

(No Model.)

J. D. P. SCHENCK.  
PRESSURE REGULATOR.

No. 488,370.

Patented Dec. 20, 1892.

FIG. 1.

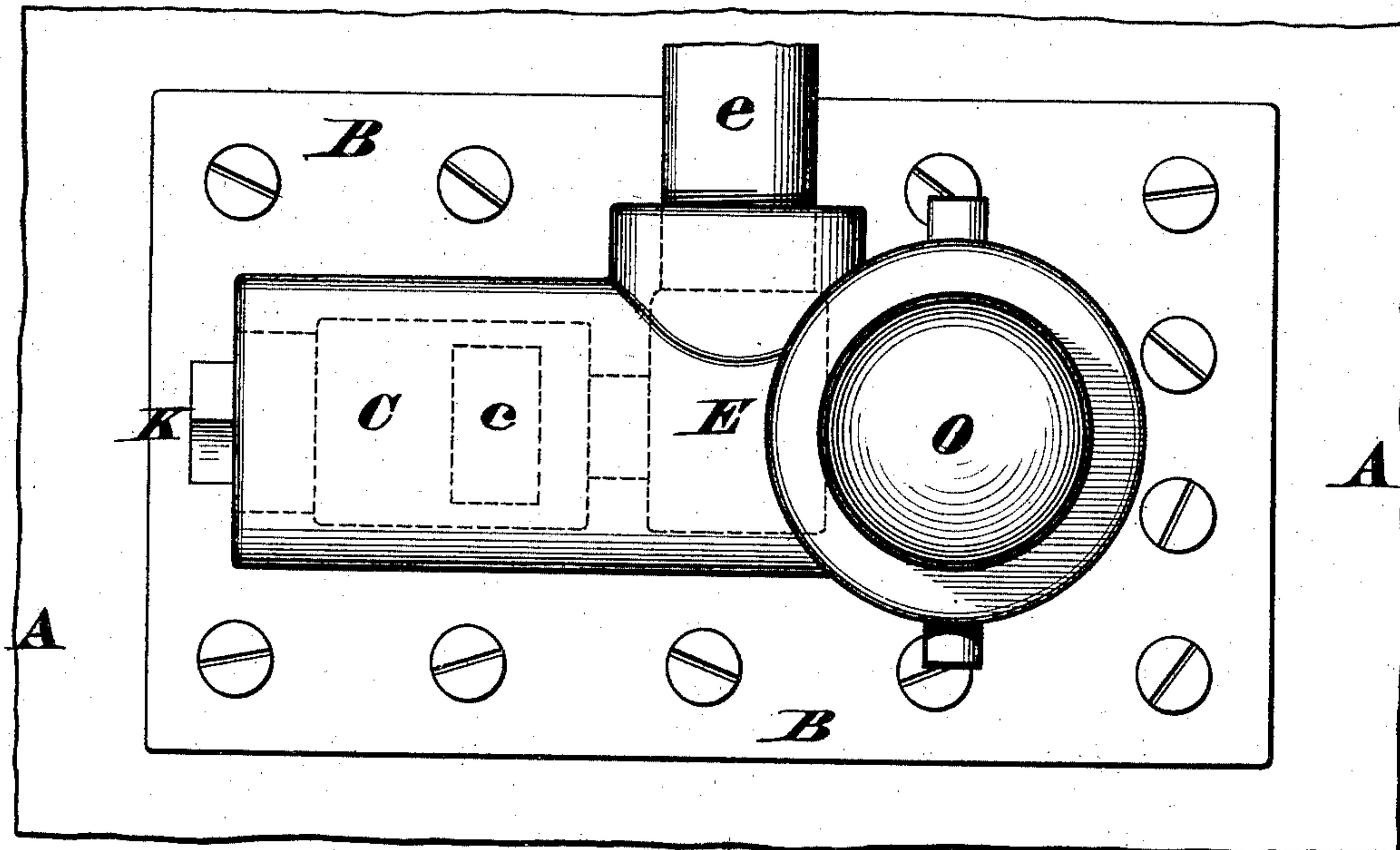
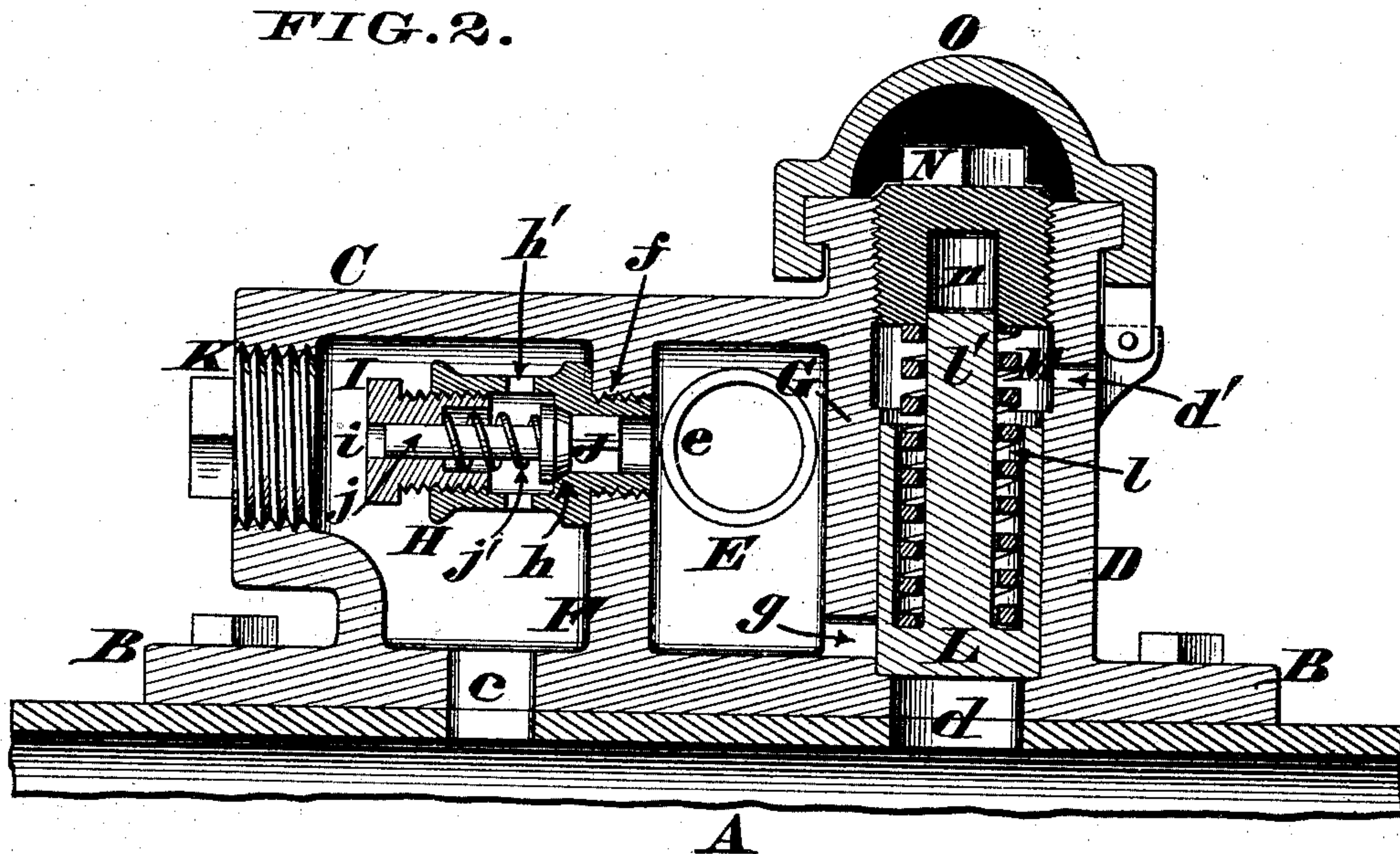


