

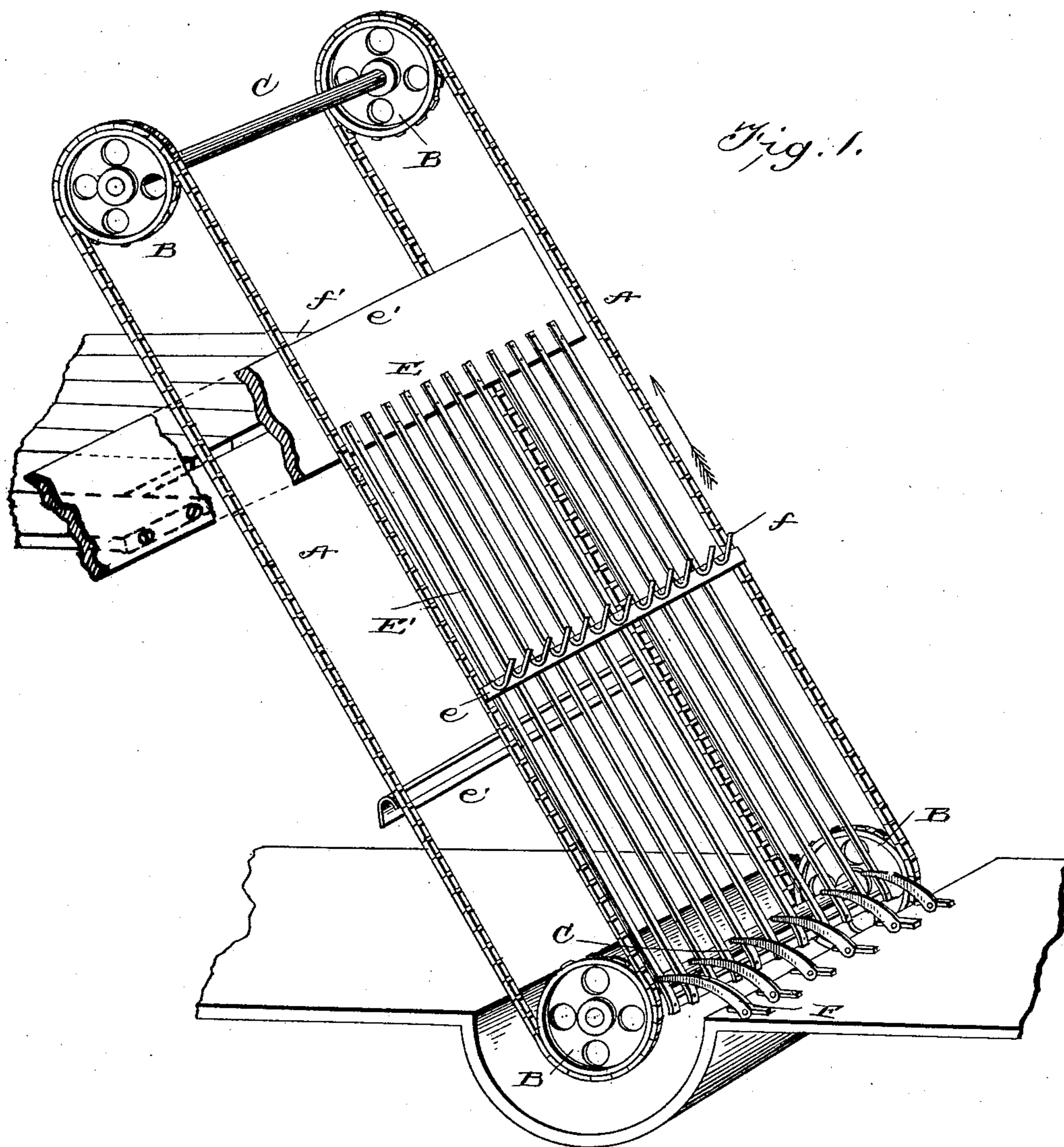
(No Model.)

