M. MARTIN.

FLUID GAGE.

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912,393.

Patented Feb. 16, 1909.

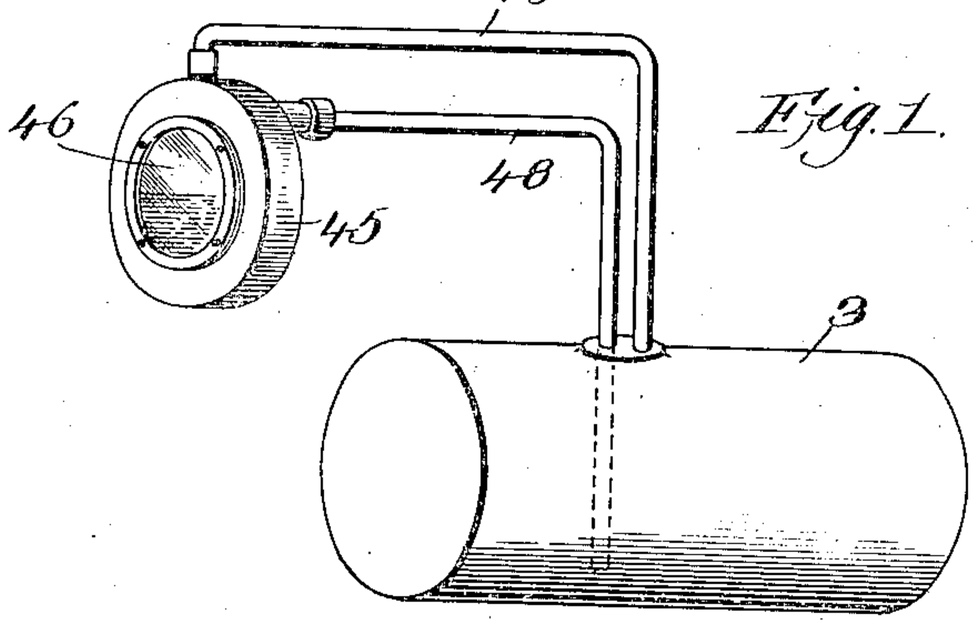

Fig. 1.

