(No Model.)

A. F. SPARKS.

WATER WHEEL.

No. 525,431. Patented Sept. 4, 1894.

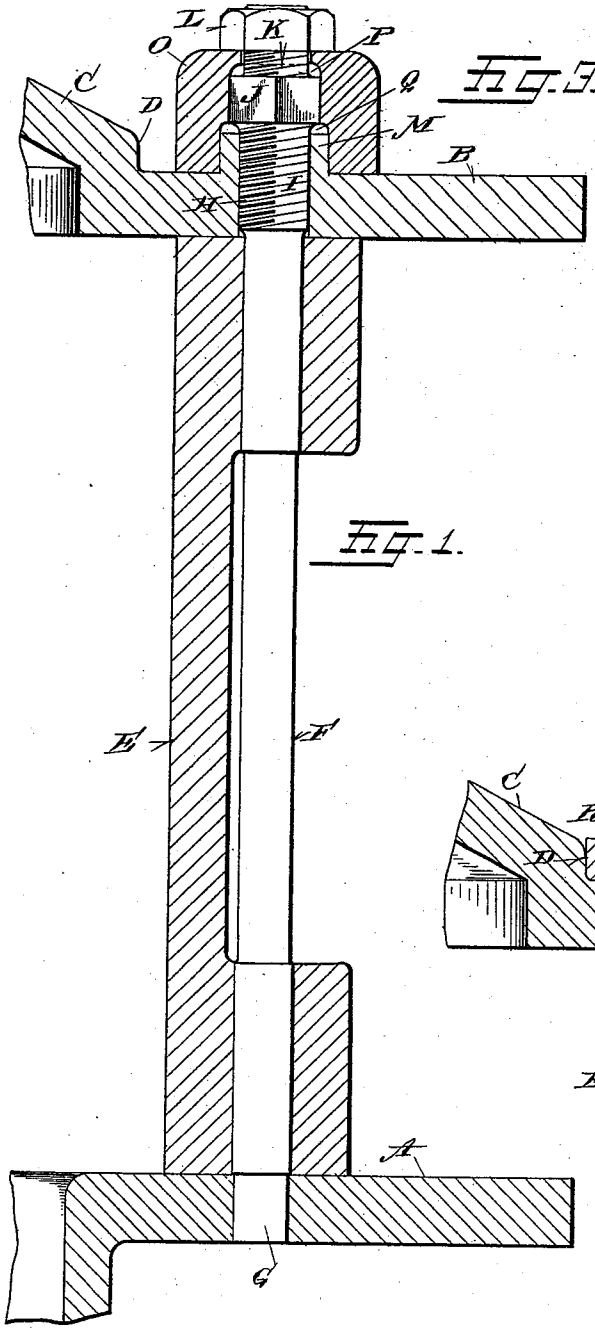
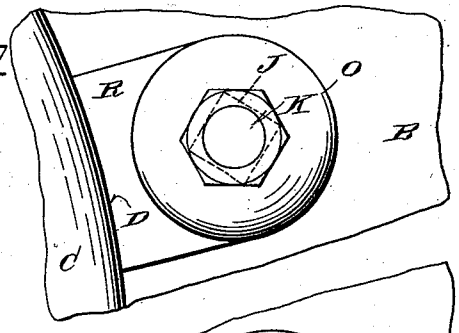


Fig. 1.



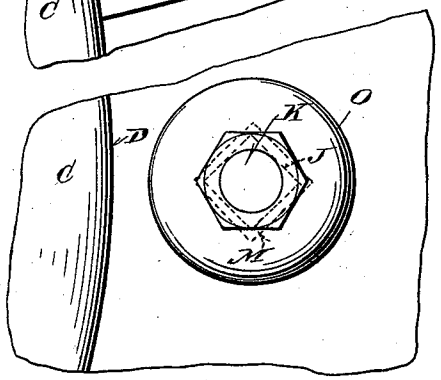


Fig. 2.

Fig. 3.

