No. 822,813. PATENTED JUNE 5, 1906.

E. A. BAKER.

APPARATUS FOR CLEANING BOILER FLUES.

APPLICATION FILED NOV. 11, 1905.

Fig. 1.

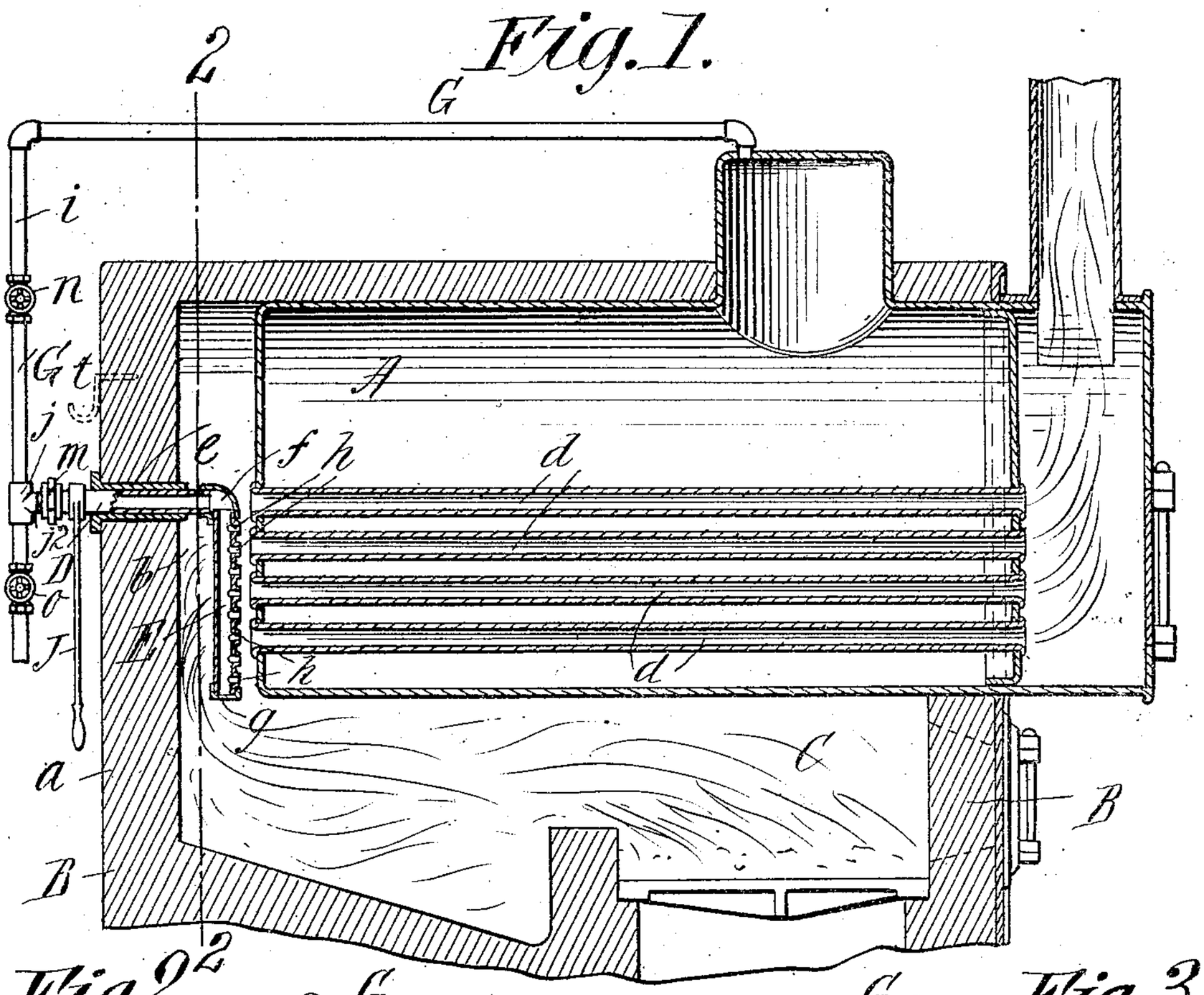


Fig. 2.

