

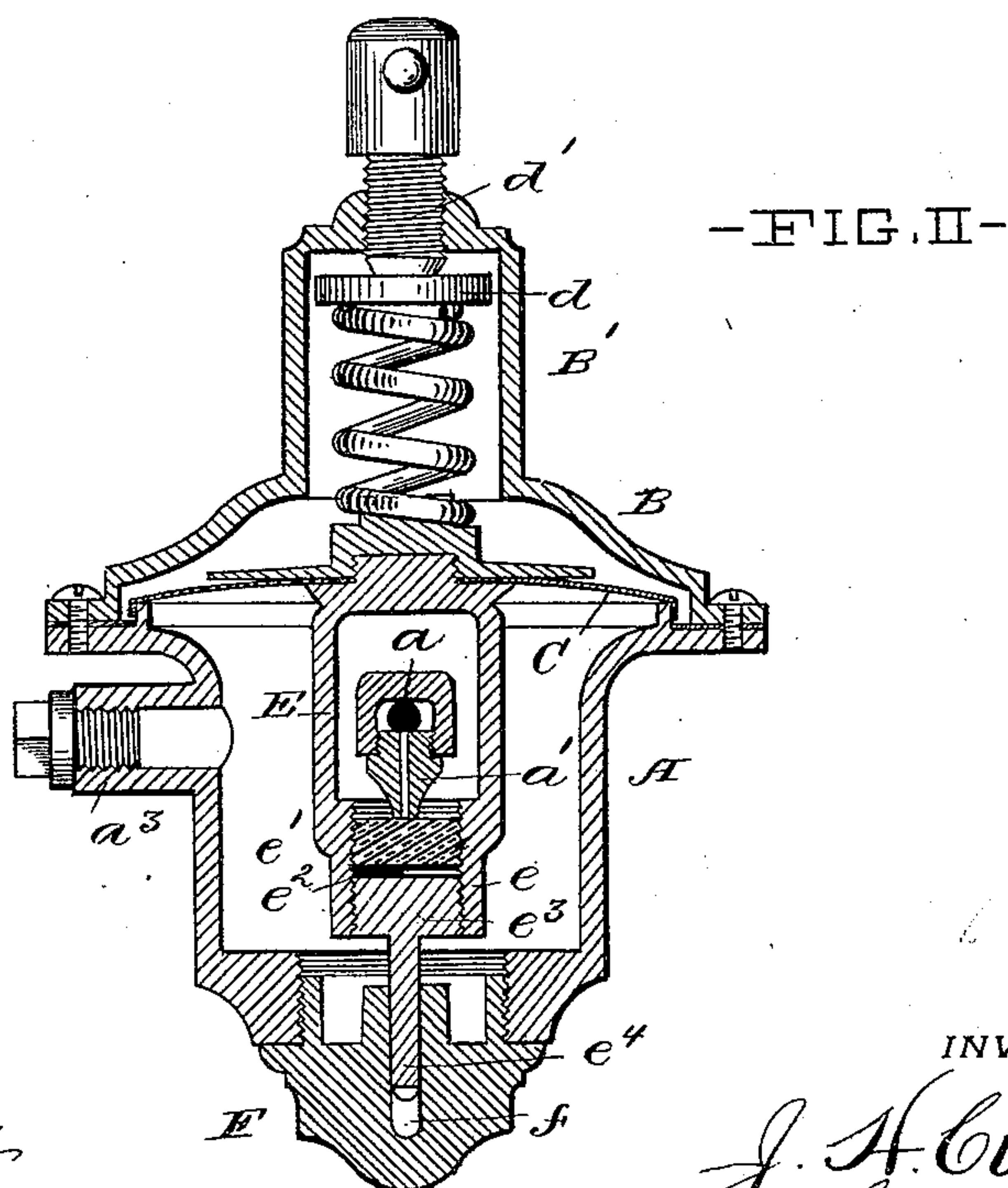
