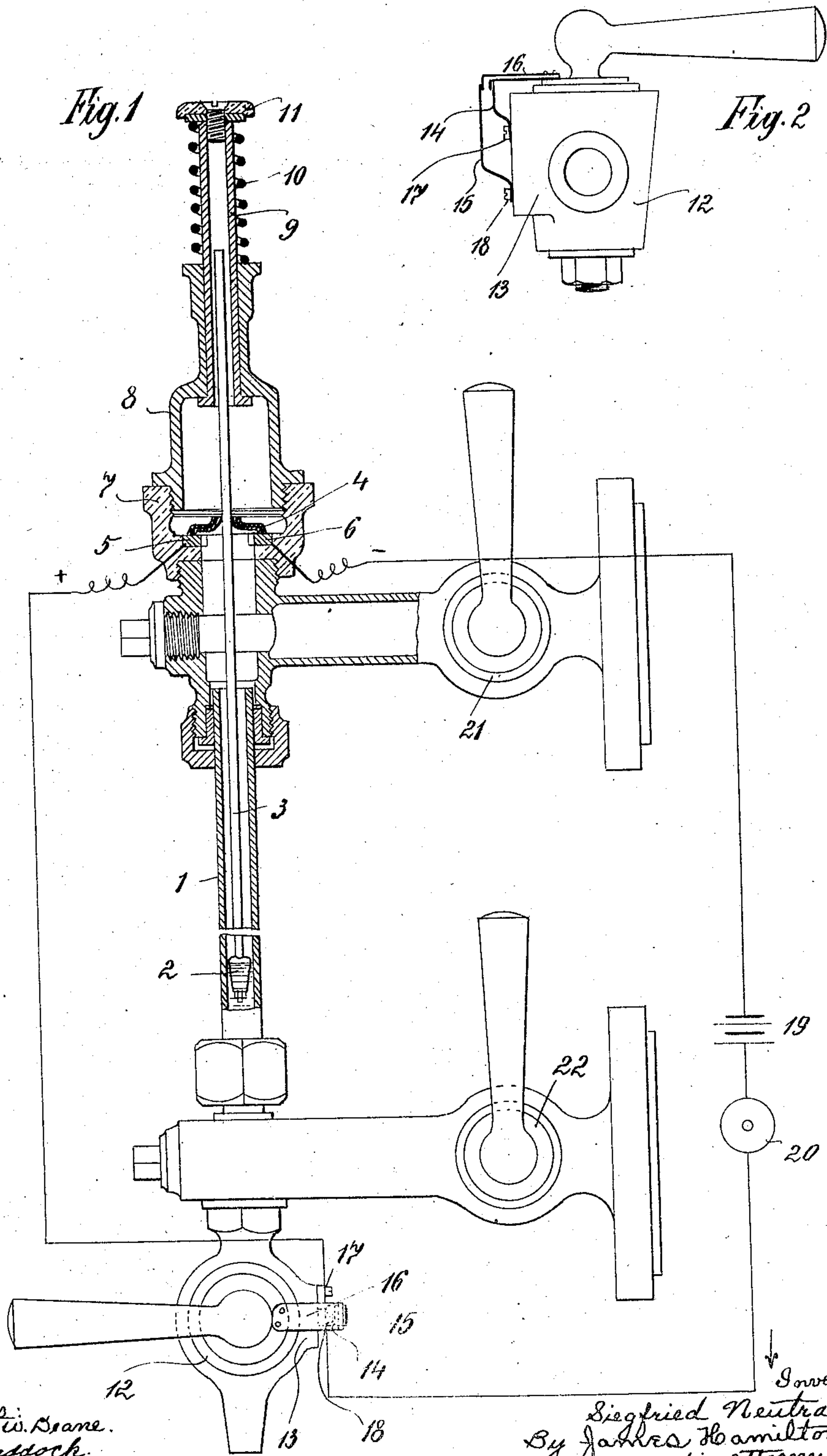


900,033.

S. NEUTRA.
WATER GAGE.
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Witnesses:
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UNITED STATES PATENT OFFICE.

