

J. M. Perkins,

Water Wheel,

No. 29,305.

Patented July 24, 1860.

Fig. 1

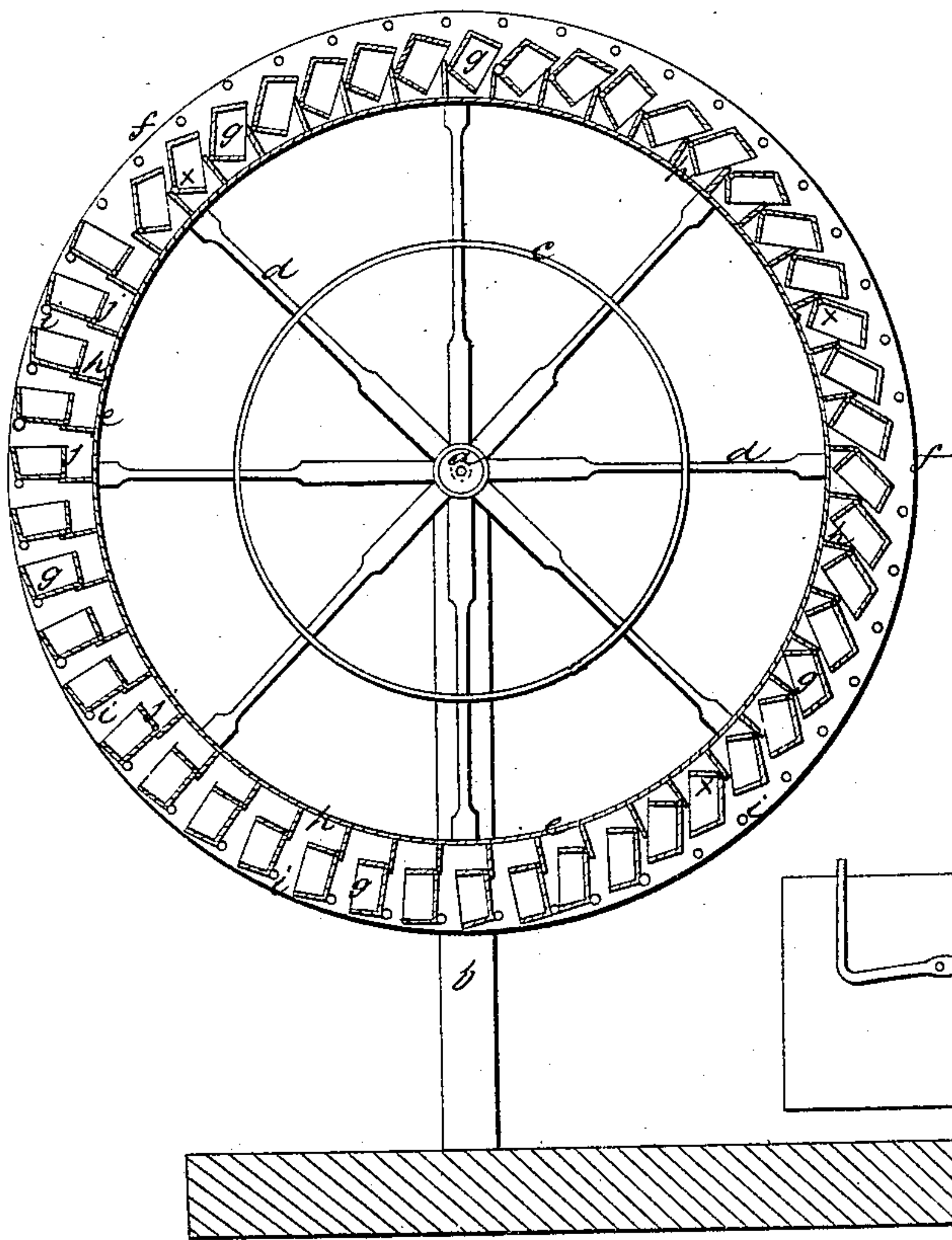
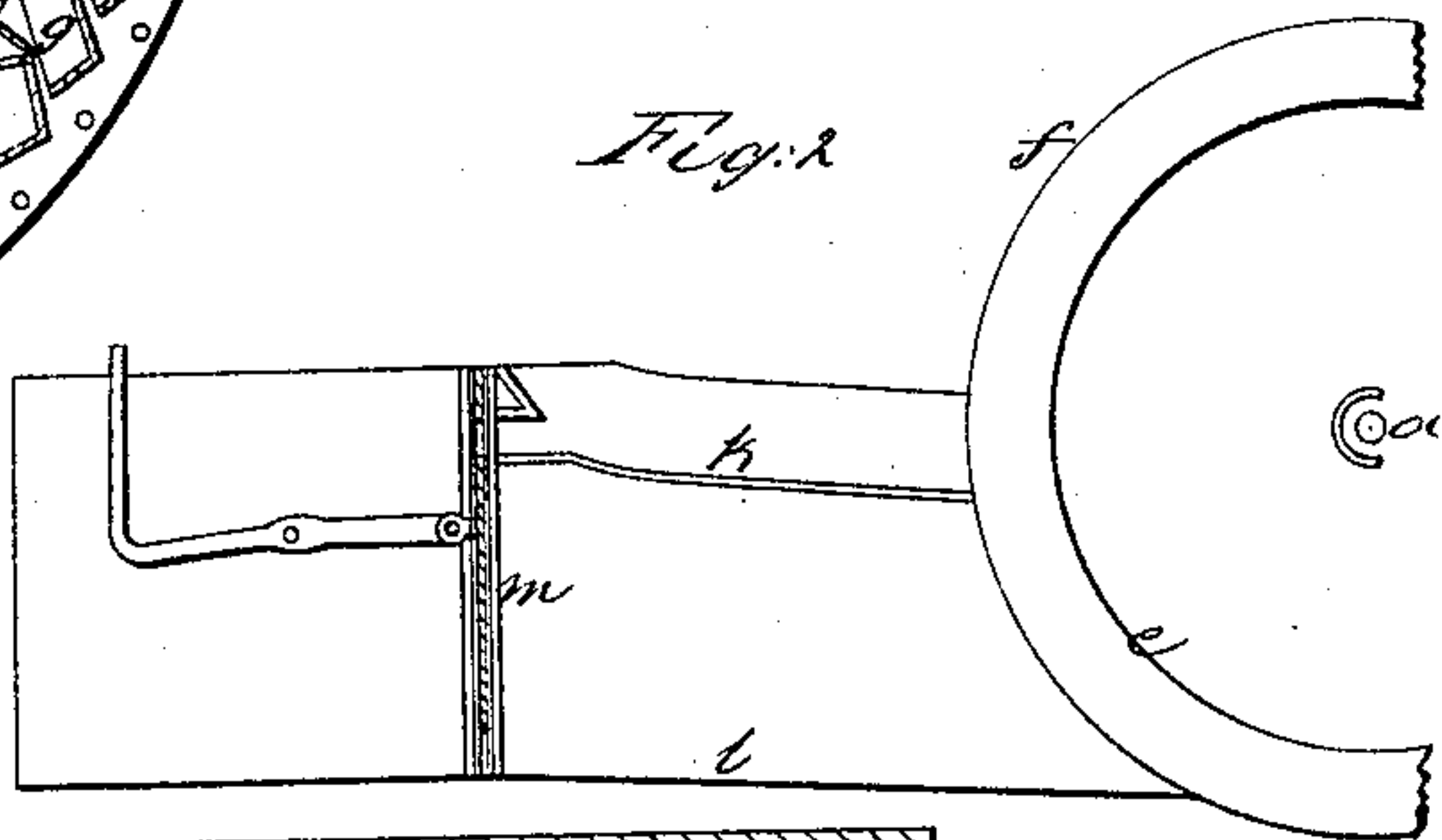


Fig. 2



Witnesses
E. C. Lambright
E. Thompson

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UNITED STATES PATENT OFFICE.

