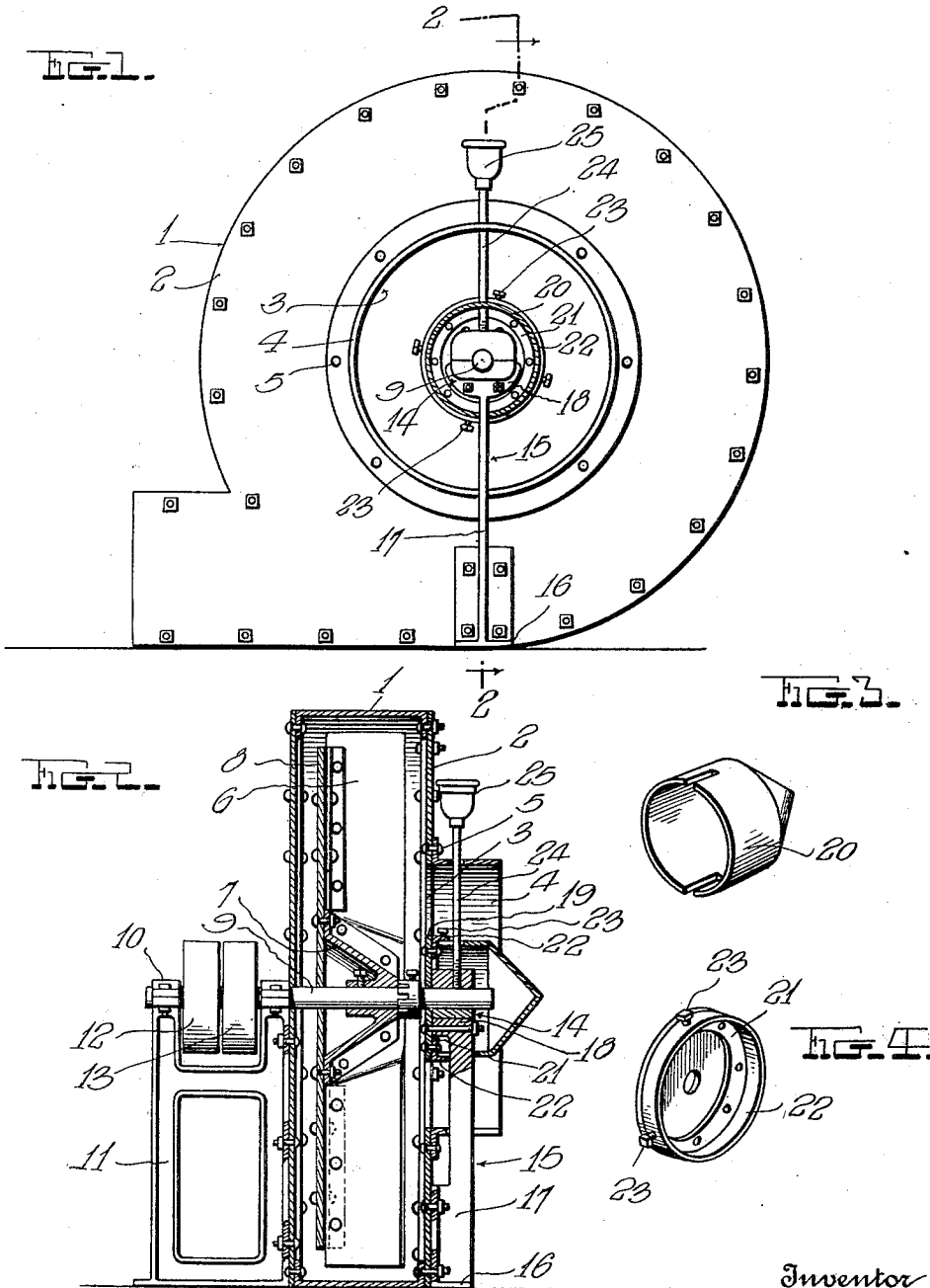


F. A. FLECK.
 CENTER SUCTION FAN.
 APPLICATION FILED OCT. 25, 1915.

1,206,830.

Patented Dec. 5, 1916.



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UNITED STATES PATENT OFFICE.

FRANKLIN A. FLECK, OF MIDDLETOWN, PENNSYLVANIA.

CENTER-SUCTION FAN.

1,206,830.

Specification of Letters Patent.

Patented Dec. 5, 1916.

Application filed October 25, 1915. Serial No. 57,863.

To all whom it may concern:

Be it known that I, FRANKLIN A. FLECK, a citizen of the United States, residing at Middletown, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Center-Suction Fans; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in center suction fans, one object being to provide an improved means for supporting the bearing shaft adjacent the inlet end of the fan casing.

A further object is to provide a shield for protecting the bearing adjacent the inlet opening.

A still further object is to provide a suitable support for said bearing.

