

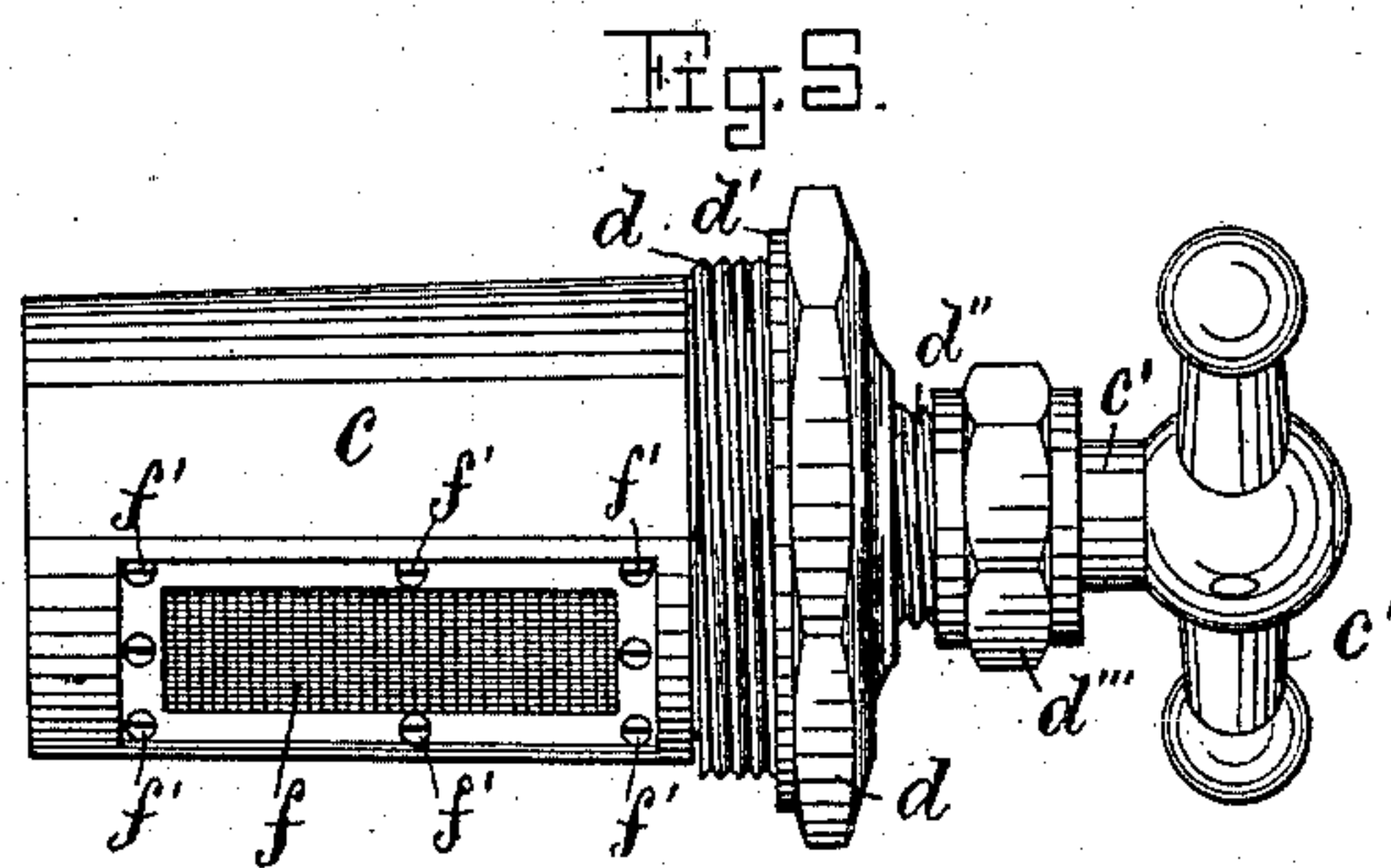
