

J. CLOSS & I. N. PYLE.
WATER WHEEL.

Fig. 2.

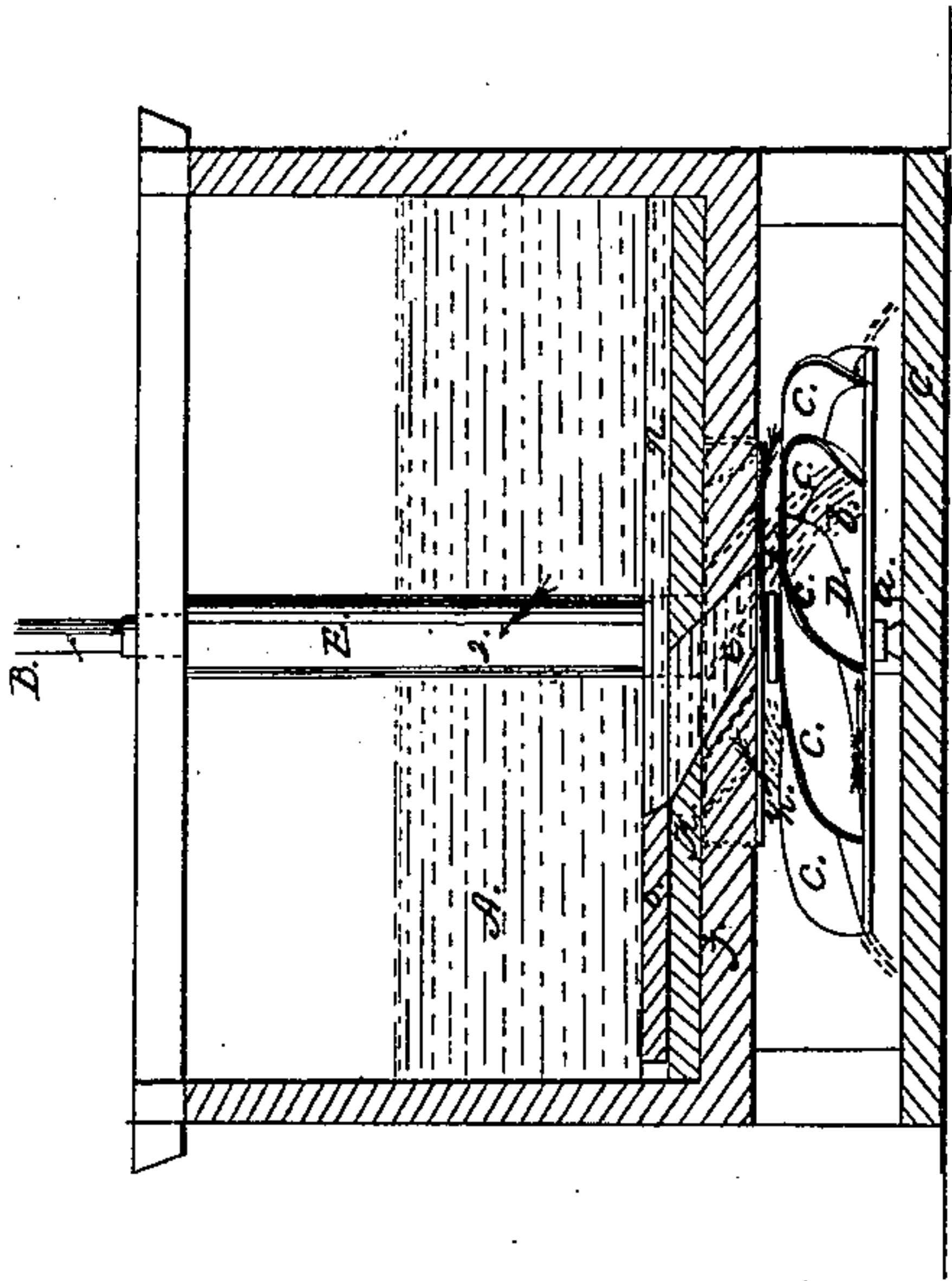


Fig. 4.