FIG. 2.



Attest  
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Atty.



# UNITED STATES PATENT OFFICE.

JOHN D. P. SCHENCK, OF NASHVILLE, TENNESSEE, ASSIGNOR OF ONE-HALF  
TO GEORGE MATHEWS, OF CINCINNATI, AND WILLIAM W. PEABODY, OF  
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## PRESSURE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 488,370, dated December 20, 1892.

Application filed April 23, 1892. Serial No. 430,391. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN D. P. SCHENCK, a citizen of the United States, residing at Nashville, in the county of Davidson and State of Tennessee, have invented certain new and useful Improvements in Air-Brake Pressure-Regulators; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the annexed drawings, which form part of this specification.

My invention comprises an automatic regulator to be applied to the main-reservoir of any approved form of air-brakes, for the purpose of maintaining the desired air-pressure. The construction of this regulator is such that when the air pressure exceeds a certain pre-determined limit, a valve instantly opens, and allows air to traverse a pipe leading to a steam governor, which governor is then shifted to a position whereby the supply of steam is shut off, and the action of the pump arrested. But when the pressure falls below a minimum, another valve immediately opens, thereby reducing the pressure in the aforesaid pipe, and causing the steam governor to shift in such a manner as to let on the steam and start the pump, as hereinafter more fully described.

In the annexed drawings,—Figure 1 is a plan of my automatic pressure-regulator, and Fig. 2 is a vertical section thereof.

A represents a portion of the main reservoir of any approved form of air brakes, and B is a plate securely bolted thereto, which plate constitutes the base of the casing or shell that incloses the pair of automatic valves, previously alluded to. This casing consists, essentially, of a horizontal cylinder C, a vertical cylinder D, and a short chamber E, located between said cylinders.

F is a partition separating the cylinder C and chamber E, and G is a partition that separates the latter from the vertical cylinder D.

c is a port that affords communication between the cylinder C, and reservoir A, and d is a similar port that affords communication between said reservoir and the other cylinder D.

Partition F is screw threaded at f to admit a small casing H, having a valve seat h, and one or more ventages h', a screw-threaded cap I, being engaged with one end of said casing. Cap I has a longitudinal bore i, that serves as a guide for the stem j of valve J, which latter is normally held against its seat h, by a spring j', coiled around said stem and fitted within said cap, in the manner shown.

K is a plug screwed into one end of cylinder C, the removal of which plug enables the cap I to be advanced or retracted, for the purpose of regulating the tension of spring j'.

e is one end of a pipe screwed into the chamber E, the opposite end of said pipe being in communication with any approved form of steam governor capable of shutting off steam when a certain pressure is reached, and of letting on the steam when the pressure falls below a minimum.

Adapted to reciprocate vertically within cylinder D, is a valve L that normally closes the port d, said valve being bored out to afford an annular chamber l and a central spindle or stem l'. Fitting within this chamber, and surrounding said stem, is a coiled spring M, whose upper end bears against an adjustable nut N, screwed into the cylinder D, and having a socket n, that serves as a guide for the valve stem l'.

d' is a passage that prevents any compression of air when the valve L is raised, at which moment communication is afforded between the port d, and a channel g of partition G.

O is a cap, so applied to cylinder D, as to be incapable of detachment, without breaking a seal or otherwise showing that the engineer has tampered with the nut N. In fitting this attachment to the main reservoir, the nut N, is screwed down to impart sufficient tension to spring M, to prevent valve L opening until a certain pre-determined air-pressure has been reached,—say ninety pounds to the square inch, which is the maximum ordinarily employed for braking purposes. As soon as this pressure is reached, or slightly exceeded, the valve L is raised, thereby affording communication between the port d and chamber g, and allowing air



to escape from reservoir A into chamber E, and flow along the pipe *e*, to the steam governor. Consequently, the governor is now shifted by this excess of pressure, in such a manner as to shut off steam from the cylinder that operates the air-pump, and as a natural result, no more air is forced into the apparatus. Furthermore, in this position of the apparatus the smaller valve J is inoperative, it being simply held against the seat *h*, by the spring *j'*, and also by the slight excess of pressure, due to the air acting against the larger surface of said valve. Of course, the opening of valve L is but for a moment, and when the pressure in reservoir A falls below ninety pounds, valve J recedes from its seat *h*, and causes a corresponding reduction of pressure to take place within the pipe *e*. As a result of this reduced pressure, the steam governor is so shifted as to let on the steam and again set the pump in operation, which pumping action continues until the air reservoir is once more charged to the maximum, and then said governor shuts off the steam, as above described.

From the above description it is evident my attachment is wholly automatic in all its movements, and requires no attention after

the valves J and L have once been properly adjusted.

I claim as my invention,—

1. In an air-brake reservoir provided with a pair of automatically-acting valves communicating with a chamber adapted to connect with a steam governor, the arrangement of these devices being such that one valve will open when a maximum pressure is reached, while the other valve will open when this pressure is reduced, substantially as described.

2. The combination in an air-brake pressure-regulator, of a shell including three chambers C, D, E, having, respectively, passages *c*, *d*, *g*, an automatic valve J, opening into the chamber C, and affording communication with chamber E, which latter has an outlet at *e*, a valve L housed within the chamber D, a spring M that closes this valve, and an adjusting nut N, for regulating the tension of said spring, all as herein described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN D. P. SCHENCK.

Witnesses:

WILLIAM V. LAWRENCE,  
JOHN T. RAPER.