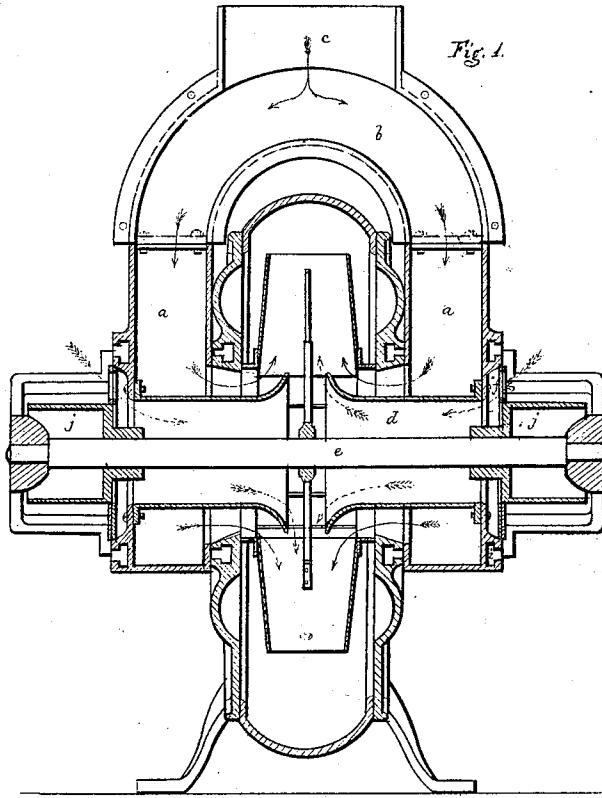


B. F. Sturtevant,

Air Blast.

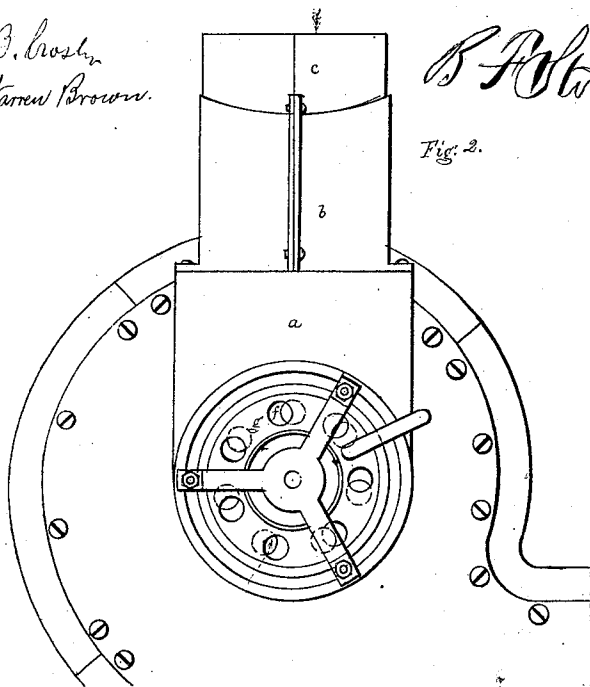
No. 100,238.

Patented Feb. 22, 1870.



Witnesses { *W. B. Crocker*
C. Warren Brown.

B. F. Sturtevant



United States Patent Office.

B. F. STURTEVANT, OF JAMAICA PLAIN, MASSACHUSETTS.

Letters Patent No. 100,238, dated February 22, 1870.

IMPROVEMENT IN HOT-AIR BLOWERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, B. F. STURTEVANT, of Jamaica Plain, in the county of Norfolk, and State of Massachusetts, have invented Improvements in Blowers; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

This blower is designed to draw in at its center and to force out of its outlet hot air or gases, including the volatile products of the combustion of any matter, and may be used in various situations for mechanical and chemical operations.

It is common in blowers to let the incoming current, which is usually cold air, pass into the blower in direct contact with the blower-shaft and the bearings therefor. But for some, at least, of the purposes for which my improved blower may be utilized, the hot incoming current, if coming into contact with the blower-shaft and its bearings, would burn the oil used to lubricate the rapidly-revolving shaft, and would, in some cases, fill the bearings with ashes and grit, which would cause the shaft to stick fast in its bearings so that it could not be rotated.

