

No. 855,210.

PATENTED MAY 28, 1907.

A. STEWART.
BOILER FLUE CLEANER.
APPLICATION FILED SEPT. 26, 1906.

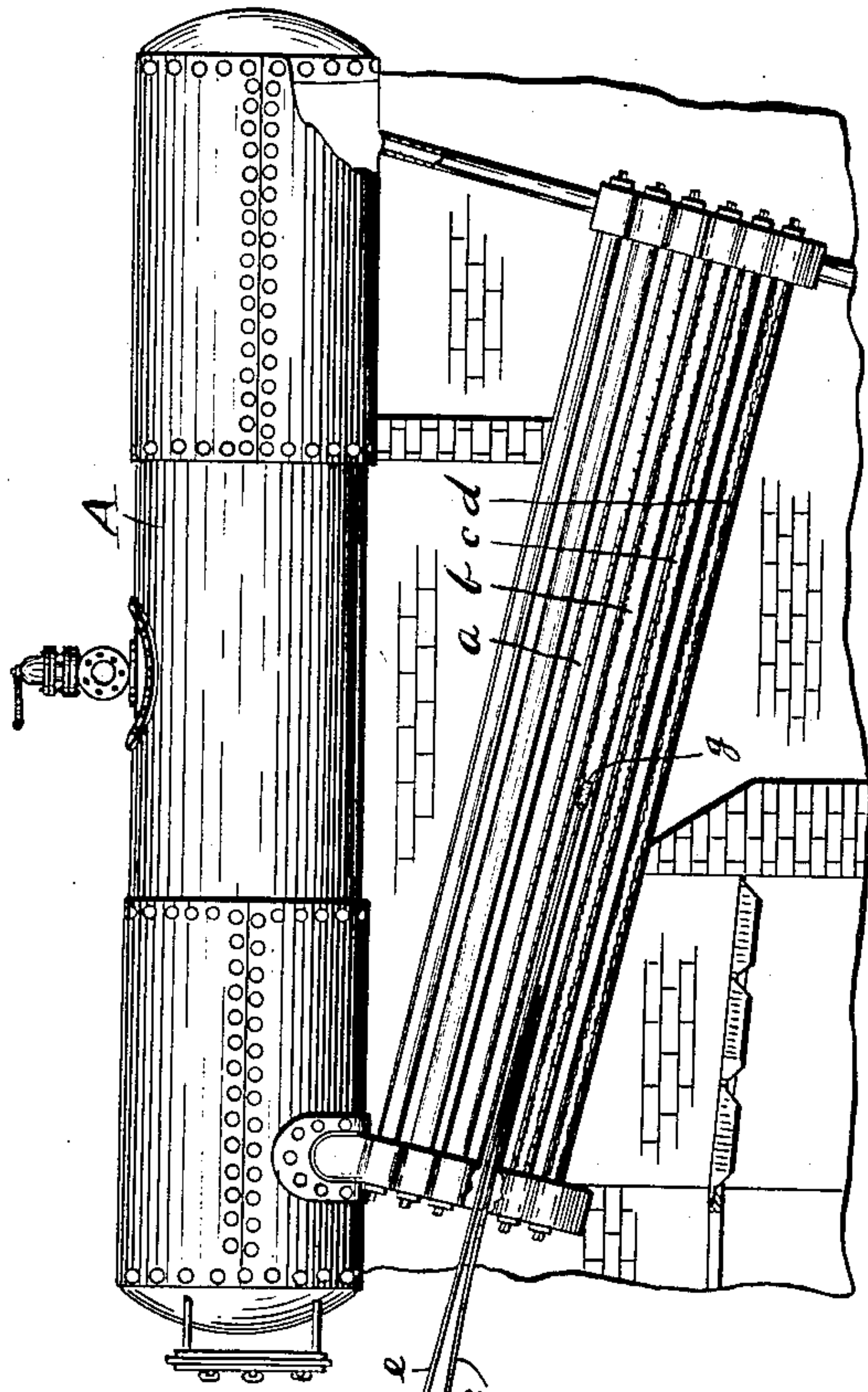


Fig. 1.