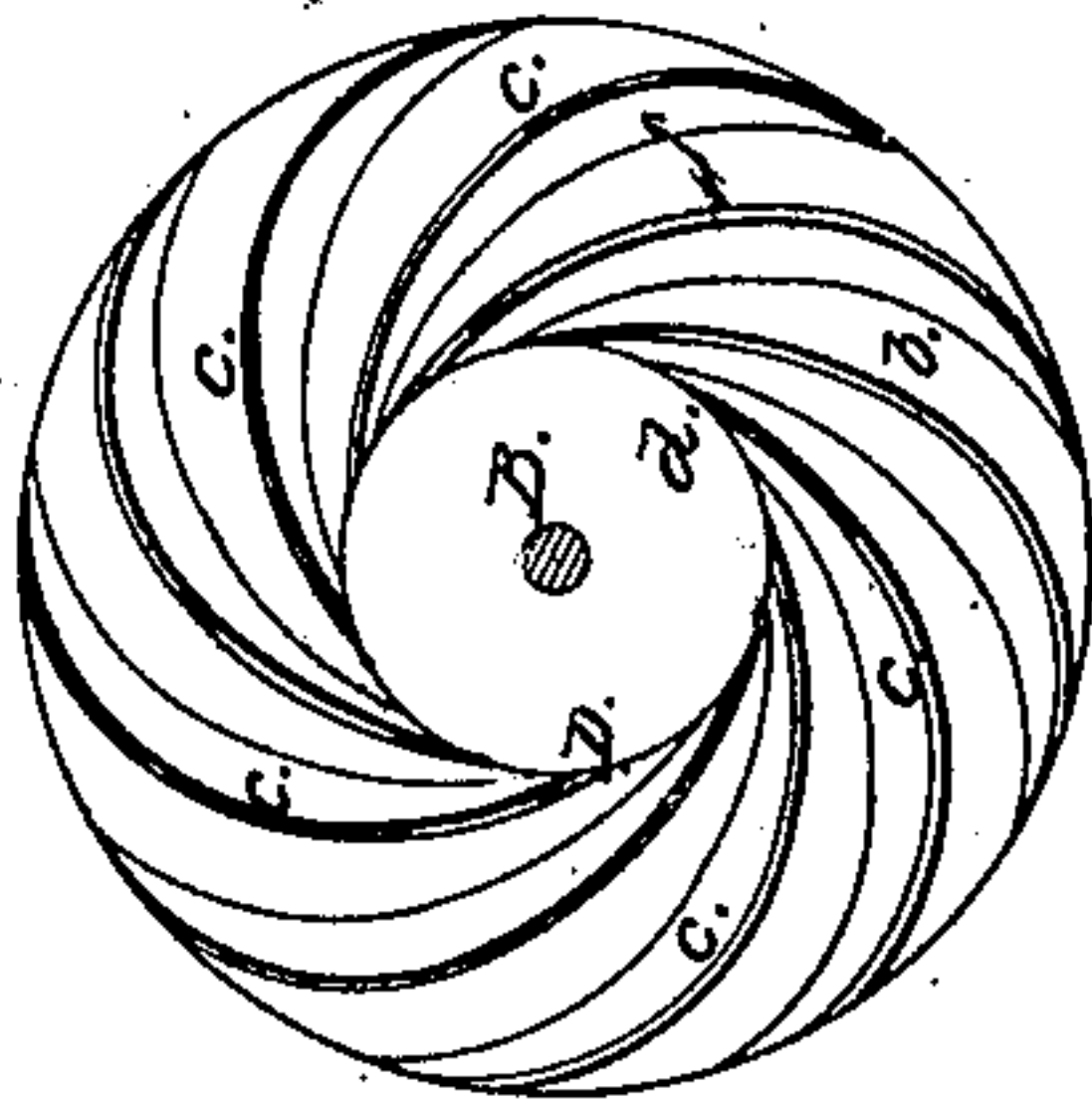


Fig. 1.

