

(No Model.)

H. E. WELLS.  
VALVE.

No. 563,946.

Patented July 14, 1896.

Fig. 1.

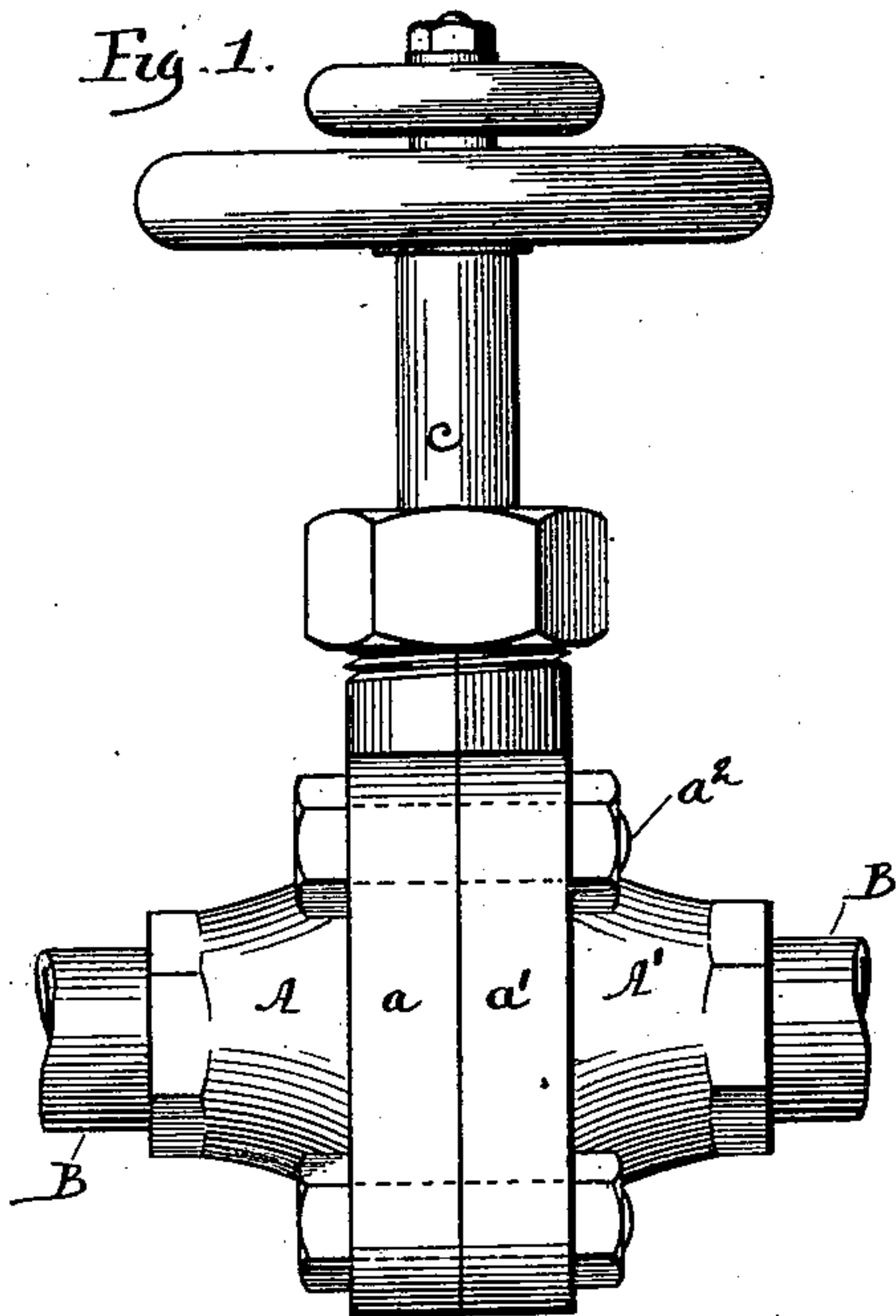


Fig. 2.