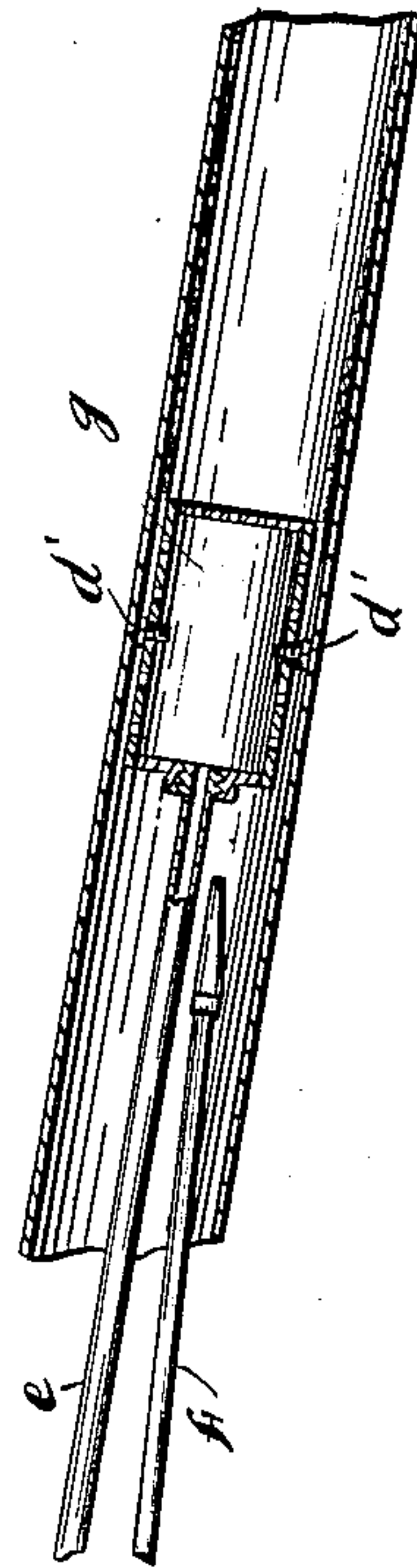


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

ARCHIBALD STEWART, OF KEOTA, IOWA.

BOILER-FLUE CLEANER.

No. 855,210.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed September 26, 1906. Serial No. 336,244.

To all whom it may concern:

Be it known that I, ARCHIBALD STEWART, a citizen of the United States, residing at Keota, in the county of Keokuk and State of Iowa, have invented certain new and useful Improvements in Boiler - Flue Cleaners, of which the following is a specification.

My invention relates to an improvement in boiler flue cleaners and in the method of cleaning.

The object of this invention is to apply heat of a more or less limited degree, progressively and locally inside of the flues whereby a small area of the flue being cleaned is expanded at a time so that the scale cracks and drops therefrom after which the area thus heated and treated is immediately cooled and restored to its normal condition.

With the foregoing object in view my invention consists in certain novel mechanism and procedure which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings: Figure 1 is a view partly in section through a water tube boiler and showing portions of the cleaning apparatus in elevation. Fig. 2 is an enlarged sectional view showing the nozzles in position within a tube.

A, represents a boiler having tubes *a*, *b*, *c*, and *d* shown in longitudinal section therein, B, is a tank containing burning fluid, *e* is a pipe of sufficient length to reach to the inner end of the boiler tubes and carrying on its inner end a perforated burner nozzle *g* which is centered in the middle of the boiler flue by the centering lugs *d'* shown in Fig. 2, which lugs as the term implies hold the nozzles in a central position and so away from the wall of the flue being treated. A flexible hose *e'* connects the pipe *e* with the tank B and a cock *i* controls the discharge of burning fluid through the pipe *e* and burner *g*. An air blast pipe *f* supplies air to the flue being cleaned and the purpose of this air inlet is to aid combustion and also to immediately cool the portion of the pipe just cleaned. The letter *a* illustrates a tube which has been cleaned, *b* a tube partly cleaned, and *c* and *d* tubes still incrustated with the scale.

In the operation of my improved apparatus and method, the cock *i* is opened and the burner lighted and the operator inserts it in the outer end of the flue. As soon as gas

begins to escape from the burner and it is ignited, the air blast is turned on through pipe *f* with any desired force. This causes an intense heat on the inside of the flue which at once expands at the point being treated and the scale at the same instant cracks and falls off, whereupon the burner is pushed along through the flue and the process is continued, until the flue has been heated and cleaned throughout its entire length. The fierce air blast that follows up the burner and creates the intense heat, also cools off the cleaned part of the flue and thus longitudinal expansion of the flue is reduced to a minimum, and in fact there is not sufficient expansion to injure the boiler. By this process it is never necessary to heat the flue to a red heat and just sufficient heat is created and applied to cause a local expansion and cracking of the incrustation which heating process is immediately followed by a cooling process, the air utilized thus performing the double function of aiding and supporting combustion, and of cooling the heated area. After a flue has been cleaned the pipe *e* and burner *g* are removed and placed in another, and so the process is repeated until all are cleaned.

It is evident that more or less slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact construction herein set forth, but:—

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. An apparatus for cleaning boiler flues consisting of a pipe having a burner thereon, and means for supplying air under pressure and discharging it in rear of the burner.

2. An apparatus for cleaning boiler flues consisting of a pipe having a burner thereon, a tank containing burning fluid, and a flexible connection extending therefrom to the pipe and means for supplying air under pressure and discharging it in rear of the burner.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARCHIBALD STEWART.

Witnesses:

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