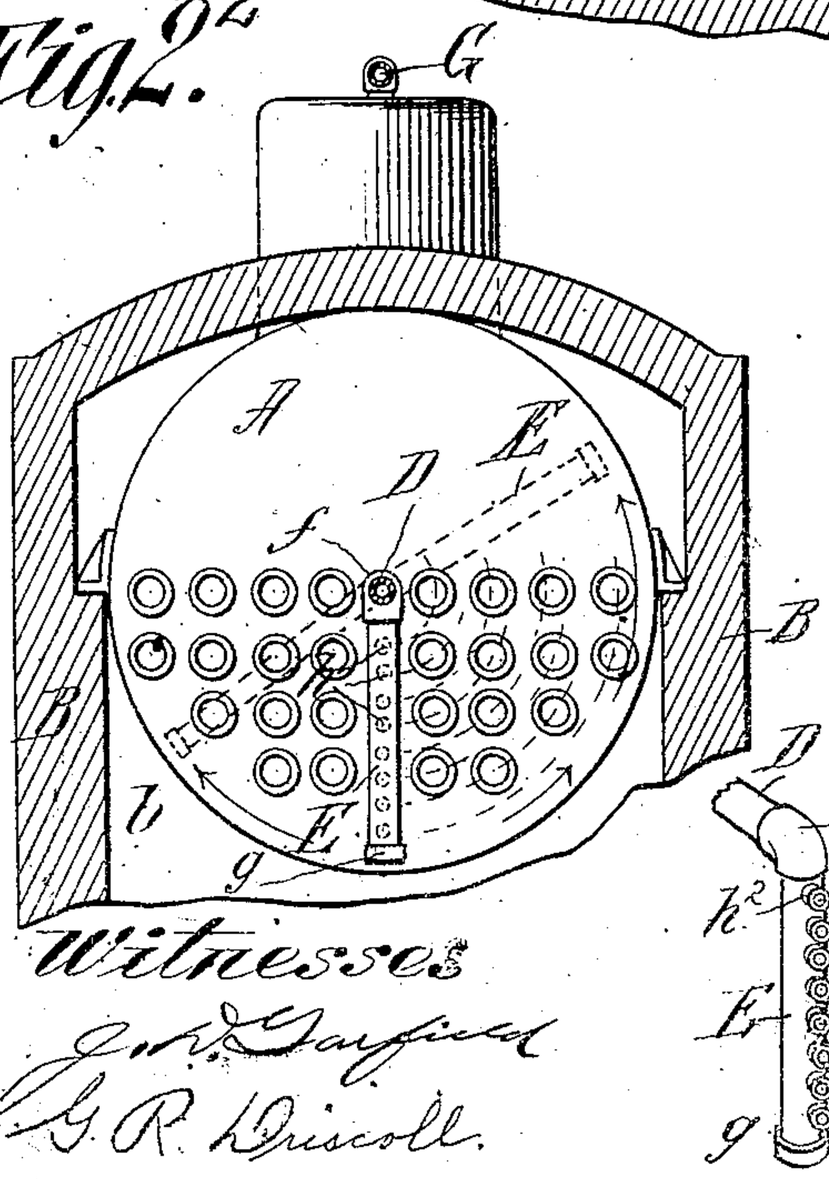
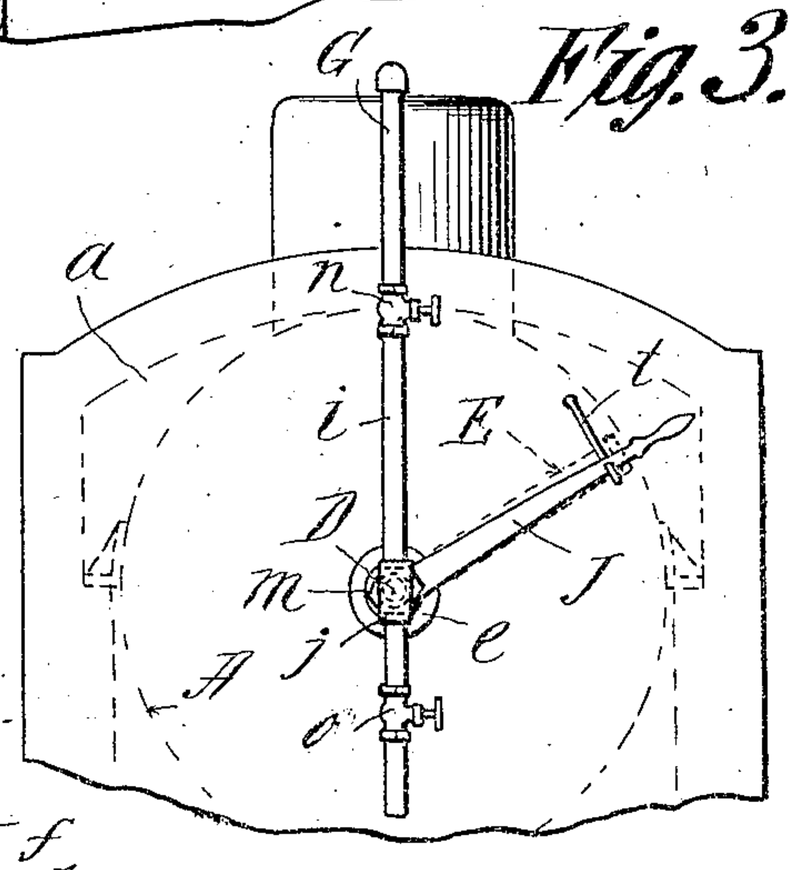


Fig. 3.



