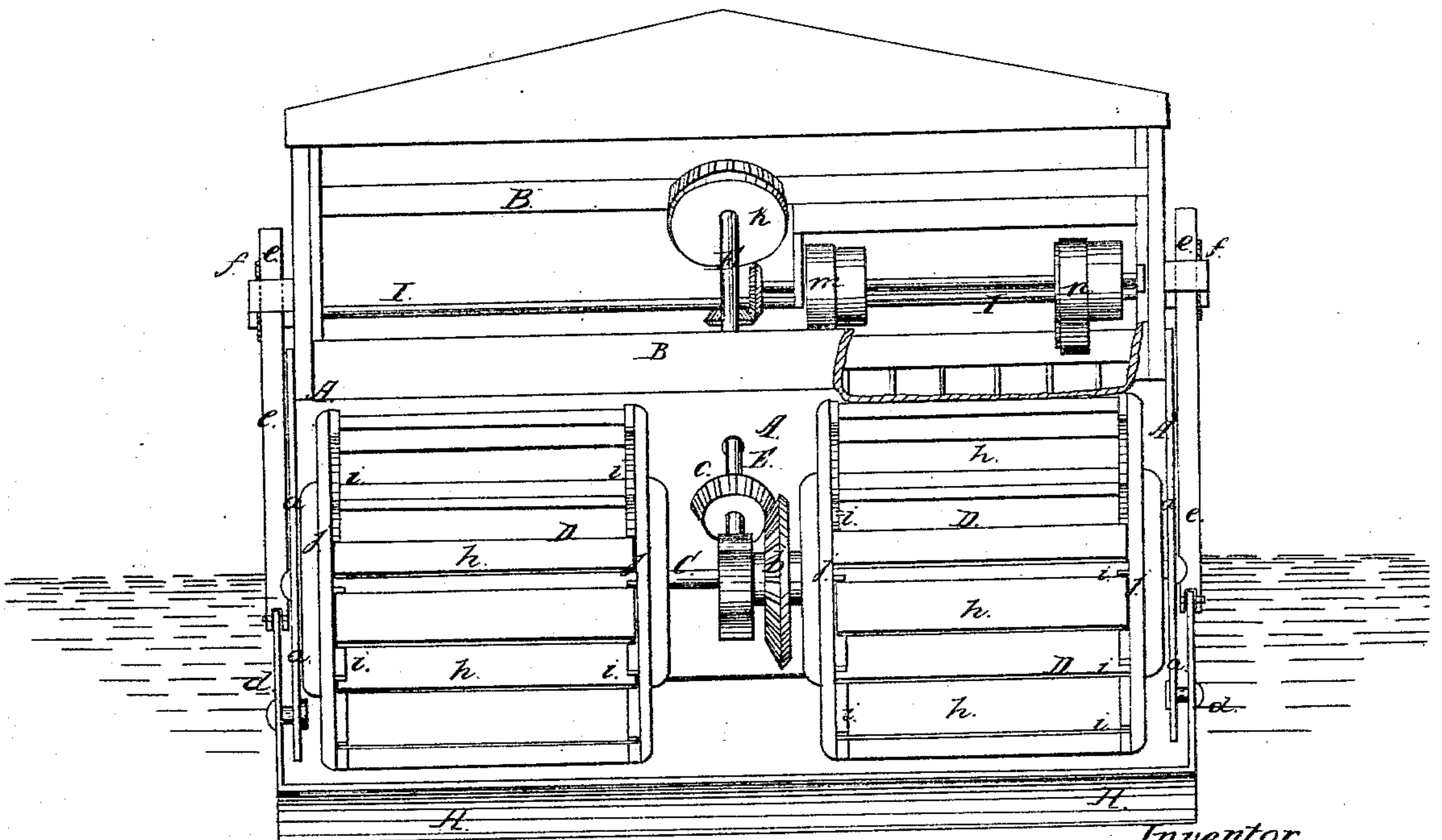
