

(No Model.)

J. O'CONNOR & C. A. TURNER.
ALARM FOR BOILERS.

No. 566,612.

Patented Aug. 25, 1896.

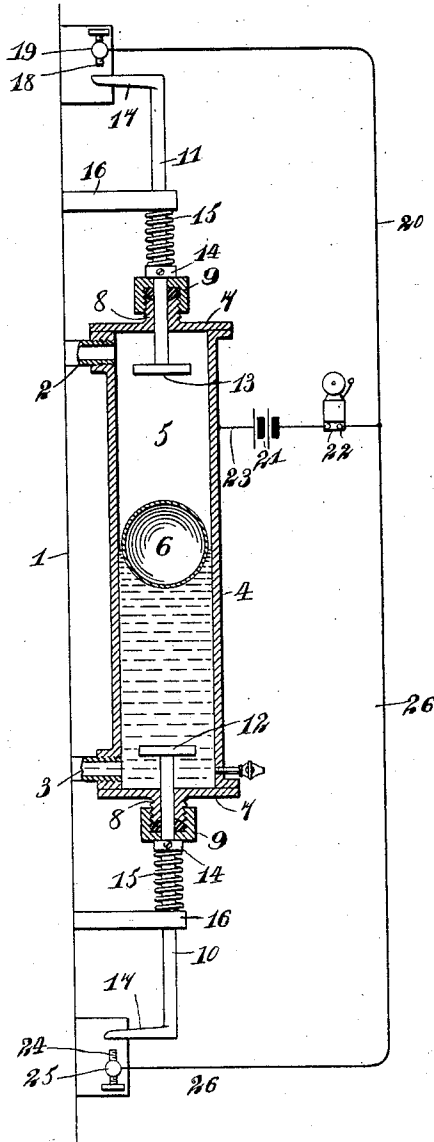
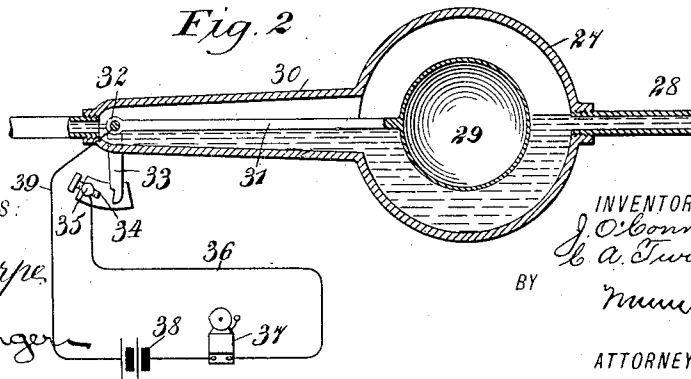


Fig. 1,



WITNESSES:

Edward Thorpe,

J. H. Saplinger

INVENTORS

J. O'Connor
C. A. Turner.

BY

Munn & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN O'CONNOR AND COLLATINUS A. TURNER, OF NEW YORK, N. Y., ASSIGNORS TO JOHN O'CONNOR AND COLLATINUS A. TURNER, OF SAME PLACE, AND DAVID D. TURNER, OF JERSEY CITY, NEW JERSEY.

ALARM FOR BOILERS.

SPECIFICATION forming part of Letters Patent No. 566,612, dated August 25, 1896.

Application filed March 20, 1896. Serial No. 584,127. (No model.)

To all whom it may concern:

Be it known that we, JOHN O'CONNOR and COLLATINUS A. TURNER, of New York city, in the county and State of New York, have
5 invented a new and Improved Alarm for Boilers, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in alarms for steam-boilers and the
10 like, and especially that class of alarms which are adapted to give warning of the rise or fall of the water-level in the boiler above and below a certain predetermined level; and the object of the invention is to provide a device
15 of this character, of a simple and inexpensive construction, which shall be adapted for application to boilers of various kinds, and which shall be capable of adjustment within certain limits, so as to better adapt it for use.

20 The invention consists in an alarm comprising a cylinder having its upper and lower ends open to the boiler and adapted to be located adjacent to the water-level therein, a
25 float in the cylinder arranged to rise and fall with the water-level, stems at the upper and lower ends of the cylinder to be moved by said float, contacts to be engaged by the stems when used, electric circuits including the contacts and stems, and alarm devices to
30 be operated from said circuits.

The invention also contemplates certain novel features of the construction, combination, and arrangement of the various parts of the improved alarm whereby certain im-
35 portant advantages are attained, and the device is made simpler, cheaper, and otherwise better adapted and more convenient for use than various other similar devices heretofore employed, all as will be hereinafter fully set
40 forth.

The novel features of the invention will be carefully set out, and defined in the appended claims.

Reference is to be had to the accompanying
45 drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views.

Figure 1 is a sectional view showing an alarm constructed in accordance with our

invention, and Fig. 2 is a sectional view showing a modified construction of the device.

Referring first to Fig. 1, 1 indicates a part of a steam-boiler, which may be of any kind, and 2 and 3 indicate pipes connecting with the interior thereof, above and below the
55 water-level, respectively, the outer ends of said pipes being connected, as clearly shown, with the upper and lower ends of the vertically-arranged cylinder or float chamber 4, having its interior 5 adapted to receive the
60 water and steam from the boiler. A ball-float 6 of any kind is arranged in the cylinder or chamber 4, and rises and falls with the level of the water therein.

