T. S. WALLER.

BLOWER FOR BOILERS.

APPLICATION FILED AUG. 19, 1910.

995,931.

Patented June 20, 1911.

2 SHEETS—SHEET 1.

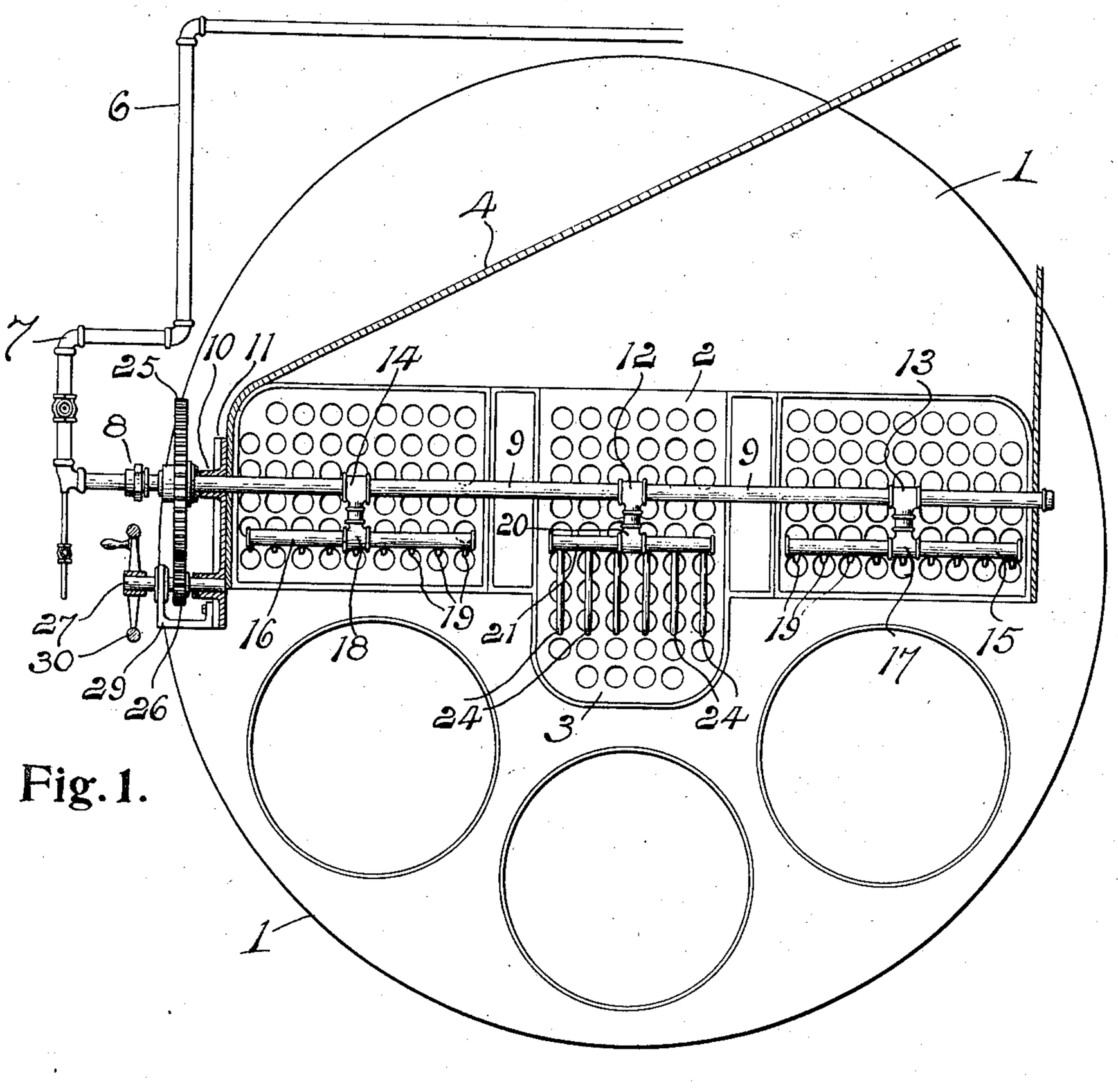

Fig. 1.

