

P. F. REINHART.
STEAM BLOWER.
APPLICATION FILED SEPT. 4, 1912.

1,056,581.

Patented Mar. 18, 1913.

Fig. 1.

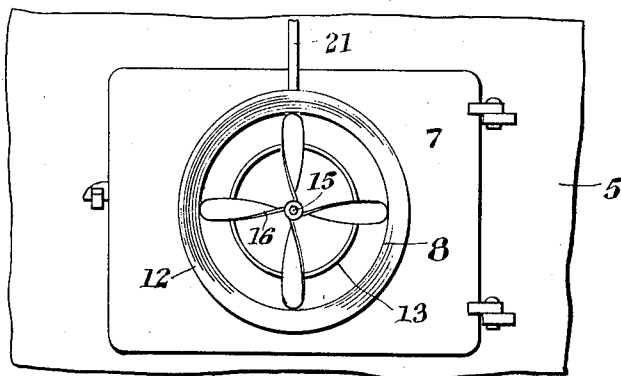


Fig. 2.

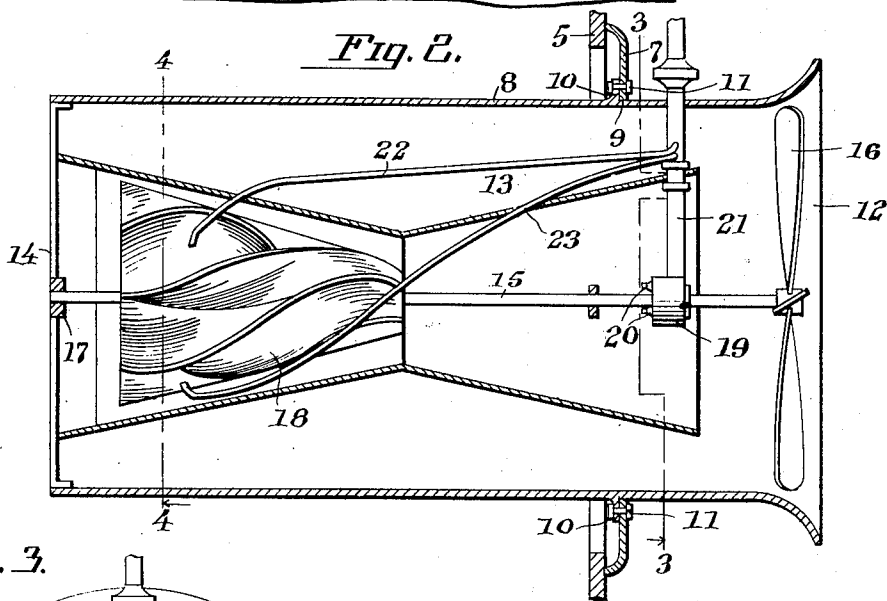


Fig. 3.

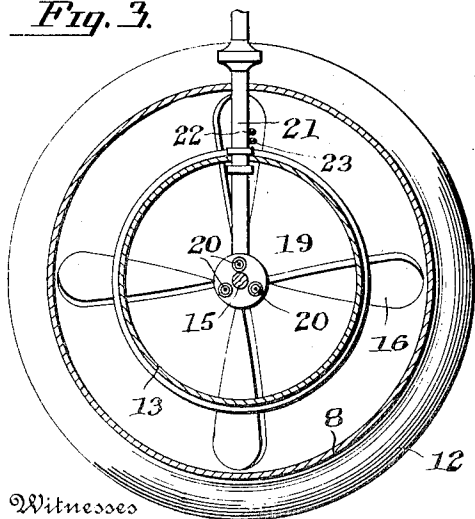
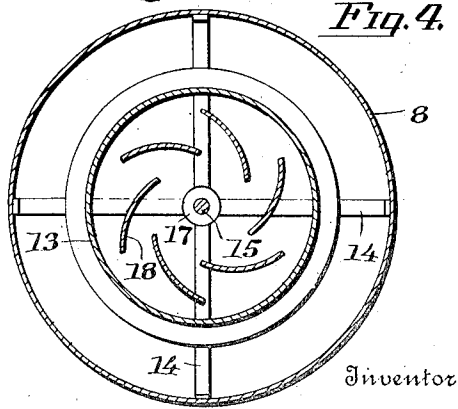


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

PHILIP F. REINHART, OF MERIDEN, CONNECTICUT.

STEAM-BLOWER.

1,056,581.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, PHILIP F. REINHART, a citizen of the United States, residing at Meriden, in the county of New Haven and State of Connecticut, have invented new and useful Improvements in Steam-Blowers, of which the following is a specification.

The invention relates to steam blowers and particularly to the class of devices for producing artificial draft in furnaces and the like.

A primary object of the invention is the provision of a device of the character described wherein steam fluid will be utilized for driving a fan which is designed for creating artificial draft in furnaces and at the same time force steam into the latter so as to permit the burning of cheap grades of coal, combustible waste or the like.

Another object of the invention is the provision of a device of this character wherein air in the outside of a furnace will be sucked into the same for creating artificial draft therefor, the device being readily and easily mounted upon the door or other part of a furnace and which will inject steam thereinto for the burning of the same with the fuel thereby dispensing with the need of higher smoke-stacks or chimneys and at the same time enabling cheap grades of fuel to be utilized when the furnace is in action.

