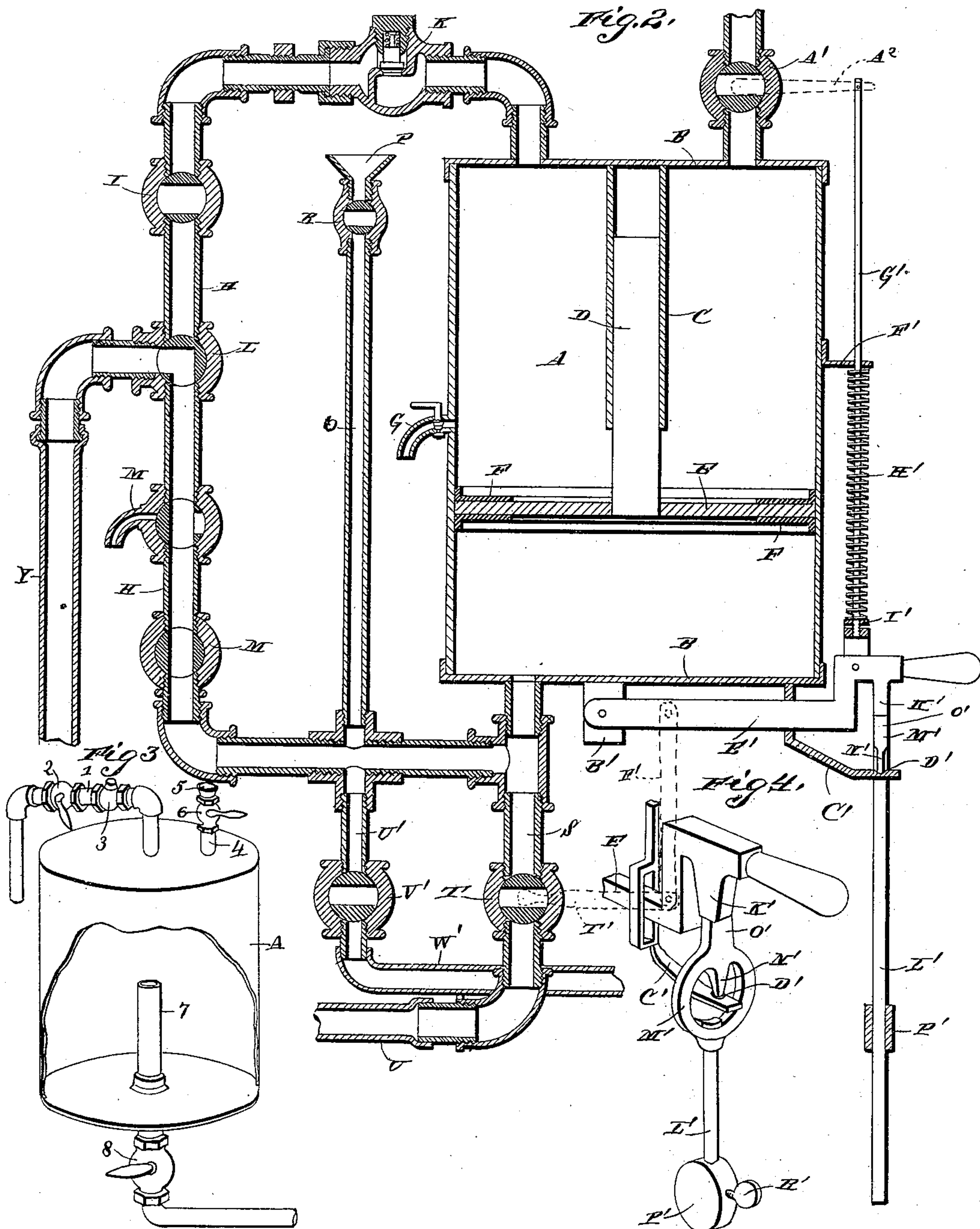
2 Sheets—Sheet 2.

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By their Attorneys,

C. A. Howden

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UNITED STATES PATENT OFFICE.

JASPER NEWTON MATLOCK AND JAMES BUCHANAN FRITZ, OF BROOKVILLE,
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AUTOMATIC FIRE-EXTINGUISHER FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 373,594, dated November 22, 1887.

Application filed March 9, 1887. Serial No. 230,285. (No model.)

To all whom it may concern:

Be it known that we, JASPER NEWTON MATLOCK and JAMES BUCHANAN FRITZ, citizens of the United States, residing at Brookville, in the county of Saline and State of Kansas, have invented a new and useful Improvement in Automatic Fire-Extinguishers for Railway-Cars, of which the following is a specification.

Our invention relates to an improvement in automatic fire-extinguishers for railway-cars; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a general elevation of a fire-extinguishing apparatus embodying our improvements, showing the same arranged in a railway-car. Fig. 2 is a vertical sectional view of our improved fire-extinguisher. Fig. 3 is a perspective view of a modified form of our invention, parts being broken away to disclose interior construction. Fig. 4 is a detail view.