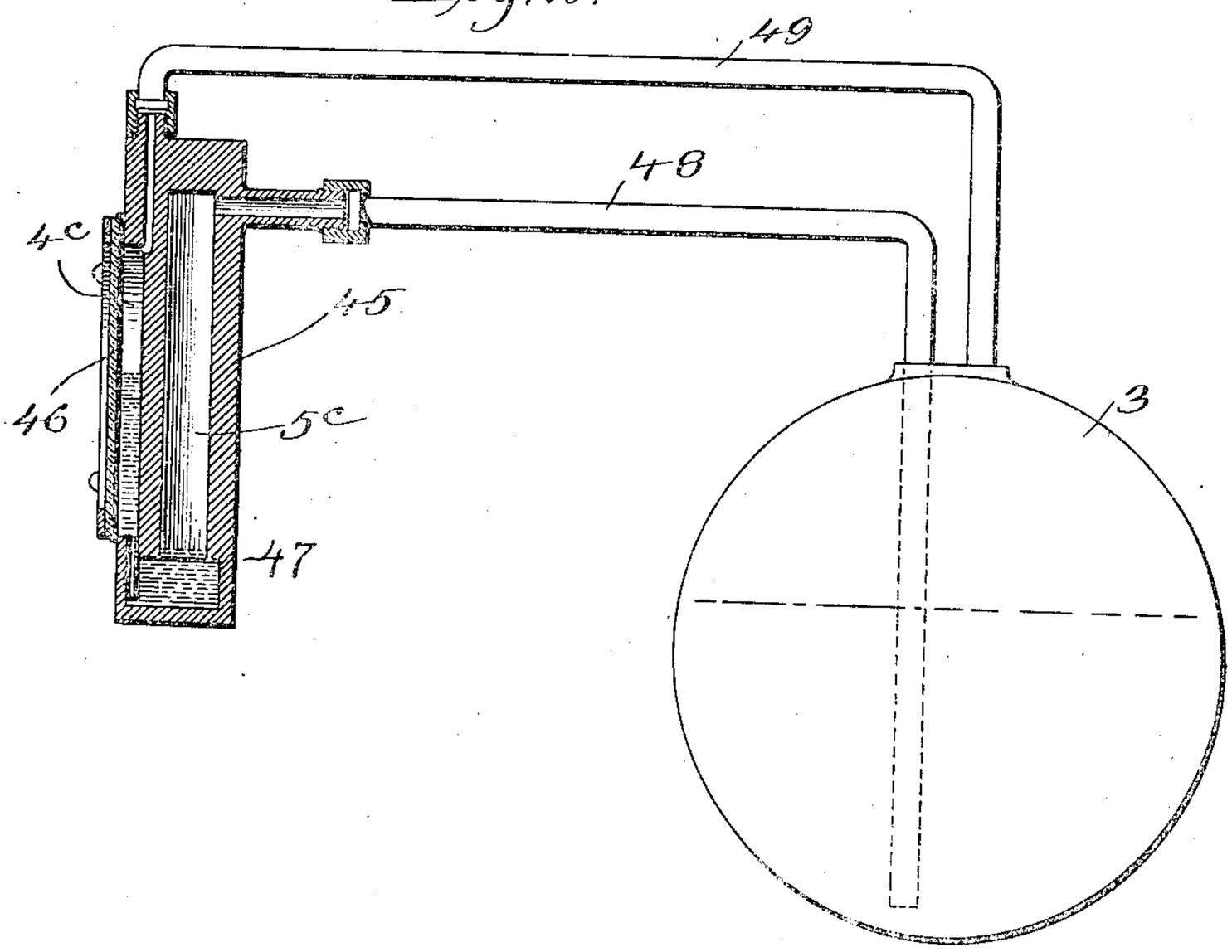

Fig. 2.

Witnesses.
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UNITED STATES PATENT OFFICE.

MORRIS MARTIN, OF MALDEN, MASSACHUSETTS, ASSIGNOR TO BOSTON AUTO GAGE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

FLUID-GAGE.

No. 912,393. Specification of Letters Patent. Patented Feb. 16, 1909.

Application filed December 30, 1904. Serial No. 238,870.

To all whom it may concern:

Be it known that I, MORRIS MARTIN, a citizen of the United States, residing at Malden, county of Middlesex, and State of Massachusetts, have invented an Improvement in Fluid-Gages, of which the following description, in connection with the accompanying drawing, is a specification, like numerals on the drawings representing like parts.

This invention relates to that class of fluid gages which comprise a gage having two connected compartments adapted to contain a tell-tale fluid, one of which compartments is exposed to view, and a pipe or conduit connecting each compartment with the tank which contains the fluid to be gaged, one of said conduits extending nearly to the bottom of the tank.

My improvement consists in giving to the indicating compartment of the gage a vertical cross-sectional shape similar to the vertical cross-sectional shape of the tank, so that the face of the gage constitutes in effect a miniature tank similar in shape to the tank containing the fluid to be gaged. The result of this is that a glance at the gage will show exactly the position of the fluid in the tank.

Referring to the drawings, Figure 1 is a perspective view showing one embodiment of my invention; and Fig. 2 is a vertical section of the gage shown in Fig. 1.

3 designates a tank to contain the fluid to be gaged, and in the drawing said tank is shown as a cylindrical tank. The gage 45 is formed with one compartment 5^c which connects with the tank 3 by means of a conduit 48, and another compartment 4^c which may connect with the tank by a conduit 49. The compartments 4^c and 5^c communicate with each other, and they are adapted to contain some suitable tell-tale fluid 47. The compartment 4^c is made with a transparent face 46 of isinglass or other suitable material so that the tell-tale fluid within said compartment may be visible. This chamber 4^c is shaped to have a vertical cross-sectional shape similar to that of the tank. In the present embodiment of the invention wherein the tank is circular in vertical cross-section the compartment 4^c will also be circular in vertical cross-section.