Witnesses

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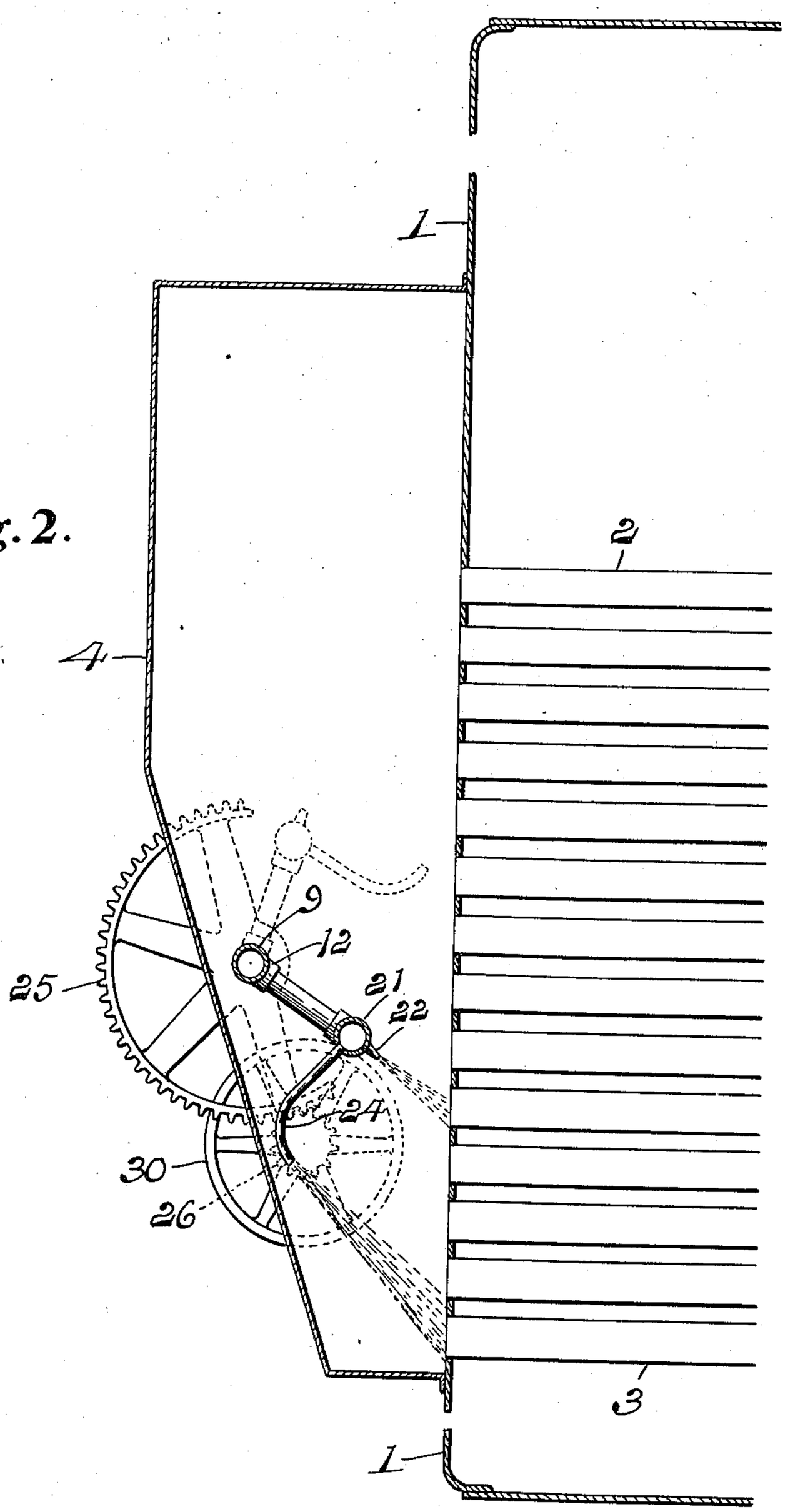
Fig. 2.



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UNITED STATES PATENT OFFICE.

THOMAS S. WALLER, OF DETROIT, MICHIGAN, ASSIGNOR TO DIAMOND POWER SPECIALTY COMPANY, OF DETROIT, MICHIGAN, A COPARTNERSHIP.

BLOWER FOR BOILERS.

995,931. Specification of Letters Patent. Patented June 20, 1911.

Application filed August 19, 1910. Serial No. 577,909.

To all whom it may concern:

Be it known that I, THOMAS S. WALLER, a citizen 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 blowers for tubular boilers wherein provision is made for cleaning the tubes thereof without drawing the fire from the boiler and especially to a disposition of the parts whereby a boiler having a bank of tubes at a considerable distance below the main bank may be effectively cleaned.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view of the end of a boiler equipped with a blower that embodies features of the invention; Fig. 2 is a vertical central section showing the blower in position on the breeching of the boiler.

