No. 629,894. Patented Aug. 1, 1899.

H. M. DUNLAP.

STOP COCK OR VALVE.

(Application filed Sept. 26, 1898.)

(No Model.)

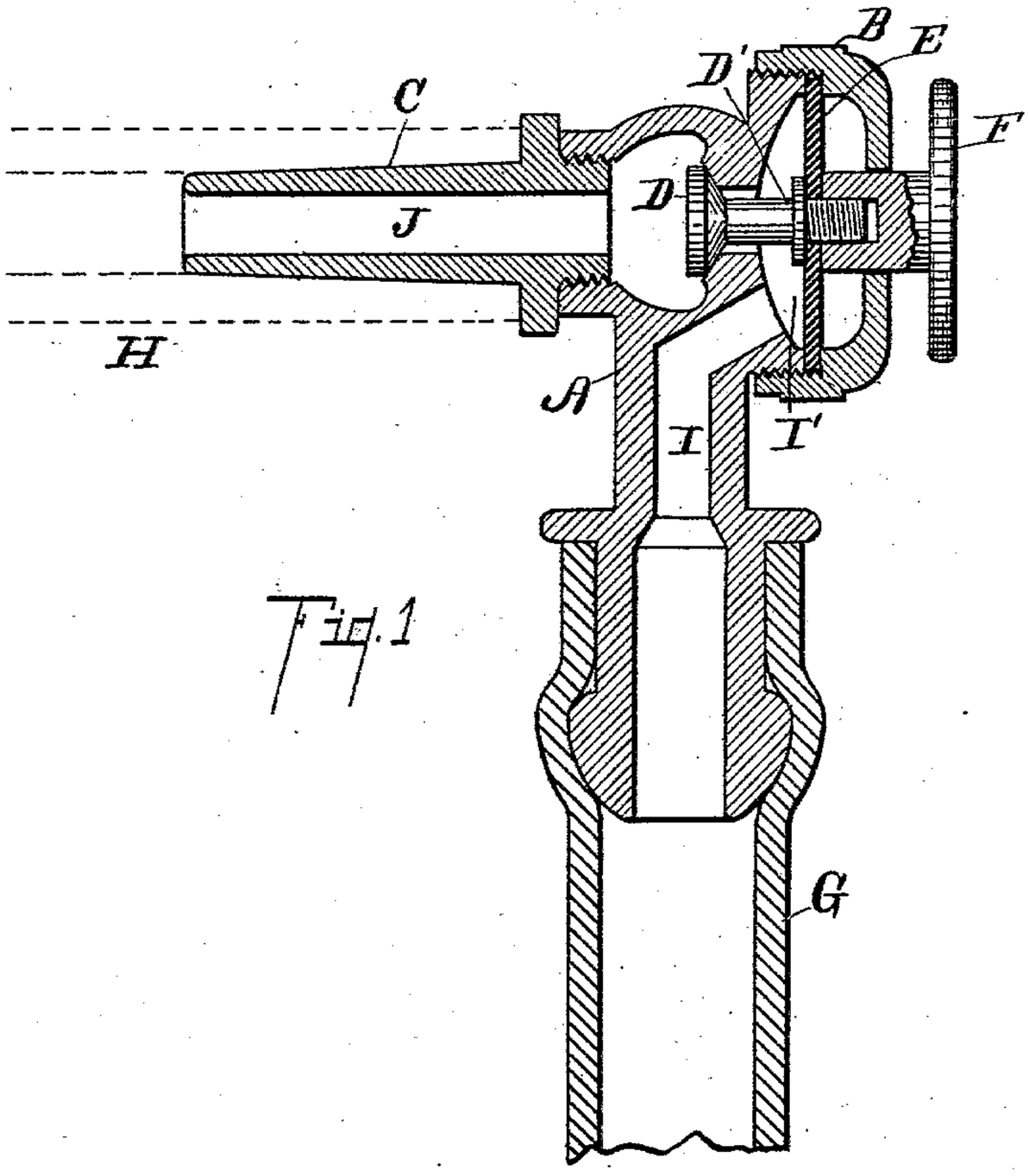

Fig. 1

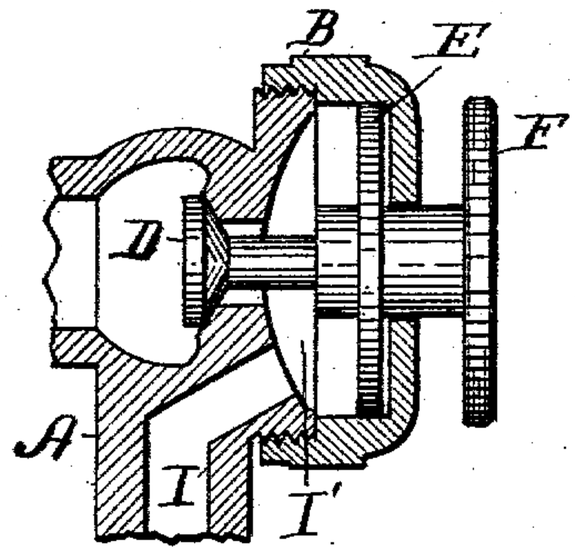

Fig. 2

Witnesses:
Otis A Earl
Lela M. Brown.

