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PATENTED FEB. 19, 1907.

J. C. BENNETT.
STEAM TUBE BLOWER.
APPLICATION FILED JAN. 15, 1906.

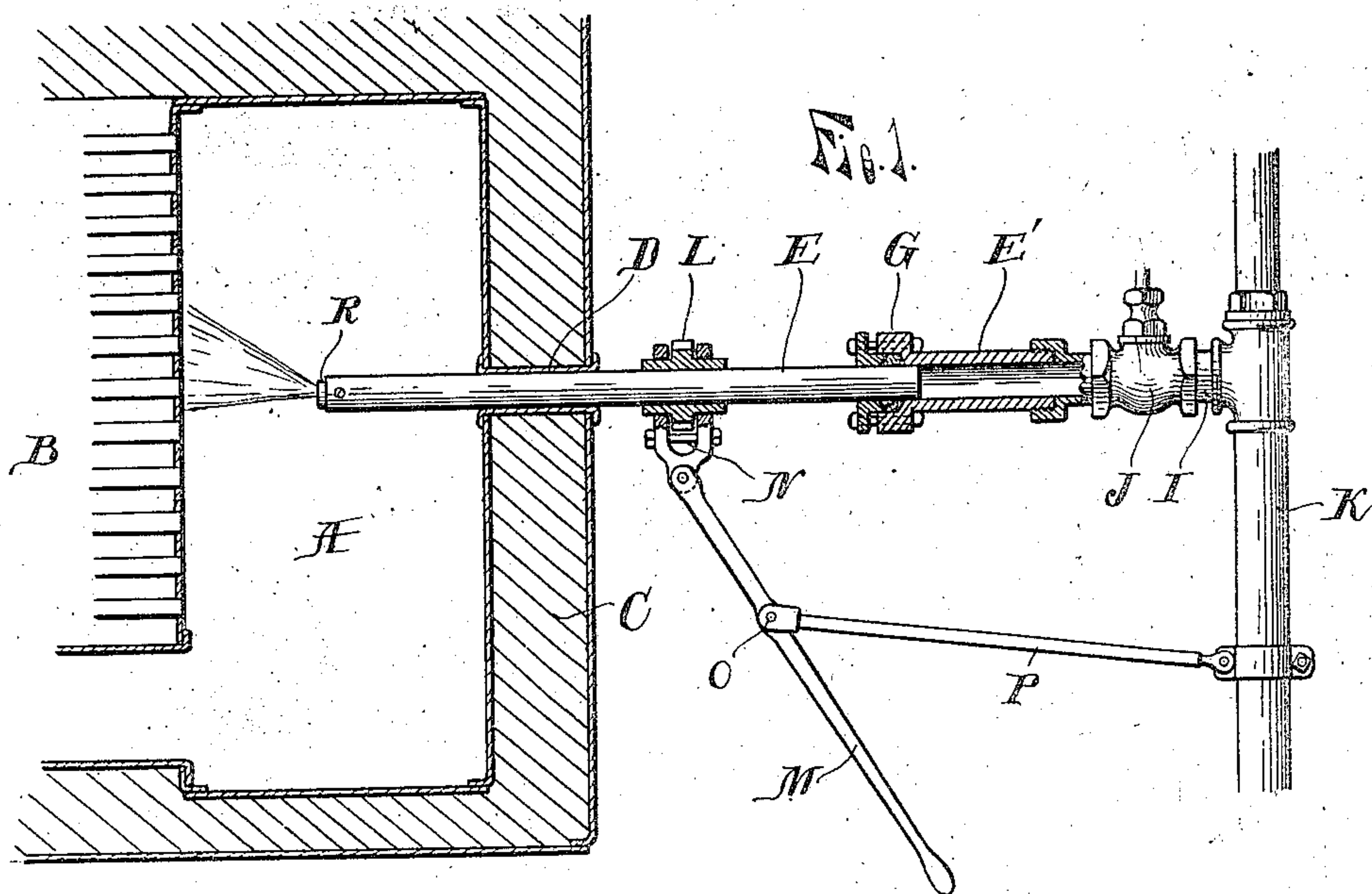
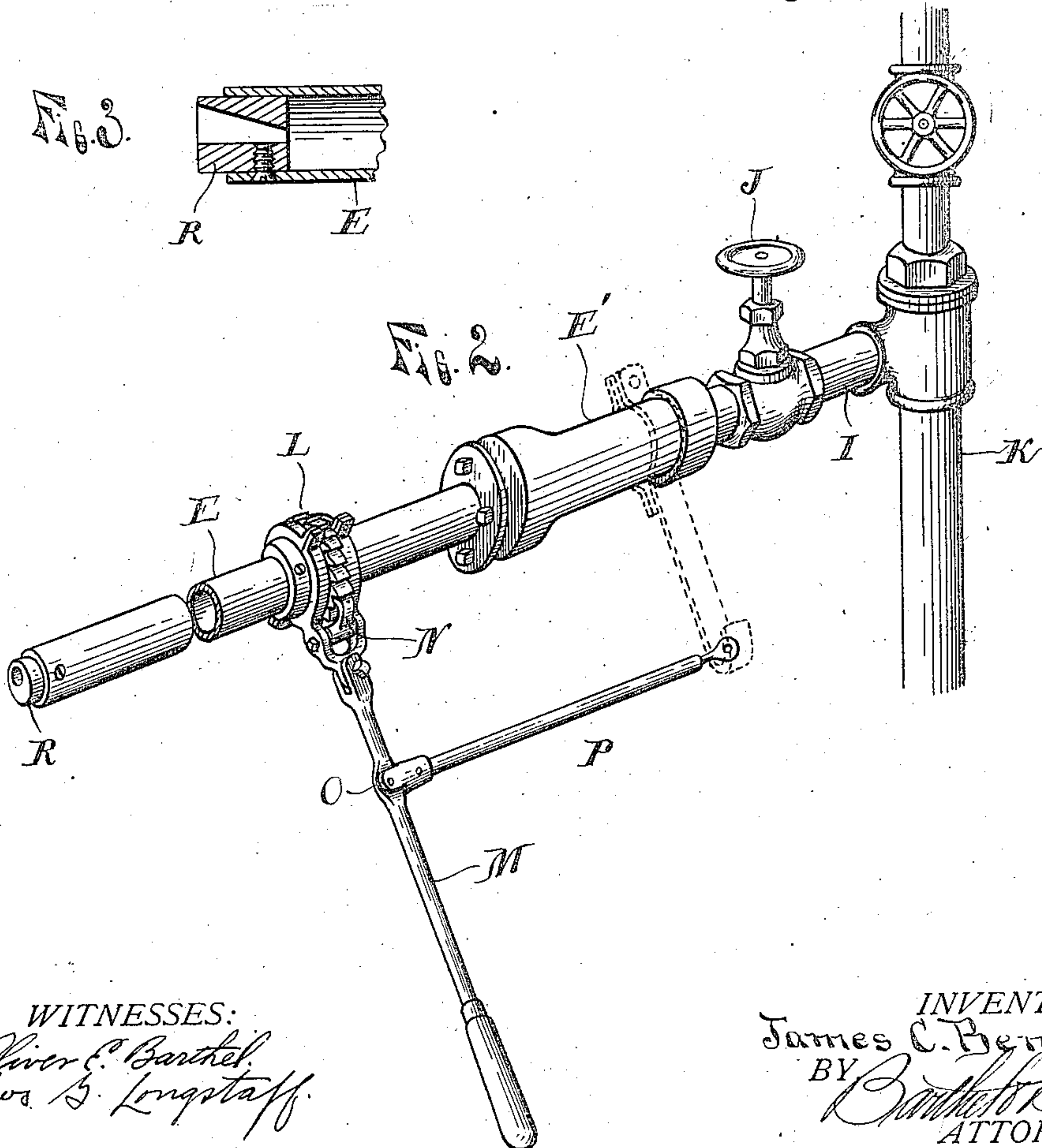
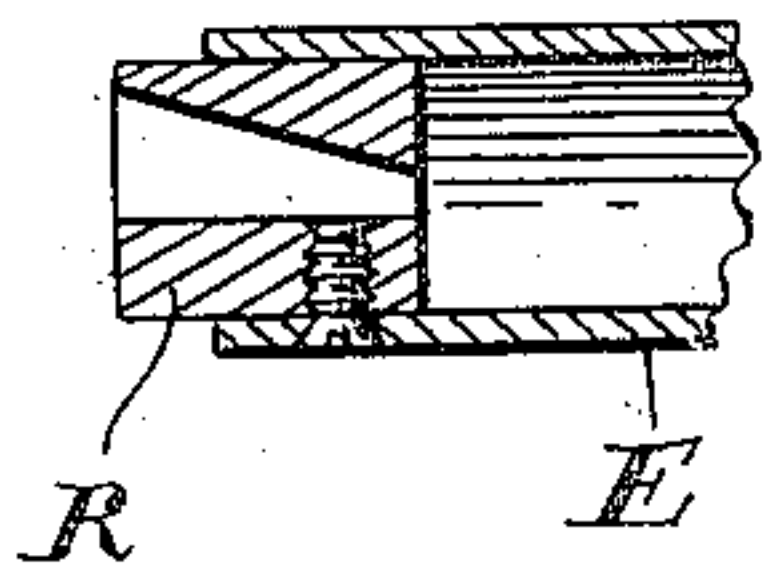


