

(No Model.)

2 Sheets—Sheet 1.

W. J. McKAY.  
VALVE.

No. 554,455.

Patented Feb. 11, 1896.

Fig.1.

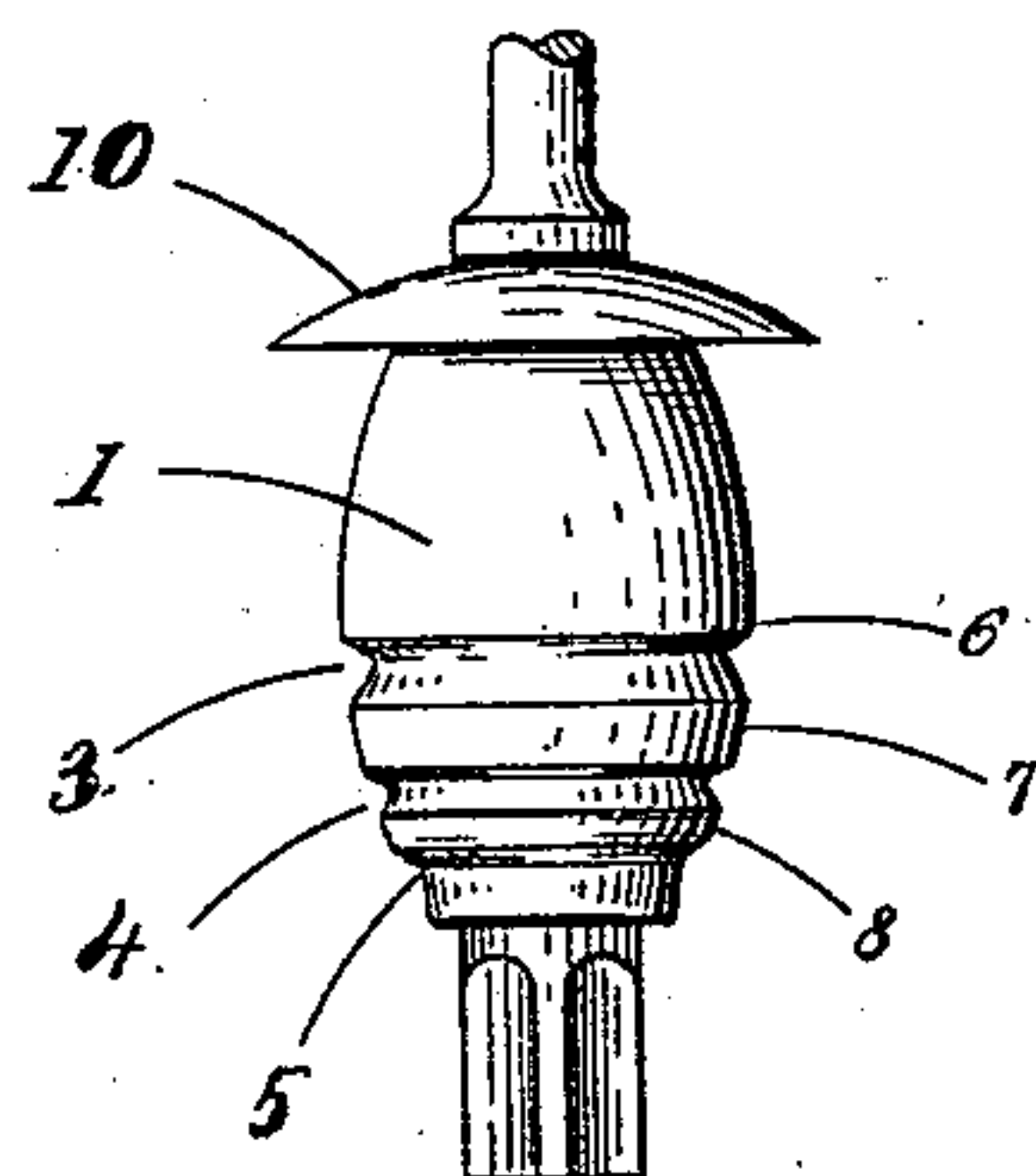


Fig.2.