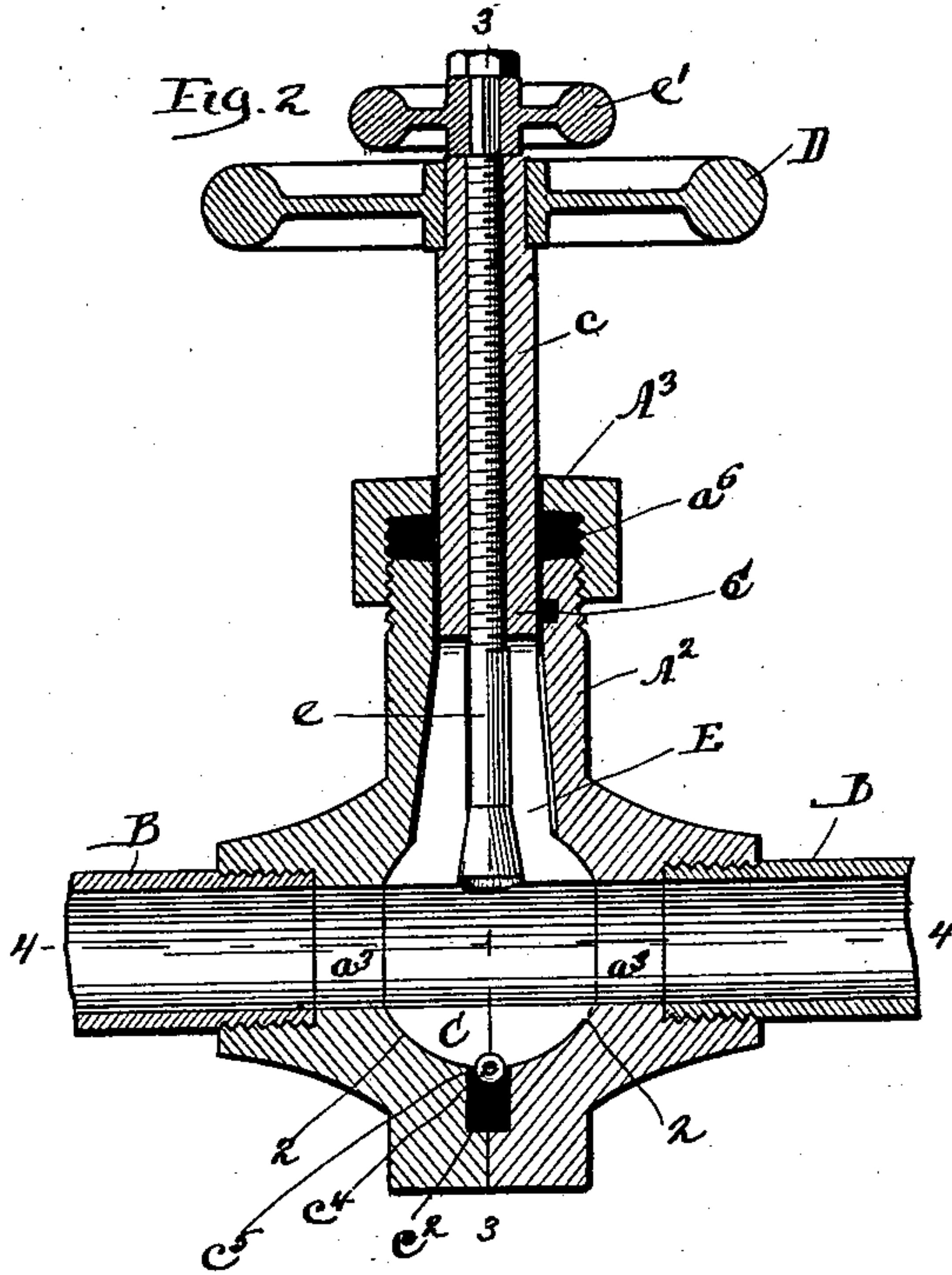


Fig. 3.

