

(No Model.)

R. F. PRATT.
POP SAFETY VALVE.

No. 398,445.

Patented Feb. 26, 1889.

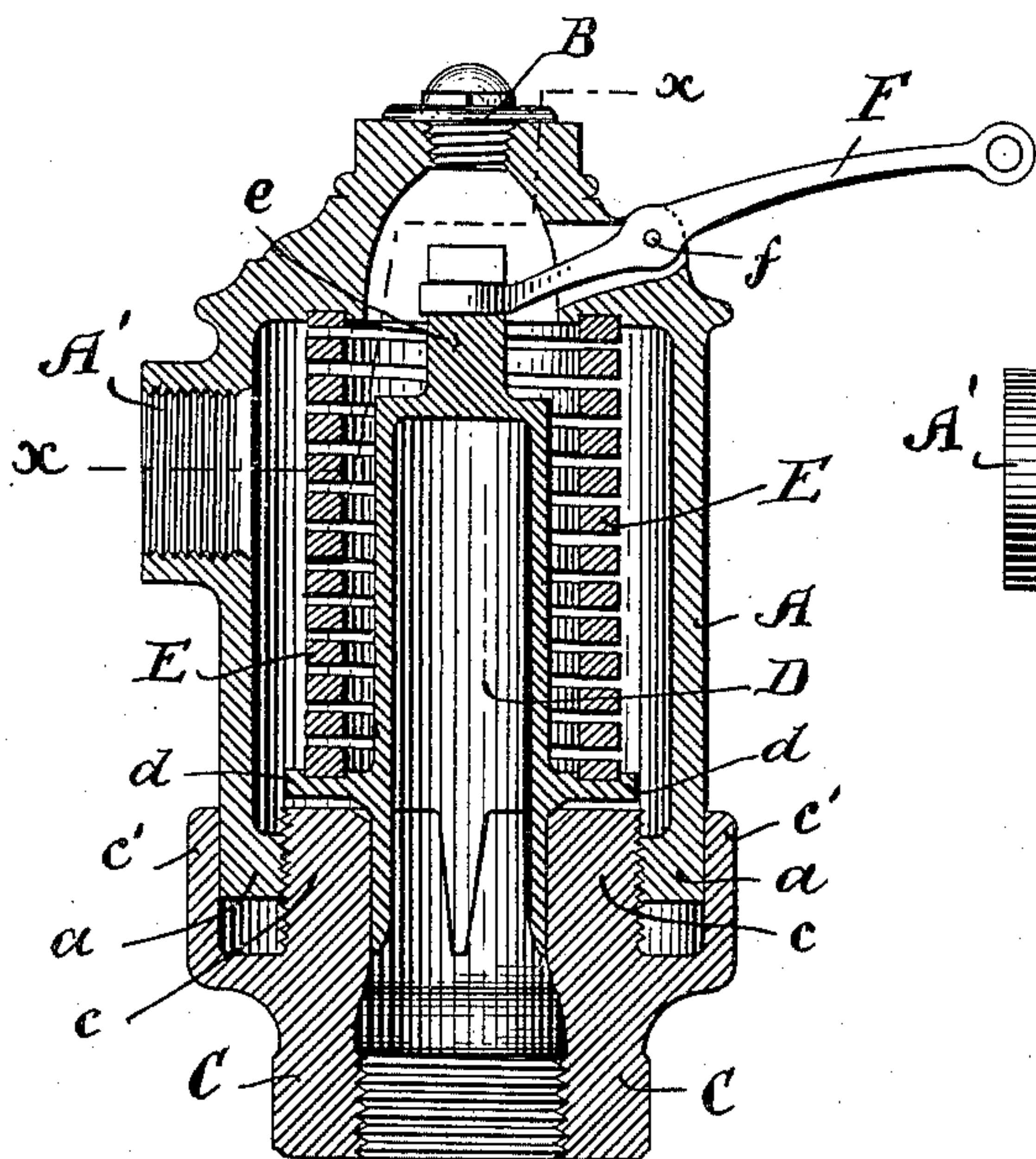


Fig:2.

