

S. Richardson,

Water Wheel.

N^o 24,055

Patented May 17, 1859

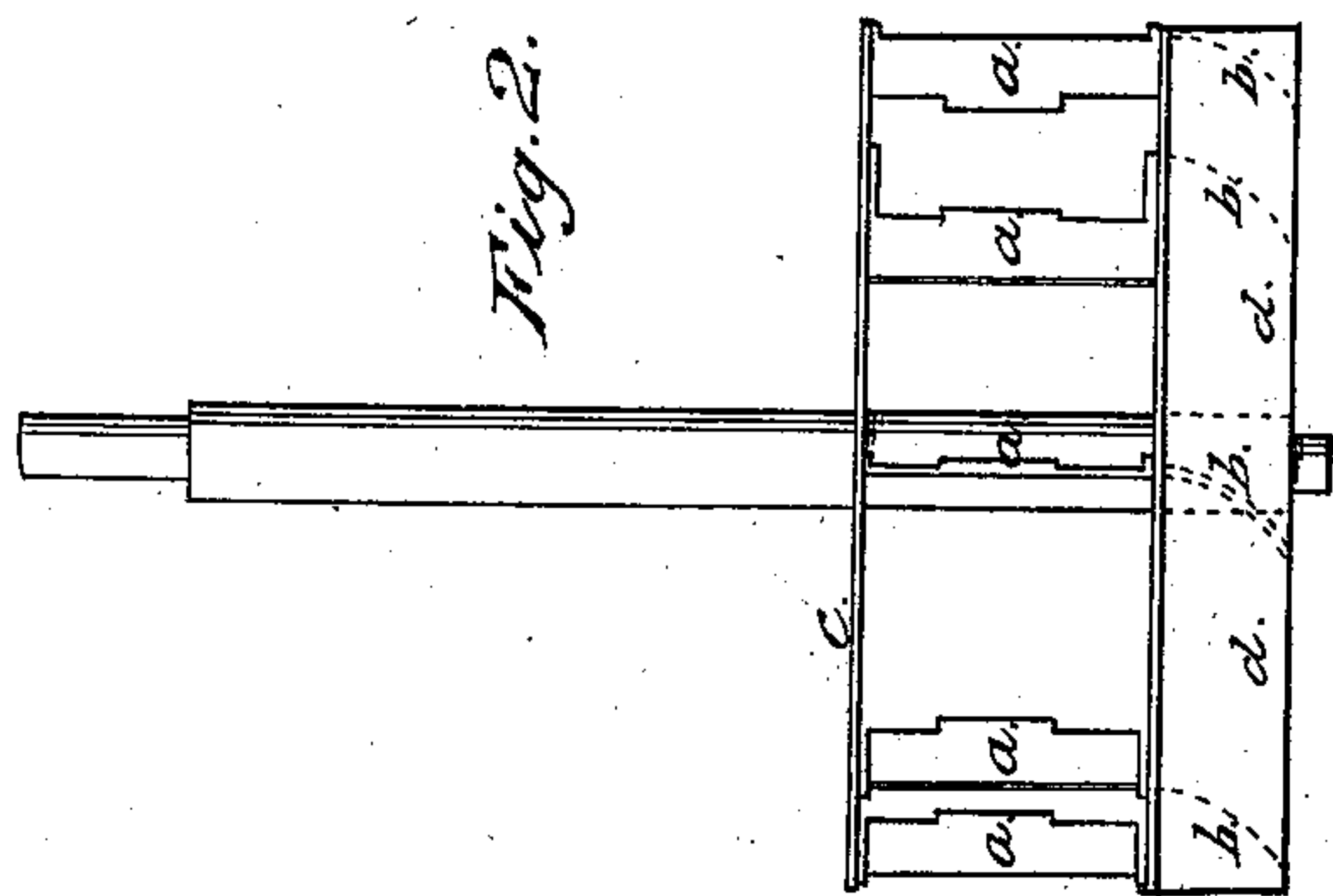


Fig. 4.