As herein indicated, a boiler 1 has an upper series of tubes 2 and a lower bank 3 centrally disposed beneath the main bank. The usual breeching 4 is mounted on the shell of the boiler. A supply pipe 6 from the steam dome or other convenient portion of the boiler leads through suitable fitting 7 to a swiveled joint 8. The latter serves as a connection with a horizontally disposed main 9 which is journaled near its ends in the apertured boss 10 of a suitable bearing plate 11 secured on the outer faces of the breeching walls. The main is directly opposite the several sets of tubes forming the upper bank of the boiler and has a central branch 12 extending toward the central section and side branches 13 and 14 extending toward the outer sections. Headers 15 and 16 are carried by tees 17 and 18 on the outer branches and are provided with a plurality of nozzles or jets 19 adapted to direct steam toward the several rows of pipes in each section. The central branch 12 terminates in a tee 20 carrying a header 21 with a series of jet nozzles 22 arranged to sweep the several vertical rows of tubes in the center section of the upper bank. The header is likewise equipped with a series of depending tubular fingers 24 whose lower ends are inbent toward the boiler so that jets therefrom effectively sweep the tubes of the lowest bank 3 while the upper jets are being directed against the tubes of the central upper section. As herein shown these fingers are substantially at right angles to the central branch 12 with their outer ends arranged to travel in an arc of slightly greater radius than the curve described by the header 21 so that there is ample room for the manipulation of the blower within the space provided between the back plate of the breeching and the adjacent boiler head. The main 9 is rotated by a gear 25 secured thereon in mesh with a pinion 26. The latter is keyed to or otherwise secured on a shaft 27 that is journaled in a boss 28 of the bearing plate 11 and in an outstanding bracket 29 secured to said plate. A hand wheel 30 or like means is provided for manipulating the pinion shaft. By this method of construction a blower is obtained by which the tubes of a boiler of the type indicated may be cleaned without drawing the fire from the boiler. Furthermore the blower may be mounted on the boiler without changing the breeching or enlarging it in any way. Another important feature is the use of the bearing plates on the sides of the breeching which are so disposed that the longitudinal expansion of the main by the introduction of steam does not affect the bearings or cause them to bind while the gears are of the spur type and any longitudinal shifting thereof due to movements caused by heat does not affect them and make them bind as frequently occurs in the use of worms or beveled gears around boilers or like places where there are rapid changes in temperature.

Obviously, changes in the details of construction may be made without departing from the spirit of the invention and I do not care to limit myself to any particular form or arrangement of parts.

I claim as my invention:—

1. A device of the character described comprising a horizontal steam main rotatably supported adjacent the tubes of a boiler, a branch extending laterally therefrom, a header secured to the outer end of the branch parallel to the rotatable main, a series of jet nozzles on the header, a series of jet fingers extending from the header transversely to the branch, and means for rotating the horizontal main.

2. A device of the character described comprising a horizontal steam main rotatably supported adjacent the tubes of a boiler, a central branch extending laterally therefrom, a header secured to the outer end of the branch parallel to the rotatable main, a series of jet nozzles on the header, a series of jet fingers extending from the header transversely to the branch with discharge ends directed in the same direction as the nozzles, a bearing plate in which the main is journaled, a shaft journaled in the plate parallel to the main, a gear on the main and a pinion on the shaft in mesh therewith.

3. A device of the character described comprising a horizontal steam main rotatably supported adjacent the tubes of a boiler, a branch extending laterally therefrom, a header secured to the outer end of the branch parallel to the rotatable main, a series of jet nozzles on the header, a series of jet fingers extending from the header transversely to the branch with discharge ends at a distance from the header disposed to travel in an arc of substantially the same radius as the header, and means for rotating the horizontal main.

4. In combination with a boiler having a series of banks of tubes, one bank of which is of greater vertical length than the others, and a breeching for said boiler, of a rotatable steam main mounted in bearings on each side of the breeching and extending across the same at a distance from the open ends of the boiler tubes, a branch extending laterally from said main opposite the vertical central line of each bank of tubes, a header on the end of each branch of a length substantially equal to the width of the bank opposite which it is located, jet nozzles on said headers, jet fingers extending from the header opposite the longer bank of tubes, and means for turning the main.

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

THOMAS S. WALLER.

Witnesses:
OTTO F. BARTHEL,
LEWIS E. FLANDERS.