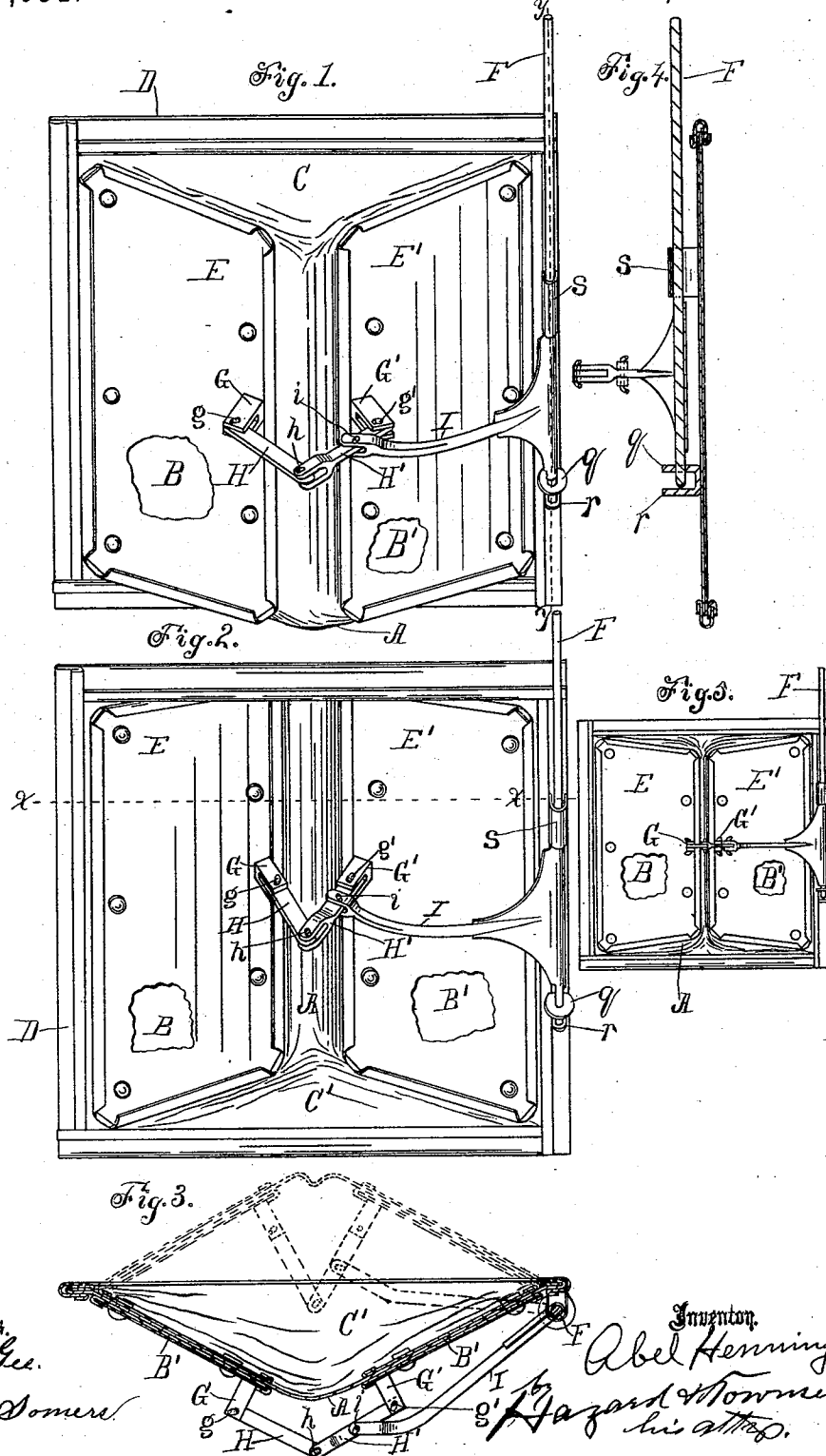


(No Model.)

A. HENNING.
DIAPHRAGM FOR GAS METERS.

No. 487,051.

Patented Nov. 29, 1892.



Witnesses.
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UNITED STATES PATENT OFFICE.

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DIAPHRAGM FOR GAS-METERS.

