(No Model.)

W. SCHMOLZ.

FAN WHEEL.

No. 265,984. Patented Oct. 17, 1882.

FIG. 1.

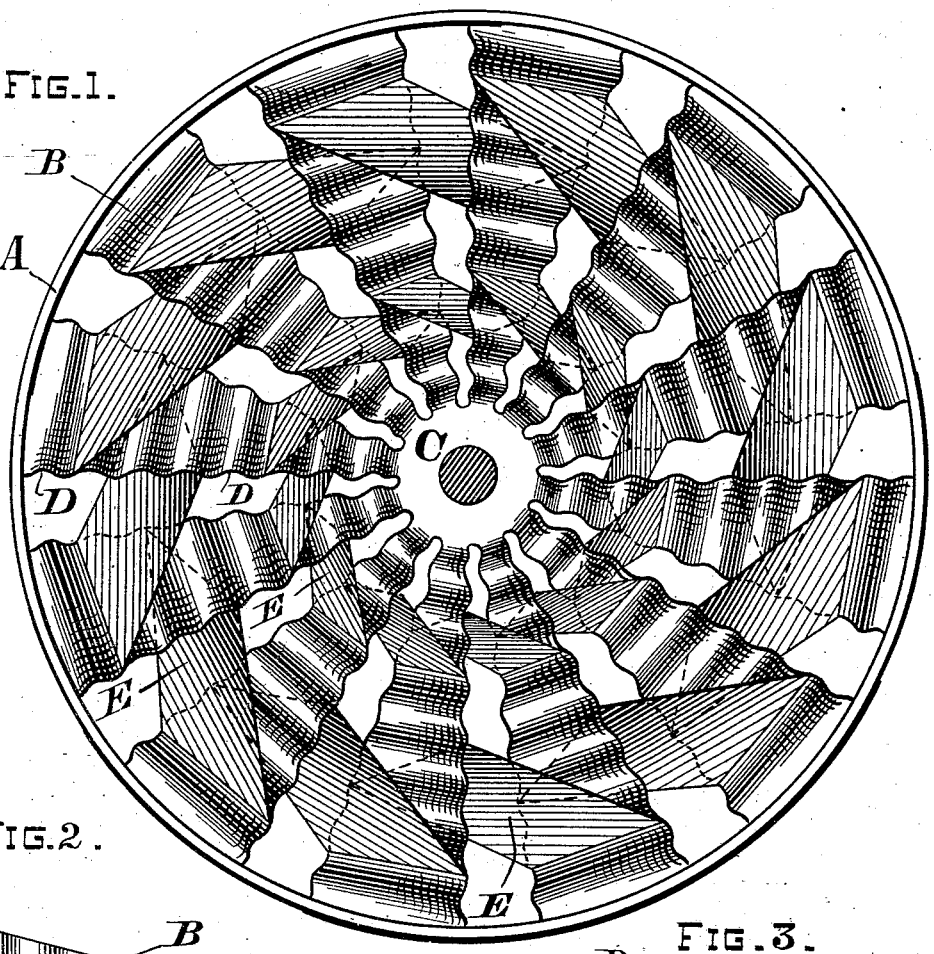


FIG. 2.

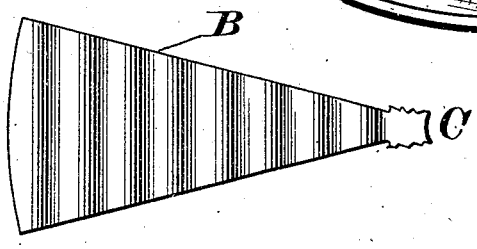
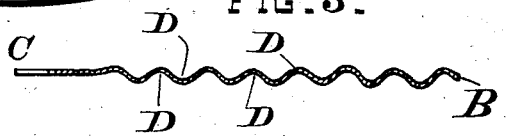


FIG. 3.



WITNESSES

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WILLIAM SCHMOLZ, OF SAN FRANCISCO, CALIFORNIA.

FAN-WHEEL.

SPECIFICATION forming part of Letters Patent No. 265,984, dated October 17, 1882.

Application filed February 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SCHMOLZ, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented a certain new and useful Fan-Wheel, of which the following is a specification.

The object of my invention is to provide a means for exhausting and forcing atmospheric air, vapors, and gases from and into mines, ventilating and cooling buildings, railway-cars, &c. I accomplish this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of my improved fan-wheel. Fig. 2 represents in plan one of the blades or fans. Fig. 3 shows a central longitudinal section through a fan or blade.

Similar letters of reference are used to designate like parts throughout the several views.

My invention consists of a wheel provided with fans, blades, or paddles, between which are interposed short sections or plates set at an angle to a radial line drawn from the center to the circumference of said wheel.

The rim A is composed of a flat sheet of metal, bent into a cylindrical form, or of an equal diameter throughout its width.

The blades B, which radiate from the hub C, are set at an angle to the plane of revolution, and are formed preferably of sheet metal, and provided with corrugations D, which extend in a direction across the blade or fan at right angles to the length of the blade, as is plainly shown in Fig. 2, and upon reference being had to Fig. 3 it will be seen that the corrugations are formed upon both sides of the fan or blade.

The sheet-metal plates E, of which two or more circles or series are interposed between the blades or fans, are cut in the form of a rhomboid, or lozenge-shaped, and are so set between said blades as to form an angle of about forty-five degrees with a radial line from the center to the circumference of the wheel, and also at about the same angle with the axis of the wheel, as is shown in Fig. 1.

The object in corrugating the faces of the fans or blades is that as the wheel is revolved upon its axis (by means of a connection made by belt or otherwise with any suitable power-communicating mechanism) the atmospheric air, gases, or vapors which the fan-wheel is employed in moving will be more closely held or confined on the corrugations, or, in other words, that the increased superficial area given to the blades by means of these corrugations will enable them to impinge upon and displace a larger volume of air than if the blades were constructed of plain surfaces, and consequently a much greater moving capacity for a given sized wheel, by reason of the friction of the blades upon the air, will be had.

The object in providing the lozenge-shaped plates E is to further increase the suction and forcing capacity of the fan-wheel, and at the same time act as stays or braces to the fans or blades.

When it is found necessary to ventilate the tunnel, shaft, or drift of a mine the mouth of the excavation should be provided with a short drum or pipe, within which the fan-wheel is to be placed, mounted in suitable bearings, and rapidly rotated or revolved, so as to exhaust or withdraw the impure air or gases contained therein, while at the same time the vacuum caused is being supplied with fresh air.

In the adaptation of my invention to the ventilation of buildings it may be placed either inside or outside of them in any convenient location or at the mouth of conduits made for the purpose, and may be rotated in one direction to supply and in the opposite direction to exhaust the air.

When this device is to be used as a blast-fan, or for the purpose of creating a pressure of air at a given point, the wheel may be placed at the mouth of a drum constructed in a tapering form, so as to concentrate the current of air at the point of exit from the drum or pipe.

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

1. In a fan-wheel, the combination, with the rim A and hub C, of the radiating blades B, set at an angle to the plane of revolution and provided with transverse corrugations D, substantially as and for the purpose described.

2. In a fan-wheel, the combination of the rim A, hub C, corrugated blades B, radiating from the hub and set at an angle to the plane of revolution, and the interposed lozenge-shaped plates or braces E, all substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 9th day of December, 1881.

WM. SCHMOLZ. [L. S.]

Witnesses:
CHAS. E. KELLY,
CHARLES E. CHENERY.