

T. J. O'BRIEN.
PUMP VALVE.
APPLICATION FILED JULY 22, 1911.

1,005,744.

Patented Oct. 10, 1911.

Fig. 1.

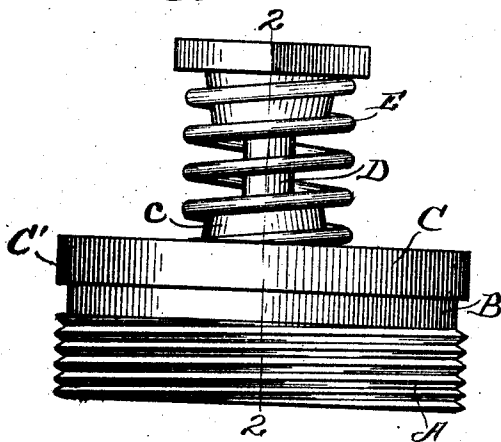


Fig. 2.

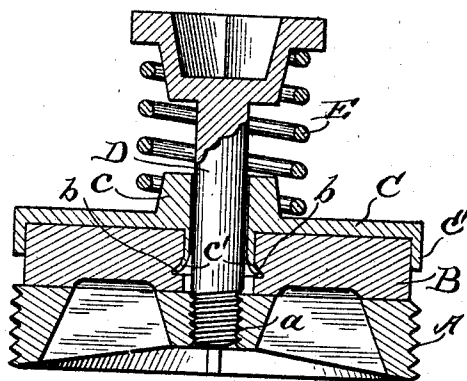


Fig. 3.

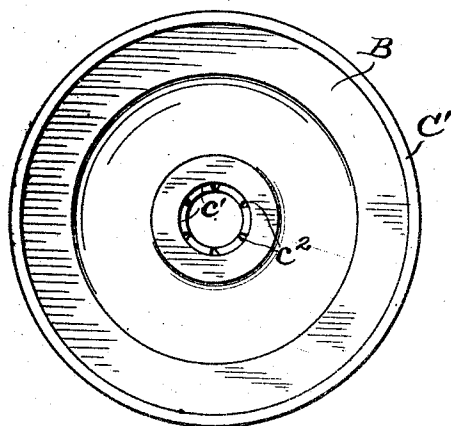


Fig. 4.

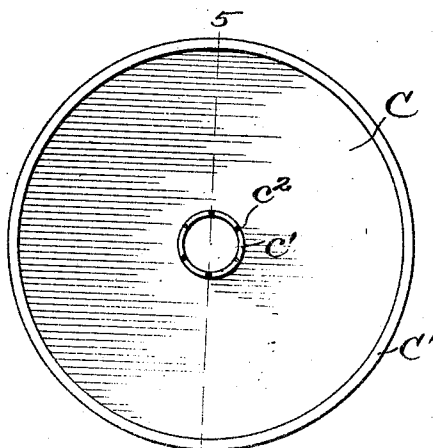


Fig. 5.

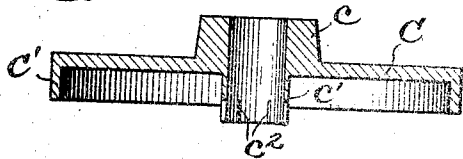
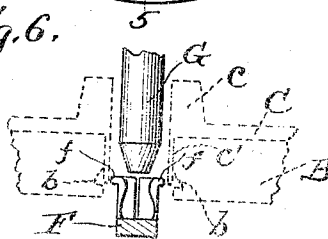


Fig. 6.



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Att'y

UNITED STATES PATENT OFFICE.

TIMOTHY J. O'BRIEN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO CHRISTOPHER PETERSON, OF CHICAGO, ILLINOIS.

PUMP-VALVE.

1,005,744.

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To all whom it may concern:

Be it known that I, TIMOTHY J. O'BRIEN, of Chicago, in the county of Cook and State of Illinois, have invented certain new and
5 useful Improvements in Pump-Valves, of which the following is a specification.

