PATENT SPECIFICATION

Application Date: Oct. 31, 1921. No. 28,857/21. **192,463**

Complete Left: Dec. 21, 1921.

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PROVISIONAL SPECIFICATION.

Improvements in Liquid Level Indicators.

I, GEORGE CONSTANTINESCO, of "Carmen Sylva", Beechwood Avenue, Oatlands Park, Weybridge, in the County of Surrey, a subject of the King of Great Britain and Ireland, do hereby declare the nature of this invention to be as follows:—

The present invention relates to liquid level indicators of the type in which a gauge containing a liquid column is employed to indicate the level of liquid in a tank or other container situated at a distance from the gauge and in which the height of the liquid column in the gauge is determined by the air pressure in an air chamber in the gauge, this air chamber being connected to a pipe which is in open communication with the tank or the like at or near its bottom so that when air is compressed in the air chamber and fills the pipe in the tank the air pressure supporting the liquid column in the gauge is substantially the same as the pressure at or near the bottom of the tank or container in which the liquid level is to be measured.

It will be seen that in such apparatus, since the indication of level depends on the pressure existing at the bottom of the tank; if a liquid of specific gravity equal to that of the liquid in the tank is used in the gauge, the height of the liquid column in the gauge will be equal to the depth of the liquid in the tank and in some cases this will involve a gauge of excessive length.

The object of the present invention is to construct a gauge in which the length of the indicating scale is very small compared with the depth of the tank.

The invention consists in a liquid level indicator of the type described using mercury as the indicating liquid, the air pressure being communicated from the air chamber to the surface of the mercury surrounding the gauge tube through a pipe of small bore extending from the air chamber to a point above the level of the mercury surrounding the gauge tube.

The invention also consists in the improved liquid level indicator hereinafter described.

In carrying the invention into effect according to one example the gauge chamber which may be of the form described in the Patent Specification No. 22,733 of 1921 communicates with a pipe leading to the bottom of the tank in which it is desired to determine the liquid level. The air chamber containing the non-return diaphragm and the air pumping diaphragm is completely separated from the space surrounding the gauge tube. This is situated entirely above the gauge chamber and contains mercury into which the lower end of the gauge tube is immersed. The press button, diaphragms and other parts of the instrument may be constructed as described in the aforesaid specification. A small bore glass tube passes up through the washer at the top of the air chamber in the gauge and communicates with the space above the mercury surrounding the gauge tube so that the air pressure acts through this small bore tube on the surface of the mercury surrounding the gauge tube.

By means of the above described arrangement, mercury can be used in the gauge tube and a very short scale obtained; and by raising the mercury chamber above the level of the air chamber in the gauge, the zero of the instrument can be brought to a position in which it is readily observed.

Dated the 31st day of October, 1921.

W. GRYLLS ADAMS,
87, Victoria Street, London, S.W. 1,
Chartered Patent Agent.

[Price 1/-]

COMPLETE SPECIFICATION.

Improvements in Liquid Level Indicators.

I, GEORGE CONSTANTINESCO, of "Carmen Sylva", Beechwood Avenue, Oatlands Park, Weybridge, in the County of Surrey, a subject of the King of Great Britain and Ireland, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention relates to liquid level indicators of the type in which a gauge containing a liquid column is employed to indicate the level of liquid in a tank or other container situated at a distance from the gauge and in which the height of the liquid column in the gauge is determined by the air pressure in an air chamber in the gauge, this air chamber being connected to a pipe which is in open communication with the tank or the like at or near its bottom so that when air is compressed in the air chamber and fills the pipe communicating with the tank the air pressure supporting the liquid column in the gauge is substantially the same as the pressure at or near the bottom of the tank or container in which the liquid level is to be measured.

It will be seen that in such apparatus, since the indication of level depends on the pressure existing at the bottom of the tank, if a liquid of specific gravity equal to that of the liquid in the tank is used in the gauge, the height of the liquid column in the gauge will be equal to the depth of the liquid in the tank and in some cases this will involve a gauge of excessive length.

The object of the present invention is to construct a gauge in which the length of the indicating scale is very small compared with the depth of the tank.