A still further object of the invention is the provision of a device of this character which is simple in construction, thoroughly reliable and efficient in its operation, capable of being used with different types of furnaces and also which is inexpensive in manufacture.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features and construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope in the application which will be indicated in the following claims.

In the drawings:—Figure 1 is a fragmentary front elevation of a furnace with its door showing the device constructed in accordance with the invention mounted upon the latter. Fig. 2 is a vertical longitudinal sectional view through the furnace and the device applied to its door. Fig. 3 is a sectional view on the line 3—3 of Fig. 2 looking

ing in the direction of the arrow. Fig. 4 is a sectional view on the line 4—4 of Fig. 2 looking in the direction of the arrow.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings by numerals 5 designates a portion of a furnace having the usual fire-box and a front door 7 which permits access to be had to the interior of the latter as usual.

The device comprises a cylinder or tubiform body 8, the door 7 of the said furnace being provided with an aperture 9 receiving the cylinder body 8 which has formed at intervals thereon exteriorly the same outwardly projecting lugs 10 through which are passed bolt members 11 the same being also passed through the door 7 for the fastening of the cylinder or body 8 thereon. The inner end of the cylinder or body 8 protrudes within the furnace while its outer end projects exteriorly of the said furnace and terminates in a flared air intake mouth 12, the air being sucked in through the latter in a manner presently described.

Located centrally within the body or cylinder 8 is a double cone shell or a centrally contracted or straight tube 13 the same being supported by means of cross bars 14 which are fixed to the cylinder or body 8 in any desired manner and extending through the said shell or tube 13 is a rotatable fan shaft 15, the same being supported in the cross bars 14 and has fixed to its outer end a bladed fan wheel 16 of any preferred form. The shaft 15 being surrounded by longitudinal bearings 17 which are held within the cross bar 14 in any desirable manner and are designed to reduce friction therebetween. Fixed to the said shaft 15 and located within the inner end of the shell or tube 13 is a steam impact spiral 18 which is adapted to be acted upon by steam fluid in a manner presently described.

Surrounding the shaft 15 a considerable distance forwardly of the spiral 18 and within the front end of the shell or tube 13 is a steam spray head 19 provided with spray nozzles 20 projecting rearwardly therefrom and at intervals concentrically above the said shaft 15 so as to throw the steam fluid on to the spiral 18 whereby the said fluid will act upon the same for the rotation of the shaft and in this manner operate the fan wheel so as to cause the sucking

in of air exteriorly of the furnace through the body or cylinder 8 for the delivery of the said air into the furnace thus creating artificial draft for the furnace. Passed 5 through the top of the body or cylinder 8 and connected with the spray head 19 is a steam supply pipe 21 which is connected with the steam dome of the furnace or with any other suitable steam supply or reservoir.

10 It will be noted that on admitting steam to the spray head 19 the latter will discharge said steam in spray form on to the spiral 18 causing the rotation of the shaft which will simultaneously impart rotation to the fan 15 wheel 16 through the shaft 15, the steam after acting upon the spiral being deflected into the furnace for the burning thereof with the fuel in the fire-box and simultaneously with the admission of steam into the 20 furnace air will be forced into the latter by reason of the rotation of the fan wheel 16 which causes an artificial draft to be created within the furnace by taking the air outside thereof through the cylinder or body 8 and forcing it into the said furnace. 25

Leading from the supply pipe 21 and extending into the cylinder 8 are a pair of branch pipes 22 and 23 the free curved ends of which are directed toward the blades 18 30 of the spiral, so that when fluid is emitted from the branches the same will assist in the driving of the spiral and thereby rotate the fan.

35 From the foregoing description, taken in connection with the accompanying drawing, it is thought that the construction and operation of the invention will be clearly understood, and therefore a more extended explanation has been omitted.

40 What is claimed is:—

1. A device of the class described compris-

ing an air inlet cylinder adapted to communicate with the furnace, a hollow member located centrally within the cylinder and having a medial contraction, a shaft passed 45 centrally through the member and having a spiral at its inner end, a steam fluid head located within the member forwardly of the spiral and adapted to project steam onto the said spiral, and a fan wheel fixed to 50 the outer end of said shaft.

2. A device of the class described comprising an air inlet cylinder adapted to communicate with the furnace, a hollow member located centrally within the cylinder and 55 having a medial contraction, a shaft passed centrally through the member and having a spiral at its inner end, a steam fluid head located within the member forwardly of the spiral and adapted to project steam onto the 60 said spiral, a fan wheel fixed to the outer end of said shaft, and means supplying steam fluid to the head.

3. A device of the class described comprising an air inlet cylinder adapted to communicate with the furnace, a hollow member located centrally within the cylinder and having a medial contraction, a shaft passed 65 centrally through the member and having a spiral at its inner end, a steam fluid head located within the member forwardly of the spiral and adapted to project steam onto the said spiral, a fan wheel fixed to the outer 70 end of the said shaft, means supplying steam fluid to the head, and means supporting the member and shaft within the cylinder. 75

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

PHILIP F. REINHART.

Witnesses:

HENRY J. COLLINS,
MARY E. WILLIAMS.