

DANIEL SANDOE. WATER WHEEL.

2 Sheets Sheet 1

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PATENTED JUL 25 1871

Fig. 1.

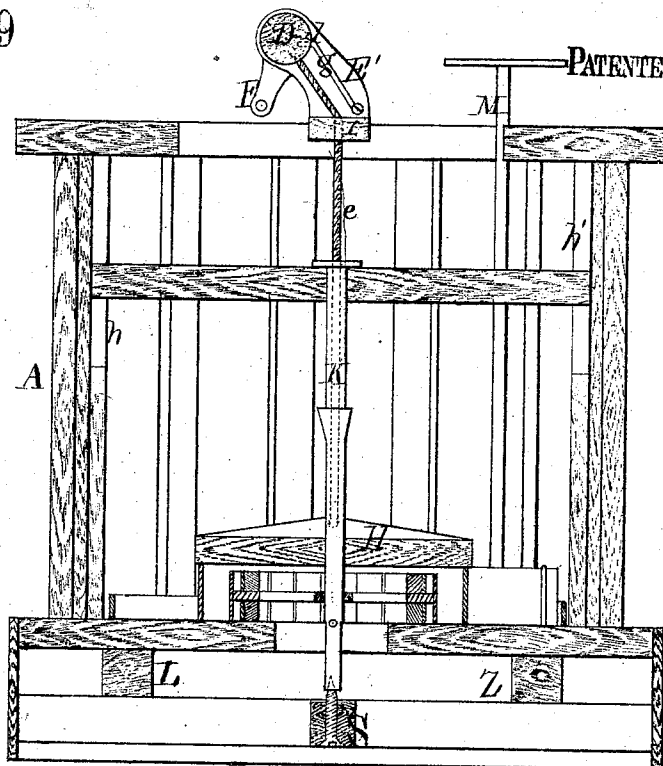
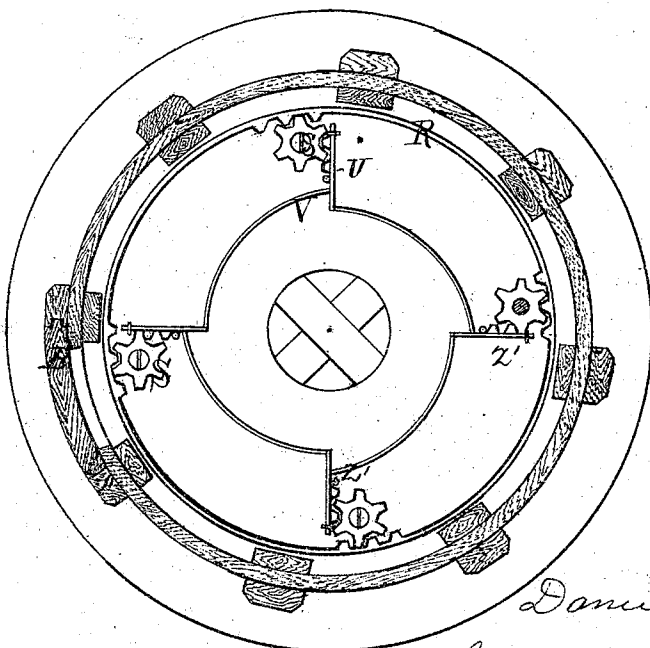


Fig. 2.



Witnesses.

E. H. Bates.
J. B. Curtis

Inventor.

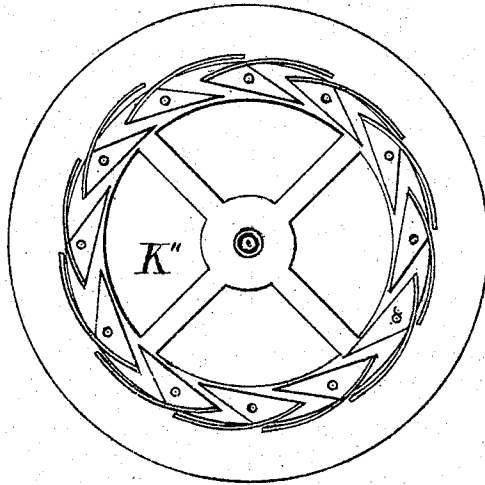
Daniel Sandoe
Chapman Hooper & Co.
attys

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Fig'. 3.



Witnesses.

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J. B. Curtis

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Chapman Hooper &
attys

UNITED STATES PATENT OFFICE.

DANIEL SANDOE, OF ORANGEVILLE, ILLINOIS.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 117,469, dated July 25, 1871.

To all whom it may concern:

Be it known that I, DANIEL SANDOE, of Orangeville, in the county of Stephenson and State of Illinois, have invented a new and valuable Improvement in Water-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a central vertical longitudinal section. Fig. 2 is a central transverse section, and Fig. 3 is a view of the wheel proper removed from the cylinder.

This invention has relation to water-wheels; and consists in the novel construction and arrangement of devices intended to serve as a valuable and useful machine for the purpose mentioned.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation.

In the accompanying drawing illustrating this invention, A represents a cylindrical pen-stock, provided with an opening for the entrance of water to the wheel. B is the slide-gate, which works in a vertical position in the guides *b'*, as shown on the drawing in Fig. 2. D represents a roller or windlass, having its bearings in the upright journal-stands E E', which are securely fastened to the upper end of the pen-stock. This roller D is provided with a crank, F, at one end, which serves and aids in the operation of the windlass. G denotes a spring-catch, one end being fastened to the inner side of the journal-stand E', and the other end of said spring working in notches *d'* on the roller D. The force of this spring tends to hold the windlass from revolving. The ropes or chains *e* are attached to the windlass D and wheel-covering H, passing through the transverse bar I, and serve as guides in the operation of lowering and raising. The office of this windlass is to afford facilities to raise and lower the wheel and covering for repairs or other purposes. K indicates the wheel-shaft, having its bearings in the transverse

bridge-trees or beams *f*. K'' represents the wheel, attached and secured near the lower end of the shaft K, and inclosed within the pen-stock. L shows an adjustable transverse beam, so arranged that it moves up and down in the slots *h* on the inner side of the pen-stock. The wheel and shaft are held in proper vertical position at all times by means of the beams above and below, securely fastened to the case. M represents a vertical shaft, provided with a pinion, N, at its lower end to connect and work with the toothed ring R. The ring R is provided with sections of cog-teeth or racks on the inner side, as shown on the drawing in Fig. 2. This ring, encircling the pinions S, transmits power and motion to said pinions, as represented on the drawing in Fig. 2. U represents vertical slide-gates, resting on the bottom of the pen-stock and supported by means of guide-hooks *z'*. These slide-gates are provided with teeth *z'* on one side working in connection with the pinions S. V denotes the chutes or guides, which are curved inward, as shown in Fig. 2, to guide the water into the wheel.

The gates U are operated simultaneously by the vertical shaft M and pinion N, working in connection with the ring R, which is placed around the lower part of the casing, inside the same. By turning the vertical upright shaft all the gates are simultaneously adjusted to any required position.

Z represents bed-sills below the wheel, designed to support the pen-stock and wheel.

I claim as my invention—

1. The ring R provided with teeth *z'*, working in connection with the pinions S and toothed slides U, substantially as and for the purpose specified.

2. In combination with the windlass D, the pen-stock A, shaft K, wheel K'', chutes V, ring R, pinions S, and the toothed slides U, as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

DANIEL SANDOE.

Witnesses:

WILLIAM WAGENHALS,
WILLIAM SANDOE.