Inventor,
Harley M. Dunlap
By Fred L. Chappell
Att'y.

UNITED STATES PATENT OFFICE.

HARLEY M. DUNLAP, OF BATTLE CREEK, MICHIGAN.

STOP-COCK OR VALVE.

SPECIFICATION forming part of Letters Patent No. 629,894, dated August 1, 1899.

Application filed September 26, 1898. Serial No. 691,933. (No model.)

To all whom it may concern:

Be it known that I, HARLEY M. DUNLAP, a citizen of the United States, residing at the city of Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Stop-Cocks or Valves, of which the following is a specification.

This invention relates to improvements in valve mechanism or stop-cocks for use in connection with medical instruments in which air-pressure or a current of air is employed for spraying purposes. This device is also adapted to other uses as a stop-cock. As heretofore constructed these devices have relied on springs or complicated mechanism for manipulating the valve to open and close quickly, none of the said devices known to me being entirely satisfactory owing to the fact that they easily get out of repair and when out of repair are mended again with great difficulty, and, again, those relying on springs lack durability on account of the inherent defect of all springs—that they will wear out.

The objects of this invention are to provide a simple and efficient valve means or stop-cock for the purpose which shall be positive and quick in its action without the use of springs or any complicated mechanism. Other and further objects will appear from the detailed description to follow. I accomplish these objects of my invention by the devices and means described in this specification.

This invention is clearly and definitely pointed out in the claims.

The structure is fully illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an enlarged detail vertical sectional elevation through my improved valve mechanism or stop-cock, the valve D and the push-button F being shown in full lines. Fig. 2 is a similar detail view of a slightly-modified construction.

In the drawings similar letters of reference refer to similar parts throughout both views.

Referring to the lettered parts of the drawings, A is the valve-casing, having an inlet-passage I, where it receives compressed air or other gas or vapor from tube G, which connects to the reservoir for the same. The passage I leads into a chamber I′, from which there is an opening leading out to a discharge-nipple C, which is adapted to insert into a tube or any instrument, as an atomizer, which it is desired to use in this connection. In case only an air-blast is used this nipple can be left bare or be omitted. A small valve D is seated in the passage just beyond the chamber I′ and closes against pressure. The stem D′ of this valve extends through the chamber I′. The chamber I′ is preferably circular, and a diaphragm E is secured over one side of the same by a screw-cap B, which clamps the edges of the same air-tight. The stem D′ of the valve extends through the central part of the diaphragm E, the projecting part being screw-threaded, on which is screwed the button F, which has a stem or shank which is hollow and screw-threaded to receive the valve-stem. When the parts are screwed together, they engage the diaphragm at its center by an air-tight joint.

The diaphragm E is preferably made of rubber fabric, though leather could be employed in this position or even thin metal. The cap B might be extended and bored out like a cylinder, and the diaphragm E instead of being flexible might be a disk fitting air-tight into the extended portion, which would serve the same purpose, though of course it would be much more expensive to manufacture in this form. This is illustrated in Fig. 2.

I prefer to make the nozzle C separable from the main portions, though it might be integral by making suitable changes in other parts. The removable nozzle is preferred.

Numerous other modifications are possible and will no doubt suggest themselves to those skilled in the art to which this invention appertains.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a valve mechanism or stop-cock of the class described the combination of the casing A, with an inlet-passage I, and chamber I′ connected therewith; a discharge-tip C, secured thereto; a diaphragm E; a cap B, to secure said diaphragm in place to form one side of chamber I′; a valve D, with stem

D′, closing toward said chamber I′; a button F, with suitable shank clamping said valve-stem to the diaphragm E; all coacting so that air entering at I, will act on the diaphragm and close the valve till overcome by pressure on the button F, for the purpose specified.

2. In a valve mechanism or stop-cock of the class described a casing having an inlet and outlet; a valve within adapted to close against the pressure of the fluid to be retained; a diaphragm or equivalent of larger area than the valve connected to the same to receive the pressure and hold the valve normally closed, and means as a button to apply pressure to the valve to open the same, the pressure of the fluid causing the valve to close automatically for the purpose specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

HARLEY M. DUNLAP. [L. S.]

Witnesses:

FRED. WELLS,

H. A. ROWLES.