My invention relates to improvements in pump valves in which a metallic shield or case is combined with a valve made of softer
10 material than the valve seat in order to favor the wearing of the latter when in use; and the object of my improvements is to provide simplified and very efficient means for securing the valve within its case. I
15 attain this object by the means illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a pump valve of the type referred to. Fig. 2 is a central section on the line 2 2 of Fig. 1. Fig.
20 3 is a bottom plan showing the operative face of the valve, as seen in its case. Fig. 4 is a bottom plan showing the interior of the case without the valve. Fig. 5 is a central section on the line 5 5 of Fig. 4. Fig. 6
25 is a sectional diagrammatic view showing one way in which I have contemplated applying my improved means for securing the valve within its case.

Similar letters on the drawings refer to
30 similar parts throughout the several views. A is the valve seat adapted to be threaded through the pump diaphragm in the ordinary way.

B is the valve made of softer material
35 than the seat. C, the valve shield or case made preferably of brass or some other metal which may be crimped into shape. The case has a hub *c* on its exterior and an interior integral tubular extension *c'* which
40 is provided at its inner end with a series of radial kerfs *c''*. The bore of this tubular extension is continuous through the hub *c* and forms a sufficient bearing on the bolt D, which is threaded at *a* into the center piece
45 of the spider of the valve seat, to keep the valve and valve seat in parallel working relation.

E is a spring applied over the hub *c* and projected against the bolt head to keep the
50 valve normally clamped down against its seat and permit it to be lifted therefrom in the working of the pump.

The valve is provided with a central perforation adapted to fit over the extension *c'*
55 and this perforation has a channel *b* extend-

ed all the way around and substantially parallel with the face of the valve at the level of the kerfs *c''* so that by expanding the kerfed end thereof it will be crimped into said channel and securely fasten the
60 valve B within the case C and its peripheral flange *C'*. The case is provided at the periphery with a thin annular flange *C'* which covers about half the thickness of the valve B when fitted within said flange, so that in
65 the working of the pump said flange will not come in contact with the valve-seat A. I prefer to employ an expander like or similar to that illustrated in Fig. 6 of the drawing of this specification for so expanding
70 the kerfed part of the tube into said channel. In said figure, F represents a slitted thimble made of spring steel and provided with a series of outwardly projecting parts forming a rim *f*, adapted to pass within the bore
75 of tube *c'* and to come to the level of the kerfs *c''*. G is a tapering punch which may be forced into the open end of said thimble for expanding its rim so as to cause the end of said tube to be crimped into said channel
80 as described. When the expander is so inserted and brought to the proper position in the tube, as represented by dotted lines in said Fig. 6, and assuming the thimble to be
85 rested on an anvil, a single blow with a hammer on the punch may be quite sufficient for the purpose.

When the valve B is worn out of level with its seat A, or so as not properly to fit upon the same it may be dressed to fit one
90 or more times while in the case, and when the part which projects beyond the flange *C'* is completely worn off the remaining part may be readily chiseled out and the crimp
95 straightened. Then the case will receive a duplicate of the valve to be held in by again crimping the kerfed end of the tube *c'* into the channel of the valve. This operation may be repeated often.

I am aware that prior to my invention
100 pump valves have been made of rubber and other material softer than the material of which the valve seat was made and combined within metallic cases by being vulcanized, or cast within the same or by means of
105 screw threaded parts. I therefore do not claim the combination of such valve and case broadly; but

What I claim is—

1. In a pump valve of the class described, 110

the combination with the case C having a peripheral flange and an interior tubular extension c^1 the latter provided with kerfs c^2 , of the valve B fitting within and projecting from the case and provided with a channel b extended parallel with the face of the valve and at the level of said kerfs, substantially as and for the purpose specified.

2. In a pump valve of the class described,
10 the means for securing the valve within its case which consists of a kerfed integral tu-

bular extension of the case adapted to extend into an opening of the valve said opening provided with a channel parallel with the face of the valve and the kerfed part of the tubular extension being crimped into such channel, as and for the purpose specified. 15

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Witnesses:

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