

(No Model.)

4 Sheets—Sheet 1.

W. N. MILSTED,  
GAS METER.

No. 477,910.

Patented June 28, 1892.

FIG. 1.

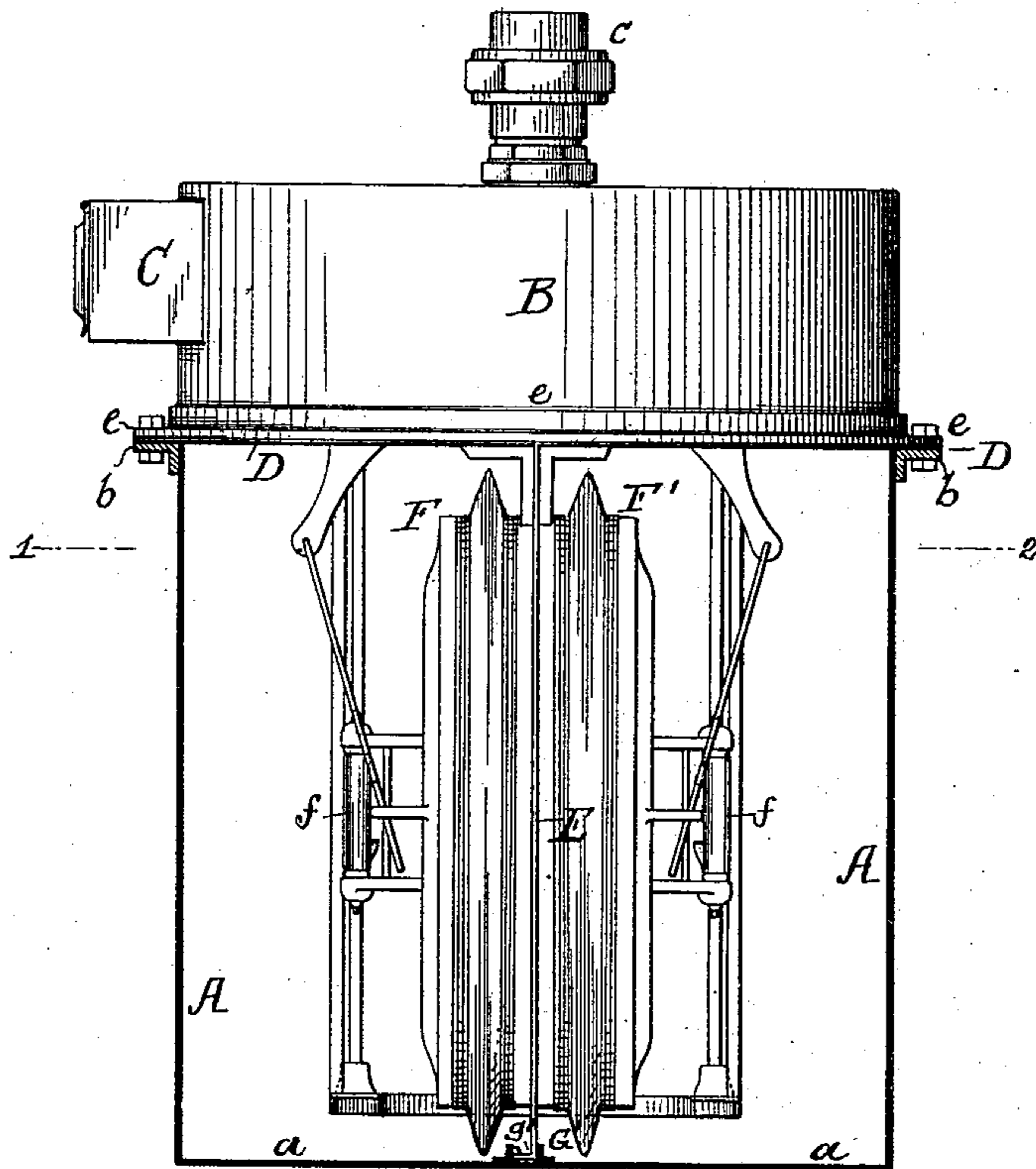
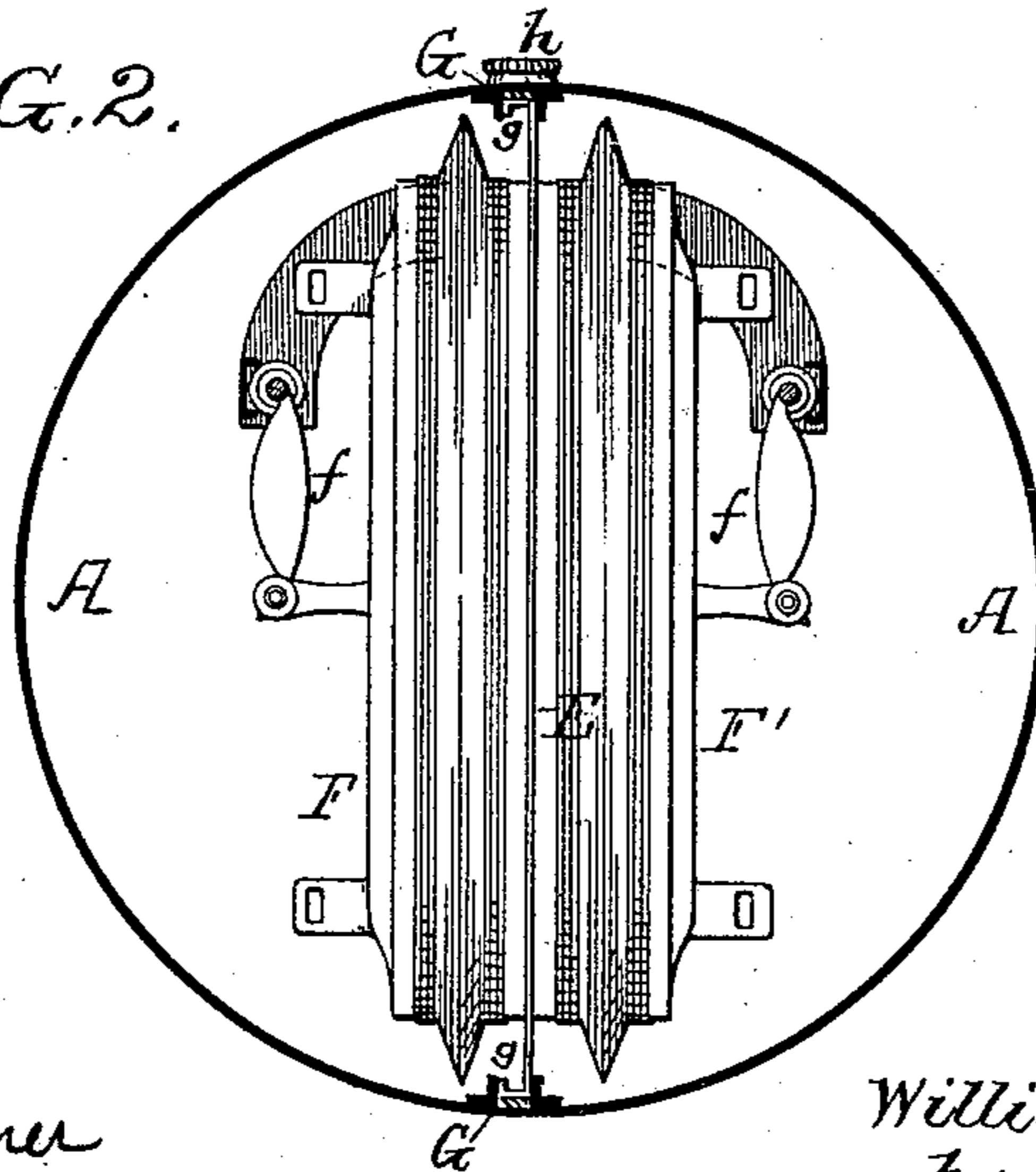


