(No Model.)

M. S. FAHEY.

WIND PROPELLER.

No. 372,368. Patented Nov. 1, 1887.

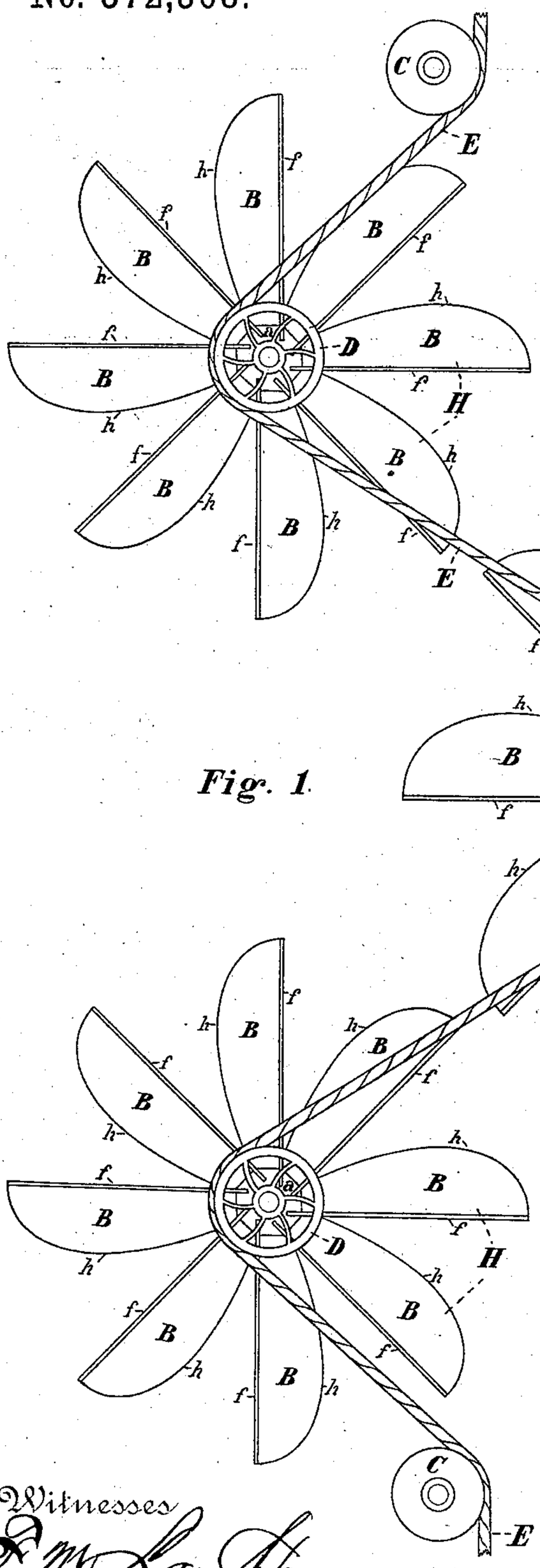

Fig. 1.

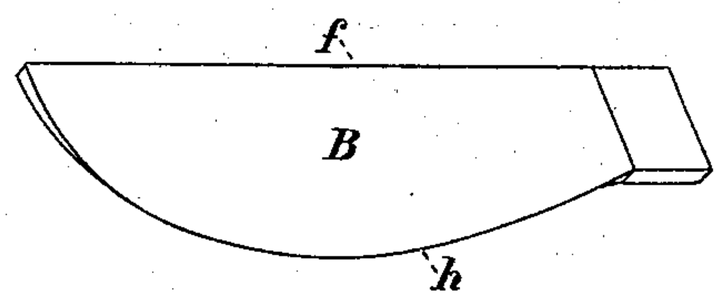

Fig. 3

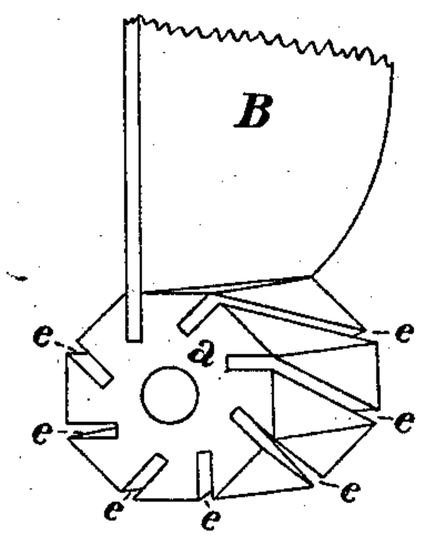

Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

MICHAEL S. FAHEY, OF BREWER, MAINE.

WIND-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 372,368, dated November 1, 1887.

Application filed June 17, 1887. Serial No. 241,599. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL S. FAHEY, a citizen of the United States, residing at Brewer, in the county of Penobscot and State of Maine, have invented a new and useful Wind-Propeller; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention consists of a wind-propeller for drying purposes, and is intended to be used in places where it is necessary to keep up a continuous draft or circulation of air distributed evenly throughout all parts of a room or building in which it is placed, though it may be used for drying or any other purpose where it is necessary to have air, steam, or gases continually in motion.

My invention is designed, principally, to be used in tanneries for the purpose of drying hides during the process of their manufacture into leather.