Fig. 3.



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STEAM TUBE-BLOWER.

No. 844,493.

Specification of Letters Patent.

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Application filed January 15, 1906. Serial No. 296,008.

To all whom it may concern:

Be it known that I, JAMES C. BENNETT, 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 Steam Tube-Blowers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to steam-blowers for cleaning boiler-flues, and is of that type in which the blower is permanently installed in the rear wall of a boiler and is adapted to blow the soot from the boiler-tubes to the front and out through the chimney, following the natural draft of the boiler.

My invention has special reference to improvements in this type of blowers designed to make it more applicable to meet varying conditions of operation, such as the available space for operating it or the varying sizes of boilers to which it may be applied, all as more fully hereinafter described in connection with the accompanying drawings, in which—

Figure 1 is a vertical central section showing my device as applied to a marine boiler. Fig. 2 is a detached perspective view, and Fig. 3 is a vertical section through the steam-discharge nozzle.

A represents the combustion-chamber of a boiler in rear of the boiler-tubes, B the boiler-tubes, and C the rear wall of the combustion-chamber, which in the case of a marine boiler would be a part of the boiler itself. Through this rear wall and opposite the center of the area of the tubes I form a suitable opening D of a size to admit the tubular nozzle member of the blower.

The blower head or body is formed in two parts or tubular members E E', forming a slip-joint connection between them, the part E' forming a sleeve adapted to permit a considerable endwise movement of the tubular nozzle member E, a steam-tight joint being formed by means of a stuffing-box G. The sleeve E' is rigidly supported in position by being connected to a stationary steam-supply pipe I, which may be branched off from a suitable main pipe K and has a controlling-valve J. Upon the movable nozzle member of the blower-head is fixedly secured a ratchet-wheel L, provided with an actuating-lever M, sleeved upon it and carrying a

suitable pawl N, adapted to engage with the ratchet-wheel, and thereby rotate the nozzle member E.

The lever M is fulcrumed at O to the end of a fulcrum-bar P, which is movably connected to a rigid support, such as the steam-pipe K, all in the manner to permit the lever to be actuated in the transverse as well as in the longitudinal direction of the blower-head for the purpose of projecting and withdrawing the nozzle member toward and from the boiler-tubes as well as rotating it

The blower-head carries at its front end a nozzle R, which is suitably shaped so as to discharge the steam against a sectional part of the tube area.

In practice the lever M is adapted to give the operator full control over the nozzle member of the blower-head, permitting it to be withdrawn or projected at will and rotating it at the same time. When it is withdrawn, the discharge of steam from the nozzle is intended to permit the current of steam discharged from the nozzle to cover a sectional area extending from the center out to the outermost tubes, and by rotating it the whole tube area can be successively passed over. By then pushing the nozzle member gradually inward the area which the steam-nozzle covers is gradually reduced—that is, it recedes toward the center—but the force of the steam will become more and more concentrated, and thus its force is utilized to a greater extent.

My construction enables me to apply my device as a permanent attachment to the boiler, and when not in operation the nozzle member is withdrawn completely within the opening D, thereby protecting it from the action of the heat and flame, as without such protection it would last but a short time. A further advantage is that the actuating-lever may be placed to be worked either from beneath or from any side or from a platform overhead, as it often would be found necessary in a boiler-room where access to the rear is often difficult or limited. It is obvious, however, that other means of actuating the nozzle member in the manner described might be readily devised should it appear desirable or necessary.

The nozzle R, I construct as a separate piece or plug, which is merely slipped into the end of the tubular nozzle member or pipe E

and detachably secured therein by a screw, thus permitting it to be readily renewed or replaced with one of different angle.

What I claim as my invention is—

5 1. In a steam-blower of the character described, the combination of a sleeve adapted to be rigidly supported in place outside of a boiler, means for supplying steam to said sleeve, a tubular nozzle member adapted to
10 be inserted in an opening in the wall of a boiler and to move longitudinally within the sleeve, and means attached to said nozzle member outside the wall of the boiler to actuate the same.

15 2. In a steam-blower of the character described, the combination of a sleeve adapted to be rigidly supported in place at a distance from the wall of the boiler, means for applying steam under pressure to said sleeve, a
20 tubular nozzle member slidable and rotatable within said sleeve, and adapted to be projected through an opening in the wall of the boiler, a stuffing-box on the end of the sleeve, and a lever attached to the nozzle
25 member outside the wall of the boiler to move said member longitudinally and to rotate the same.

3. In a steam-blower of the character described, the combination of a sleeve, a tubu-
30 lar nozzle member slidable in said sleeve and adapted to be projected longitudinally into an opening in the wall of a boiler or retracted therefrom, means for supplying steam to said sleeve, a nozzle consisting of a plug detach-
35 ably secured within the end of the tubular

nozzle member and provided with a discharge-opening and means for actuating the nozzle member.

4. In a steam-blower of the character described, the combination of a sleeve adapted 40 to be supported adjacent to a boiler, a tubular nozzle member movable longitudinally in said sleeve and rotatable therein adapted to be projected into an opening in the wall of the boiler, a lever fulcrumed intermediate its 45 ends and pivotally attached to said nozzle member, and means for supplying steam to said sleeve.

5. In a steam-blower of the character described, the combination with a fixed steam- 50 supply pipe, of a sleeve rigidly attached to said pipe at one end to receive steam therefrom and extending with its opposite end at a distance from a boiler, a tubular nozzle member slidable longitudinally in said sleeve 55 and rotatable therein and adapted to project into an opening in the wall of the boiler, a stuffing-box on the end of the sleeve, a lever fulcrumed intermediate its ends and rotatively and pivotally attached to the nozzle member, a ratchet secured upon said nozzle member, and a pawl carried by said lever 60 to engage said ratchet.

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

JAMES C. BENNETT.

Witnesses:

ADOLPH BARTHEL,
OTTO F. BARTHEL.