FIG. 2.



Witnesses:  
Hamilton D. Turner  
R. Schleicher.

Inventor:  
William N. Milsted  
by his Attorneys  
Howard & Howson

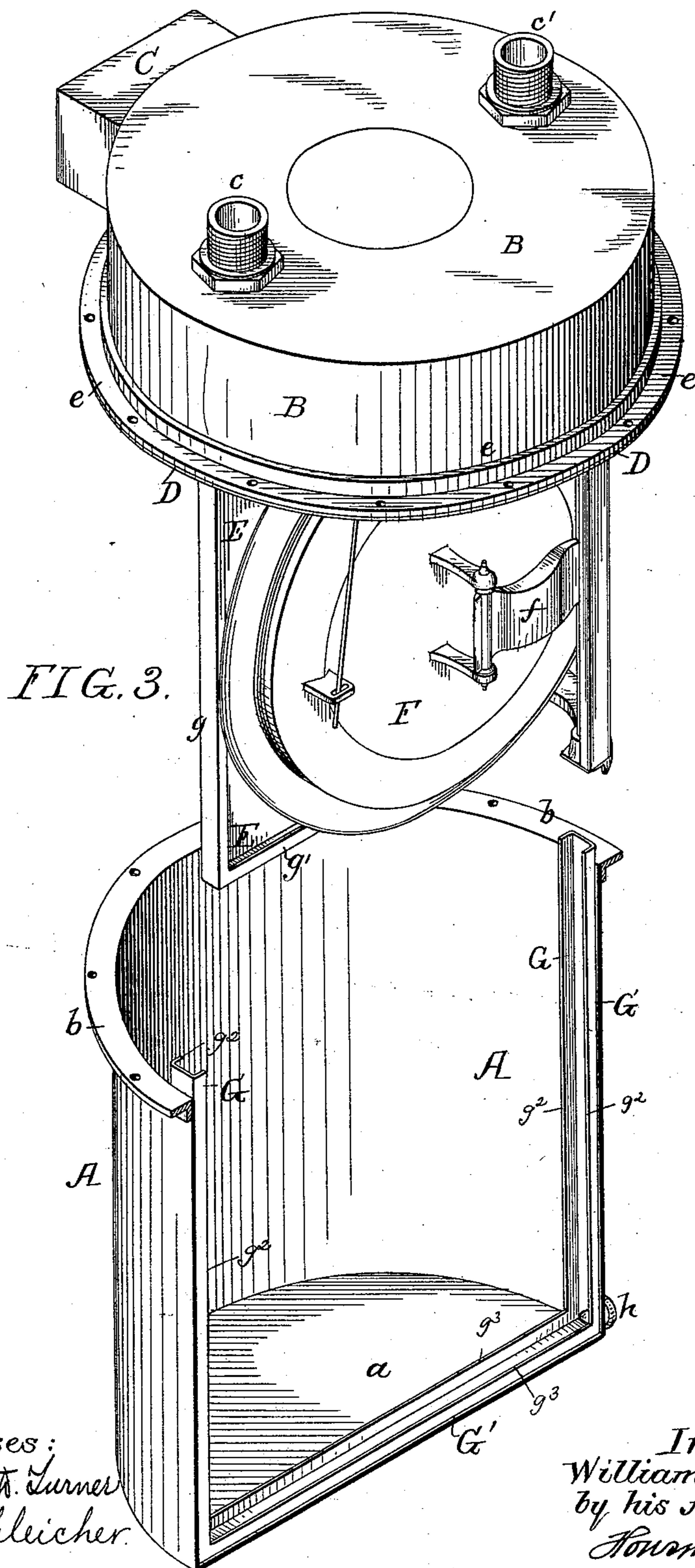
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4 Sheets—Sheet 2.