A represents a cylinder, which is made of boiler-iron or other suitable material, and is provided with heads B at its upper and lower ends, which are secured to the cylinder by means of bolts or rivets, the cylinder being air-tight. From the center of the upper head B depends a vertical cylindrical sleeve or tube, C, which forms the guide for a piston-rod, D, that works in the said sleeve or tube. To the lower end of the said piston-rod is attached a piston or follower, E, provided on its upper and lower sides with packing-rings F, which bear snugly against the inner sides of the cylinder. The length of the sleeve or tube C and of the piston-rod D is such that when the piston or follower is at the bottom of the cylinder A the upper end of the piston-rod remains engaged with the lower portion of the sleeve or tube C.

G represents a stop-cock, which is arranged at about the center of the cylinder A, midway between the heads thereof, the said stop-cock serving as a vent.

H represents a vertical pipe, which is arranged on one side of the cylinder A and communicates therewith at its upper and lower ends. In the upper portion of the said pipe H is a stop-cock, I, and between the said stop-

cock and the upper head of the cylinder is a check-valve, K, which is located in the pipe H. At a suitable distance below the stop-cock I is a three-way cock, L, and below the said three-way cock is a drain-faucet, M.

N represents a stop-cock, which is located in the pipe H at a suitable distance below the faucet M.

O represents a vertical supply-pipe, which is arranged between the cylinder and the pipe H and communicates at its lower end with the latter. The upper end of the supply-pipe O is provided with a funnel, P, and below the said funnel is a stop-cock, R.

S represents a branch pipe, which communicates with the lower discharge end of the pipe H and depends therefrom. In the said branch pipe S is a stop-cock, T, provided with a handle or lever, T', by means of which it may be turned. This branch pipe is adapted for the attachment of a flexible tube or hose, U, which leads to the stove V and is provided with a vertical pipe, W, arranged on one side of the stove, and from the said pipe extends a number of discharge-nozzles, X, which communicate with the interior of the stove in vertical series. At the extreme upper end of the pipe W is a spraying-nozzle, X', and on one side of the upper end of the pipe is a similar nozzle, X².

Y represents a pipe which connects that portion of the pipe H in which the three-way cock L is located with the compressed air-pipe under the bottom of the car, now in common use with the ordinary compressed air-brake apparatus.

Z represents a pipe, which is arranged under the roof of the car and extends longitudinally through the same, and this pipe is provided with a series of nozzles, Z', one of which is arranged above each lamp in the car. This pipe Z communicates with the upper end of the cylinder A and is provided with a stop-cock, A', having a lever or handle, A². From the bottom of the cylinder A depends an ear, B', and a bent arm or bracket, C', the vertical portion of which is slotted, and the said bracket is arranged at one side of the cylinder and at a suitable distance from the ear B'. The outer horizontal end of the bracket is provided with a socket or opening, D'.

E' represents a bent lever, which works through the slot in the bracket C' and has its inner end fulcrumed to the ear B'. From one side of the cylinder A projects a guide-ear, F'.

5 G' represents a vertical rod, which has its lower end connected to the lever E', the said rod extending through an opening which is made in the ear F'. A coiled extensile spring, H', is placed on the rod G' and bears between 10 the under side of the ear F' and an adjusting-nut, I', which is screwed onto the rod G'. This nut I' serves to regulate the tension of the spring. From the under side of the outer end of the lever E' depends a stud, K'.

15 L' represents a pendulum, provided at its upper end with an open head, M', having a depending pin, N', to enter the socket D' of the bracket C', and from the upper side of the said head projects a vertical pin, O', which 20 normally bears under the stud K' and serves to keep the lever E' in the position indicated in solid lines in Figs. 1 and 2.

P' represents a weight which is attached to the pendulum and is adapted to move vertically thereon. The said weight is provided 25 with a set-screw, R', by means of which the weight may be secured to the pendulum at any desired vertical adjustment. The lever E' is connected to the lever T' of the stop-cock 30 T by means of a link, and the lever A' of the stop-cock A' is connected to the rod G', as shown.

U' represents a branch pipe, which communicates with and depends from the pipe H and 35 is provided with the stop-cock V', and is adapted for the attachment of a flexible hose, W', which is provided with a nozzle, W².

