T. S. WALLER & E. B. BARNHILL.

BLOWER FOR BOILERS.

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981,146.

Patented Jan. 10, 1911.

Fig. 1.

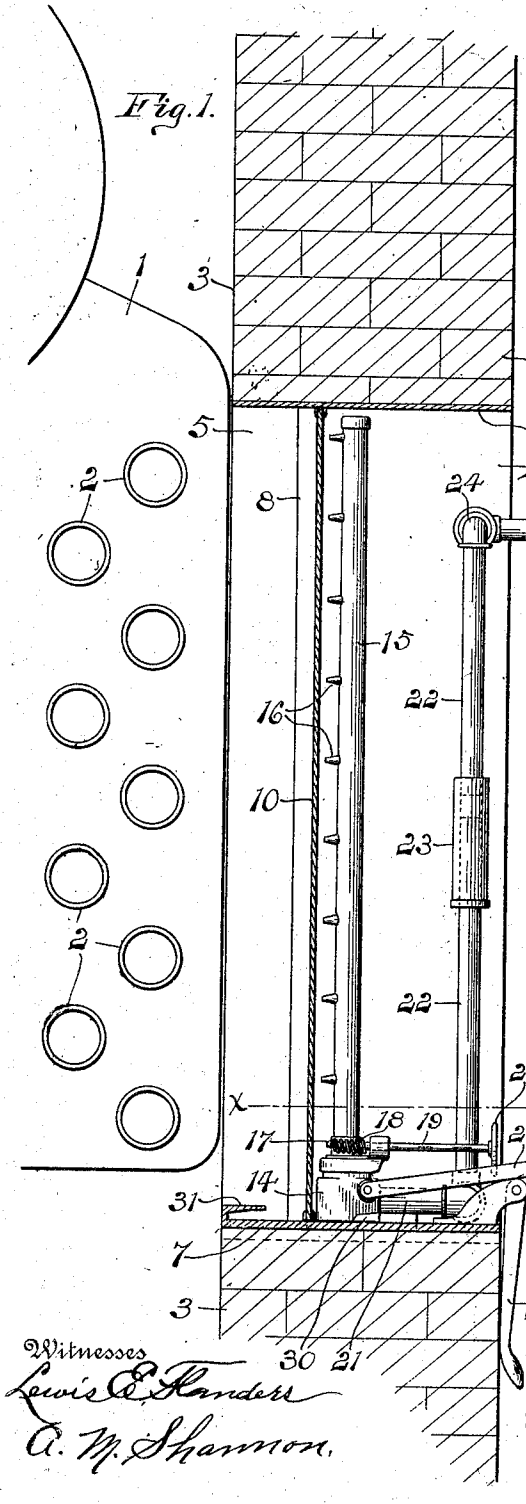


Fig. 3.

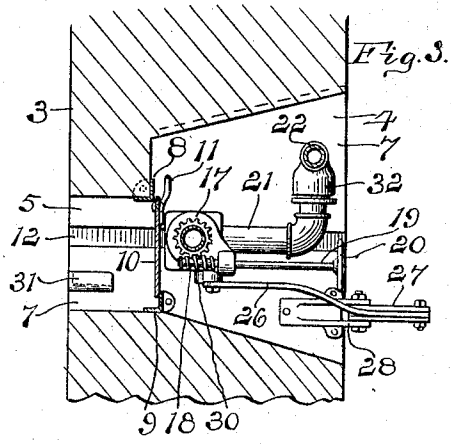
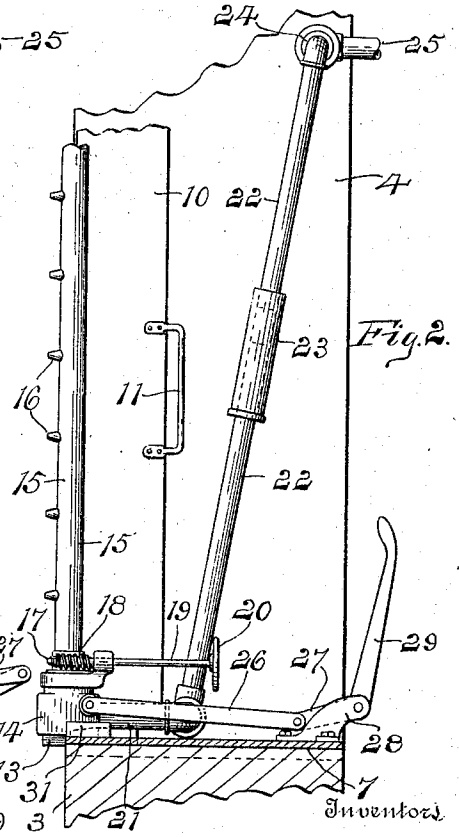