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Witnesses:  
Hamilton W. Turner  
R. Schleicher.

Inventor:  
William N. Milsted  
by his Attorneys  
Towson & Howson

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FIG. 4.

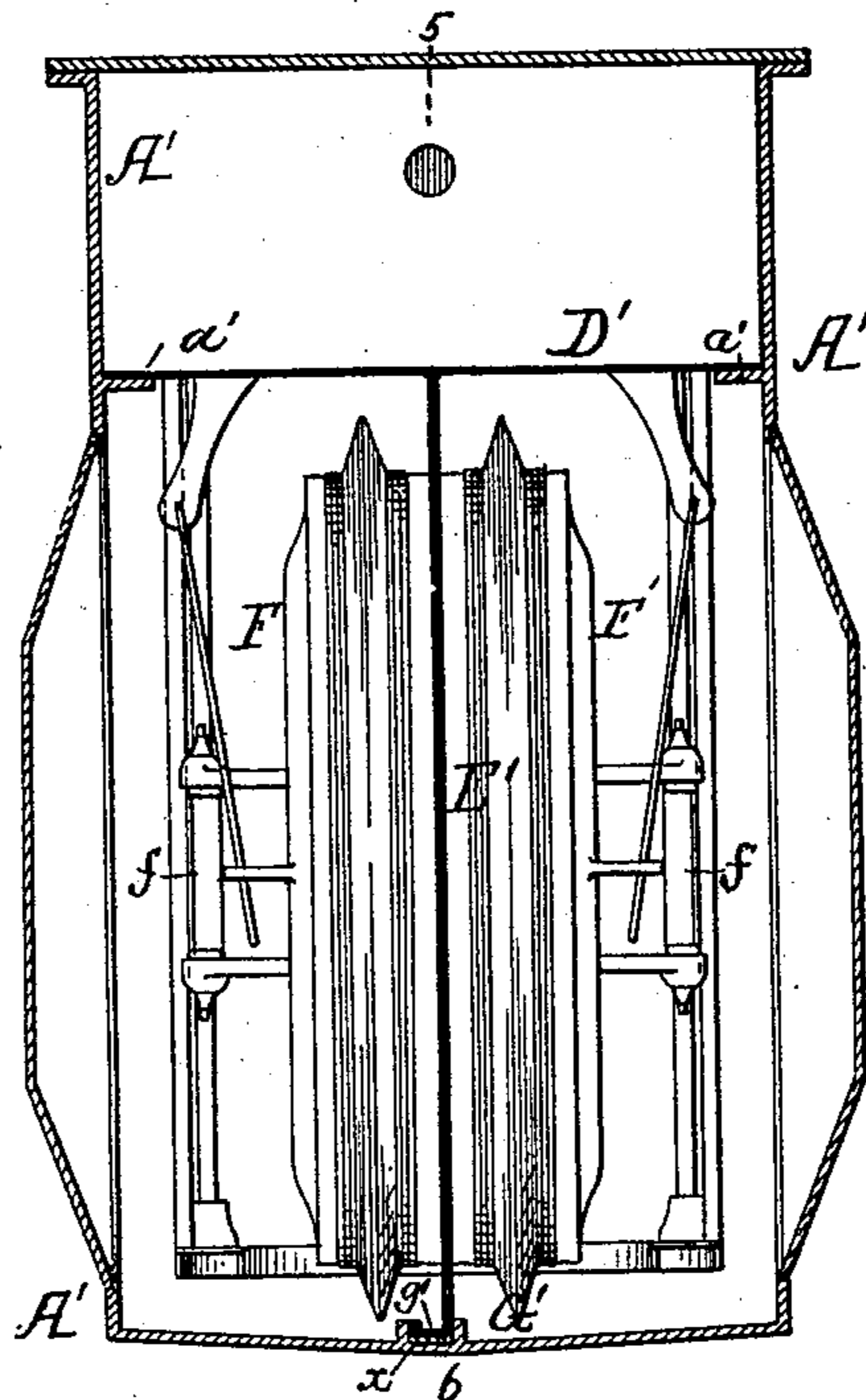
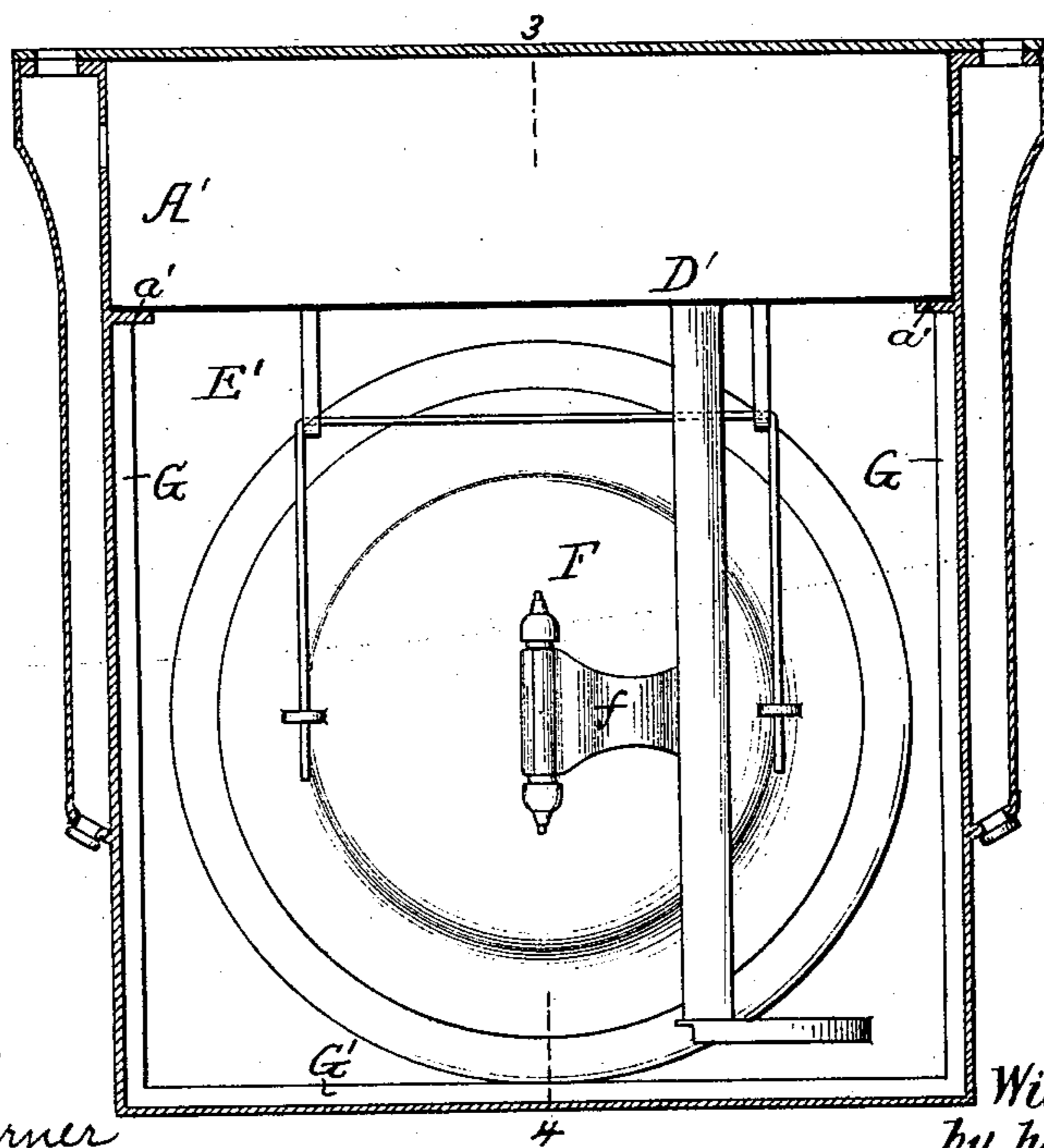