2 Sheets—Sheet 1.

P. R. GRABILL.
MILL RACE FENDER AND SCREEN.

No. 452,702.

Patented May 19, 1891.



Witnesses

John Donnie
J. K. Hagmann

Inventor

Charles F. Grabill
By his Attorneys
Myers & Co.

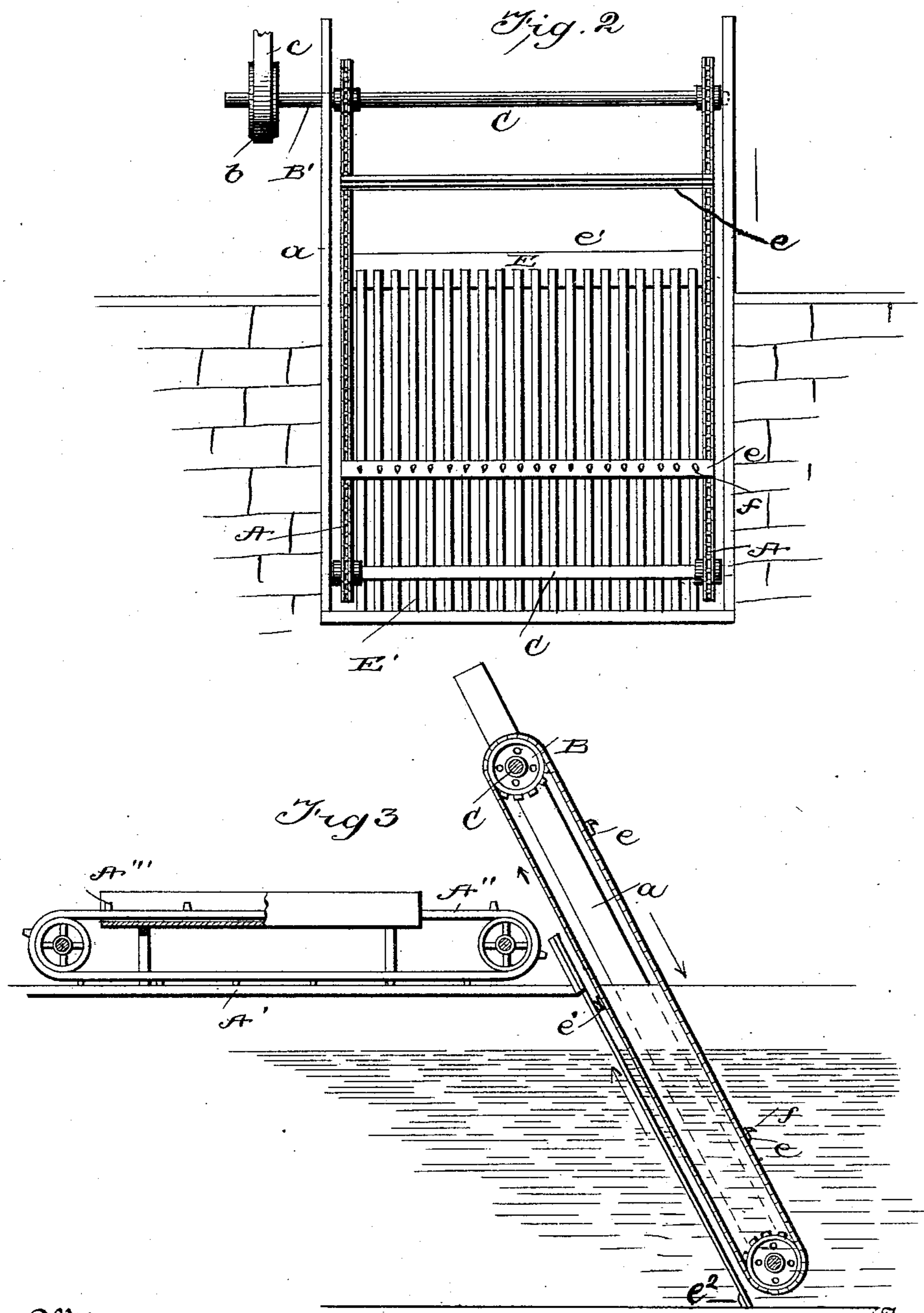
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UNITED STATES PATENT OFFICE.

