

(No Model.)

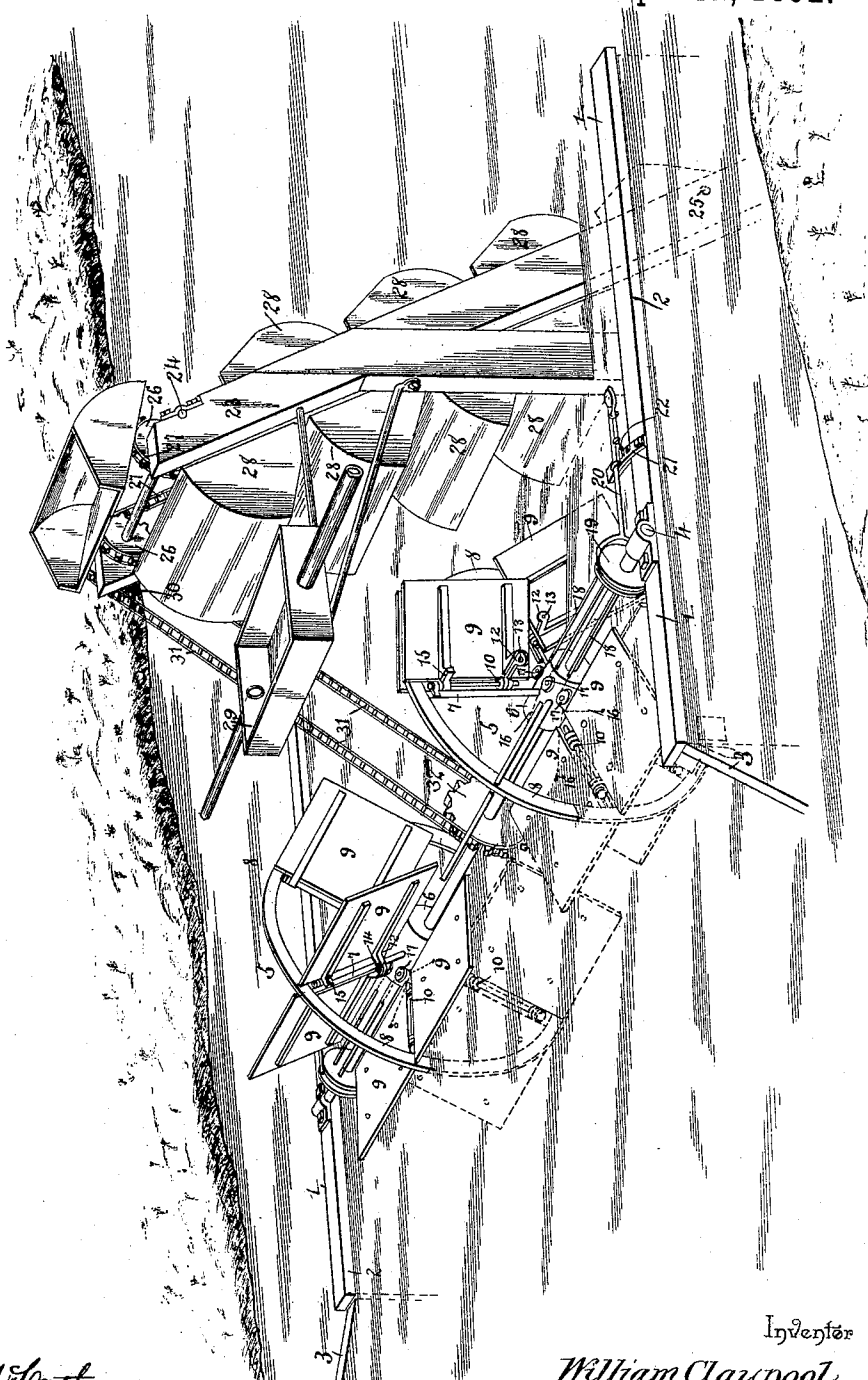
2 Sheets—Sheet 1.

W. CLAYPOOL.
WATER ELEVATOR.

No. 472,602.

Patented Apr. 12, 1892.

FIG. 1.



Witnesses

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(No Model.)

2 Sheets—Sheet 2.

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FIG. 3.