FIG. 5.



Witnesses:  
Hamilton D. Turner  
R. Schleicher.

Inventor:  
William N. Milsted  
by his Attorneys  
Horton & Horton

(No Model.)

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W. N. MILSTED.  
GAS METER.

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FIG. 6.

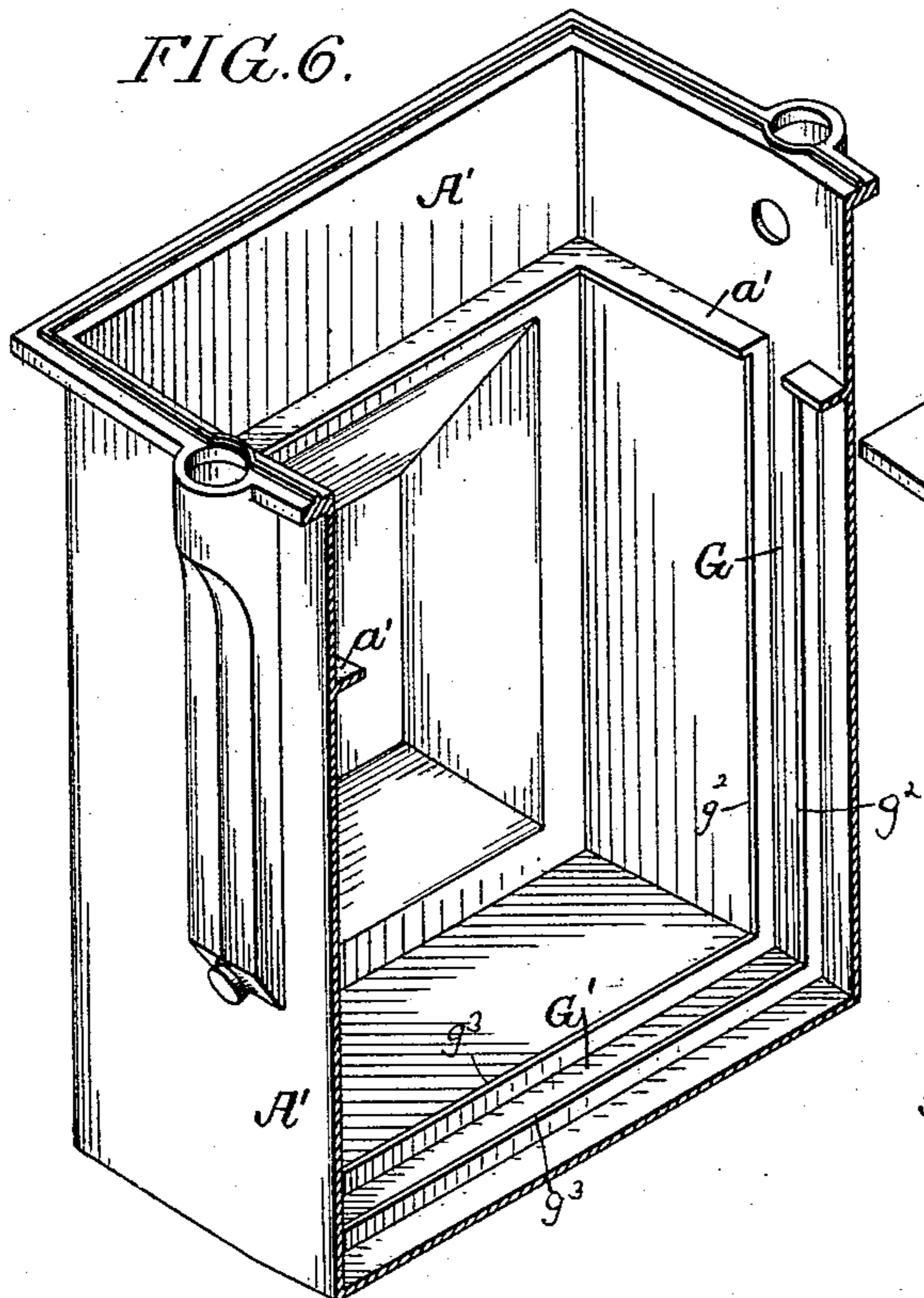


FIG. 7.

