

No. 704,360.

Patented July 8, 1902.

C. NEUMANN.
BLOWER AND COMPRESSOR.

(Application filed July 3, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

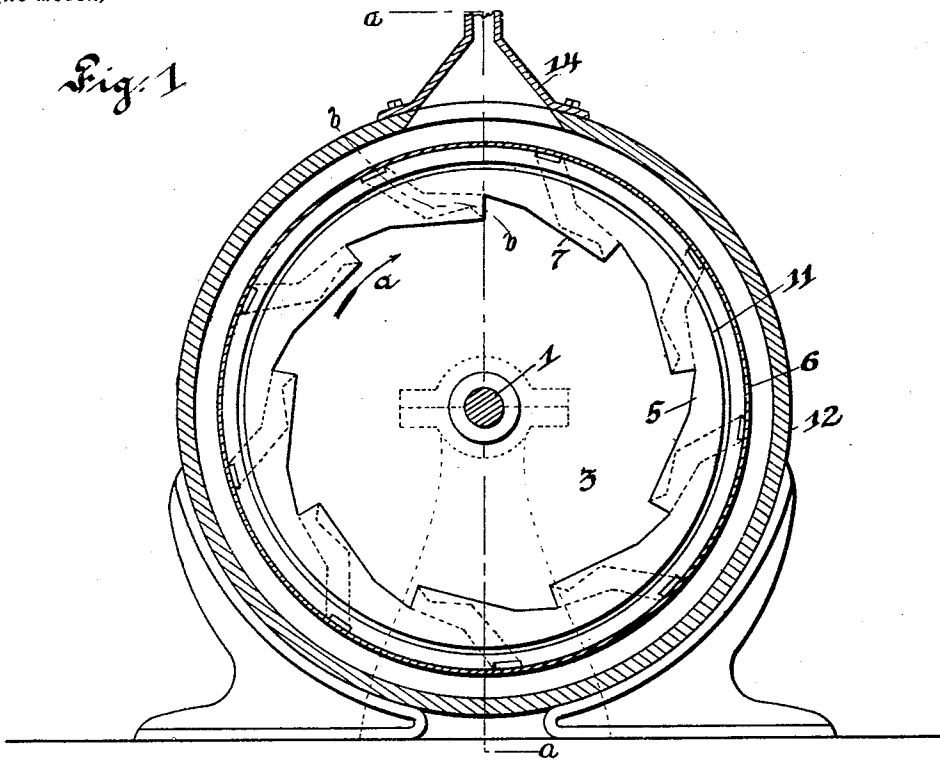
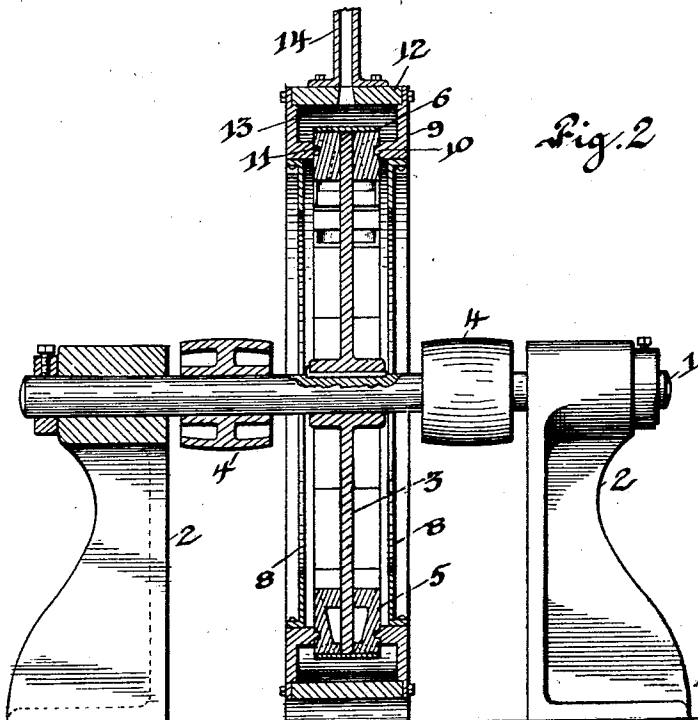


Fig. 2



Witnesses

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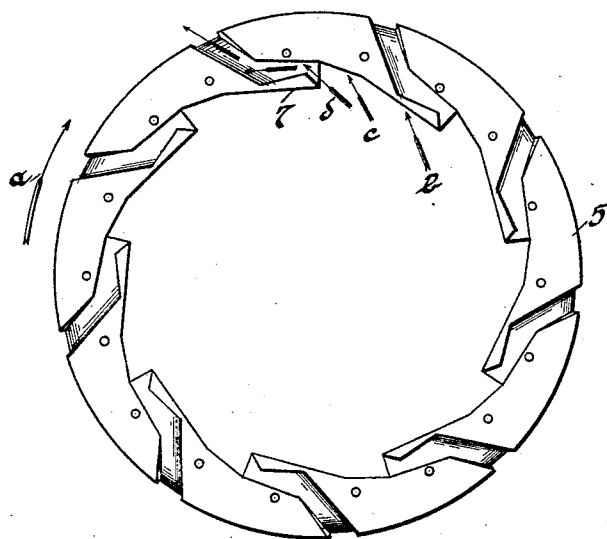


Fig. 3.

Fig. 4.

