

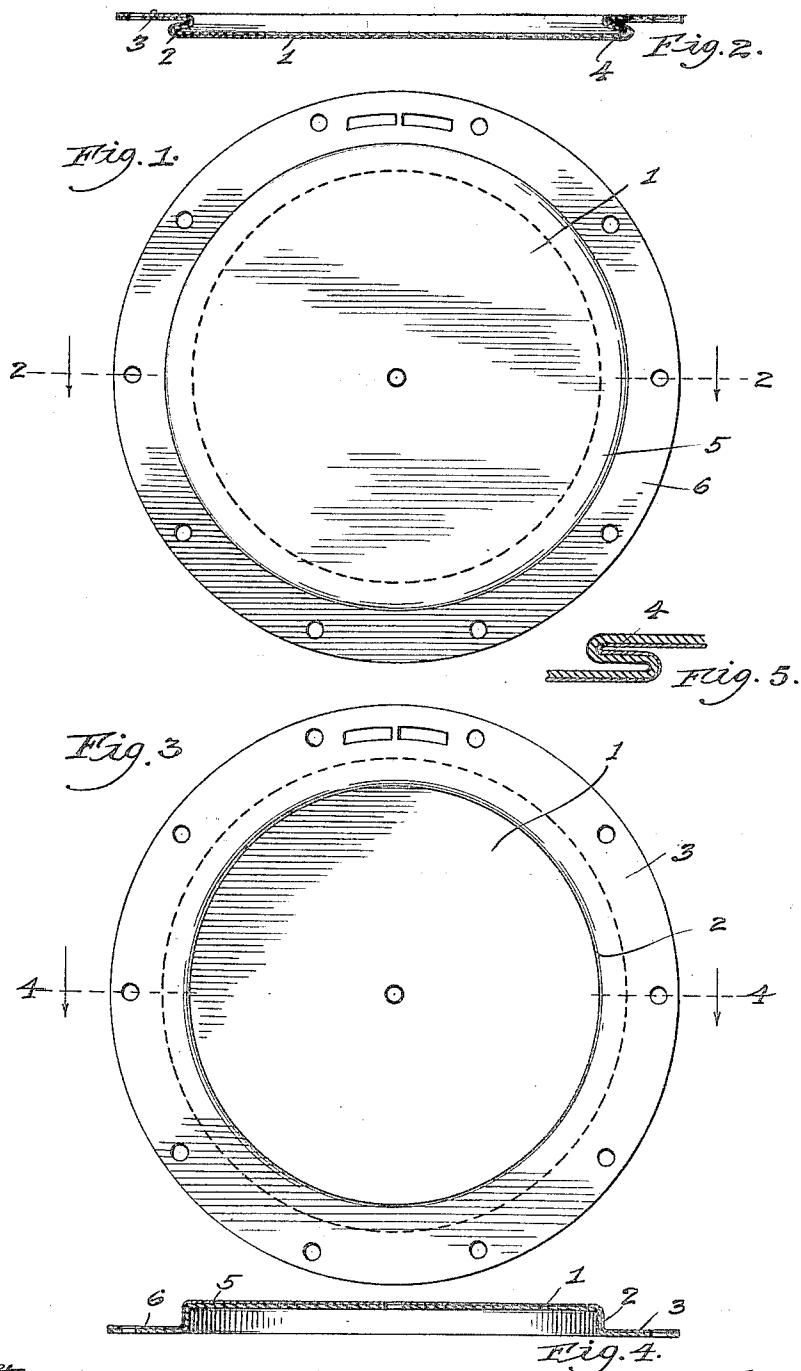
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C. P. DUBBS

GAS DIAPHRAGM

Original Filed July 22, 1918



Witness,
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UNITED STATES PATENT OFFICE.

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GAS DIAPHRAGM.

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To all whom it may concern:

Be it known that I, CARBON P. DUBBS, a citizen of the United States, residing in the city of Wilmette, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Gas Diaphragms, of which the following is a specification.

This invention relates to improvements in gas diaphragms and has for its salient object, to provide a construction which is peculiarly adapted for the measuring of wet gases or gases containing oil such as the gasoline content of natural gas. The diaphragms of measuring instruments, such as gas meters, are ordinarily made out of a suitable fabric or skin such as leather; which leather must be sufficiently flexible to respond readily to the action of the gas and at the same time the leather which forms the diaphragm must be sufficiently dense to prevent the gas from passing through it. The leather is made sufficiently flexible by being saturated or impregnated in the oil, preferably a heavy oil, such as linseed oil or a mixture of oils. This oil not only makes the leather flexible, but adds to its imperviousness by filling the pores of the leather.

When, however, this treated diaphragm is subjected to the action of an oil-containing gas, such as a natural gas containing gasoline, the action of the oil in the gas is such as to dissolve more or less of the oil or other substance that the leather is treated with to make it flexible and dense. As this substance is more or less dissolved, the leather loses its density and also loses its flexibility and will not properly perform its function.

I have discovered that a suitable diaphragm can be made for this purpose by covering the face of the diaphragm which is exposed to the gas with a suitable oil proof skin such for example as gut-skin or

gold-beater's skin or similar material. A fine oil proof skin of suitable character must be used.

In the drawings:

Fig. 1 is a side elevation showing one face of the diaphragm.

Fig. 2 is a horizontal sectional view taken on line 2—2 of Fig. 1 and looking in the direction of the arrows.

Fig. 3 is an elevation of the opposite side of the diaphragm.

Fig. 4 is a horizontal sectional view taken on line 4—4 but showing the diaphragm in distended position.

Fig. 5 is a large detail sectional view showing the fold of the diaphragm collapsed.

Referring to the drawings, 1 designates the body of the diaphragm having a flanged portion 2 and a rim portion 3. The flanged portion 2 is adapted to fold upon itself as shown at 4 in Figs. 2 and 5 when the diaphragm is in its collapsed position. When the diaphragm is in its distended position it takes the shape shown in Fig. 4. On the face of the diaphragm which is exposed to the gas, is suitably secured a gut-skin cover 5. This gut-skin cover 5 may be affixed to the rim of the diaphragm as shown at 6 by shellac or other suitable material.

In its broader aspects the invention is not limited to the particular details of use shown.

I claim as my invention:

A diaphragm for gas meters comprising a non-metallic body portion impregnated with oil to give it flexibility and a gold-beater's skin impervious to the oil extending over the face of the body portion which is subjected to a gas containing an oil solvent and adapted to prevent the oil solvent contained in the gas from reaching the oil contained in the body portion.

CARBON P. DUBBS.