C. KAUSEN.

AUTOMATIC ELECTRIC SAFETY DEVICE FOR BOILERS, &c.

APPLICATION FILED MAR. 13, 1908.

899,220. Patented Sept. 22, 1908.

Fig. 1.

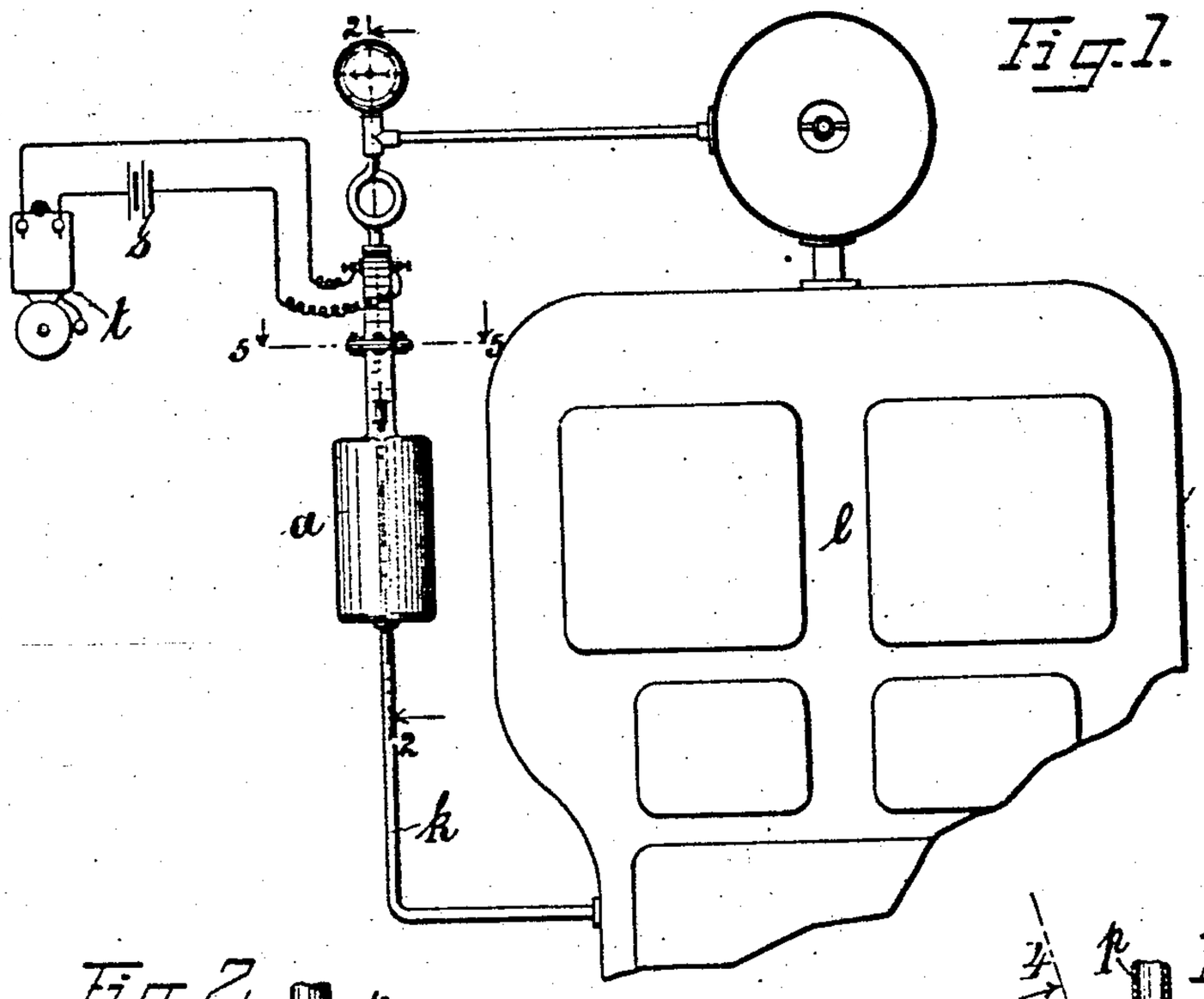


Fig. 2.

