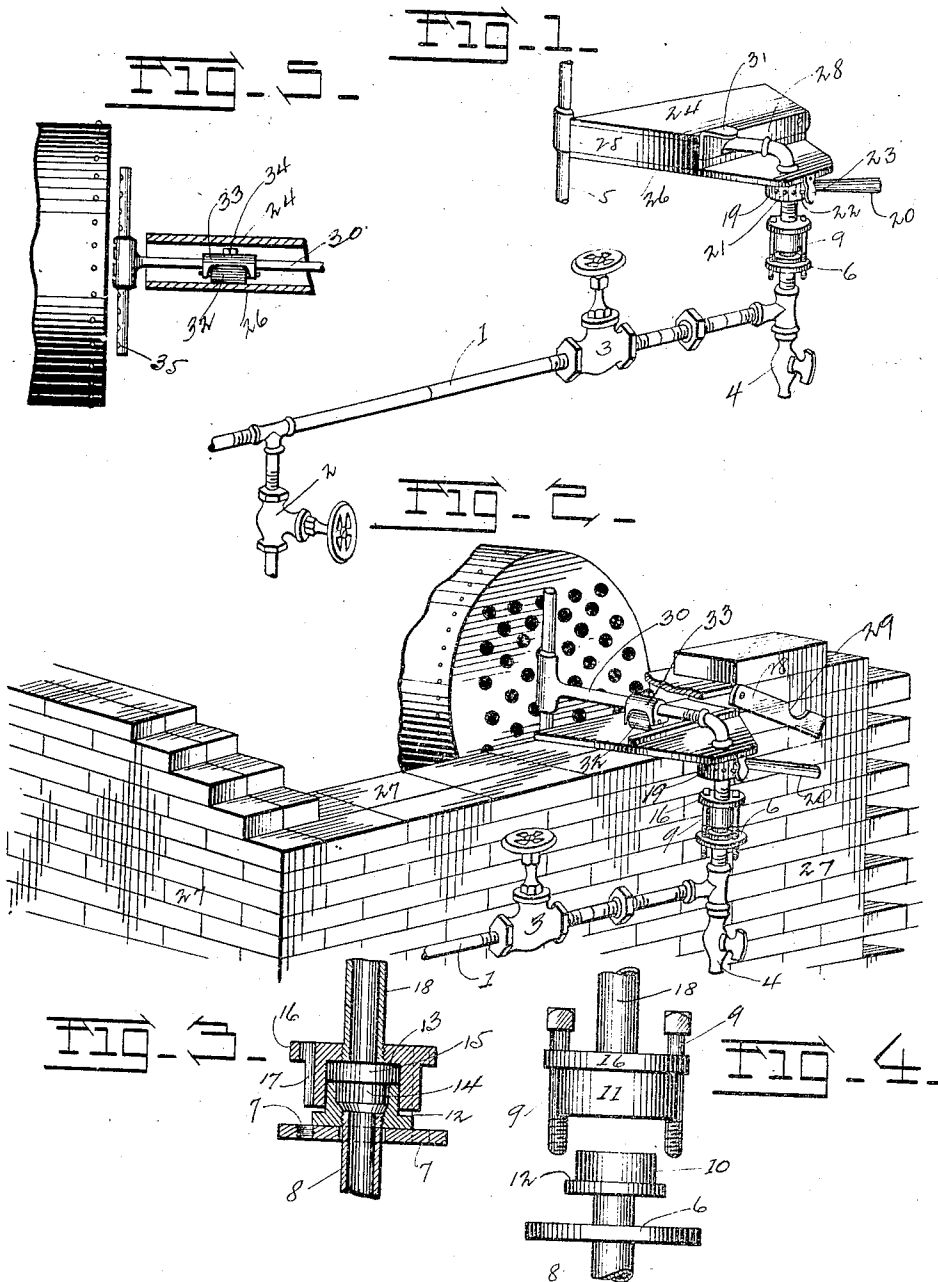


G. W. BERNAUER.
FLUE BLOWER.
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956,670.

Patented May 3, 1910.



WITNESSES:
Chas. A. Becker.
Maybelle Small

INVENTOR.
George W. Bernauer
BY Small & Small
ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE W. BERNAUER, OF ST. CHARLES, MISSOURI.

FLUE-BLOWER.

956,670.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE W. BERNAUER, a citizen of the United States, residing at St. Charles, in the county of St. Charles and State of Missouri, have invented a new and useful Flue-Blower, of which the following is a specification.