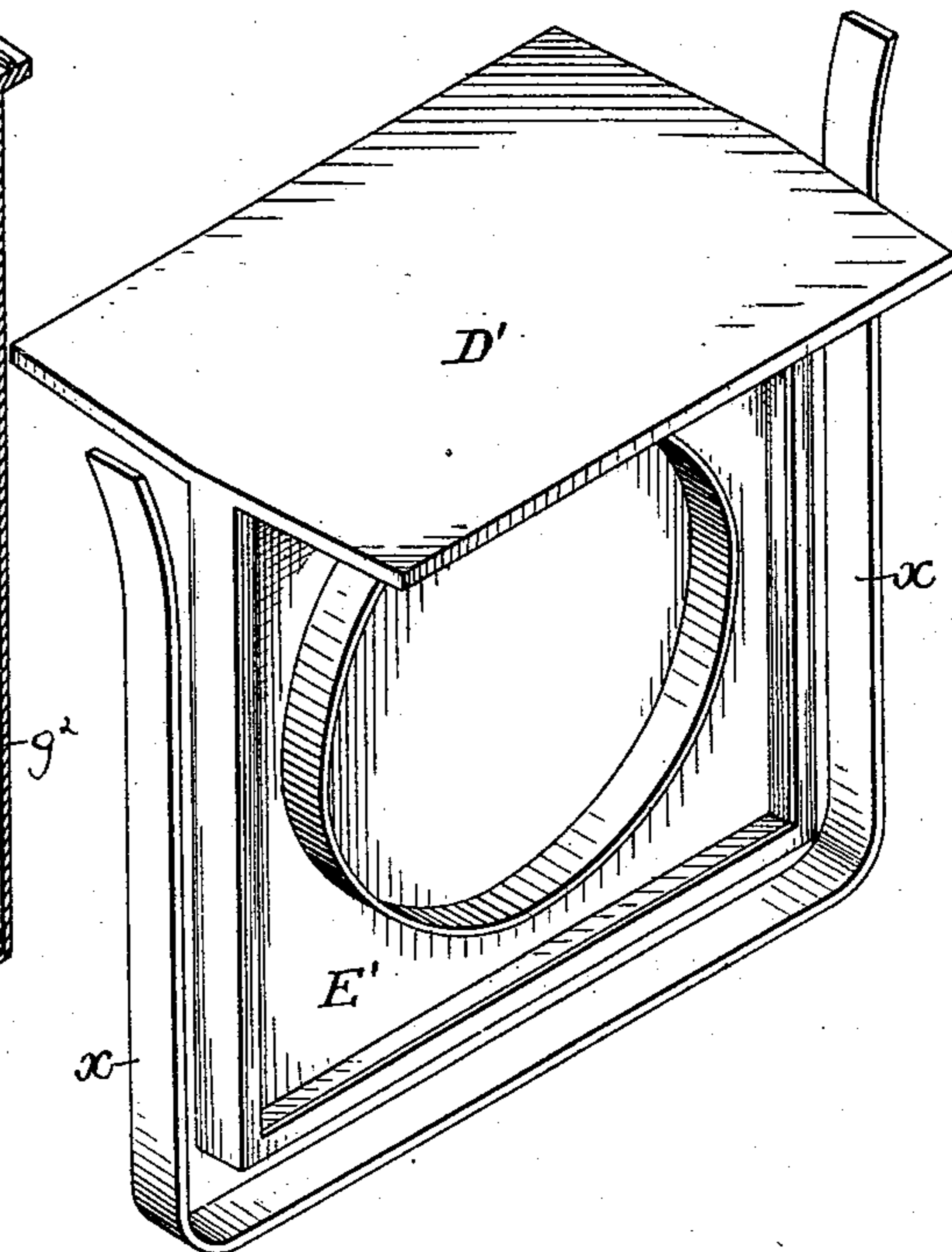


FIG. 8.

