March 29, 1927. 1,622,303

R. H. WYLD ET AL

HANGER BOLT FOR BOILER SETTINGS

Filed May 15, 1923

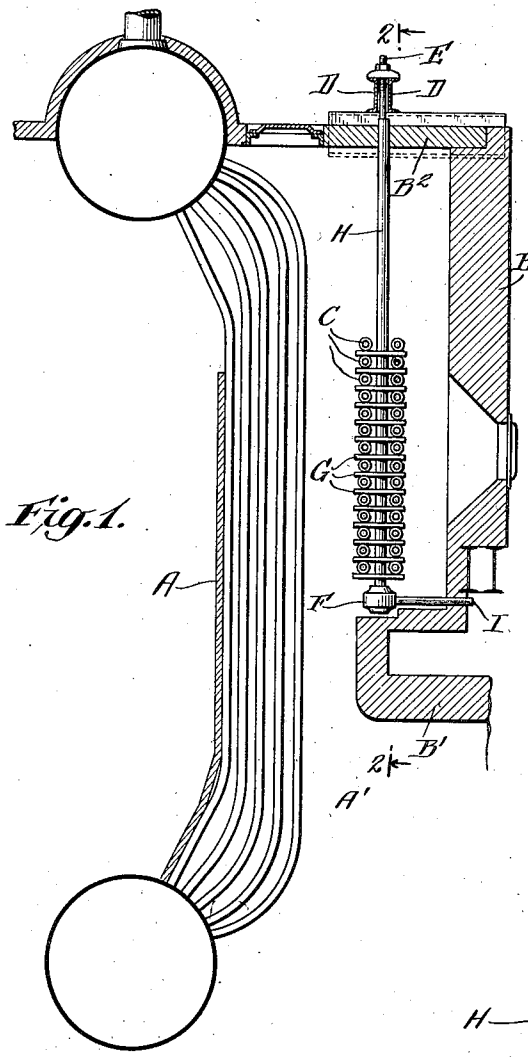


Fig. 1.

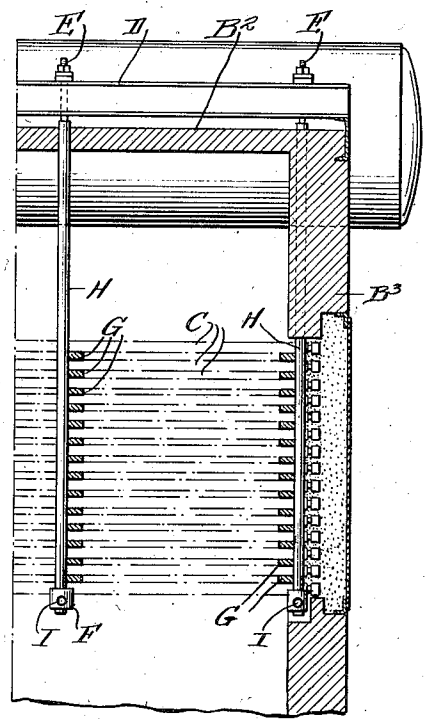


Fig. 2.

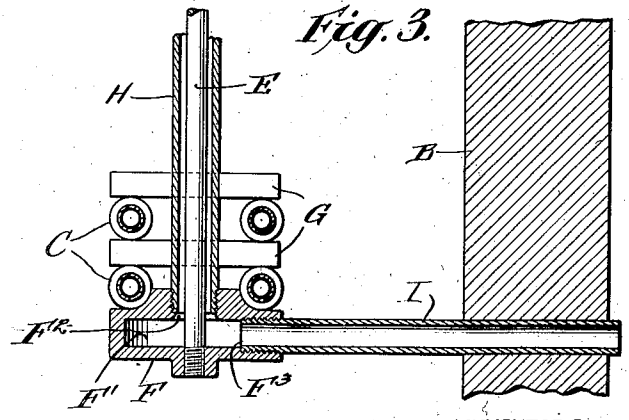


Fig. 3.

INVENTORS
ROBERT H. WYLD
and WALTER R. KEENAN
BY
John E. Hubbell
ATTORNEY

Patented Mar. 29, 1927. 1,622,303

UNITED STATES PATENT OFFICE.

ROBERT H. WYLD, OF HEMPSTEAD, AND WALTER F. KEENAN, JR., OF PELHAM, NEW YORK, ASSIGNORS TO POWER SPECIALTY COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

HANGER BOLT FOR BOILER SETTINGS.

Application filed May 15, 1923. Serial No. 639,056.

The object of our invention is to provide hanger bolts adapted for use in boiler settings with simple and effective air cooling provisions.