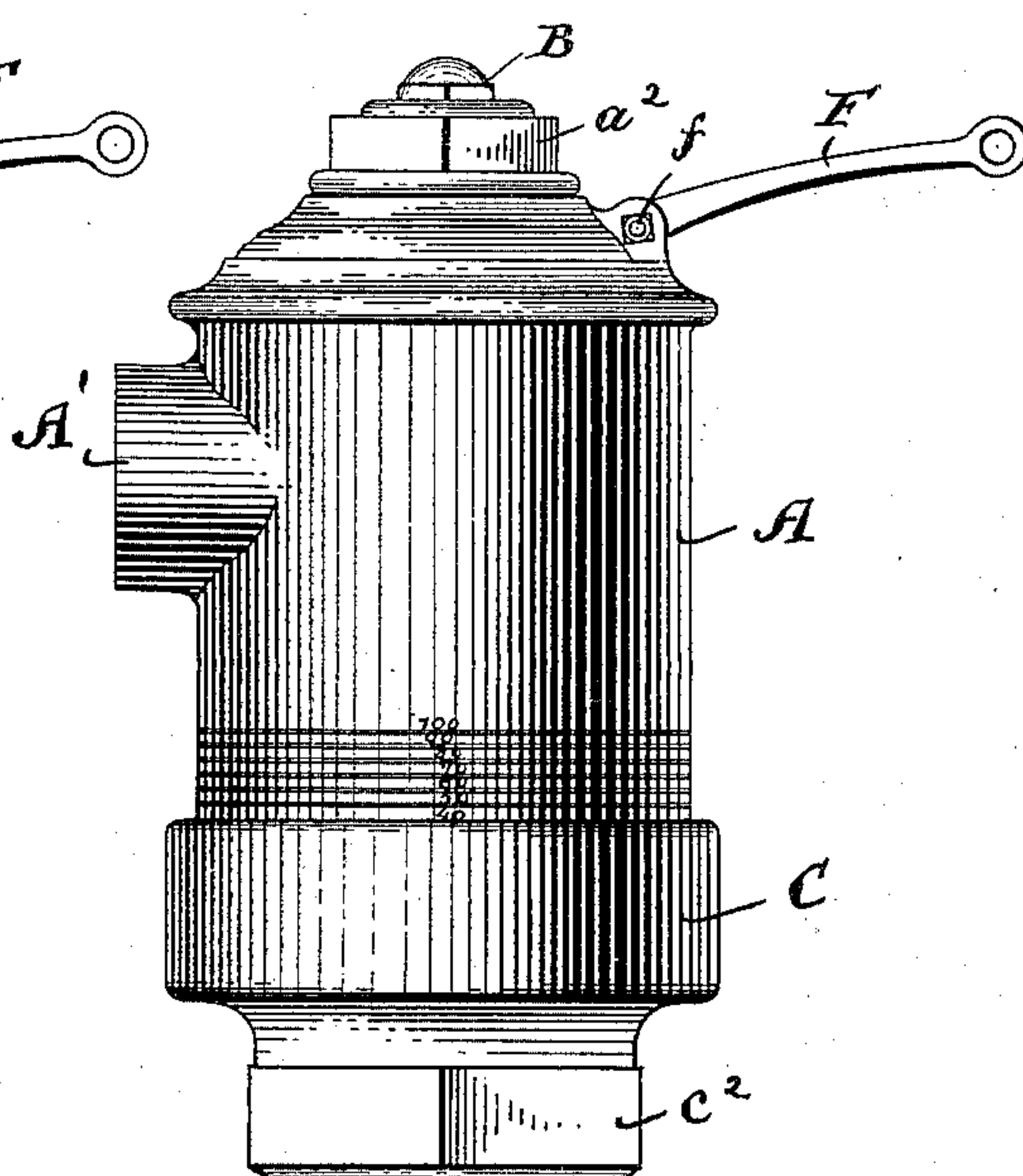


Fig:1.

