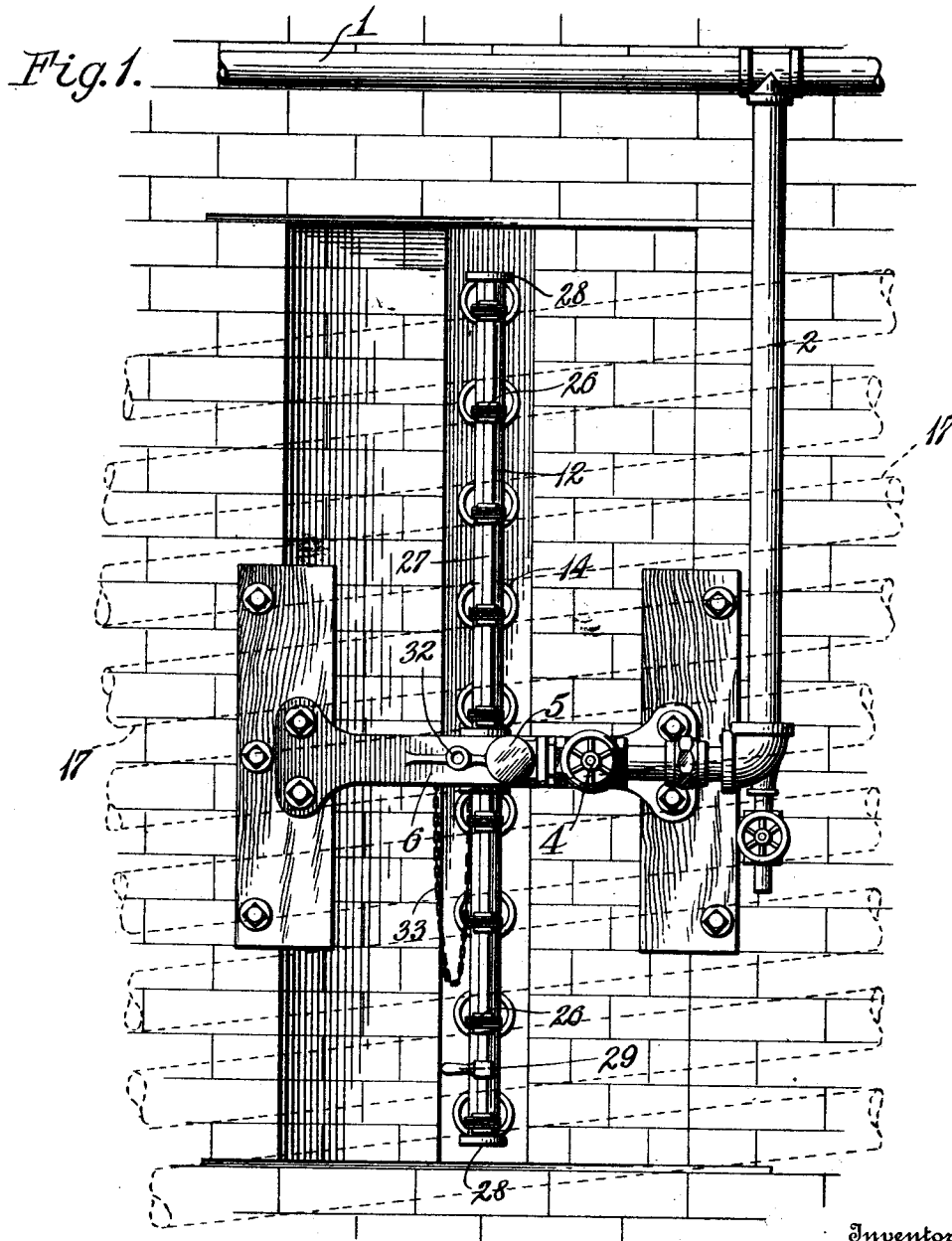


J. MAGEE.
BLOWER FOR BOILERS.
APPLICATION FILED OCT. 16, 1912.

1,057,161.

Patented Mar. 25, 1913.

