D. F. LEPLEY.

VENTILATING APPARATUS.

APPLICATION FILED JAN. 20, 1919.

**1,326,673.** Patented Dec. 30, 1919.

Fig. 1.

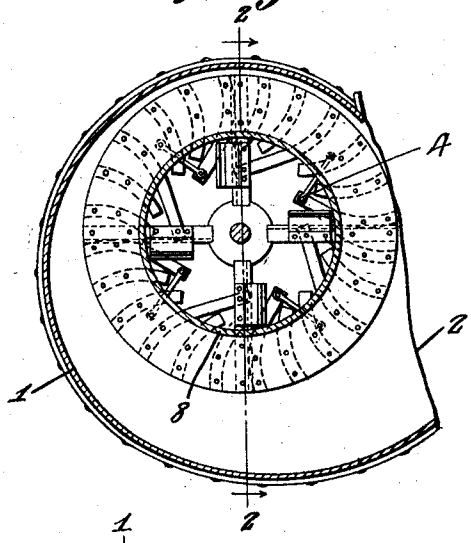
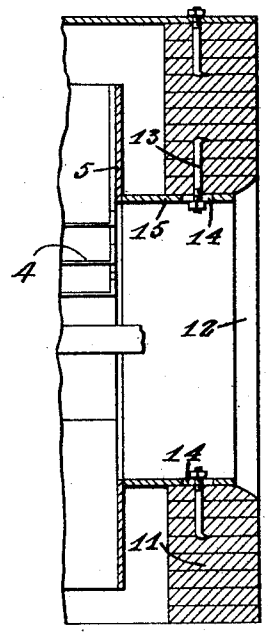



Fig. 3.



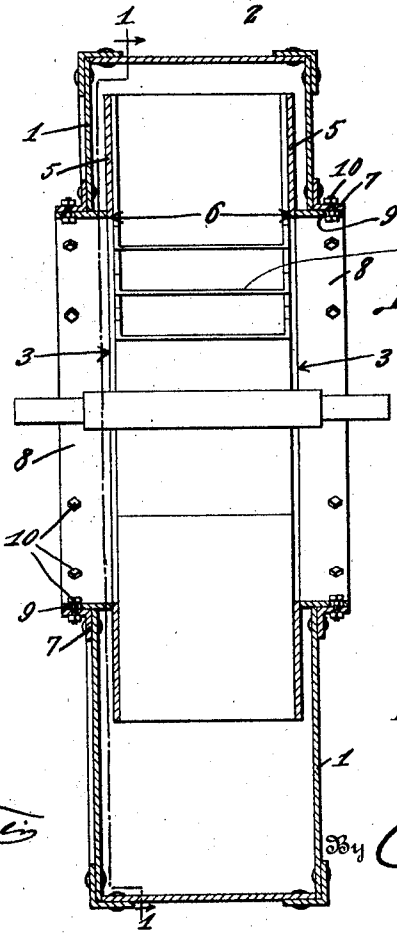




Fig. 2.

Witness

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# UNITED STATES PATENT OFFICE.

DANIEL F. LEPLEY, OF CONNELLSVILLE, PENNSYLVANIA.

## VENTILATING APPARATUS.

1,326,673. Specification of Letters Patent. Patented Dec. 30, 1919.

Original application filed September 19, 1917, Serial No. 192,164. Divided and this application filed January 20, 1919. Serial No. 272,066.

*To all whom it may concern:*

Be it known that I, DANIEL F. LEPLEY, a citizen of the United States, residing at Connellsville, in the county of Fayette and State of Pennsylvania, have invented a new and useful Ventilating Apparatus, of which the following is a specification.

This invention relates to ventilating apparatus and is more especially a division of my copending application filed Sept. 19, 1917, Serial Number 192,164.

Where centrifugal fans are used for ventilating mines and for like purposes it has been found that the efficiency thereof has been greatly reduced because of the leakage of air occurring at the inlets and between the sides of the fan or blower casing and the cheek plates of the fan, and one of the objects of the present invention is to provide sealing means whereby leakage at the air inlets is prevented and the fan or blower maintained at its maximum efficiency.