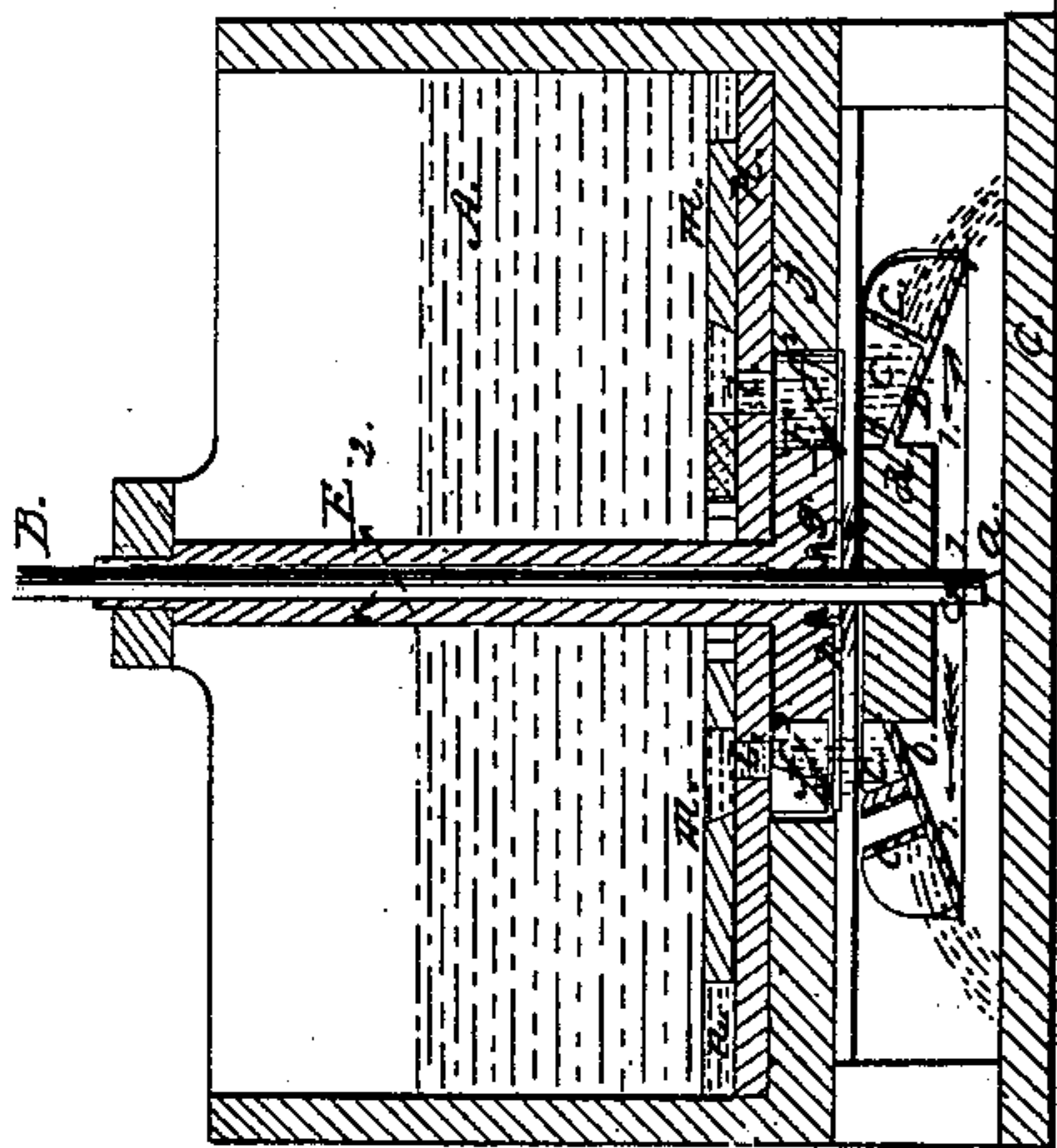
