

(No Model.)

J. E. PRUNTY.

AUTOMATIC RELIEF VALVE FOR STEAM FIRE ENGINES.

No. 297,087.

Patented Apr. 15, 1884.

Fig. 1.

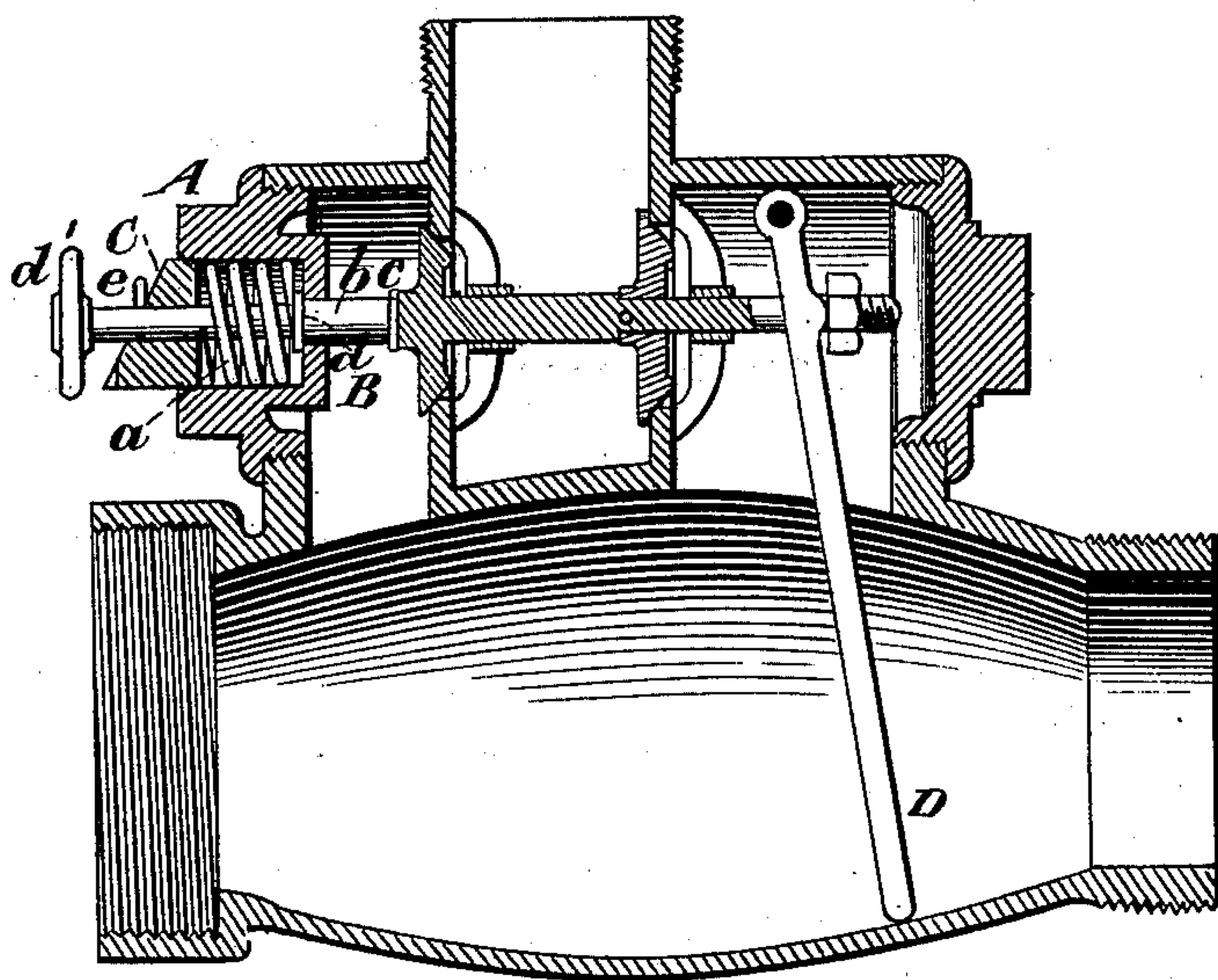
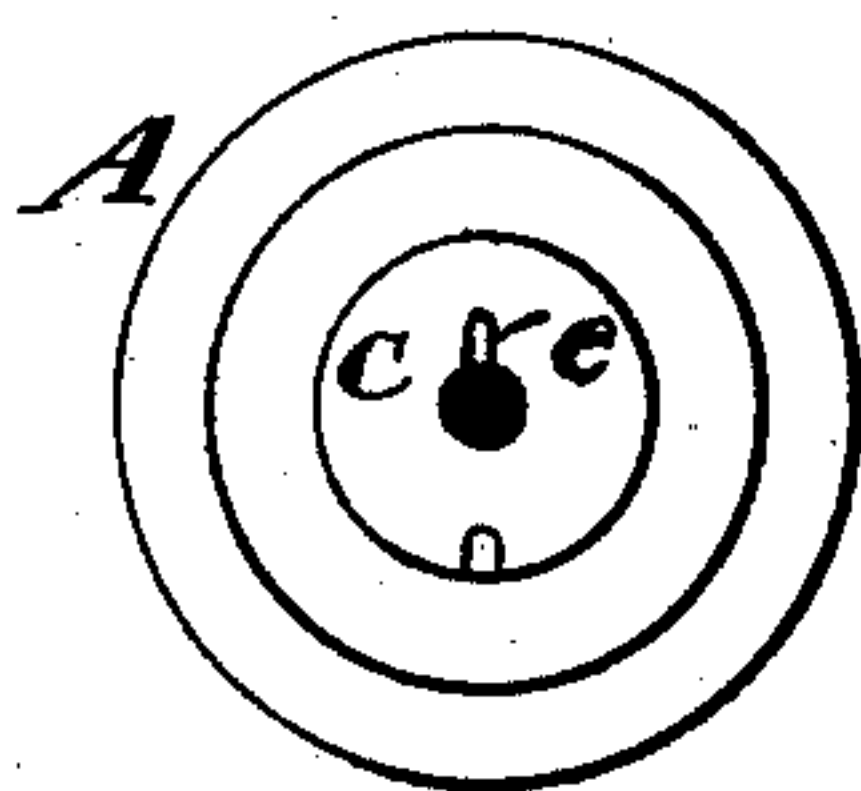