The various features of novelty which characterize our invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention and its advantages, reference should be had to the accompanying drawings and descriptive matter in which we have illustrated a preferred embodiment of our invention and one of the many uses to which it may be put.

Of the drawings:

Fig. 1 is a partial sectional elevation of a portion of a boiler furnace;

Fig. 2 is a partial section on the line 2—2 of Fig. 1; and

Fig. 3 is a section taken similar to Fig. 1 but on a larger scale and showing a portion only of the apparatus shown in Fig. 1.

In the drawings A is a conventionally illustrated vertical tube boiler mounted in a housing comprising a combustion chamber A′ in front of the boiler, with an arch B′ above the combustion chamber and extending inward from the portion B of the boiler housing wall above the arch B′.

In the space above the arch B′ and between the boiler water tubes and the front wall B of the boiler housing is located a superheater which as shown comprises a vertical row of pairs of horizontally disposed Foster superheater elements C, i. e. elements consisting of bare steel tubes encased in tubular externally corrugated cast iron sections. The superheater elements C are supported by suspension or hanger bolts E which extend through the roof portion B^2 of the boiler housing, and are provided at their upper ends with nuts bearing against the top edges of spaced apart channel bar beams D, and are connected at their lower ends, each to a corresponding abutment member F on which rest the lower pair of elements C of each vertical row of such elements. The elements C above the bottom pair, are spaced apart by metal spacing elements G, and each hanger bolt thus carries a portion of the weight of all of the pairs of elements C between which it passes. In so far as above described, the apparatus shown contains nothing now novel with us, but on the contrary, is a typical instance of one of the many uses of hanger bolts in boiler setting with which our invention may be advantageously employed.

For the purposes of our invention each abutment member F is specially formed to provide an air chamber F′ with an outlet F^2 at its upper side and with an outlet F^3 adjacent the boiler housing wall portion B. Each hanger bolt E passes through but does not fill the air chamber F′ and outlet F^2. Surrounding each hanger bolt B is a tubular sleeve H, the internal diameter of which is larger than the external diameter of the bolt. The sleeves H extend, in the construction shown, from the top of the abutment member F to the undersides of the beams D from which the bolt is suspended, and the annular space between the bolt and its surrounding sleeve is open to the external atmosphere at the upper end of the sleeve and is open to the air chamber F′ in the abutment member at its lower end. The sleeve is suitably seated on the member F. As shown the parts are threaded together but this is not essential. A pipe I, shown as threaded into the lateral port F^3, projects through the boiler housing front wall B, and has its outer end open to the atmosphere. As shown in Fig. 2, one of the hanger bolts E and its enclosing sleeve H are incorporated in the end wall B^3 of the boiler housing, while the sleeve H about the other hanger bolt shown is in contact with the heating gases flowing through the boiler setting.

Whether incorporated in the housing wall in whole or in part, the sleeve H absorbs heat more or less rapidly and correspondingly heats the air in the annular channel between the sleeve and the hanger bolt which it surrounds. In consequence, the channel acts like a chimney to create a draft drawing cold air into the lower end of the channel through the pipe I and air chamber F′ and discharging hot air into the atmosphere at the upper end of the channel. The air thus caused to flow through the channel within the sleeve H prevents the hanger bolt from being heated to an undesirably high temperature and also protects the sleeve H against overheating even though the temperature in the space traversed by the sleeve

H may be substantially about that at which uncooled metal parts would be weakened or destroyed.

Those skilled in the art will understand that the invention is not limited to the use illustrated but is capable of general use with hanger bolts employed in boiler settings of various boiler and superheater parts. Those skilled in the art will understand, also, that many modifications in form may be made, without departing from the spirit of my invention as set forth in the appended claims.

Having now described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. In a boiler setting comprising a hanger bolt located in a high temperature portion of the setting, the improvement which consists in a sleeve surrounding the bolt with an air space between the bolt and the sleeve which is in communication at its upper and lower ends with the atmosphere, whereby the bolt is cooled by air drawn through said air space by the chimney action of the latter.

2. In a boiler setting the combination with a part to be supported, of supporting means therefor comprising a hanger bolt and an abutment member engaged by said part and secured to said bolt and formed with an air chamber, a sleeve loosely surrounding said bolt to provide an air space between the bolt and the sleeve communicating at its lower end with said air chamber and at its upper end with the atmosphere, and a second pipe connecting said air chamber to the external atmosphere.

Signed at New York, in the county of New York and State of New York, this 8th day of May A. D. 1923.

ROBERT H. WYLD.
WALTER F. KEENAN, JR.