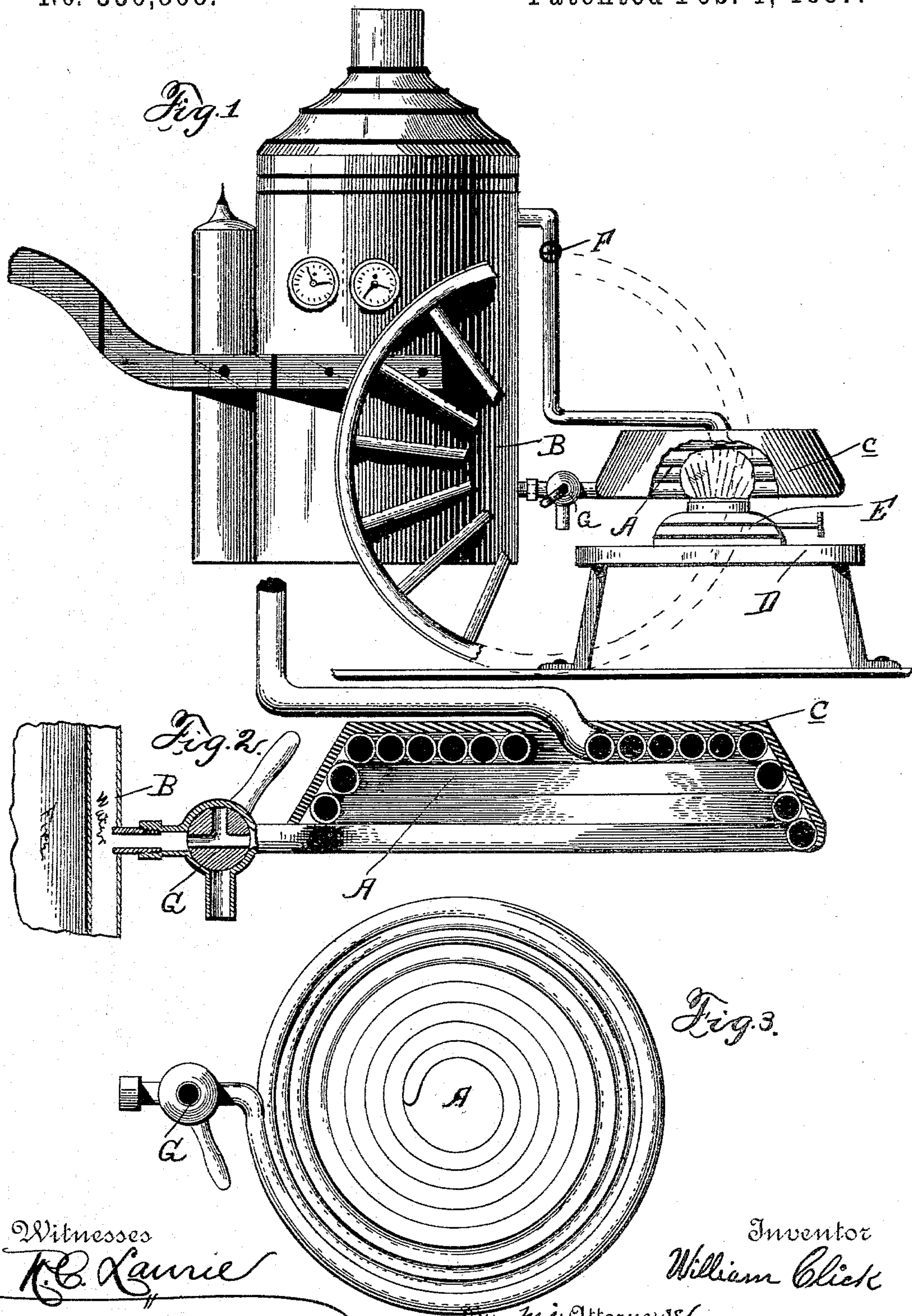


(No Model.)

W. CLICK.
FEED WATER HEATER.

No. 356,868.

Patented Feb. 1, 1887.



Witnesses
R. B. Laurie
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By his Attorneys

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UNITED STATES PATENT OFFICE.

WILLIAM CLICK, OF AUBURN, INDIANA.

FEED-WATER HEATER.

SPECIFICATION forming part of Letters Patent No. 356,868, dated February 1, 1887.

Application filed October 21, 1886. Serial No. 216,857. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CLICK, a citizen of the United States, residing at Auburn, in the county of De Kalb and State of Indiana, have invented certain new and useful Improvements in Feed-Water Heaters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to a device for heating water in boilers and maintaining said water at a boiling-point when heated.

The object of the improvement is the combination, with a boiler, of an attachment, which is connected therewith at any convenient point, and presents an extended heating-surface for absorbing all or nearly all the heat applied thereto without suffering any unnecessary waste, and which will keep the water at a boiling-point, so that steam can be quickly generated at a moment's notice by lighting the fire beneath the boiler. The attachment is particularly designed for portable engines and such boilers in which it is necessary that the water be kept at a boiling-point, and for this reason is especially adapted for fire-engines. Such engines are usually backed into the engine-house, and a suitable stand or support is erected in such a position that a lamp placed thereon will come directly beneath the heating attachment when the engine is backed into place, as will presently appear.

The improvement consists in the novel features hereinafter more fully set forth, claimed, and shown in the annexed drawings, in which—

Figure 1 is a side view of a fire-engine provided with my improvements. Fig. 2 is a vertical central sectional view of the attachment, and Fig. 3 is an inverted plan view of the heater.

The fire-engine is of ordinary construction, and is simply shown as a means for carrying out my invention.

The improvement consists in the heater A, which is connected with the boiler B in such manner that the water from the lower portion of the boiler passes into the attachment, is heated, and thence discharges back into the upper portion of the boiler.

The heater consists, preferably, of a coil of pipe having its central portion elevated, presenting the form of an inverted basin. The convolutes overlap or touch each other, so as to prevent the too rapid escape of the heat, which would pass between them if spaced apart. However, to retain the heat longer in contact with the coil it is covered with a cap, C. One end of the coil is connected with the boiler near its lower end, and the other end is connected with the boiler near its upper end, so that a circulation of the water will be had.

The support D is located in such a position relative to the heater that the lamp E, which may be of any form and construction, will come directly beneath the coil.

The valve F is interposed between the boiler and the upper end of the heater, and the three-way valve G is located between the lower end of the heater and the boiler. The three-way valve is so disposed that communication can be cut off from the heater and the lower portion of the boiler, and communication between the heater and the open air be effected. By this construction any sediment in the heater can be blown off.

The heater, it will be understood, is supplementary to the furnace and independent therefrom, and is designed to keep the water already supplied to the boiler at or nearly at a boiling-point. By this means the furnace is preserved, and can be kept in readiness and started at a moment's notice when steam is required.

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

1. The combination, with the boiler, of the heater projecting laterally therefrom, composed of a coil of pipe forming an inverted basin, and having the ends extended and con-

nected with the upper and lower portions of the boiler, substantially as and for the purpose described.

2. The combination, with the boiler, of the
5 heater projecting laterally therefrom, consisting of a coil of pipe forming an inverted basin and having the ends connected with the upper and lower portions of said boiler, and the cap

inclosing the coil, substantially as and for the purpose described. 10

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM CLICK.

Witnesses:

SIMEON W. TARNEY,
JAMES H. ROSE.