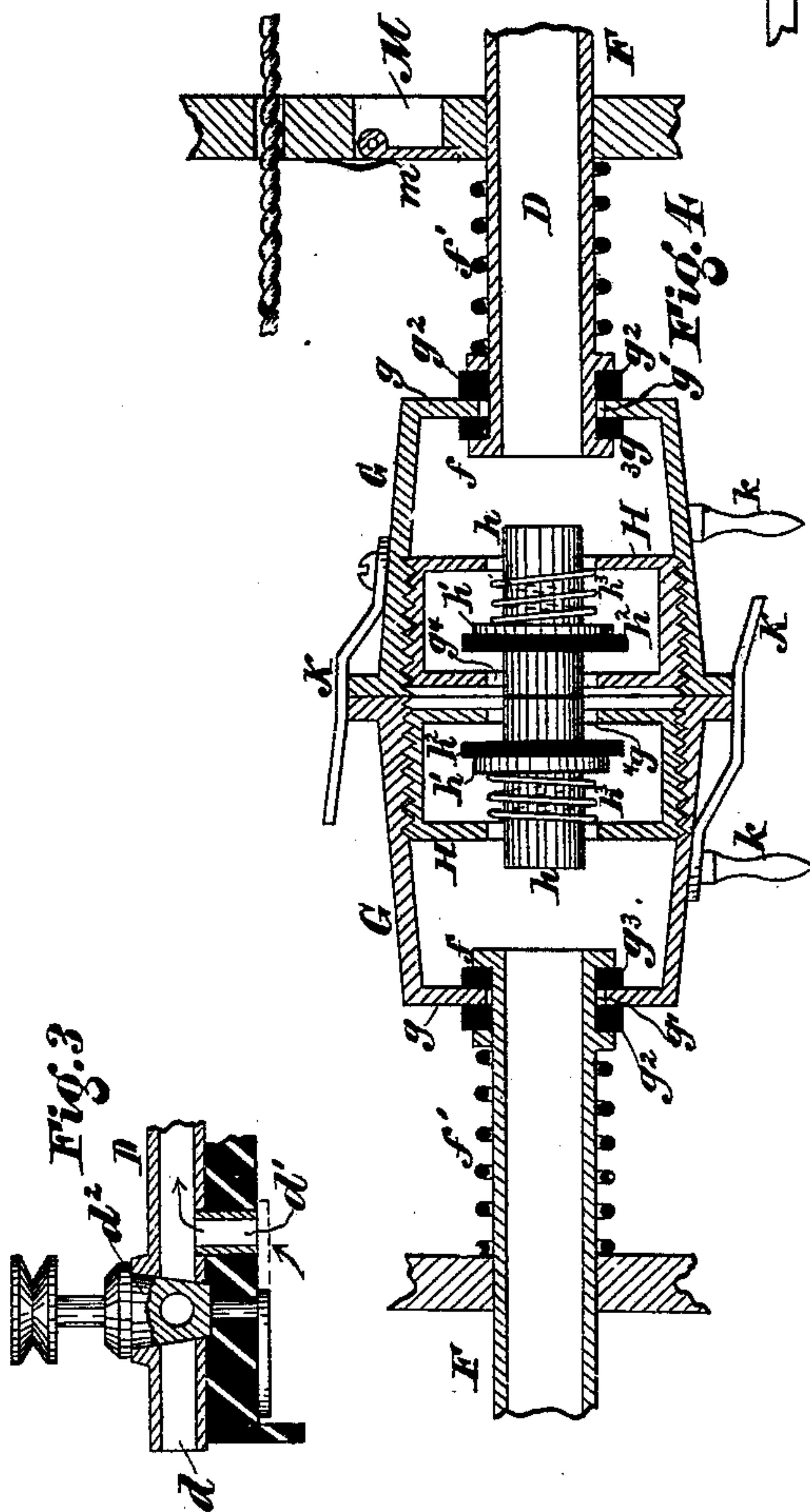
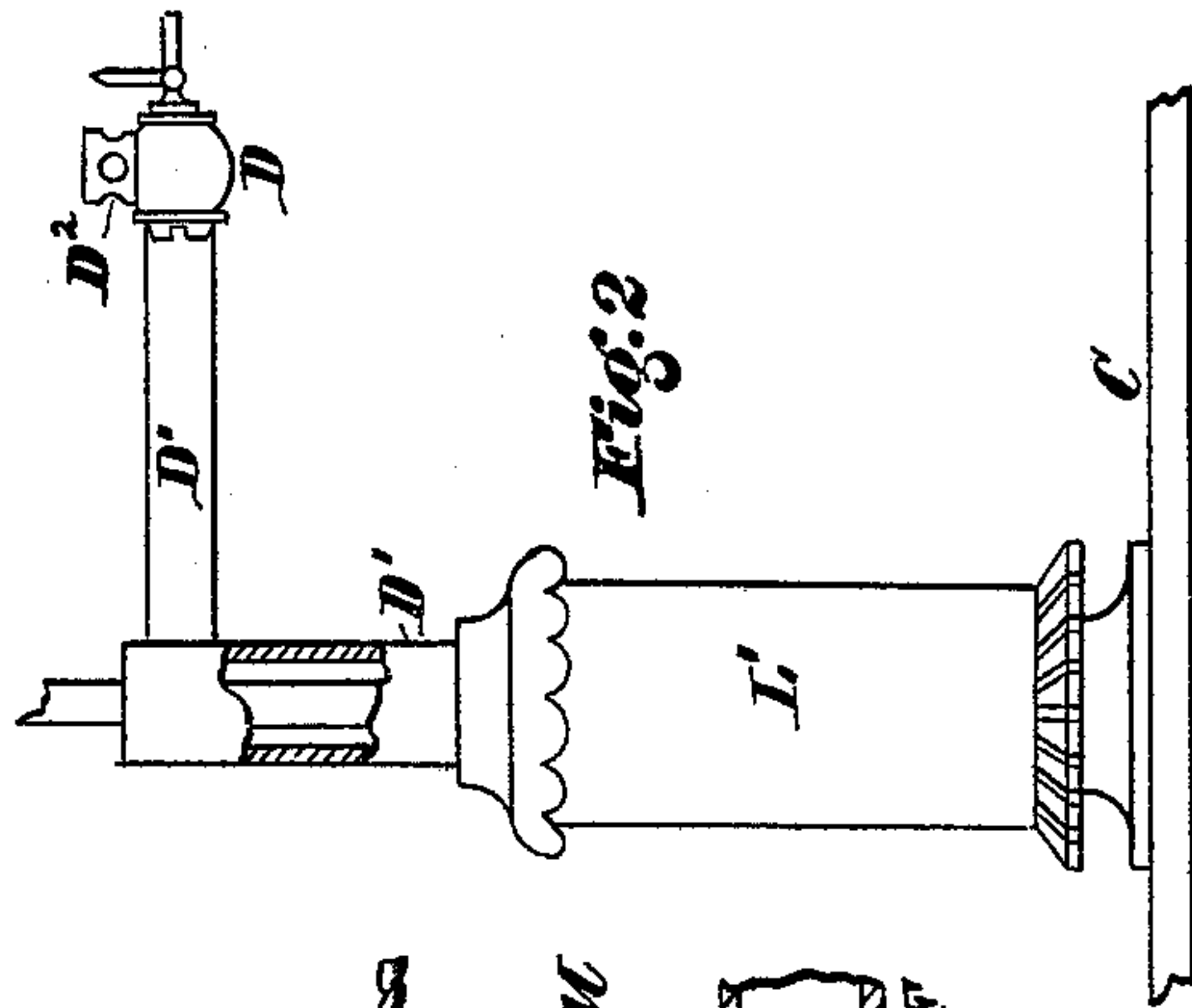
