F. F. LANDIS.

BLAST FAN.

APPLICATION FILED AUG. 20, 1904.

918,559. Patented Apr. 20, 1909.

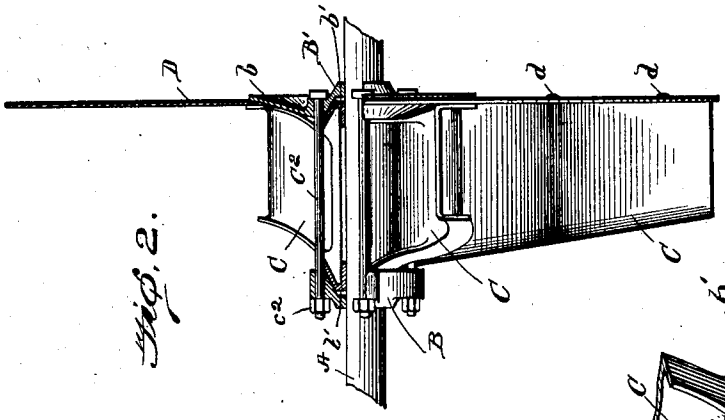


Fig. 2.

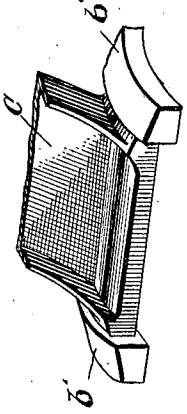


Fig. 3.

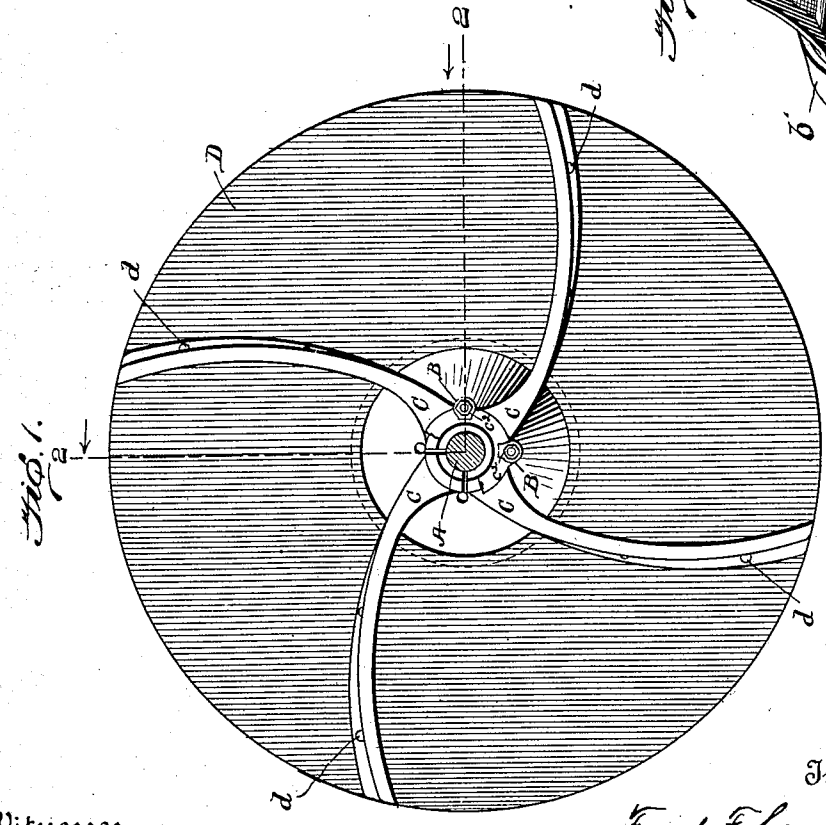


Fig. 1.

Witnesses

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UNITED STATES PATENT OFFICE.

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BLAST-FAN.

No. 918,559. Specification of Letters Patent. Patented April 20, 1909.

Application filed August 20, 1904. Serial No. 221,490.

To all whom it may concern:

Be it known that I, FRANK F. LANDIS, a citizen of the United States, residing at Waynesboro, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Blast-Fans, of which the following is a specification.