PHARES R. GRABILL, OF MILLERSBURG, PENNSYLVANIA, ASSIGNOR OF
ONE-THIRD TO JOHN R. GRABILL, OF SAME PLACE.

MILL-RACE FENDER AND SCREEN.

SPECIFICATION forming part of Letters Patent No. 452,702, dated May 19, 1891.

Application filed December 6, 1890. Serial No. 373,805. (No model.)

To all whom it may concern:

Be it known that I, PHARES R. GRABILL, a citizen of the United States of America, residing at Millersburg, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Mill-Race Fenders and Screens, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an endless elevator for mill sluices or races for removing ice, coal-dirt, &c., from the water; and it consists in the novel construction and combination of the parts, hereinafter more fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of my improvement as applied to a mill race or sluice, the power end of the driving-shaft being removed. Fig. 2 is a front elevation of a modification, and Fig. 3 shows a side elevation of the same modification, the rack or rods being outside of the endless hook and scoop-carrying belts or chains, and also shows the carrier for removing the leaves and other obstructions.

In carrying out my invention I employ a series of two endless belts or chains A A, encompassing sprocket or rag wheels B B, secured to shafts C C, suitably journaled in inclined side pieces a a, arranged and secured in the mill sluice or race, preferably as shown, or otherwise, and a horizontal or inclined carrier consisting of a trough A', secured in position in any ordinary manner, between the side walls of which the belt A'', having hooks A''', passes, conveying the leaves, brush, &c., away from the rack or sluice, the wheels upon which the carrier plays being constructed in any ordinary manner. The driving end B' of the upper shaft has secured to it a pulley b, to which power is applied by a belt c from a suitable motor. These endless belts or chains A have secured to them transverse plates e, carrying a row or series of upwardly-curved teeth f, or the teeth may be carried directly by the chains or belts themselves, each row of teeth con-

stituting a rake to gather up or remove from the water heavy as well as light pieces of wood and heavy "brush;" also to remove leaves floating upon the surface thereof. Also, secured transversely to the endless belt or chains A are scoops e, in order to take up brush, leaves, also coal-dirt, that "flood" down from the mines.

E is a rack consisting of a series of rods E', arranged at short intervals apart and extending in the direction of the length of the elevator, their upper ends being secured to a board e', fastened to a platform f', and their lower ends secured to a cross-piece e'', fastened to the side pieces a. The rack E' is disposed a suitable distance from and in the rear of the endless belt, and it prevents the escape or passage of floating brush, leaves, ice, &c., and until caught and carried off by the teeth and scoops.

F is a series of guards pivoted in the floor of the sluice or race at their outer ends, and resting upon the cross-pieces at their free ends, thus lifting and permitting the passage of the rakes and scoops, said guards being arranged in an upwardly and forwardly inclined position, and designed to prevent heavy pieces of water-soaked wood sinking and getting under the rack.

In Figs. 2 and 3, as before intimated, the rack is arranged outside or in rear of the endless belt of rakes and scoops, the latter in that case having a reverse movement, as indicated by the arrow.

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

1. In a mill-race fender, the combination of the endless belt or chain of rakes and scoops, the rack consisting of the series of rods, the pivoted guards, and the horizontal or inclined carrier, substantially as shown and described.

2. The combination, with the endless belt or chain of rakes and scoops, of the pivoted guards having their free ends resting in alignment with the rakes or scoops, substantially as specified.

3. The combination of the horizontal or in-

clined carrier, the trough, the endless belt or chain of rakes or scoops, and the rack consisting of a series of rods, substantially as shown, and for the purpose described.

- 5 4. The combination of the endless belt of rakes and scoops, the rack consisting of the series of rods, and the pivoted guards, substantially as and for the purpose set forth.

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

PIARES R. GRABILL.

Witnesses:

H. A. NEITZ,
JOSEPH CORBETT.