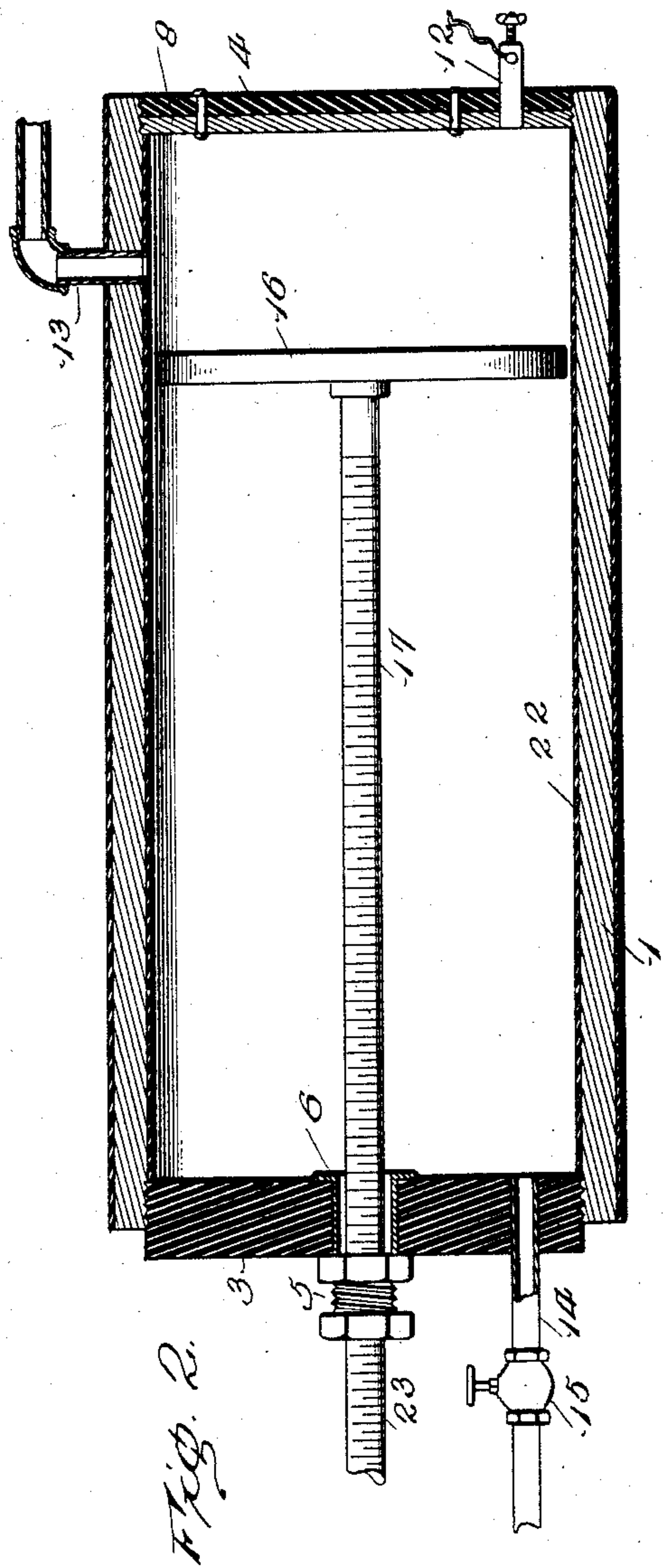
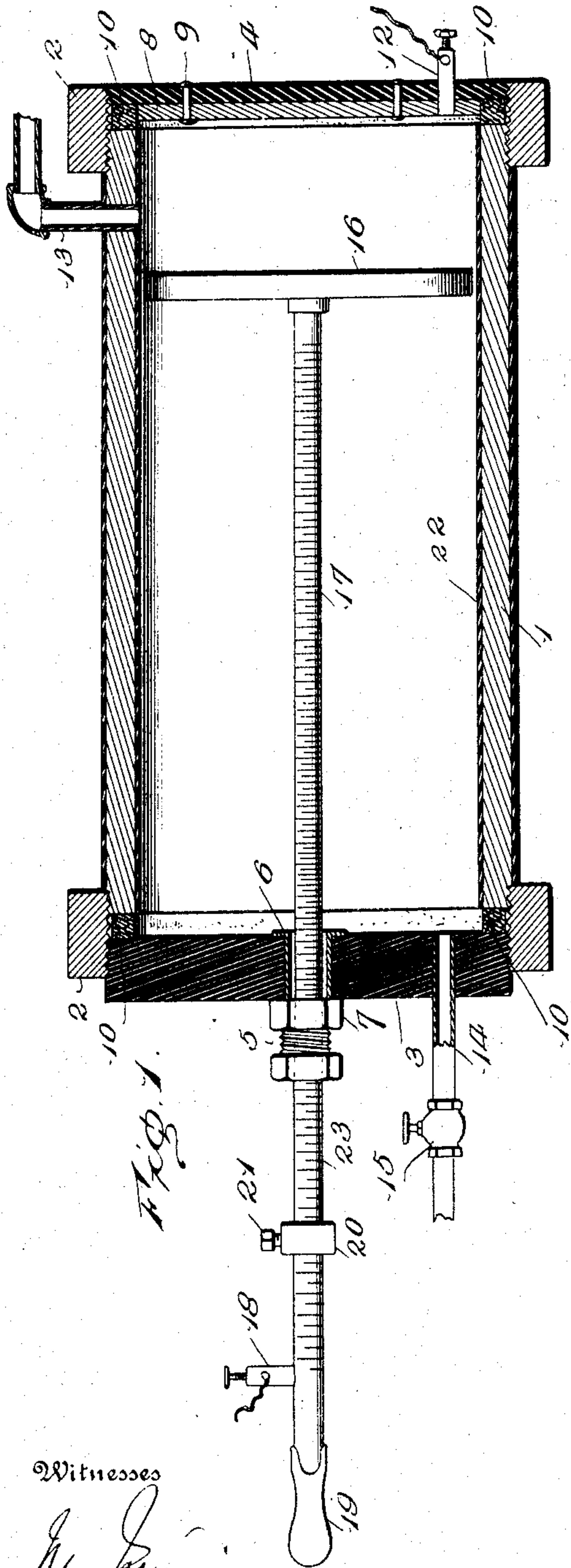