Witnesses
J. W. Garfield
G. R. Driscoll.

Inventor:
Enoch A. Baker,
By Wm. F. Bacon
Attorney.

UNITED STATES PATENT OFFICE.

ENOCH A. BAKER, OF WILLIMANSETT, MASSACHUSETTS.

APPARATUS FOR CLEANING BOILER-FLUES.

No. 822,813. Specification of Letters Patent. Patented June 5, 1906.

Application filed November 11, 1905. Serial No. 286,958.

To all whom it may concern:

Be it known that I, ENOCH A. BAKER, a citizen of the United States of America, and a resident of Willimansett, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Apparatuses for Cleaning Boiler-Flues, of which the following is a full, clear, and exact description.

This invention relates to an apparatus for cleaning out the smoke-flues of steam-boilers, and more especially to the kind in which steam supplied from the boiler is employed from time to time for clearing away the soot and ashes or cinders collected in the flues.

An object of the invention is to provide an apparatus which is of such simple and inexpensive construction and of such easy application in conjunction with ordinary boilers as to be unusually efficient and desirable.

The invention consists in the combination, with a flue-boiler, of a pipe extended horizontally through and rotative in the setting, a supply-pipe receiving steam from the boiler and connected with said rotative pipe, and said latter pipe carrying an angular endwise-closed pipe-section revoluble in a vertical plane and located within the setting and between it and the end of the boiler and having a series of steam-delivery perforations through its side toward the mouths of the flues, the location of the improved device being preferably at the rear of the furnace, so that the clearing of the soot or other accumulations in the boiler-flues will be forwardly and in a direction with the draft through the flues to be carried away through the smoke-stack.

The invention furthermore consists in certain particular formations of parts and the combination and arrangement of the parts and all substantially as herein shown and described.

In the accompanying drawings, Figure 1 is a sectional elevation from front to rear through a boiler, its setting, and a furnace. Fig. 2 is a sectional elevation as seen looking forwardly beyond the plane indicated by the line 2 2, Fig. 1. Fig. 3 is an elevation at the rear of a boiler-furnace.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents a horizontal steam-boiler mounted in the setting or housing B therefor, of which *a* is the rear end wall, a space or chamber *b* existing between the rear end of the boiler and the end wall *a* of the housing or setting, into which the products of combustion from the boiler-furnace C may pass and thence through the flues *d* to the smoke-stack. The wall of the setting or housing is made with an aperture horizontally therethrough axially coincident with the center of the boiler, in which is a metallic thimble or bushing *e*. The horizontal section D is extended horizontally through and is adapted to have a rotative motion in said bushing, and it carries at its inner end in the space *b* to the rear of the boiler a pipe-section E, which by an elbow-coupling *f* is connected at right angles with the horizontal rotative pipe and has in conjunction with the rotational movements of the pipe E a revoluble motion around and across the semicircular lower portion of the boiler, in which portion the flues are distributed. The lower end of the pipe-section E is closed, as by the cap *g* or otherwise, and through the side of the pipe toward the end of the boiler are the series of perforations or steam-jet holes *h*, nipple extensions, as indicated at h^2, being advantageously provided.

G represents the steam-supply pipe leading from the dome of the boiler, as illustrated in the present instance, and this supply-pipe has a vertical section *i*, in an intermediate portion of which is a T-coupling *j* with a coupling-limb in line with the rotative pipe D, and a short pipe-section j^2 by the union-coupling *m* is connected or jointed to the pipe D, so that the latter may have its rocking or rotative movements independently of the steam-supply conduit and yet maintaining a tight steamway.

n represents a valve in the supply-pipe above the connection therewith of the pipe D, so that when opened dry steam from the dome of the boiler may pass to issue through the jet-hole *h h* to be directed into all of the flues of the boiler which are in a radial line corresponding to the length of the pipe-section E, which has its traversing swinging movement across the face of the lower half of the boiler end in a vertical plane, it being perceived that the pipe E has jet-holes in greater number than that of any radial line of flues, and such holes are in closer proximity than the spacing of the flues, so that when the pipe is positioned to deliver steam, say, through one-half of the jets, into one radial line of flues at one time, a different positioning of the pipe will cause the steam issuing from the relatively intermediate jet-holes to

pass into the flues found in another radial line.