The object of the invention is to afford a simple, effective and durable device for steam or air-cleaning boiler flues, which may be easily placed in operative position and which overcomes difficulties which are sometimes advanced against devices of similar general character. These desiderata are attained by the features of construction described hereafter in detail and illustrated in the accompanying drawing, in which:—

Figure 1 is a detached perspective of the device, the parts assembled and the whole ready to be placed in operative position; Fig. 2 illustrates the invention in operative position relative to the rear head of a boiler; Fig. 3 is an enlarged sectional view through the longitudinal axis of the double-seated swivel joint and its pedestal; Fig. 4 an enlarged front elevation of said double-seated swivel joint and said pedestal, and Fig. 5 a side elevation illustrating the position of the nozzle relative to the boiler-head while the device is in operation.

Like numerals refer to like parts throughout the several views, numeral 1 designating the steam or pressure fluid supply pipe upon which are located, where desirable, valves 2 and 3, serving, respectively, as means to drain said supply pipe of condensation and as means to control the entrance of steam, compressed air or other fluid into the parts leading to the nozzle. A cock 4, which may be supplanted by other form of valve, may serve the useful purpose of draining the pipes and attachments between said valve 3 and nozzle 5, thereby insuring that no moisture will be thrown from said nozzle into the boiler flues. A pedestal 6, having threaded apertures 7, is loosely mounted upon pipe 8 and serves, when said threads are engaged by screws 9, as a support for a part of said double-seated swivel joint. Said joint comprises the peculiar and original features of construction shown in Figs. 3 and 4, in which numeral 10 designates the lower and 11 the upper member, seats being indicated at 12 and 13 upon which packing or washers may be placed to form a steam or air-tight compartment. The pipes upon

which said joint is illustrated imposed may terminate, approximately, at a point coincident with the horizontal plane of seats 12 and 13, and a small compartment or space, as indicated at 14 and 15, would thus exist between the ends of said pipes, but said detail is not held to be material as to exactness and the distance between the ends of said pipes and the consequent depth of said compartments, 14, 15, may be varied as found expedient. Member 11 of said joint is surmounted by a heavy foot 16 serving as a bearing surface for screws 9 which pass freely through smooth bored apertures therein, and run in grooves 17 provided upon the external face of member 11. Surmounting pipe section 18 is an adjustable band 19 provided with a lever 20, and upon the external circumference of said band are notches 21, a foot 22 projecting from a resilient pointer 23 tripping therein. Beneath each of said notches numerals may be engraved corresponding to the series of flues, by which the precise location of nozzle 5 with reference to said flues may be at all times apparent; likewise the sharp metallic "click" produced by the sudden engagement of said resilient pointer with said notches enables the operator to locate said nozzle precisely opposite any series of flues he may have reason to believe are especially in need of blowing, said metallic "click" obviously enabling him to halt said nozzle before each tier of flues with exactitude and without an examination of the aforementioned engraved numerals. A compartment of metal or other suitable material comprising plates 24, the top, 25, the sides, and 26, the base, is provided to rest substantially within the boiler housing 27. Said compartment is provided with a movable gate 28, having a half-eye 29 to straddle and lock in position nozzle-pipe 30, and a lifting lug 31, and within said housing works a detachable and adjustable member, preferably a roller and roller-socket, 32, 33, a set-screw 34 being indicated. Nozzle 5 is provided with suitable apertures 35 through which the pressure fluid is projected into each of the boiler flues. Referring to Fig. 1, said nozzle is seen in repose and locked by half-eye 29 close against the inner wall 36 of the boiler housing 27 and in juxtaposition to the corner or angle 37, formed by the juncture of the rear wall and a side wall of said housing, where it is out of the path

of the flames and least liable to damage, while in Fig. 5 it will be noted that said nozzle approaches very close to the boiler flues insuring that the steam thrown therein
5 will be dry and subject to no appreciable condensation.

It should be noted that when, in operating the device, lever 20 is swung from right to left it does not encounter index or pointer
10 23 as when said lever is adjacent said pointer the nozzle has completed the extent of its sweep and rests at, approximately, point 36 in Fig. 2. Gate 28 serves a three-fold purpose: to lock, by its eye 29, said
15 nozzle into position; to afford a clear view of the interior of the combustion chamber, of the boiler-head and of the action, efficacy and condition of said nozzle; and to permit a cyclone draft to enter and assist in forcing
20 the jets of steam swirling at high velocity through the flues. A plurality of eyes 29 may be disposed in gate 28, so that the nozzle may be locked in any desired position.