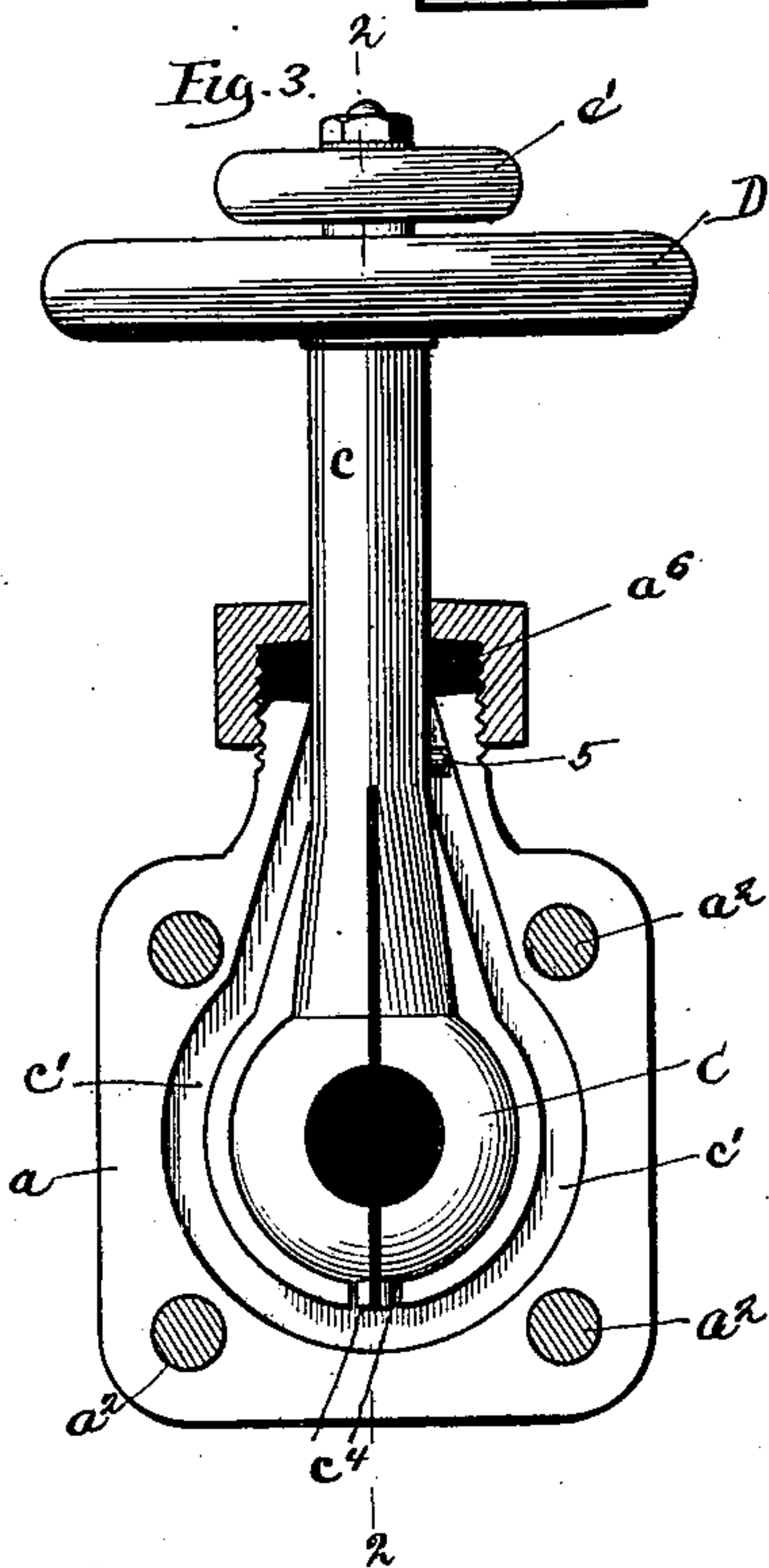


Fig. 4.