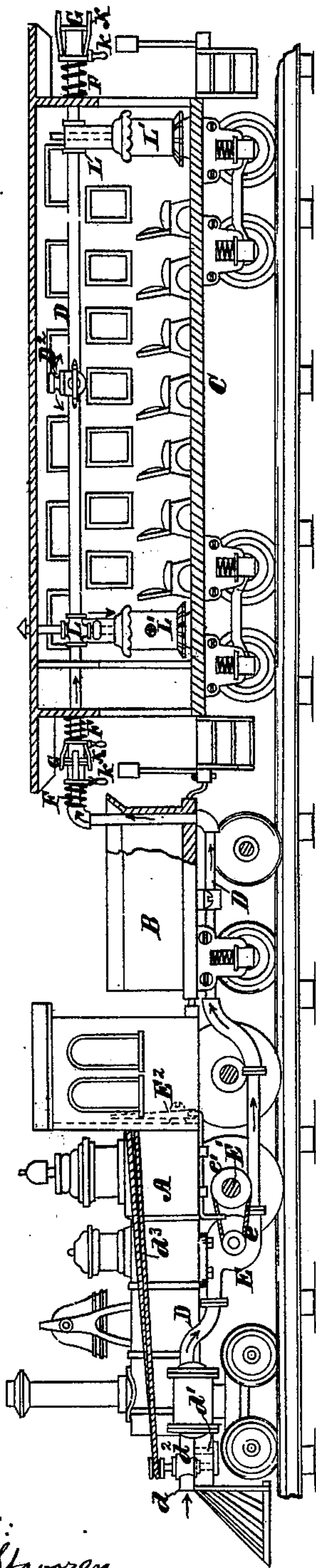