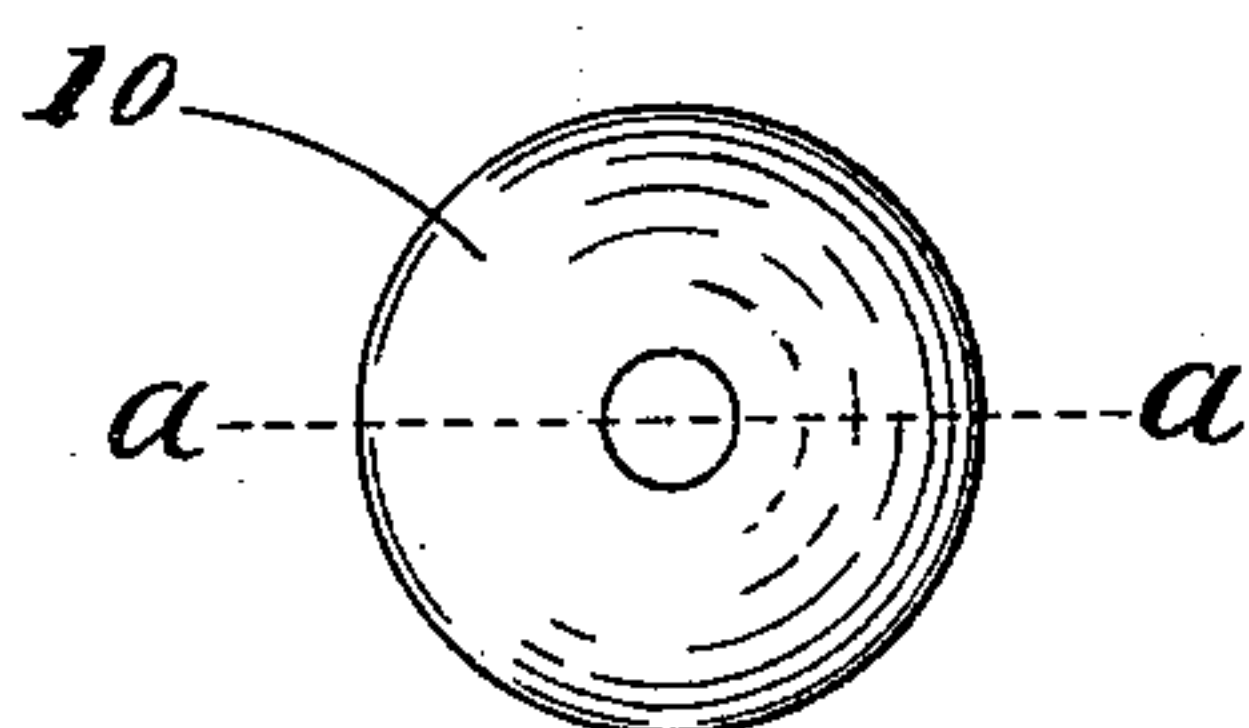


Fig.3.