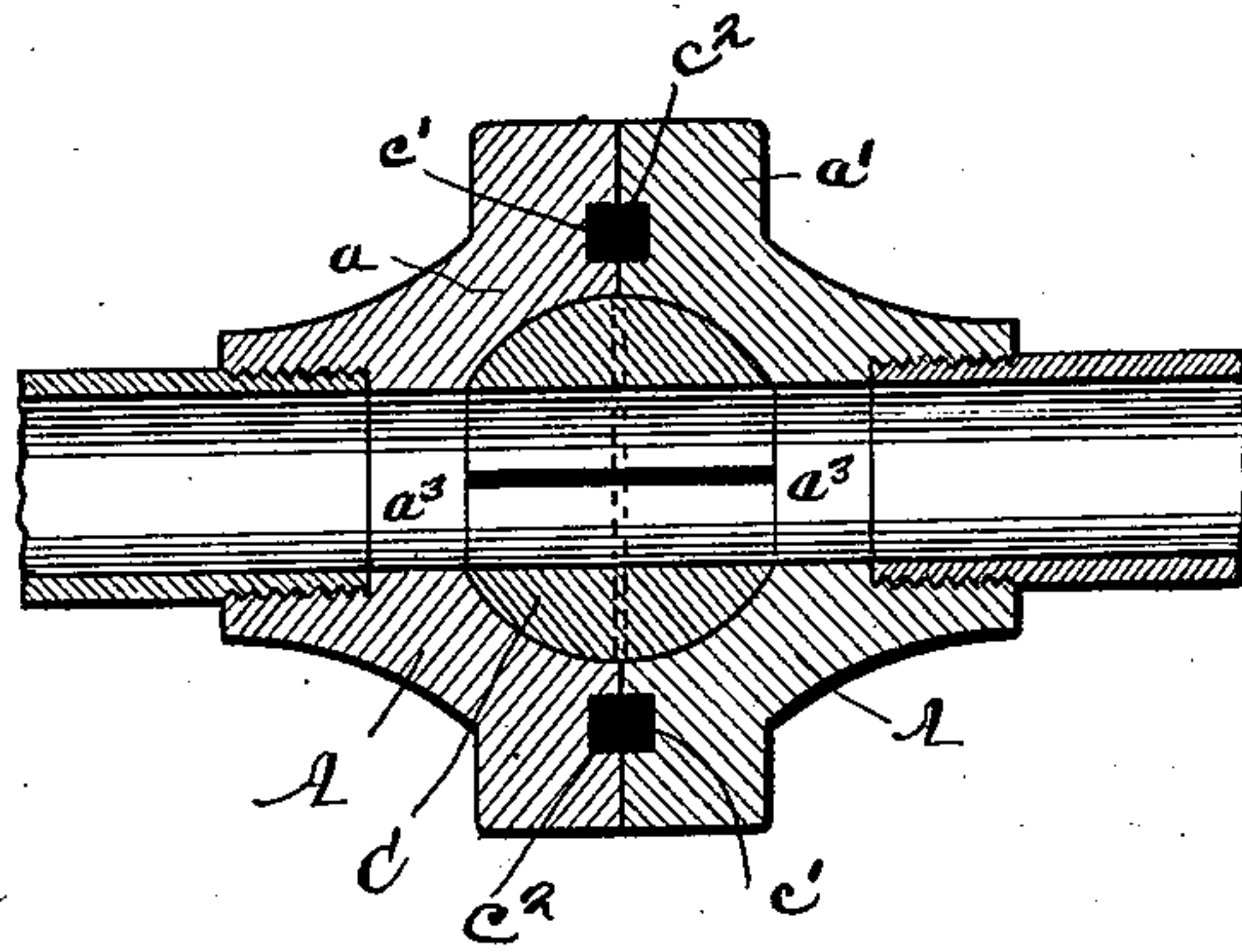
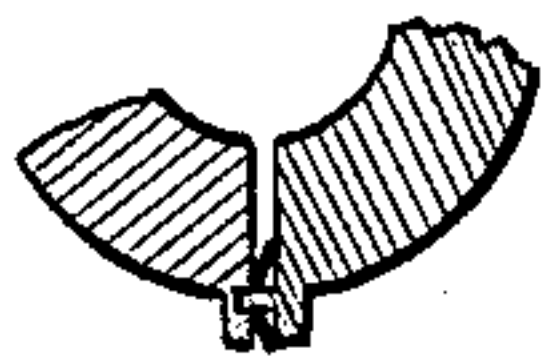


Fig. 5.