With the above and other objects in view, my invention resides in the novel features of construction, combination and arrangement of parts which will hereinafter be more particularly described and claimed and shown in the drawings wherein:—

Figure 1 represents a side elevation of a center suction fan viewed from the inlet side; Fig. 2 is a vertical transverse sectional view taken on the line 2—2 of Fig. 1; Fig. 3 is a detail perspective view of the protecting shield; Fig. 4 is a similar view of the plate upon which said shield is mounted.

In the accompanying drawing I have shown my improvements applied to a center suction fan of the usual type. This fan comprises a casing 1 having a removable cover 2 in the center of which is formed a preferably circular inlet opening 3 which is surrounded by an outstanding flange 4 secured to said removable cover 2 by attaching bolts or rivets 5.

Rotatably mounted within the casing 1 is the fan proper which is constructed of a plurality of blades 6 whose inner ends are secured to a cone 7 while their edges abut and are attached to a circular plate 8 also secured to said cone 7. This cone is fixed by any preferred means to a shaft 9 which extends through the rear side of the casing 1 where it is mounted in suitable bearings 10 supported by a bracket 11 upon which is also mounted the tight and loose pulleys 12 and 13. Any suitable means may be em-

ployed in connection with the other features, which will later be described for mounting the fan upon its shaft, the means illustrated being those shown and described in the applicant's co-pending application for improvements in fans, filed October 25, 1915, Serial No. 57,864, the means for positioning and strengthening the free edges of the fan blades being also claimed in the latter application.

In the usual type of center suction fans, the shaft upon which the fan blades are mounted is secured in only one set of bearings, thus leaving the end of the shaft adjacent the inlet free. This causes a great deal of strain on the bearings supporting the shaft and greatly increases the power necessary for operating the fan. My invention is designed to overcome this defect by providing a bearing on the inlet side of the fan. I accomplish this by extending the shaft beyond the opening 3 and providing a bearing 14 mounted upon a suitable bracket 15.

The bearing 14 may be of any preferred type, preferably ball bearing, and the bracket which is preferably used comprises an attaching foot 16 by which it is secured to the cover 2 of the casing, a body portion 17 and a head 18 in which is secured the bearing. Before attaching the bracket 15 carrying the bearing in operative position, I place a circular plate 19 on the free end of the shaft 9. This plate is carried by the head 18 of the bracket and is adapted to support a suitable shield 20 hereinafter to be described. Secured to said plate 19 adjacent the periphery thereof is an angle iron 21 whose outstanding flange 22 is provided with a plurality of set bolts 23 for clamping the shield 20 in operative position as shown in Fig. 2. This shield has a substantially cylindrical body portion adapted to fit over the bearing 14, and a conical shaped outer end as shown. The body of the shield 20 is slotted to receive the body portion 17 of the bracket 15 and also the stem 24 of an oil cup 25 which is used for lubricating the bearing 14.

The shield 20 performs the two-fold function of preventing the lubricating oil from being sucked out of the bearing by the revolving fan blades, as it is substantially air tight with its connection with the plate 19, and it also prevents dust and other materials drawn into the fan from entering the

bearing and clogging the same. The conical shaped outer end deflects the dust or other refuse material outwardly from the center of the inlet opening, thus necessitating the flange 4 which surrounds said opening.

From the foregoing description, it is obvious that I have provided a very simple means for relieving the unnecessary strain on the bearings ordinarily used to support the fan shaft, and that I have provided a novel air tight shield for the improved bearing which is employed on the inlet side of the fan.

I claim as my invention:

1. In combination with a suction fan, a casing surrounding said fan, and a shaft upon which said fan is mounted, said casing having an inlet opening on one side surrounding said shaft; of a plate on said shaft within said opening, an angle iron secured thereto, a bearing secured to said plate, a support for said bearing and plate, and a substantially air tight shield covering said bearing and attached to said angle iron to prevent the lubricant from being drawn therefrom and to prevent dust from entering.

2. In combination with a suction fan, a casing surrounding said fan, and a shaft upon which said fan is mounted, said casing

having an inlet opening on one side surrounding said shaft; of a plate on said shaft within said opening, a bearing secured to said plate, a bracket support for said bearing comprising an attaching foot adapted to be secured to said casing, a body portion, a head to receive said bearing, and a substantially air tight shield covering said bearing to prevent the lubricant from being drawn therefrom and to prevent dust from entering.

3. In combination with a suction fan, a casing surrounding said fan, and a shaft upon which said fan is mounted, said casing having an inlet opening on one side surrounding said shaft; of a plate on said shaft within said opening, a bearing secured to said plate, a bracket support for said bearing comprising an attaching foot adapted to be secured to said casing, a body portion, a head to receive said bearing, a substantially air tight cylindrical shield having a conical shaped outer end, and a flange surrounding said opening.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRANKLIN A. FLECK.

Witnesses:

HARRY A. REBER,
CORNELIUS A. MOYER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."