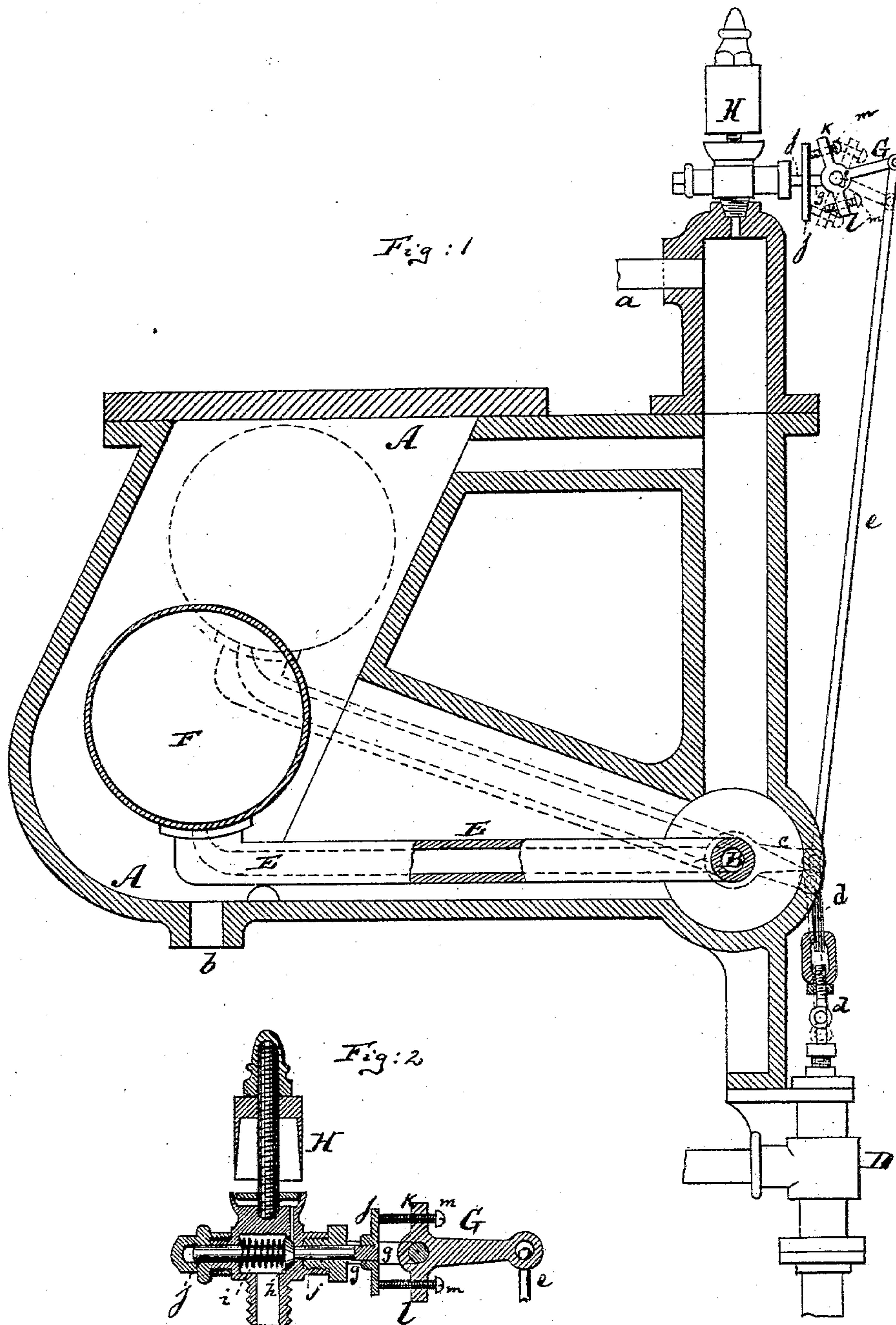


G. DINKEL & F. ROCHOW.
Feed-Water Regulator.

No. 210,843.

Patented Dec. 17, 1878.



Witnesses:

John C. Turbridge
Wm. H. C. Smith.

Inventors:

George Dinkel
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by their attorney
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UNITED STATES PATENT OFFICE.

GEORGE DINKEL, OF JERSEY CITY, NEW JERSEY, AND FERDINAND ROCHOW,
OF BROOKLYN, NEW YORK.

IMPROVEMENT IN FEED-WATER REGULATORS.

Specification forming part of Letters Patent No. **210,843**, dated December 17, 1878; application filed November 8, 1878.

To all whom it may concern:

Be it known that we, GEORGE DINKEL, of Jersey City, county of Hudson, and State of New Jersey, and FERDINAND ROCHOW, of Brooklyn, Kings county, New York, have invented an Improved Feed-Water Regulator and Alarm, of which the following is a specification:

Figure 1 is a vertical sectional view of our improved feed-water regulator and alarm. Fig. 2 is a detail sectional view of the steam-whistle thereon.

