

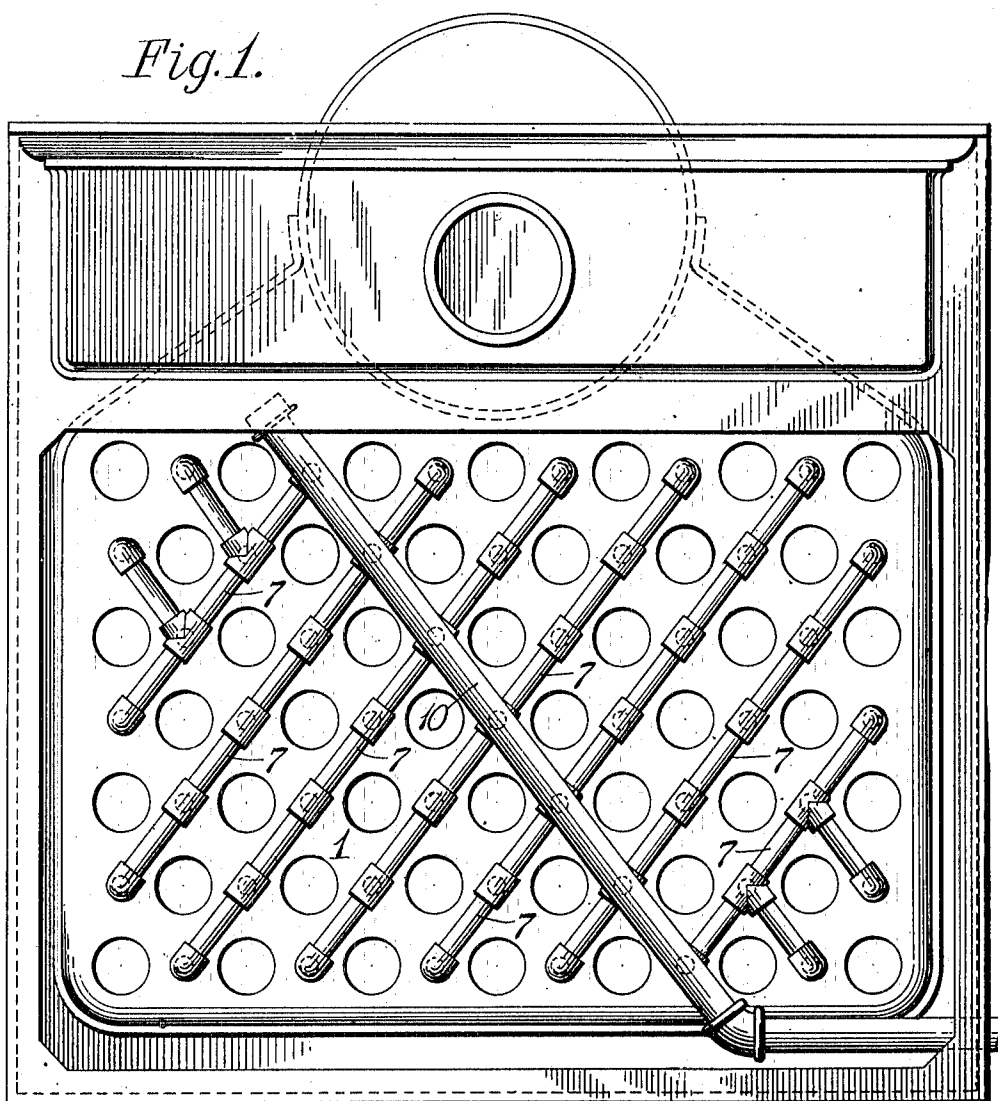
J. MAGEE.
BLOWER FOR BOILERS.
APPLICATION FILED JULY 22, 1912.

1,059,479.

Patented Apr. 22, 1913.

3 SHEETS-SHEET 1.

Fig. 1.



Witnesses
Chas. W. Stauffer
Anna M. Dorr

Inventor
John Magee,
By *[Signature]*
Attorneys

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3 SHEETS—SHEET 2.

Fig. 2.

