

J. J. FAULKNER.
Improvement in Turbines.

No. 125,558.

Patented April 9, 1872.

Fig. 1.

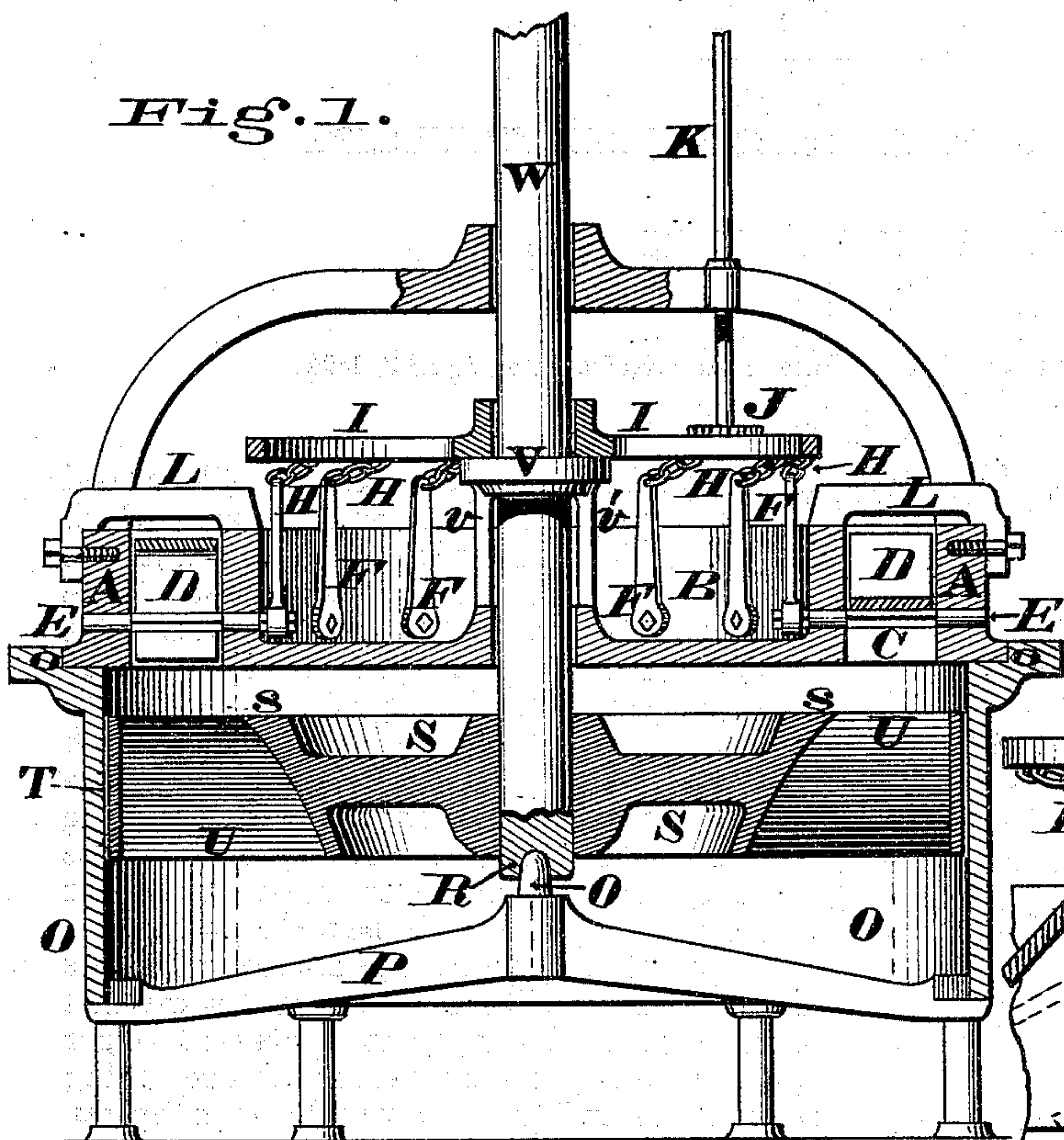


Fig. 3.