Similar letters of reference indicate corresponding parts in both figures.

This invention relates to a new construction of mechanism for regulating the supply of feed-water to steam-boilers or other reservoirs, and for sounding an alarm whenever the water should reach too high or be too low in said boiler or reservoir.

The invention consists, first, in connecting the hollow float within the regulator, by means of a tubular rod and a hollow shaft, with an adjustable rod that leads to the valve in the supply-pipe.

The invention also consists in a peculiar mechanism applied to the steam-whistle of the regulator for sounding an alarm when there is too much or too little water in the boiler, and in other details of improvement, all as hereinafter more fully described.

In the accompanying drawing, the letter A represents our improved feed-water regulator, which is a vessel made of metal or other proper material, and connected at *a* with the upper part and at *b* with the lower part of a steam-boiler or other reservoir, and placed conveniently near to the latter, so that the water in the boiler and in the regulator will always be on the same level, and so, also, that if there be steam in the upper part of the boiler, steam will, through the pipe *a*, also enter the upper part of the regulator.

A hollow rock-shaft, B, is hung in the vessel A, and connects by a crank, *c*, and rod *d*, or by other suitable means, with the valve of the water-supply pipe D, or with a valve which regulates the action of the feed-pump, or with other equivalent means of increasing or reducing the supply of water to the boiler. The

rod *d* is made with a turn-buckle, or otherwise extensible and contractible, so that the relative position of valve in pipe D and float in vessel A can be adjusted from the outside of the vessel A.

The hollow rock-shaft B connects within the vessel A, by a tubular rod, E, with a hollow float, F. The cavity of the float communicates, by the passage in the rod E, with the bore of the hollow shaft, which bore, at a suitable point outside of the vessel A, is tapped, so that if the float should leak, all water may flow from the same through the rod E into the hollow shaft B, and thence escape. The float is thus kept buoyant, whereas it would otherwise be liable to sink if affected by the smallest leak.

The upper part of the vessel A is made inclined, as shown, to permit the float to swing on the shaft B. When raised by high water, the float will, by turning on or with the shaft B, move the rod *d* and the valve in the pipe D, so as to reduce the supply of water to the boiler. When lowered by low water, the float will cause the rod *d* to be moved, so as to allow a larger stream to flow into the boiler.

The crank *c* connects, by another rod, *e*, with a T-shaped lever, G, that is pivoted at *f* to a projecting arm, *g*, of a steam-whistle, H. This whistle is mounted upon the vessel A, or upon the boiler, or connected with either by a suitable steam-supply pipe.

The admission of steam to the whistle is regulated by a valve, *h*, which, by a spring, *i*, is usually held closed to its seat, as shown in Fig. 2. In this position steam cannot reach the whistle. The stem *j* of the valve *h* extends within reach of the arms *k* and *l* of the T-shaped lever G, and is enlarged at its outer end, to be readily affected by said arms.

When the crank *c* is swung up by the descent of the float F in low water, the upper arm, *k*, of the lever G pushes the rod *j* inward and moves the valve *h* off its seat, thereby admitting steam to the whistle. An alarm is thus sounded when the water is getting too low in the boiler. If the crank *c* is swung down by the ascent of the float F in high water, the lower arm, *l*, of the lever G pushes the rod *j* inward and moves the valve *h* off its seat, thereby admitting steam to the whistle. An

alarm is thus sounded when the water is getting too high in the boiler.

As soon as the water has been restored to its proper level within the boiler the action of the lever G upon the valve-stem will cease, and the spring *i* will push the valve back to its seat.

In order to adjust the action of the lever G upon the valve *h*, we place screws *m m* into the arms *k l* of the lever G. By these screws the up-and-down strokes of the lever G can be regulated at pleasure as to their effect upon the valve.

We claim—

1. The combination of the actuating-crank *c* and rod *e* with the T-shaped lever G, and with the valve-stem *j* of a steam-whistle, substantially as herein shown and described.

2. The steam-whistle H, provided with valve *h*, spring *i*, and stem *j*, and combined with the lever G, which has two arms, *k* and *l*, substantially as herein shown and described.

3. The combination of the lever G and its arms *k l* and screws *m m* with the valve *h* of a steam-whistle, substantially as specified.

4. The combination of the vessel A, its float F, arm E, and shaft B with the crank *c*, adjustable rod *d*, and valve in supply-pipe D, substantially as specified.

The above description of our invention signed by us this 6th day of November, 1878.

GEORGE DINKEL.

FERDINAND ROCHOW.

Witnesses:

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