J. W. ATWOOD.

NET LIFTING DEVICE.

APPLICATION FILED MAR. 5, 1909.

967,485. Patented Aug. 16, 1910.

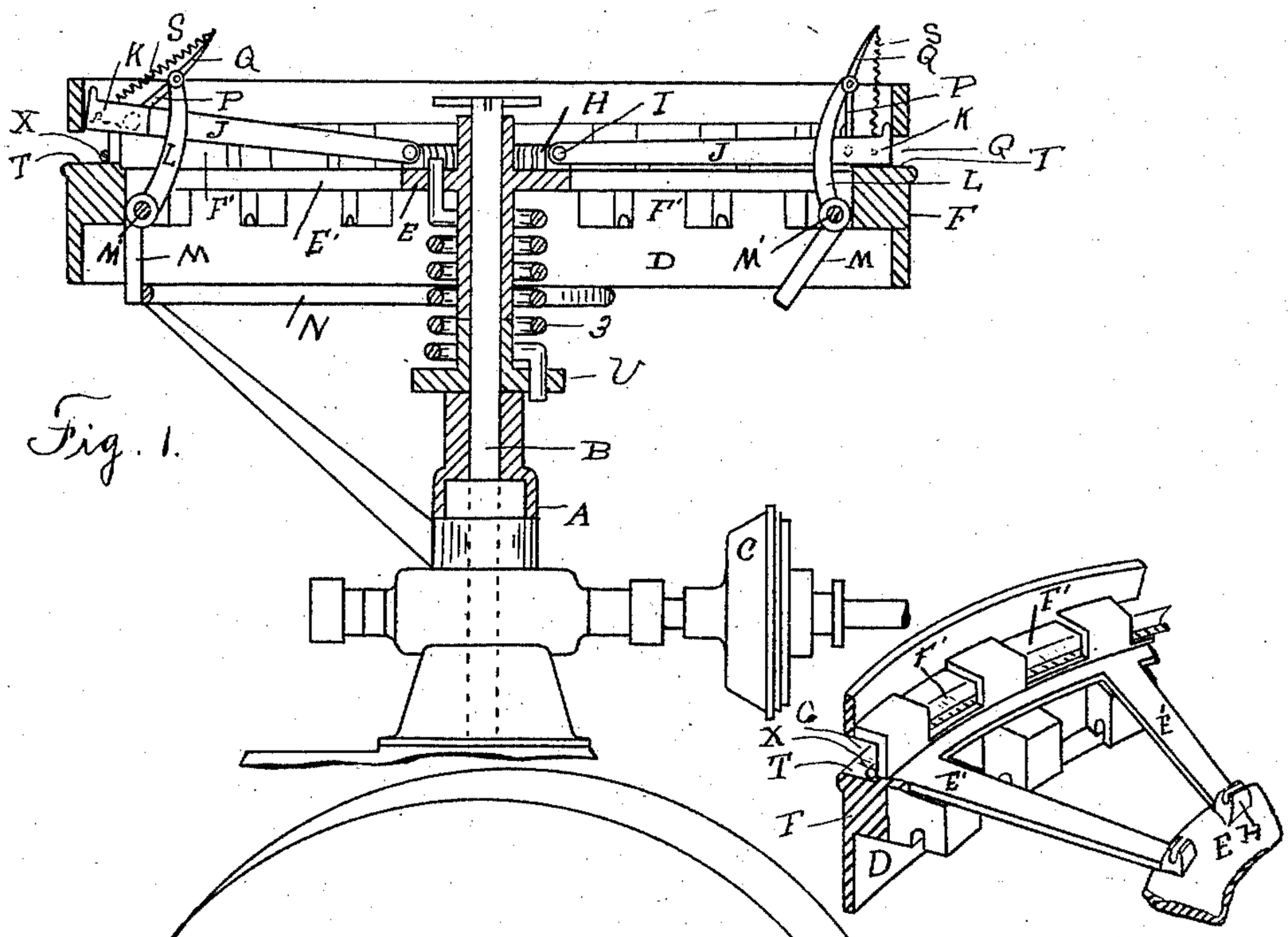

Fig. 1.