4 SHEETS—SHEET 1.



Witnesses
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Anna M. Dorr

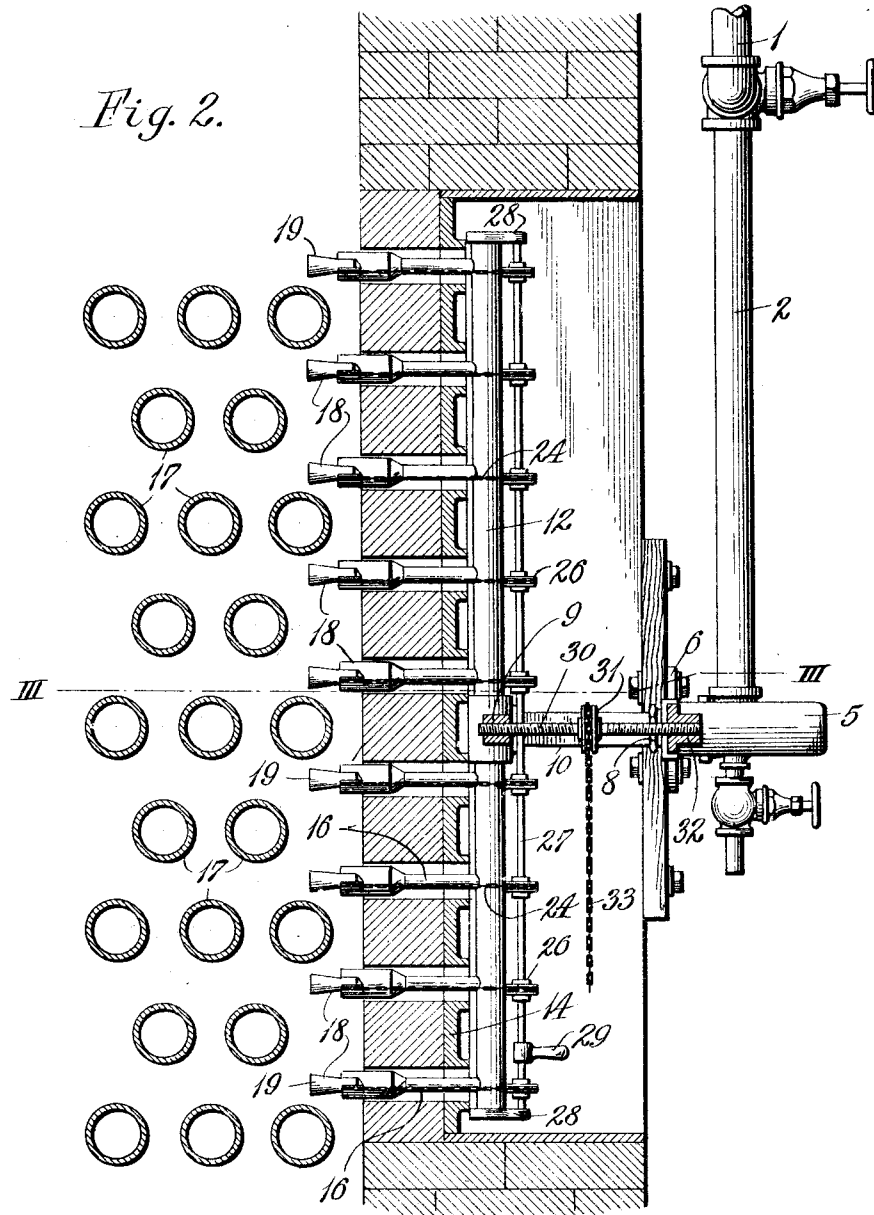
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4 SHEETS—SHEET 2.