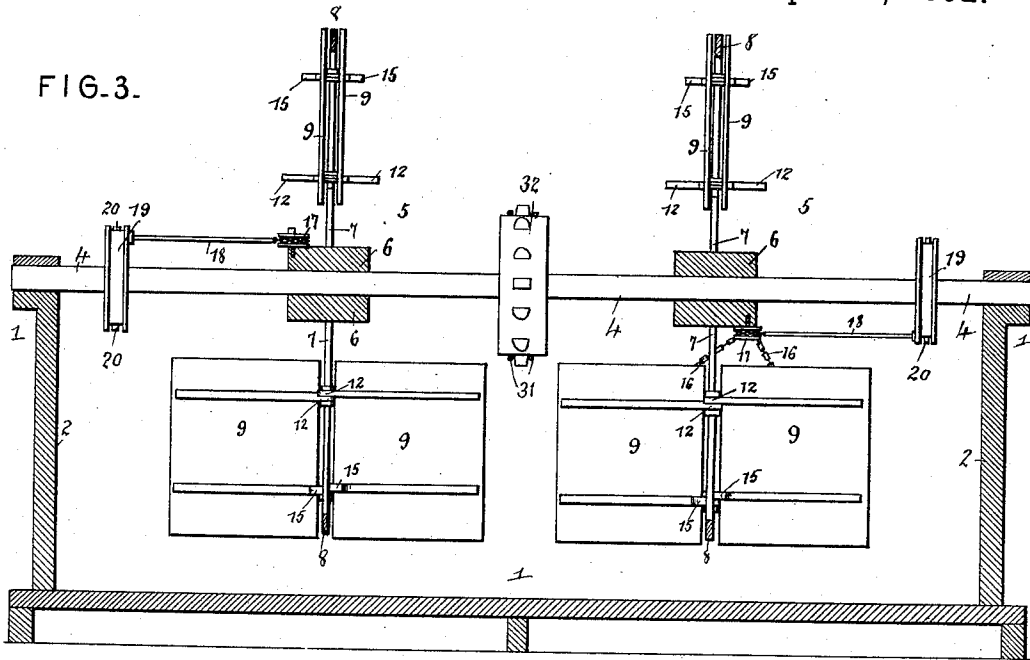


FIG. 4.

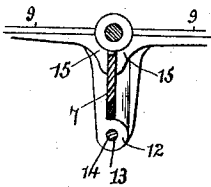


FIG. 2.

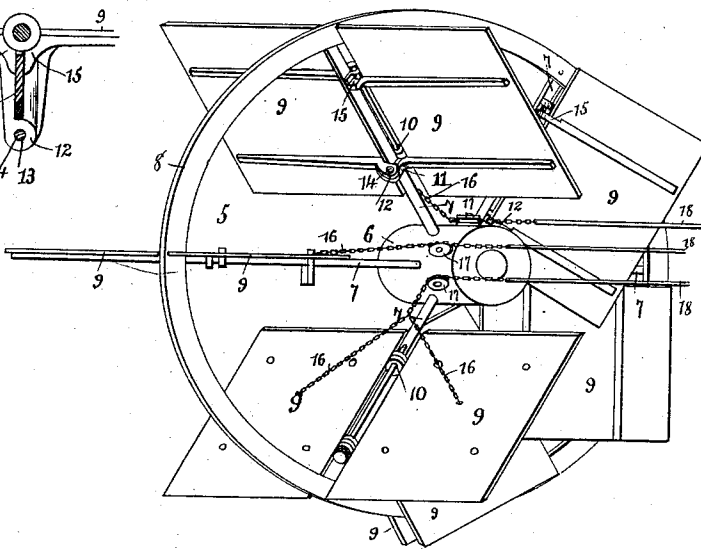
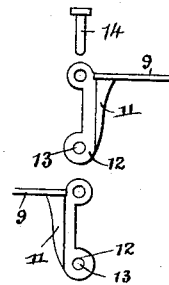


FIG. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM CLAYPOOL, OF COZAD, NEBRASKA.

WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 472,602, dated April 12, 1892.

Application filed March 14, 1891. Serial No. 385,066. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CLAYPOOL, a citizen of the United States, residing at Cozad, in the county of Dawson and State of Nebraska, have invented a new and useful Water-Elevator, of which the following is a specification.

This invention relates to water-elevators or devices for raising water for irrigating and other purposes; and it has for its object to provide a device of this class in which the water-elevator shall receive motion from water-wheels adapted to be operated by the current of the river or stream in which the device is placed, and which shall be so constructed as to operate successfully without regard to the height of the water, thus enabling the machine to operate continuously, even in time of freshets, when the current wheels or motors shall be entirely submerged.

The invention consists, essentially, in the improved construction and arrangement of the said water-wheels and in the combination, with the same, of the water-elevator, as will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a perspective view of a water-elevator constructed in accordance with my invention. Fig. 2 is a perspective view, on a larger scale, of one of the water-wheels or current-motors used in connection therewith. Fig. 3 is a transverse sectional view of the said water-wheel, taken longitudinally through the axle of the same. Fig. 4 is a sectional view taken transversely through one pair of the folding paddles. Fig. 5 is a detail view of the brackets.

Like numerals of reference indicate like parts in all the figures.

1 designates a suitable float or casing, the sides of which 2 2 are provided with diverging wings 3 3, extending upstream for the purpose of concentrating the power of the current against the water-wheels mounted in said float or casing, as will be presently described. The wings 3 3 may be hinged to the sides of the float or casing, as shown in the drawings hereto annexed, in order that they may be readily adjusted, as may be desired. The sides of the float or casing are provided with bearings for a transverse shaft 4, upon which the water-wheels 5 are mounted. Of said wa-

ter-wheels any desired number may be used. A single one may sometimes be found sufficient, while at other times two, four, or even 55 a greater number may be advantageously used.