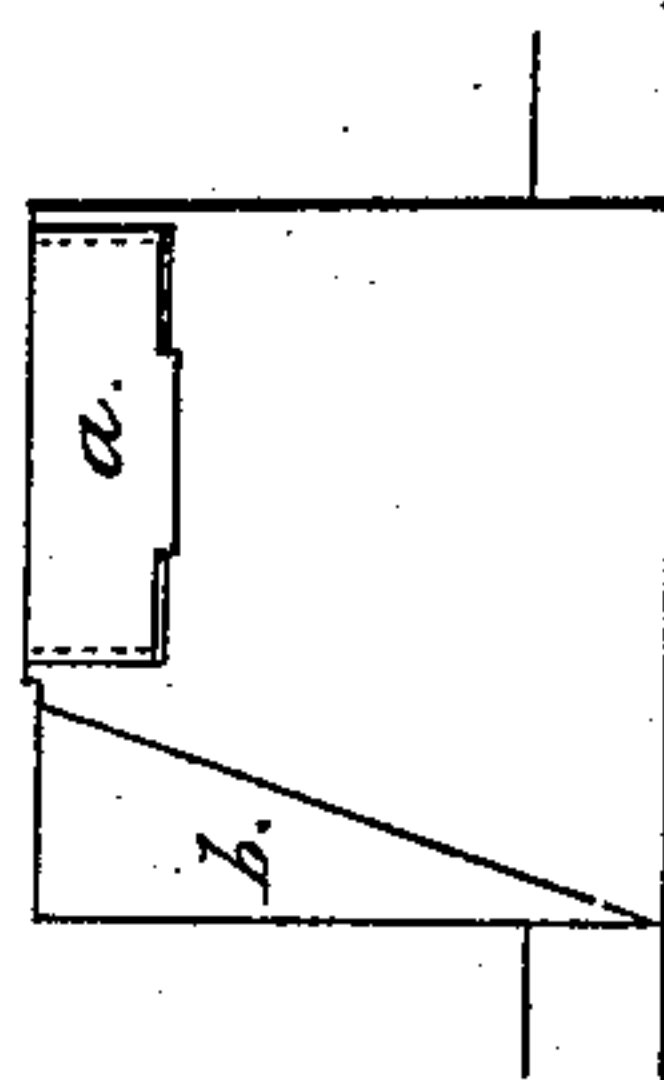


Fig. 3.

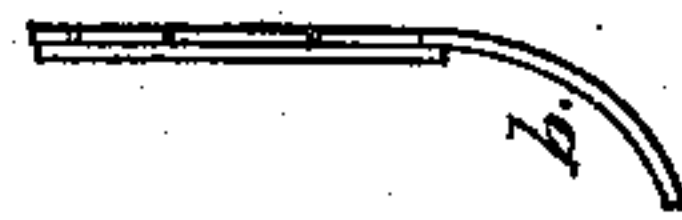
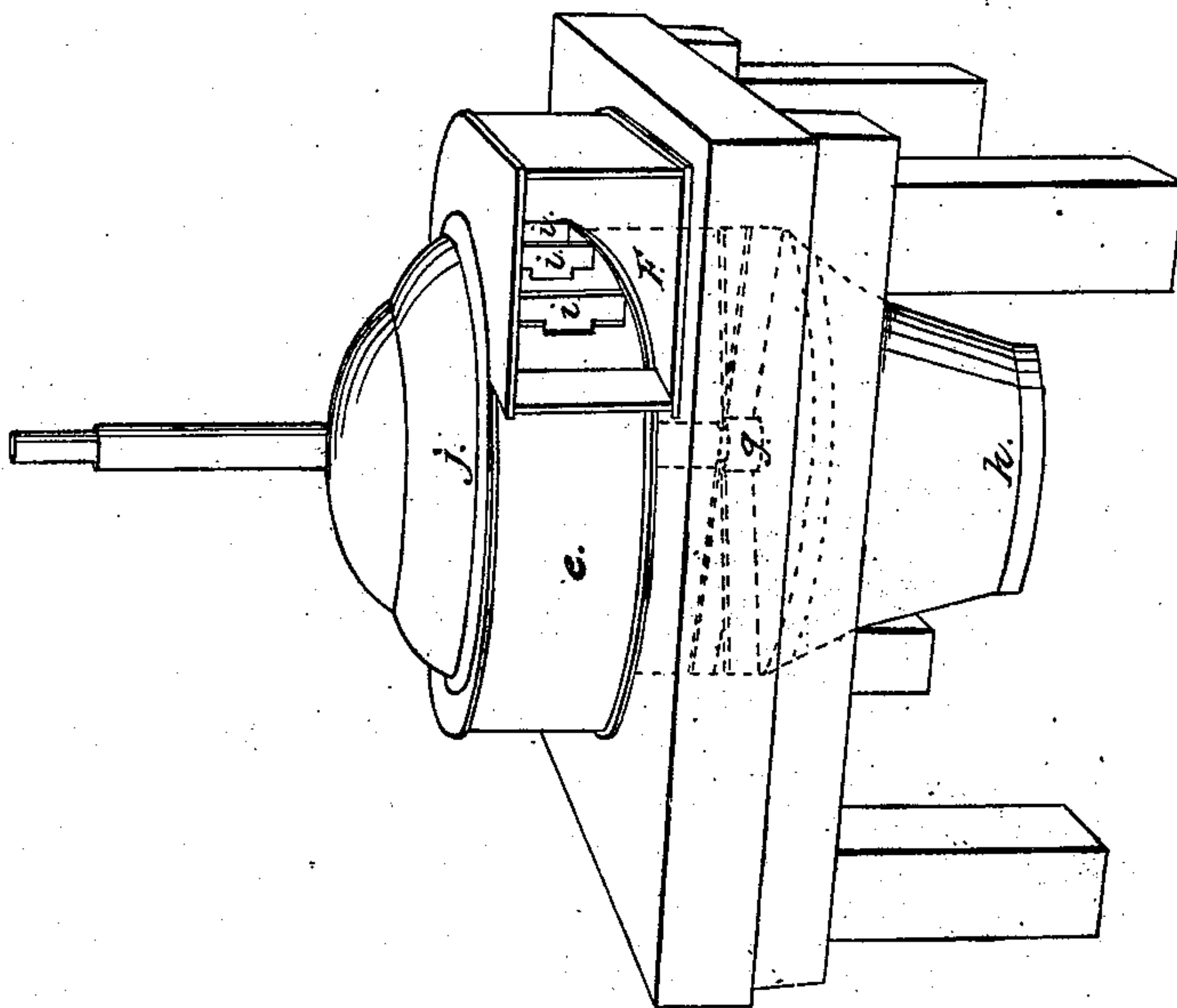


Fig. 1.