SIEGFRIED NEUTRA, OF VIENNA, AUSTRIA-HUNGARY, ASSIGNOR TO WILHELM KAUFMANN,
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WATER-GAGE.

No. 900,033.

Specification of Letters Patent.

Patented Sept. 29, 1908.

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To all whom it may concern:

Be it known that I, SIEGFRIED NEUTRA, engineer, subject of Austria-Hungary, residing at Vienna, I. Hezelgasse 13, Austria-Hungary, have invented new and useful Improvements in Water-Gages, of which the following is a specification.

My invention relates to improvements in water-gages and particularly to that type of water-gages in which a float in the gage-glass is provided with a spindle adapted to close an electric circuit for indicating when the water in the steam-boiler reaches its low-water level.

An object of my invention is to provide a water-gage of the type just described which will be simple in construction, comparatively cheap in manufacture, and efficient, certain and durable in use.

In the drawings illustrating the principle of my invention and the best mode now known to me of applying that principle, Figure 1 is a vertical section of one form of water-gage made in accordance with my invention; and Fig. 2 shows in side-view the blow-off cock.

Within the gage-glass or tube 1 a float 2 is arranged and supports a spindle 3 by which metal disks 4 are carried. When the water in the boiler reaches its permissible low-water level, these metal disks 4 are brought into electrical connection with two contacts 5 and 6 which are fitted in a sleeve 7 consisting of insulating material, for example, of porcelain. These contacts 5, 6 are inserted in the circuit of an electrical signal device by means of lead wires (Fig. 1). As long as the disks 4 lie above the contacts 5 and 6, the circuit is interrupted; and this circuit is closed automatically only when the water level in the tube 1 has fallen to low-water mark. The annular shape of the disks 4 insures that the apparatus will operate, even if the float turns around its axis.

For the purpose of guiding in its vertical movement the spindle 3, which is of a light material or shaped as a small tube, a housing 8 is connected with the union or sleeve 7; and in the upper and more narrow portion of the housing 8, is slidably fitted a tube 9 which may be shifted longitudinally. A coil-spring 10 bearing at one end against a cap 11 of heat-insulating material and at its

other end against the top of the housing 8, maintains the tube 9 in the position illustrated in the drawing.

The cap 11 serves also as a thumb-piece in pressing inwardly the tube 9 to bring its upper closed end against the top of the spindle 3 which is thereby forced down until the disks 4 and the contacts 5 and 6 are brought into electrical connection. In this way signals may be given at will and the contact-device may also be tested as to its being in working order. Since such signal devices have as an object not only to warn the workman at the boiler that the latter requires water, but also to enable the superintendent of the plant to assure himself of the efficiency of the workman, it is necessary that the latter should be prevented from disconnecting the signal device during its normal working. This result is sometimes accomplished by making the contacts in the water-gage inaccessible from outside, and by omitting the installation of cut-outs in the boiler house. This arrangement has the disadvantage that every time the gages are to be blown through, the float falls into the lowest position and closes the signal circuit and the signal device is unnecessarily brought into action; and the boiler attendant, before blowing through the gage, has to advise the superintendent of his proposed action, so that the latter may anticipate the signal and may, if he wishes, cut the signal device out for the time being. This disadvantage is overcome by the present invention by providing one of the cocks, preferably the blow-off cock of the water-gage, with a switch device, which in turning the cock closes and interrupts the signal circuit. The blow-off cock together with the switch will be closed, when the water-gage is normally working; and the circuit will be interrupted, when the gage is opened for the purpose of being blown through.

The casing of the blow-off cock 12 is provided with an enlargement 13 (see also Fig. 2) upon which two strips 14, 15 of conducting material, say, copper, are fastened. Between these two strips are adapted to be moved the ends of two other conducting strips 16 rigidly connected to the rotatable plug of the cock in such a manner as to bring the strips 14 and 15 into electrical connection.

tion, when the blow-off cock is closed. This connection is broken when the blow-off cock is opened. Each of the strips 14 and 15 is provided with a binding-screw 17, 18 for fastening the circuit wires.

