

(No Model.)

L. R. WITHERELL.
WATER MOTOR.

No. 410,132.

Patented Aug. 27 1889.

Fig. 1

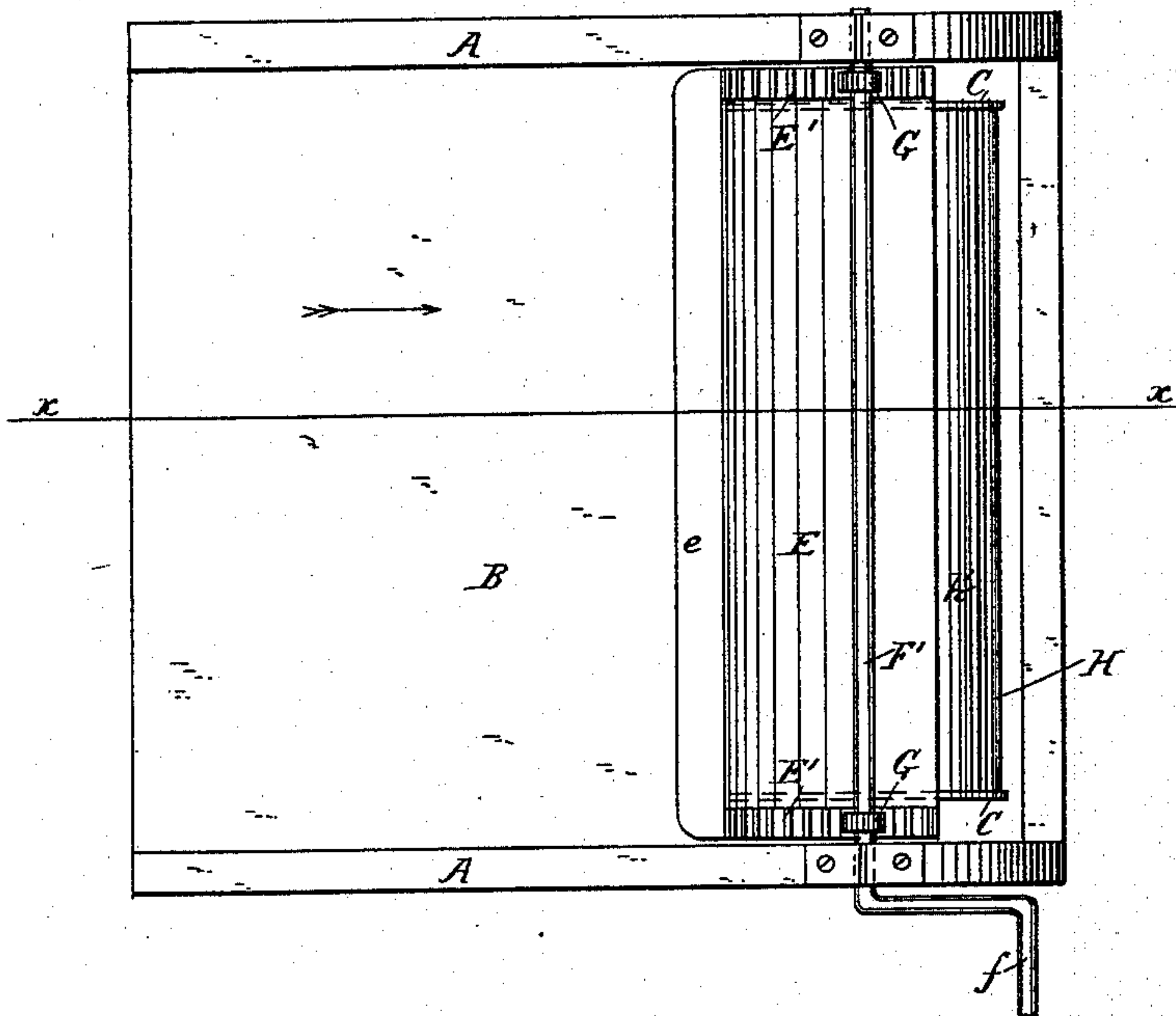
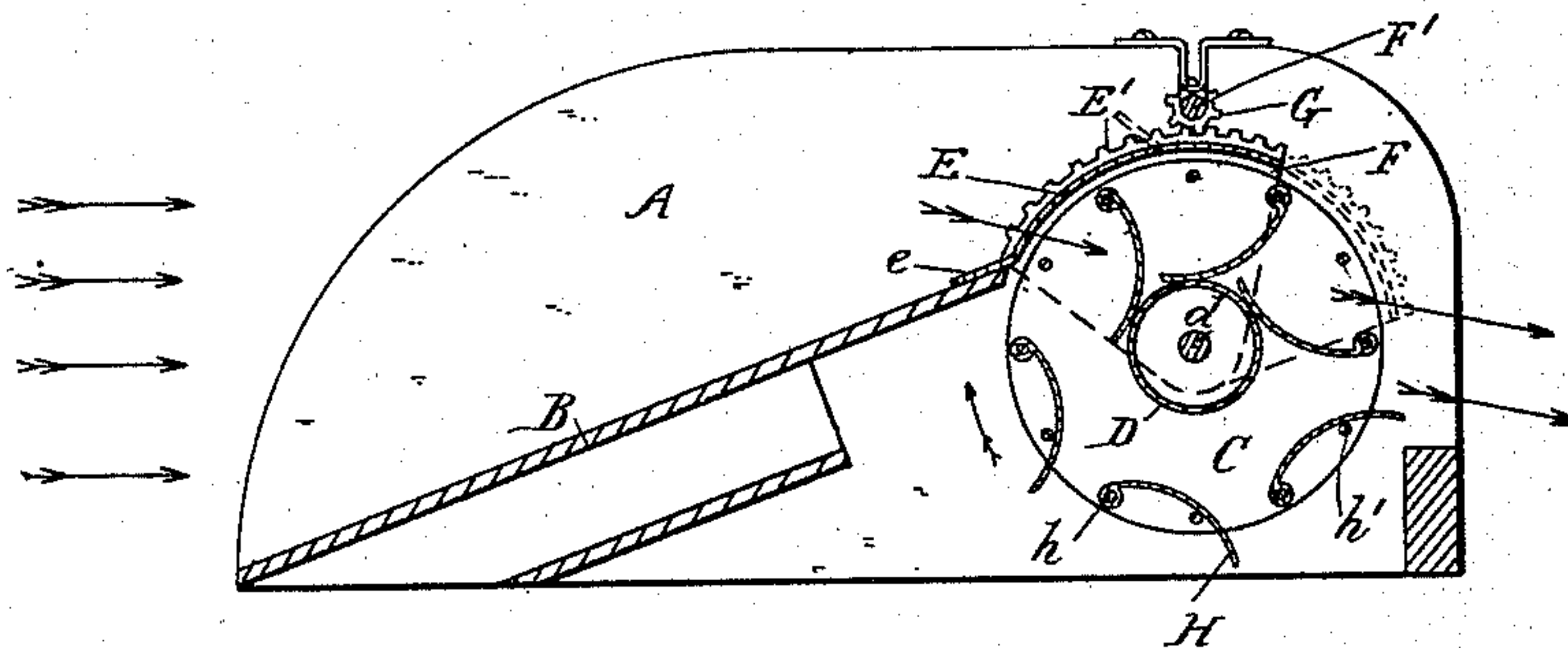