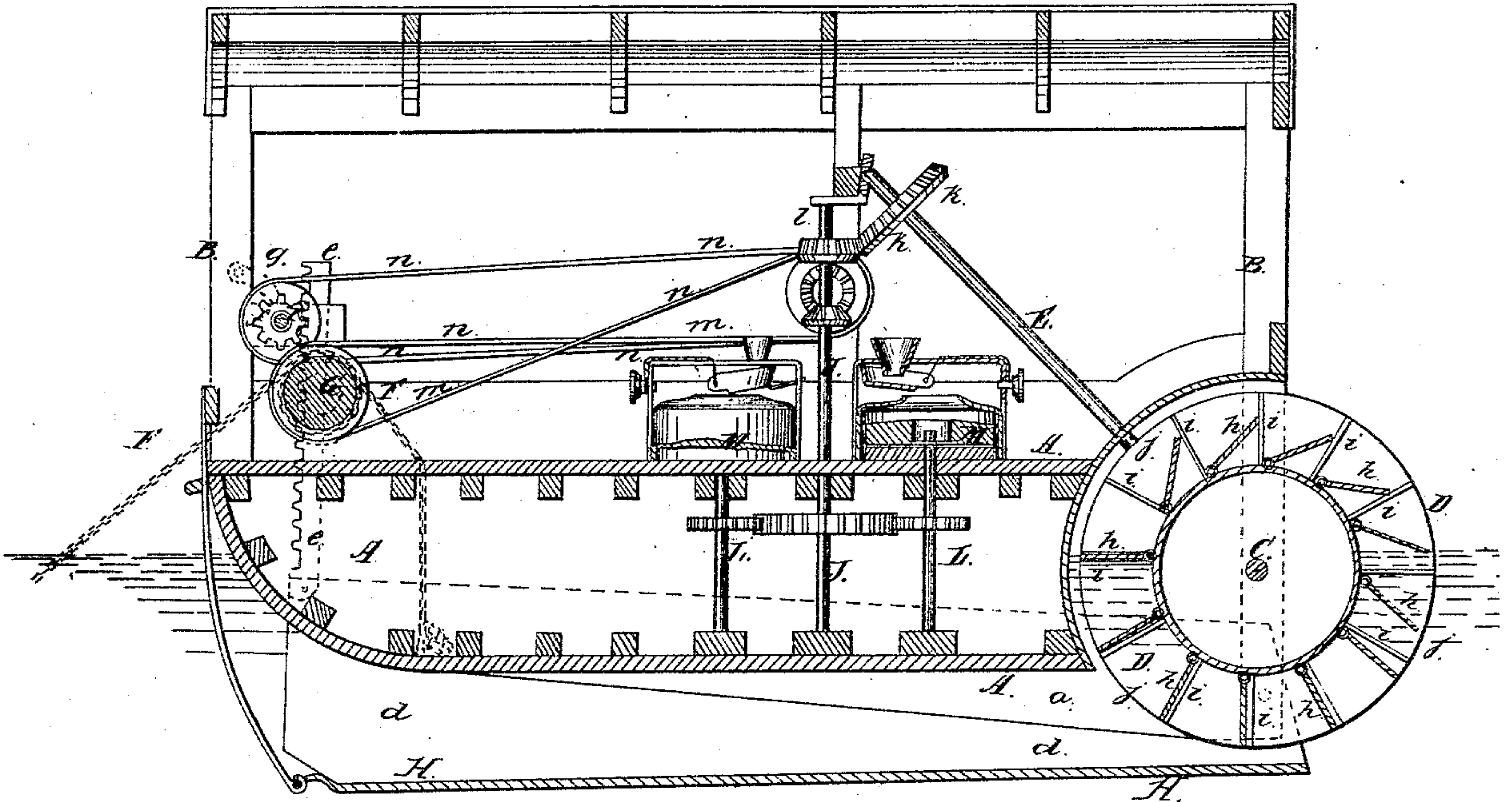


