

C. K. HUGUET.
ELECTRIC METER.

Patented Jan. 5, 1892.

Fig: 1.

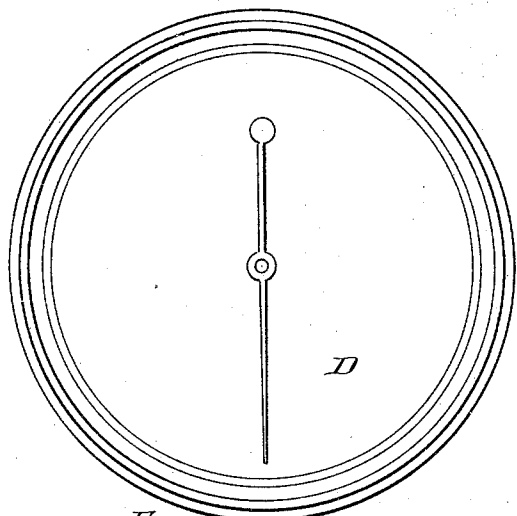


Fig: 2.

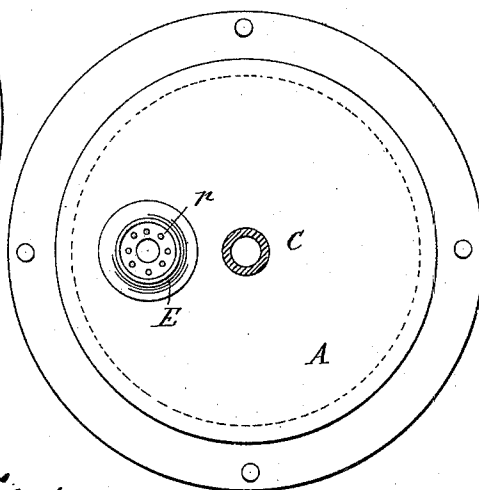


Fig: 4.

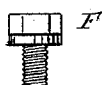


Fig: 3.

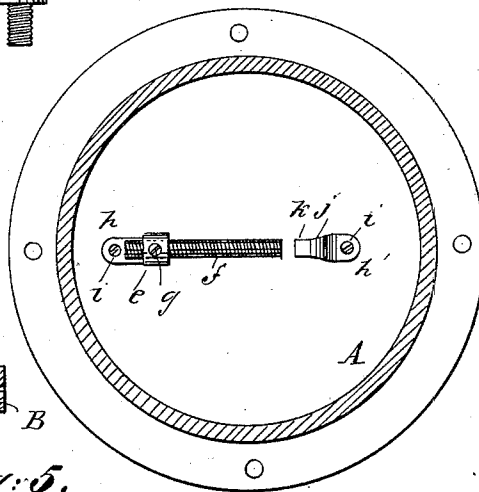


Fig: 5.

Chas. Vign.
C. Sedgwick.

	1	2	3	4	5
0°	5.7	11.5	17.2	2.3	28.7
1°	5.7	11.4	17.2	2.29	28.6
2°	5.7	11.4	17.1	2.28	28.5

C. K. Huguet

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ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES K. HUGUET, OF NEW ORLEANS, LOUISIANA.

ELECTRIC METER.

SPECIFICATION forming part of Letters Patent No. 466,686, dated January 5, 1892.

Application filed December 3, 1890. Renewed December 9, 1891. Serial No. 414,446. (No model.)

To all whom it may concern:

Be it known that I, CHARLES K. HUGUET, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and improved Electric Meter, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a side elevation of my improved electric meter with parts broken away to show the internal construction. Fig. 2 is a horizontal section taken on line *x x* in Fig. 1. Fig. 3 is a horizontal section taken on line *y y* in Fig. 1. Fig. 4 is a detail view of the valve, and Fig. 5 is a diagram representing part of the scale used in connection with the meter.

Similar letters of reference indicate corresponding parts in all the views.

My invention is as hereinafter described and claimed.

The receptacle A is closed at the bottom by means of a plate B, of insulating material, furnished with an annular groove *a* in its upper surface. In the said annular groove is placed a packing-ring *b*, which bears against the under surface of the walls of the receptacle. The plate B is secured to the body of the receptacle by tap-bolts passing through the plate into a flange on the lower part of the receptacle-body.