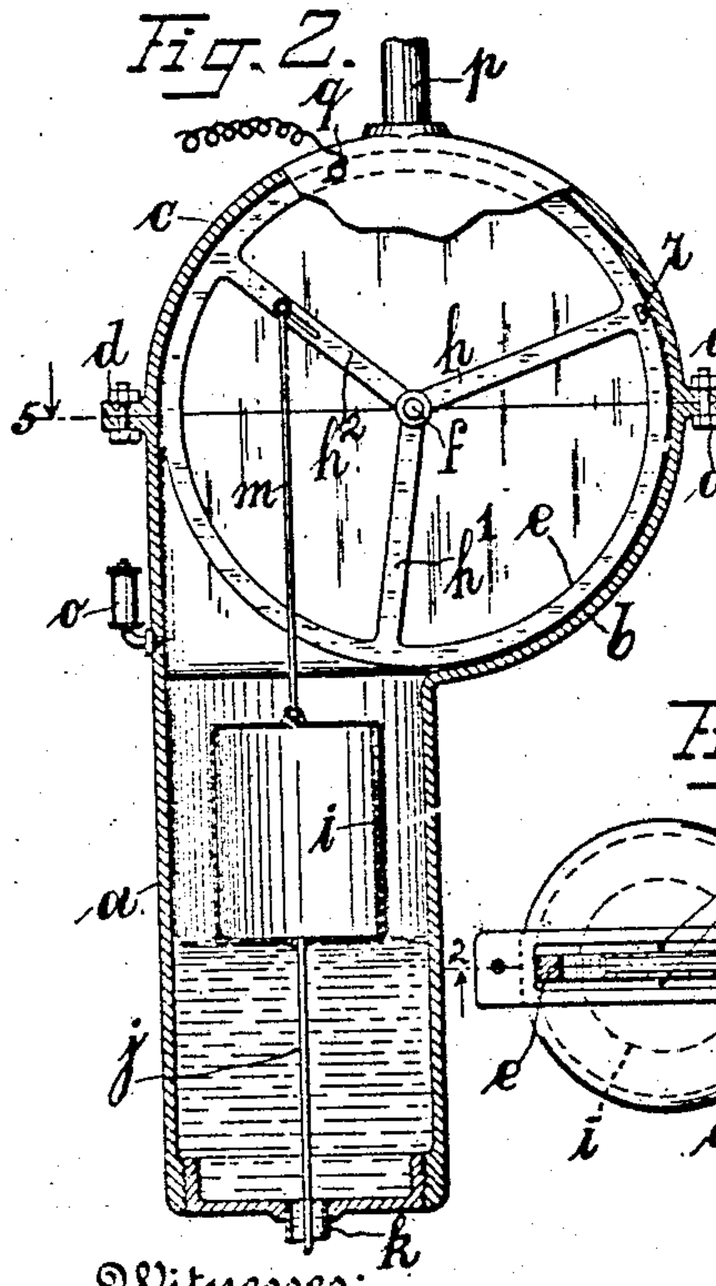


Fig. 4.

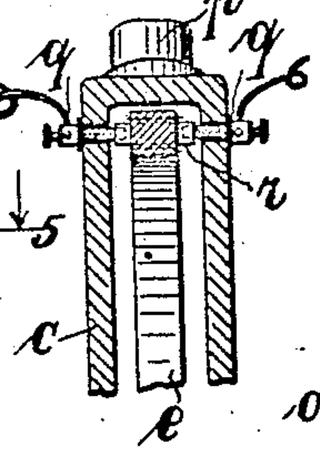


Fig. 5.