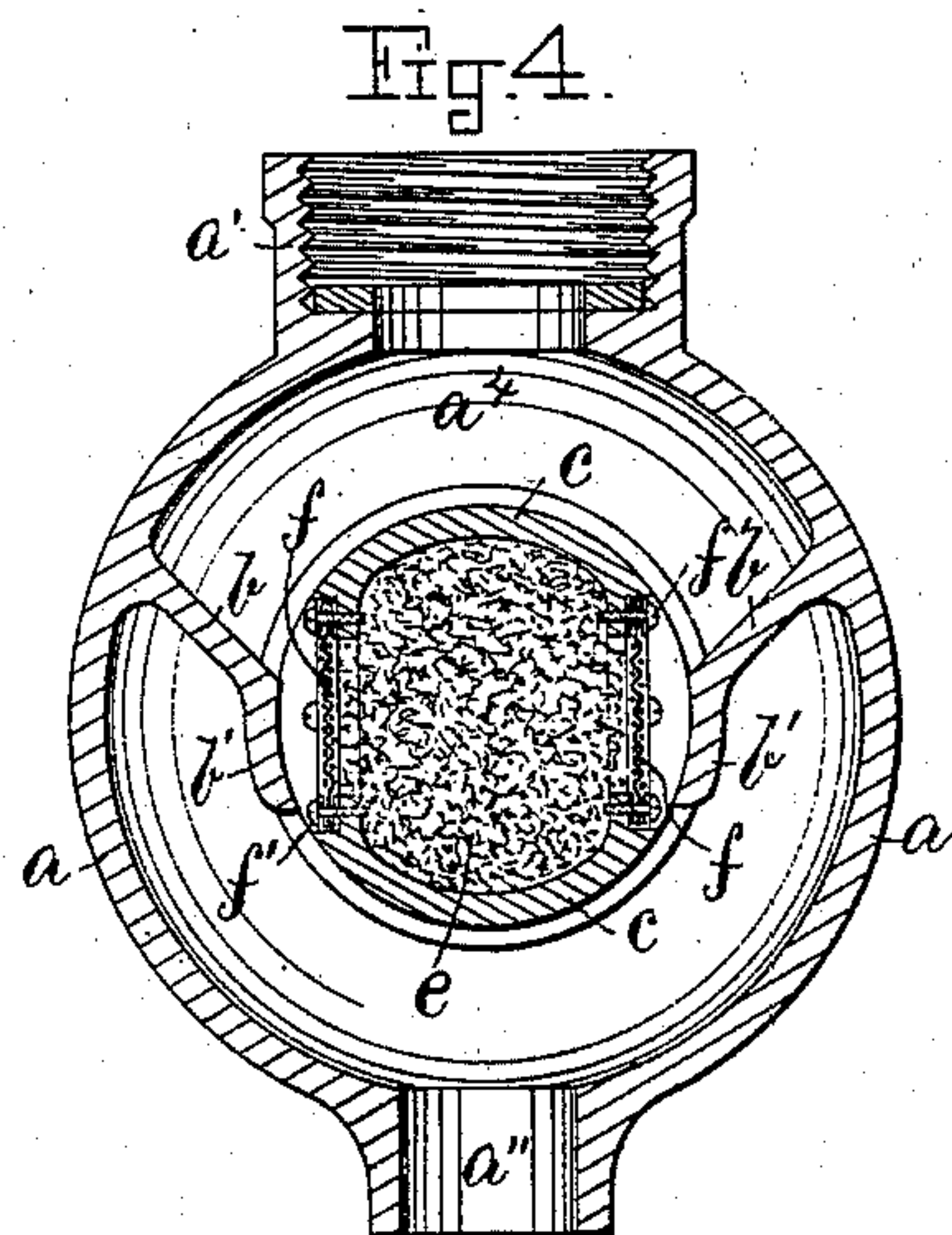