As a means for conveniently swinging the pipe E, accomplished by the rocking or partial rotating of the pipe D, and one which is entirely operable from the back of the housing or setting, a lever-handle J is affixed to the pipe D, through the operation of which the engineer may gradually change the positions of the pipe E until it has been brought opposite all portions of the flue comprising end of the boiler.

In the lower portion of the depending section *i* of the steam-supply pipe and below the connection therewith of the pipe D is a drip-cock *o*, by the opening of which, after the apparatus may have been used and the valve *m* closed, any accumulations of water from steam condensation may be discharged, or the effectual discharge of such accumulations may be by slightly opening the valve *m* and causing the steam-pressure to force out the collected water. Then for the flue-cleaning operation the drip-cock is closed and the steam-valve *n* is widely opened and the lever J is operative to successively position the steam-jet pipe for a forcible steam delivery through all of the flues, forcing soot and other accumulations from the flues to be carried away in the course of a natural draft to the smoke-stack.

In order that when in disuse the jet-pipe may not be subjected to the most intense heat from the furnace, the same may be swung upwardly to the position represented in Fig. 3 through means of the lever, which is retained in such position by a keeper or hook *t*, located and arranged to detachably engage the lever.

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

1. The combination with a flue-boiler, of a pipe, and a support for said pipe adjacent the end of the boiler, relatively to which the pipe is rotative on an axis parallel with the length of the boiler, a supply-pipe receiving steam from the boiler and connected to said rotative pipe, and said latter carrying an angularly-extended, endwise-closed, pipe-section revoluble in a plane parallel with, and adjacent, the end of the boiler, and having a series of steam-delivery perforations through its side toward the mouths of the boiler-flues.

2. The combination with a horizontal flue-boiler and its setting, of a pipe extended horizontally through, and rotative in, the setting on an axis parallel with the length of the boiler, a supply-pipe receiving steam from the boiler and connected with said rotative pipe, and said latter carrying an angular endwise-closed pipe revoluble in a vertical plane parallel with the end of the boiler and located within the setting and between it and the end of the boiler, and having a series of steam-delivery perforations through its side toward the mouths of the flues, a valve for controlling the admission of steam through the said supply-pipe, and means externally of the setting for turning said rotative pipe.

3. The combination with a horizontal flue-boiler, of a pipe horizontally and rotatably mounted behind the end of the boiler and having its length parallel with the axis of the boiler, a supply-pipe receiving steam from the boiler and having a vertical section, an intermediate part of which is in communication with said rotative pipe, and said latter carrying an angular endwise-closed pipe-section revoluble in a vertical plane parallel with the end of the boiler and located within the setting and between it and the end of the boiler, and having a series of steam-delivery perforations through its side toward the mouths of the flues, means for turning the horizontal pipe, a valve in said vertical pipe-section above the horizontal rotatable pipe, and a drip-cock in said vertical pipe-section below the rotatable pipe.

4. The combination with a flue-boiler and its setting provided with a tubular metallic bushing, of a pipe extended horizontally through, and rotative in said bushing of the setting, a supply-pipe receiving steam from the boiler and a union-coupling connecting said supply-pipe and said rotative pipe, and said latter pipe carrying an angular endwise-closed pipe-section revoluble in a vertical plane and located within the setting and between it and the end of the boiler, and having a series of steam-delivery perforations through its side toward the mouths of the flues, a valve for controlling the admission of steam through the supply-pipe, and a handle externally of the setting provided to the rotative pipe and for turning the latter.

5. The combination with a flue-boiler and its setting, of a pipe extended horizontally through, and rotative in, the setting, a supply-pipe receiving steam from the boiler and having a union-coupling connecting it with said rotative pipe, whereby the latter may turn independently of the supply-pipe, and said rotative pipe carrying an angular endwise-closed pipe-section revoluble in a vertical plane and located within the setting and between it and the end of the boiler, and having a series of steam-delivery perforations through its side toward the mouths of the flues and of greater number than the number of flues in any line radially of the axis of the boiler.

Signed by me at Springfield, Massachusetts, in presence of two subscribing witnesses.

ENOCH A. BAKER.

Witnesses:

WM. S. BELLOWS,

G. R. DRISCOLL.