Witnesses:

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# UNITED STATES PATENT OFFICE.

HAMILTON E. WELLS, OF PORTSMOUTH, OHIO.

## VALVE.

SPECIFICATION forming part of Letters Patent No. 563,946, dated July 14, 1896.

Application filed August 19, 1895. Serial No. 559,758. (No model.)

*To all whom it may concern:*

Be it known that I, HAMILTON E. WELLS, a citizen of the United States, residing at Portsmouth, State of Ohio, have invented certain new and useful Improvements in Valves, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

10 The present invention has for its object to provide a novel construction of valve that shall be simple, durable, and cheap, that may be readily adjusted to compensate for wear, and that shall overcome the difficulties inci-  
15 dent to globe and similar valves as now commonly constructed. This object of invention I have accomplished by the novel construction of valve hereinafter described, illustrated in the accompanying drawings, and particu-  
20 larly pointed out in the claims at the end of this specification.

Figure 1 is a view in side elevation of my improved valve. Fig. 2 is a view in vertical section on line 2 2 of Fig. 3. Fig. 3 is a view  
25 in elevation with one section of the valve-casing removed. Fig. 4 is a view in horizontal section on line 4 4 of Fig. 2. Fig. 5 is a detail central sectional view of the lower portion of the globe-valve.

30 The inclosing casing of my improved valve consists of the sections A and A', that are formed with lateral flanges  $a$  and  $a'$ , united by through-bolts  $a^2$ . Each of the casing-sections A and A' is formed with a port  $a^3$ , to  
35 which are connected the sections B of the pipe in which the valve is interposed. The ports  $a^3$  of the casing-sections will be formed of the same diameter as the interior of the pipe B, and one of the advantages incident  
40 to my improved construction of valve is that the valve-casing and valve will allow for an opening of the same diameter as the pipe B, so that no obstruction of the pipe by the interposition of the valve will be had. Each  
45 of the casing-sections A and A' is formed with a seat 2 to receive the abutting part of the globe-valve C, the stem  $c$  of this valve extending upward through the cap A<sup>3</sup>, that is threaded to engage the threaded upward ex-  
50 tensions A<sup>2</sup> of the casing-sections. This cap A<sup>3</sup> serves not only to aid in holding the casing-sections firmly together, but also serves

to receive the packing  $a^6$ , through which the stem  $c$  of the valve C passes. Preferably the inner face of each of the casing-sections will  
55 be formed with a shallow groove  $c'$  to receive a packing strip  $c^2$  to guard against leakage.

In the preferred form of my invention the valve C and more or less of its stem  $c$ , as more clearly shown in Fig. 3, are formed of two  
60 longitudinal sections, and by preference each of these sections is provided at its base with a projection  $c^4$ , that sets within a seat  $c^5$ , formed in the casing, as seen in Figs. 2 and 3, the valve-sections being forced normally  
65 apart by the washer R, setting over a stud  $r$ , and serving to insure a snug bearing and guard against leakage. At the upper end of the valve-stem  $c$  is a hand-wheel D, whereby  
70 the valve can be turned to open and close it. The stem  $c$  of the valve C is hollow from end to end, and at the base of the stem each of the valve-sections is formed with an inclined surface, against which bears the inclined or  
75 wedge-shaped lower end of a spreader E, this spreader having connected thereto a stem  $e$ ,  
that extends upwardly through the valve-stem  $c$  and is provided at its upper end with a hand-wheel  $e'$  or other means whereby it  
80 may be conveniently turned.

