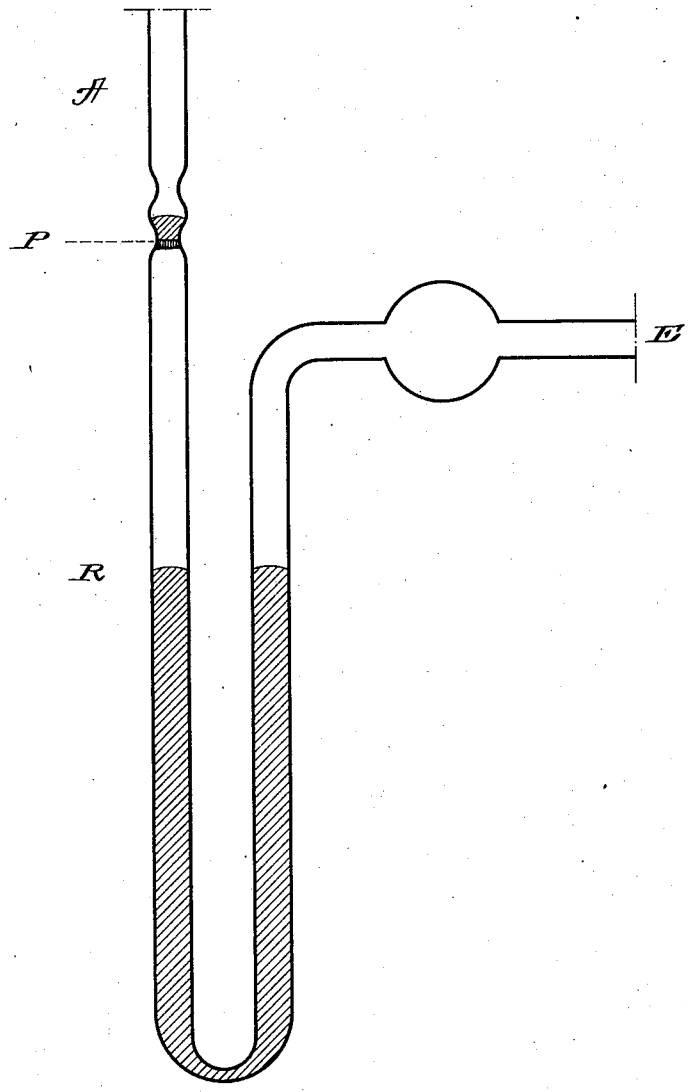
Sept. 13, 1927. 1,642,615

W. LOMMEL

MANOMETER

Filed March 26, 1924



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Patented Sept. 13, 1927. 1,642,615

UNITED STATES PATENT OFFICE.

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MANOMETER.

Application filed March 26, 1924, Serial No. 702,112, and in Germany March 26, 1923.

The present invention relates to pressure measuring devices of the mercury manometer type and more particularly to a valve construction for use with such devices.

The usual mercury manometer for indicating reduced pressures comprises an abbreviated siphon barometer having the form of a U-shaped tube containing mercury, the upper end of one leg being closed and the upper end of the other leg being adapted for connection to the pipe or chamber in which the pressure is being investigated. To obtain accurate indications from the observed difference in the height of the mercury in the two parallel legs or columns, it is essential that no air be present in the closed leg of the manometer. The previous constructions have been open to the serious objections that through repeated sudden movements of the mercury column a little air may be drawn into the closed leg. The removal of such entrapped air by tapping the apparatus, boiling or suction is a bothersome and time-consuming procedure.

An object of the invention is to provide a mercury manometer having a valve of such construction that the closed leg may be readily freed from entrapped air. A further object is to provide a mercury manometer valve of such construction that air or gas may pass through the valve in one direction, but cannot pass in the opposite direction. More specifically an object is to provide a valve for use in a pressure measuring device, the valve comprising a partition or transverse wall which is pervious to gas but not to a liquid, and a body of liquid contacting with the surface of the porous wall at the high pressure side of the valve.

These and other objects of the invention will be apparent from the following description when taken with the accompanying drawing which is a diagrammatic representation of a manometer constructed in accordance with the invention.

In the drawing, the reference character R indicates the mercury-containing tube which is of approximately U-shape. The upper end A of the normally closed end of the tube R is provided with a transverse wall P of porous material, such as unglazed porcelain, which is pervious to gas but is impervious to mercury. The other end E of the tube R may be connected to the pump, pipe or other apparatus in which the pressure conditions are to be investigated.

To place the apparatus in use mercury is poured into the tube R from the opening E until the tube is somewhat more than half full. A small quantity of mercury is then introduced through the open end A of the tube to cover the porous plate or wall P. By applying suction at the open end A, air will pass from tube R through the porous plate and mercury overlying the same. When all of the air is removed from the "closed" leg of the manometer, the suction apparatus is disconnected and the apparatus is ready for use in the usual manner. A sub-atmospheric pressure at the end E of the manometer will be indicated by a displacement of the column of mercury in the tube R.

As the plate P is impervious to mercury, even under pressure, air cannot enter the tube R through the valve. The mercury in the tube may be freed from air by boiling in the apparatus itself, the air given off in the "closed" leg being sucked off through the valve.

The exact size and shape of the mercury column are not essential features of the invention. In the preferred form of the valve, the porous plate P extends transversely across a vertical tube or passage and the sealing liquid overlies the plate. It will be apparent, however, that the sealing liquid may be used with a plate which is not horizontally arranged provided the liquid is at the high pressure side of the plate and fills the tube or passage.

I claim:

1. A device for measuring gaseous pressures comprising a bent tube enclosing a mercury column, a porous plate extending across the passage through said tube, said plate being pervious to gas and impervious to mercury, and a sealing body of mercury at the side of said plate opposite to said mercury column.

2. In a pressure measuring device of the mercury manometer type, a valve comprising porous material and a body of liquid at the high pressure side of and in contact with said porous material, said porous material being pervious to gases and impervious to liquid.

3. In a pressure measuring device of the mercury manometer type, a valve comprising

a layer of porous material and a layer of mercury thereon, said porous material being pervious to gases and impervious to mercury.

4. In a pressure measuring device of the mercury manometer type, a valve comprising a tubular member, a porous material extending across said member, and a body of mercury at the high pressure side of said porous material and contacting with the same, said porous material being pervious to gases and impervious to mercury.

In testimony whereof I hereunto set my hand.

WILHELM LOMMEL.