Fig. 2.



Witnesses:
A. Ruppert,
E. Bruce

Inventor:
John E. Puntty,
by G. W. J. Howard,
attys.

UNITED STATES PATENT OFFICE.

JOHN E. PRUNTY, OF BALTIMORE, MARYLAND.

AUTOMATIC RELIEF-VALVE FOR STEAM FIRE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 297,087, dated April 15, 1884.

Application filed March 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. PRUNTY, of Baltimore, in the county of Baltimore and State of Maryland, have invented certain Improvements in Automatic Relief-Valves for Attachment to Steam Fire-Engines, or for General Purposes, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description thereof, reference being made to the accompanying drawings, and to the letters of reference marked thereon.

My present invention relates to certain improvements upon the inventions set forth in my Letters Patent Nos. 122,059 and 126,330; and for the better understanding hereof reference is directed to said Letters Patent. The purpose of all my said several inventions is to furnish means whereby a back current in the hose or pipes caused by any obstruction in the hose, &c., is carried off safely, without subjecting the machinery to sudden shocks, and the hose or pipes to a pressure likely to burst them. In Letters Patent No. 122,059 the result is obtained by means of balanced double valves, suitably arranged in a valve-chamber communicating with the body of the valve and the eduction or relief pipe, said valves being adapted to be held to their seats by a set-screw when required. In Patent No. 126,330 an addition is shown of a swinging device termed in that patent a "concentric ring," to aid the valves in keeping their seats when the said valves are closed by the action of the current.

In my present invention the several features substantially as set forth in Patents Nos. 122,059 and 126,330 are employed.

The invention herein described is an expedient to be used at the option of the engineer in charge, (supposing the relief-valve to be attached to a steam fire-engine,) in view of certain conditions under which the engine may be placed, wherein the supply of water for the engine does not flow under pressure, but must be lifted or drawn to and by the engine.