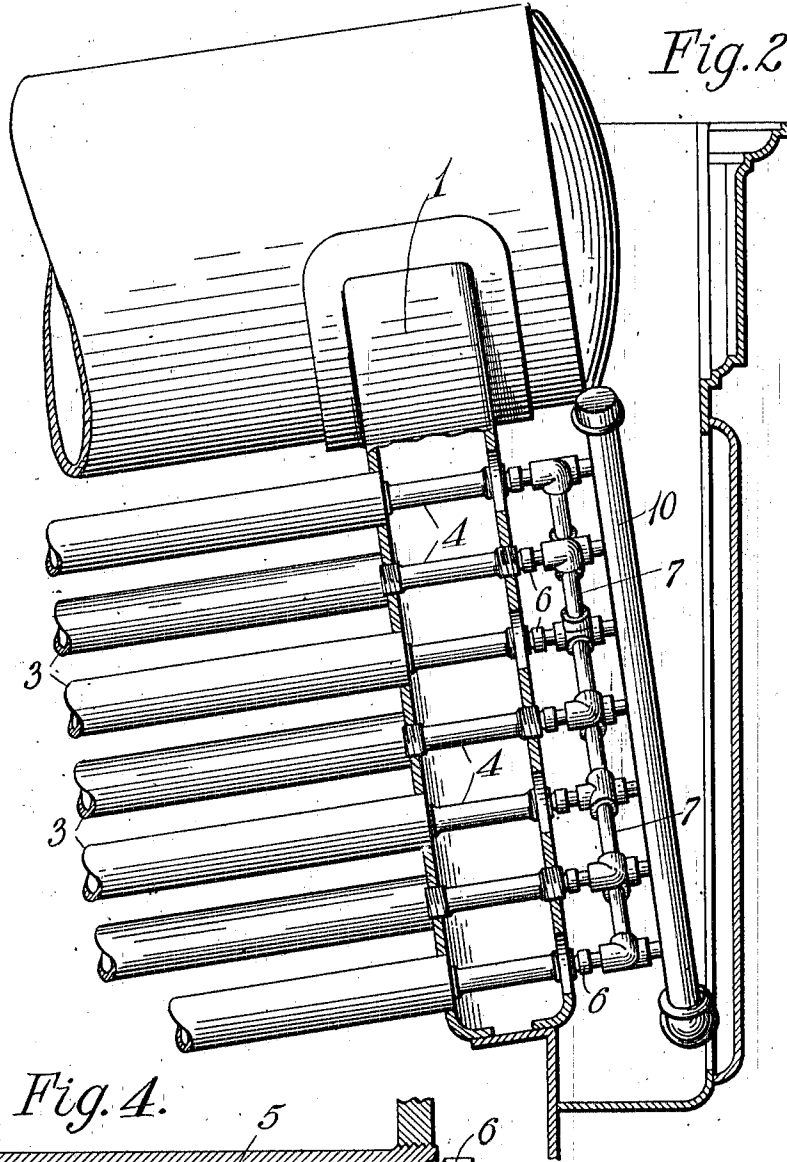
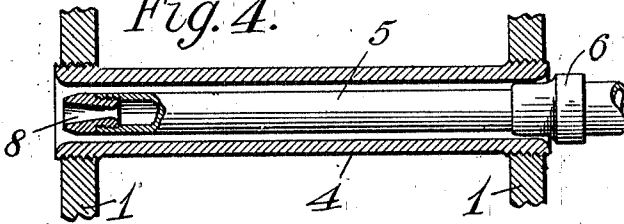


Fig. 4.



Witnesses

Chas. W. Stauffer
Anna M. Dorr.

Inventor

John Magee,

By

[Signature]
Attorneys

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3 SHEETS—SHEET 3.