In the plate B are inserted two rods *c d*. The upper end of the rod *c* is furnished with an internally-threaded eye *e*, in which is inserted a screw *f*, also with a binding-screw *g* for clamping the screw *f* in the eye *e*. The eye *e* is provided with an arm *h*, through which passes a screw *i* into the plate B to prevent the eye *e* from turning. The rod *d* is furnished with a head *j*, which rests upon the upper surface of the plate B, and is furnished with a curved arm *k*, extending toward the screw *f*. It is also provided with an arm *h'*, which is held by a screw *i'*, passing through the arm and entering into the plate B. Upon the rods *c d*, adjoining the plate B, are placed rubber packing-washers *l l'*, and upon the threaded lower ends of the rods are placed nuts *m m' n n'*, between which are clamped the wires *o o'*.

In the head of the receptacle A is screwed a pipe C, to which is attached a pressure-gage

D, which may be of any approved construction. The head of the receptacle is provided with a boss E, which is bored and tapped to receive the threaded portion of the screw F and counterbored to receive the head of the said screw. In the head of the receptacle, around the threaded hole and within the counterbored part of the boss E, are made a number of small holes *p*, and between the head of the screw F and the bottom of the counterbored part of the boss E is placed a rubber washer *q*, which closes the holes *p* gas-tight when the screw F is turned downward.

The scale shown in Fig. 5 has in the upper row of squares numbers representing different pressures and in the first vertical row of squares figures representing temperatures. The remaining squares are filled with figures representing ampère hours, so that by reference to the dial and to the thermometer G, used in connection with the meter, the total amount of current used on the circuit can be ascertained by noting the number of ampère hours indicated at the intersection of the vertical and horizontal columns on the scale, which are indicated by the pressure, as indicated on the dial, and temperature, as shown by the thermometer.

To enable the table and its use to be more clearly understood, it may be further explained as follows: In practice the resistances are so arranged that one-thousandth part of the whole current passes through the meter, and the resistance in the latter should be equal to the same number of ohms as there are volts in the potential of the current. Thus, if the electro-motive force equals one hundred and ten volts, then the resistance within the meter should be one hundred and ten ohms, and for the same distance outside the meter should be 0.11 ohms. The table or scale is based on the two well-known natural laws that the pressure of any gas varies directly according to the volume of it contained in a given area or space and that the pressure increases according to the temperature at the rate of one two-hundred-and-seventy-third for a rise of one degree, (centigrade.)

The table is constructed as follows: The upper horizontal line contains the figures indicating the pressures, the unit of which

should be small. The left-hand vertical column contains the figures representing the degrees of temperature, (centigrade.) In practice if the meter be brought to a temperature indicated by 0° and the current allowed to pass until the pressure-gage indicates 1 then write in the left-hand corner the number of ampère hours that have elapsed. Multiply the number thus found by two, three, four, &c., to obtain the ampère hours for the corresponding pressures. Divide each number in second or 0° line by two hundred and seventy-three and subtract the result once for each increase of one degree. (This subtraction is made because the increased temperature would increase the pressure to more than it would be at the standard temperature.) To find the true number of ampère hours that have passed it is only necessary to note the number at the intersection of any two temperatures and pressure columns.

The screw *f*, forming the adjustable electrode of the apparatus, is placed in such a position with reference to the arm *k*, forming the fixed electrode, that the amount of electrolytic liquid included between the two electrodes will offer a resistance which will cause a certain fraction of the current to pass through the apparatus.

The receptacle *A* being filled with a suitable liquid—such as a solution of a salt or of sulphuric acid in water—and the holes *p* being closed by the screw *F*, the solution will be decomposed when the current passes through the electrodes and through the solution, and

the resulting gas will create a pressure in the receptacle *A*, which will be indicated upon the dial of the pressure-gage *D*. When the state of the meter is taken, the total pressure indicated upon the gage after a temperature correction indicates a certain fraction of the current consumed. This fraction depends upon the proportion of the total current which passes through the shunt on which the meter is placed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In an electric meter, the combination, with the closed receptacle *A*, of the electrode *c*, projecting through the bottom of the latter and having the inwardly-threaded eye *e*, the cylindrical adjustable screw *f*, held and adapted to work in said eye within said receptacle, and the electrode *d*, provided with a head *j*, having an arm *k* arranged opposite one end of said screw, all as shown and described, to operate as and for the purpose specified.

2. The scale or table for measuring ampère hours, the same consisting of rows of spaces or squares, the first vertical row of which is filled with numbers representing temperatures and the remaining squares with numbers representing ampère hours, as shown and described.

CHARLES K. HUGUET.

Witnesses:

HENRY RIGHTER,
JNO. M. BALDWIN.