Dec. 8, 1931. E. M. MAY 1,834,959

BLOWER

Filed Feb. 14, 1929

Fig. 1

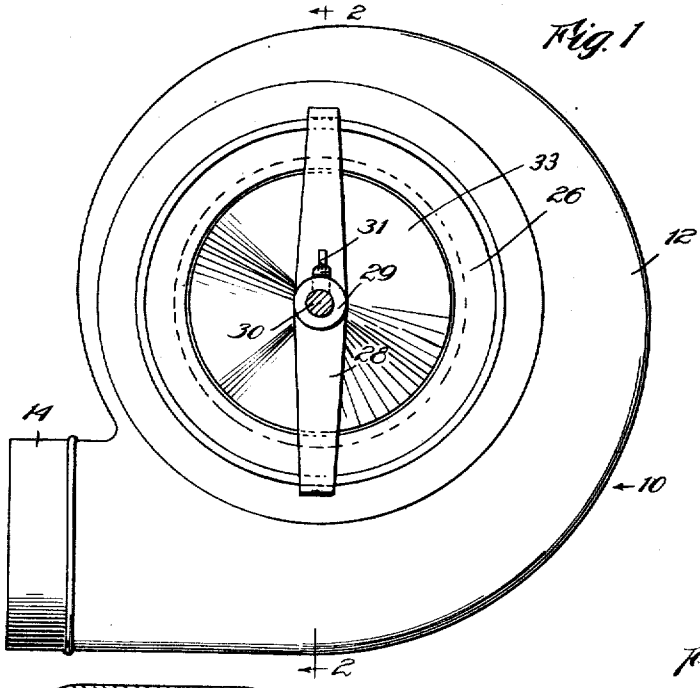


Fig. 2

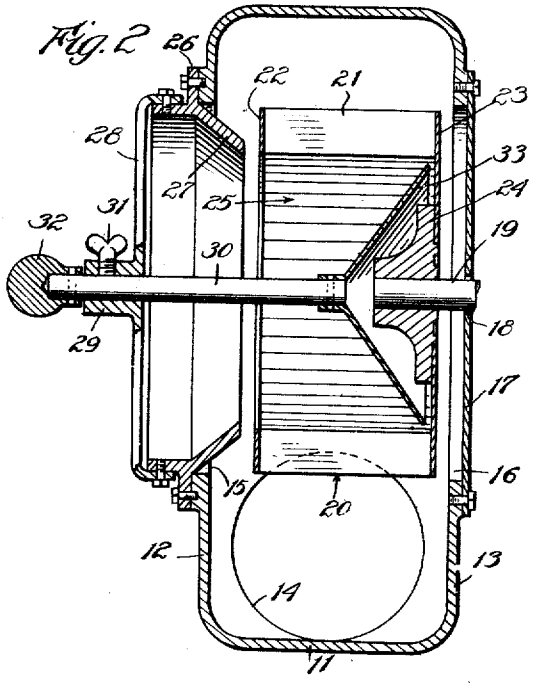
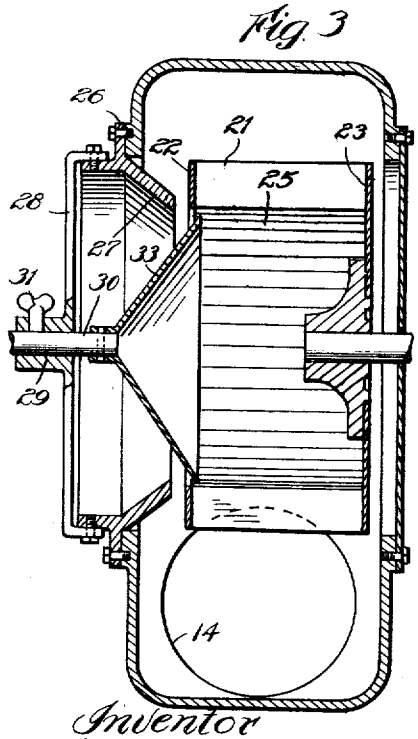


Fig. 3



Inventor
Edward M. May
By Kinsell Coker & Carlson
Attys

Patented Dec. 8, 1931

1,834,959

UNITED STATES PATENT OFFICE

EDWARD M. MAY, OF CHICAGO, ILLINOIS, ASSIGNOR TO COMBUSTIONEER INC., OF CICERO, ILLINOIS, A CORPORATION OF ILLINOIS

BLOWER

Application filed February 14, 1929. Serial No. 339,759.