My invention consists in a peculiarity of construction by which I introduce heated aeriform fluids into the blower at a sufficient distance from the shaft and its bearings to obviate danger of heating the same; and

It consists further in such a construction as enables me, at will, to introduce into the blower around and in contact with the shaft and its bearings any amount of pure air which may be needed for the purpose of keeping the shaft and its bearings cool, and also for diluting the heated air or gases passing into the blower at some distance from the shaft.

Among the purposes for which it is believed that this blower may be used to convey the volatile products of combustion, may be mentioned the rough drying of green lumber, staves, &c., peat, bricks, and also in the manufacture of white lead.

Figure 1 of the drawings shows, in vertical section taken in a plane passing through the axis of the shaft, a blower embodying my invention,

Figure 2 being a partial end view of said blower.

The blower-case and the fan-wheel therein are such as I have heretofore shown in United States Letters Patent heretofore granted to me, and hence need no special description herein.

The blower-case has added on each side a box-like passage-way, *a*, said passage-ways being connected by the passage *b*, which has an inlet at *c*, to which is to be joined the pipe conveying hot volatile products of combustion or other heated air or gases to be acted

upon by being drawn into and forced out from the blower.

The passage-ways *a* surround and empty into central openings formed in the sides of the blower-case, so that the hot current enters the blower in the direction shown by arrows on the drawing, fig. 1.

The pipes *d* are attached one to each outer plate of the passage-ways *a*, said pipes being concentric with the shaft *e* of the blower, the pipes extending inward so that their delivery-ends (which are preferably made flaring or funnel-shaped) approach each other, leaving, however, some space between them for air to enter the interior of the blower.

Over the outer ends of pipes *d*, and attached to the outer plates of the passage-ways *a*, are fitted register-plates *f*, over which are fitted, so as to rotate, outer register-plates *g*, the inner plates *f* and outer plates *g* being pierced with openings which may be opened or closed by turning the outer plates *g* in the manner of some valves and furnace-registers set in floors or walls.

The passage-ways *a* are held to the blower-case by means of bolts which have their heads in a T-shaped groove formed in the sides of the blower-case, as seen at *h*, in fig. 1, which device permits the whole of the passage-way for the heated fluid being adjusted at any desired radial angle or position about the blower-case, so that the inlet *c* may be located as shown, or at any number of degrees from that position.

The directions in which common air enters the blowers are indicated by dotted arrows on the drawing.

The bearings in which shaft *e* revolves are located outside of the blower and the passage ways *a* connected therewith, and are fixed to tripods which are held to the outer plates of passage-ways *a* by bolts having their heads located in a T-shaped groove seen at *i*, fig. 1, which groove is made concentric with shaft *e*.

When the fan-wheel is set in motion by action of belts on the pulleys *j*, fixed on shaft *e*, it will be obvious that the heated air or gases will be drawn into the inlet *c*, and will bifurcate and pass equally through both sides of passage-way *b* into passage-ways *a*, and thence through the annular openings made between the pipes *d* and the periphery of the central circular openings in the sides of the blower-case, and that the heated air or gases will be expelled from the outlet from the blower, the pipes *d* preventing the hot gaseous fluid from coming into contact with and from heating the blower-shaft by contact, and the bearings thereof by conduction.

If it is desired to let air enter the blower through pipes *d* to cool shaft *e*, or to dilute the fluid flowing into the blower from inlet *c*, the register *g* is turned more or less to graduate the amount of air to be admitted.

I claim—

A blower in which heated aeriform fluids may be admitted to the action of the fan-wheel through side openings remote from the shaft, substantially as described.

Also, in such a blower, the central opening for admission of air, with the register or valve for regulating the amount of air admitted, substantially as and for the purpose described.

Also, the passage-ways for the incoming current of

heated fluid, connected with the blower sides and with shaft-supporting tripods, so that the position of said passage-ways may be changed as desired without changing the position of the blower-case or the relation of the tripods with reference to the belts operating on the pulleys.

B. F. STURTEVANT.

Witnesses:

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