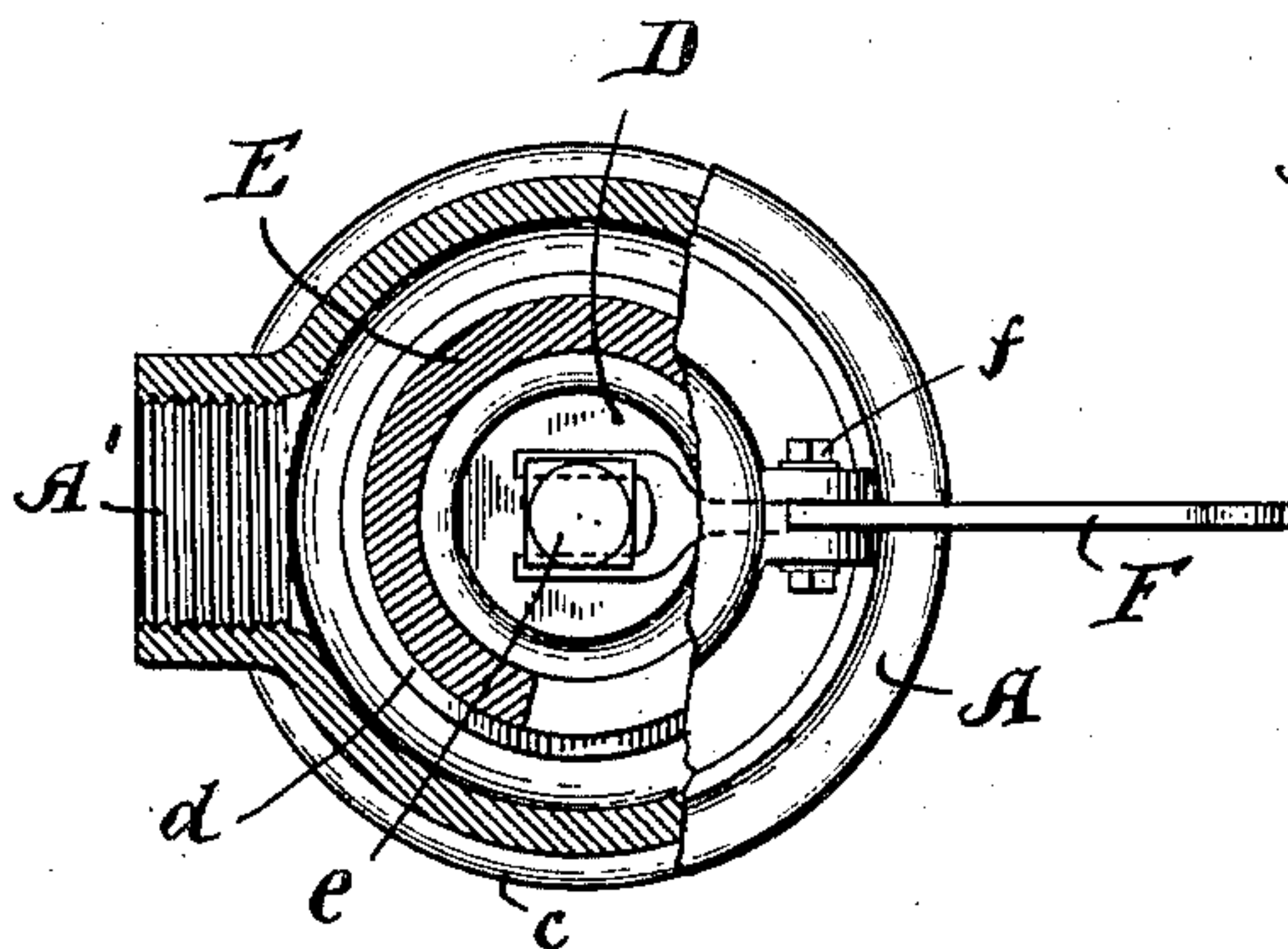


Fig:3.