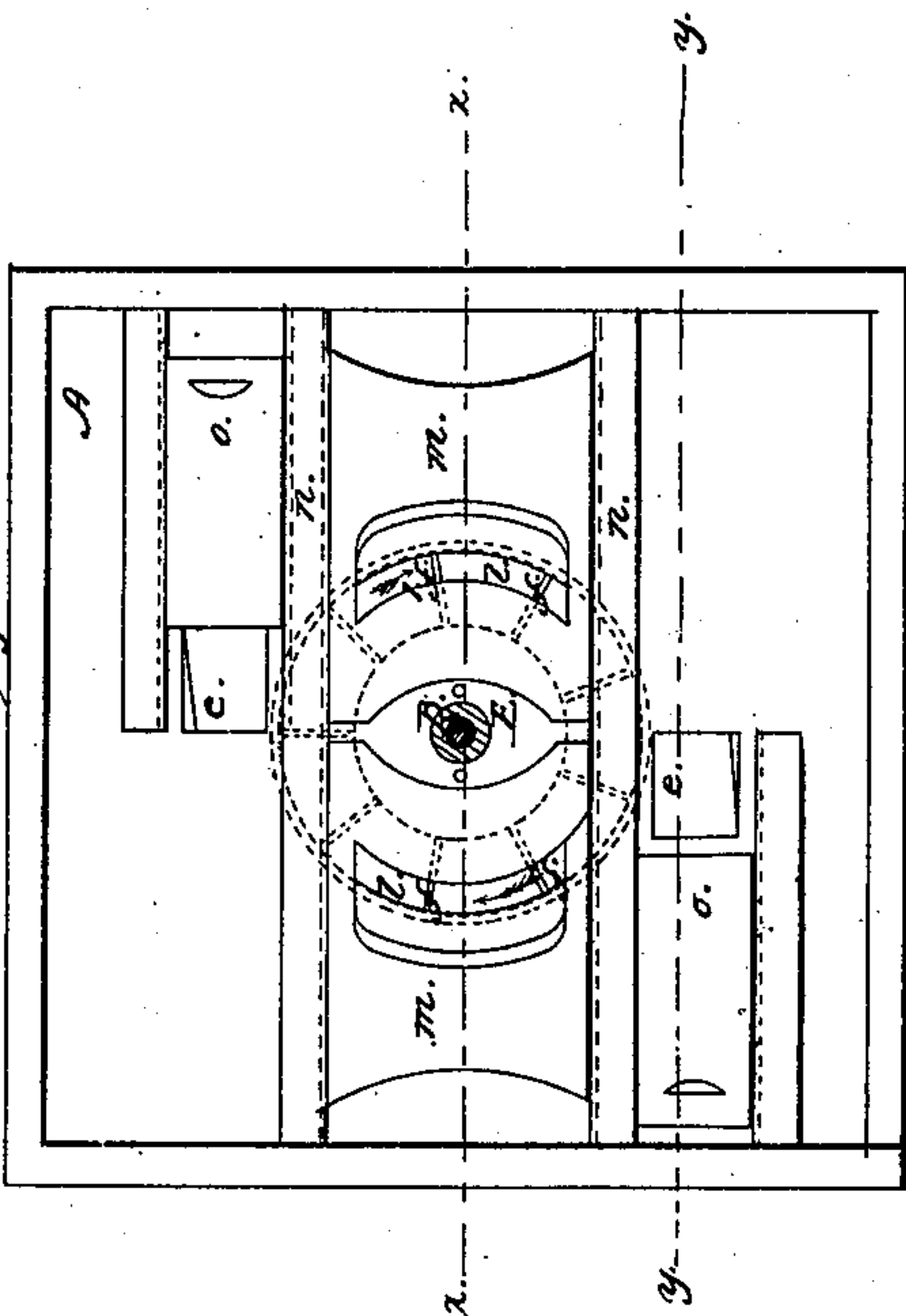


