

A. S. CAMERON.
Compound Valves.

No. 157,791.

Patented Dec. 15, 1874.

Fig: 1.

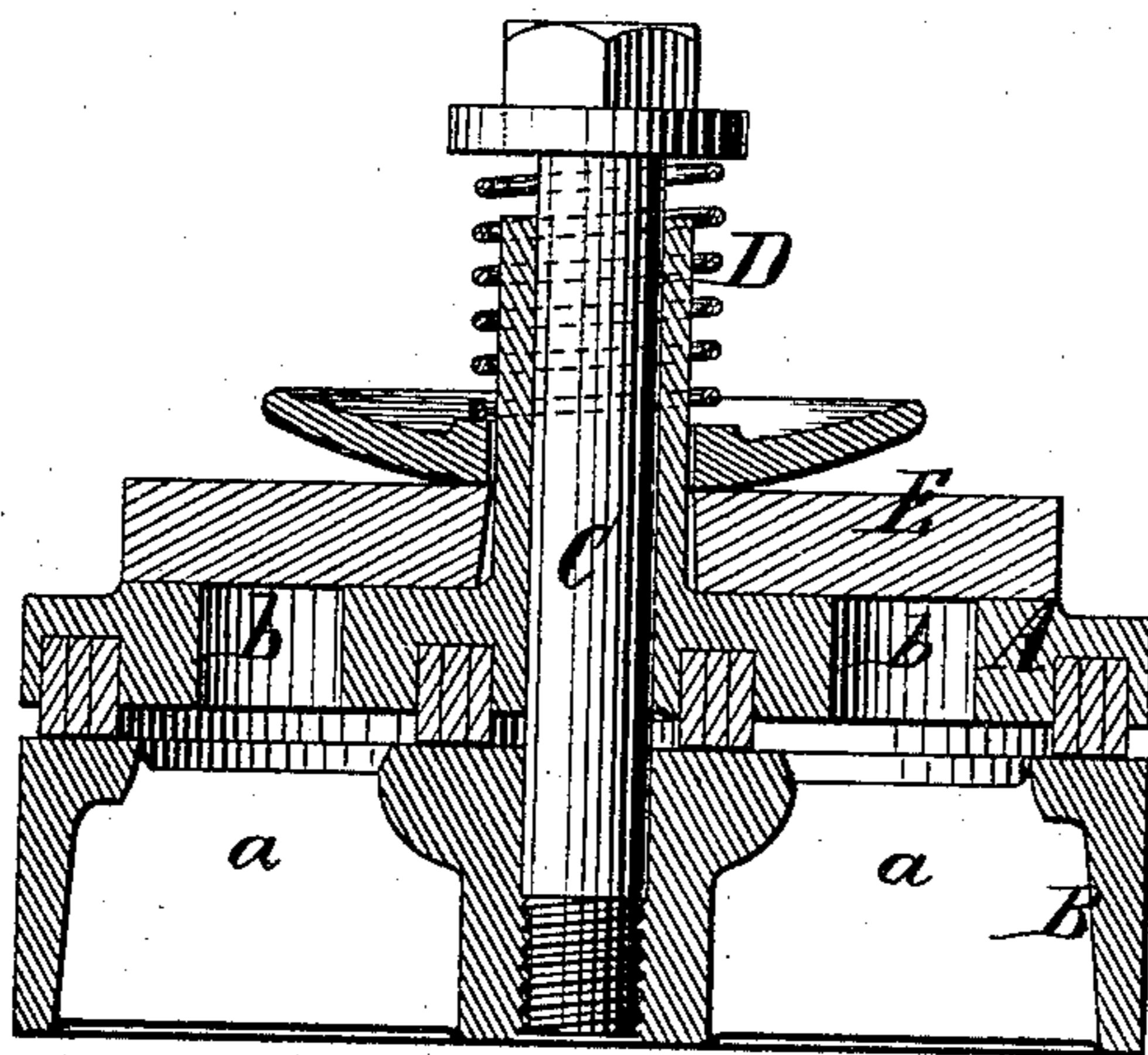
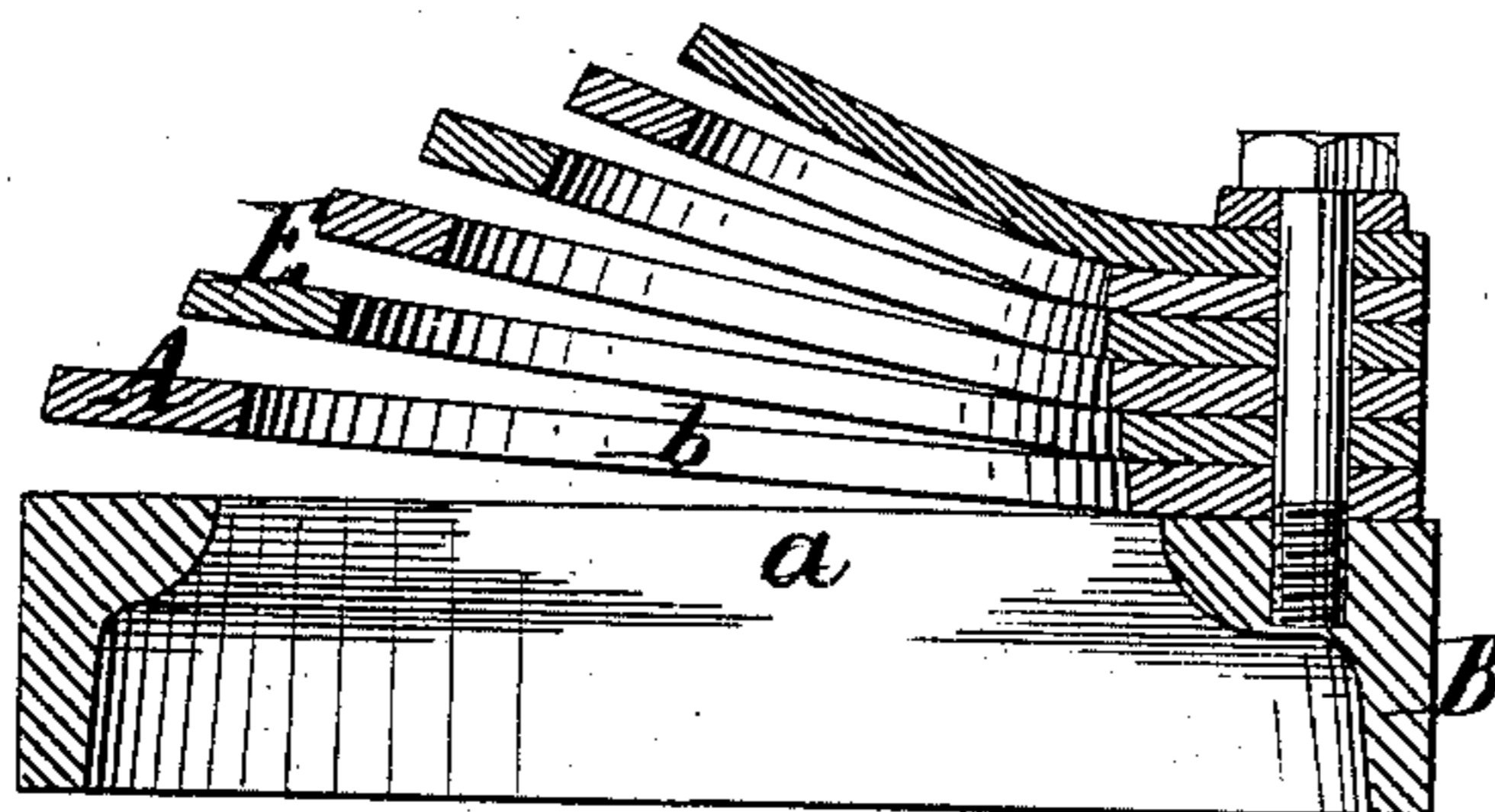