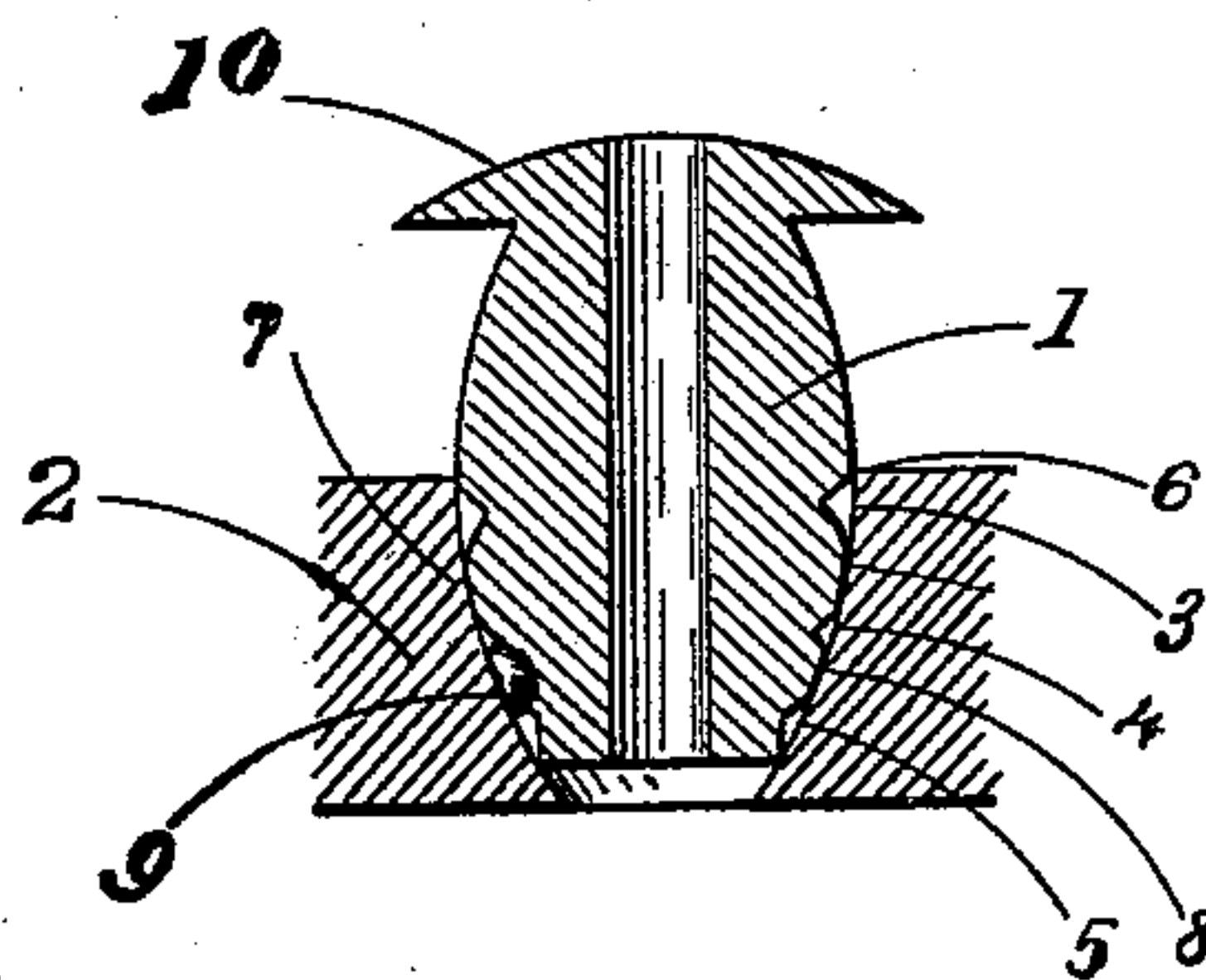
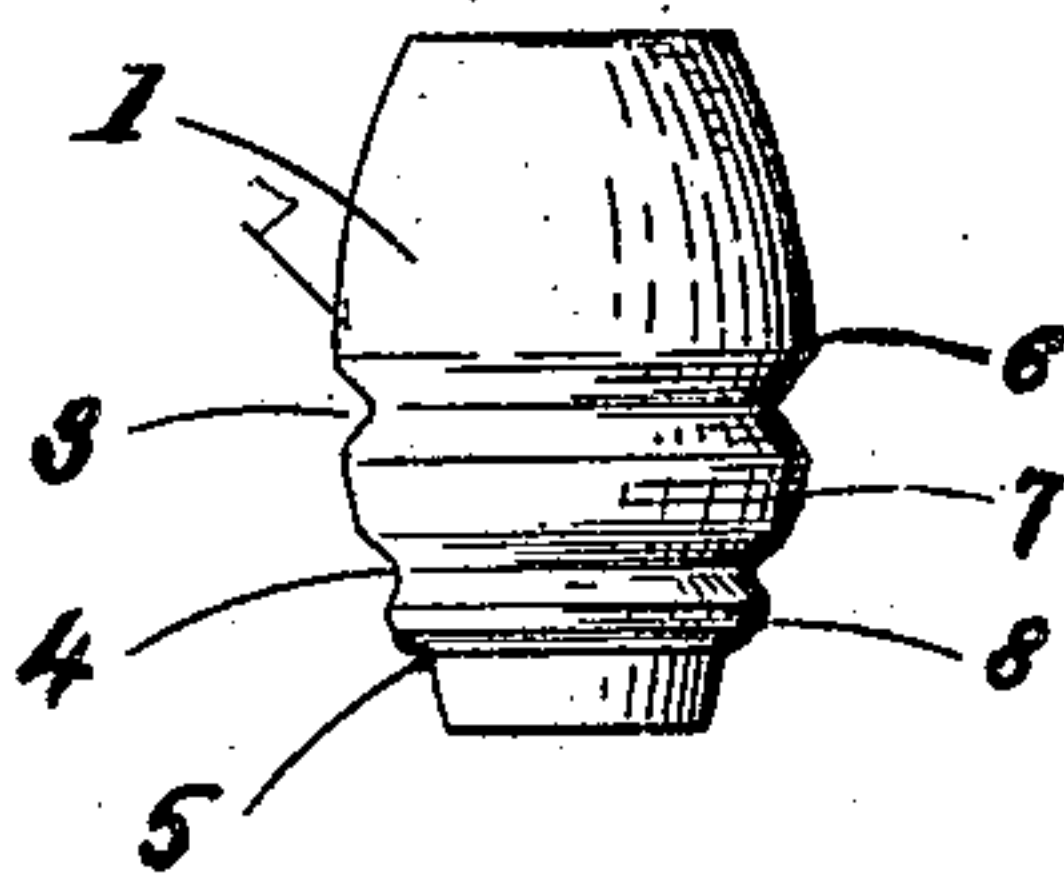