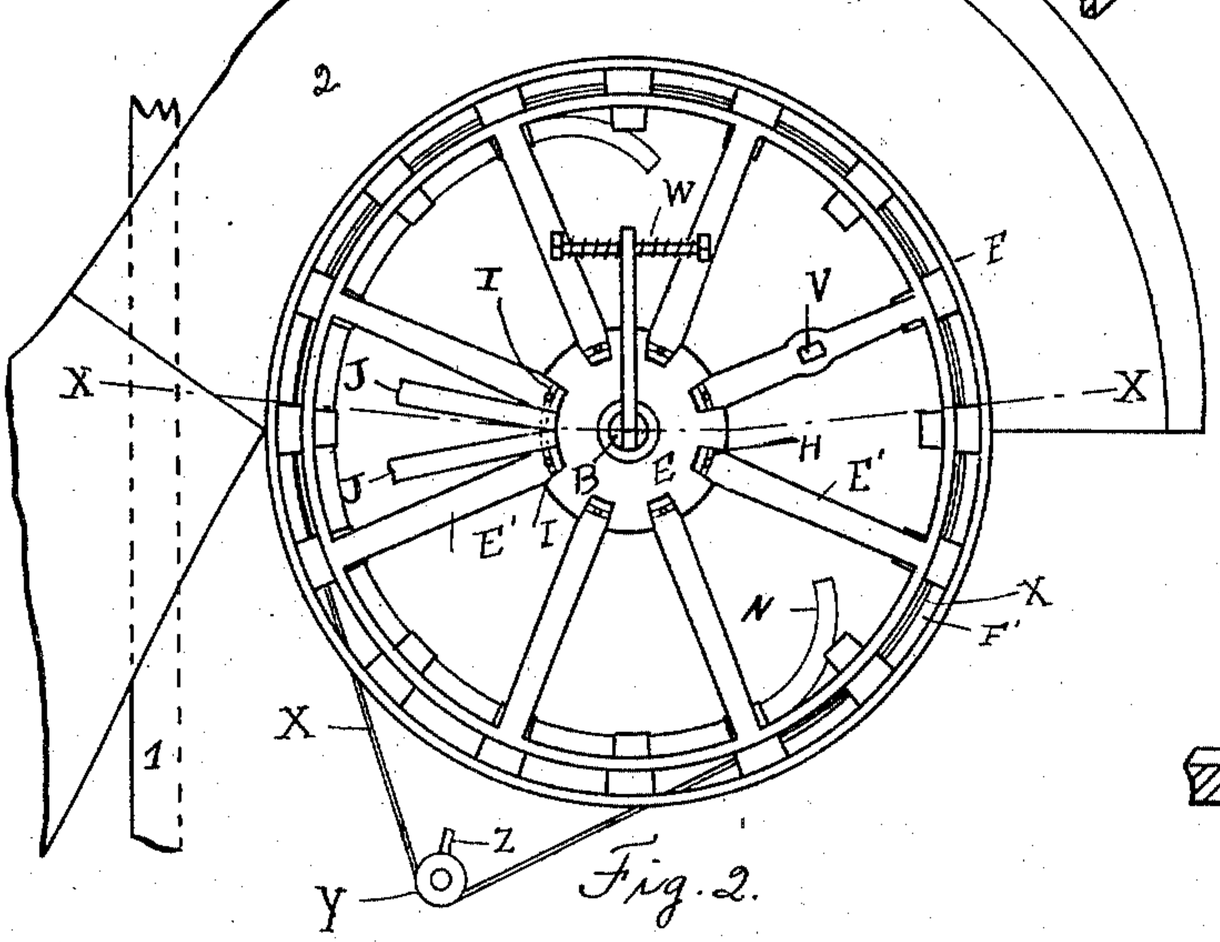

Fig. 2.

Fig. 6.

