

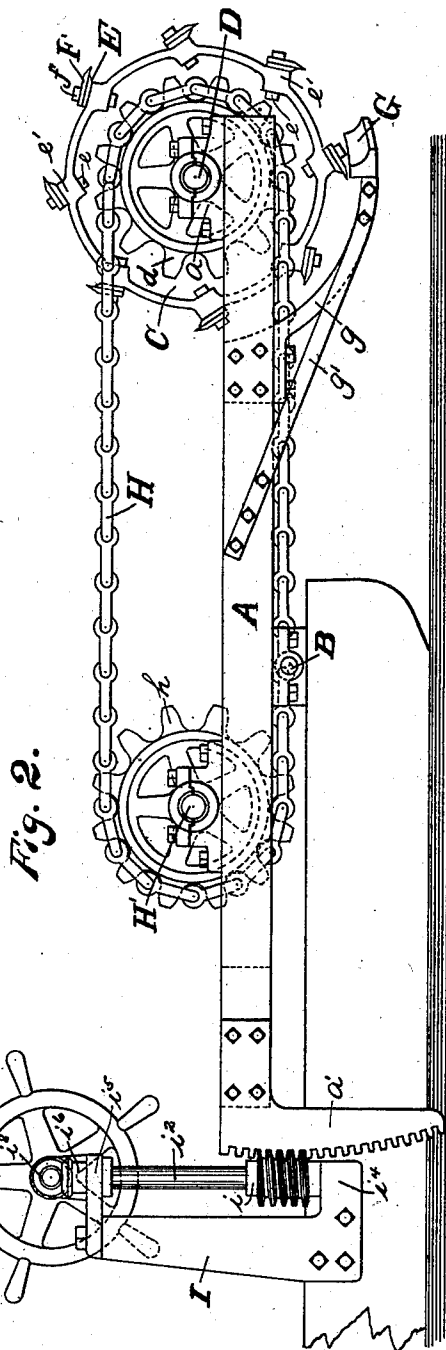
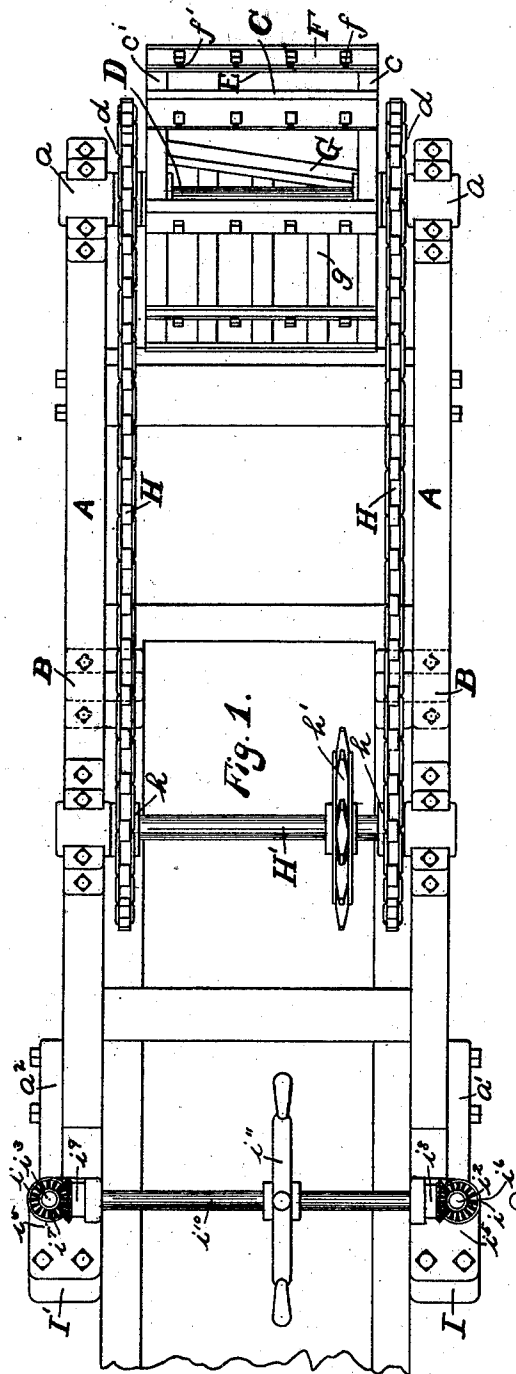
No. 669,820.

Patented Mar. 12, 1901.

F. CHRISTEN.
CHANNEL CLEARER.
(Application filed Apr. 30, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES
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INVENTOR
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No. 669,820.