Fig.4.



Witnesses.

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By *James Bengtson*  
Attorney.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

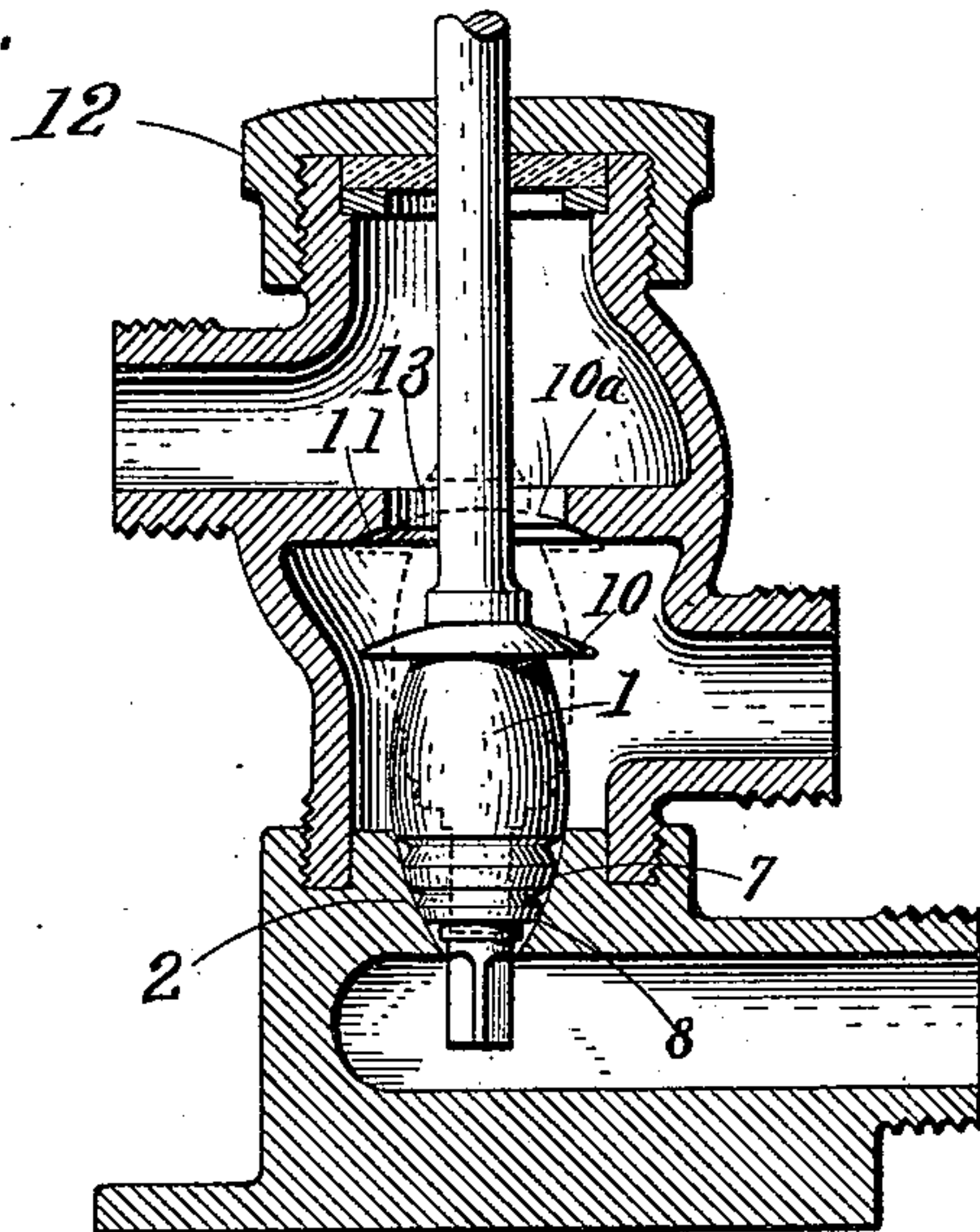
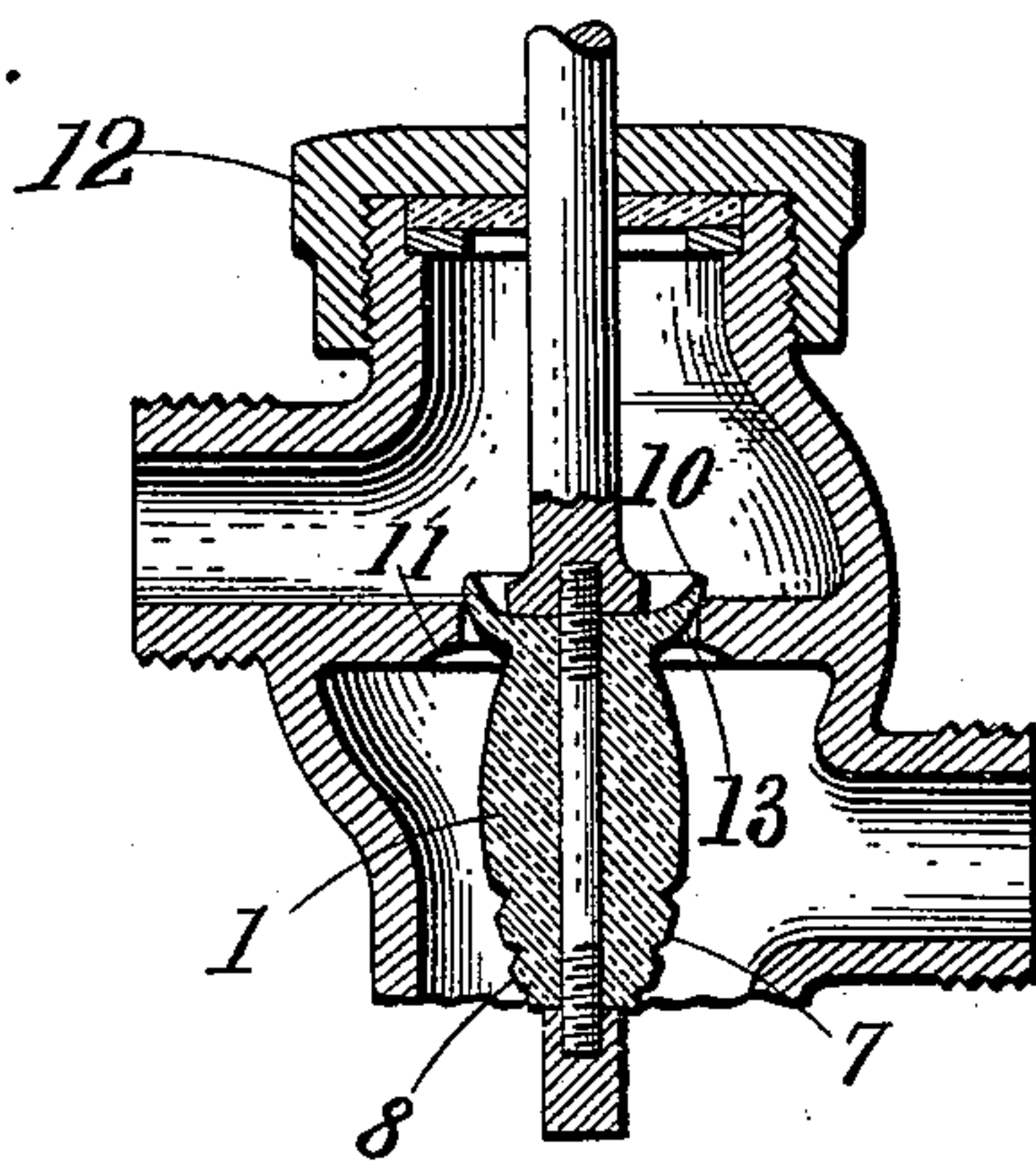


Fig. 6.



Witnesses.

L. M. Spong.

Hairer-Johnson

Inventor.

William J. McKay

By James Sangster  
att'y.



# UNITED STATES PATENT OFFICE.

WILLIAM J. MCKAY, OF HAMILTON, CANADA.

## VALVE.

SPECIFICATION forming part of Letters Patent No. 554,455, dated February 11, 1896.