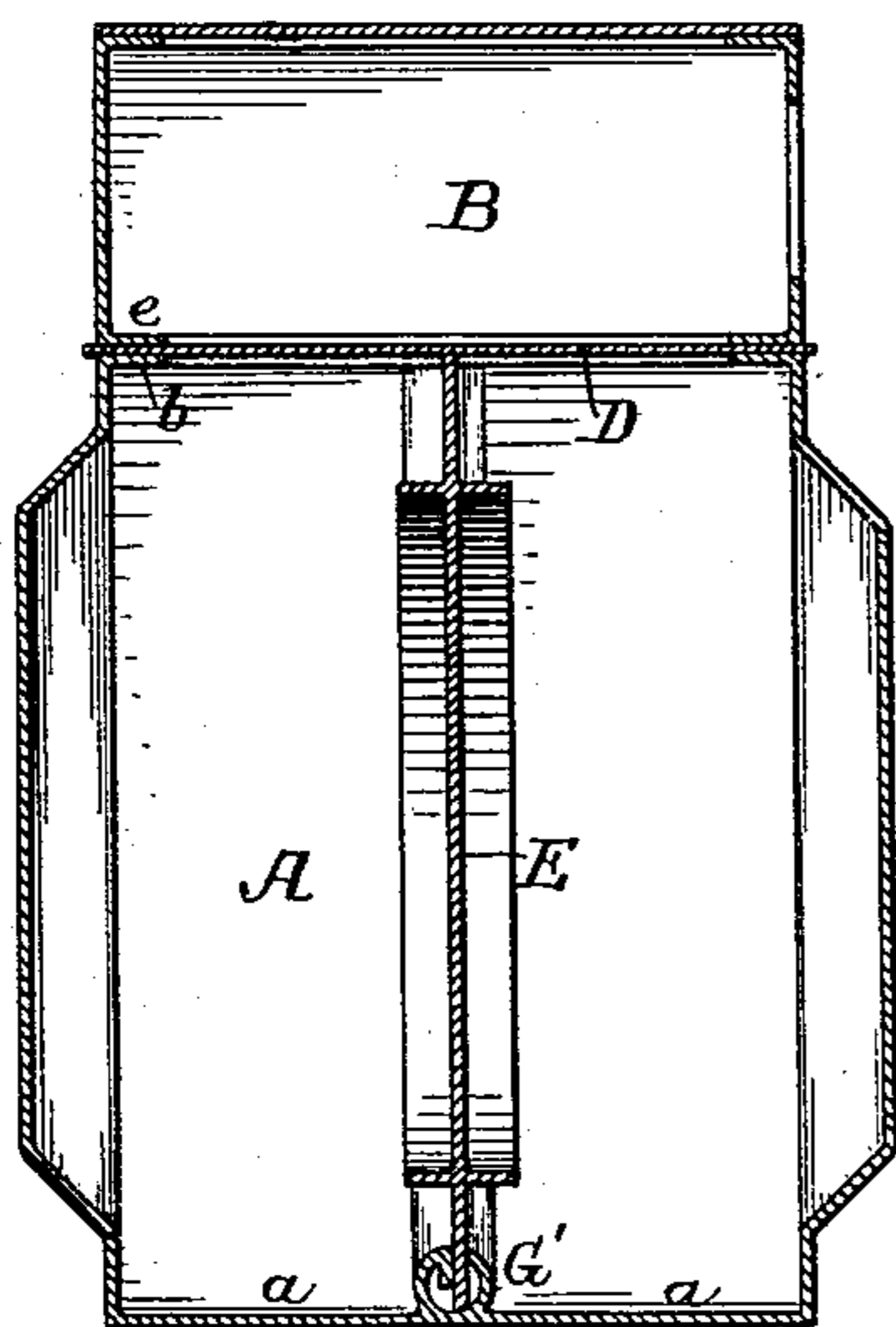
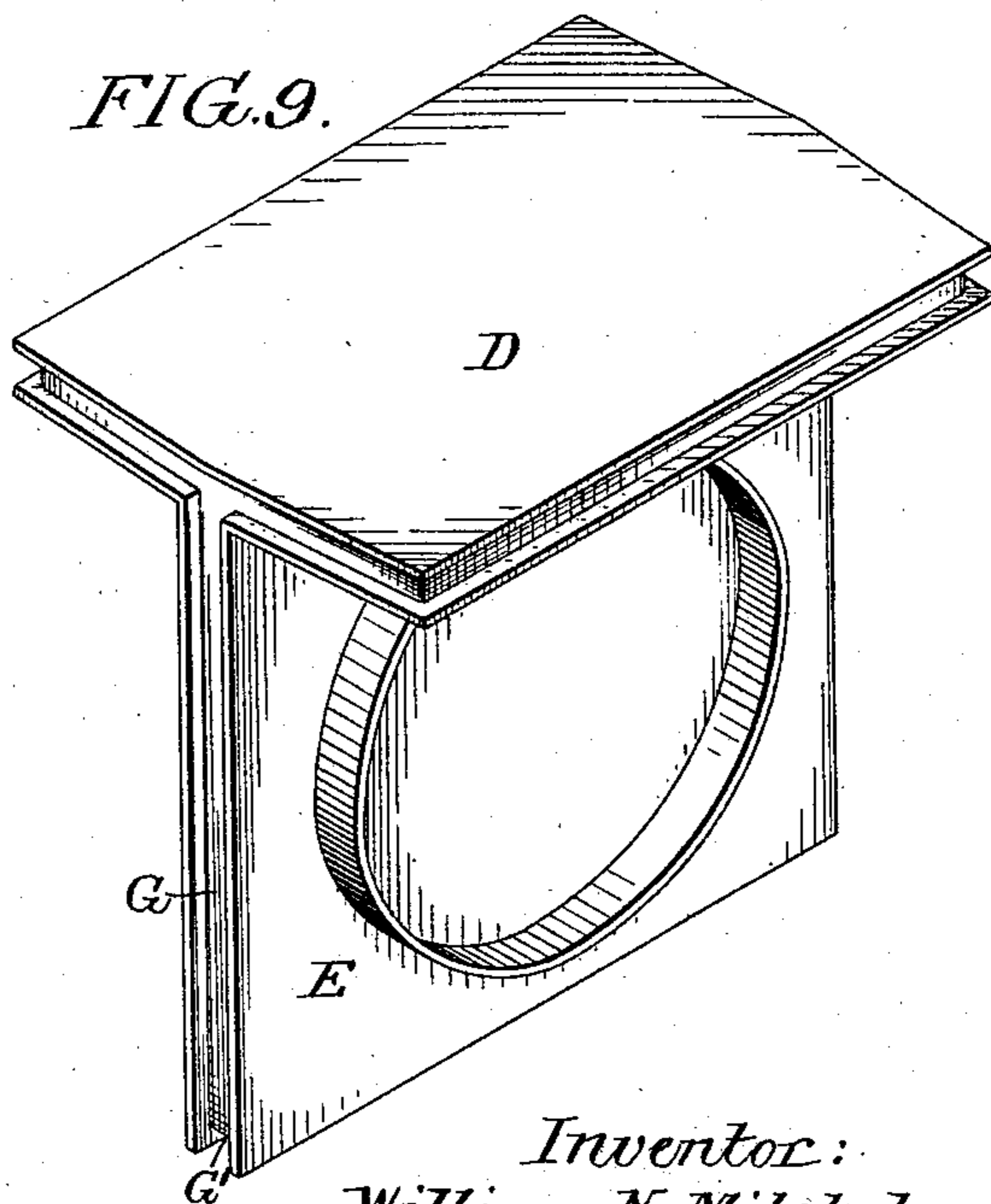


