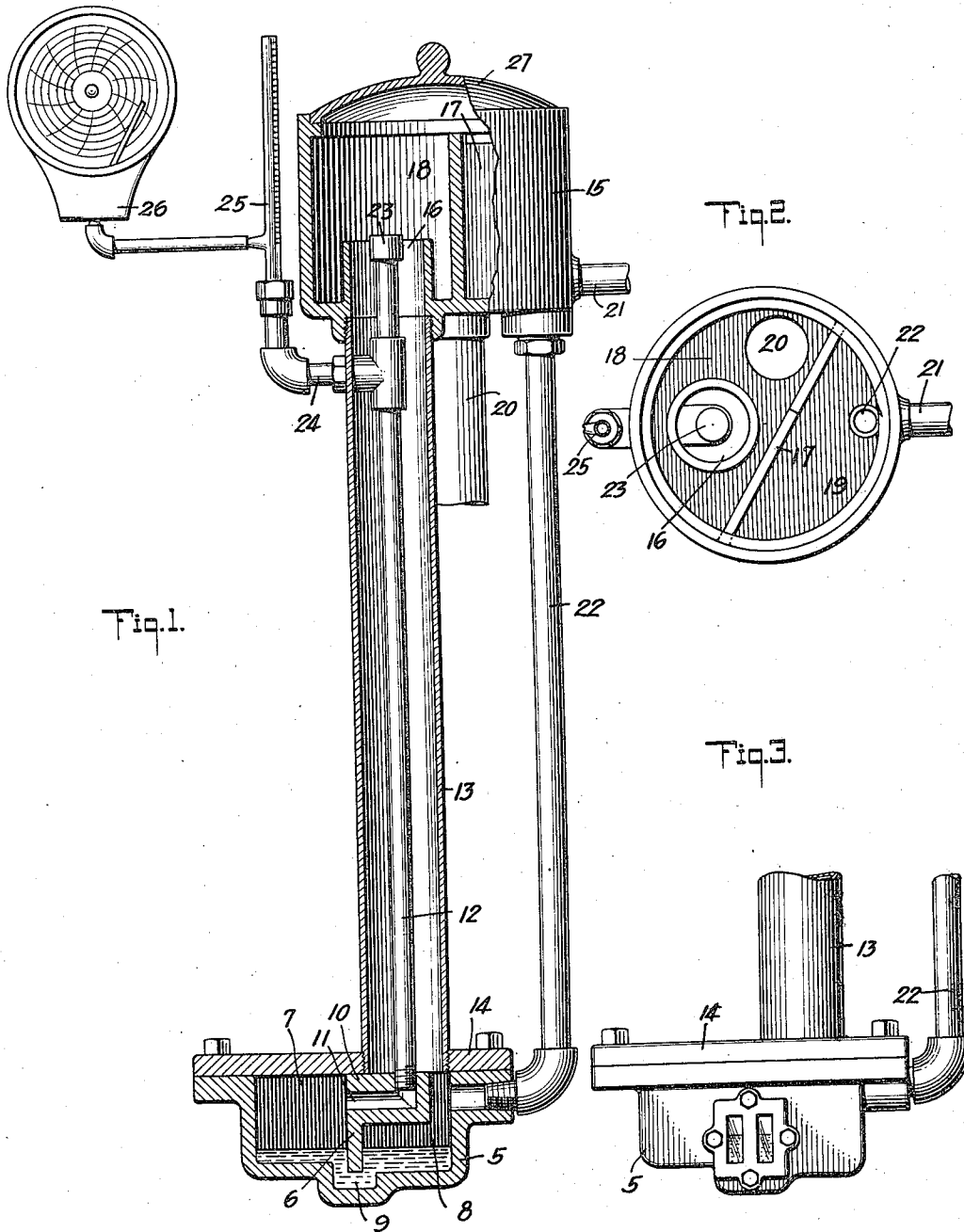


C. N. SOWDEN.
DENSITY METER.

APPLICATION FILED APR. 20, 1918 RENEWED FEB. 19, 1919.

Patented Apr. 1, 1919.

1,298,810.



WITNESSES

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CHARLES NEVILLE SOWDEN, OF CARACAS, CUBA.

DENSITY-METER.

1,298,810.

Specification of Letters Patent.

Patented Apr. 1, 1919.

Application filed April 20, 1918, Serial No. 229,763. Renewed February 19, 1919. Serial No. 278,060.