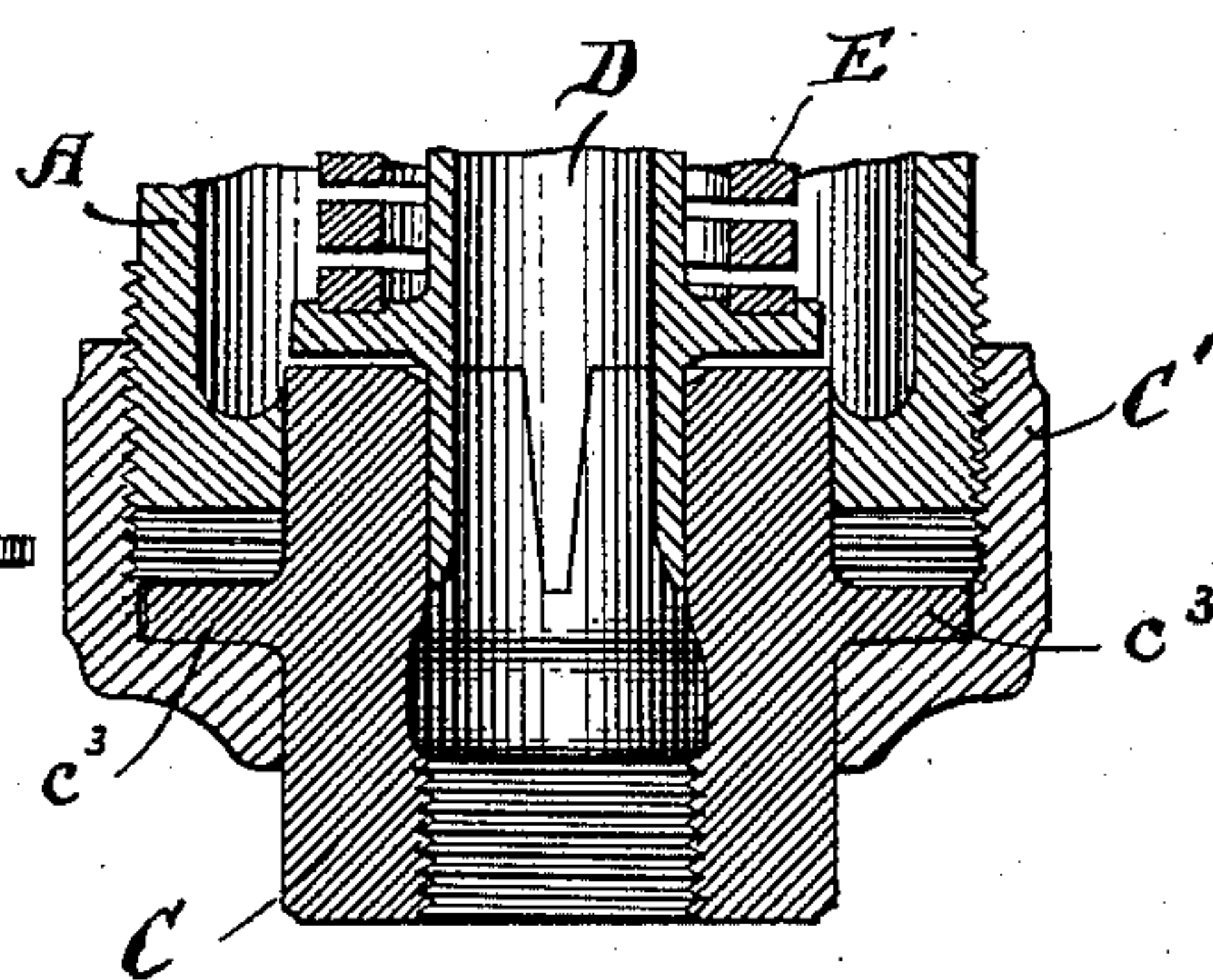


Fig:4.

witnesses
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UNITED STATES PATENT OFFICE.

RONELLO F. PRATT, OF BOSTON, MASSACHUSETTS.

POP SAFETY-VALVE.

SPECIFICATION forming part of Letters Patent No. 398,445, dated February 26, 1889.

Application filed April 10, 1888. Serial No. 270,213. (No model.)

To all whom it may concern:

Be it known that I, RONELLO F. PRATT, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Pop Safety-Valves, of which the following is a specification.

In what are known as "pop safety-valves" now in use various means have been adopted to adjust the spring so that the valve will open at a given pressure; but in all cases screws have had to be adjusted without any indication as to the pressure at which the valve will open, and it is impossible to adjust the valve as required without the employment of a pressure-gage. It also requires a person of considerable skill to adjust them so that the valve will work properly.

The object of my invention is to overcome these difficulties; and the invention consists in constructing a valve with a graduated scale, so that any ordinary mechanic can adjust it to open at the desired pressure by turning a single nut.

The invention further consists in so arranging the spring within the body of the valve as to be free from contact with the steam, thereby preserving its elasticity.