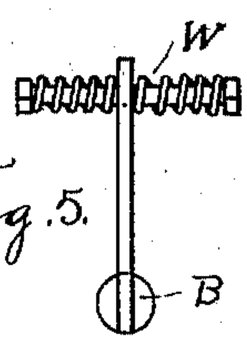

Fig. 5.

Fig. 4.

WITNESSES—

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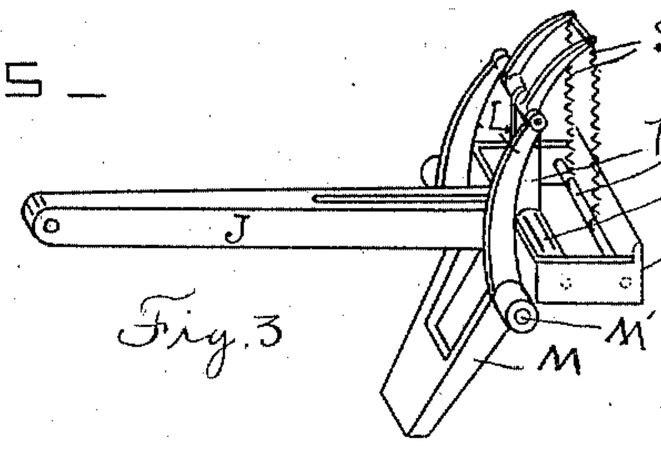

Fig. 3

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UNITED STATES PATENT OFFICE.

JOHN W. ATWOOD, OF NORTH EASTON, MASSACHUSETTS.

NET-LIFTING DEVICE.

967,485. Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed March 5, 1909. Serial No. 481,460.

To all whom it may concern:

Be it known that I, JOHN W. ATWOOD, a citizen of the United States, residing at North Easton, in the county of Bristol and Commonwealth of Massachusetts, have invented new and useful Improvements in Net-Lifting Devices, of which the following is a specification.

My invention relates to improvements in net lifting devices and more particularly to improvements on the net lifting apparatus shown and described in my Patent #572,399, dated December 1, 1896, and its object is to simplify the construction and render the apparatus more efficient.

My invention consists among other things in a new and improved system of clamping devices, a new and improved means of relieving the shock due to uneven draw and means for preventing injury to the shock relieving springs in case the engine reverses and means for clearing the end from the clamp.

In the drawings herewith accompanying and making part of this application, Figure 1 is a vertical sectional view partly in elevation of my improved device showing, however, only two of the clamp members, the section being taken on line X—X of Fig. 2; Fig. 2 is a plan view of my improved device, fragments only of the clamping device being shown, it being understood that there are two sets of clamps between each section of the spider; Fig. 3 is a perspective detail of one of the clamping devices; Fig. 4 is a detail showing the means of connecting the ends of the clamping device to the hub; Fig. 5 is a detail plan view of the bumper and Fig. 6 is a fragment of the drum and spider, the same showing in perspective.

Same characters of reference indicate like parts.

In said drawings A is a suitable base in which is mounted a vertical shaft B adapted to be rotated in any convenient manner as for example, by a motor C. Upon shaft B is mounted a drum D the shaft projecting through the drum and the drum provided with a hub E, spider E′ and a circumferential rim F, the rim F being provided with a groove G extending circumferentially around it and spaced apart intermediate the top and bottom thereof. Secured to spuds H on the hub by means of pivot wires I are a series of radially disposed arms J, the outer ends of which terminate in clamp members K which project through openings F′ in the drum into the groove G. Pivotally secured to the drum is a series of levers L projecting upwardly each having an arm M projecting downwardly in the path of a segmental cam N.

Pivotally connected one end to levers L and the other end to a bar O set in the clamp K are links P, said links having integral therewith upwardly and outwardly projecting arms Q. Connecting the ends of arms Q and a bar R set in the clamp are tension springs S tending constantly to hold the clamp firmly seated on the ledge T in the rim or upon the edge of a net, trawl or seine resting therein. The clamp member is thus pivotally supported on the end of the arms L and when the arm M pivoted to the drum at M′ engages the cam N the clamp member is lifted as shown in Fig. 1 overcoming the resistance of springs R, which, when the arm M passes off from the cam N returns the clamp member to closed position as shown in Fig. 1.