Witnesses,
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UNITED STATES PATENT OFFICE.

SYLVANUS RICHARDSON, OF JERICHO, VERMONT.

IMPROVED WATER-WHEEL.

Specification forming part of Letters Patent No. 24,055, dated May 17, 1859.

To all whom it may concern:

Be it known that I, SYLVANUS RICHARDSON, of Jericho, in the county of Chittenden and State of Vermont, have invented a new and valuable Improvement in the Construction of Scroll Water - Wheels; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon.

The nature of my invention consists in constructing the floats of a scroll water-wheel at their lower extremity in a spiral or curved form, with a draft-tube at the bottom of the case inclosing the wheel, so that the discharge of the water through the spiral or curved parts of the floats and draft-tube produces additional power to the wheel, and also in constructing the upper parts of the floats on which the water when let in upon the wheel within the scroll first acts with parts or sections attached by hinges to the outer edge of the inner parts of the floats, by which the difficulties arising from small obstructions of wood or other matter clogging the floats at the termination of the scroll in the common wheel are avoided.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I construct a wheel about three feet in diameter, the floats of which are fifteen inches in depth, nine inches of the upper part of which are perpendicular or vertical and the remaining six inches are of spiral or curved form, as shown in Figure 3 of the accompanying drawings, which is a representation of the outer edge of one of the floats, and also in Fig. 2 of said drawings at points marked *a* and *b*, said Fig. 2 being a representation of my wheel placed upon a horizontal shaft. Around the lower end of said floats I place a band about six inches wide, as shown at point *d* in Fig. 2, to which each float is permanently attached. The upper parts of the floats are made by having each float in two pieces, viz: A piece about nine inches in length by about three inches in width is attached to the permanent part of the float by hinges (which forms the upper part of the outer edge of the float) and is held in its perpendicular position by resting against a catch or projection from the plate (marked *c* in Fig.

2) when the water presses against the floats. The wheel thus arranged I place within a scroll-case, as shown in Fig. 1 at point marked *e*, which is constructed with an opening on one side about nine inches in height by twelve inches in width for the reception of water to operate the wheel, as shown at point marked *F* in Fig. 1. In the lower part of the case projecting downward from the scroll-case I place a step, as shown at point *g* in Fig. 1, for the reception of the lower end of the shaft, and at the lower end of the case encircling the wheel a tube is attached, as shown at *h* in Fig. 1, which projects into the water of the tail-race. In placing my wheel within this case, I so place the center of the shaft that four inches of the ends of the floats receive about one-third of the water, as shown at points *i* in Fig. 1, and the residue passes round in the scroll and down into the tube below. There is an opening in the top of the scroll-case about three feet in diameter corresponding to the size of the wheel, over which I place an oval plate of larger diameter with a hole in the center for the shaft, which plate I attach firmly to the scroll-case, as shown at *j* in Fig. 1, which oval plate is intended to exclude both air and water.

Plate *c* in Fig. 2 is attached permanently to both the shaft and floats, and when the case is filled with water the pressure upon the plate *c* lifts the wheel and lightens the pressure of the shaft on the step *g* in Fig. 1, there being room between said plate *c* and oval plate *j* in Fig. 1 for that purpose.

The object of making the upper part of the floats in two parts and attaching them together by hinges, as above stated, is this: When pieces of wood or other matter get within the scroll-case and tend to clog the wheel, the ends of the floats coming in contact with such matter are turned back upon their hinges and the matter causing the obstruction passes through between the floats into the water below, and the pressure of the water against the floats causes those parts of the floats thus turned back to return to their places.

Fig. 4 is a side view of one of the floats of the wheel, with the section which turns on hinges marked *a* and the spiral or curved part marked *b* thereon, which curve commences at the shaft and is of such form as

to cause the water to react upon the floats as it passes through the wheel.

I do not claim the invention of the scroll-wheel which is in common use; but

What I claim as my invention, and desire to secure by Letters Patent, is—

The float with hinges, as shown at point marked *a* in Figs. 2 and 4, and the spiral or curved form of the lower part of the float, as shown in Figs. 2, 3, and 4 of said drawings

at points marked *b*, combined with the extension downward of the case below the scroll-case *e*, and with draft-tube *h*, shown in Fig. 1 of said drawings, substantially in the manner and for the purposes above set forth.

SYLVANUS RICHARDSON.

Witnesses:

WM. WESTON,
J. GIVENS.