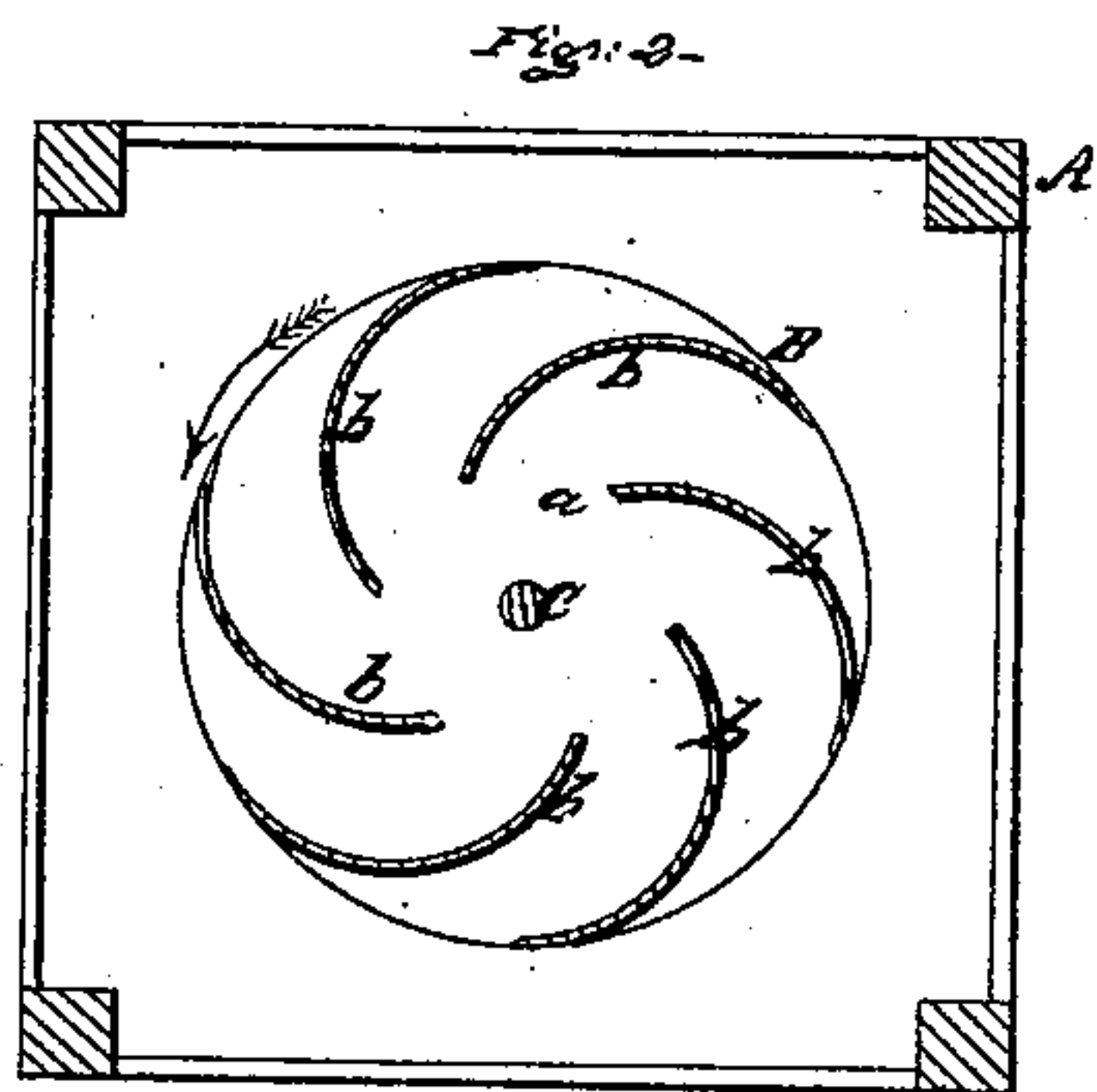
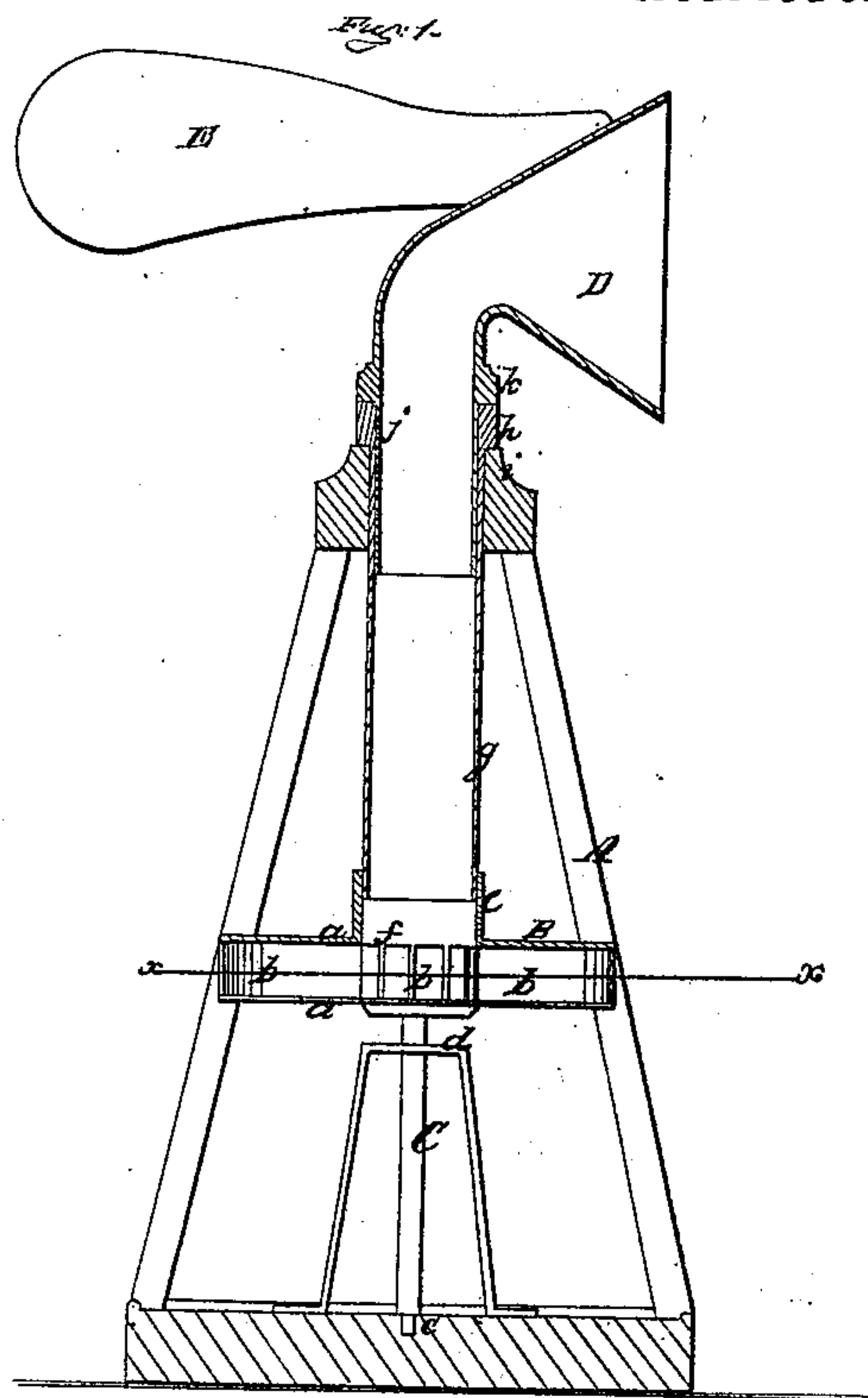