No. 885,935.

PATENTED APR. 28, 1908.

E. L. MAHON.  
RHEOSTAT.

APPLICATION FILED JUNE 6, 1907.



Witnesses

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# UNITED STATES PATENT OFFICE.

EDWARD L. MAHON, OF BELLAIRE, OHIO.

## RHEOSTAT.

No. 885,935.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed June 6, 1907. Serial No. 377,658.

*To all whom it may concern:*

Be it known that I, EDWARD L. MAHON, a citizen of the United States, residing at Bellaire, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Rheostats; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in rheostats and particularly to that type in which water is employed as the resistance medium. In the type referred to the conductors are located within an open water receptacle and the resistance offered to the current is controlled by the adjusted relation of the conductor plates.

My invention has for its object to provide a water rheostat in which the conductors are located adjustably within a water compartment in such manner that the resistance body is under compression in contradistinction to being located within an open vessel or compartment.

My invention has also for one of its objects to control the resistance by simple and readily operated means and it has also for one of its objects simplicity and economy of construction.

With these ends in view my invention consists in the construction and arrangement hereinafter and in detail explained.

In order that those skilled in the art to which my invention appertains may know how to make and use my improved rheostat and fully appreciate all of its advantages I will proceed to describe the same referring by numerals to the accompanying drawing in which—

Figure 1, is a central longitudinal section, partly in elevation of my improved rheostat and Fig. 2 is a similar view showing a modification in detail of construction.

Similar reference numerals indicate like parts in both figures of the drawing.

