C. SEYMOUR.

FAN FOR POWER GENERATING APPARATUS.

APPLICATION FILED MAY 9, 1921.

1,434,916. **Patented Nov. 7, 1922.**

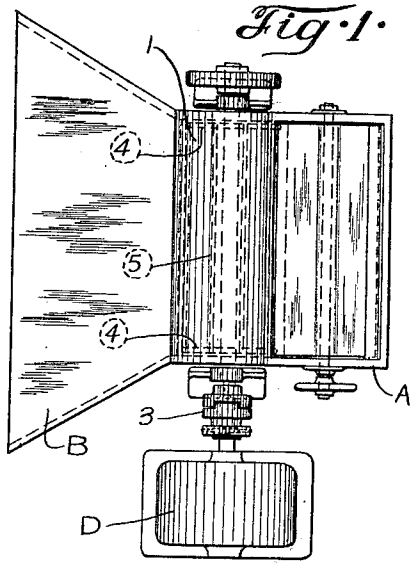


Fig. 1.

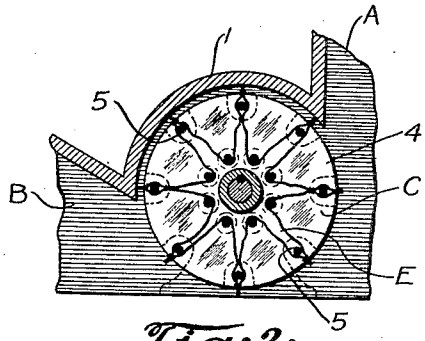


Fig. 2.

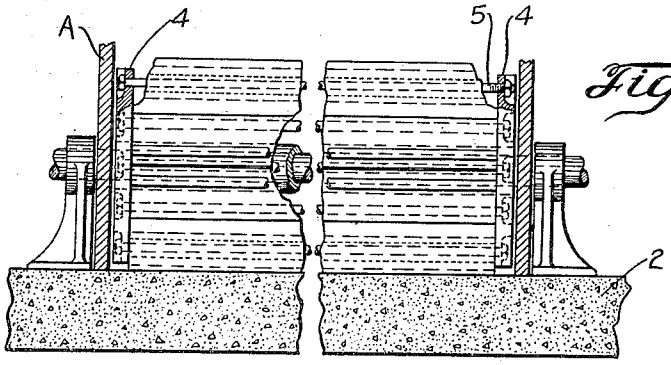


Fig. 3.

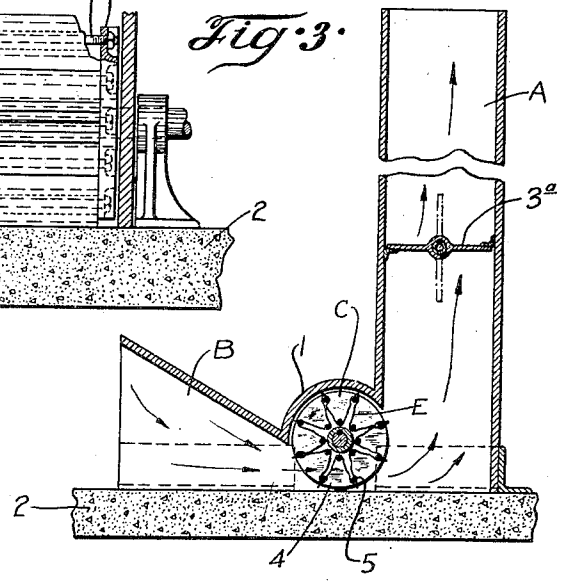


Fig. 4.

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UNITED STATES PATENT OFFICE.

CHARLES SEYMOUR, OF ST. LOUIS, MISSOURI.

FAN FOR POWER-GENERATING APPARATUS.

Application filed May 9, 1921. Serial No. 467,993.

To all whom it may concern:

Be it known that I, CHARLES SEYMOUR, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Fans for Power-Generating Apparatus, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an apparatus for generating power and has for its object to provide a suction fan of novel construction that is adapted to be arranged in an air passageway and operated by the suction produced by a current of air traveling through said passageway, said fan being used to drive a shaft or to operate an electric generator or other power producing device.

Figure 1 of the drawings is a top plan view of a power generating apparatus constructed in accordance with my invention.

Figure 2 is an enlarged vertical sectional view of the fan.

Figure 3 is a vertical longitudinal sectional view of the complete apparatus; and

Figure 4 is a vertical transverse sectional view, partly broken away, so as to more clearly illustrate the construction of the apparatus.

Referring to the drawings which illustrate the preferred form of my invention, A designates an upright stack or chimney which may be of any preferred construction, B designates an air intake arranged at the lower end of said chimney at one side of same and C designates a fan that is arranged between the stack A and the air intake B, said fan comprising a housing that has a curved top wall 1. The stack, air intake and fan housing are mounted on a suitable base 2 and the air intake B, which is preferably tapered both longitudinally and transversely, is so arranged that the air which is sucked into the intake B by the draft or suction in the stack A will strike against the blades of the fan C, and thus cause said fan to revolve in the direction indicated by the arrow in Figure 3.

The rotary movement of the fan C is used to operate a drive shaft or to operate a power producing device. Thus an electric generator D can be arranged at one end of the shaft of the fan and connected with same by a clutch 3, as shown in Figure 1. When a current of air is circulating upwardly through the stack A, the fan C will operate and thus drive the generator D, thereby utilizing the suction or draft in the stack to generate power. Preferably, an adjustable damper 3^a is arranged in the stack A so as to control or regulate the flow of the air through the apparatus.

The fan C is provided with blades that are constructed in such a manner that they will yield slightly and "belly" like the sail of a boat when the inflowing current of air strikes same, as shown more clearly in Figure 2. This can be accomplished in various ways without departing from the spirit of my invention, but I prefer to form the blades of the fan from fabric. In the form of my invention herein shown the fan is composed of a shaft, two end disks 4, an inner and an outer set of transversely-disposed cross rods 5 mounted in said disks adjacent the center and periphery of said disks and a strip of fabric E interlaced back and forth between said cross rods, as shown in Figure 2, so as to form a plurality of transverse blades that project radially from the center of the fan, each blade consisting of two layers of fabric that are preferably secured together by rows of stitches in proximity to the cross rod at the outer end of the blade. By constructing the blades in this manner the portions of the blades between the inner and outer cross bars can give or yield slightly and also "belly" like the sail of a boat when the inflowing current of air strikes against the rear sides of a blade, thus materially increasing the efficiency of the fan.

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

1. A fan for power generating apparatus adapted to be operated by the suction or draft of a stack and comprising a drive shaft, sets of inner and outer cross members arranged parallel to said shaft, and a strip of fabric combined with said cross members in such a way as to form a plurality of radially-disposed fan blades.

2. A fan for power generating apparatus adapted to be operated by the suction or draft of a stack and comprising a horizontally-disposed drive shaft, disks carried by said shaft and rigidly connected to same,

rods arranged transversely between said disks adjacent said shaft and adjacent the periphery of the disks, and pieces of fabric connected to the outer rods and stretched over the inner rods.

3. In an apparatus of the kind described, a fan provided with radially-disposed blades, each of which consists of a plurality of pieces of fabric having their inner ends passed loosely over guiding devices and connected to the fabric pieces of adjacent blades.

CHARLES SEYMOUR.