*C. Livingston,*

*Wind Wheel,*

*Nº 25,269.*

*Patented Aug. 30, 1859.*



*Witnesses:*

*Chas A Perkins*

*Wm Holder*

*Inventor:*

*Chas Livingston*

# UNITED STATES PATENT OFFICE.

CHARLES LIVINGSTON, OF REDWOOD CITY, CALIFORNIA.

## IMPROVED WINDMILL.

Specification forming part of Letters Patent No. 25,269, dated August 30, 1859.

*To all whom it may concern:*

Be it known that I, CHARLES LIVINGSTON, of Redwood City, in the county of San Mateo and State of California, have invented a new and Improved Wind-Wheel; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical central section of my invention. Fig. 2 is a horizontal section of the same, taken in the line *xx*, Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

This invention consists in the employment or use of a rotating cowl, wind-tube, and wheel, arranged substantially as hereinafter shown and described, whereby wind may be conducted from elevated points down into valleys and made to actuate wheels placed near the machinery to be driven.

The object of the invention is to obviate the difficulty attending the elevated wheels in places where the wind is very variable, the elevated wheels being attended with considerable expense and liable to be disabled by sudden gusts.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a framing, which may be constructed in any proper manner to support the working parts, and B is the wind-wheel, which is formed of two circular plates *a a*, with curved plates or buckets *b* between them, as shown clearly in Fig. 2, the buckets *b* extending from the bottom to the top plate, as shown in Fig. 1.

To the under side of the wheel B its shaft C is attached. This shaft is stepped on the base of the framing A, as shown at *c*, and its upper part is supported by a bearing *d*, as shown clearly in Fig. 1.

To the upper plate *a* of the wind-wheel a circular concentric flange *e* is attached, said flange encompassing an opening *f* at the center of the wheel B. The flange *e* receives the lower end of a vertical tube *g*, which is secured permanently in the framing A. The

upper end of tube *g* has a flange *h* secured to it, said flange resting on a collar *i* on the upper part of the framing. In the upper part of the tube *g* a tube *j* is fitted and allowed to turn freely. The tube *j* has a flange or shoulder *k* formed on it, which flange or shoulder rests on the top of the tube *g* and supports the same. The upper part of the tube *j* is bent and terminates in a flaring end D, which has a vane E attached, said vane keeping the end D, which is a cowl, always facing the wind, the cowl being in a horizontal position.

The tube *g* may be of any required length, so that the cowl D may be at the desired height.

The operation is as follows: The wind passes into the cowl D and down through the tubes *j g* and into the wheel B, through the opening *f*, the wind in passing through the wheel B acting against the buckets *b* so as to propel the wheel in the direction indicated by the arrow, Fig. 2. The wind, it will be seen, acts against the buckets by a reacting force precisely similar to the action of the water in a reaction water-wheel.

By this invention it will be seen that the wheel may be placed near its work out of harm's way and the wind conducted down to it from elevated points. The invention will prove valuable in mountainous countries, where machinery is to be operated in valleys that are sheltered from the wind.

The invention is more especially designed for raising of water, but of course is applicable to other purposes.

I am aware that the wheel B has been quite commonly used as a water-wheel, and I do not claim it separately; neither do I claim the cowl D, nor any of the parts separately; but,

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

The cowl D, with tubes *j g* and wheel B, combined and arranged for joint operation, substantially as and for the purpose set forth.

CHAS. LIVINGSTON.

Witnesses:

CHAS. A. PERKINS,  
WM. HOLDER.