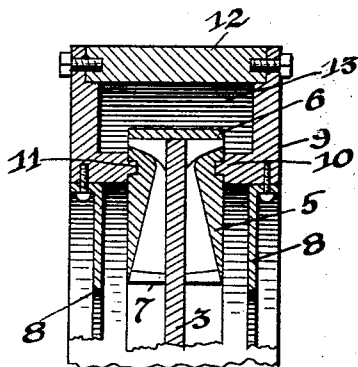
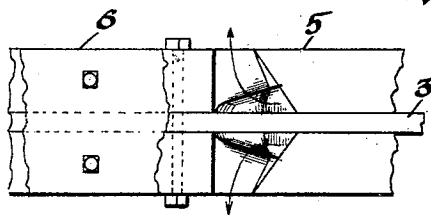


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHRISTIAN NEUMANN, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE NATURAL POWER CO., OF ST. LOUIS, MISSOURI.

BLOWER AND COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 704,360, dated July 8, 1902.

Application filed July 3, 1901. Serial No. 66,960. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN NEUMANN, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Blowers and Compressors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to blowers and compressors; and it consists of the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

The object of this invention is to construct a blower and compressor consisting of a disk supported upon a rotary shaft and having a series of compression-passages formed near the periphery, through which the air is drawn and compressed into a surrounding chamber, from which it may be drawn off as desired.

Figure 1 is a view showing the side of the rotary disk with parts of the outer shell or casing shown in section. Fig. 2 is a vertical section taken on the line *a a* of Fig. 1. Fig. 3 is a view showing the inner side of one of the castings carried by the central disk and which has the air-passages formed therein. Fig. 4 is a detail sectional view taken on the line *b b* of Fig. 1 looking downwardly. Fig. 5 is a view showing a portion of the outer edge of the disk with a part of the rim broken away.

In the construction of my improved blower and compressor the shaft 1 is mounted in the bearings 2 and has a disk 3 fixed thereon with pulleys 4, whereby power may be applied to the shaft. Fixed upon each side of the disk at its periphery is a ring 5, composed, preferably, of aluminium, and the outer edge of the said ring is even with the outer edge of the said disk 3. A number of air-passages are formed in the inner side of each of the rings, and they are identical in construction. It will be observed by referring to Fig. 3 that the outer sides of these passages are at various angles, so that as the disk is rotated in the direction indicated by the arrow *a* in Fig. 3 the air will first strike against the sides of the passages at an angle indicated by the arrow *b* and is deflected from there to the side indicated by the arrow *c* and from there to

the side denoted by the arrow *d*, which is at one side of the passage. By the side *d* the air is deflected and follows a course outwardly, as indicated by the several arrows in Fig. 3, and at the outer ends of the passages it is turned by a ring or band 6, inclosing the outer edges of the rings 5 and the disk 3. As clearly shown in Fig. 4, these passages turn at their outer ends under the band 6 and open into an air-chamber, which will presently be described. The inner side 7 of each of the passages is also arranged at various angles to assist in taking up and compressing the air through the passage.

A stationary rim 8 is carried at each side of the ring 3, and the said rims are supported by the rings 9, and their function is to serve as air-retainers to prevent the air from being thrown laterally by the rotation of the disk 3. The said rings 9 are provided with flanges 10 at their inner sides, the said flanges having extensions which operate within circular grooves 11, formed in the rings 5. These flanges form an air-tight joint with the rings, so that all the air which is compressed within the outer chamber may be retained therein until drawn off through the regular outlet.

12 indicates an outer ring or casing which is supported by the rings 9 around the rotary disk, and the said casing forms a chamber 13, within which the air is received as it passes from the air-passages above described. An outlet 14 may be located at any suitable point around the casing, through which the air may be drawn off.

In operation power is applied to the pulley 4, driving the shaft 1, which carries the rotary disk 3 and the rings 5. The said disk and rings are rotated in the direction indicated by the arrows *a* in Figs. 1 and 3, so that it may readily be seen that the air which is contained within the open chambers at the sides of the disk will be taken up through the air-passages formed in the rings 5, and because of the peculiar construction of these passages the air will be compressed and forced into the air-chamber 13, from which it may be drawn off to be used as desired.

I claim—

1. In a blower and compressor, a rotating disk; a ring fixed upon each side of said disk

- at its periphery, there being angular compression-passages formed within said rings, said passages being funnel-shaped in cross-section; stationary rings mounted beside the first-mentioned rings and extending outwardly and forming close joints with the first-mentioned rings; and an outer stationary casing connecting the outer edges of said stationary rings, substantially as specified.
2. In a blower and compressor, a rotating disk; a ring fixed upon each side of said disk at its periphery; funnel-shaped angular passages formed in said rings; stationary rings mounted beside the first-mentioned rings and extending outwardly; flanges extending inwardly from the inner edges of said stationary rings and forming close joints with said rotatable rings; and an outer stationary casing connecting the outer edges of said stationary rings, substantially as specified.
3. In a blower and compressor, a shaft; a rotating disk mounted upon the shaft; a ring fixed upon each side of said disk at its periphery; funnel-shaped angular passages formed in said rings; stationary rings mounted beside the first-mentioned rings and extending outwardly; flanges extending inwardly from the inner edges of said stationary rings and forming close joints with said rotatable rings; and an outer stationary casing connecting the outer edges of said stationary rings, substantially as specified.
4. In a blower and compressor, a rotary disk; rings fixed upon the sides of said disk at its periphery; angular air-passages formed through said rings, said passages turning laterally at their outer ends; a band surrounding said disk and rings and forming the outer sides of the air-passages to deflect the air laterally; and an air-chamber around the disk to receive the air, substantially as specified.
- In testimony whereof I affix my signature in presence of two witnesses.
- CHRISTIAN NEUMANN.
- Witnesses:
ALFRED A. EICKS,
JOHN D. RIPPEY.