The conduit 48 extends nearly to the bottom of the tank so that as soon as the tank begins to fill the lower end of said conduit is sealed. As the level of the fluid in the tank continues to rise the air which is trapped in the lower end of conduit 48 is compressed and the pressure transmitted to the tell-tale fluid 47 in the compartment 5^c with the result that the fluid is forced out of said compartment into the compartment 4^c. The amount of tell-tale fluid used and the connection between chambers 4^c and 5^c is such that the level of the tell-tale fluid in the compartment 4^c varies in proportion to the level of the fluid in the tank 3. In other words when the tank 3 is half full the chamber 4^c is half full, and when the tank is three-quarters full the compartment 4^c is three-quarters full. The chamber 4^c when empty contains a certain volume of air, and the part of the conduit 48 which is within the tank 3 is of such dimensions that it contains the same volume of air when said tank is empty, so that as the level of the liquid in the tank rises (in filling the tank) the air in such part of the conduit will be forced out and acts upon the air in the chamber 5^c, forcing the tell-tale liquid 47 into the chamber 4^c. When the tank is full the chamber 4^c will be full and if the tank is half full the tell-tale liquid will half fill the chamber 4^c. Suppose said chamber when empty contains five cubic inches of air, then the part of the conduit 48 within the tank 3 is made to contain five cubic inches. If the tank is very shallow, then of course the diameter of the inclosed part of the conduit is made larger, whereas should the diameter of the tank be large, requiring an increased length of the inclosed portion of the conduit, the diameter of such inclosed portion would be reduced, supposing that the cubical contents of the compartment 4^c remains constant. In actual practice the tell-tale liquid will be of a specific gravity very near that of the liquid in the tank.

The advantage of having the compartment 4^c of the same cross-sectional shape as the tank is that the said compartment becomes in effect a miniature tank, and by looking at the gage the level of the fluid in the tank can be ascertained just as if the tank had a transparent end, and the observer could look into it through such end.

With this form of gage it is unnecessary to use any scales or indication marks to read the gage by.

My invention is especially adapted for use in connection with gasolene tanks for indi-

cating the amount of gasolene therein, but it will be obvious that it can be used for gaging the liquid contents of any tank.

Where the liquid in the tank is under pressure as the gasolene frequently is in gasolene tanks I employ the conduit 49 to equalize the pressure on the tell-tale fluid in the two compartments of the gage. Where no pressure is employed in the tank 3 the pipe 49 will not be necessary.

It will be noted that both the conduits 48 and 49 enter the tank 3 through the same bushing 10. By means of such construction the parts of the device may be assembled by securing both conduits to said bushing, and then afterwards screwing the bushing into the tank.

Various changes in the construction of the device may be made without departing from the invention.

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

1. In a device of the class described, a fluid-containing tank, two connected compartments to contain a tell-tale fluid, one of said compartments being exposed to view and having a vertical cross-sectional shape of the same contour as that of the tank, and means whereby the level of the fluid in said latter compartment is varied proportionately to the varying of the level of the fluid in the tank.

2. In a device of the class described, a tank to contain a fluid, two connected compartments to contain a tell-tale fluid, one of said compartments being exposed to view and having a vertical cross-sectional shape of the same contour as that of the tank, a conduit connecting each of said compartments with the tank, one of said conduits extending into the tank and terminating near the bottom thereof.

3. In a device of the class described, a tank to contain a fluid, said tank being circular in vertical cross-section, a gage comprising two connected compartments adapted to contain a tell-tale fluid, one of said compartments being exposed to view and being circular in vertical cross-section, and a conduit connecting each compartment to said tank, one conduit extending into and nearly to the bottom of the tank.

4. In a device of the class described, a fluid-containing tank, two connected compartments to contain a tell-tale fluid, a conduit connecting each of said compartments to said tank, one of said compartments being exposed to view and having a vertical cross sectional shape similar to that of the tank and having its lower end situated sufficiently above that of the other compartment so that when the tank is empty said exposed compartment is also empty.

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

MORRIS MARTIN.

Witnesses:
LOUIS C. SMITH,
GEO. W. GREGORY.