Fig. 3.



Witnesses:

J. W. Crambs.

R. S. Spence.

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Jacob Closs

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UNITED STATES PATENT OFFICE.

JACOB CLOSS AND ISAAC N. PYLE, OF DECATUR, INDIANA.

WATER-WHEEL.

Specification of Letters Patent No. 29,060, dated July 10, 1860.

To all whom it may concern:

Be it known that we, JACOB CLOSS and ISAAC N. PYLE, both of Decatur, in the county of Adams and State of Indiana, have
5 invented a new and Improved Water-Wheel; and we 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 specifica-
10 tion, in which—

Figure 1, is a vertical section of our invention, taken in the line *x, x*, Fig. 3. Fig. 2 a vertical section of the same, taken in the line *y, y*, Fig. 3. Fig. 3 a plan or top
15 view of the same. Fig. 4, a detached plan view of the lower wheel.

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

To enable those skilled in the art to fully
20 understand and construct our invention, we will proceed to describe it.

A represents a penstock, in which a vertical shaft B is placed centrally, said shaft being stepped on a base C, below the penstock as shown at *a*. On the lower part of the shaft B a wheel D is secured. This
25 wheel D has an inclined or conical bottom plate *b*, on which the buckets *c* are secured. The buckets *c* are of curved form, extending
30 from a hub *d*, to the periphery of the wheel as shown in Fig. 4. The buckets *c*, are also somewhat inclined, so as to receive the water at right angles, the water passing through
35 openings *e, e*, in the bottom of the penstock, and rotating wheel D, in the direction indicated by arrow 1, see Fig. 2.

On the shaft B, a hollow shaft E is fitted and allowed to turn freely. At the bottom of the shaft B, a wheel F is secured, which
40 wheel is directly over the wheel D. The wheel F is considerably smaller in diameter than wheel D, as shown clearly in Fig. 1, and the buckets *f*, of wheel F are inclined in a vertical direction, and somewhat curved
45 so as to be acted upon by a vertical descent of the water upon them, and cause the wheel F, to rotate in the direction indicated by arrow 2.

The lower end of the shaft E of wheel F
50 has an annular groove *g* made in it, and into this groove an annular flanch or edge *h*, fits, said flanch or ledge being on the upper

surface of a cross bar *i*, attached to the under side of the penstock.

The wheel F, is fitted, and works within 55 a circular opening made in the bottom *j*, of the penstock, and over the wheel F, a flooring *k*, is placed, through which, two curved openings *l*, are made at opposite sides of the shaft E, said openings being di- 60 rectly over the buckets *f*, and provided with gates *m, m*, which are simply horizontal slides fitted between guides *n, n*, attached to the flooring *k*, as shown in Fig. 3.

Through the flooring *k*, and bottom *j*, the 65 inclined openings *e, e*, are made. These openings are at the outer side, or beyond the wheel F, and provided with slide gates *o, o*, shown in Figs. 2 and 3.

The operation is as follows: By opening 70 the gates *m, m*, the water will be admitted from the penstock A, on the wheel F, and said wheels will be rotated in the direction indicated by the arrow 2, and the water as it escapes from wheel F, falls on wheel D, 75 and rotates it, the latter wheel rotating in the direction indicated by arrow 1, the two wheels rotating in reverse directions. The shafts B, E, of these wheels, may be connected by any suitable gearing, and power 80 taken from both, and in case the power of one wheel only is required the two shafts may be disconnected, the gates *m, m*, closed, the gates *o, o*, opened and the wheel D, only
85 driven.

We do not claim broadly the employment of two water wheels running in different directions and one driven by the escape water of the other: but

Having thus described our invention we 90 claim as new and desire to secure by Letters Patent—

The arrangement of the wheels F, D, and their shafts, B, E, in combination with the openings *e, e, l, l*, and gates *m, o*, as herein 95 shown and described so that one or both wheels may be operated as desired all as set forth.

JACOB CLOSS.
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Witnesses:

WM. W. MOSES,
JESSE NIBLICK.