1, is a plain cylinder preferably of cast iron although it may be made of any other suitable material and formed with external screw threads as shown in Fig. 1, or internal threads as shown in Fig. 2. When formed as shown in Fig. 1, metal bands 2, internally threaded are secured upon the external threads on the cylinder and extend sufficiently

beyond the ends of the cylinder to receive heads 3, and 4, composed preferably of vulcanite fiber, although any other suitable insulating material may be employed. The head 3, is of sufficient thickness to constitute a rigid support for a centrally arranged stuffing box 5, which is formed with a flange 6, bearing against the inner surface of the head 3, and secured in position by a nut 7. The head 4, which is secured in the opposite end of the cylinder is provided upon its inner surface with a metal conductor disk 8, attached thereto by rivets 9, or in any other suitable manner. The diameter of the conductor plate is somewhat less than the vulcanite head as shown to provide a seat for a ring insulator 10, located between the end of the cylinder and the head 4, to constitute perfect insulation between the conductor 8, and the cylinder, and 11, is a similar insulation between the opposite end of the cylinder and the head 3. A binding post 12, passing through the head 4, is secured to the conductor disk 8, and is adapted in an obvious manner for connection with an external circuit.

13, is an overflow or discharge pipe communicating with the upper surface of the cylinder, and 14, is an inlet pipe secured in the head 3, at its lower edge, and adapted to connect with a water supply and is provided with a controlling valve 15. The relation of the inlet and outlet pipes 14, and 13, is such that the cylinder may be at all times kept with a full supply of water.

16, is a conductor disk similar to the disk 8, and is secured to the end of a metal stem 17, which passes through the stuffing box 5, and is provided with a binding post 18, and a suitable operating handle 19. A longitudinally adjustable stop 20, is secured upon the stem 17, by a set screw 21, the purpose of which stop is to limit the approach of the disk 16, toward the stationary disk 8, to any predetermined locality. The interior surface of the cylinder is enameled as indicated at 22, to constitute a satisfactory insulation, and said cylinder may likewise be enameled on its outer surface.

In the modification shown at Fig. 2, in which the vulcanite fiber heads are secured within the interior threads of the cylinder the insulating rings 10, are not required. As hereinbefore stated the cylinder may be made of glass, pottery or any other material having insulating properties, or of any suit-



able material capable of being insulated, though I prefer to make it of iron on account of its strength and stability.

5 The stem 17, may be provided with a suitable scale 23, which according to its relation to the extremity of the stuffing box will indicate any desired resistance obtained by the distance apart of the conductor disks 8, and 16.

10 From the construction shown and described it will be readily seen that when the cylinder is supplied with water from any suitable source through the inlet pipe 14, it is kept full and under pressure and that the  
15 conductor disks 8, and 16, are always completely submerged, and being perfectly insulated from the cylinder the body of water between the disks constitutes the resistance which is greater or less according to the distance apart of said disks, thus securing absolute and accurate control of the current, and  
20 it will be obvious that the disks may be separated to such a distance that the excessive resistance will constitute a complete cut out, thus rendering independent cut out devices  
25 unnecessary.

The water supply being controlled by the valve 15 and being under constant pressure, I have found to be of great advantage as I  
30 have determined from practical tests that by applying pressure and feeding the water rapidly to the containing vessel I am enabled to control a high voltage and at the same time prevent the rheostat from heating to

any great extent, while with the use of an open vessel and without pressure, a similar voltage will cause the water to boil in about twenty minutes.

Having described the construction, operation and advantages of my improved rheostat what I claim as new and desire to secure by Letters Patent is—

1. In a rheostat adapted to contain water under pressure; an insulated stationary conductor plate; a movable conductor plate; means for supplying and discharging water, and means for adjusting the movable conductor plate substantially as hereinbefore set forth.

2. In a rheostat provided with a stationary and an adjustable conductor plate, means for interposing a body of water under pressure between the conductor plates, substantially as and for the purpose set forth.

3. In a rheostat such as described and embodying stationary and adjustable conductor plates, a reciprocating stem for adjusting one of said plates, and an adjustable stop located upon said stem, substantially as hereinbefore set forth.

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

EDWARD L. MAHON.

Witnesses:

D. G. STUART,

JNO. J. HARROWER.