The object of my said invention is to provide a blast-fan or centrifugal discharger composed of interchangeable sections, which may be cheaply made and quickly and easily assembled and separated, whereby when a part becomes unduly worn it may be removed and a new part substituted therefor, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, which are made a part hereof and on which similar reference letters indicate similar parts, Figure 1 is a side elevation of a fan of my improved construction, Fig. 2 a sectional view looking in the direction indicated by the arrows from the dotted line 2—2 in Fig. 1, and Fig. 3 a detail perspective view of the hub portion of one of the fan-sections.

In said drawings, the portions marked A represent the shaft, B and B^1 end parts of the hub, C the fan-blades and D a disk covering one side of the discharger. The shaft A may be any power driven shaft upon which the fan or discharger is to be mounted. The hub part B is formed to be mounted upon the shaft and has a conical annular recess formed in its inner face. The hub part B^1 is of similar form but is provided with a flange b of considerable diameter as shown. Said part B is especially adapted for the front end and part B^1 for the rear end of the hub. The fan-sections C each consists of a fan-blade and a section of a hub equal to that part of the whole corresponding with the number of blades to be used. In the drawing a fan of four blades is shown and each hub-section consequently forms one-fourth of the whole hub. The ends of said hub-sections are formed tapered or conical on the outside, as shown, to fit within the conical recesses in the adjacent sides of the end parts B and B^1, their inner faces being formed straight to rest upon the surface of the shaft. Said outer and inner faces of said hub-sections are preferably covered with soft metal b^1 (such as zinc or Babbitt-metal) in order to facilitate the fitting of the parts, said soft metal being run upon the rough castings and the expense of grinding or fitting thus saved.

The disk D is secured to the rear edges of the fan-sections by means of small bolts or rivets d being formed with a central aperture of slightly less diameter than the flange b of the hub part B^1, which flange overlaps onto the disk around said aperture, as shown.

The parts being assembled as shown in the drawings, the bolts C^2 are inserted through the perforations in the hub parts B and B^1 and between the fan-blades and the nuts b^2 placed thereon and turned to draw said parts tightly together, which by reason of the conical formation of the joint between the parts B and B^1 and said hub-sections, operates to clamp the several parts firmly together and also clamp them securely upon the shaft.

A fan of such construction is particularly valuable for use in operation upon solid material containing dust and grit, which wears upon the fan-blades rapidly. The substitution of one blade for another or one set of blades for another when worn is a very easy and inexpensive matter by this arrangement. It will be understood, of course, that that particular form of fan or discharger shown may be varied, the shape of the blades being made to best suit them to the character of the work to be done. The disk D may be omitted or a similar disk placed upon the opposite edge of the blades, with openings at the center, and many other modifications in the particular form and arrangement of parts may be made without departing from my invention.

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

1. A fan comprising a hub to be mounted on a shaft formed in sections, each section having a fan blade thereon, the outer faces of the ends of said sections being formed tapered, and separate hub clamping rings with correspondingly tapered recesses in their adjacent faces adapted to fit over the tapered ends of said hub sections and clamp them together and to the shaft, and transverse clamping bolts extending through said hub sections and clamping rings for securing said several parts together, substantially as set forth.

2. A fan comprising a hub composed of several sections mounted upon the shaft and clamped thereto and to each other by clamp-

ing rings formed to fit over the outer ends of said sections and held together by bolts, each of said sections being formed with a fan blade thereon, and a disk mounted upon the outer edges of said blades, substantially as set forth.

3. In a fan, the combination of separate hub parts having conical recesses in their adjacent faces, fan blades having hub-sections formed thereon with cone-shaped outside faces adapted to fit within said recesses, soft metal covering for the ends of said sections, and transverse bolts extending through said hub-sections for clamping the several parts together, substantially as set forth.

In witness whereof, I have hereunto set my hand and seal at Washington, D. C., this twenty-fifth day of July, A. D. nineteen hundred and four.

FRANK F. LANDIS. [L. S.]

Witnesses:
MARY A. WILSON,
E. W. BRADFORD.