J. S. LLOYD.  
Ventilating Railroad Cars, &c.  
No. 229,720.                      Patented July 6, 1880.

*Fig. 1*



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

JOHN S. LLOYD, OF FLEMINGTON, NEW JERSEY.

## VENTILATING RAILROAD-CARS, &c.

SPECIFICATION forming part of Letters Patent No. 229,720, dated July 6, 1880.

Application filed May 27, 1879.

*To all whom it may concern:*

Be it known that I, JOHN S. LLOYD, of Flemington, in the county of Hunterdon and State of New Jersey, have invented certain  
5 new and useful Improvements in Ventilating Railroad-Cars and Excluding Smoke, Cinders, &c., therefrom; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others  
10 skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a side elevation of an engine, tender, and car, partly in section, equipped with my improved ventilating devices. Fig. 2 is an elevation, partly in section, of stove and air-supply pipe. Fig. 3 is a sectional view of valve and inlet of air-supply pipe. Fig. 4  
20 is a longitudinal vertical section of air-pipe couplings.

My invention has for its object to provide means for ventilating railroad-cars; and my improvements consist in the peculiar construction and combination of parts, as hereinafter  
25 set forth.

Referring to the accompanying drawings, A indicates the engine, B the tender, and C a car, of a train to which my improvements are  
30 applied.

D represents a pipe extending from the front of the locomotive back to the tender and car, having coupling-connections, as hereinafter set forth. The front end of said pipe has two  
35 ways or openings,  $d$   $d'$ , with a damper or valve,  $d^2$ , which is under control of the engineer in the cab by means of a rope,  $d^3$ , proceeding thereto, as shown.

E is a blower in the path of the pipe D, and operated by a belt,  $e$ , and pulley  $e'$  from the driving-shaft  $E'$  of the engine.  $E^2$  represents a shifter for the belt  $e$ , whereby it may be moved to a loose pulley. Said blower  
40 is arranged to draw in the air through the openings  $d$  or  $d'$ , and force the same back into the car C.

The couplings for the pipe D are composed as follows:

F represents a pipe fixedly sustained on the  
50 pipe D and having a shoulder or bead,  $f$ , and surrounded by a spiral spring,  $f'$ .

G is a cylinder, into the end  $g$  of which pipe F passes, the opening  $g'$  in said end being of greater diameter than said pipe F, but of less diameter than its shoulder  $f$ .  $g^2$   $g^3$  are wash-  
55 ers on either side of the head  $g$ .

H is a short threaded sleeve screwed into the opposite end of cylinder G, and provided with a stem,  $h$ , disk  $h'$ , washer  $h^2$ , and spring  $h^3$ . When the stem  $h$  is pushed inwardly the  
60 washer  $h'$  is moved away from the head or seat  $g^4$ . When not so pushed in the washer  $h^2$  seats on the flange  $g^4$ , and the valve is closed. The stems  $h$  normally project from each of the cylinders G G; but when two come to-  
65 gether they push each other in, opening the valves and permitting free passage for the air through pipe D and its couplings, as shown plainly in Fig. 3.

K K are flaring spring-arms attached to the  
70 cylinders G, forming guides and grapples for directing the ends of the stems  $h$  toward each other when the cars approach, and for holding said cylinders together when in contact.

The pipe D passes into the car C beneath  
75 the roof, and has valves for controlling the course of the air-currents therein.

By means of the valve L the air may be caused to pass down the branch  $D'$  and around the stove  $L'$ , being thereby heated, and then  
80 permitted to escape into the car from any suitable outlet or conduit. By reversing said valve the current will not pass down to the stove  $L'$ , but will continue along the main pipe and escape into the car through opening  
85  $D^2$ , which may be provided with a valve.

Two stoves may be employed, and the current sent down to either or both, or to neither, according to circumstances.

The current thus admitted will ventilate the  
90 car, supplying it with abundance of pure fresh air, and carrying off the vitiated atmosphere, which latter may escape through the doors, windows, ventilating-openings, or other outlets.

To prevent an excess of air-pressure in a closed car, one or more passages, M, with outwardly-opening spring-controlled valves  $m$ , may be provided as escapes.

The air-outlets from the pipe D in each car  
100 will be controlled by the valves, so that the entire volume of air conveyed by said pipe will



not escape into the first car in a train, a due supply being thus provided for each car of a train.

Operation: A train being made up and in motion, the fan E draws air in through one of the front openings,  $d$  or  $d'$ , and forces it back under pressure into the cars, where it is distributed, as already described, being heated by the stoves or allowed to escape without heating, according to the temperature desired.

The provision of the fan or blower will secure a positive current at all times when the car is in motion, which current could not be obtained without the fan when the wind, as is frequently the case, is traveling in the same direction as the train and at or about the same rate of speed.

If the road be dry and dusty or wet, the air should be taken in through the opening  $d$ ; if otherwise, through the more favorable opening  $d'$ .

When the platform-couplers are uncoupled and the locomotive, tender, and cars separated, the air-pipe couplings will automatically open by the mere act of drawing apart, and will, in

like manner, self-couple whenever a train is made up.

$k k$  show handles whereby the connections for pipe D may be turned to prevent contact of arms K K.

As already mentioned, either of the openings  $d d'$  may be opened alternately. They may also be both closed temporarily by means of the valve  $d^2$  when it is desired, in passing a train or under other circumstances, to prevent the admission of air loaded with dust, &c., to pipe D.

What I claim as my invention is—

The pipe D, having openings  $d$  and  $d'$  and damper  $d^2$ , operated from the cab of the engine by means substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of May, 1879.

JOHN S. LLOYD.

Witnesses:

AL. P. BURCHELL,  
S. J. VAN STAVOREN.