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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BLOWER FOR BOILERS.

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To all whom it may concern:

Be it known that we, THOMAS S. WALLER and EDWARD B. BARNHILL, citizens of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Blowers for Boilers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in blowers for tubular boilers and its object is to provide an efficient device for the purpose and simple, cheap and convenient means for operating the same together with certain other new and useful features in the construction, arrangement and combination of parts all as hereinafter more fully described reference being had to the accompanying drawing, in which,

Figure 1 is a vertical section through a boiler and the adjacent wall of the boiler setting showing a device embodying the invention in place within a recess in the wall; Fig. 2, is a similar vertical section through the wall showing the blower in projected position: and Fig. 3 is a horizontal section substantially on the line x—x of Fig. 1.

As shown in the drawings 1 represents a boiler of the ordinary construction having water tubes 2, and 3 is the masonry wall of the boiler setting adjacent to the boiler and having a recess or opening therethrough opposite the boiler tubes. This opening or recess is formed with an outer enlarged end 4 having flaring sides and opening through the outer face of the wall, and an inner contracted portion or throat 5, opening through the inner face of the wall from the enlarged part 4 of the recess. Plates 6 and 7 form the upper and lower ends respectively of the opening and angle bars 8 and 9 extend between the plates 6 and 7 to support the same and form a door frame for a swinging door 10. These angle bars are located at the entrance to the throat 5 from the outer chamber 4 and the door 10 is pivoted at one edge to the plates 6 and 7 to turn inward parallel with one side of the throat out of the way of the passage therethrough, said door lying wholly within the throat when so turned by a handle 11 and engaging the angle bar 9 which forms a jamb therefor when in closed position across the throat. In the bottom plate 7 is a groove 12 and slidably engaging said groove is a rib 13 on the lower side of a hollow base 14 in the upper side of which is stepped a header tube 15 to rotate therein. The header tube extends vertically upward within the recess in the wall to near the upper end thereof and is provided with a series of jet nozzles 16 in one side in spaced relation to the boiler tubes to direct steam jets between the tubes. In order to blow the full length of the tubes the header pipe is rotated upon its axis within the base 14 by means of a worm gear 17 secured to the lower end of the pipe engaged by the worm 18 mounted on the base and actuated by a shaft 19 extending outwardly therefrom and provided with a hand wheel 20.

A short steam pipe 21 is secured in the base 14 to deliver steam thereto and extends outwardly and is provided with a horizontal elbow at its outer end connected to a swivel joint 32, pivotally connecting the steam pipe 21 and an upwardly extending pipe 22 which is provided with a slip joint 23 intermediate its ends and is pivotally connected by a joint 24 at its upper end to a fixed feed pipe 25 for delivering steam thereto from the boiler or other source of supply. When the base 14 is moved along the groove 12 the pipe 22 will swing on its pivot 24 to permit such movement.

To slide the head along the guideway 12 to project the header pipe 15 through the throat toward the boiler tubes, a link 26 is pivotally attached at one end to the base 14 and at its opposite end to the short arm 27 of a bell crank lever to a bracket 28 on the plate 7 and the long arm 29 of which bell crank forms a handle by means of which it is turned. When the header is projected as shown in Fig. 2, and the handle 29 is up, the pivotal point of connection between the link 26 and short arm 27 of the lever will be below a line drawn through the pivotal support of said lever and the pivotal point of attachment of the link to the base 14, said lever throwing past the center and thus locking the header in projected position.