To all whom it may concern:

Be it known that I, CHARLES NEVILLE SOWDEN, a citizen of Canada, residing at Caracas, Cuba, have invented a new and

Improved Density-Meter, of which the following is a full, clear, and exact description.

My invention relates to a density meter through which liquid, the density of which is to be measured, may flow continuously.

The object of the invention is to provide a simple and efficient meter of the class described.

I attain the above and other objects of my invention by the structure conventionally disclosed in the accompanying drawings, wherein similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a vertical section through a meter embodying my invention;

Fig. 2 is a plan view of the meter, the cover and the gages being removed; and

Fig. 3 is a fragmentary elevation of the lower end of the meter.

Referring to the drawings, 5 is a mercury cup which has a partition 6 separating the cup into two chambers 7 and 8 communicating through a depression 9 formed in the bottom of the cup about the partition 6. By placing mercury into the cup so that the surface of the mercury is above the bottom of the partition, communication between the chambers 7 and 8 is intercepted. The partition 6 has an enlarged portion 10 at the top in which a passage 11 is provided establishing communication between the top of this enlarged portion and the chamber 7. This enlarged portion 10 of the partition supports a tube 12 which forms an extension of the passage 11. A tube 13 surrounds the tube 12 and is supported by a plate 14 which forms the cover of the cup 5. The tube 13 communicates with the chamber 8, while the tube 12 communicates with the chamber 7.

A head 15 is secured to the upper end of the tube 13. A tubular extension 16 is provided within the head 15 for the tube 13. The head 15 has a partition 17 therein which divides the interior of the head into two chambers 18 and 19, the chamber 18 being in communication with the tube 13 and having also a drain 20. The chamber 19 has an inlet conduit 21 and a conduit 22 leading from the chamber 19 to the chamber 8 in the cup 5.

The tube 12 extends to the top of the tubular member 16 where it is provided with a

filling cap 23 whereby water may be poured into the tube 12 and, therefore, into the chamber 7 of the cup 5. The tube 12 has also a branch conduit 24 which passes through the tube 13 and is connected to indicators 25 and 26.

The head 15 is provided with a cover 27 which is removed when the top 12 is to be filled with water. The cap 23 has to be removed to fill the tube with water. The water in the tube enters the chamber 7. The liquid enters the chamber 19 of the head 15 through a conduit 21. From the chamber 19 liquid passes through the conduit 22 into the chamber 8 of the cup 5. From the chamber 8 the fluid rises through the tube 13 into the chamber 18 and passes out through the drain 20. The density of the liquid column in the tube 13 is balanced by the water in the tube 12, and any variation in density of the liquid passing through the tube 13 is shown by the indicators 25 and 26.

I claim:

1. A density meter comprising a mercury cup, a partition in said cup which, with the mercury in the bottom of the cup, is adapted to divide said cup into two independent chambers, a pair of rising concentric conduits, one in communication with one of the chambers and the other, with the other chamber, indicators associated with the inner conduit, a head secured to the outer conduit, a partition in said head dividing the same into two chambers into one of which the outer conduit enters, a drain from said chamber, a conduit from the other chamber of the head to the chamber in the cup with which the outer conduit communicates, and means for supplying fluid to said other chamber.

2. A density meter comprising a mercury cup, a partition in said cup which, with the mercury in the bottom of the cup, is adapted to divide said cup into two independent chambers, a conduit rising from the partition and adapted to be in communication with one of the chambers, a conduit rising from the cup concentric with the first conduit and in communication with the other chamber of the cup, an indicator on the first conduit, a head on the second conduit, a partition in said head dividing the head into two chambers one of which is in communication with the second conduit, a drain from said chamber with which the second conduit is in communication, a con-

duit from the other chamber of the head to the chamber in the cup with which the second rising conduit is in communication, and means for supplying fluid to said other
5 chamber of the head.

3. A density meter comprising a mercury cup, a partition in said cup which with the mercury in the bottom of the cup is adapted to divide said cup into two independent
10 chambers, a pair of rising concentric conduits, one in communication with one of

the chambers and the other, with the other chamber, an indicator associated with the inner conduit, and means for supplying fluid to the chamber in communication
15 with the outer conduit and through which conduit said fluid is discharged.

CHARLES NEVILLE SOWDEN.

In presence of—

LEOPOLD ROMAGOSA,
FRANCES M. NUFER.