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H. BOGATY

MEANS FOR COOLING FAN SHAFT BEARINGS OF DRIERS

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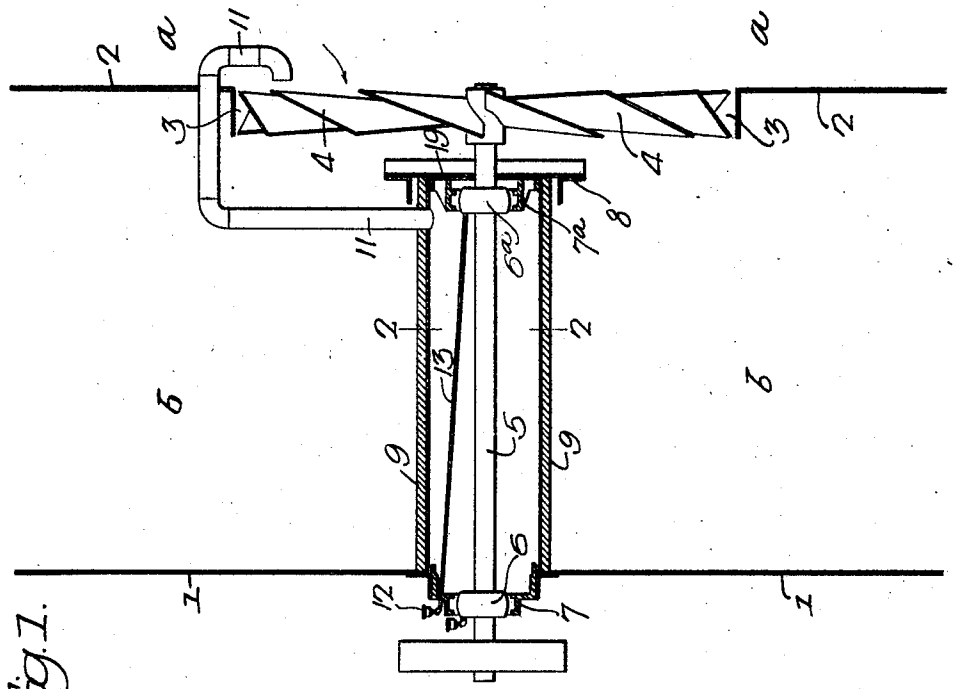


Fig. 1.

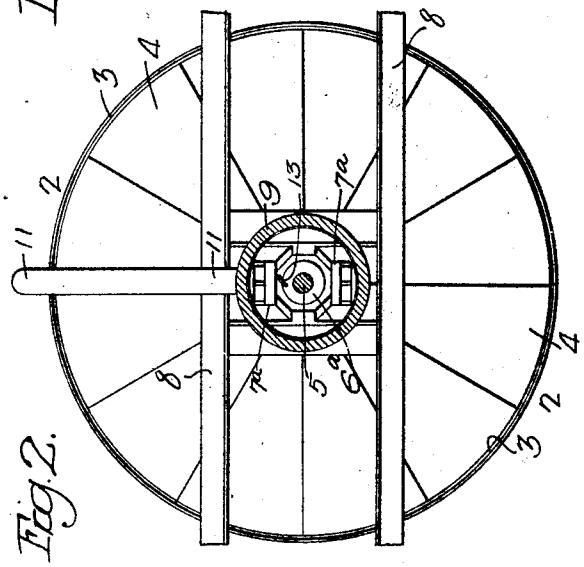


Fig. 2.

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UNITED STATES PATENT OFFICE.

HERMANN BOGATY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO PROCTOR & SCHWARTZ, INCORPORATED, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

MEANS FOR COOLING FAN-SHAFT BEARINGS OF DRIERS.

Application filed April 14, 1922. Serial No. 552,808.

To all whom it may concern:

Be it known that I, HERMANN BOGATY, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Means for Cooling Fan-Shaft Bearings of Driers, of which the following is a specification.

My invention relates to certain improvements in drying apparatus, in which heated air is circulated and in which fans are used as the circulating means. In drying apparatus of this type, the fan shaft and its bearings are located in a portion of the drying chamber, or the circulating chamber, and it is difficult to keep the bearings cool and the lubricant in proper condition.

One object of my invention is to provide means for enclosing the fan shaft and its bearings and to keep them cool by the circulation of cold air through the enclosure.

A further object of the invention is to utilize the fan as a means for drawing cold air through the enclosure for the fan shaft and its bearings.

In the accompanying drawings:

Fig. 1 is a sectional elevation through a drying apparatus at one of the fans to illustrate my invention; and

Fig. 2 is a sectional view on the line 2—2, Fig. 1.

Referring to the drawings, 1 is the casing of a drier. 2 is a partition separating the drying chamber *a* from the heating, or circulating, chamber *b*, in which heating coils of any type are placed. In the partition 2 is a fan opening 3. Located in this opening is a fan 4, mounted on a horizontal shaft 5 adapted to bearings 6, 6ª, of any suitable type. In the present instance, the bearings are shown as ball bearings. Each bearing is mounted in castings 7, 7ª. The casting 7 is located in an opening in the outer casing 1 and the inner casting 7ª is secured to a frame 8 within the heating chamber.

9 is a cylindrical enclosing casing for the fan shaft 5. This casing is made of wood in the present instance and is provided with a sheet metal lining. The castings 7 and 7ª have projecting portions, which support the enclosing casing, as shown in Fig. 1. 19 is an end plate closing the inner end of the cylindrical casing. The plate is perforated for the passage of the fan shaft.

Connected to the inner end of the space within the cylindrical enclosing casing is a pipe 11, which extends through the partition 2 to a position close to the suction side of the fan 4 so that the fan, as it rotates, will draw air from the outside through the casing 9 and pipe 11, cooling the bearings 6, 6ª. The air passing through the casing 9 and pipe 11 is used as part of the fresh air which is added to the heated air in circulation.

The lubricating cup 12 for the inner bearing can be located on the outside of the drier and the lubricant can be conveyed to the bearing by an inclined tube 13, Fig. 1.

The cylindrical casing not only keeps the bearings cool, but also protects the bearings against harmful fumes and gases, which are liberated when certain materials are being dried.

While the shaft and enclosing casing are shown in a horizontal position, it will be understood that the casing may be arranged in connection with a vertical fan shaft, or it can be arranged at any angle desired.

I claim:

The combination in a drier, of a main casing enclosing a chamber in which heated air is in circulation; a shaft extending into the chamber; a circulating fan at the inner end of said shaft; an inner bearing and an outer bearing for the shaft; an enclosing casing for the bearings and the shaft between the bearings, the space within said enclosing casing being open at the outer end to admit fresh air and closed at the inner end; and a pipe connected to the inner end of the last mentioned enclosing casing and extending to the suction side of the circulating fan to cause a circulation of fresh, cool air past the bearings.

HERMANN BOGATY.