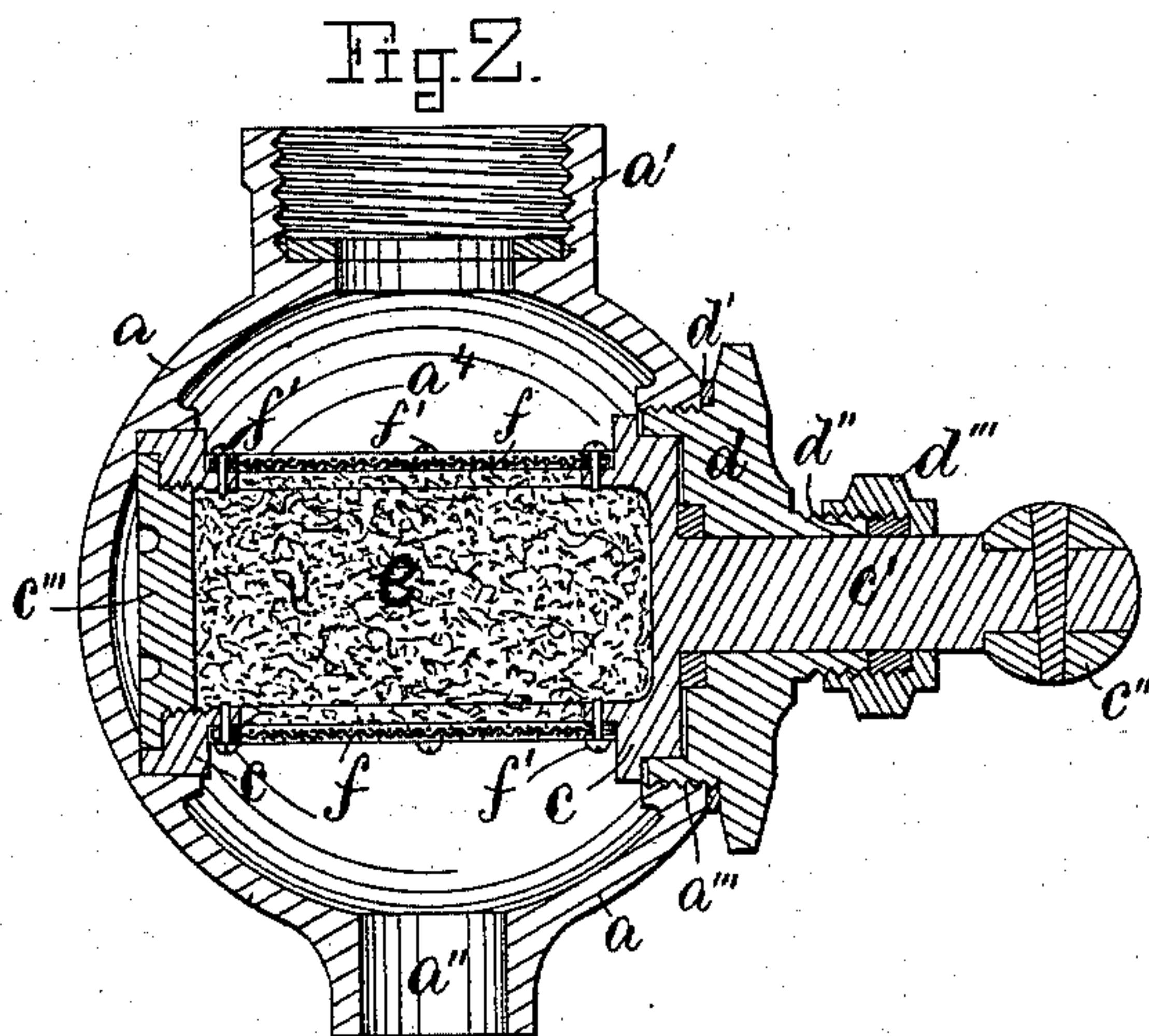