The cylinder or chamber 4 may be of any
65 preferred construction, but, as herein shown, it is provided with upper and lower heads 7, having centrally-arranged and perforated screw-threaded nipples 8 on their outer sides, which nipples are engaged by screw-caps 9,
70 forming stuffing-boxes through which pass the lower and upper stems 10 and 11, having on their inner ends, within the cylinder or chamber 4, enlargements or heads 12 and 13,
75 adapted to be engaged by said float 6 when the water-level rises or falls, so as to move the said stems 10 and 11 longitudinally through the stuffing-boxes.

Each stem 10 and 11 is provided outside its stuffing-box with a collar 14, adjustably se-
80 cured upon it, against which collar bears a spring 15, coiled upon the same and having its opposite end arranged to bear against a bracket 16, extended from the side of the generator 1, whereby, as will be seen, the stems
85 10 and 11 are held with their heads pressed toward each other inside the cylinder or chamber 4, and in position to be moved by the float 6. Each stem 10 and 11 is also pro-
90 vided at its outer end with an angular or lateral arm 17, and the extremity of the upper arm 17 is arranged to engage, when the stem 11 is moved, an adjustable screw 18, held in a suitably-arranged post 19 and connected
95 by a circuit-wire 20 with a battery 21 and bell 22, and from the battery 21 a wire 23 extends to the cylinder or chamber 4.

By adjusting the collars 14 it is obvious that

the stems 10 and 11 may be made to project more or less into the cylinder 4, and thus provide for sounding the alarm at any desired water-level to which the inner ends of said stems may be set. Of course when the stems 10 and 11 are adjusted the screw-contacts 18 and 24 must be correspondingly adjusted.

The lower arm 17 is likewise arranged to engage, when the stem 10 is moved, an adjusting-screw 24, mounted in a suitably-arranged post 25, which is connected by a circuit-wire 26 with the bell 22 and battery 21, and in this way it will be seen that when water in the boiler rises or falls the float 6 will rise or fall simultaneously, so as to move one or the other of the stems 10 or 11 longitudinally and engage one of the arms 17 with the corresponding adjusting-screw, so as to close the circuit through the bell and sound the same.

The screws 18 and 24 are so arranged that they act as stops to prevent further movement of the arms 17 when said arms come in contact with the screws, so that the circuit will be held closed and the bell continue to ring as long as the level of the water in the boiler remains high or low. Were said screws arranged merely in position to be engaged by the arms, it is evident that said arms would move past the screws, so as to again open the circuit and stop the ringing of the bell.

In the construction shown in Fig. 2 a chamber 27, of globular form, is employed, the interior of which is in communication with the interior of the generator at the water-level by means of a pipe 28, and in said chamber 27 is arranged a ball-float 29, held on a rod 31, extending through a reduced neck or extension 30, formed on the side of the chamber 27, said rod being pivoted on a shaft 32, extending outside the chamber and having at its outer end a depending arm 33, arranged to contact with an adjusting-screw 34, held in a suitably-arranged post 35, connected by means of a circuit-wire 36 with a bell 37 and battery 38, another circuit-wire 39 being arranged to extend between the battery and the chamber 27. In this way it will be seen that as the water-level in the boiler falls the arm 31, on which the float is held, will swing downward so as to bring the arm 33 in contact with the adjusting-screw 34 and ring the bell. The screw 34 serves as a stop to limit the movement of the arm 33, acting in a manner similar to the screws 18 and 24, above referred to.

From the above description it will be seen that the improved alarm is of an extremely simple and inexpensive construction, and is especially adapted for the purposes for which

it is intended; and it will also be obvious that the invention is susceptible of some modification without material departure from its principles and spirit, and for this reason we do not wish to be understood as limiting ourselves to the exact form of the parts herein set forth.

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

1. In an alarm for boilers, the combination of a chamber, a float arranged therein and adapted to rise and fall with the level of the water in the boiler, a rod connected to and actuated by the float and extending outside the chamber, a contact-screw arranged to engage and stop the rod when the same is moved, a support in which the contact-screw is adjustably mounted, and an electric circuit including a battery and a bell, and having for its terminals the said contact-screw and rod, substantially as set forth.

2. In an alarm for boilers, the combination of a chamber, a float arranged therein to rise and fall with the level of the water in the boiler, rods extending through the upper and lower portions of the chamber with their inner ends in position to be engaged and actuated by the float, springs to hold the rods pushed into the chamber, contacts to be engaged by the outer ends of the rods when the same are moved, and an electric circuit including a battery and an alarm and having for one terminal the said rods and for its other terminal the contacts engaged thereby, substantially as set forth.

3. In an alarm for boilers, the combination of a chamber, a float arranged therein to rise and fall with the level of the water in the boiler, rods extending through the upper and lower portions of the chamber with their inner ends in position to be engaged by the float, collars adjustably mounted on said arms at the outer side of the chamber, whereby by adjusting the collars longitudinally of the rods the said rods may be made to extend into the chamber more or less, springs to hold the rods yieldingly in the chamber, adjustable contacts to be engaged by the outer ends of the rods when the same are moved, and an electric circuit including a battery and an alarm, and having for one terminal the said rods and for its other terminal the contacts adapted to be engaged by the rods, substantially as specified.

JOHN O'CONNOR.

COLLATINUS A. TURNER.

Witnesses:

J. D. CAPLINGER,
JNO. M. RITTER.