Projecting laterally from one side of the base 14 is a lug 30 and on the plate 7 is a hook 31 beneath which the lug engages when the head is moved to projected position. The inner end of the hook forms a stop to engage the lug and limit the inner movement of the head and the upper surface of the lug

and the inner surfaces of the hook are each formed slanting so that the lug will fit closely within the hook and firmly hold the base 14 seated upon the plate 7.

The link and lever mechanism forms a cheap and convenient means for reciprocating the header and takes up but little space outside of the wall as the hand lever lies close against the wall when the header is retracted. The steam pipe connection is arranged to lie wholly within the recess in the wall and thus take up none of the space outside of the wall available for other purposes. When the header is projected to operative position and steam is turned on the force of the escaping steam would tend to overthrow the header and the locking lug 30 is therefore provided as a cheap and convenient means for locking the header in upright position and also limiting its upward movement toward the steam pipes. The arrangement of plates 6 and 7 and the angle bars 8 and 9 within the opening in the wall forms a cheap and convenient casing for the recess and supporting means for the several parts.

Having thus fully described our invention what we claim is:—

1. The combination with a wall of a boiler setting having an opening therethrough, forming a recess therein, of a plate in the bottom of the recess having a guide slot, a hollow base engaging and slidable within said slot, a header pipe carried by the base and extending upward within the recess, a steam supply pipe extending into the outer side of the recess near its upper end, a pipe pivotally attached at its upper end to said steam supply pipe and pivotally attached at its lower end to the reciprocable base, a slip joint in the swing pipe, and means operable through the outer side of the recess for reciprocating the base with its header.

2. The combination with a wall of a boiler setting having a recess therein forming an enlarged end at the opening through the outer face of the wall and a contracted portion forming a throat opening through the inner face of the wall, of a base reciprocable in the lower end of said recess through the throat, a header pipe extending upwardly from the base and carried thereby, means for reciprocating the base and header, and a door pivotally supported at one side of said throat near the outer end thereof to turn within the throat across the same and to lie wholly within said throat adjacent to the side thereof when in open position.

3. The combination with a wall of a boiler setting having a recess extending therethrough, a header reciprocable within the lower end of the recess, means for supplying steam to the header within the recess, a link pivotally attached at one end to the header, and a bell crank lever having its short arm pivotally attached to the end of the link, and its long arm forming a hand lever by means of which the bell crank may be turned to reciprocate the header.

4. The combination with the wall of a boiler setting having a recess extending therethrough, of a plate forming the bottom of the recess and provided with a guideway, a header slidable in the guideway, a lug on the header, and means on the plate to engage the upper side of the lug when the header is moved to the inner side of the wall and lock the header to the plate, and means for reciprocating the header.

5. The combination with a wall of a boiler setting having a recess extending therethrough, of a plate in the bottom of the recess formed with a guideway, a hollow base reciprocable in said guideway, means for supplying steam to the hollow base, a header pipe extending upward from and supported by the base, jet nozzles in one side of the header pipe, a hook on the bottom plate at the inner side of the wall, a lug on the base projecting laterally therefrom and adapted to engage the hook, and means for reciprocating the base in its guideway.

6. The combination with a wall of a boiler setting having a recess extending therethrough, said recess having an enlarged outer end opening through the outer side of the wall and a contracted portion forming a throat opening through the inner side of a wall, of a plate in the bottom of the recess having a guideway, a plate forming the top of the recess, angle bars extending between said plates and located at the outer end of the throat, said angle bars forming the side members of a door frame, a door pivotally supported adjacent to one of the angle bars to be turned across the throat into engagement with the other angle bar, a base reciprocable in the way in the lower plate, an upwardly extending header supported by the base, means within the outer enlarged portion of the recess for supplying steam to the base, and means for reciprocating the base with its header.

In testimony whereof we affix our signatures in presence of two witnesses.

THOMAS S. WALLER.
EDWARD B. BARNHILL.

Witnesses:
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