The present invention relates to improvements in blowers, and has particular reference to new and improved means for regulating the capacity of the blower.

The primary object of the present invention resides in the provision in a blower of novel means for controlling the fluid inlet.

A more specific object resides in the provision in a rotary blower of a new and improved damper mounted for axial adjustment within the rotor and adapted to control the flow of fluid thereto.

Further objects and advantages will become apparent as the description proceeds.

In the accompanying drawings, Fig. 1 is a front elevational view of a blower embodying the features of my invention.

Fig. 2 is a vertical sectional view taken substantially along line 2—2 of Fig. 1, and showing the damper in its open position.

Fig. 3 is a view similar to Fig. 2 but showing the damper in its closed position.

While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawings and will herein describe in detail the preferred embodiment, but it is to be understood that I do not thereby intend to limit the invention to the specific form disclosed, but intend to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

Referring more particularly to the drawings, the machine constituting the exemplary embodiment of the invention comprises a suitable casing 10 having a peripheral wall 11 and front and rear side walls 12 and 13. The casing 10 is formed with a suitable tangential fluid outlet 14. The side walls 12 and 13 are formed with aligned openings 15 and 16.

The side opening 16 is closed by a side plate 17 having a central aperture 18 through which extends a drive shaft 19 into the casing 10. The shaft 19 may be connected to any suitable source of power (not shown).

Mounted on the inner end of the shaft 19 for rotation therewith is a suitable rotor 20 which in the present instance comprises a plurality of radial peripherally spaced vanes 21. Of the vanes, the front ends are connected by a flat spring 22, and the rear ends are connected to a disk 23 secured to a hub 24 on the shaft 19. The vanes 21 define a hollow substantially cylindrical interior 25 for the rotor 20, and the interior 25 is closed at its rear end by the disk 23, and is open at its front end through the aperture of the ring 22.

Mounted in the front opening 16 is an annular flange ring 26 having an iwardly tapering peripheral flange 27 constituting a guide for directing fluid to the interior 25 of the rotor 20.

Means is provided for controlling the effective inlet to the rotor. To this end, a bracket 28 is mounted diametrically across the ring 26, and is formed with a central bearing sleeve 29. Mounted in the sleeve 29 for slidable adjustment axially of the rotor 20 is a shaft 30. A set screw 31 is provided for securing the shaft 30 in adjusted position. The outer end of the shaft 30 preferably is provided with a hand knob 32 for facilitating manipulation.

Mounted on the inner end of the shaft 30 is a damper 33 for controlling the effective inlet area to the inner periphery of the rotor 20. In the present instance, the damper consists of a hollow conical cup or plate slightly less in diameter than the interior of the rotor 20.

In operation, when the rotor is being driven, fluid is drawn through the ring 26 into the rotor and forced outwardly through the peripheral spaces between the vanes 21. The amount of fluid entering the rotor 20 is determined by the position of the damper 33. Thus, when the damper 33 is in its innermost position, shown in Fig. 2, substantially the entire inner peripheral surface of the rotor 20 is exposed and hence connected to the fluid inlet. On the other hand, when the damper 33 is in its outermost position, shown in Fig. 3, the inner peripheral surface of a rotor 20 is substantially cut off from the fluid inlet. It will be evident that the flow of fluid to the rotor may be varied between maximum and

minimum by adjusting the damper 33 into different intermediate positions.

It will be evident that I have provided a new and improved means for regulating blowers which is simple and inexpensive in construction, efficient and accurate in operation, and easily and quickly adjustable.

I claim as my invention:

1. A blower comprising, in combination, a casing having a side inlet and a peripheral outlet, a hollow rotor mounted for rotation in said casing and disposed in alignment with said inlet, a narrow bearing bracket mounted diametrically across said inlet, an adjusting rod mounted in said bracket for adjustment axially of said rotor, and a conical cup-shaped damper secured to the inner end of said rod for adjustment within said rotor, said damper being slightly less in diameter than the interior of said rotor.

2. A blower comprising, in combination, a casing having a fluid inlet, a hollow rotor mounted in said casing adjacent said inlet, and a damper mounted in said rotor for adjustment longitudinally thereof to vary the effective area of said rotor, said damper having surfaces diverging from said inlet toward the rotor to guide the fluid to the effective area of the rotor.