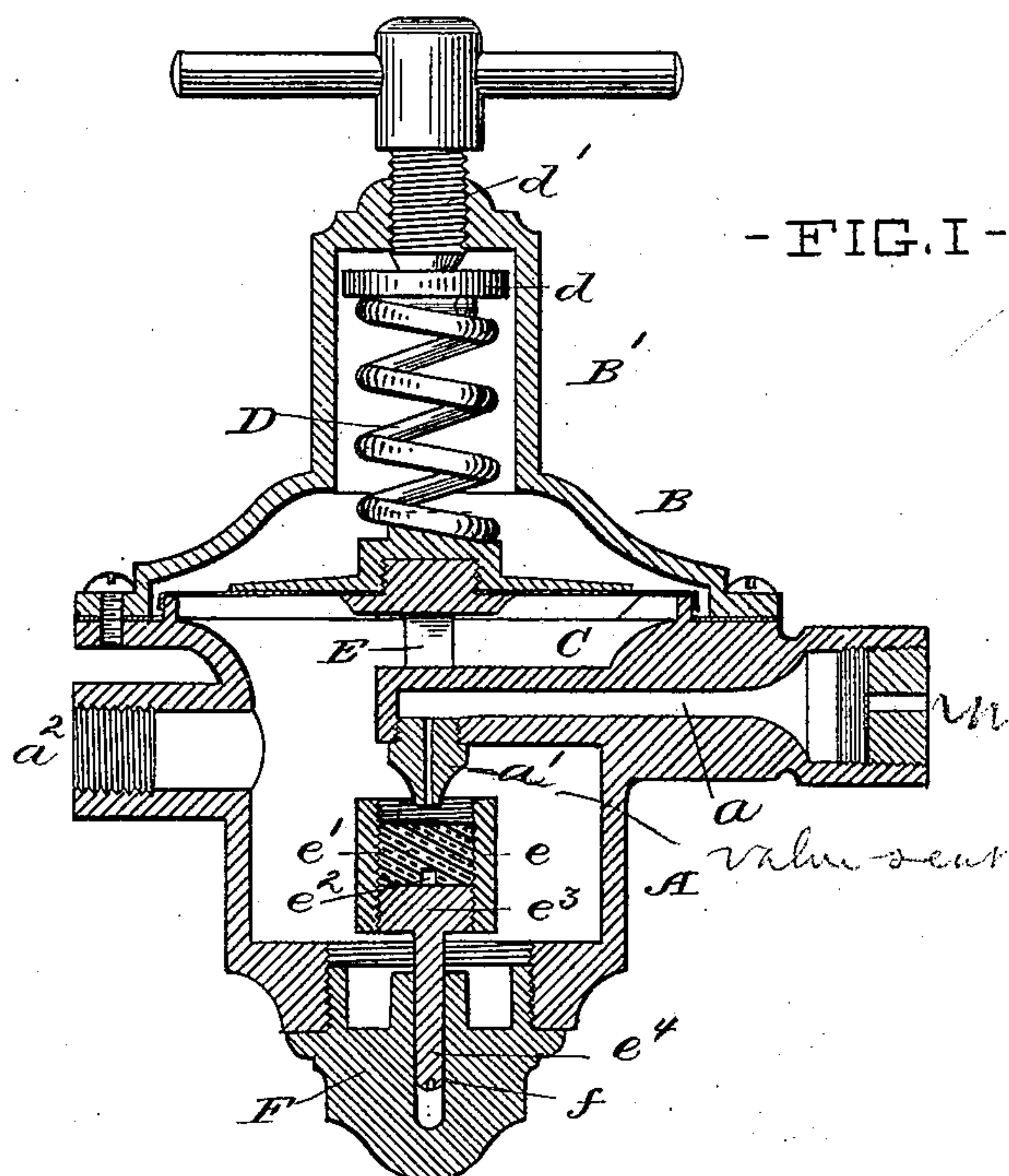
No. 611,892.