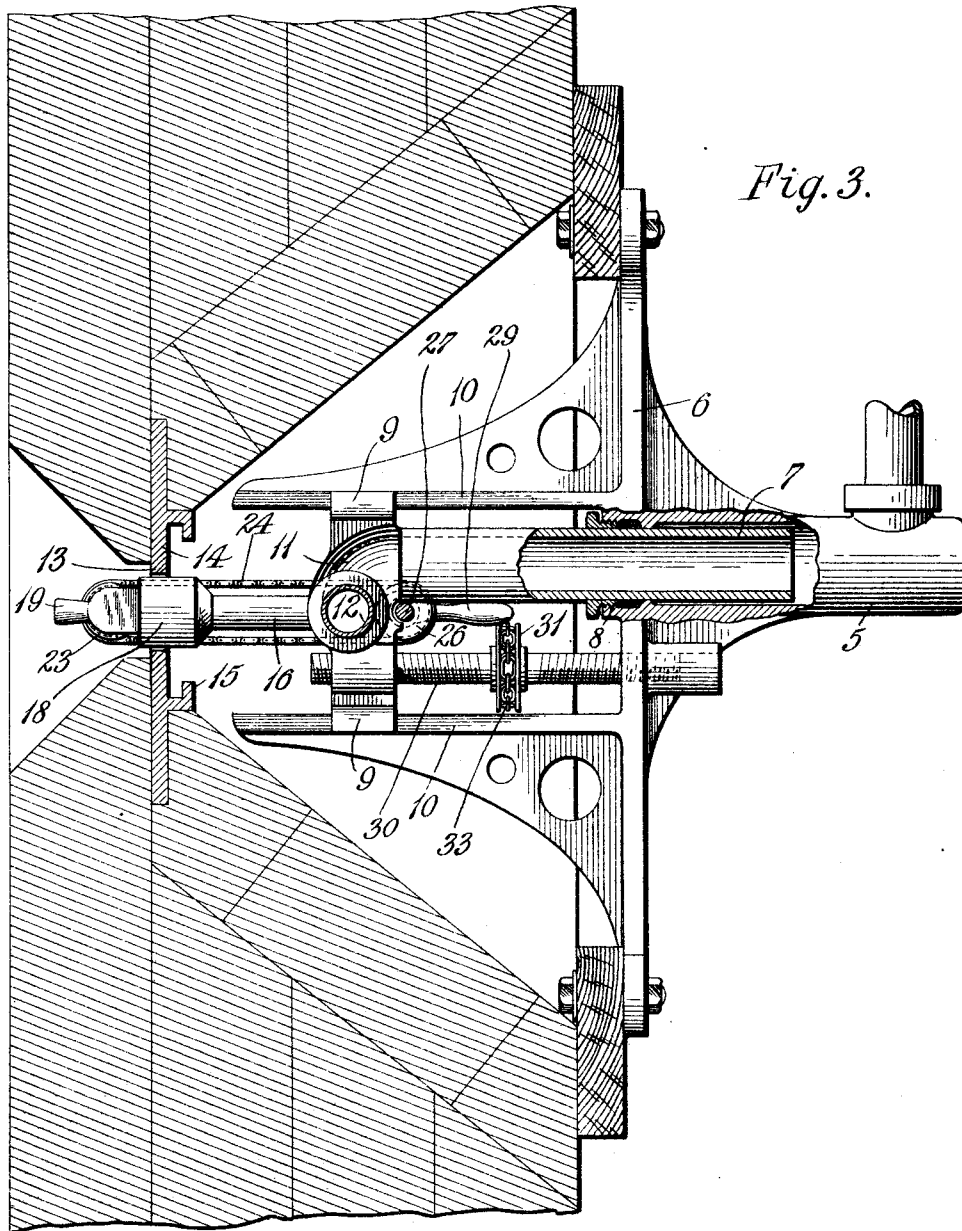


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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

Fig. 4.

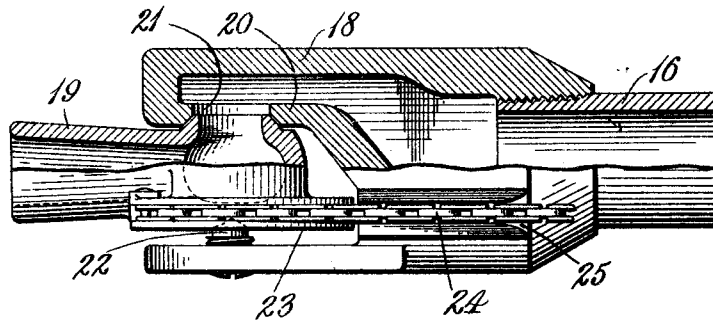


Fig. 5.