The circuit is diagrammatically shown in Fig. 1. In circuit with the source of current, as the battery 19, is an electric signal-bell 20 of any suitable construction. The circuit next leads to the strip 15, from the strip 14 to the contact 5 and from the contact 6 back to the battery 19. If the blow-off cock 12 is closed and the contacts 5 and 6 are electrically connected by means of the disks 4, the circuit is closed and the signal bell rings. If the disks 4 are raised from the contacts 5, 6 the circuit is interrupted and no signal is given, showing there is water enough in the boiler.

If steam is to be blown through the gage, the steam-cock 21 is opened, the water-cock 22 is closed and the normally-closed blow-off cock 12 is opened, whereby the strips 16 are disconnected from the strips 14, 15, so that the circuit is broken, although the connection between contacts 5 and 6 by means of the disks 4 is effected by the action of the steam pushing downward the float 2. It is obvious that in this manner the signal device is brought into action only when the water in the boiler has fallen to its lowest permissible level and that no signal is given in blowing through the water-gage, no feeding of the boiler being required. In case the water-level for want of attention should have fallen so low that a signal is given and the workman should then open the cock of the water-gage to interrupt the signal circuit, pretending that he wished to blow through the gage, the superintendent cannot be deceived, because a signal is never given in advance of blowing through the water-gage.

It will be understood that the housing 8 and sleeve or union 7 comprise parts of the casing of the water-gage shown in Fig. 1.

The details of construction of the hereinbefore described device may be varied, if desired, in different ways without departing from the spirit of my invention.

What I claim is:

1. In a water gage, the combination with a source of electric current; of a signal device connected with said source; a casing having a part thereof acting as a testing device and provided with a pair of contacts connected with said source of electric current and separated from each other electrically by a gap; and a buoyant make-and-break device mounted within said casing; said testing device being accessible from without said casing and manually operable to force said make-and-break device into electrical connection with said contacts to bridge electrically the gap therebetween.

2. In a water gage, the combination with

a source of electric current; of a signal device connected with said source; a casing provided with a pair of contacts connected with said source of electric current and separated from each other electrically by a gap; and a buoyant spindle mounted within said casing and provided with a disk adapted to bridge electrically the gap between said contacts, said spindle being accessible for manual control to force said disk against said contacts.

3. In a water gage, the combination with a source of electric current; of a signal device connected with said source; a casing having a part thereof acting as a testing device and provided with a pair of contacts connected with said source and separated from each other electrically by a gap; and a buoyant spindle provided with a conductor adapted to bridge electrically the gap between said contacts; said testing device being manually operable to be pressed upon said spindle and thereby to force said conductor into electrical connection with said contacts to bridge electrically the gap between the latter.

4. In a water gage, the combination with a source of electric current; of a signal device connected with said source; a casing having a part thereof acting as a tubular testing device and provided with a pair of contacts, the latter being connected with said source and being separated from each other electrically by a gap; and a buoyant spindle provided with a conductor adapted to bridge electrically the gap between said contacts and extending into said tubular testing device; the latter being arranged to guide said spindle and manually operable to press the same downwardly and thereby to force said conductor into electrical connection with said contacts.

5. In a water gage, the combination with a source of electric current; of a signal device connected with said source; a casing provided with a cock having a movable plug member and with a pair of contacts connected with said source and separated electrically from each other by a gap; a make-and-break device mounted within said casing and adapted to bridge electrically the gap between said contacts; and a switch controlled by said plug member for interrupting the flow of current from said source when the cock is open and for restoring the flow of current from said source when the cock is closed.

6. In a water gage, the combination with a source of electric current; of a signal device connected with said source; a casing having a part thereof acting as a testing device, and provided with a cock having a movable plug member and with a pair of contacts separated electrically from each other by a gap and connected with said

source; a make-and-break device mounted within said casing; and a switch controlled by said plug member for interrupting the flow of current from said source, when the
5 cock is open and for restoring the flow of current from said source, when the cock is closed; said testing device being arranged to force said make-and-break device into electrical connection with said contacts to

bridge electrically the gap between the 10 latter.

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

SIEGFRIED NEUTRA.

Witnesses:

JOHANN LUX,

ROBERT W. HEINGARTNER.