FIG. 9.



Witnesses:  
Hamilton T. Turner  
R. Schleicher.

Inventor:  
William N. Milsted  
by his Attorneys  
Howden & Howden

# UNITED STATES PATENT OFFICE.

WILLIAM N. MILSTED, OF NEW YORK, N. Y.

## GAS-METER.

SPECIFICATION forming part of Letters Patent No. 477,910, dated June 28, 1892.

Application filed January 15, 1892. Serial No. 418,140. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM N. MILSTED, a citizen of the United States, and a resident of New York city, New York, have invented certain Improvements in Gas-Meters, of which the following is a specification.

The object of my invention is to construct a gas-meter in such a manner as to dispense with the great number of joints in the case necessary in the meter as at present constructed and to dispense with the meter-disk or bottom plate.

The present invention is based upon the patent granted to me on the 17th day of June, 1890, No. 430,431.

In the accompanying drawings, Figure 1 is a side view, partly in section, of my improved gas-meter. Fig. 2 is a plan view on the line 1 2, Fig. 1. Fig. 3 is a detached perspective view of the meter, showing the casing in section. Fig. 4 is a transverse sectional elevation on the line 3 4, Fig. 5, of a quadrangular meter to which my invention is adapted. Fig. 5 is a sectional elevation on the line 5 6, Fig. 4. Fig. 6 is a sectional perspective view of the casing of the meter illustrated in Fig. 4. Fig. 7 is a perspective view of the partition-plate. Fig. 8 is a view of a meter having internal flanges in place of the external flanges shown in Fig. 1, and Fig. 9 is a view showing channels on the partition-plate.

Referring to Figs. 1 and 2, A is the casing of the meter, having a bottom plate *a* and a flange *b* at its upper end, this flange being either made a part of the casing or attached thereto in any suitable manner.