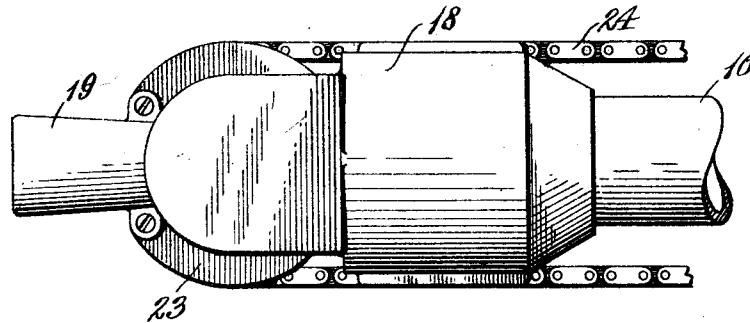
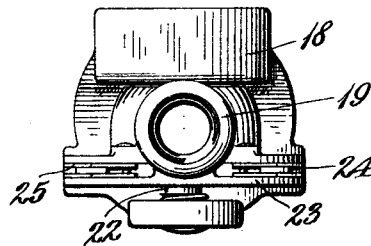


Fig. 6.



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UNITED STATES PATENT OFFICE.

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BLOWER FOR BOILERS.

1,057,161.

Specification of Letters Patent.

Patented Mar. 25, 1913.

Application filed October 16, 1912. Serial No. 726,084.

To all whom it may concern:

Be it known that I, JOHN MAGEE, 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.

10 In the application of steam blowers to water tube boilers it is necessary in order to obtain the greatest efficiency that the cleaning jets be projected across and through tubes in planes that are substantially parallel thereto. In mounting such devices upon a water tube boiler it is also desirable that the openings in the masonry at which the headers that carry the jets are applied, be arranged at substantially right angles to the masonry courses for convenience of construction. Furthermore openings in the form of manhole or cleaning doors are frequently found in such masonry and it is desirable that they be available for use in the application of a blower.

This invention relates to a blower for water tube boilers that is adapted for application to the masonry and closes the side of the boiler through upright openings therein and that is adjustable so that the cleaning jets may be readily made to sweep the tubes whether the latter be horizontal or as more frequently, inclined.

The invention also includes features that provide for its easy manipulation without danger to the operator and which insure sufficiency combined with simplicity of construction.

The invention consists in the matters hereinafter set forth and pointed out in the claims.

In the drawings, Figure 1 is a view in side elevation of a masonry setting of a water tube boiler with a portion of a blower that embodies the invention mounted thereon; Fig. 2 is a view, partially in elevation and partially in transverse section, of the blower, the masonry setting and the adjacent tubes of a boiler; Fig. 3 is a view in section taken on or about line III—III of Fig. 2, the boiler tubes being omitted; Figs. 4, 5 and 6 are views in detail of a nozzle, tip and means for swinging the latter.

As herein shown in preferred form a sup-

ply pipe 1 from a suitable source of steam under pressure, usually the steam dome of the boiler to which the blower is attached, has one or more branches indicated at 2 each of which is connected through suitable fittings and a controlling valve 4 with the outer sleeve 5 of a telescoping or slide joint. Preferably this outer member, which is transverse to the face of the masonry fitting, is formed integrally with or secured to a bracket 6 that is arranged to span an opening in the setting. A companion sliding tube 7 that telescopes with the sleeve 5 through a suitable stuffing box or gland 8, is supported at its outer end by lateral lugs or gibs 9 which slide on guide ways 10 formed on the bracket 6 parallel to the axis of the telescoping joint. A T 11 constitutes the inner end portion of the tube 7 and carries an upright header 12 which is in substantial alinement with openings shown at 13 in a throat plate 14 at the mouth of the setting opening. This plate may have guides 15 or the like for retaining a cover plate which closes the openings when the blower is not in use. Arms 16 extend laterally from the header 12 and are spaced in staggered relation to the tiers of water tubes indicated at 17 of the boiler.