The drum is loosely mounted on the shaft B and held thereto by means of a coil spring 3 surrounding the hub, one end of the spring taking into the hub and the other end into a flanged sleeve U rigidly secured to the shaft. This spring is strong and sufficient to cause the drum under any ordinary strain to rotate with the shaft but yields slightly when the drum is subjected to a sudden or unusual strain in which case it moves independently of the shaft until a lug V comes in contact with a cushioning bumper W secured to the shaft in which case the motion of the drum again becomes positive with the shaft. Again in case the engine reverses and the drum is caused to rotate in the wrong direction the lug will receive the other end of the bumper and thus prevent the destruction of the spring.

To overcome any tendency of the net to fail to clear when the clamps rise, in my old machine I used a brush which did not prove entirely satisfactory. In the present invention in place of the brush I use an endless cord or rope X passing over a spool Y rotatably mounted on a stationary bracket Z and then passing around the drum within the groove, as seen in Figs. 1 and 2.

The net or trawl is adapted to be drawn over the side 1 of the vessel in any convenient manner preferably over an anti-friction roll not shown, and thence into a stationary

semicircular pan 2 partially surrounding the drum and positioned close to it, the edge of the net being directed into the groove in the edge of the drum while the clamps are raised and as the drum revolves the cam arm M passes off from the cam and the clamp drops down upon the edge of the net which is held firmly until it passes around to a point where the cam arm again takes to the cam which lifts the clamps and releases the net. Any tendency of the net to adhere to the drum is overcome by the endless cord X which throws it outwardly.

Having thus described my invention and its use I claim:—

1. In a net lifting device, a rotary drum comprising a hub, circumferential rim and segmental cam, a circumferential reëntrant groove in the outer face of said rim, a series of openings in said rim leading to said groove, a series of radially disposed arms each having one end pivoted to the inside of the drum and the other end freely extended through said openings into said groove and terminating in a clamp, a series of levers each pivotally attached intermediate its ends to the inside of the drum, one end extending into the path of said cam and the other attached to said clamp, springs tending constantly to seat said clamps, and means for rotating the drum, whereby the clamps are periodically raised against the action of the springs by the engagement of said lower ends of the levers with said cam.

2. In a net lifting device, a rotary drum comprising a hub, circumferential rim and segmental cam, a circumferential reëntrant groove in the outer face of said rim, a series of openings in said rim leading to said groove, a series of radially disposed arms, each having one end pivoted to the inside of the drum and the other end freely extended through said openings into said groove and terminating in a clamp, a series of levers each pivotally attached intermediate its ends to the inside of the drum, one end extended into the path of said cam and the other linked to said clamp, coil springs one end attached to said clamps and the other end attached to said levers above the point where the links are attached thereto and tending constantly to seat the clamps, and means for rotating said drum, whereby the clamps are periodically raised against the action of the springs by the engagement of said lower arms of the levers with said cam.

3. In a net lifting device, a drum provided with a hub and rim, a circumferential net receiving groove in said rim, a shaft on which said drum is mounted, a spring secured one end to the shaft and the other to the hub on the drum, a bumper secured to the shaft and a lug on the drum in the path of said bumper when the drum rotates independently of the shaft.

4. In a net lifting device, a rotatable drum provided with a hub and rim, a circumferential net receiving groove in the rim, a series of clamp devices and means for operating the same to open and shut periodically, in combination with an endless cord positioned in said groove through a portion of its length and thence around a spool, whereby said cord tends to positively remove the net from said groove.

In testimony whereof, I have signed my name to this specification in presence of two subscribing witnesses this second day of March, 1909.

JOHN W. ATWOOD.

In presence of—
ELGIN C. VERRILL,
MARION RICHARDS.