

UNITED STATES PATENT OFFICE.

CHARLES GOULDING, OF MOBILE, ALABAMA.

WATER-WHEEL.

Specification of Letters Patent No. 512, dated December 15, 1837.

To all whom it may concern:

Be it known that I, CHARLES GOULDING, of the city and county of Mobile and State of Alabama, have invented a new and useful
5 Rotary Hydraulic Engine, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

The nature of my invention consists in
10 constructing a rotary engine to be driven by water power for propelling machinery, in such a manner that the whole pressure of the water in the fountain is constantly pressing on buckets or valves on the periphery of
15 a revolving cylinder, without allowing any part of it to escape, until it arrives at the issues in the sides of the machine—thus driving the buckets or valves and cylinder around.

I construct my wheel or cylinder so as to
20 revolve horizontally—receiving the water from the lowest part of the fountains.

I have an upright shaft A Figure 1, in
25 which I construct the wheel solid, or with arms radiating horizontally from the center: around the extremities of which there is a circular vertical rim B, Fig. 5, and from the top and bottom of said rim projects a circular plate E, *e*, of any required diam-
30 eter, forming a channel C, around the periphery of said rim. Outside the peripheries of said circular plates there is placed a circular stationary curb, D, which nearly touches the edges of the plates E, *e*, and
35 thus forms a circular hollow trunk C. The said circular trunk is open on two sides at F, *f*, Figs. 1 and 2 and 6 for the admission of water from the fountain G; Fig. 1. It also has two openings H, *h*, for the discharge
40 of the water, Figs. 2 and 6.

Gates may be placed at the outlets H, *h*,
on the stationary part of the engine Fig. 2. The circular trunks should always be kept
45 filled when standing to prevent freezing and rust. The water from the fountain passes into the circular trunk and acts against valves *v* Figs. 1, 2 and 3 in the periphery of the wheel which causes it to revolve. To the inside of the curb are fast-
50 ened projections or stops K, *k*, Fig. 6, which fill a cross section of the hollow trunk and serve as heads for the water to press against in driving the wheel around. The water is admitted at the inlets F, *f*, Figs. 1, 2, and 6;
55 and acts against the valves V, between them

and the stops or heads K, *k*, and drives the wheel around.

To allow the valve to pass the stop or head it is turned so as to come flush with
the periphery of the revolving cylinder by
60 entering countersinks therein, by means of certain arms and stops in the following manner. The valves or buckets being hung around the periphery of the wheel on verti-
70 cal axles R, R, R, R, Figs. 2 and 3,—said axles projecting above the upper plate of the wheel and having two curved arms S, *s*, fixed to each, which are made to come alternately in contact with stops 4, 5, 6, 7, 8,
Figs. 1 and 2, fastened to the curb and frame
70 of the machine for opening and closing the valves.

When the wheel has turned so as to hinge
valve V, at the point 9, Figs. 1 and 2, the
80 arm *s* comes in contact with the stop 7, and causes it to open out across the trunk—the water descends from the fountain or reservoir above—fills the space of the trunk between said valve and the stop *k*, behind it
85 and causes the valve with the wheel to move around. When it arrives at the discharging opening *h* the water escapes, and the wheel continuing to revolve the other arm S of the same valve comes in contact with the stop
90 5, and contracts or draws in the valve into the countersink in the rim—as soon as it has passed this stop it is thrown open again by the arm *s* coming in contact with the stop 6
95 to receive a fresh supply of water from the other side of the fountain or reservoir at F—Fig. 1,—when it arrives at the opening H on the other side the water is discharged as before. In this manner all the buckets or valves are acted upon. The valves may also be withdrawn from the trunk in the
100 following manner:—By means of a tumbler L, Fig. 4, made nearly in the shape of a crescent having a vertical axle M in the center: in each end of said tumbler there is an anti-friction roller N, *n*, made to pass
105 over a stationary inclined plane P,—the foremost wheel N, passing first to the summit turns the axle M, on which it hangs to the left, carrying with it the arm Q, attached to said axles and also to the valve V,
110 attached to the end of the arm Q which it recedes from the trunk toward the center of the wheel when it arrives at one of the permanent stops *k* which it has to pass. As soon as wheel N reaches the summit *p* the

other end *n*, begins to ascend the inclined plane,—bringing the tumbler, shaft, arms and valve back again—the valve extending across the trunk as before to receive the full force of the water, which is done as soon as the valve passes the stop or head.

In order to have a valve always in readiness to receive the pressure of the water I arrange three valves *V*, *V*, *V*, at equal distances around the periphery of the wheel, at the points 1, 2, 3.—And stationary stops, *K*, *K*, *K*, consequently there will be three places *F*, *F*, *F*, to receive and three *H*, *H*, *H*, to discharge the water. By the before described arrangement the pressure of the water in the fountain is obtained on the valves in the manner that the rushing power

of steam is obtained on the valves of a rotary steam engine—no part of the water being allowed to escape until it has passed through the engine, in which it will have spent its full power of gravity, aided by the whole pressure of the water in the fountain.

The invention claimed by me, the said CHARLES GOULDING, and which I desire to secure by Letters Patent consists

In the combination and arrangement of the whole in the manner described.

CHAS. GOULDING.

Witnesses:

WM. P. ELLIOT,

WM. BISHOP.