A nozzle 18 is screwthreaded on to or otherwise secured to the outer end portion of each arm 16 in such manner that it is angularly adjustable thereon. A nipple 19, preferably with outwardly flared axial opening, is mounted in the end of the nozzle in such way that its outer end is free to swing on an axis of motion that is transverse to the nozzle axis. Preferably the nozzle has an apertured diaphragm indicated at 20 in which an inlet circular boss 21 on the side of the nozzle is journaled, a corresponding solid boss on the other side being centered on the conical end of a stud 22 that is screwthreaded through the wall of the nozzle. A flanged pulley or sprocket wheel 23 secured to the nipple 19 concentric to the axis of oscillation of the latter, may be turned by means of a chain 24, cable or the like that passes along longitudinal grooves indicated at 25 in the nozzle 18 and encircles a pulley wheel or sprocket 26. A shaft 27 is journaled in suitable bearings 28 at each end of the header 12 in parallel spaced relation thereto and the pulleys or

wheels 26 are non-rotatably secured thereon. A handle 29 affords convenient means for oscillating the shaft.

Suitable means for moving the header with its nozzles and tips in and out of the throat of the opening are provided and may consist of a right- and -left- screwthreaded bolt shown at 30 with a chain wheel 31 thereon, the bolt engaging one of the bolts 9 and a suitable boss 32 on the bracket. A hand chain 33 depends from the wheel 31 and provides a convenient way for manipulating the bolt. A rack bar with pinion or any other equivalent mechanism may be used for this purpose if desired. It is to be noted that in a preferred form of construction the bracket 6 is supported at the extremities of its arms only to the exterior of the masonry fitting, the inner ends of the guides 10 being out of contact therewith so that the expansion or settling of the masonry does not effect the alinement or consequent adjustment of the header support. Furthermore the header is supported between its ends and is free to expand and contract in either direction without effecting its operation.

As a result of this construction, a blower is obtained which may be readily adjusted to a boiler setting either in special openings made therethrough or in openings already formed therein. In either instance the openings may be perpendicular to the masonry course, a matter of convenience in construction, regardless of the inclination of the water tubes. The header may be readily moved forward by the operator without exposure of his person to heat, in such manner that the nozzles and nipples are brought into operative relation to the boiler tubes. The axes of oscillation of the nipples each may be given the desired angles of inclination so that the nipples swing in planes parallel to the adjacent boiler tubes and therefore project their jets across and along the tube tiers as they are swung in either direction, the latter being conveniently accomplished by the handle for swinging the pulley wheel shaft. This action obtains regardless of whether the respective tiers are parallel or divergent as each nozzle may have individually the proper adjustment to permit the companion nipple to sweep the adjacent tier, regardless of the degree of inclination of the latter. The arrangement of the header support prevents the moving parts from being thrown out of line by the expansion, contraction or settling of the boiler setting while the moving parts of the blower itself maintain their inter-alinement even under the changes of temperature to which they are subjected.

Obviously, changes in the details of construction may be made without departing from the spirit of my invention and I do

not care to limit myself to any particular form or arrangement of parts.

What I claim is:—

1. A blower for a water tube boiler comprising a slide joint having one member adapted to be secured adjacent the opening of a boiler setting, a member in telescopic engagement therewith a header carried by the telescoping member, nozzles on the header having nipples adjustable to swing in planes substantially parallel to the tubes of a boiler, means for simultaneously swinging the nozzles, and means carried by the outer member and adapted to shift the telescoping member toward and from the opening of the setting.

2. A blower for a water tube boiler comprising a slide joint having one member adapted to be secured adjacent the opening of a boiler setting, a member in telescopic engagement therewith, a header carried by the telescopic member, nozzles on the header having nipples adjustable to swing in planes substantially parallel to the tubes of a boiler, means for simultaneously swinging the nozzles, means carried by the outer member and adapted to shift the telescoping member toward and from the opening of the setting, and a supply pipe connected to the stationary member of the slide joint.

