(12) **United States Patent**
Kenzie

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(54) **WATER WHEEL**

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Charles Stevens
Letters Patent

The schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said C. Stevens himself of his "An improvement in the mode of applying Water to central discharging Percussion Water Wheels"

To all to whom these presents shall come. Be it known that I Charles Stevens of the City of Troy in the County of Rensselaer and State of New York have invented a new and useful improvement in the mode of applying water to central discharging percussion wheels and that the following is a full and exact description of the construction and operation of the said improvement as invented by me. Although there are several ways in which the principle of my improvement may be applied I shall describe that which I deem best. Upon a vertical or upright shaft I construct a cast iron or wooden hemispherical trunk with strength proportioned to the head of water for which it is intended. the depth of said trunk inside, the same as the length of the water wheel bucket (fig 1 and 2). Width in the clear double the diameter of the wheel and all proportions to the supply of water or the quantity of power required. Said trunk may (if required) be cast open at both ends and furnished with flanches or some other convenient figure to secure it by means of screw bolts or otherwise) to the floor (or sleeper) through which the water is received. A circular opening is formed in the top and bottom of said trunk for the admission of the wheel which is of ordinary construction with or of wood or metal consisting of two rims with radial arms fixed between said rims and equi-distant from the shaft to the circle of the floor close to the edge of said openings in the trunk both at top and bottom. Holes are made of sufficient size in the rims of the wheel at equal distances apart for the insertion of receiving the pivots of the gates hereinafter mentioned. Also the same number

of equidistant between made on both sides of them at the top of the
outer end of the gates which are to receive the pivots of the levers by
which the gates are opened or closed. The gates may be any right lines
or curves in number according to the size of the wheel and are segments
of circles of about the same radius as the circumference of the wheel
and may be constructed of wood, cast or wrought iron of a breadth
equal to the depth of the buckets having pivots at the inner ends
sufficiently strong to resist the pressure of water which are inserted
in the holes made in the circular openings in the bucket above mention-
ed and working as hinges. The outer end of each gate when closed ap-
proaches as near as convenient to the inner end of the succeeding gate so
when open they form a series of spiral passages or inlets to the wheel
through which the water acts at an angle of about forty five de-
grees on the bucket or float of the wheel and afterwards dis-
charges towards the centre both above and below the arms of the
wheel. To open and shut these gates a series of angular pivoted
levers each consisting of a short arm attached to an axle with a
strong pivot that passes through the outer series of holes above men-
tioned in the top of the bucket and receives a socket and on the op-
posite side of the bucket to receive it to its place and also another that
can be connected at its extremity and in the opposite corner of the
outer end of the gates by links constituting an angular pivoted lev-
er the operation of which is to close or open the gates by simply turn-
ing the pivots and these pivots being connected to a suitable rim
on wheel or other suitable machinery a simultaneous closing or
opening of all the gates to any desired degree of effective by simply
moving said wheel by which means the quantity of water applied
to the wheel admits of exact regulation and its maximum effect
through all changes in any stage of water as the head may always be
kept full. Now to claim as my invention and not
previously known in the above described water wheel and its applica-
tions are the moveable gates or water guides and their mode
of connection with or in application to all essential described
way

