

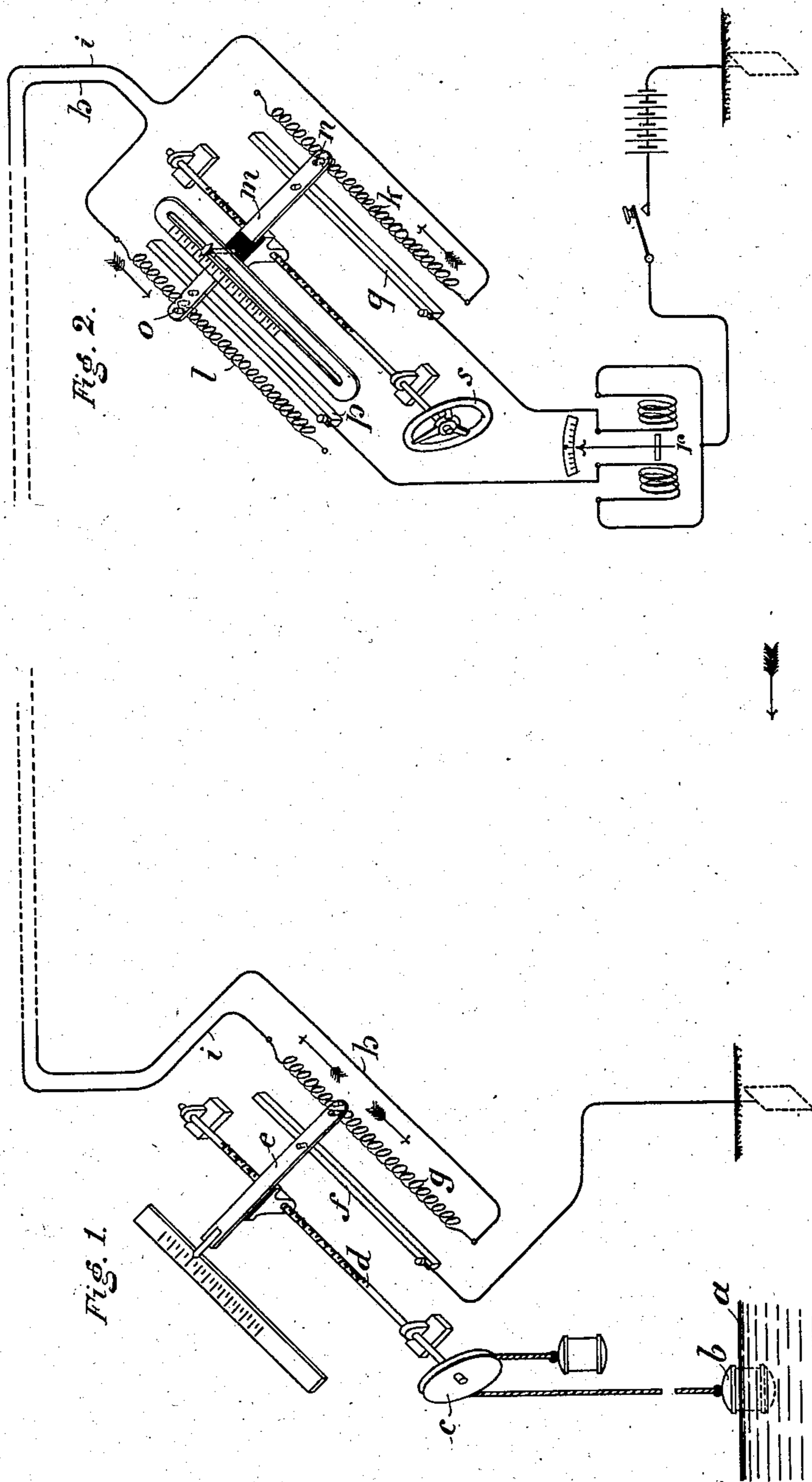
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F. RITTMAYER.

DEVICE FOR INDICATING AT A DISTANCE THE HEIGHT OF A WATER LEVEL.

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Witnesses:

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UNITED STATES PATENT OFFICE.

FRANZ RITTMAYER, OF APPENZELL, SWITZERLAND.

DEVICE FOR INDICATING AT A DISTANCE THE HEIGHT OF A WATER-LEVEL.

No. 827,182.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed March 8, 1905. Serial No. 249,072.

To all whom it may concern:

Be it known that I, FRANZ RITTMAYER, a citizen of the Swiss Confederacy, and a resident of Appenzell, Switzerland, have invented certain new and useful Improvements in Devices for Indicating at a Distance the Height of a Water-Level, of which the following is a specification.