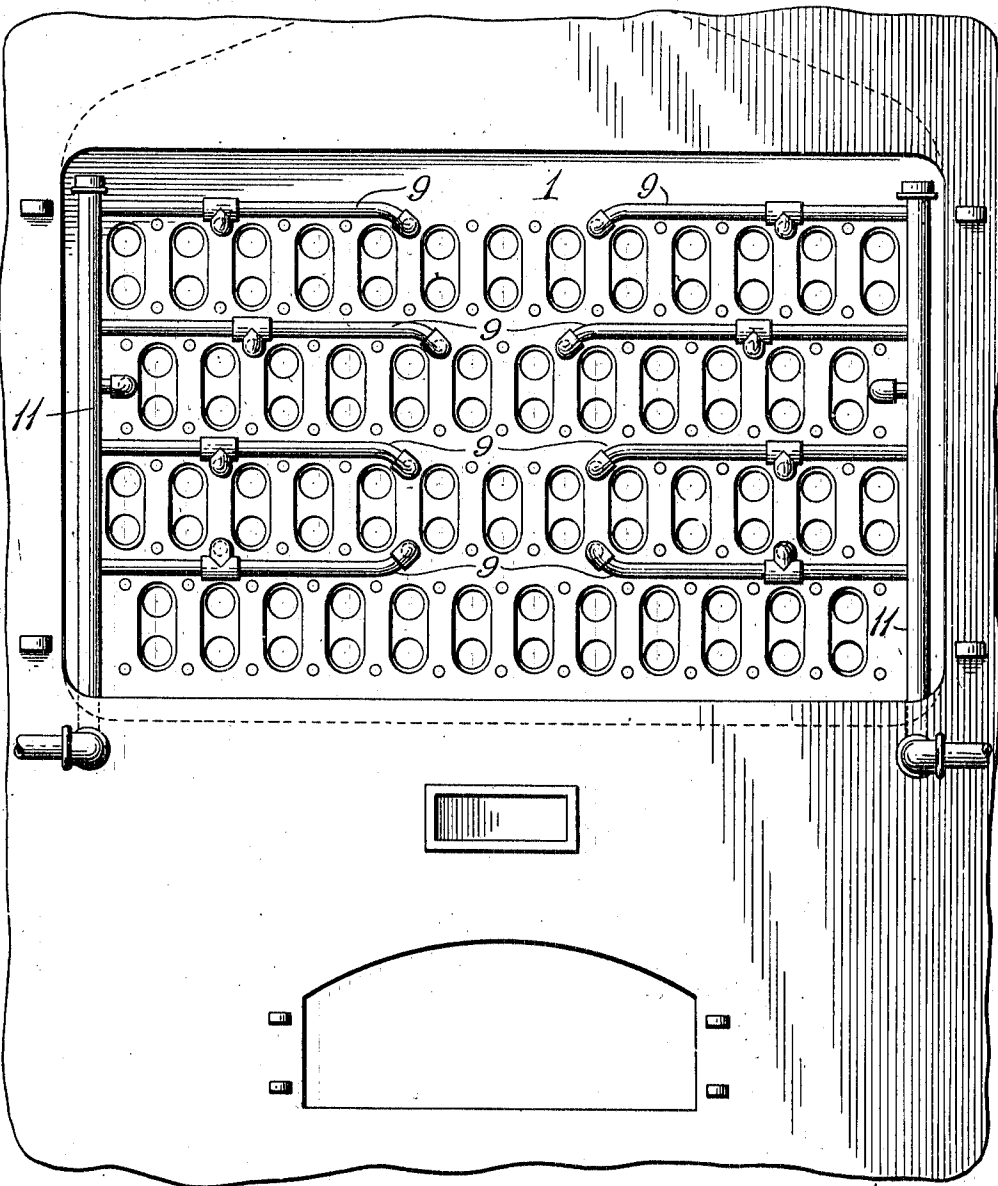


Fig. 3.

Witnesses
Chas. W. Stauffer
Anna M. Dorr

Inventor
John Magee,

By *Barthel Barthel*
Attorneys

UNITED STATES PATENT OFFICE.

JOHN MAGEE, OF DETROIT, MICHIGAN, ASSIGNOR TO DIAMOND POWER SPECIALTY COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

BLOWER FOR BOILERS.

1,059,479.

Specification of Letters Patent.

Patented Apr. 22, 1913.

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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.

In the operation of boilers, and more particularly those of the water tube type with blowers applied to the ends or headers thereof, it is desirable that the blowers be so arranged that the tubes can be inspected through the hand hole plates common in this type of generator, without taking out the blower or disturbing it in any way. It is also desirable that as great velocity as possible under given pressure be imparted to the steam jets that they may be effective.

This invention relates to blowers for water tube boilers adapted to be applied more particularly to the water legs or headers in which hollow stay bolts are utilized for insertion of the jets, the nozzles of the blowers being so disposed as to give a maximum of velocity to the jets under given pressure and the piping system for the jet nozzles being so arranged that the hand hole plates may be removed and the tubes inspected without taking down or dismantling the blower.

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

In the drawings, Figure 1 is a view in front elevation of a portion of a water tube boiler equipped with a blower that embodies features of the invention; Fig. 2 is a view partially in longitudinal section of a front portion of a boiler; Fig. 3 is a view in front elevation showing the disposition of a blower for water tube boilers wherein the water tubes are somewhat differently arranged; and Fig. 4 is a view in longitudinal section in detail and enlarged, of a nozzle together with a hollow stay bolt.