A. C. Heitmann.

Tide Motive Power.

N^o 100,761.

Patented Mar. 15, 1870.



Witnesses
M. D. Holland
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Att'y

United States Patent Office.

AUGUST G. HEITMANN, OF BROOKLYN, NEW YORK, ASSIGNOR TO HIMSELF AND JAMES KELLY, OF SAME PLACE.

Letters Patent No. 100,761, dated March 15, 1870.

IMPROVEMENT IN FLOATING-MILL POWER

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, AUGUST G. HEITMANN, of Brooklyn, in the county of Kings, and State of New York, have invented a new and improved Floating-Mill Power; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings forming part of this specification, in which—

Figure 1 represents a vertical longitudinal section of my improved floating-mill power.

Figure 2 is a rear elevation of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a new apparatus for operating mills or other suitable machinery by the power of flowing or ebbing water, and consists chiefly in pivoting the superstructure on which the working machinery is set up, to a lower gate or float, and in suspending the paddle-wheels by which the machinery is moved between the said gate and the superstructure, so that, by adjusting the distance between the two parts aforesaid, the amount of water acting on the paddle-wheel may be regulated at will, and conformed to the amount of power required.

The invention consists also in the general combination and arrangement of machinery, as hereinafter more fully described.

A in the drawing represents a flat-boat, of suitable size and form, sufficiently large to float the entire mill and the machinery connected therewith.

Upon the boat is erected a frame, B, which is or may be covered by a roof, to protect and in part sustain the operating mechanism.

C is a transverse shaft, hung in the rear end of the boat, and carrying two paddle-wheels, D D, between the projecting sides *a a* of the boat, the lower parts of the wheels reaching below the bottom of the boat, as shown.

Upon the shaft C is mounted a bevel gear-wheel, *b*, which meshes into the teeth of a pinion, *c*, that is mounted upon an oblique shaft, E.

The shaft E extends forward and upward into the frame-work B.

The boat A is anchored in the stream or tide-water, the anchor-chain F passing over a windlass, G, which is hung near the bow of the boat.

The current of the water will always throw the paddle-wheels behind the anchor, and will, as it strikes the wheels, revolve the same, imparting thereby rotary motion to the shaft E.

To the sides of the boat, near the stern, are pivoted the upward-projecting flanges or ears *d d*, of the plate H, which extends under the boat nearly or entirely the whole length of the same, and under the paddle-wheels, as shown.

Near the front end project upward from the sides

of the plate H toothed bars *e e*, which mesh into pinions *f f*, that are mounted upon a shaft, I, hung transversely on the boat.

By revolving this shaft I the pinions will move the racks, and cause the front end of the plate H to swing up or down, as may be desired.

A pawl, *g*, catching into a pinion, *f*, or into a ratchet-wheel on I, will lock the plate H in the desired position.

The nearer the front end of the plate H is drawn toward the boat, the less water will be admitted to the paddle-wheels, and the less power will consequently be applied.

The plate H, with its projecting flanges, serves, therefore, as a gate, to regulate the power of the machine.

The paddles *h*, on the wheels D, are pivoted, and are, while the water acts on them, held against ribs *i*, on the flanges *j* of the wheels, to be rigid. While they are being withdrawn from the water, they drop from the ribs and swing down, so as to produce no unnecessary resistance and friction.

The shaft E has a pinion, *k*, at its front end, and meshes into a pinion, *l*, on a vertical shaft, J, which has its bearings in the boat.

By gear-wheels *m*, the shaft J propels the working-shafts L L, which move the mill-stones M, or other apparatus to be operated.

Any suitable number of such shafts L and stones M, or their equivalents, may be employed.

A belt, *n*, from the driving machinery extends to the anchor-windlass G, and another, *n*, to the shaft I. By throwing either of these belts into action, the anchor can be wound up and the gate adjusted by the power of the water current.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The combination of the boat A, which carries the paddle-wheels D and the superstructure B, with the flanged gate H, which extends below the paddles, to regulate the amount of water admitted to operate the same, as set forth.

2. The pivoted gate H, carrying the flanges *d* and the racks *e*, in combination with the pinions *f* on the shaft I, all arranged to operate as set forth.

3. The paddle-shaft C, bevel-gears *b c*, driving-shaft J, and bevel-gears *l k*, with the shaft E, journaled at one end in a collar on said driving-shaft, and at the other in the upper part of the boat on frame B, all arranged as set forth.

4. The arrangement of ribs *i* on the flanges *j* of the wheels, to hold the swinging paddles firm against the impinging tide.

AUGUST G. HEITMANN.

Witnesses:

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