

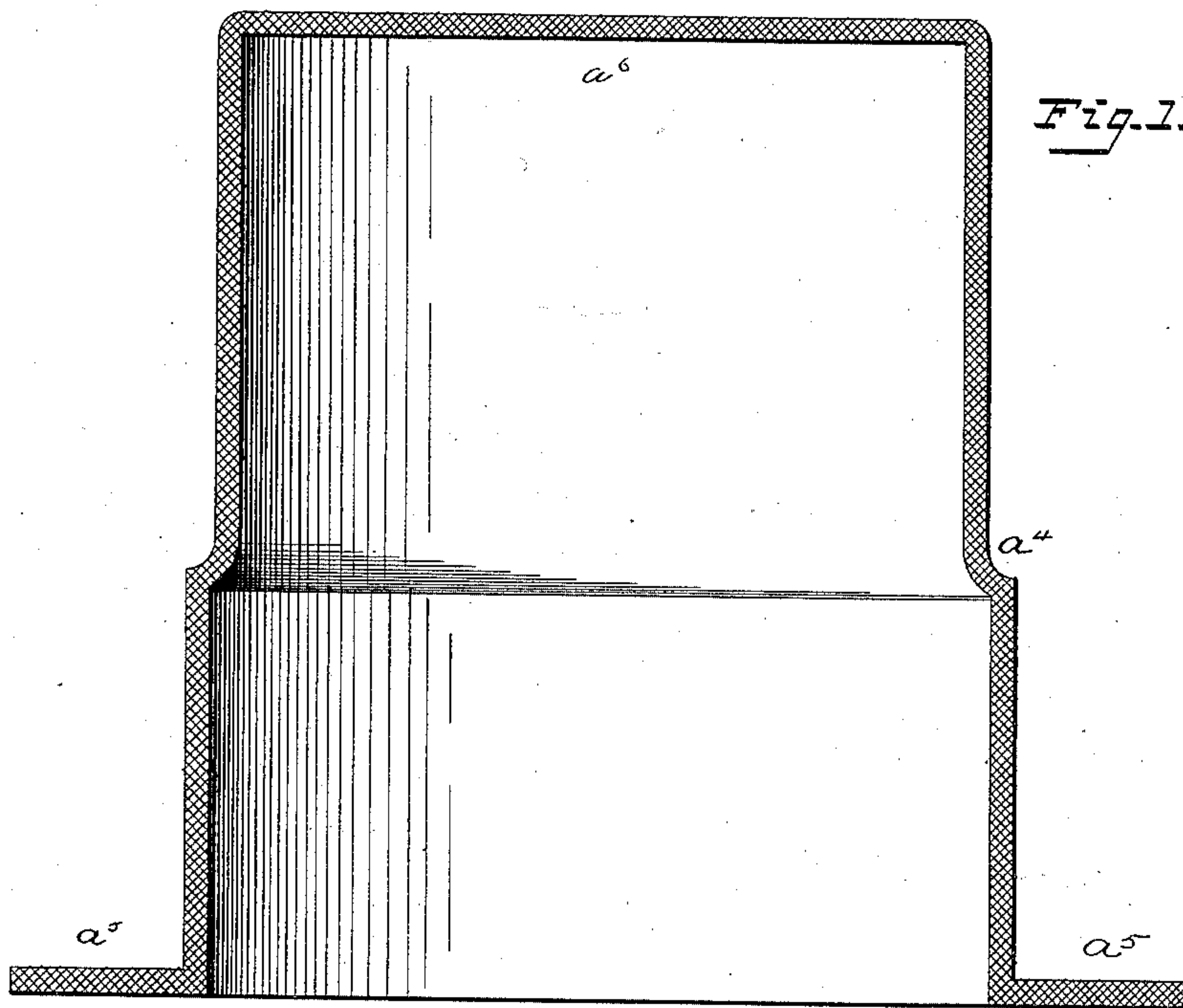
(No Model.)