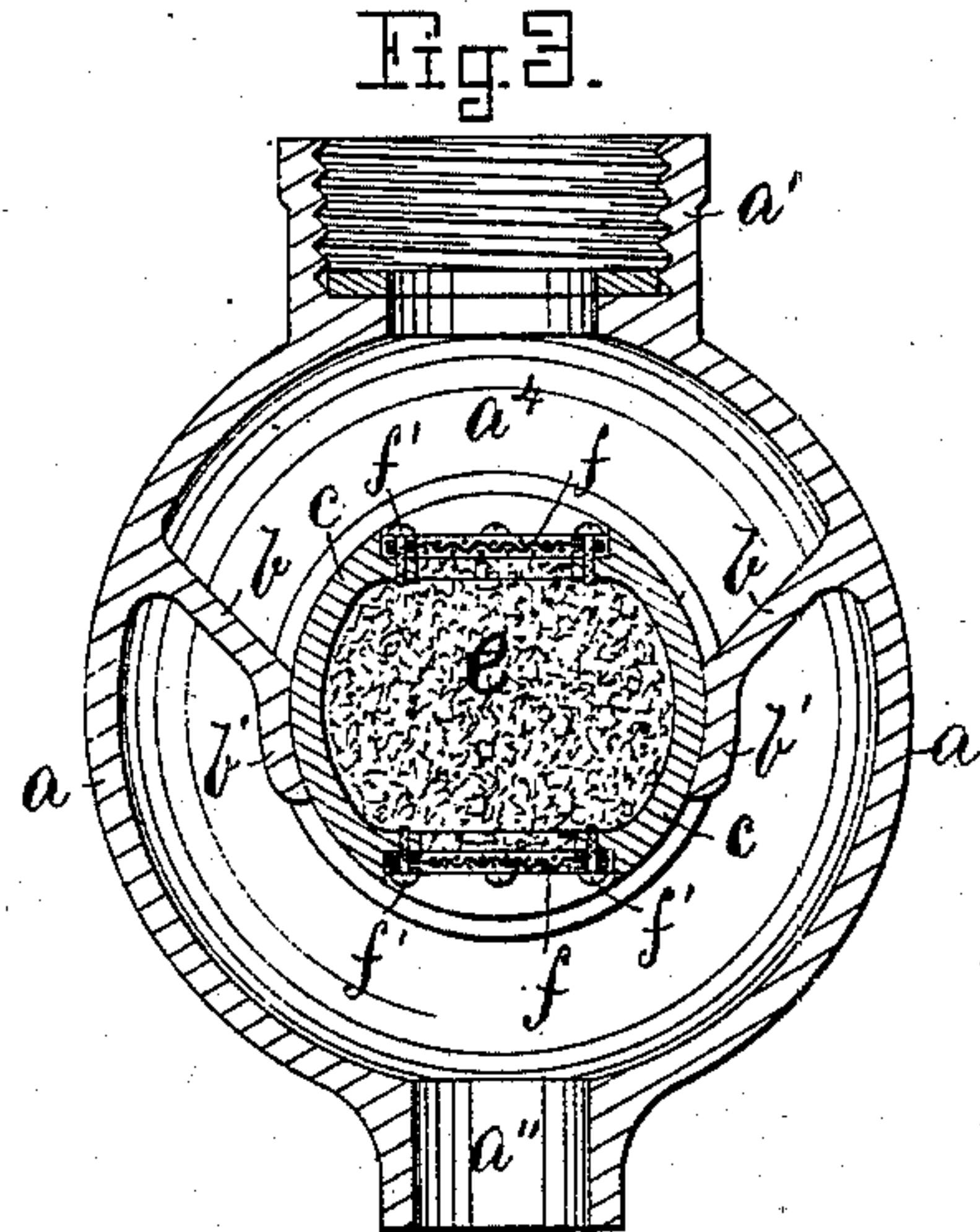