The operation of our invention is as follows: The piston or follower E is raised in the cylinder A to the position indicated in Fig. 2 by 40 opening the stop-cock G, which serves as a vent, and turning the three-cock L, so as to establish communication between the compressed-air pipe Y and the lower portion of pipe H. The stop-cocks M and N are also 45 opened, and the remaining stop-cocks being closed, compressed air is admitted to the lower portion of the cylinder A, and consequently forces the piston or follower upward therein. 50 The stop-cocks N and M are then closed and the stop-cock R is opened and water or any suitable fire-extinguishing compound is poured into the funnel P, and thereby flows into the lower portion of the cylinder A, and rises 55 therein until it reaches the piston, thus half filling the cylinder. The stop-cocks G and R are then closed. The three-way cock L is turned so as to establish communication between the compressed-air pipe Y and the upper 60 portion of the pipe H, and the stop-cock I is opened, and this causes the compressed air to flow into the upper end of the cylinder A, past the check-valve K, and to bear upon the upper side of the piston or follower E, 65 thus filling the upper half of the cylinder A with compressed air. In the event that the car should be overturned or collide or become

derailed, the pendulum will be caused to swing to one side, and thereby move the pin O' from 70 beneath the stud K' of the lever E', and consequently the said lever will be forced downward by the spring H', and will cause the stop-cocks T and A' to be simultaneously opened. The compressed air in the upper 75 portion of the cylinder will force the piston downward therein and thereby force the water or fluid in the lower portion of the cylinder through the pipe U to the pipe W, from whence it will be discharged into the stove through 80 the nozzles X, and a portion of the water will be ejected through the nozzles X' and X² as spray, and will completely wet the end of the car in which the stove is located. A portion 85 of the compressed air from the upper end of the cylinder will pass through the stop-cock A' into the pipe Z, and will be ejected therefrom through the nozzles Z', and will consequently blow out the lights in the lamps, thereby effectually preventing fire from being 90 communicated from the lamps or stove to the car. The pipe W' is used by hand in the event that fire should break out of any portion of the car. By adjusting the weight P' up or down on the pendulum rod the latter 95 may be prevented from swinging under ordinary conditions while the train is in motion, and only caused to swing so far as to release the spring-actuated lever E' in the event of a collision or other accident.

In Fig. 3 we illustrate a modified form of 100 our invention, in which the pipes H and I and the follower or piston are dispensed with. In this modified form a pipe, 1, communicates with the upper end of the cylinder and with the compressed-air pipe Y, and is provided 105 with a stop-cock, 2, and a check-valve, 3. The water inlet-pipe 4 projects from the upper end of the cylinder and is provided with a funnel, 5, and a stop-cock, 6. The discharge-pipe 7, at the bottom of the cylinder, has its 110 upper end projecting upwardly therein for a suitable height, as shown. In this modified form the water is introduced into the cylinder by opening the stop-cock 6 and pouring the water into the funnel 5. The stop-cock is then 115 closed and the stop-cock 2 is opened, which admits compressed air into the upper end of the cylinder, above the water therein. When the stop-cock H in the lower end of the discharge-pipe is open, the compressed air in the upper 120 portion of the cylinder will force the water outward through the pipe 7, as long as the latter is submerged. In the event that the car should be overturned all the water in the cylinder will be forced therefrom by the compressed air therein, as long as the pipe re- 125 mains submerged.

Having thus described our invention, we claim—

1. In fire-extinguishers in railway-cars, the 130 combination of the reservoir A for liquid under compression, the discharge-cock T for the reservoir, the lever to open the said discharge-cock, and the pendulum to normally support

the said lever, having an adjustable weight, P', thereon, for the purpose set forth, substantially as described.

2. The reservoir A for liquid under compression, having the piston D, provided with a head, E, and the pipe H, communicating with its upper and lower ends, said pipe having the three-way cock L, the pipe Y, communicating with the said cock for the purpose set forth, and the pipe S, leading from the lower end of the reservoir and having the cock T, substantially as described.

3. In a fire-extinguisher for railway cars, the combination of the reservoir for compressed air and water or other extinguishing fluid, the pipe Z, leading from the said reservoir and communicating with the lights, and provided with the stop cock or valve A', the pipe U, communicating with the stove and the reservoir and having the stop cock or valve T, the spring-actuated lever E', connected to the valves A' and T and adapted to open the same, and the pendulum to support the said lever when the valves are closed, substantially as described.

4. The reservoir for fire-extinguishing fluids,

having the discharge-cock, in combination with the lever to open the said discharge-cock, and the pendulum to normally support the said lever and provided with the adjustable weight, substantially as described.

5. The combination of the reservoir A for liquid under compression, the piston D, provided with a head, E, the pipe H, communicating with the upper and lower ends thereof, said pipe having the check-valve K in its upper portion, the three-way cock L, and the pipe Y, communicating with the said cock, the pipe O, communicating with the lower portion of pipe H and having the cock R and the funnel P, and the discharge-pipes leading from the reservoir and having the stop-cock, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

JASPER NEWTON MATLOCK.
JAMES BUCHANAN FRITZ.

Witnesses:

RUSSELL N. INGRAHAM,
WILLIAM A. GAHAN, Jr.