The stem  $e$  of the spreader E has preferably throughout a portion of its length screw-threads that engage with corresponding  
85 threads formed upon the interior of the valve-stem  $c$ . The purpose of the spreader E is to separate or spread the sections of the valve C, so as to secure a snug fit of the valve C against its seat and compensate for wear. The stem  $c$  of the valve is shown as provided  
90 with a suitable pin 5, (see Fig. 3,) that moves within a groove 6, formed in the neck of the valve-casing, the groove and pin serving to limit the turning movement of the valve C in  
manner well understood.

From the foregoing description it will be  
95 seen that when the valve is in the open position shown in Fig. 2 it can be turned by means of the hand-wheel D, so as to cut off the flow of liquid through the valve. When it is desired to tighten the valve C against its seat,  
100 as, for example, to compensate for wear, the hand-wheel  $e'$  will be turned, so as to cause the spreader E to move upward, and as the spreader E thus moves upward it will wedge



or spread outward the sections of the valve E, causing these valve-sections to bear snugly against their seats. By manipulating the hand-wheel *e'* the valve C can be caused to bear against its seat with any desired degree of force, and when the valve is to be shifted a reverse movement of the hand-wheel *e'* will permit the sections to ease or free themselves from their seats, thus avoiding all wear in the operation of the valve. So, also, with my improved construction of valve all danger of obstructions lodging between the valve and its seat is entirely avoided.

While I have shown what I regard as the preferred form of my invention, it is manifest that the details of construction may be varied within wide limits without departing from the spirit of the invention. Thus, for example, it is not essential, although preferable, that the valve-sections of the valve C should be united at their top ends so long as the sections are so arranged that they can be spread apart. So, also, I have devised other forms of spreaders which might be substituted for the spreader E, and I therefore do not wish my invention to be understood as restricted to this particular construction of spreader.

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

1. The combination with a suitable casing having a seat, of a valve within said seat, said valve being provided with an unobstructed bore or opening therethrough for passage of fluid and being formed of expansible sections, a hollow stem extending from said sections through the casing, and a spreader located between said expansible sections above the bore or opening of the valve and a stem extending from said spreader through the valve-stem and outside the casing, substantially as described.

2. The combination with a suitable casing having a spherical seat, of a spherical valve within said seat, said valve being provided with an unobstructed bore or opening therethrough for passage of fluid and being formed of expansible sections, a hollow stem extending from said sections through the casing, and a spreader located between said expansible sections above the bore or opening of the valve and a stem extending from said spreader through the valve-stem and outside the casing, substantially as described.

3. The combination with a suitable valve-

casing, provided with a spherical seat, of a spherical valve arranged within said seat and provided with a bore or opening therethrough for the passage of fluid, said spherical valve being formed of expansible sections and being provided above said bore or opening with an opening to receive a spreader, a spreader for engaging said valve-sections above the bore or opening for passage of fluid; and a stem extending outside the casing for manipulating said spherical valve, and a second stem whereby said spreader may be operated.

4. The combination with a suitable casing, having a spherical valve-seat, of a spherical valve formed of expansible sections having an opening therethrough for the passage of fluid and having interior inclined surfaces and having a hollow stem, and a vertically-movable spreader so arranged as not to obstruct the bore or opening of said valve and engaging the interior inclined surfaces of the valve-sections, and having a stem extending through the hollow valve-stem, suitable threads being formed upon the valve-stem and spreader-stem, substantially as described.

5. The combination with a suitable casing, of a spherical valve formed of expansible sections, a hollow stem formed in piece with said valve-sections, said valve-sections being provided with inclined surfaces at the base of said hollow stem and a spreader arranged outside the bore or opening of said valve and in position to engage said inclined surfaces, and a stem for said spreader extending through the valve-stem and provided with means whereby it may be manipulated, substantially as described.

6. The combination with a casing provided with a seat and formed of separable sections and means whereby said sections may be united together, of a valve within said seat, said valve being provided with an unobstructed bore or opening therethrough for passage of fluid and being formed of expansible sections, a hollow stem extending from said sections through the casing and a spreader located between said expansible sections above the bore or opening of the valve and a stem extending from said spreader through the valve-stem and outside the casing, substantially as described.

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Witnesses:

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