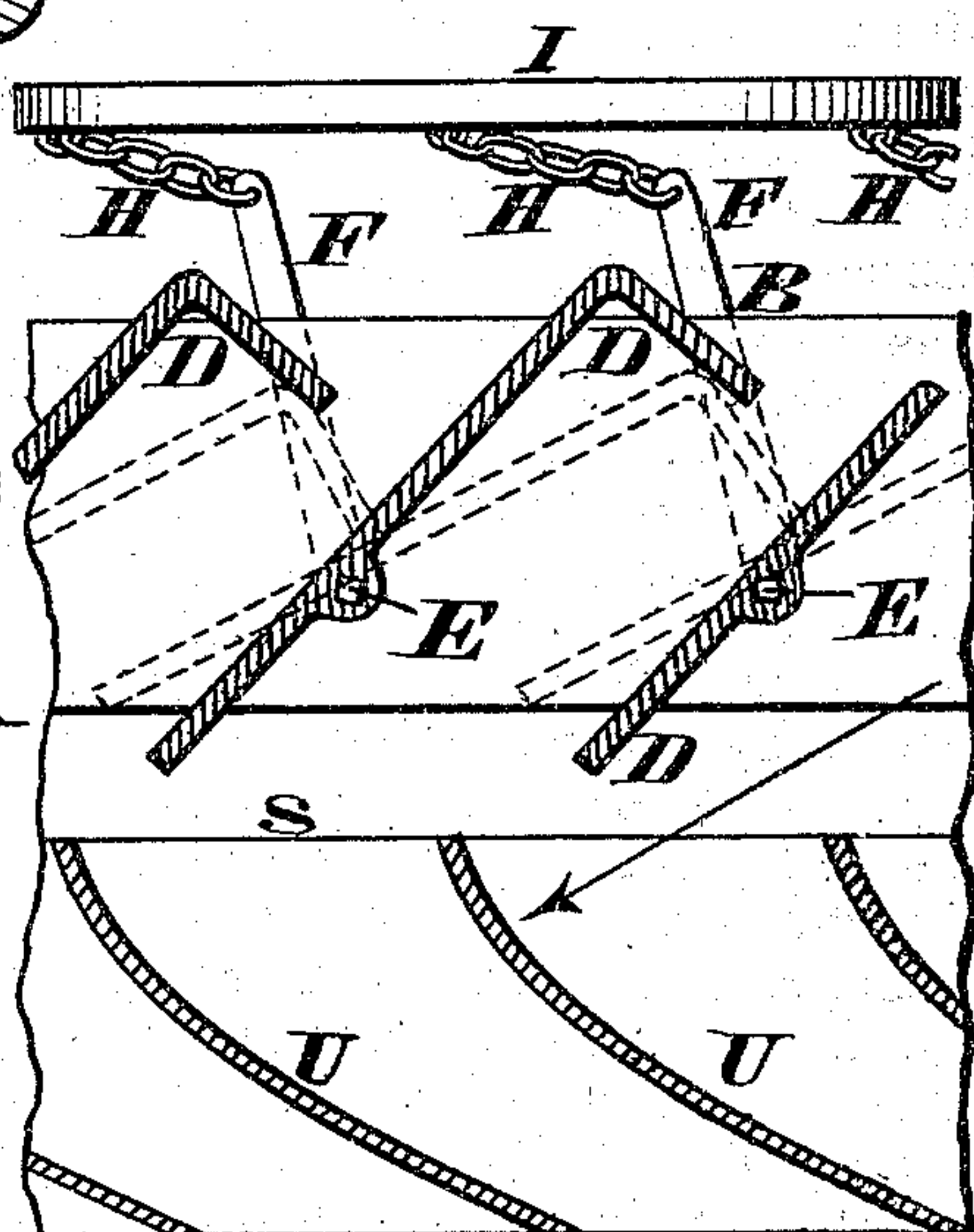
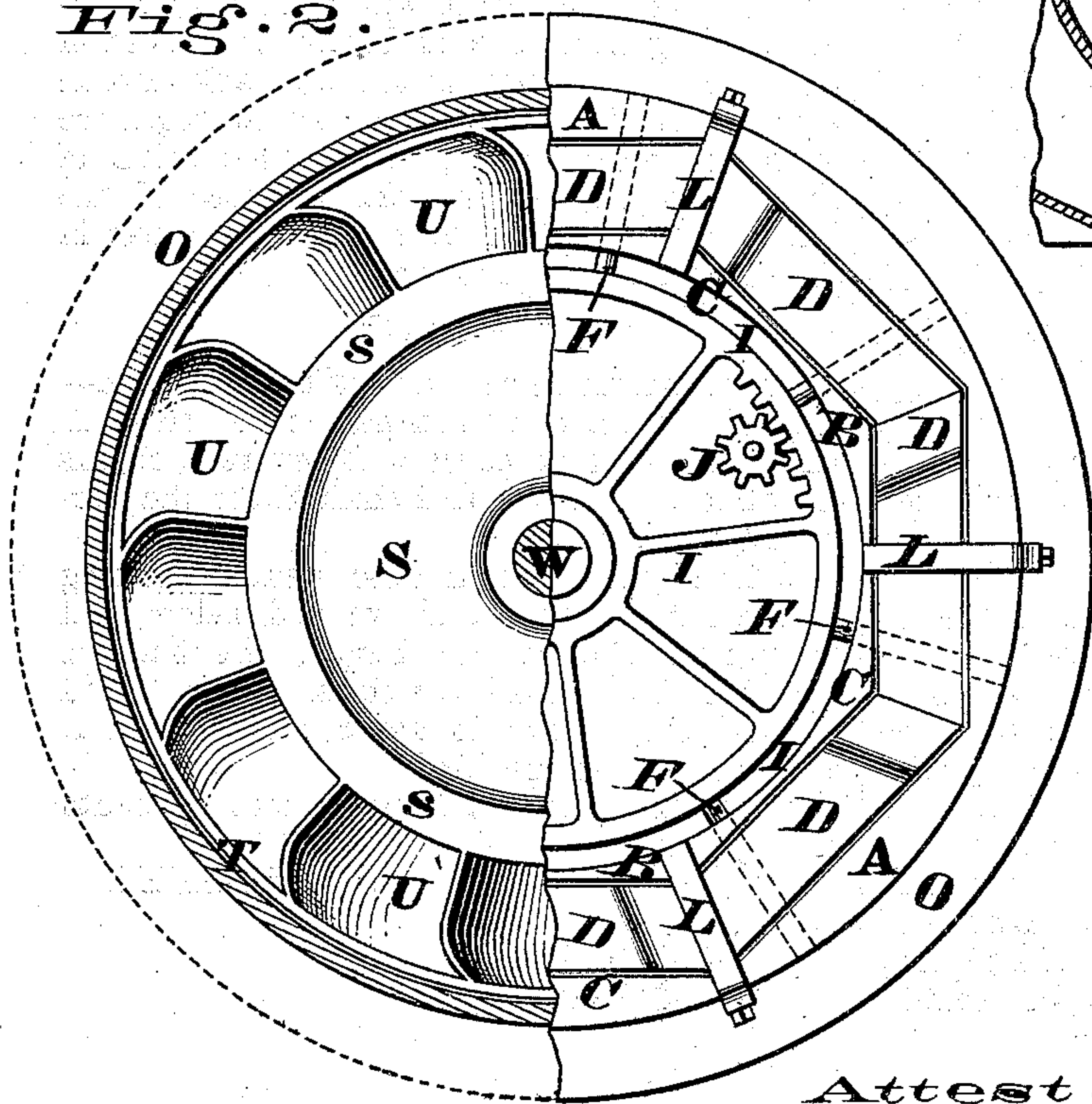