3. The combination with a water tube boiler and a masonry setting therefor having an opening, of a blower consisting of a slide joint, the fixed member of which is adapted to be secured on the masonry adjacent the opening, and the movable member of which is adapted to be shifted on the fixed member to and from the opening, a supply pipe connected to the fixed member, a header carried by the sliding member substantially parallel relation to the opening, nozzles on the header adapted to project through the opening when the movable member is advanced toward the latter, means on the nozzles for directing jets therefrom in the plane of the boiler tubes that are respectively adjacent to the nozzles, manually operable means carried by the movable member for simultaneously swinging the jet directing means and manually operable means between the two parts of the slide joint for shifting the movable member in and out of the opening.

4. The combination with a water tube boiler and a masonry setting therefor having an opening, of a blower consisting of a slide joint, the fixed member of which is adapted to be secured on the masonry adjacent the opening, and the movable member of which is adapted to be shifted on the fixed members to and from the opening, a supply pipe connected to the fixed member, a header carried by the sliding member in substantially parallel relation to the opening, nozzles on the header adapted to pro-

ject through the opening when the movable member is advanced toward the latter, means on the nozzles for directing jets therefrom in the plane of the tubes that are respectively adjacent to the nozzles, manually operable means carried by the movable member for simultaneously swinging the jet directing means, manually operable means between the two parts of the slide joint for shifting the movable member in and out of the opening, and a throat plate at the mouth of the opening to admit the nozzles when the latter are projected.

5. The combination with a water tube boiler and a setting therefor having openings therein, of slide joints each having a fixed member adapted to be secured to the masonry setting adjacent one of the openings and a telescoping member carried by the fixed member, a header mounted on each telescoping member in substantially parallel relation to the companion opening and provided with nozzles that are adapted to extend through the opening when the joint is extended, oscillatory means on the nozzles for directing jets therethrough in planes parallel to the adjacent boiler tubes, means on the header operatively connected to the jet directing means to oscillate the latter, and manually operable means carried by each joint for extending and contracting the latter.

6. The combination with a water tube boiler and a setting therefor having openings therein, of slide joints each having a fixed member adapted to be secured to the masonry setting adjacent one of the openings and a telescoping member carried by the fixed member, a header mounted on each telescoping member in substantially parallel relation to the companion opening and provided with nozzles that are adapted to extend through the opening when the joint is extended, oscillatory means on the nozzles for directing jets therethrough in planes parallel to the adjacent boiler tubes, means on the header operatively connected to the jet directing means to oscillate the latter, manually operable means carried by each joint for extending and contracting the latter, and a supply pipe in communication with the several stationary members.

7. The combination with a water tube boiler and a setting therefor having an opening therethrough, of a bracket disposed across the opening on the masonry and provided with an outer member of a tubular slide joint, an inner tubular member in telescopic engagement with the outer member and in sliding engagement with the bracket, a header carried by the sliding member and provided with nozzles adapted to project through the opening when the sliding member is extended, nipples each oscillatory on a nozzle to swing in a plane of the adjacent

water tube, a shaft journaled on the header and connected to the nipples to swing the latter in unison, and manually operable means connecting the telescopic tube member with the bracket for shifting the former.

8. The combination with a water tube boiler and a masonry setting therefor, having openings therethrough, of brackets each adapted to be secured across an opening, an outer tubular member of a slide joint mounted on each bracket, a companion sliding tube telescoping with each outer member and sliding on the companion bracket, a header carried by the companion sliding tube and provided with nozzles each angularly adjustable on the header, a nipple on each nozzle oscillatory on an axis transverse to the nozzle axis, shafts each oscillatory on the header operatively connected to the companion nipples to swing them in unison, means carried by each bracket for shifting the companion sliding tube thereon, and a steam supply pipe for the several outer members.

9. The combination with a water tube boiler and a setting therefor having an opening therethrough, of a bracket adapted to be secured across the opening to the setting, a tubular outer member of a slide joint on the bracket, a companion sliding tube telescoping with the outer member and sliding on the bracket, a header on the sliding tube, arms extending from the header toward the opening, nozzles each angularly adjustable on an arm, nipples each oscillatory in a nozzle on an axis transverse thereto, a shaft journaled on the header, a wheel on each nipple concentric with the axis of oscillation thereof, wheels on the shaft each aligned with the wheel of a companion nozzle, means for oscillating the shaft, and manually operable means for shifting the sliding tube on the bracket and in the outer member.

