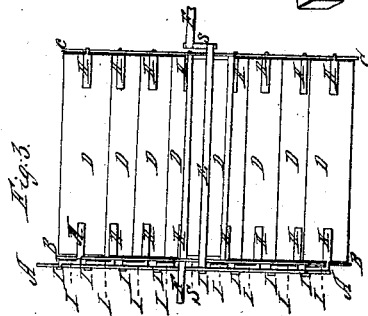
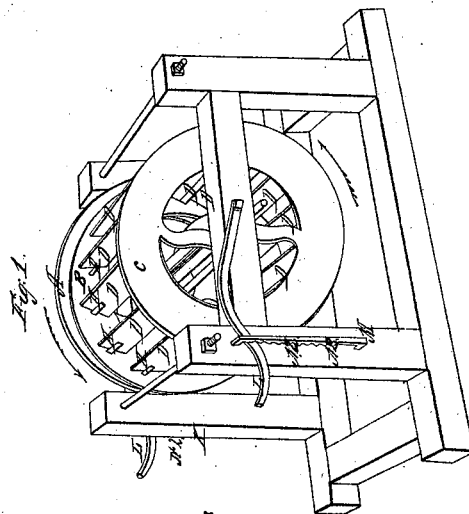
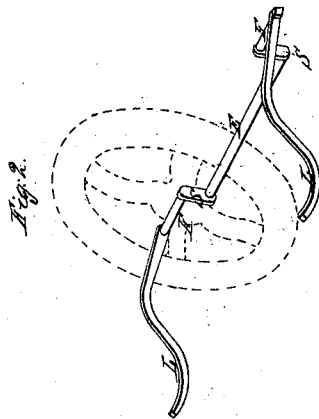


J. Hanchett,

Water Wheel.

N^o 1686.

Patented July 15, 1840.



UNITED STATES PATENT OFFICE.

JOSEPH HANCHETT, OF COLDWATER, MICHIGAN.

WATER-WHEEL.

Specification of Letters Patent No. 1,686, dated July 15, 1840.

To all whom it may concern:

Be it known that I, JOSEPH HANCHETT, of Coldwater, in the county of Branch and State of Michigan, have invented a new and
5 useful Improvement in Water-Wheels for Propelling Steam Vessels and Used also as a Tide and Current Wheel for Propelling Mills and other Machinery, and that the following is a full and exact description of
10 the same, reference being had to the annexed drawings, making part of this specification.

The nature of this invention consists in providing and arranging a guide wheel for the purpose of retaining the paddles in a
15 vertical or other position at any angle required so as to obtain the whole force or power of the wheel and at the same time obviating or removing the adverse influence of friction and back water.

20 To enable others to make and use this invention the following description is given of the same.

Figure 1 is a perspective view of the whole. Fig. 2, is a perspective view of the
25 levers, axles, and stirrups for suspending and changing the center of the water wheel, and consequently the angles of the buckets. Fig. 3, is a vertical section through the center of the wheel.

30 This water wheel is made like other water wheels in use, having two vertical parallel circular heads or rims B, C and a series of thin rectangular movable paddles D arranged between them, whose pivots H (on
35 which they move) pass horizontally through the heads. The axle of the wheel B, C (passing through its center) turns in two vertical stirrups S fastened permanently to two parallel levers L for shifting the center
40 of the water wheel to the right or left by altering the position of the cranks formed by the short axles F F and stirrups S S to which they are attached. On one of the short axles, thus placed above the axle of
45 the water wheel, there turns a guide wheel A the same diameter as the water wheel perforated with a circle of apertures in number the same as the paddles, in which the wrists I of the cranks fixed to the pivots H of the
50 paddles, at one end, are inserted for keeping the paddles in a vertical position during

the whole revolution of the water wheel or at such angle as the paddles may be brought by a change in the position of the center wheel.

55 The levers are held at any required position according to the required angle of the paddles by means of vertical racks M fixed to the sides of the same. The levers L when in the position represented in Figs. 1 and 2
60 will hold the paddles at an angle of about 80 degs. with the surface of the water, the upper edges being to the right of a vertical line or leaning back. If it be desired to have the paddles stand in a vertical position
65 the levers must be depressed and secured against the tooth No. 2 of the side rack M fastened to the frame for holding the levers. Should it be desired to change the angles of the paddles to the left of a vertical line to
70 an angle of about 80 degrees with the surface of the water the lever must be depressed to the tooth No. 3 of the rack M. The effects of these movements of the levers being
75 to turn the two short horizontal axles F and with them the stirrups on which the main axle E of the water wheel is suspended and to move said axle to the right or left of a vertical line and consequently to change the center of the water wheel in the same direc-
80 tions while the center of the guide wheel remains unchanged, the wrists I having no other movements except turning in the apertures in the guide wheels A as before described. The paddles of the water wheel
85 may thus in its rotary movement be made to enter, pass through and leave the water vertically or at any angle desired.

The buckets may be made to stand at any angle required by moving the center of the
90 main shaft to the right or left of the center of the guide wheel; or by so fastening the buckets to the cranks as to give them a proper angle.

95 The wheel may run vertically, or horizontally and may be used as a tide and current wheel for all kinds of hydraulic power particularly where there are large streams and but little head or fall, as well as propelling steamboats. The levers are designed
100 to show the principle of changing the angle of the paddles.

What I claim as my invention and improvement and which I desire to secure by Letters Patent consists in—

5 The arrangement of the guide wheel upon the short axle F as above described in combination with the water wheel as suspended in stirrups fixed to the ends of short axles turned by levers for changing the position

of the center of the water wheel in order to change the angle of the paddles all as herein 10 set forth.

JOSEPH HANCHETT.

Witnesses:

H. WARNER,
A. J. ENYERS.