Each of the water-wheels 5, as will be seen in Fig. 2 of the drawings, is composed of a hub 6, having a series of radiating spokes 7, the outer 60 ends of which may be connected by a ring or brace 8. Pivotally mounted upon the said spokes are the folding paddles, each of which is composed of a pair of leaves 9, provided at their inner edges with eyes 10, by means of which 65 they are hinged or pivoted upon the spokes. The wings or leaves 9 are provided on what may be termed their "under sides" with arms or brackets 11, which are at right angles to said leaves and which are adapted to abut 70 against opposite sides of the spokes 7 when the leaves are unfolded to receive the impact of the current. The brackets 11 are provided at their ends with lugs 12, adapted to overlap each other, so as to completely embrace the 75 spoke upon which the leaves are pivoted when said leaves are thrown open. The lugs 12 are provided with perforations 13 to receive a pin 14, by means of which they may be locked together, so as to secure the paddles in an unfolded position, as it may be desirable to do 80 sometimes when the water is so low as not to reach the paddles upon the upper half of the wheel. Unnecessary wear and tear upon the machinery will thus be avoided without im- 85 pairing the efficiency of the wheel, which will in this instance operate in the manner of an ordinary undershot water-wheel. Additional arms or brackets, as 15, may be secured upon the under sides of the wings or leaves 9 to 90 abut against the spokes when the said wings are thrown open.

For the purpose of throwing a number of the wings or paddles of the wheel out of gear, when desired, and thus temporarily suspend- 95 ing the operation, I attach to such wings or leaves the chains 16, passing over pulleys or through suitable guides, as 17, upon the hub of the wheel and connected by means of rods 18, which are arranged parallel to the shaft 4 100 with an annularly-grooved disk 19, mounted slidably upon said shaft and adapted to revolve with the latter. A lever 20, suitably pivoted to the frame or casing, has a bifur-

5 cated end engaging the annularly-grooved disk 19, which, by means of said lever, may be moved longitudinally upon the shaft, thus folding or closing the paddles together and preventing them from being expanded to receive the impact of the water. It is not necessary that all of the paddles of the wheel should be capable of being thus folded, about one-half being ordinarily sufficient, the remaining
 10 paddles being closed automatically by the action of the current, as will be readily understood. Means are to be provided for retaining the lever 20 at any desired adjustment—such, for instance, as an ordinary segmental
 15 rack 21, adapted to be engaged by a spring-actuated catch 22 upon the lever.

A suitable frame-work 23, erected in the float or casing, is provided near its upper and lower ends with bearings for the shafts 24
 20 and 25, having sprocket-wheels 26, supporting the chains 27 of the water-elevator, which is composed of a series of suitably constructed buckets 28, mounted upon the said endless chains and adapted to discharge their contents
 25 into a trough or receptacle 29, supported near the upper end of the frame and from which the water may be conveyed to any place desired. The shaft 24 is provided at one end with a sprocket-wheel 30, connected by a chain
 30 31 with a sprocket-wheel 32 upon the shaft 4, carrying the water-wheels, from which motion is in this manner transmitted to the endless carrier or elevator. It is obvious that any suitable means may be provided—such as
 35 sprocket-wheels of different sizes—for regulating the proportionate speed of the water-wheels and the endless carrier.

40 The operation of my invention will be readily understood. Motion is transmitted from the water-wheels to the endless carrier, which elevates the water into the trough or receptacle 29. It will be readily seen that the height of the water will in no wise interfere

with the operation of the motor-wheels, the paddles of which, moving against the current,
 45 will be automatically folded together, so as to present the least possible resistance, while the paddles receiving the impact of the current are likewise automatically unfolded, so as to
 50 present their entire surfaces to the current. In order to temporarily suspend the operation, a number of the paddles may be folded, as herein described, and when desired, when the water is low, the several paddles may be secured in
 55 an unfolded or open position by means of the pins or bolts 14, thus avoiding unnecessary wear upon the machinery.

Having thus described my invention, what I claim is—

1. In a water-elevator, a rotatable hub having
 60 a series of radiating spokes, the pair of paddles for each spoke, L-shaped brackets or arms secured to the back of each paddle and having aligning eyes at their corners or angles, said eyes being located in front of the
 65 spokes, and the single pintle-rod, the rear branches of the brackets or arms embracing and abutting against the opposite sides of the spokes, combined with means for opening and closing the brackets, substantially as specified.
 70

2. The combination of a shaft, a hub having radiating spokes, the wings or paddles hinged in pairs upon the said spokes, and also brackets secured upon said paddles adapted to abut against the sides of the spokes and
 75 provided with perforated lugs adapted to overlap each other and to be connected by a pin or bolt, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as
 80 my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM CLAYPOOL.

Witnesses:

DAVID CLAYPOOL,
JENE I. GOOD.