(No Model.) 2 Sheets—Sheet 1.

F. PELZER.

CENTRIFUGAL PUMP AND VENTILATOR.

No. 490,922. Patented Jan. 31, 1893.

Fig: 2.

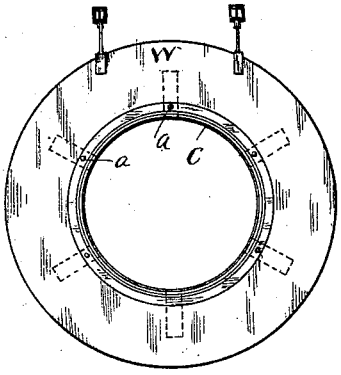


Fig: 1.

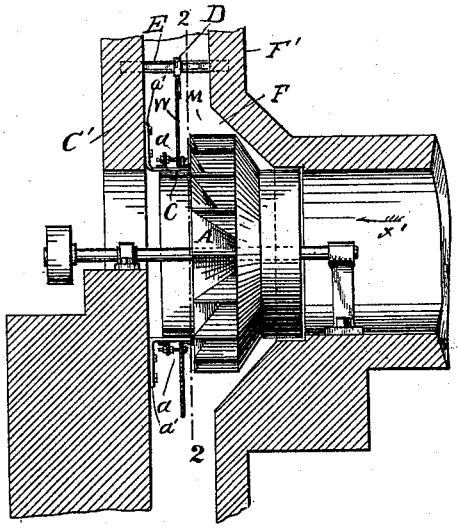


Fig: 4.

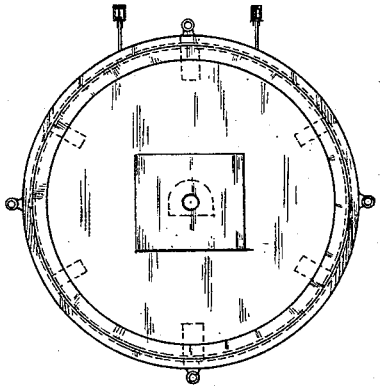
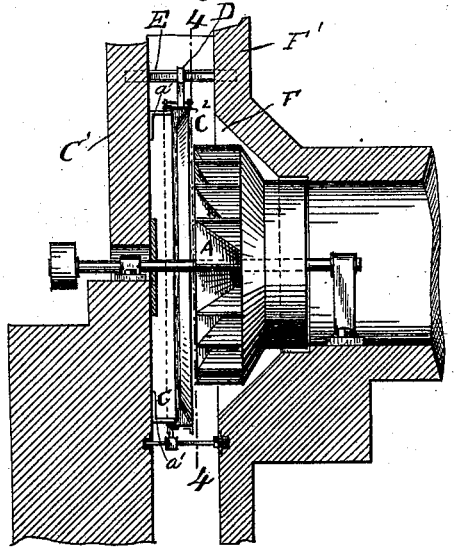


Fig: 3.



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(No Model.) 2 Sheets—Sheet 2.

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CENTRIFUGAL PUMP AND VENTILATOR.

No. 490,922. Patented Jan. 31, 1893.

Fig: 5.

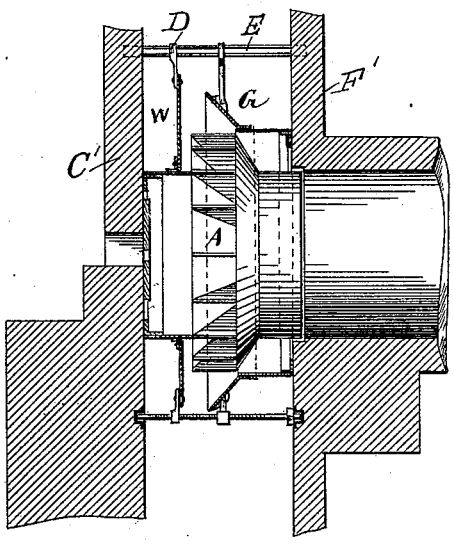


Fig: 6.

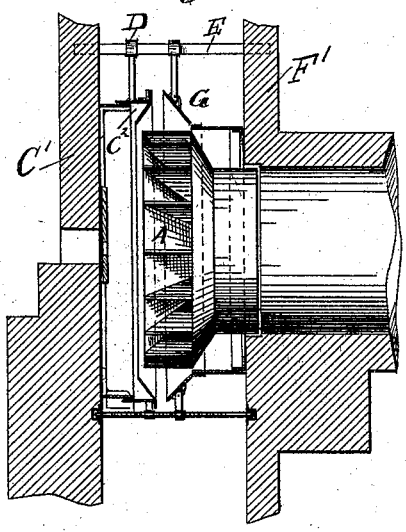


Fig: 7

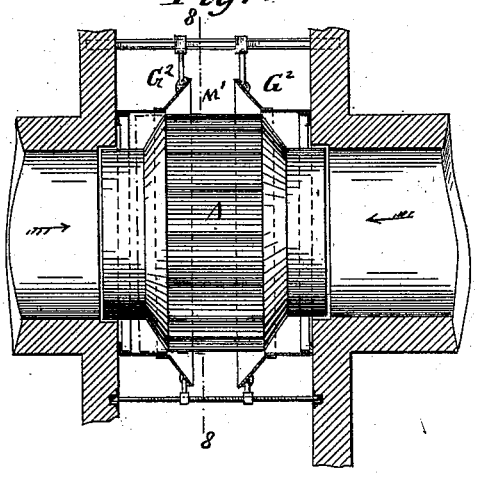
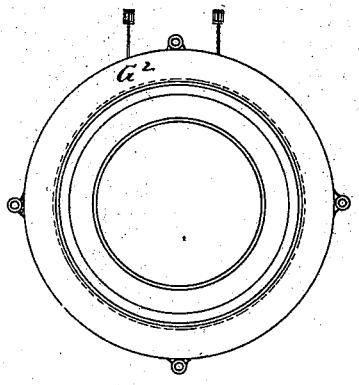


Fig: 8.