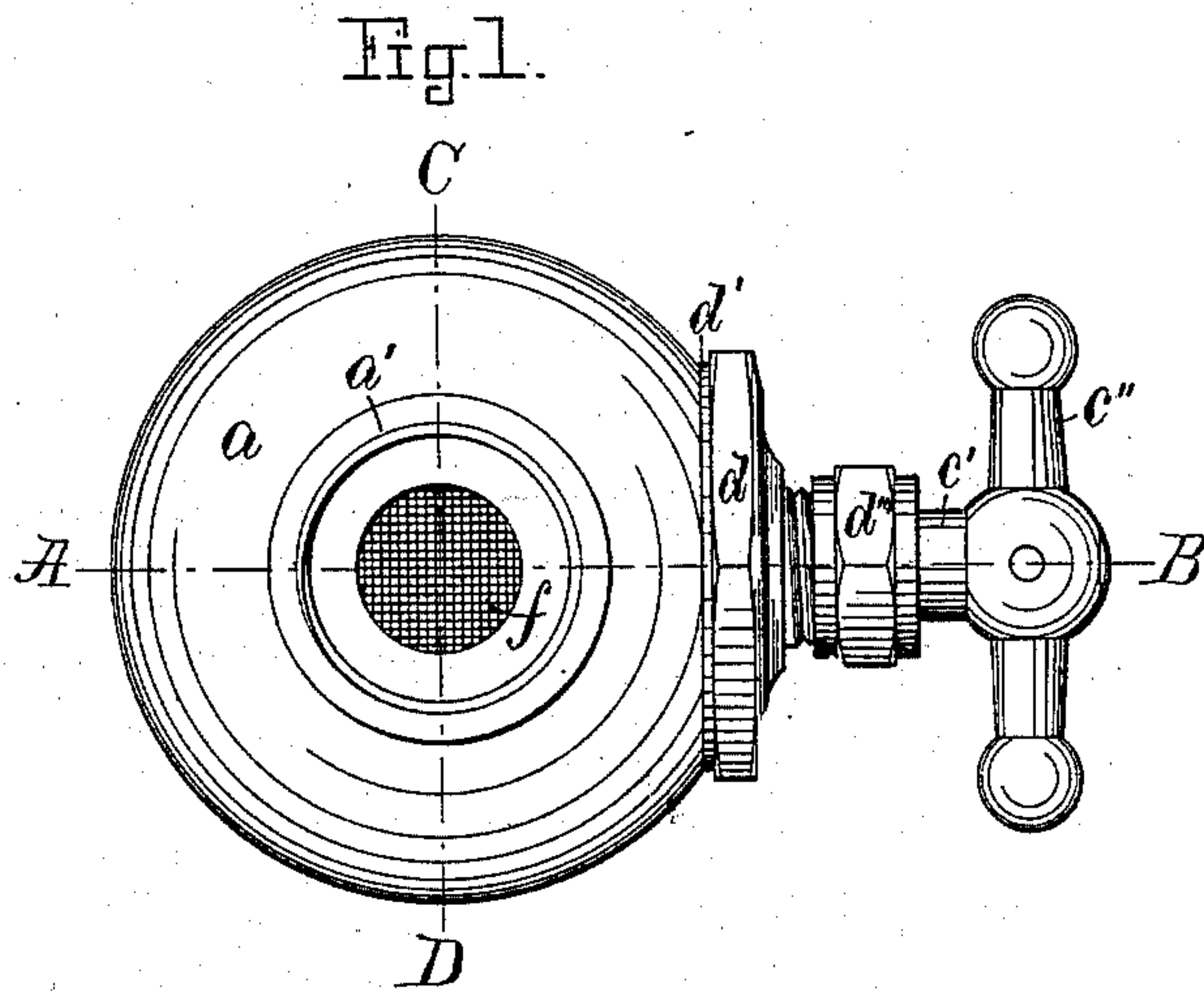
(No Model.)