N. C. LOCKE.

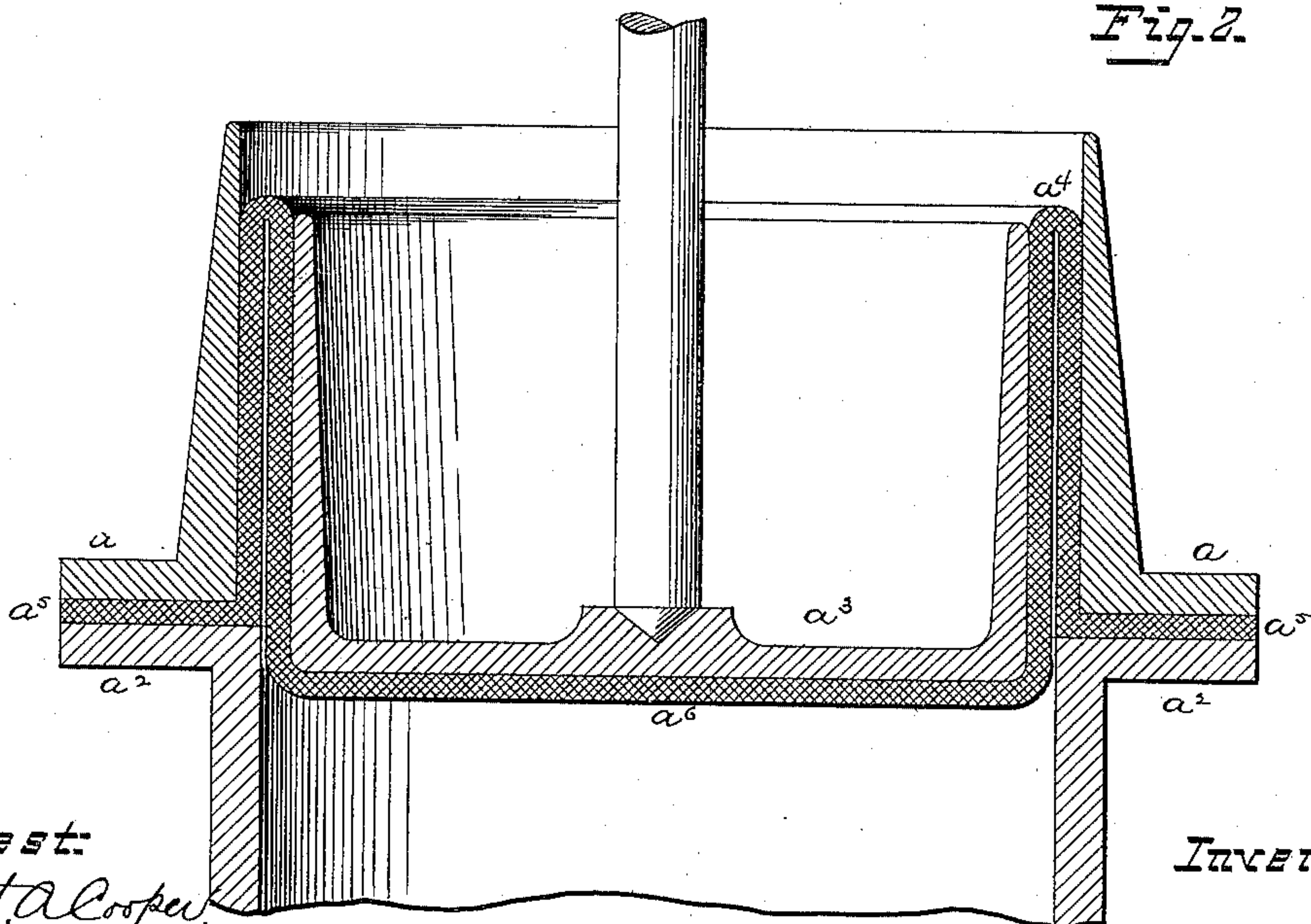
DIAPHRAGM FOR PRESSURE REGULATORS.

No. 335,033.

Patented Jan. 26, 1886.



*Fig. 1.*



*Fig. 2.*

*Attest:*

*Count A. Cooper*  
*R. D. Smith*

*Inventor:*

*Nathaniel C. Locke*

# UNITED STATES PATENT OFFICE.

NATHANIEL C. LOCKE, OF SALEM, MASSACHUSETTS.

## DIAPHRAGM FOR PRESSURE-REGULATORS.

SPECIFICATION forming part of Letters Patent No. 335,033, dated January 26, 1886.

Application filed December 17, 1885. Serial No. 185,918. (No model.)

*To all whom it may concern:*

Be it known that I, NATHANIEL C. LOCKE, a citizen of the United States, residing at Salem, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Diaphragms for Pressure-Regulators, of which the following is a specification.

These diaphragms, shown and described in my application No. 92,755, have the extended edge or margin clasped between flanges and the central part inverted so as to form a deep annular corrugation or fold. Heretofore these diaphragms have been made in the form of a plane cylinder with one end closed and a laterally-extended flange around the open end. The closed end being inverted and forced into the open end, necessitates its reduction to the diameter of the interior of that portion into which it is forced, causing a puckering and crowding which sometimes prevents its free and easy action in use. It will be observed that any heavy rubber fabric containing layers of cloth cannot be forced from its natural shape and form without more or less straining the canvas, and especially would this be the case when subjected to severe pressure.

The object of my invention is to prevent this

wrinkling and provide a diaphragm that shall allow the piston to move with more freedom when under great pressure; and it consists in forming its upper and inner part smaller than the lower and outer portion.

Figures 1 and 2 are vertical sections.

In Fig. 1 is shown a diaphragm as it comes from the molds, having its upper portion contracted, as shown at  $a^4$ , to nearly the diameter of the interior of the base.

Fig. 2 shows the diaphragm in working position, with laterally-extended edge  $a^5$  clasped between flanges  $a$  and  $a^2$ , having piston  $a^3$ , located within the upper portion,  $a^6$ , which is made to occupy the interior of the lower portion from  $a^4$  to the base.

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

A diaphragm constructed substantially as herein shown and described, having that portion from  $a^4$  to  $a^6$  made smaller in diameter than the base portion and adapted to be folded in upon itself, as shown.

NATHANIEL C. LOCKE.

Witnesses:

R. D. O. SMITH,  
M. P. CALLAN.