Referring to the accompanying drawings, Figure 1 represents an elevation of a pop safety-valve embodying my invention. Fig. 2 is a vertical section of the same. Fig. 3 is a horizontal section taken through the line x of Fig. 2. Fig. 4 shows a modification.

A is the outer casing or body of the valve, provided at its lower end with an inwardly-projecting screw-threaded flange, a , the upper end of the casing being closed with the exception of a small screw-threaded opening to receive a nut, B, and on one side of the body A is provided a screw-threaded opening, A' , through which the steam escapes when the valve is opened.

C is a cap or cover provided with two upwardly-projecting rims, c c' , the inner one being provided on its outside with a screw-thread that fits in the thread on the flange a , and this rim also forms a seat for the valve. The outer rim, c' , comes outside the casing A, and is employed to indicate the pressure to

which the spring is set by means of a graduated scale on the outside of the body A, as shown in Fig. 1. The lower end of this cap is screw-threaded to connect it with the boiler.

D is the valve, which rests upon a seat formed in the upper end of the rim c , and is provided near its lower end with a flange, d , upon which rests one end of a strong spiral spring, E, the other end of the spring bearing against the upper end of the body A, as shown.

The body of the valve D consists of a hollow cylinder closed at the top and provided with a stem, e , to which the forked end of a lever, F, is connected. This lever presses out through the body A, and is fulcrumed thereto at f , and provided at its outer end with an eye to which a cord can be attached, so that when desired to see if the valve is in proper working order the outer end of the lever F can be drawn down, thereby raising the valve off its seat. Its operation is as follows:

The valve, by means of the cap C, being connected to the steam pipe or boiler, and the tension of the spring E having been properly adjusted, the steam passes up against the top of the valve-body, and when the limit of pressure of steam is exceeded the valve D opens and allows the steam to pass into the space between the valve-body and the body A and up and out of the opening A' , thereby producing instant relief, and as soon as the pressure is reduced the valve again closes.

Should it be desired to alter the pressure at which the valve will open, all that has to be done is to turn the body A one way or the other by means of the nut a^2 formed on the top thereof, until the upper edge of the rim c is on a line with the required mark in the graduated scale on the outside of the body A. The cap C may be held by means of a wrench or spanner placed on the nut or square portion c^2 , so as not to turn when the body A is moved.

In Fig. 4 I have shown the cap C secured to the body A by means of a coupling similar to the ordinary union pipe-coupler. In this case the cap C passes freely through the flange a of the body A, and is provided with a flange, c^3 , and held to the body A by a collar, C' , pro-

vided with an inwardly-projecting flange and screwed onto the outside of the body A, as shown.

Although I have described the valve as being employed for steam, it is equally applicable to any place when the relief of pressure is required, and particularly adapted for feed-water heaters, so as to maintain the pressure in the heater at or about that of the boiler, the valve being easily and quickly adjusted to the required pressure.

What I claim as my invention is—

1. In a pop safety-valve, the body A, provided at its lower end with an inwardly-projecting flange, *a*, cap or cover C, provided with upwardly-projecting rims *c c'*, in combination with the valve D and spring E, substantially as and for the purposes set forth.

2. In a pop safety-valve, a valve, D, consisting of a hollow cylinder closed at the top and provided with a flange, *d*, in combination with the spring E and body A, the spring being placed between the flange *d* and top of body A, whereby the valve is held to its seat in the cap C, substantially as and for the purposes set forth.

3. In a pop safety-valve, the body A, provided on its outside with a graduated scale,

in combination with a cap or cover, C, provided with two upwardly-projecting rims, *c c'*, so that the body A is connected by a screw-thread to the rim *c*, while the rim *c'* acts as a pointer to indicate the pressure at which the valve will blow off, substantially as shown and described.

4. A pop safety-valve consisting of the following elements: an outer casing provided on its outer side with a graduated scale and at its lower end with an inwardly-projecting screw-threaded flange, a cap or cover provided with a steam-inlet and two upwardly-projecting rims, the inner one being screw-threaded to connect with the casing and the outer one serving as a pointer on the graduated scale, a hollow cylindrical valve provided on its outside with a flange near its lower end, and a spiral spring, all arranged and operating substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RONELLO F. PRATT.

Witnesses:

CHAS. STEERE,
E. PLANTA.