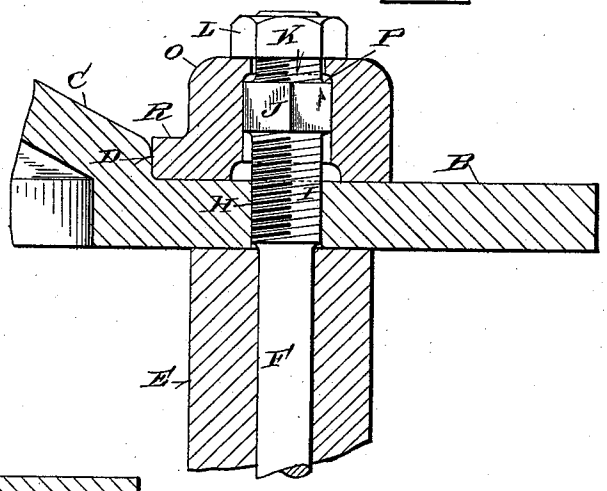


Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

ALBERT F. SPARKS, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE JAMES LEFFEL & COMPANY, OF SAME PLACE.

WATER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 525,431, dated September 4, 1894.

Application filed February 23, 1894. Serial No. 501,063. (No model.)

To all whom it may concern:

Be it known that I, ALBERT F. SPARKS, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Water-Wheels, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in water wheels, and the object of my invention is to provide an improved means for holding the gate posts or pins from turning or working out of their connections with the casing, whereby the old and still existing difficulty of these posts or pins working loose and allowing the gates to be carried by the water into contact with the revolving wheels, causing serious damage to the machine and sometimes wrecking it totally, is avoided. The particular means which I employ to carry out this object will be hereinafter more fully described and particularly pointed out in the claims.

In the accompanying drawings on which like reference letters indicate corresponding parts: Figure 1, represents a vertical sectional view through a portion of the water wheel casing and through a gate showing my improvements applied thereto; Fig. 2, a plan view of the devices shown in Fig. 1; Fig. 3, a similar view to Fig. 2 showing a modification, and Fig. 4, a similar view to Fig. 1 showing this modification in vertical section.

The letter A designates the lower plate of the casing and the letter B the crown plate, while at C is shown the crown proper. The juncture of the crown and the crown-plate forms a shoulder D which is in the nature of a fixed projection extending up from the plate B. This fixed projection is utilized in this invention in the manner hereinafter to be stated.

At E is illustrated a gate which in practice is of the ordinary or any approved type, and whose function is the usual one of controlling the inflow of water to the wheel proper. On a post or pin F this gate is pivoted and the post or pin is stepped into the lower plate A as shown at G, or is screwed into this plate and screwed into the crown-plate B as shown at H, the portion I of the pin being threaded for that purpose. At J the post or pin is constructed with an angular portion which may be square, octagonal or otherwise polygonal, while its upper portion K is screw-threaded to receive a nut L.

The crown-plate is constructed with a boss M constituting another fixed projection besides the one formed at D, as above described. The boss M is of angular form, say square, octagonal or otherwise polygonal.

At O is shown a locking-cap which is constructed with two sockets P and Q respectively. The socket P corresponds in shape and size with the angular portion J of the post or pin and the socket Q corresponds with the angular form and size of the boss M. Thus when the cap O is in place, as shown in Fig. 1, it is itself locked to the plate B by the boss M and in turn locks the post or pin by holding the angular portion J thereof in the socket P. The nut L holds down upon the locking cap O and prevents it from dislodgment. Thus it will be seen that the post or pin F is prevented from unscrewing, and thereby prevented from working up and out of its connections with the plates A and B, and hence the gate E cannot become dislodged and cannot work-out the post or pin.

Referring to Figs. 3 and 4 it will be seen that the boss M is omitted and that the locking-cap is constructed with a flange R which fits against the fixed projection or shoulder formed at D, and that thereby the locking cap is prevented from turning.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a water wheel, the combination with the plates of the casing, a gate, and the post or pin on which the gate is mounted, said post or pin screwed into one of the plates and having an angular portion, of a locking cap fitted to the angular portion of the post, a nut on the post to hold the cap down and a fixed projection on the plate with which the cap engages to prevent the latter from turning.

2. In a water wheel, the combination with the plates, the gate and the post or pin on which the gate is mounted, screwed into one of the plates, and having an angular portion and a projecting screw-threaded portion, of a

double socketed locking cap, an angular projection on one of the plates to fit one of the sockets while the angular portion of the pin fits the other, and a nut on the pin to hold down on the cap.

3. In a water wheel, the combination with the plates, one of which has a fixed projection, a gate, and a post or pin on which the gate is mounted, screwed into one of the plates and having an angular portion, of a cap having a double socket, one socket or portion fitting the angular portion of the pin and the other the angular boss, and means to hold the cap down to its place.

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

ALBERT F. SPARKS.

Witnesses:
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