

(No Model.)

H. E. PARSON.
STEAM BLOWER.

No. 582,483.

Patented May 11, 1897.

Fig: 1.

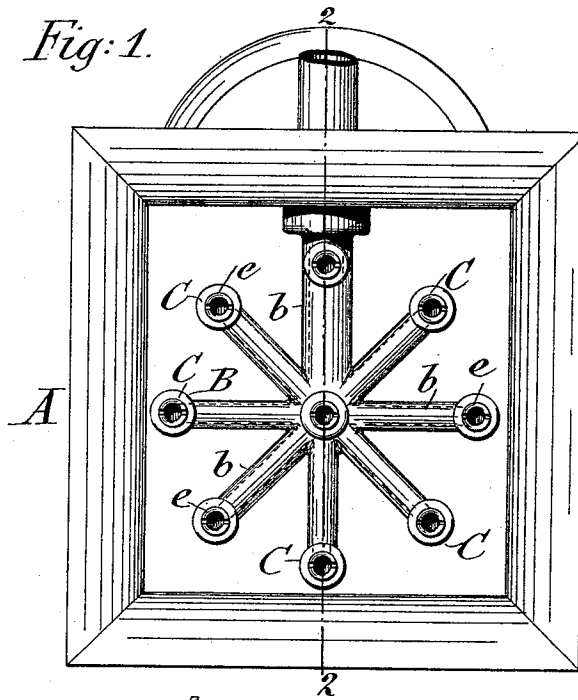


Fig: 2.

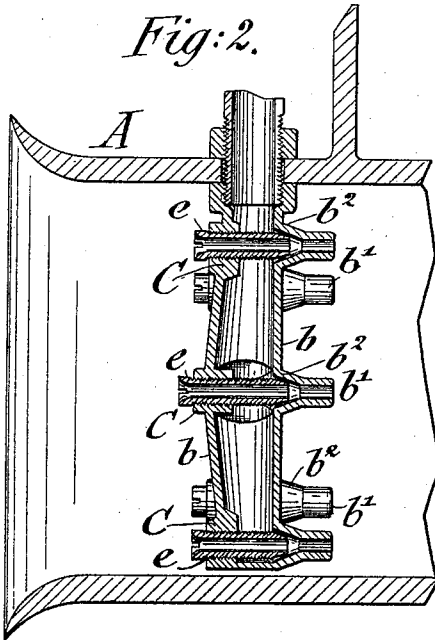


Fig: 3.

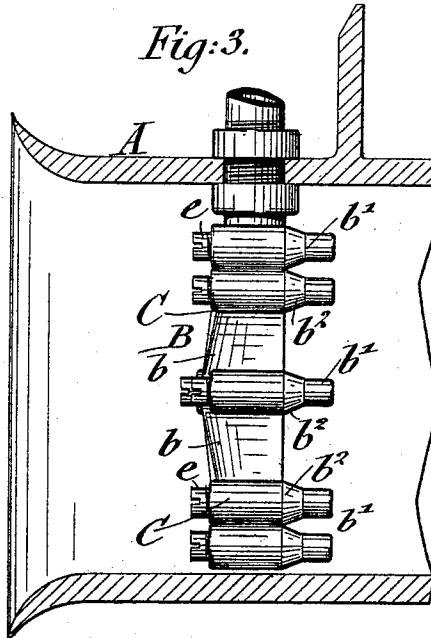
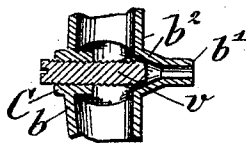


Fig: 4.



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STEAM-BLOWER.

SPECIFICATION forming part of Letters Patent No. 582,483, dated May 11, 1897.

Application filed June 11, 1896. Serial No. 595,130. (No model.)

To all whom it may concern

Be it known that I, HENRY E. PARSON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Steam-Blowers, of which the following is a specification.