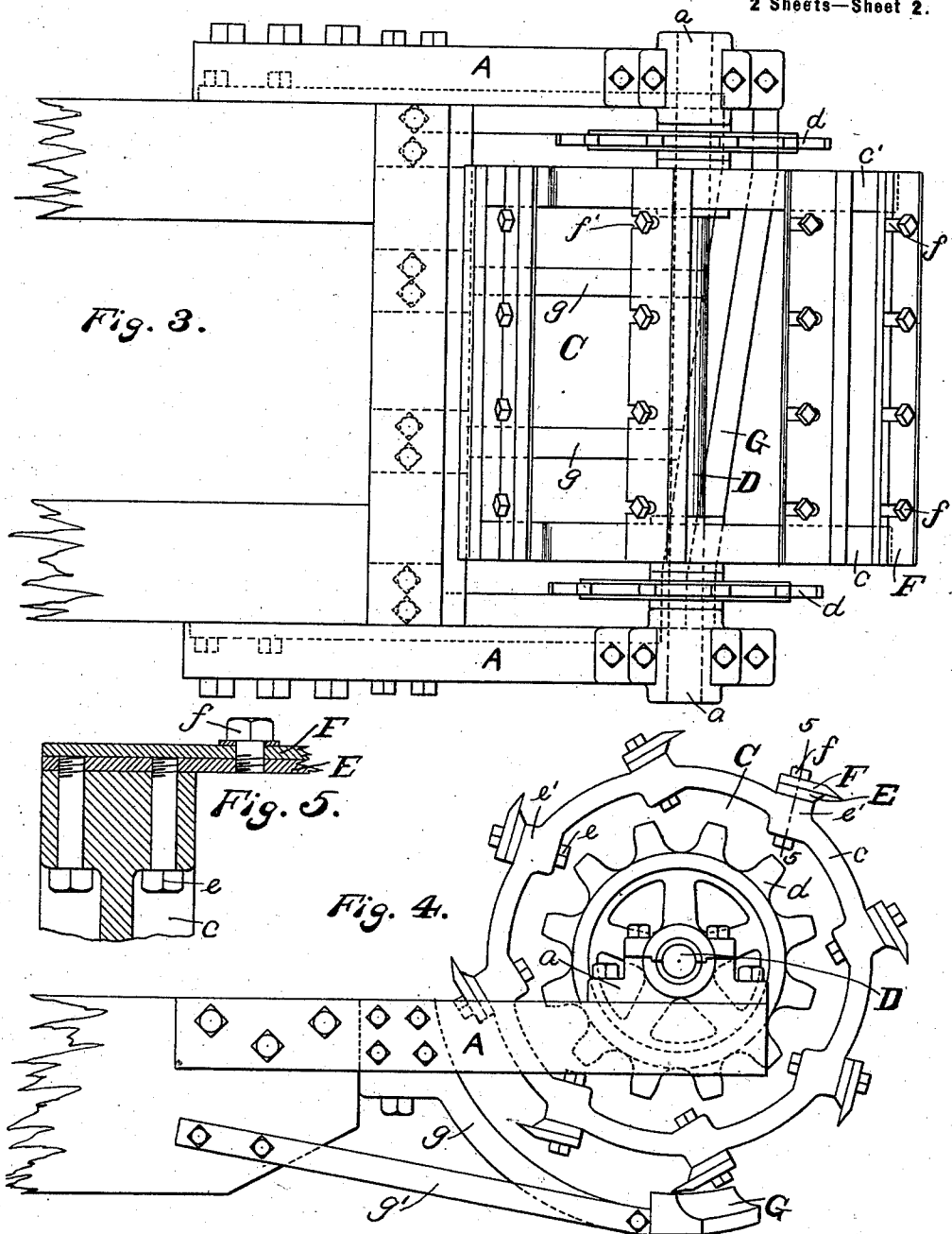
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2 Sheets—Sheet 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

FRANK CHRISTEN, OF DES ALLEMANDS, LOUISIANA, ASSIGNOR OF ONE-HALF TO FRANCIS MARTIN, OF NEW ORLEANS, LOUISIANA.

CHANNEL-CLEARER.

SPECIFICATION forming part of Letters Patent No. 669,820, dated March 12, 1901.

Application filed April 30, 1898. Serial No. 679,300. (No model.)

To all whom it may concern:

Be it known that I, FRANK CHRISTEN, a citizen of the United States, residing in Des Allemands, in the parish of Lafourche and State of Louisiana, have invented a certain new and useful Improvement in Channel-Clearers, of which the following is a specification.

My invention relates to a new and useful channel-clearer, and is designed to clear the channels of navigable waters of the dense undergrowth of water-lilies and similar growths, that have, especially in the waters of the Southern States, been such a menace and obstruction to navigation.

It consists in providing the cutting agencies hereinafter more fully described and claimed, which shall travel in advance of the boat or vessel seeking passage through such growths or which may, if desired, be attached to a barge or other vessel for the special purpose of clearing the channel.

It consists, further, in the various parts and in the construction, arrangement, and combinations of parts hereinafter more fully described and claimed.