Fig. 2.



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JAMES J. FAULKNER, OF McMINNVILLE, TENNESSEE.

IMPROVEMENT IN TURBINES.

Specification forming part of Letters Patent No. 125,558, dated April 9, 1872.

I, JAMES J. FAULKNER, of McMinnville, Warren county, Tennessee, have invented new and useful Improvements in Turbines, of which the following is a specification:

It not unfrequently occurs that blocks of wood and other solid bodies, carried along with the water, enter the passages of the gate or the wheel, and lodging therein operate to stop or break the wheel; or that, in a series of gates simultaneously open and closed, as now commonly employed, the lodgment of such an obstruction, by making it impossible to close the obstructed gate, obliges all to be left open; and hence it becomes impossible to stop the wheel when so desired. To remedy these defects, I make each gate separately closable by the action of the water itself, and all of the gates capable of being simultaneously opened by means which, while limiting the degree of closure, permit any gate to yield or open independently of the others when struck by a chunk of wood or other solid body; the closing mechanism being, moreover, such that, should the obstruction remain, all of the other gates can be closed by simply releasing the opening-wheel. My invention further relates to a construction of bucket, which insures the most effective impact of the entering and most unobstructed escape of the discharging water.

In the accompanying drawing, Figure 1 is an axial section of a turbine embodying my invention. Fig. 2 is a part plan and part horizontal section of the same. Fig. 3 is a vertical section in the plane xx , Fig. 2, to a larger scale.

The outer curb A and inner curb B inclose between them a polygonal annular space, C, which space is occupied by a series of gates, D, of the represented angular form. The said gates are supported in the said annular space by pivots E journaled, as represented, in said curbs, and provided at their inner ends with levers F, which are connected by chains H or wire-cables, or other flexible means, with the horizontal wheel I that is under the control of the operator through the medium of a pinion, J, having a shaft, K, which may be rotated

either by a hand-wheel or a crank. The wheel I is supported upon a collar, V, through which the shaft W of the turbine passes, and the bore of the collar should be sufficiently large to permit the free rotation of said shaft. This collar is maintained in position by legs $v v'$, which project from the top of the wheel-case. The curbs A and B are connected by arch pieces L, and the outer curb A rests in a rabbet, o , of wheel, curb, or cylinder O, having at its lower part a bridge or tripod, P, whose pivot Q occupies a socket, R, on the under side of the wheel-hub S, between whose periphery S and the rim T the blades or buckets U are secured. The hub curves inward and downward, as shown, so as to present larger openings toward the delivering than receiving ends of the buckets. It will be seen by reference to Fig. 3 that each basket is curved in its vertical section, so as to present a concave bed to the descending water; and, by reference to Fig. 2, that each basket is curved in its horizontal section concavely backward as it approaches the outer rim. In consequence of the represented form and presentation of these two curves the working faces of the buckets are adapted to receive the water in the most effective manner.

Claims.

I claim herein as new, and of my invention—

1. The described arrangement of curbs A and B, self-closing gates D E, levers F, chains H, wheel I, pinion J, and shaft K, for the purpose set forth.

2. The wheel herein described, consisting of the hub S recessed above and below, and having an inclined periphery, s , the buckets U curved horizontally, as shown in Fig. 2, and vertically, as shown in Fig. 3, and the rim T, all combined as specified.

In testimony of which invention I hereunto set my hand.

J. J. FAULKNER.

Attest:

GEO. H. KNIGHT,
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