J. S. SMART.

WATER FILTER.

No. 270,255.

Patented Jan. 9, 1883.



Witnesses
Henry Chadbourne.
J. Allen.

Inventor
James S. Smart.

UNITED STATES PATENT OFFICE.

JAMES S. SMART, OF SALEM, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE AMERICAN FILTER COMPANY, OF PORTLAND, ME.

WATER-FILTER.

SPECIFICATION forming part of Letters Patent No. 270,255, dated January 9, 1883.

Application filed July 22, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES S. SMART, a citizen of the United States, residing at Salem, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Water-Filters; and I do hereby declare that the same are fully described in the following specification and illustrated in the accompanying drawings.

10 This invention relates to improvements in water-filters, and especially to improvements in Letters Patent granted to me June 20, 1882, No. 259,725. It is carried out as follows, reference being had to the accompanying drawings, on which—

15 Figure 1 represents a plan view. Fig. 2 represents a longitudinal section on the line A B, shown in Fig. 1. Fig. 3 represents a cross-section on the line C D, also shown in Fig. 1, with the filter-plug in position for filtering the water. Fig. 4 represents a similar cross-section, with the filter-plug in position for washing the plug, and to allow a free passage for the water on both sides of the plug; and Fig. 20 5 represents a side elevation of the filter-plug as detached from the outer shell.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

30 *a* is the outer shell or chamber, preferably made spherical; but I do not wish to confine myself to this particular shape, as it can to equal advantage be made cylindrical, bell-shaped, or otherwise, without departing from the spirit of my invention. Said outer shell, 35 *a*, has a screw-threaded collar, *a'*, in its upper end, for attaching it to the screw-threaded end of a faucet, as usual.

40 *a''* is the nozzle or outlet for the water, on the under side of the shell *a*, as shown in Figs. 2, 3, and 4. In one piece with the shell *a* are cast the two division-walls or bearing-surfaces *b b*, preferably cast thin and light, with downward-projecting lips or flanges *b' b'*, to insure 45 a sufficient bearing-surface to make a watertight joint between said flanges or division-walls and the filter-plug *c*; but said lips or flanges may be dispensed with and the division-walls or bearing-surfaces cast thicker, if so 50 desired. The filter-plug *c* is inserted through

the screw-threaded opening *a'''* into the shell *a* in such a manner that its slightly-tapering outer surface bears against the bored-out inner edges of the division-walls *b b*, or flanges *b' b'*, as the case may be. The plug *c* is held against 55 the bearing-surfaces by means of the screw-threaded cap *d*, screwed into the screw-threaded side opening, *a'''*, in the shell *a*, and is provided with a packing-ring, *d'*, between the cap *d* and shell *a*. The cap *d* has a stuffing-box, 60 *d'' d'''*, on its outside, through which the spindle *e'* of the plug *c* projects, said spindle being provided with a suitable handle, *e''*, in its outer end, as usual, by means of which the plug *c* 65 can be turned around its axis. The plug *c* is made hollow for the reception of the filtering material *e*, and is provided on two opposite sides with nettings *f f*, covering opening in said plug *c*, as shown. The nettings *f f* are so 70 placed over the openings in the plug *c* that the diameter of the plug from one netting to the other is less than the opening between the lower parts of the flanges *b' b'*, thereby causing a free passage for the water when the plug *c* is in the position shown in Fig. 4. By this 75 construction of the plug all sediment collected on the upper netting *f* and in the upper chamber, *a''*, of the outer shell, *a*, is washed away when the plug *c* is in the position shown in Fig. 4. 80

c''' is a detachable screw-threaded cover in the inner end of the plug *c*, which, when removed, allows for filling the hollow plug *c* with the desired filtering material; but said cover *c'''* 85 may be dispensed with, as the filtering material *e* may be inserted through the opening in the plug by unscrewing the screws *f' f' f'*, which hold the netting *f* in place, and removing the netting.

This my improved filter is reversible—that 90 is, it may be turned around its axis—so as to clean the filtering material, and to keep it from packing solid against the lower netting *f* by causing the water to enter the plug *c* from the opposite netting *f* to the one it last entered. 95

This my improved filter is very simple in its construction and has many advantages over other filters. There are no shelves or recesses to collect and retain the sediment. The shell 100 *a*, division-walls *b b*, and flanges *b' b'* being

cast in one piece, and the plug *c* being fitted water-tight against the bored-out inner edges of the flanges *b' b'*, thereby dispensing with the use of packing-rings and diaphragms, I
5 am able to manufacture this my improved filter very simple, cheap, durable, and not liable to get out of order.

This my improved filter may be reversed without first having to shut off the water, there
10 being but slight friction between the moving parts, caused by the pressure of the water, as is the case with most other filters.

Having thus fully described the nature, operation, and construction of my invention, I
15 wish to claim—

The herein-described filter, consisting of the shell or case *a*, with two internal division-walls or bearing-surfaces, *b b*, with flanges *b' b'* for the hollow plug *c*, with its strainers or nettings
20 *f f*, arranged so as to cause a free passage for the water between said strainers and bearing-surfaces when the plug is turned on its axis, as set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

JAMES S. SMART.

Witnesses:

HENRY CHADBURN,
JAS. W. WATSON.