10. The combination with a water tube boiler and a setting therefor having an opening therethrough, of a bracket adapted to be secured across the opening to the setting, a tubular outer member of a slide joint on the bracket, a companion sliding tube telescoping with the outer member and sliding on the bracket, a header on the sliding tube, arms extending from the header toward the opening, nozzles each angularly adjustable on the arm, nipples each oscillatory in a nozzle on an axis transverse thereto, a shaft journaled on the header, a wheel on each nipple concentric with the axis of oscillation thereof, wheels on the shaft each aligned with the wheel of a companion nozzle, means for oscillating the shaft, manually operable means for shifting the sliding tube on the bracket and in the outer member, and flexible connections between the several nipple wheels and companion shaft wheels, the sev-

eral nozzles having guide slots for directing the flexible connecting means when the angles of the two companion wheels are oblique to each other.

- 5 11. The combination with a water tube boiler and a setting therefor having an opening therethrough, with a plate in the throat of the opening provided with nozzle apertures, a bracket secured at its ends to the setting
- 10 across the opening thereof and provided with guides transverse to the opening, an outer tubular member of a slide joint secured to the bracket parallel with the guides, a steam supply pipe opening into said outer
- 15 member, an inner companion sliding tube telescoping with the outer member, gibs on the sliding tube engaging the guides, means operatively connecting the gibs and bracket for shifting the gibs on the bracket, a header
- 20 mounted on the outer end portion of the sliding tube, arms on the header each alined with a nozzle opening in the throat plate, a nozzle angularly adjustable on each arm, a nipple oscillatory on each nozzle on an
- 25 axis transverse to the nozzle axis, a shaft journaled on the header, wheels on the shaft, a wheel on each nipple alined with the companion wheel on the shaft, endless flexible connections between the nipple and com-
- 30 panion shaft wheels traversing guide grooves in the nozzles, and a handle for manually oscillating the shaft.
12. In a blower for a water tube boiler having a header adjacent an opening
- 35 through the setting of a boiler, means for shifting the header in and out of the opening, and means for supplying the steam to the header in all positions, the combination of arms extending from the header toward
- 40 the tubes of the boiler, with nozzles each angularly adjustable on an arm and each with longitudinally disposed guide slots, an aperture diaphragm across each nozzle, a nipple having an inlet boss journaled in an
- 45 opening in the diaphragm, a stud in each nozzle holding the nipple in position, a wheel on each nipple concentric with the stud and boss axis, a member oscillatory on the header, wheels on the oscillatory mem-
- 50 ber each alined with the companion nipple wheel, flexible connections traveling in the guide slots of the nozzles and operatively

connecting the nipple and companion wheels, and means for oscillating the member.

13. The combination of a water tube 55 boiler having inclined tubes and a setting with openings therethrough, with brackets each secured near the outer portions thereof only to the setting across an opening with
- 60 guideways extending transversely to the opening, an outer member of a sliding joint mounted on the bracket substantially parallel to the guideways, a companion inner tube in telescoping engagement with the
- 65 outer member and in sliding engagement with the ways, means for extending and contracting the joint supported on the bracket, a header on the outer portion of the inner
- 70 tube, arms extending from the header toward the opening, nozzles each angularly adjustable on an arm, nipples each oscillatory in a nozzle transversely to the axis of adjustment of the latter, and means on the
- 75 header for oscillating the nipples simultaneously.

14. The combination of a water tube boiler having inclined tubes and a setting with openings therethrough, with brackets
- 80 each secured near the outer portions thereof only to the setting across an opening with guideways extending transversely to the opening, an outer member of a sliding joint
- 85 mounted on the bracket substantially parallel to the guideways, a companion inner tube in telescoping engagement with the outer member and in sliding engagement
- 90 with the ways, means for extending and contracting the joint supported on the bracket, a header on the outer portion of the inner tube, arms extending from the header toward the opening, nozzles each angularly
- 95 adjustable on an arm, nipples each oscillatory in a nozzle transversely to the axis of adjustment of the latter, a shaft journaled on the header, and operating connections between the several nipples and shaft for swinging the former in unison.

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

JOHN MAGEE.

Witnesses:

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ANNA M. DORR.