3. A blower comprising, in combination, a casing having a fluid inlet, a hollow rotor mounted for rotation in said casing and disposed in alignment with said inlet, a bearing bracket mounted across said inlet, an adjusting rod mounted in said bracket for adjustment axially of said rotor, and a conical cup-shaped damper on the inner end of said rod for adjustment within said rotor, said damper being slightly less in diameter than the interior of said rotor.

4. A blower comprising, in combination, a casing, a hollow rotor in said casing closed at one end and open at the other end, a supporting member extending for movement into the open end of said rotor, and mounted for adjustment longitudinally thereof, and a damper mounted on said member in said rotor, said damper extending closely to the inner periphery of said rotor.

5. A blower comprising, in combination, a casing having a fluid inlet, a hollow rotor mounted for rotation in said casing and disposed adjacent said inlet in position to induce a flow of fluid therethrough, an adjusting rod mounted for adjusting axially of said rotor, and a conical cup-shaped damper secured to the inner end of said rod for adjustment within said rotor.

6. A blower comprising, in combination, a casing having a fluid inlet and a fluid outlet, a hollow rotor open at one end and disposed in said casing with said open end adjacent said inlet, and a hollow conical damper with the interior opening to the interior of said rotor mounted for axial adjustment and concentrically of and in cooperative relation with said open end to control the flow of fluid therethrough.

7. A blower comprising, in combination, a hollow rotor having an axial fluid inlet and a radial fluid discharge, and a damper mounted centrally of said inlet and in cooperative relation therewith, said damper being adjustable axially within said rotor and having surfaces for guiding the fluid from said inlet to said discharge.

8. A blower comprising, in combination, a casing having a fluid inlet and a fluid outlet, a hollow rotor open at one end and mounted in said casing with said open end adjacent said inlet, a ring member mounted in said inlet and having a peripheral conical flange extending into said casing and converging toward said open end, a bracket mounted on said member, a supporting member supported on said bracket for adjustment axially of said rotor and a damper mounted on said supporting member within said rotor and in cooperative relation with said open end of said rotor.

9. In a fan, a housing having an air inlet passageway, a fan wheel rotatably mounted in said housing, and a disk mounted in said inlet passageway for movement to and from the fan wheel to regulate the amount of air admitted to said fan said disk being located within the fan.

10. In a fan, a housing having an air inlet passageway, a fan wheel rotatably mounted in said housing, and a disk adjustably mounted in said inlet passageway for movement to and from the fan wheel to regulate the amount of air admitted to said fan said disk being located within the fan.

11. In a fan, a housing having an air inlet, a fan in said housing, said fan including a fan disk member and a plurality of blades extending from the periphery thereof, and an adjustable dish-shaped disk member mounted in said housing within said fan and adapted to be adjustably positioned between said inlet and the fan disk to regulate the flow of air to the fan.

12. In a blower, a casing having a radially disposed exit opening and a side inlet opening, a stationary inlet passageway projecting into said casing, a fan rotating adjacent thereto within said casing adapted to take in air at the side and deliver it tangentially, and an adjustably positioned closure member slidably mounted within said fan and with respect to said passageway for varying the area over which the inlet air through the inlet passageway will flow over the fan blades.

13. In combination in a blower of a casing, a fan having a plurality of fan blades longitudinally disposed so arranged to take in air through the side of the fan and the interior of the blades and discharge the air radially,

an inlet passageway for delivering inlet air projected into the casing to a point adjacent the fan, and means to control the area of the fan blades over which the inlet air is delivered, said means being adjustable within said fan longitudinally of said fan blades.

In testimony whereof, I have hereunto affixed my signature.

EDWARD M. MAY.

an inlet passageway for delivering inlet air projected into the casing to a point adjacent the fan, and means to control the area of the fan blades over which the inlet air is delivered, said means being adjustable within said fan longitudinally of said fan blades.

In testimony whereof, I have hereunto affixed my signature.

EDWARD M. MAY.

CERTIFICATE OF CORRECTION.

Patent No. 1,834,959. Granted December 8, 1931, to

EDWARD M. MAY.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, line 53, for the word "spring" read ring, and line 62, for the misspelled word "iwardly" read inwardly; page 2, line 55, claim 5, for the word "adjusting" read adjustment; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 2nd day of February, A. D. 1932.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.

CERTIFICATE OF CORRECTION.

Patent No. 1,834,959. Granted December 8, 1931, to

EDWARD M. MAY.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, line 53, for the word "spring" read ring, and line 62, for the misspelled word "iwardly" read inwardly; page 2, line 55, claim 5, for the word "adjusting" read adjustment; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 2nd day of February, A. D. 1932.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.