This invention relates to an improved steam-blower for providing a forced draft to the furnace of steam-boilers, especially when burning breeze, small coke, small sizes of anthracite coal, and coal or coke dust, whereby the formation of clinkers on the grate is prevented and a more economical combustion of fuel obtained; and the invention consists of a steam-blower composed of an exterior casing, a nozzle-frame provided with radial arms and with a number of nipples on said arms, screw-threaded bosses in the rear wall of the nozzle-frame and alined with said nipples, and air-tubes inserted in said bosses and extending at their tapering front ends into the conical bases of the nipples, so as to introduce a supply of heated air into the steam ejected through the nipples, a sufficient quantity of atmospheric air being drawn in by the steam-jets, so that a mixture of steam and heated air is supplied to the fuel on the grate.

In the accompanying drawings, Figure 1 represents a front elevation of my improved steam-blower. Fig. 2 is a vertical longitudinal section of the same on line 2 2, Fig. 1. Fig. 3 is a vertical longitudinal section through the casing of the steam-blower, showing the nozzle-frame in side elevation; and Fig. 4 is a slight modification of the means for controlling the steam-exit through the nipples.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the casing of my improved steam-blower, which is located at the lower part of the front or side wall of the furnace. The casing A passes through the wall of the furnace and opens into the ash-pit of the same. In the casing A is arranged a nozzle-frame B, which is provided with a number of radial arms *b*, that are provided with a number of elongated steam-nipples *b'*, that extend at right angles from the ends of the radial arms *b*. The upper end of the nozzle-frame is connected by

a suitable steam-pipe with the dome of the steam-boiler, so as to conduct the steam into the interior of the nozzle-frame B, through the nipples into the casing, and from the same into the ash-pit of the furnace. The nipples are cast integral with the nozzle-frame and are each made with an interior cylindrical bore and an outwardly-flaring or conical enlargement *b²* at its base, as shown clearly in Fig. 2. In line with the axis of each nipple is formed on the rear wall of each arm of the nozzle-frame a boss C, which has a screw-threaded bore in which is arranged a solid valve-stem V, extending into the nipple, as shown in Fig. 4, or there is screwed into said boss a threaded air-supply tube E, that is made tapering at its inner end and extends into the conical base of the nipple *b'*, and which is provided at its outer end with a suitable nick for permitting its adjustment relatively to the nipple or the entire closing of the same against the exit of steam. By adjusting the air-supply tubes *e* relatively to the conical bases *b²* of the nipples a greater or less quantity of steam is permitted to pass into the nipples, so that a greater or less suction is exerted on the air which passes through the air-supply tubes. The air is drawn into the jets of steam before issuing from the nipples and heated up by contact with the steam, so as to be supplied in a highly-heated condition to the fuel on the grate. The action of the steam and air jets ejected sets a body of air in motion, that passes inwardly through the casing between the radial arms, said body of air supplying the required draft for the proper combustion of the fuel on the grate. As the air and steam intermingle with each other in the ash-pit, (the doors of which are tightly closed,) the steam and air is supplied under pressure through the openings in the grate-bars to the fuel.

By regulating the relative position of the air-supply tubes to the nipples by which the steam is ejected a greater quantity of hot air can be induced simultaneously with the steam into the fuel, while by regulating the supply of air by a suitable valve (not shown) any desired pressure of the blast can be obtained, according to the size of the boiler-furnace. When the mixture of the steam and heated air is brought into contact with the body of incandescent

fuel on the grate-bars, the steam is dissociated and thereby a perfect combustion of the fuel obtained without any formation of clinkers on the grate-bars. The casing is made of
5 suitable casting, likewise the nozzle-frame with its nipples and bosses also being made in one casting by properly coercing the nipples and perforated bosses, so that the nozzle-frame with its adjustable supply-tubes
10 forms with the casing a strong, durable, and comparatively inexpensive steam-blower for furnaces burning small-sized fuel or dust.

Having thus described my invention, I claim as new and desire to secure by Letters
15 Patent—

In a steam-blower for the furnaces of steam-boilers, a nozzle-frame provided with radial

arms having integral forward-projecting nipples, the bases of said nipples being conical and merging directly into the front walls of
20 the arms, and said arms having on their rear walls integral bosses provided with internal screw-threads, and adjustable air-tubes screwed into said bosses, said supply-tubes being provided with tapering inner ends which
25 enter the conical bases of the nipples, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

H. E. PARSON.

Witnesses:

PAUL GOEPEL,

GEO. W. JAEKEL.