As shown in the drawings, the end header 1 of a water tube boiler has the usual hand hole plates 2 which mark the position of the water tubes 3 that enter the inner wall of the head. Stay bolts 4 which stiffen the header and are hollow are equipped with jet nozzle tubes 5 whose outer end portions each have a fitting 6 that closely fill the stay

bolt opening and serve also as a coupling between the nozzle body and branch pipe 7. At the inner end of the body, a jet nipple 8 is secured on the body 5 and is provided with a bore having a contracted portion near the inner end thereof, the bore resembling in contour the bore of a Venturi tube of approved design whereby steam that is ejected through the nipple expands beyond the contracted portion and thereby attains a higher velocity than that which the initial pressure head gives it.

The nozzles are connected in sets to the branch pipes 7 and the latter are disposed in such relation to the hand hole plates of the tubes that they clear the latter and allow the withdrawal of the same. This disposition of the branches may lead to an oblique arrangement as shown in Fig. 1 or to the arrangement shown in Fig. 3 wherein branches 9 are placed in horizontal position to avoid the hand plates and hand hole openings for the tube. In either instance the branches are connected to headers 10 as seen in Fig. 1, and headers 11 as indicated in Fig. 3 which are piped to any suitable source of steam supply, as for example, the boiler itself. The jet nozzles herein indicated are preferable, but other types may be used if preferred. One result of this construction particularly where the jet nozzles with contracted throat nipples are used is the velocity imparted to the jets due both to the initial pressure and to the expansion in the flaring mouth piece of the nipple. Another advantage is the disposition of the pipes and parts of the header so that the boiler tubes may be inspected withdrawn or cleaned interiorly without dismantling the blower, thereby saving a great deal of time and labor and lessening the chances of injury to the blower under operation.

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. An end blower for water tube boilers comprising jet nozzles adapted to be inserted in the hollow stay bolts of a boiler water leg, branches on which the nozzles are secured, arranged to clear the water tube openings in a water tube boiler head, and

headers disposed to clear the openings for the water tubes in a water tube boiler head connected to the several branches.

2. The combination with the water leg of
5 a water tube boiler having water tubes and the inspection openings therefor together with hollow stay bolts, of a blower consisting of nozzles inserted in the hollow stay bolts, branches connecting the nozzles and
10 clearing the openings, and a header forming connection between the branches and clearing the openings.

3. The combination with the water leg of
15 a water tube boiler having water tubes and the inspection openings therefor together with hollow stay bolts, of a blower consisting of nozzles inserted in the hollow stay bolts, branches connecting the nozzles and clearing the openings, a header forming connection between the branches and clearing
20 the openings, and nipples on the nozzles each having a contracted throat and flared mouth piece.

4. The combination with the water leg of
25 a water tube boiler having water tubes and the inspection openings therefor together with hollow stay bolts, of a blower consisting of nozzles inserted in the hollow stay bolts, branches connecting the nozzles and
30 clearing the openings, a header forming connection between the branches and clearing the openings, and nipples on the nozzles each having a Venturi throat.

5. The combination of a water tube boiler
35 having a hollow water leg, water tubes therefrom with inspection openings in the outer face of the leg for the tubes and hollow stay bolts through the water leg with jet nozzles inserted in the hollow stay bolts,
40 nipples for the nozzles having contracted throats and flared mouths, fittings on the outer ends of the nozzles engaging and filling the bores of the stay bolts, branches coupled by the nipples to the nozzles and a
45 header for each set of branches, the header

and branches being off-set in relation to the inspection openings of the water leg.

6. In a blower for boilers for directing jets through openings in the water legs and heads of the boilers, steam distributing conduits so disposed that all inspection openings in the boiler are unobstructed. 50

7. In a blower for a boiler adapted to be secured to the exterior thereof for directing jets through openings in the water legs and heads thereof, steam distributing conduits so disposed that all openings in the boiler are unobstructed thereby. 55

8. In a blower for a boiler arranged to direct jets through openings in the outer members thereof against and along the water tubes, steam distributing conduits so disposed that all inspection openings through the boiler are unobstructed. 60

9. In a blower for a water tube boiler adapted to be secured to a water leg thereof and to direct jets along and against the water tubes, steam distributing conduits so disposed that all openings through the water leg for inspection and repair purposes are unobstructed. 65

10. In a blower for water tube boilers, jet nozzles for directing jets through the hollow stay bolts of the water leg of a boiler, and conduits for supplying steam to the nozzles that are so disposed that all inspection and repair openings in the water leg are unobstructed. 70

11. A steam distributing pipe system for blowers for boilers that direct jets through the boiler exteriors toward the water tubes thereof so disposed that all inspection and repair openings in the boiler to which a blower is applied are unobstructed thereby. 80

In testimony whereof I affix my signature in presence of two witnesses. 85

JOHN MAGEE.

Witnesses:

C. R. STICKNEY.

A. M. DORR.