SPECIFICATION forming part of Letters Patent No. 487,051, dated November 29, 1892.

Application filed February 12, 1892. Serial No. 421,232. (No model.)

To all whom it may concern:

Be it known that I, ABEL HENNING, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Improvement in Diaphragms for Gas-Meters, of which the following is a specification.

My invention relates more especially to that class of meters known as "three-diaphragm dry meters."

The object of my invention is to reduce the number of parts and simplify the operative mechanism of the diaphragms employed in such meters, and also provide a more durable diaphragm which will displace a greater amount of gas than those heretofore in use without increasing the size of the meter.

The accompanying drawings illustrate my invention.

Figure 1 is a perspective front and top view of one of my improved diaphragms when forced outward. Fig. 2 is a perspective view of the same when forced inward. Fig. 3 is a transverse section on line indicated by $x x$, Fig. 2, looking down and showing in dotted lines the position of parts indicated in Fig. 2 and showing in full lines the position of parts shown in Fig. 1. Fig. 4 is vertical section on line $y y$, Fig. 1. Fig. 5 is a plain front view with the diaphragm midway of its movement.

My invention relates more particularly to the form into which the leather is blocked and to the form and arrangement of the vibrating plates of the diaphragms and to the mechanism which communicates the motion of the diaphragm to the flag-wire.

My invention consists in the combination of the diaphragm-frame D, the leather A, blocked into shape, with two quadrangular faces B B' and two triangular ends C C', the quadrangular stiffening-plates E E', and suitable intermediate mechanism connecting the stiffening-plates with the flag-wire F. Such means for connecting the stiffening-plates with the flag-wire consist of the combination of the two posts G G', fixed, respectively, to the stiffening-plates, the toggle-bars H H', pivoted to each other and to their respective posts, and the flag-wire arm I, fixed to the flag-wire at one end and pivoted to the toggle-bar H' approximately midway between the pivots which

secure the said bar, respectively, to its post and to the other toggle-bar. In the drawings the pivots arranged to pivot the parts together are indicated by the letters g, g', h , and i . The leather is secured to the frame D in the ordinary way, and the several diaphragms are mounted within the meter in the same manner as those heretofore in use. In operation, however, the diaphragm passes a much larger quantity of gas at each stroke than is possible with diaphragms of the old style of equal size.

The term "leather" as used herein is applied in its technical sense to indicate the flexible wall of the diaphragm and is not intended to limit the structure to one in which such wall is of leather. Leather is believed to be the best material for the purpose.

The devices employed by me for journaling the flag-wire in position consist of the combination of the frame, the upper fastening s , which is of the ordinary form, secured to the frame, the perforated arm q , secured to the frame below such fastening, the pivot-plate r , arranged beneath the arm, and the flag-wire, of pivot form, at its lower end passed through the upper fastening and the perforated arm q and arranged with its pivot end resting on the pivot-plate. By this contrivance I avoid some of the expense of journaling the flag-wire in the old way, and I also increase the durability of the machine, as the wear upon the flag-wire is not so great and is more easily remedied than with the old form.

In practice the diaphragm is mounted within the meter in the same way as is customary with the diaphragms of gas-meters, and the flag-wire is connected with the valve and indicating mechanism in the ordinary way, the same not being illustrated in the drawings because well known in the art and not requiring illustration. When the gas is turned on and allowed to pass through the meter, it operates the diaphragm back and forth and partially rotates the flag-wire in the same way as the gas operates the ordinary diaphragm and flag-wire in meters of this character as heretofore constructed, in which former meters the parts are either more complicated or less accurate and efficient in their operation than is the case with my invention.

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

5 The combination of the leather blocked into shape, with two quadrangular faces and two triangular ends, the quadrangular stiffening-plates, the flag-wire, the two posts fixed, respectively, to the stiffening-plates, the toggle-bars H H', pivoted to each other and to their
10 respective posts, and the flag-wire arm fixed

to the flag-wire at one end and pivoted to one of the toggle-bars approximately midway between the pivots which secure the said toggle-bar, respectively, to its post and to the other toggle-bar, and such pivots arranged to pivot 15 the parts together, as set forth.

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Witnesses:

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