In a tannery it is necessary to keep a large stock of hides on hand to keep the men employed during one day. These hides are obliged to be kept heavily insured and hung up in a loft arranged to exclude all external light, and obliged to be open to allow the air to circulate through the room to dry the hides, for if allowed to dry in the light or out of doors they will turn black and lose weight by shrinking, which spoils them for manufacture into nice leather. During this process they have to be turned frequently, so as to dry evenly. It generally takes from five to six weeks for the hides to dry in this manner, and during dog-days or damp weather it takes longer. Now, by using my invention I can dry the hides in five or six days, keep them in a perfectly dark place while drying, they will dry out white, hard, and even, and do not have to be turned after they are once hung up to dry. They also gain in weight by quick drying.

My invention is illustrated in the accompanying drawings, in which Figure 1 is a plan of the complete propeller. Fig. 2 is a perspective view of the hub, showing the method of connecting the radial arms or fans to the hub. Fig. 3 is a perspective view of one of the radial arms, showing the feather-edge.

Similar letters refer to corresponding parts throughout the different figures.

My invention consists of the octagonal hub *a*, having mortises *e* running diagonally across each side in the direction of its length. This hub may be made either of wood or metal, and may contain a greater or less number of sides, as occasion requires. Connected with the hub *a* by means of the mortises *e* are radial projecting arms or fans B. These arms or fans may be set at any angle desired on the hub *a* by changing the angle of the mortises *e*, and they are so constructed as to have their inner edges, *f*, on a direct line or flush with the inner face of the hub. Their outer edges, *h*, after leaving the mortises in the opposite end of the hub *a*, continually widen, taking a semi-elliptic form, until about midway of the length of the arms, then gradually decreasing in width until they reach the inner edges, *f*. This form presents a broad surface to the air. From the inner edges, *f*, of the radial arms B across to the outer edges, *h*, the thickness of the arms is gradually reduced until they become feather-edges at *h*. This is not done through the mortises in the hub *a*, where it holds its greatest thickness across its entire width, but commences just outside the mortise and extends to the tip or opposite end of the arms or fans B.

The hub *a* with the radial arms B form a fan or wheel very much like the arms of a windmill. Connecting with this fan-wheel, either by means of a shaft running through the hub *a* or by being placed in direct contact with the inner face of the hub *a* and arms B, is a fast pulley, D, having its periphery concaved for the reception of a wire rope, E; or in case a flat belt or band is used the face of the pulley D is made flat or plain. In either case the pulleys D are so connected with the fan-wheels or propellers H that when turned by the rope E its motion is transferred to the fan-wheels H, whose arms B, being set at an angle with the line of motion, their edges *f* cut the air and force it toward their opposite edges, *h*, and away from the wheel or propeller H. I arrange these fan-wheels or propellers, in the manner shown in Fig. 1 of the drawings, on one side of the loft or drying-room. In my case I use three fan-wheels, fastening the two smaller or upper

wheels H, which are about six feet in diameter, to the wall and ceiling by means of suitable hangers and journal-boxes connected with the shaft running through the hubs of the pulleys D and fan-wheels or propellers H. The larger and bottom fan-wheel or propeller H is connected to the floor in the same way. This larger wheel is about nine feet in diameter. The propellers are arranged in about the same relative position to each other, as shown in Fig. 1 of the drawings. Outside of the diameter of the upper wheels or propellers are placed two guide-pulleys, C C, their office being to take out the slack, guide and increase the friction of the rope E or band, as the case may be, over the pulleys D connected with the fan-wheels or propellers H.

Power is transmitted to the fan-wheels or propellers H by means of the rope E, passing under the guide-wheels C and over or under the pulleys D connected with the fan-wheels H. This rope is connected to the drive-wheel of a steam-engine or some other motor.

The circulation of air through the room takes place as follows: The engine or motor being in motion and connected with the fan-wheels H by means of the rope E, passing under the guide-wheels C and over and under the pulleys D connected with the fan-wheels H, causes them to revolve their radial arms or fans B. Being set at an angle in the hub *a*, the edges *f* of the arms B cut the air, driving it toward the outer edges, *h*, and force the air away from the wheel toward the opposite side of the room, creating a draft, always from the wheels or propellers H, that can be felt in all parts of the drying-room or loft. The hides, thus kept in a continual draft of air on both sides, in a few days become dry and hard, ready for the next process or tanning.

By this arrangement I can economize in room, do not require so large a loft, and still turn out a larger number of hides, of finer and better quality, than was possible in the old way. The smaller propellers I run at a speed of eight hundred revolutions a minute, the larger ones about six hundred revolutions; but their speed may be changed by enlarging or reducing the size of the pulleys D.

I am well aware that blowers have been tried and used in tanneries for drying hides; but they never have succeeded in producing satisfactory results.

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

A wind-propeller having an octagonal hub, *a*, with diagonal longitudinal mortises or recesses *e* on its several sides, in combination with the semi-elliptical radial arms B, fitting in the mortises *e*, and having their inner or straight sides, *f*, flush with the inner end of the hub *a* and their thickness gradually reduced to a feather-edge at *h*, substantially as and for the purpose described.

MICHAEL S. FAHEY.

Witnesses:
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