The invention consists in a liquid level indicator of the type described comprising an air chamber in which air is compressed by means of a flexible diaphragm forming part of the wall of the chamber, a gauge tube dipping into mercury in a chamber immediately above the air chamber and separated therefrom by a washer, and a small bore tube passing through said washer to provide communication between the air chamber and the space above the mercury in said chamber.

The invention also consists in the improved liquid level indicator hereinafter described.

The accompanying drawing is a sectional elevation of the indicator constructed according to the invention.

In carrying the invention into effect as illustrated the gauge chamber *a* communicates through the passage *c* with a pipe leading to the bottom of the tank in which it is desired to determine the liquid level. The air chamber *a* is separated from the space surrounding the gauge tube *b* and this space contains mercury which can pass into the gauge tube through a perforation *o*. The press button, diaphragm and other parts of the instrument are constructed as described in the Patent Specification No. 22,733 of 1921. A small bore glass tube *p* is provided putting the air chamber in communication with the space above the mercury surrounding the gauge tube *b*. This space is enclosed preferably by a washer situated a short distance above the bottom of the gauge tube. It will be seen that by this arrangement mercury can be used in the gauge tube giving a very short scale and by raising the mercury chamber above the level of the air chamber the zero of the instrument can be brought to a position in which it is readily observed.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A liquid level indicator of the type described comprising an air chamber in which air is compressed by means of a flexible diaphragm forming part of the wall of the chamber, a gauge tube dipping into mercury in a chamber immediately above the air chamber and separated therefrom by a washer, and a small bore tube passing through said washer to provide communication between the air-chamber and the space above the mercury in said chamber, substantially as described.

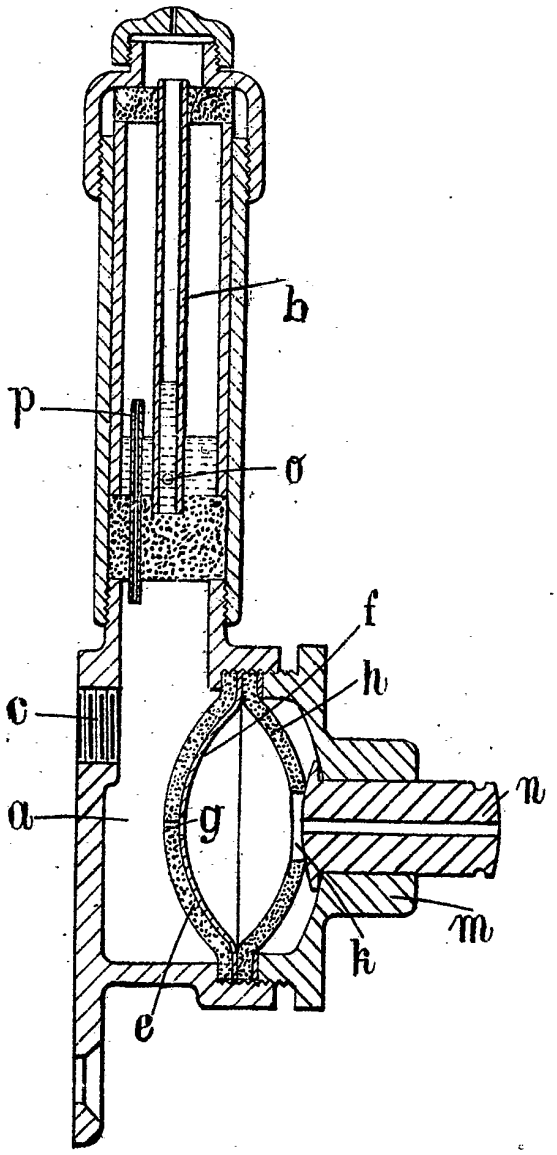
2. The improved liquid level indicator hereinbefore described and illustrated in the accompanying drawing.

Dated the 21st day of December, 1921.

W. GRYLLS ADAMS,
87, Victoria Street, London, S.W. 1,
Chartered Patent Agent.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1923.

[This Drawing is a full-size reproduction of the Original.]



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