In the drawings, Figure 1 is a plan view of my device, and Fig. 2 a side elevation of the same. Fig. 3 is an enlarged plan view of cutting agencies; Fig. 4, a side elevation of the same; and Fig. 5, a section on the line 5 5, Fig. 4, showing the manner of attaching the knife-bar and knife.

A A represent the frame of my improved device, preferably pivotally secured to the deck of a barge or vessel by means of trunnions B. The outer end of the frame is arranged to overhang the end of the vessel. To the outer end of the frame a cutting-cylinder C is rotatably hung on a shaft D, mounted in bearings a. The cylinder consists of a series of rings c c'. Connecting-bars, which also serve the office of knife-bars E, are secured to the rings by means of bolts e, as more fully shown in Fig. 5. These cutter-bars are preferably mounted on steps e', rearwardly inclined to give the knives the proper pitch. Knives F are secured to the cutter-bars E by means of bolts f, which preferably take through slots f' in the knives, so as to allow the latter to be advanced as their cutting edges are worn or ground. This construction gives a cutting-

cylinder which is both light and strong. An advantage is obtained by the employment of the knife-bars E because they are permanently connected to the rings, thus bracing the latter and relieving the knives from strain. A shear-block G depends from the frame, being mounted on extensions g and further supported by braces g'. It is desirable to give this shear-block a slight lead or transverse angle, so as to produce a shear cut in connection with the knives. As an alternative form I employ spiral knives, but prefer the former construction as more simple, effective, and durable. The shear-block being carried by the end of the frame which bears the cutting-cylinder is always relatively fixed or stationary, and neither it nor the cylinder are affected by the adjustment of the frame. Rotation is imparted to the cylinder by means of endless chains H, passing over sprocket-wheels h h, mounted on an actuated shaft H', and over sprocket-wheels d d on the shaft D. The actuated shaft may be operated through the medium of a sprocket-wheel h'.

The inner end of the frame is preferably provided with worm-racks a' a', meshing with worm-wheels i i' on shafts i' i', mounted in bearings i' i' on the standards I I'. Bevel-gears i' i' are secured to the shafts i' i' and mesh with similar gears i' i' on a transverse shaft i', having hand-wheels i' for operating the same. When the hand-wheels are turned, the worm-wheels communicating with the worms on the frame raise or lower the outer end thereof, adjusting the cylinder to proper height.

It will be observed that the employment of worms interacting with the racks on the frame renders the adjusting mechanism self-locking, and hence the frame will remain in the position to which it has been adjusted.

In operation the vessel to which my improved device is attached is propelled into the bank of water-lilies or similar growth, the cylinder being lowered to cut the same to proper depth, the cutters revolving and cutting the growth and leading the stalks and plants to the shear-block G, where that part of the plant which has not yet been cut by the cutters in their revolution is severed from its stalk and a path formed for the vessel in

the wake of the cutters, the shear-block and cylinder being submerged a sufficient depth to form the proper path or effectually sever the growth under the water. This operation also
 5 tears up the plants by the roots and crushes and cuts the lilies and other growths into small pieces and forms a clear path in which the vessel may travel.

The shear-block may of course be placed
 10 across the cylinder longitudinally with its axis. I have shown it placed at a continuous transverse angle; but it may be so angled as to lead from the center to the ends or from the ends to the center or so as to lead to various points in its length, or, if desired, the
 15 shear-block may be straight and the lead given the knives.

I claim—

1. In a channel-clearer, the combination
 20 with a floating vessel, of a frame pivotally mounted thereon with a portion of its length overhanging the vessel and adapted for vertical elevation and depression, a rotary cutter-cylinder journaled in the free end of the
 25 frame transversely thereof and in horizontal disposition and having a plurality of cutters or knives extending longitudinally of itself, means for rotating the cylinder, a shear-block carried on the free end of the frame below

the cutting-cylinder, and movable with the
 30 frame which has its longitudinal axis inclined in relation to the longitudinal axis of the cylinder, said shear-block being adapted to co-act with the knives to produce a shearing cut and remaining fixed relatively to the cylinder
 35 at all times, and means for elevating and depressing the overhanging end of the frame and the cutting-cylinder and shear-block.

2. In a channel-clearer, the combination
 40 with a floating vessel, of a frame pivoted there- to having one end overhanging the vessel, a rotary cutter-cylinder journaled in the free end of the frame transversely thereof and in horizontal disposition and equipped with a
 45 plurality of cutters or knives disposed there- on longitudinally of itself, means for rotating said cylinder and a shear-block on the overhanging end of the frame below the cut- ting-cylinder, said shear-block and knives be-
 50 ing relatively inclined, whereby a shearing cut is obtained, and being relatively fixed and means for elevating and depressing the free end of the frame with the cylinder and shear-block.

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Witnesses:

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