Fig. 2



Witnesses

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LOREN R. WITHERELL, OF DAVENPORT, IOWA, ASSIGNOR OF THREE-FOURTHS
TO EDWIN W. BRADY, OSCAR W. BRADY, AND ALBERT B. BRADY, OF
SAME PLACE.

WATER-MOTOR.

SPECIFICATION forming part of Letters Patent No. 410,132, dated August 27, 1889.

Application filed May 2, 1889. Serial No. 309,384. (No model.)

To all whom it may concern:

Be it known that I, LOREN R. WITHERELL, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Water-Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to water-wheels; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed, whereby the water-wheel is adapted to work when submerged in the current of a running stream, and may be moved about as found convenient.

In the drawings, Figure 1 is a plan view of the machine from above; and Fig. 2 is a cross-section through the same, taken on the line x in Fig. 1.

The frame of the machine consists of two side plates A A, securely connected together and provided with the inclined water-guide plate B.

The water-wheel is provided with two end disks C, connected together by the cylindrical barrel D. The water-wheel is secured upon a shaft d , journaled in the side plates A A.

E is a curved plate provided with the longitudinal flange e , adapted to rest upon the guide-plate B, and F are end flanges which are journaled on the central shaft d of the water-wheel.

E' are curved toothed racks secured to the ends of the curved plate E, and F' is a shaft provided with a cranked handle f or other equivalent means for revolving it in its bearings in the side plates A A.

G are toothed pinions secured upon the said shaft F', which gear into the curved toothed racks E'.

H are curved arms pivoted to the disks C near their periphery by means of pins or rods h . These arms may be straight; but curved arms are preferred, as they hold the water better. The free ends of the said arms are free to oscillate between the cylindrical barrel D and the stops h' near the periphery of the said disks.

The machine is submerged in any water-course and anchored to the river-bed or secured to piles or to any other suitable support. The arrows in the drawings show the direction of the current. When the curved plate is closed, as shown, the wheel is not revolved by the water. The wheel is started by turning the shaft F' and opening the curved cover. The dotted lines in the drawings show the position of the cover when open to its widest extent. The water rushes up the inclined guide-plate and through the opening between the top of the said guide-plate and the flange e of the curved plate E. The flange e causes the water to be deflected, so that a greater volume of it is obliged to pass through the machine. The water strikes against the arms H at the top of the wheel and revolves it in the direction of the arrow. When the arms approach the under side of the wheel, they are turned upon their pivots by the weak water-current passing under the wheel and they fall against the stops h' , thereby offering very slight resistance to the revolution of the wheel. The speed of the wheel may be adjusted by turning the shaft F' to vary the position of the curved plate and cause more or less water to act upon the wheel, as desired. The wheel is revolved by the upper current of water, which is swifter and more powerful than the water running next the river-bed and in frictional contact therewith.

The power may be conveyed to the shore by means of a shaft, preferably coupled to the water-wheel shaft by a universal joint of approved construction, and a number of similar water-wheels may be used, if desired, and have all their shafts coupled by universal joints, so that it will not be necessary to place them exactly in line on the river-bed.

What I claim is—

1. The combination, with the two side plates and the inclined water-guide plate secured between them, of the water-wheel journaled in the side plates substantially in line with the top of the guide-plate, and the adjustable curved plate provided with flanges at each end having their extremities journaled on the water-wheel shaft, and a longitudinal flange

resting on the upper end of the said guide-plate, substantially as and for the purpose set forth.

2. The combination, with the two side plates 5 and the inclined water-guide plate secured between them, of the water-wheel provided with a shaft and journaled in the side plates substantially in line with the top of the guide-plate, the curved plate provided with end flanges pivoted on the water-wheel shaft, and the longitudinal flange resting on the top of

said guide-plate, and a toothed rack, and a revoluble toothed pinion gearing into the said rack for adjusting the position of the said curved plate, substantially as and for the purpose set forth. 15

In testimony whereof I affix my signature in presence of two witnesses.

LOREN R. WITHERELL.

Witnesses:

WILFED P. HALL,

WM. E. PULS.