Though the preferred form of the device
25 is herein described, the right is reserved of making such change in the size, arrangement and construction of the various parts as may, from time to time, prove expedient or desirable and without departing from the
30 scope and spirit of my invention.

What I claim as new and desire to secure by Letters-Patent is:—

1. A flue blower, comprising a pressure-fluid supply pipe, drain and pressure control
35 valves thereupon, a nozzle adjacent the boiler flues, a double-seated swivel joint, detachable and adjustable means to open and close said joint, means to audibly and visibly indicate the position of said nozzle relative
40 to said flues, means to direct the location and movement of said nozzle, means to lock the same into desired position, a compartment, a slidable and adjustable member within said compartment and supporting the weight of
45 said nozzle, means to view the interior of said compartment, said flues and the operation of said nozzle, and means to assist the propulsion of said pressure-fluid through said flues.

2. A flue blower, comprising a pressure-fluid supply pipe, drain and pressure control
50 valves thereupon and a nozzle at a terminus thereof, a double-seated swivel joint in contiguity to said pipe, adjustable and detachable means to hold said joint in or re-
55 lease said joint from operative position, a slidable and adjustable member supporting the weight of said nozzle and situated within a compartment, means for audibly and
60 visibly indicating the position of said nozzle relative to said flues, means to lock said nozzle into desired position, means to view the interior of said compartment, said flues and the operation of said nozzle, means to
65 assist the propulsion of the pressure-fluid

through said flues, and means to direct the location and movement of said nozzle.

3. A flue blower, comprising a pressure-fluid supply pipe, drain and pressure control
70 valves thereupon, a nozzle at a terminus of said pipe, perforated throughout one aspect of its longitudinal extent and normally retained in juxtaposition to the angle formed by the juncture of the rear wall and a side
75 wall of the boiler housing, a double-seated swivel joint in contiguity to said supply pipe, adjustable and detachable means to hold said joint in or release said joint from operative position, a compartment situated chiefly within the boiler housing, a slidable
80 and adjustable member adjacent a leg of said supply pipe, supporting the weight of said nozzle and situated within said housing, means for indicating the position of said nozzle relative to said flues, means for lock-
85 ing said nozzle into desired position, means to assist the propulsion of said pressure-fluid through said flues, and means to direct the location and movement of said nozzle.

4. A flue blower, comprising a pressure-fluid supply pipe, drain and pressure control
90 valves thereupon and a nozzle at a terminus of said pipe, a double-seated swivel joint positioned upon two contiguous sections of said pipe and governing the connection
95 thereof, detachable and adjustable means adjacent thereto for readily closing or opening said joint, a device in juxtaposition to said supply pipe for audibly and visibly indicating the position of said nozzle
100 relative to said flues, a compartment retaining a slidable and adjustable member supporting the weight of said nozzle, means to direct the location and movement of said nozzle, means to lock the same into desired
105 position, means to view the interior of said compartment, said flues and the operation of said nozzle, and means to assist the propulsion of said pressure-fluid through said flues.

5. A flue blower, comprising a pressure-fluid supply pipe, drain and pressure control
110 valves thereon, and a nozzle or vent at a terminus of said pipe and adjacent said flues, a two-part double seated swivel joint engaged
115 upon said pipe, said parts of said joint comprising complementary tubular collars bounding compartments surmounting pipe extremities, an external seat at, approxi-
120 mately, the base of one of said tubular collars and an internal seat at, approximately, the base of the other or outer collar, a bearing surface or shoulder surmounting said outer collar, a plurality of apertures extend-
125 ing vertically therethrough and forming grooves in the external wall of said collar, an apertured pedestal surrounding and loosely mounted upon said supply pipe and
130 beneath said external seat and members adapted to move within said apertures and

grooves to bring said parts of said joint into
or out of operative position, a compartment
located chiefly within the boiler housing, a
leg of said supply pipe extending there-
5 through, an adjustable member upon said
section of pipe and supporting the weight of
said nozzle, means for audibly and visibly
indicating the position of said nozzle rela-
tive to said flues, means to direct the location

and movement of said nozzle, means to lock 10
the same into desired position, and means to
assist the propulsion of the pressure-fluid
through said flues.

GEORGE W. BERNAUER.

Witnesses:

J. B. GARBER,
M. J. GARBER.