By referring to Letters Patent No. 122,059 it will be seen that the set-screw E operates directly upon the double puppet-valves to hold them to their seats when water is to be thus supplied to the engine. This seating of

the valves is necessary when the engine starts, since the air in the suction-chamber must be driven up into the air-vessel, to the side of which my relief-valve is attached, for were the double puppet-valves not thus held to their seats a circulation of air would be maintained through the chambers of the valve and a vacuum in the suction-chamber never obtained, preventing thus the flow of water to the engine. The said set-screw E (shown in my Patent No. 122,059) serves effectually for this purpose under the ordinary and almost all the conditions wherein my relief-valve has been used; but under certain extraordinary circumstances it has been found necessary, or at least advisable, to exert a variable pressure upon the valves, and at other times to relieve them from all pressure. With a view to meeting these emergencies, I use an adjustable spring to operate upon the double puppet-valves, which spring is arranged so that it will exert the desired variable pressure, or can be removed at the will of the engineer entirely from contact with the puppet-valves. While it is unnecessary to explain all the advantages which attend the use of an adjustable spring with the puppet-valves, it may be stated that, however ordinarily compressed, the spring would still admit of a slight motion upon the valves upon a reverse current of the water taking place, and prevent the bursting of the hose, and that the adjustable spring, besides having this merit, which a screw does not possess, can be as easily drawn entirely from contact with the valves when they are to be left free from any such contact. On the other hand, should the engineer forget to withdraw the screw from touching the valves, and a reverse action of the water occur, the bursting of the hose would follow.

In the further description of my invention which follows due reference must be had to the accompanying drawings, in which—

Figure 1 is a longitudinal section of my improved relief-valve, as set forth in my Letters Patent Nos. 122,059 and 126,330, and embodying also the improvements herein claimed. Fig. 2 is a view of a detached portion of my invention.

Similar letters of reference indicate similar parts of the invention in both views.

Instead of the set-screw E and its cap, (shown in Patent No. 122,059,) the devices described as follows are used: The cap A is screwed into its end of the valve-chamber B, as shown, and is recessed, forming a seat for a spring, *a*, coiled around the stem *b*. The stem *b* is provided with two collars or flanges, one of which, *c*, is screwed into the end thereof, and designed to fit against the end of the valve-stem. The other collar, *d*, is a part of the stem *b* and fits, when the spring is distended, against the end of the recess in the cap A. The front end of the recess in the cap is occupied by the screw-plug C, through which the stem passes, fitting neatly therein. The outer end of the screw-plug is inclined, and serves as a means for holding the stem *b* out, when withdrawn, by means of the small milled handle *d'*, a pin, *e*, being placed in the stem *b*, which pin is caused, when the handle is pulled out, to bear upon that part of the inclined face of the plug projecting most, the stem being twisted or turned around. A small indentation is made in the face of the plug C to receive the pin at the point of the greatest projection reached by the pin. By the means shown the stem *b* is drawn from contact with the double puppet-valves, allowing them a free movement. The stem *b*, when touching the valve-stem, exerts a variable pressure upon the valves, which

cannot be obtained by means of a set-screw, as shown by E in Letters Patent No. 122,059.

D is the afore-mentioned swinging device, the office of which has been herein referred to, and more particularly described in my Letters Patent No. 126,330.

I disclaim the invention as covered by the claims now retained in an application filed by me July 2, 1874, of which application the present one is a division.

I am aware that puppet-valves in relief devices of other descriptions have had springs applied to them for various purposes; and to claim such is not my intention, it being my purpose to claim only the spring in the relation herein shown.

I therefore do claim as my invention—

The stem *b c d*, spring *a*, cap A, and plug C, in combination with the double puppet-valves and their stem, and swinging device D, all adjusted within the chamber B and body of the relief-valve, substantially as specified.

In testimony whereof I have hereto subscribed my name this 21st day of March, 1884.

JOHN E. PRUNTY.

Witnesses:

ETTA HICKENLOOPER,
E. CRUSE.