Application filed June 3, 1895. Serial No. 551,468. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM JOHN MCKAY, a subject of the Queen of Great Britain, residing at Hamilton, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Valves, of which the following is a specification.

My invention relates to an improved elastic valve for water-closets, or for any purpose where an elastic valve is required.

The object of the invention is to prevent pebbles, chips or dirt from interfering with the proper action of the valve, and it will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation of the valve, a portion of the valve-stem being connected to it. Fig. 2 is a plan or top view of the same. Fig. 3 represents a vertical central section on or about line *a a*, Fig. 2, showing also a section through a portion of the valve-seat. Fig. 4 represents a side elevation of a valve having the upper enlarged portion removed. Fig. 5 represents a vertical central section through an ordinary antifreezing-valve case, showing my improved valve in engagement with the lower valve-seat, showing also by dotted lines the top of the valve or upper valve-face in contact with the upper inverted valve-seat. Fig. 6 is also a vertical central section through a well-known valve-case, representing the elastic valve as being pushed down through the valve-seat opening.

Referring to the drawings in detail, 1 represents the valve. It is preferably constructed of vulcanized india-rubber, but any suitable elastic material may be used. It is formed and designed to be used with a deep valve-seat, substantially as shown in the section at 2 in Fig. 3. Heretofore an objection to this kind of valves has been that if a pebble, chip or other little obstruction should get between the valve and valve-seat the valve would be lifted far enough from its seat to cause leakage. To obviate this difficulty I place a series of comparatively deep grooves 3, 4 and 5 around the valve, thereby leaving a plurality of valve faces or portions 6, 7 and 8, either one of which will fit the valve-seat and make a tight joint, so that if an obstruction

gets in between the valve and valve-seat—a pebble 9, for instance—it may lodge between two of the valve-faces, as shown in Fig. 3, or it may be embedded in one of the valve-faces in the soft rubber composing the valve, while either one or all of the other valve-faces that remain free will form a tight joint with the valve-seat. These valve-faces or plurality of valve-faces are far more yielding than a solid-rubber valve would be, so that a small stone or other obstruction getting between the valve and valve-seat is very easily forced into or between the yielding valve-faces and out of the way sufficiently to allow any one of the other independent valve-faces to seat and form a water-tight joint.

I have shown three of the separate independent valve-faces; but the number may be more or less.

At the top of the valve is another valve-face portion 10, adapted to fit another valve-seat, which is formed in one integral piece with the valve 1, thereby forming a double valve. The portion 10, being thinner than the valve-body 1 and extending outward all around it, can be forced through an opening of smaller diameter than itself and immediately regain its shape when pulled or pushed through. The object of this construction is to provide the means whereby one valve may be used to operate on two valve-seats. In that case it is well known that when two valves are used, one above the other, the upper portion 10 of the valve 1 must be elastic enough to allow it to be forced up through the upper valve-seat opening, after which (being of india-rubber) it immediately regains its normal shape and is then adapted to fit the upper valve-seat.

The valve 1 is represented in Fig. 5 as resting on the lower valve-seat, 2, and the dotted lines 10<sup>a</sup> show the upper valve-face portion in position against the upper valve-seat, 11.

In Fig. 6 the valve is represented as being forced through the upper valve-opening, after which it immediately assumes its normal shape substantially shown in Figs. 3 and 6.

When it becomes necessary to remove the valve for repairs or for other purposes, all that is required is to remove the cap 12 and pull it up through the valve-opening 13, the elastic portion 10 contracting and giving sufficiently to allow it to pass.

It is also important that the upper valve-face portion 10 and body of the valve and its valve-faces should be made in one integral piece, because it is impossible to make it operate correctly otherwise. If it were made separate and secured to the valve by a screw-nut on the valve-stem, (which passes entirely through both, as shown in Fig. 3,) it would squeeze the central portion outward and thereby cause the peripheral edge to be bent downward and out of shape so that the valve could not operate correctly. Consequently it is difficult to correctly adjust a valve made in two pieces, and it is impossible to make it work

as well as a valve made in one integral piece, 15 as above set forth.

I claim—

An elastic double-faced valve adapted for use with two valve-seats, having at one end a valve-face 10, of larger diameter than the body of the valve, and at its opposite end a plurality of valve-faces of smaller diameter, the whole formed of one integral piece, substantially as and for the purposes described. 20

WILLIAM J. MCKAY.

Witnesses:

JAMES SANGSTER,  
L. M. SPONG.