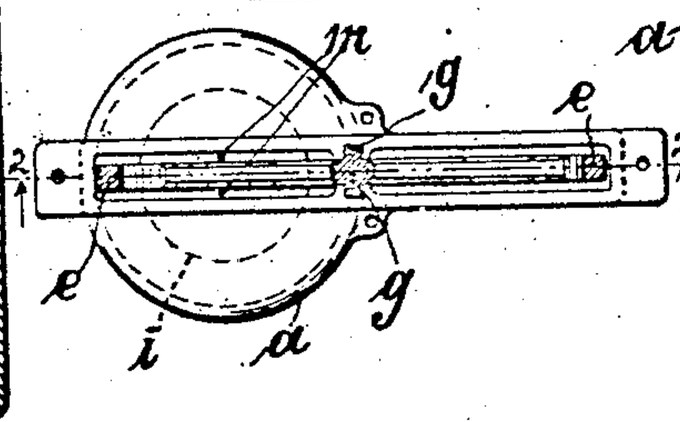
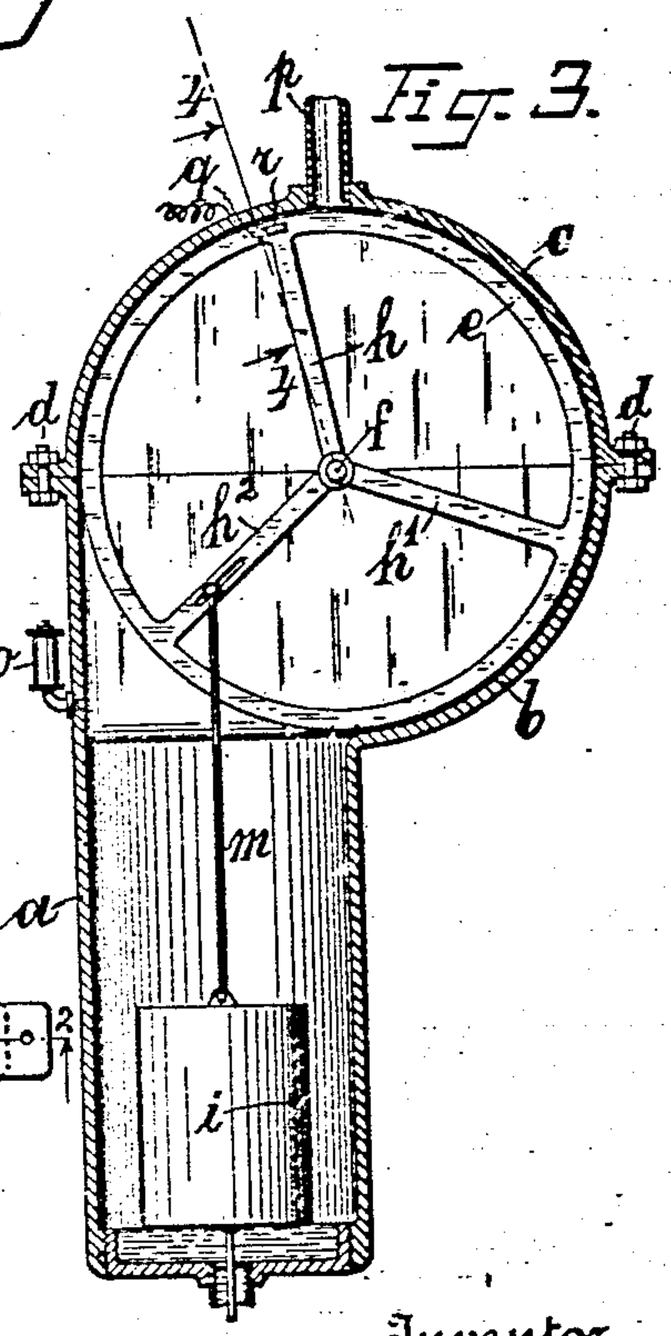


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES KAUSEN, OF NEW YORK, N. Y.

AUTOMATIC ELECTRIC SAFETY DEVICE FOR BOILERS, &c.

No. 899,220. Specification of Letters Patent. Patented Sept. 22, 1908.

Application filed March 13, 1908. Serial No. 420,920.

To all whom it may concern:

Be it known that I, CHARLES KAUSEN, a citizen of the United States of America, and a resident of New York, borough of the Bronx, county and State of New York, have invented certain new and useful Improvements in Automatic Electric Safety Devices for Boilers, &c., of which the following is a specification.

My invention has reference to improvements in automatic electric safety devices, particularly adapted to be applied to boilers.

It is the special object of this invention to produce a safety device which is actuated solely by the water and independent of steam. This makes the present device absolutely reliable in comparison to those heretofore employed in which a whistle is blown by steam because it may happen that practically no steam is in the boiler and when the water drops at such a moment there will be no signal.

The novel safety device is applicable to any kind of boiler. It is of simple construction and therefore not easily liable to derangement and cheaply manufactured.

The invention further consists in the construction of the details and the arrangement of parts all as will be fully described further down in connection with the accompanying drawing in which:—

Figure 1 represents in elevation a water-actuated automatic electric safety device, attached to a boiler, which embodies in desirable form the present improvements. Fig. 2 is a vertical section on line 2, 2 of Figs. 1 and 5 showing the device at high or normal water level. Fig. 3 is a like view showing the device at low or dangerous water level. Fig. 4 is an enlarged detail view in transverse section of an electric contact device on line 4—4 of Fig. 3, and Fig. 5 is a horizontal section on line 5—5 of Figs. 1 and 2.

Similar characters of reference denote like parts in all the figures.