B is the cap, and is of sufficient height to contain the valve mechanism and registry mechanism, which is above the diaphragm or horizontal partition D. Mounted on this horizontal partition are the usual valves for governing the flow of gas into the measuring-chambers and are connected in any suitable manner to the indicator mechanism. Projecting through the cap are the inlet and outlet pipes *c c'* for the gas, and projecting at one side of the cap is the box C, in which are contained the indicator-dials and indicator mechanism. The cap B has a flange *e* at its base, preferably the same width as the flange *b* of the casing A, and extending between these two flanges is the diaphragm or horizontal

partition-plate D. The two flanges and plate are secured together by suitable bolts, as clearly shown in Fig. 1, and gaskets may be placed between the plate and the flanges in order to make the joint gas-proof. The flanges on the casing and cap may be internal flanges, as shown in Fig. 8, and the diaphragm D may extend beyond the casing and cap, so that a simple solder-joint may be made, if found necessary.

Depending from the horizontal partition-plate D is the vertical partition-plate E, which divides the meter-casing A into two parts, as clearly shown in Fig. 1, and mounted on this partition-plate E are the two bellows F F', the movable portion of each bellows being carried by hinged frames *ff* and are connected to the valve mechanism in the ordinary manner.

As my invention does not relate to the construction of the bellows and the valve mechanism, I will not describe these parts in detail, but merely show them in order to illustrate a complete meter.

On the two vertical edges *g g*, as well as on the lower edge *g'*, are flanges, made as clearly shown in Figs. 1 and 2. On the meter-casing are vertical strips *g<sup>2</sup> g<sup>2</sup>*, forming channels G, into which fit the flanged edges *g g* of the partition-plate, and on the bottom of the casing are strips *g<sup>3</sup>*, forming a channel-way G', in which rests the lower flanged edge *g'* of the partition-plate. Strip-packing *x*, Fig. 7, is introduced between the edge of the partition and the base of the channels, thus making a gas-proof joint between the casing and the partition without the use of solder when the parts are put together. While I prefer to use a single strip of packing extending on both sides and on the bottom of the partition, as shown in Fig. 7, separate pieces may be used, and the channel may in some instances be formed as shown in Fig. 8 and packed with loose packing. In order to pack the lower crossway G' when separate packing is used, I provide an opening in the casing in line with said crossway and close it with a suitable screw or other cap *h*, so that on removing this screw-cap after the partition has been inserted into the crossway the said crossway can be readily packed from the outside of the meter. The vertical ways G may be packed

after the partitions E and D are in position through small holes in the partition D at each side of the partition E, these holes being suitably capped after the packing has been introduced.

As shown in Fig. 8, I turn one edge of the table G, forming the way, so as to give a firm bearing for the partition E. It will be understood that many other forms of channels may be used without departing from my invention.

The above-described meter has in most instances a sheet-metal case, and when the meter is in a cast-metal case I prefer to make the parts as shown in Figs. 4 to 7, the casing A' having a flange a', on which rests the transverse partition D', the vertical partition E' depending from the horizontal partition in the same manner as shown in Fig. 1. The flange a' is situated some distance below the upper edge of the case, as the case is constructed to contain not only the measuring mechanism, but also the registering mechanism situated above the partition D'. In some instances the channel may be on the partition E, as shown in Fig. 9. The packing may be secured in the channel before the partition-section is applied to the case, and a packing-channel may be made around the edge of the partition D, as shown in said figure. In this instance the casing may have a plain interior free from flanges.

I claim as my invention—

1. The combination, in a gas-meter, of the casing, a vertical partition separating the casing into two chambers, a horizontal partition separating the registering-chamber from the measuring-chambers, a channel between the vertical edges of the vertical partition and the casing, a channel between the bottom of the said partition and the bottom of the casing, and packing in said channel, with packing between the horizontal partition-plate and the casing, substantially as described.

2. The combination, in a gas-meter, of a metal casing having on its inner side vertical channels for the reception of the edges of the partition-plate and at the base a horizontal channel for the reception of the lower edge of the partition-plate and having two interior horizontal shelves or flanges a' on the same horizontal plane on opposite sides from and facing each other and connected at their ends

with the tops of the vertical flanges constituting the above-described channels, and a vertical partition-plate carrying the bellows and separating the casing below the plane of the above-described flanges into two parts, with packing introduced into the channels, forming a gas-proof joint at the junction of the casing and partition-plate, substantially as described.

3. The combination, in a gas-meter, of the casing A, having a flange b at its upper edge, vertical channels G G opposite each other on the inner side of the casing, a horizontal channel G' on the bottom of the casing, a horizontal partition-plate D, and a vertical partition-plate E, adapted to the channels in the casing, with packing introduced in said channels and under and over the edges of said horizontal partition-plate, substantially as described.

4. The combination, in a gas-meter, of a metal casing having on its inner side vertical channels for the reception of the edges of the partition and at the base a horizontal channel for the reception of the lower edge of the partition-plate and having two interior horizontal shelves or flanges a' on the same horizontal plane on opposite sides from and facing each other and connected at their ends with the tops of the vertical flanges constituting the above-described channels, a horizontal partition-plate, a vertical partition-plate depending therefrom and adapted to the channels in the sides and bottom of the casing, and packing introduced in said channels and between said horizontal partition-plate and the horizontal shelves or flanges, substantially as described.

5. The combination of the casing A, channels on the inner side of the casing and on the bottom of the casing, with a vertical partition-plate adapted to the channels, packing in said channels, forming a gas-tight joint between the partition and the casing, with an opening in line with the bottom channel, and a cap for said opening, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM N. MILSTED.

Witnesses:

PENROSE SEVE MILSTED,  
JNO. E. PARKER.