Another object is to provide sealing means that are adjustably mounted so that, after the fan or blower has been mounted in its casing, the sealing means can be properly positioned relative thereto.

Another object is to provide a casing that instead of being only wide enough to provide free running clearance for the fan wheel within it, will permit of its being made much wider than could be done otherwise in order to secure a much larger percentage of area at the throat or at the point of discharge of the fan in order to reduce the discharging velocity of the air at that point, thereby reducing the internal resistance and very materially increasing the efficiency of the fan and at the same time provide an effective means for preventing the air from escaping through the point of least resistance which is around the orifice of the fan.

Another object is to make it possible to make the orifice through the fan casing considerably larger than the actual conditions would permit in order to allow for the necessary obstructions in the orifice such as the large shaft bearings and other foundation supports which usually serve to obstruct the free inflow of air through the orifice, causing an excessive velocity at that point.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims, it being understood that various changes may be made in the construction and arrangement of the parts without departing from the spirit or sacrificing any of the advantages of the invention as set forth in the appended claims.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:

Figure 1 is a vertical section through one side portion of fan or blower casing and through one of the sealing rings, said section being taken on the line 1—1, Fig. 2.

Fig. 2 is an enlarged section on line 2—2, Fig. 1.

Fig. 3 is a section through a portion of a modified structure.

Referring to the figures by characters of reference, 1 designates a fan casing or housing having an outlet 2 and side inlets 3. A fan or blower 4 of suitable construction is mounted for rotation within the housing and between the inlets, this fan being provided with the usual cheek plates 5 having central openings 6. A ring 7 is secured to the outer face of each side of the casing or housing 1, this ring being preferably angular in cross section, as shown, so that it can be secured readily to the casing. Fitted snugly within each of the rings 7 is a sealing ring which extends into the casing and has short longitudinal slots 9 each of which receives a bolt 10 extending from the ring 7. By loosening the bolts the rings 8 can be adjusted inwardly close to the cheek plates 5 and to the walls of the openings in the cheek plates, thereby to seal the space between the sides of the casing and the cheek plates and prevent air from leaking at these points. Consequently the efficiency of the fan is maintained at the maximum, because air drawn into the fan through the rings 8 will be discharged through the fan to the outlet of the casing and none of the air can escape at the sides.

Under some conditions it is desirable to provide the housing of the fan with brick or concrete walls or, under some conditions with a wall of brick and another wall of metal. When one or both of the walls are formed of concrete or brick, the parts can

be arranged as shown in Fig. 3 wherein the wall 11 is built with an opening 12 and bolts 13 are anchored in the wall and project into the opening so as to extend through the slots 14 in the sealing ring 15.

What is claimed is:—

1. In a ventilating apparatus the combination with a fan housing having air inlet openings at the sides thereof and a fan mounted for rotation within the housing, said fan being provided with cheek plates, of a sealing ring fitted snugly within each of the inlet openings and extending into the housing and up to the outer surface of the adjacent cheek plate of the fan.

2. In a ventilating apparatus the combination with a fan housing having air inlet openings in the sides thereof and a fan mounted for rotation in the housing, said fan being provided with cheek plates having openings opposite the inlet openings, of a sealing ring within each inlet opening and extending into the housing up to the outer surface of the cheek plate and around the opening therein.

3. In a ventilating apparatus the combination with a fan housing having air inlet opening in the sides thereof and a fan mounted for rotation in the housing, said fan having cheek plates provided with openings opposite the inlet openings, of a ring secured upon the outer face of each side of the housing, a sealing ring mounted in each of said outer rings and extending into the housing and close to the outer surface of the wall of the adjacent cheek plate, and means for adjustably connecting the sealing rings to the outer rings.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

DANIEL F. LEPLEY.

Witnesses:
W. H. Soisson,
B. C. Burkhardt.