Fig: 2.



Witnesses:

Ernst Bilhuber.
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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN COMPOUND VALVES.

Specification forming part of Letters Patent No. **157,791**, dated December 15, 1874; application filed November 19, 1874.

To all whom it may concern:

Be it known that I, ADAM S. CAMERON, of the city, county, and State of New York, have invented a certain new and useful Improvement in Compound Valves, of which the following is a specification:

This invention is illustrated in the accompanying drawing, in which—

Figure 1 represents a vertical section. Fig. 2 is a modification.

Similar letters indicate corresponding parts.

This invention relates to a compound valve, the main valve being seated on a perforated seat while its body is perforated, and its back forms the seat for a secondary valve, which, in its turn, may also be perforated and form the seat for a tertiary valve, and so on, in such a manner that part of the fluid which is forced up against said compound valve passes out under the main valve, and the remainder passes up through said main valve, to be discharged under the secondary valve or valves, and thus the lift of each individual valve can be reduced, and a free discharge of the fluid is obtained.

In the example shown by the drawing, the letter A designates the main valve, which is fitted on the seat B, and which is guided to its seat by a pin, C, that is secured in the center of the seat. A weak spring, D, serves to keep the valve down on its seat, and said seat is provided with openings *a a*, so that water, air, or other liquid or fluid forced up from below will raise the main valve A from its seat and pass out under said valve. The main valve A is provided with one or more holes, *b b*, extending clear through its body, and the back of said main valve forms the seat for the secondary valve E, which is guided by the tubular hub of the main valve, and depressed on its seat by the spring D, which also serves to depress the main valve, as previously stated.

If water, air, or other liquid or fluid is forced against the main valve from below, the main valve is raised from its seat, and a portion of said liquid or fluid passes out below the main valve, while the remainder passes up through the hole or holes *b b*, and, as it comes in contact with the secondary valve E, it lifts this valve and passes out beneath it.

It will be readily seen that a third valve may be arranged on the back of the secondary valve, and so on, according to the nature and quantity of liquid or fluid to be discharged.

Instead of guiding the several valves on the central pin C, hinged valves may be employed, as indicated in Fig. 2 of the drawing, the main valve A being hinged to the seat B, the secondary valve E to the back of the main valve, and so on, the several valves, with the exception of the last, being perforated, so that a portion of the liquid or fluid will pass out beneath the main valve, while the remainder passes up through the hole or holes in said main valve and discharges under the second valve, and so on.

The advantage obtained from this arrangement will be readily understood from the following remarks:

If a simple valve, covering an opening in the seat, of, say, one hundred square inches area, must be lifted two and a half inches vertically, in order to afford a discharge-opening for the liquid or fluid equal to the opening of the seat, such valve as it closes not only makes a severe shock in the working of the pump by falling over such a distance, but a considerable quantity of the liquid or fluid is forced back under the valve during the time of closing.

In my compound valve each individual valve has to lift comparatively little in order to afford a discharge-opening for the liquid or fluid of any desired capacity, and, consequently, the closing of the valve produces no shock, and a comparatively small quantity of liquid or fluid is forced back under the valve.

What I claim as new, and desire to secure by Letters Patent, is—

A compound valve, consisting of a seat, B, perforated main valve A, and a secondary valve, E, seated on the back of the main valve, substantially in the manner herein shown and described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 18th day of November, 1874.

ADAM S. CAMERON. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.