When the water in the boiler drops to a certain point the device operates an alarm bell which calls the attention of the engineer, janitor, owner or person in charge of the place to the low water level in the boiler preventing thus that same drops to a dangerous point whereby the boiler and property in the proximity of same as well as persons are kept out of danger.

In the drawing *a* represents a vertical tubular receptacle preferably made of metal. The tubular receptacle *a* is formed on one side of the top into a curved extension *b* which is preferably cast therewith in one piece. A semi-circular hollow top part *c* is provided, which fits the top of the tubular part and its extension and is preferably secured thereto by screws *d*. Both form a housing for a wheel *e* mounted on a shaft *f*, which rests in the bearings *g* shown in Fig. 5. The wheel *e* has three spokes, *h*, h^1, h^2. A hollow cylindrical float *i* is provided within the tubular receptacle. It is made of metal, preferably thin copper sheeting. A metal guiding rod *j* is rigidly connected to the central bottom portion of the float. It extends down into an iron pipe *k* which connects the device with the boiler *l*. A link consisting of two metal rods *m* is movably connected with its bottom end to the central top portion of the float. It extends vertically up and is movably secured in the spoke h^2 of the wheel *e*.

In order to prevent the device from becoming air-bound, an automatic air valve *o* is provided in the top portion of the cylindrical receptacle, *a*. A tube *p* at the top of the housing connects with the steam part of the boiler. The top portion *c* of the housing for the wheel *e* is provided with two electric contacts *q*, *q*, which are insulated therefrom, as shown in detail in Fig. 4. The wheel *e* likewise is provided with an insulated electric contact *r*. From the contacts *q* wires lead to an electric battery *s* and an alarm bell *t*.

The safety device operates in substantially the following manner: When there is sufficient water in the boiler the float *i* is in about the position indicated in Fig. 2; that is, in the top portion of the tubular receptacle *a*. When the float rises the rod *m* moves the wheel *e* from left to right viewing Figs. 2 and 3. When the water level drops the float sinks down accordingly and the rod *m* pulls the wheel from right to left until the contact *r* on the spoke *h* of the wheel strikes against the contacts *q*, *q*, as shown in Figs. 3 and 4 whereby the circuit is closed and the alarm bell operated. Any person in charge or near is thus aware of danger and will care that the boiler is supplied with fresh water, whereupon the water level in the receptacle *a* will rise carrying again with it the float which likewise carries upward the movable

rod *m* connected to the wheel *e*, pushing now the wheel *e* from left to right whereby the circuit is broken.

It is self-evident that one electric alarm bell and battery may be used in connection with any number of boilers in one establishment.

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

1. A water actuated automatic electric safety device for boilers comprising a vertical tubular receptacle with bottom pipe for connecting with the boiler formed on one side at the top into a curved extended portion, a semi-circular hollow top part secured to the top of the tubular receptacle and its extension both forming a housing, a wheel mounted within said housing, a cylindrical float within the tubular receptacle, a guiding rod rigidly connected to its bottom central portion extending into the bottom pipe, a second rod movably secured with its lower end to the top central portion of said float and with the upper end to one spoke of the wheel, two electric contacts in the top portion of the semi-circular part of the housing insulated therefrom, an insulated electric contact in said wheel, an electric battery and an alarm bell.

2. In a water actuated automatic electric safety device for boilers a vertical tubular receptacle with bottom pipe for connecting with the boiler formed on one side at the top into a curved extended portion, an air valve in the top portion of the tubular part, a semi-circular hollow top part secured to the top of the tubular receptacle and its extension both forming a housing, a wheel mounted within said housing, a cylindrical float within the tubular receptacle, a guiding rod rigidly connected to its bottom central portion extending into the bottom pipe, a second rod movably secured with its lower end to the top central portion of said float and with the upper end to one spoke of the wheel, two electric contacts in the top portion of the semi-circular part of the housing insulated therefrom and an insulated electric contact in said wheel.

3. In a water actuated automatic electric safety device for boilers a vertical tubular receptacle with bottom pipe for connecting with the boiler formed on one side at the top into a curved extended portion, an air valve in the top portion of said tubular receptacle, a semi-circular hollow part secured to said tubular receptacle and its extension both forming a housing, and a pipe at the top of said semi-circular part for connecting with the steam part of the boiler in combination with a wheel mounted in the housing, a float within the tubular receptacle and a metal rod movably secured with the bottom end to the central top portion of the float, and its top end to one spoke of the wheel.

Signed at New York, N. Y., this 25th day of February, 1908.

CHARLES KAUSEN.

Witnesses:

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