JACOB MARSH PERKINS, OF CHICAGO, ILLINOIS.

WATER-WHEEL.

Specification of Letters Patent No. 29,305, dated July 24, 1860.

To all whom it may concern:

Be it known that I, JACOB MARSH PERKINS, of the city of Chicago, in the State of Illinois, have invented a certain new and
5 useful Improvement in Water-Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the marks and letters
10 thereon.

The object of my invention is to obtain from the buckets motions which will aid in the rotation of the wheel, and my invention relates to the pivoting of the buckets and
15 the so arranging them within the flanges or side pieces of the wheel that the buckets when filled with water will be in that position in which they exert the greatest leverage, and when empty in that position in
20 which they will have the least leverage.

Figure 1 of the drawings forming part of this specification is a side view of a wheel having my improvement, with one of the flanges or side pieces removed so as to show
25 the manner of attaching the buckets. Fig. 2 is a vertical sectional view of a portion of a wheel with a breast chute and under-shot chute controlled by one gate or valve.

In each of the figures where like parts
30 are shown like marks and letters are used to indicate the parts.

(*a*) marks the shaft of the wheel, having its bearings in the standards (*b*) and the usual band pulley (*c*).

35 The radial arms are marked (*d*), and the rim, or that part of the wheel which constitutes the water bed, (*e*), and the flanges or side pieces (*f*).

The buckets (*g*) are of rectangular box
40 form, and are, by pins (*x*) on their inner ends, pivoted to the side plates, the holes in the side plates in which the pins fit allowing the pins to turn therein in the motions of the buckets. The inner edge of the bucket's
45 bottom rests upon the outer edge of a plate (*h*) which is rigidly affixed to the water bed plate and to the side pieces. When filled with water the buckets are sustained on their front ends by pins (*i*) affixed to, and
50 projecting inward a short distance from the

side pieces. It will readily be seen that a wheel having these buckets may be used as an over-shot, breast, or under-shot wheel and that the wheel will be very little effected by "backwater".

55 The motion or change in position which will occur to the buckets when the wheel is revolving is sufficiently correctly shown by Fig. 1 of the drawings. The buckets by their own weight and the impulse given to
60 them by the wheel's revolving will fall downward and outward on the water side of the wheel, while by their weight they will fall toward the shaft, or inward, on the opposite side of the wheel, increasing the lever-
65 age on the one side and diminishing it on the other, and thus aiding in the rotation of the wheel.

In some cases I contemplate making the front plate or part of the bucket thicker and
70 heavier than the other parts of the bucket with the view of further favoring the motions of the buckets by their weight, and I also contemplate having an additional or supplemental front plate lying within the
75 usual front plate and hinged on its bottom edge, so that by its flapping inward and outward as the wheel revolves further aid will be given the buckets in their motions.

When used as an overshot or breast wheel
80 the space (*j*) will contain water and act as a secondary or additional bucket.

Where water is abundant but the fall not sufficient for an overshot wheel much more power and speed could be given to this wheel
85 by letting on two jets or streams of water, one from the top and the other from the bottom of the flume, both jets playing upon the wheel at the same time, the water of the upper jet acting by its weight and that of the
90 lower jet by its momentum. This arrangement of jets is shown by Fig. 2 of the drawings, (*k*) indicating the upper chute, and (*l*) the lower chute and (*m*) the gate or valve controlling the mouths of both chutes.
95 This arrangement of the buckets on an over-shot wheel is regarded as being very useful under circumstances where a considerable portion of the lower part of the wheel would be immersed.
100

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

Attaching the buckets (*g*) to the side pieces of the wheel by the pins (*x*) and arranging them upon the wheel as herein set forth, in combination with the breast and under shot chutes as described.

This specification signed this 2d day of June 1860.

JACOB MARSH PERKINS.

Witnesses:

T. T. EVERETT,

F. S. MYER.