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UNITED STATES PATENT OFFICE.

FRIEDRICH PELZER, OF DORTMUND, GERMANY.

CENTRIFUGAL PUMP AND VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 490,922, dated January 31, 1893.

Application filed February 18, 1891. Serial No. 381,803. (No model.) Patented in Germany October 18, 1889, No. 52,231; in Austria-Hungary June 22, 1890, No. 10,364 and No. 25,770, and in England September 1, 1890, No. 19,636.

To all whom it may concern:

Be it known that I, FRIEDRICH PELZER, a subject of the Emperor of Germany, and a resident of Dortmund, Germany, have invented certain new and useful Improvements in Centrifugal Pumps and Ventilators, (for which I have obtained Letters Patent in Germany, No. 52,231, dated October 18, 1889; in Austria-Hungary, No. 10,364 and No. 25,770, dated June 22, 1890, and in England, No. 19,636, dated September 1, 1890,) of which the following is a specification.

In centrifugal pumps or fan-blowers the receiver serves for the purpose of utilizing the active forces of the air or liquid passing from the edges of the wings by changing the speed into pressure. It is well known that theoretical calculation exists by which the dimensions of the receivers can be determined, which calculations, however, have but little value in practice, as in most cases the data required for making the calculations can not be obtained, or, if they can be obtained, do not remain uniform. If, for example, for certain conditions, the dimensions of the receiver of a fan-blower are adapted for a greater amount of air than actually is forced by the fan-blower at a certain fixed circumferential speed, the speed of the air issuing from the rim of the fan-blower does not decrease so rapidly as to correspond to the dimensions of a larger receiver, and, as a result thereof, circular currents are produced and loss of power is caused. To prevent such loss, it is necessary to collect the air or liquid issuing from the fan-blower or centrifugal pump and permit it to escape in a uniform stream or current corresponding to the mass or quantity and speed of the air or fluid.

The object of my invention is to provide means for thus producing the said continuous passage or current.

The invention consists in the combination, with a cylindrical pump or fan-blower, of an annular plate concentric with the fan-blower and adjustable on the axis of the same to form a slot of greater or less widths, for the escape of air or liquid from the pump or blower.

The invention also consists in the construction and combination of parts and details, which will be fully described hereinafter and finally pointed out in the claims.

Figure 1 is a vertical longitudinal sectional view of one construction of my improved single acting fan blower. Fig. 2 is a transverse-sectional view of the same on the line 2 2, of Fig. 1. Fig. 3 is a vertical longitudinal sectional view of a modification of the same. Fig. 4 is a vertical transverse-sectional view of the same on the line 4 4, of Fig. 3. Figs. 5 and 6 are vertical longitudinal-sectional views of further modifications: Fig. 7 is a vertical longitudinal-sectional view of a compound blower. Fig. 8 is a vertical transverse-sectional view of the same on the line 8 8, of Fig. 7.

Similar letters of reference indicate corresponding parts.

The cylindrical pump or fan-blower A shown in Fig. 1 draws air or liquid from one direction only, as indicated by the arrow x', and the said fan-blower or centrifugal pump is arranged in a funnel-shaped opening F in the wall F'. Opposite the said funnel-shaped opening F an annular plate W is arranged, between which annular plate W and the funnel-shaped opening F the annular slot M for the escape or passage of the air or liquid is formed. The cylinder C is fastened on the wall C' directly opposite the fan-blower, and with the annular plate W prevents the exterior air from passing to the fan-blower or centrifugal pump.

On rods E fixed in the wall F' and the wall C' the hangers D are mounted to slide, and these hangers support the plate W so as to adapt the same to move toward or from the fan A in the space between the walls. Screws a engage the plate W and projections on brackets a' on the wall C', and by turning said screws the said plate W can be shifted.

In the construction shown in Figs. 3 and 4, the plate W is replaced by an adjustable cylinder C^2, which also can be adjusted toward or from the fan-blower or centrifugal pump. In this case the wall C' is to be made solid.

Instead of making the funnel-shaped opening F in the wall, the fan-blower can be surrounded by a funnel-shaped piece G, which is adjustable on the line of the axis of the fan-blower, as shown in Figs. 5 and 6, Fig. 5

showing the adjustable annular plate W, as shown in Figs. 1 and 2 and Fig. 6 showing the adjustable cylinder C^2, as shown in Figs. 3 and 4.

Figs. 7 and 8 show a fan-blower that draws in air or liquid from both sides, as indicated by the arrows x^2, and is surrounded by two sheet-metal adjustable funnels G^2, between which the slot M′ for the escape of the air or liquid from the blower is formed. The funnel-shaped pieces G are suspended and adjusted in the same manner as the plate W.

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

1. The combination with a centrifugal pump or fan-blower, of an annular plate concentric with the same and adjustable on the line of the axis of said fan-blower, between which adjustable plate and an adjacent surface a slot is formed for the escape of air or liquid from the fan-blower or pump, substantially as set forth.

2. The combination with a centrifugal pump or fan-blower, of an annular plate concentric with the blower and adjustable on the axis of said blower and a funnel in which part of the blower is located, substantially as set forth.

3. The combination with a centrifugal pump or fan-blower, of an annular plate concentric with the fan-blower and adjustable on the axis of the same, and a funnel surrounding the fan-blower and also adjustable on the axis of the same, 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.

FRIEDRICH PELZER.

Witnesses:
JOHN HECKMANNS,
HEINR. SCHEINS.