Patented Oct. 4, 1898.

J. H. CHAMP.
FLUID PRESSURE REGULATOR.

(Application filed Nov. 8, 1895.)

(No Model.)



WITNESSES:

J. C. Turner
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INVENTOR:

J. H. Champ
By Hall & Fay ATTORNEYS

UNITED STATES PATENT OFFICE,

JOSEPH H. CHAMP, OF CLEVELAND, OHIO, ASSIGNOR TO THE BISHOP & BABCOCK COMPANY, OF SAME PLACE.

FLUID-PRESSURE REGULATOR.

SPECIFICATION forming part of Letters Patent No. 611,892, dated October 4, 1898.

Application filed November 8, 1895. Serial No. 568,291. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. CHAMP, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Fluid-Pressure Regulators, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

Figure I represents an axial section of my improved pressure-regulator; and Fig. II an axial section of the regulator, taken at right angles to the former section.

The regulator has a casing A, preferably of circular outline, which casing has a cover B, formed with a central dome B'. A diaphragm C, preferably of thin and elastic sheet metal, is secured upon the top of the casing, and a spring D bears downward against the center of the diaphragm and is housed in the dome. A plug *d* rests upon the upper end of the spring and has a screw *d'* bearing against it, which screw serves to adjust the pressure of the spring against the diaphragm. An inlet *a* extends into the casing of the regulator to the center of the same and has a downwardly-projecting valve-seat nipple *a'* of conical shape screwed into it. A stirrup E is secured at its upper end to the center of the diaphragm and is formed with a screw-threaded socket *e* at its lower end, which registers with the nipple. A valve-plug *e'*, of vulcanite or other more or less yielding material, is screwed into the socket to be opposed to the valve-seat nipple and has a nick *e²* in its under side to admit of its being inserted or removed by means of an ordinary screw-driver. A plug *e³* is screwed into the socket up against the valve-plug and has a guide-stem *e⁴*, which has play in an axial bore *f* in a cap F, which closes the bottom of the regulator-casing. The casing has an outlet *a²* and, if desired, a nipple *a³*, illustrated as closed, but to which a pressure-gage may be connected.

In practice when the regulator is connected at the inlet to the fluid-supply and at the outlet to the supplied connection the pressure of the fluid will tend to raise the diaphragm

against the spring, and thus seat the valve and close the inlet. The spring may have its tension so adjusted that a certain predetermined back pressure is required to close the inlet, so that fluid within a definite maximum pressure may pass through the regulator to the supplied receptacle or device, but will be shut off when such maximum pressure is reached.

The valve-plug may be adjusted to take up wear without taking the entire regulator apart by simply removing the bottom cap and then the guide-plug, when the valve-plug may be removed or adjusted by means of an ordinary screw-driver. The guide-plug may then be reinserted to bear against the valve-plug and serve as a lock for said latter plug.

In shipping or handling regulators the guide-stems *e⁴* are liable to meet with displacement or accidental movement about their own axes. In the old construction any displacement of the guide-stems produced a like displacement of the valve-plugs; but in my construction by reason of the fact that the valve-plugs are directly screwed into the sockets *e* independent of the lock-plugs movement of the lock-plugs does not necessarily produce displacement of the valve-plugs. The delicacy of adjustment of the valve-plugs is of importance in view of the wide range of pressure to which the regulators are subjected in use, such pressure not infrequently varying from two pounds to one thousand pounds, so that even a very slight movement of the valve-plugs on their own axes would effect a material error in the working of the regulators. Also, by reason of the valve-plugs being of more yielding material than said lock-plugs and being directly screw-threaded in said sockets it is possible to effect a more accurate and easy alinement of such valve-plugs with their valve-seats than would otherwise be the case, the valve-plugs having looser fit in the sockets than the lock-plugs.

I particularly point out and distinctly claim as my invention—

1. In a fluid-pressure regulator, the combination of the inlet valve-seat *a'*, the spring-pressed diaphragm C, the stirrup E having socket *e*, the valve-plug *e'* screw-threaded in said socket, the lock-plug *e³* screw-threaded

in said socket against said valve-plug, substantially as set forth.

2. In a fluid-pressure regulator, the combination of the inlet valve-seat a' , the spring-pressed diaphragm C, the stirrup E secured to said diaphragm and having the interiorly-screw-threaded socket e , the valve-plug e' of yielding material screw-threaded directly in said socket, the lock-plug e^3 screw-threaded
5 in said socket against said valve-plug and
10 in said socket against said valve-plug and

having the guide-stem e^4 , the cap F having bore f , substantially as set forth.

In testimony that I claim the foregoing to be my invention I have hereunto set my hand this 30th day of October, A. D. 1895.

JOSEPH H. CHAMP.

Witnesses:

WM. SECHER,

DAVID T. DAVIES.