This invention relates to a device for indicating at a distance the height of a water-level, and especially to a device intended for water-supply plants.

The device may also be used for indicating at a distance the variations of any other level, such as the level of the mercury in a thermometer.

The device comprises at the water-reservoir a transmitting-station and a registering-station, which may be mounted at any place, as well as the connecting-ducts.

The annexed drawings, given by way of example, show a special form of the invention.

Figure 1 shows a perspective of the transmitting-station. Fig. 2 shows the registering-station.

Both stations are connected by a double line.

When the water-level a rises, the float b is also raised, the chain-wheel c is rotated, and with it the axis d . The rotation of the latter produces the shifting of the slide-piece e owing to the fact that the rod d is screw-threaded, as at d^{10} , and works in a threaded bracket d'' , carried by the piece e . The piece e touches on one side the contact-bar f and on the other side the electrical resistance g , composed of equal unities. All the unities of the latter may come in contact with the slide e , according to the position of the latter. The slide e is always connected with the contact-bar f . An electric current may be conducted by the slide e to any one of the unities of the resistance g .

When an electric current is conducted through the contact-bar f , it is split up by the resistance g at the point of contact of the bar f into two currents, which, according to the position of the slide e , will ordinarily have different intensities. In the drawings, Fig. 1, the weaker current is conducted to the line-wire h ; the stronger current to the wire i . A current thus split up by the transmitting-station, Fig. 1, arrives by the two wires i and h to the indicating-station, Fig. 2. In the latter two resistances k and l , corresponding exactly to the resistance g , are arranged in such

a manner that they are always connected by a slide m , carrying the two contacts n and o , which are not connected one to the other and through which the current is conducted from the wires h and i through the resistances k and l to the bars p and q .

As shown by Fig. 2, the travel of the current in the resistance k takes place in an opposite direction to that in the resistance l . Owing to this arrangement in the station, Fig. 2, only a resistance is put into the circuit which is equal to the resistance k or l in Fig. 2 or also to the resistance g in Fig. 1.

By moving the slide m it will be easy to find out a position in which the sum of the resistances in the circuit $f g i k$ is equal to the sum of resistances in the circuit $f g h l$. This is the position in which the resistances k and l are divided by the contacts n and o proportionally in such a manner as the resistance g , Fig. 1, is divided by the slide e into two parts.

A measuring apparatus r , connected to the contact-bars p and q , will permit to see if the two currents flowing from the bars p and q are of the same force. All that is then to do is to move the slide m by means of the driving-wheel s until an equal intensity of current is indicated. The position of the slide m of the station 2, Fig. 2, indicates a corresponding position of the slide e of the station 1, so that when the slide m is provided with a needle and a scale the height of the water-level is indicated at the station 2.

The above-described device may also be used for measuring at a distance any other oscillations of the level of a liquid.

Having now fully described my said invention, what I claim, and desire to secure by Letters Patent, is—

1. In an apparatus of the character described, the combination of a resistance located at a transmitting-station comprising a predetermined series of unities, similar resistances located at a receiving-station and each comprising a series of unities equal to those in the resistance at the transmitting-station, an electrical connecting-line between one end of the resistance at the transmitting-station and one end of a resistance at the receiving-station, an electrical connecting-line between the opposite end of the first-named resistance and one end of the other resistance at the receiving-station, means at the transmitting-station adapted to intercalate a variable number of the unities of the resistance at that station into the two connect-

ing-lines leading to the receiving-station, indicating means at the receiving-station comprising a bar adapted to vary the number of unities of the resistance at the receiving-station included in the two connecting-lines, the various elements being so arranged that the sums of the resistances intercalated in both lines are always equal in all reading positions of the indicating means, means for supplying electrical current to the intercalating means at the transmitting-station, and an electrical measuring device in electrical connection with the intercalating means at the receiving-station and adapted to indicate when the intensities of the currents flowing through the two connecting-lines are equal.

2. In an apparatus of the character described the combination with a rotatable shaft located at a transmitting-station, an indicating-arm adjustably mounted on and movable by said shaft, a contact-bar with which said arm is in contact, an electrical re-

sistance composed of equal unities and with which the arm is adapted to come into contact, an electrical circuit in which said arm is included, of two resistances located at an indicating-station, each of which corresponds exactly with the resistance at the transmitting-station, and electrically-connected therewith, a slide in contact with the two resistances at the indicating-station, contact-bars with which said last-mentioned slide is in contact, a rotatable shaft upon which the said last slide is adjustably mounted and by which it is adapted to be moved, and an electrical measuring device electrically connected with the contact-bars at the indicating-station.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

FRANZ RITTMEYER.

Witnesses:

HERNANDO DE SOTO,
CARL KAUFMANN.