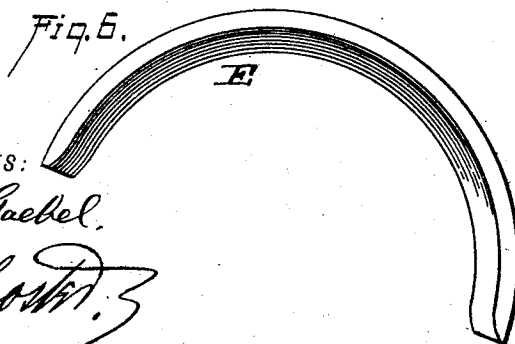
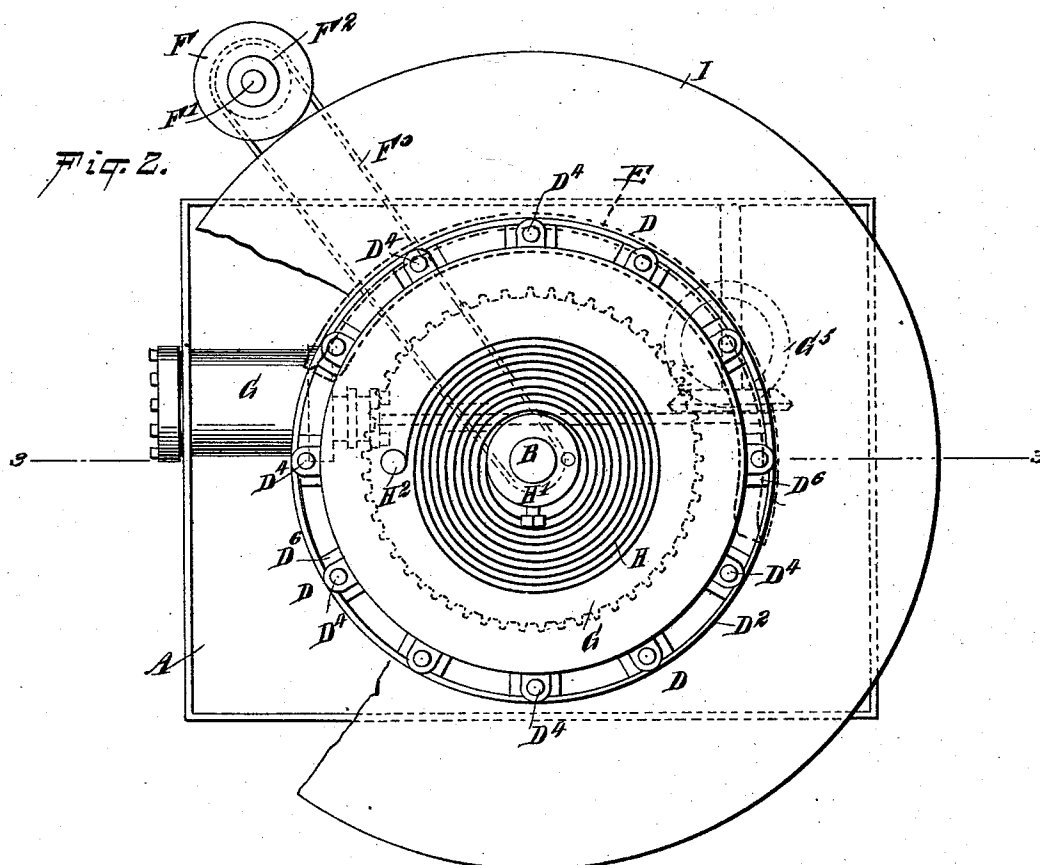
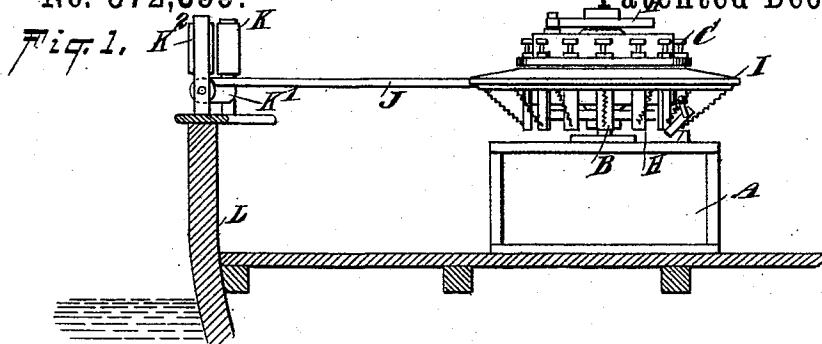


2 Sheets—Sheet 1.

No. 572,399.

Patented Dec. 1, 1896.



**WITNESSES:**

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**INVENTOR**

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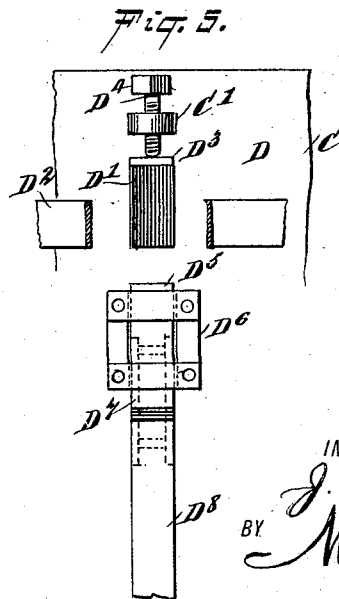
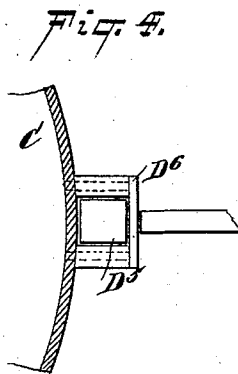
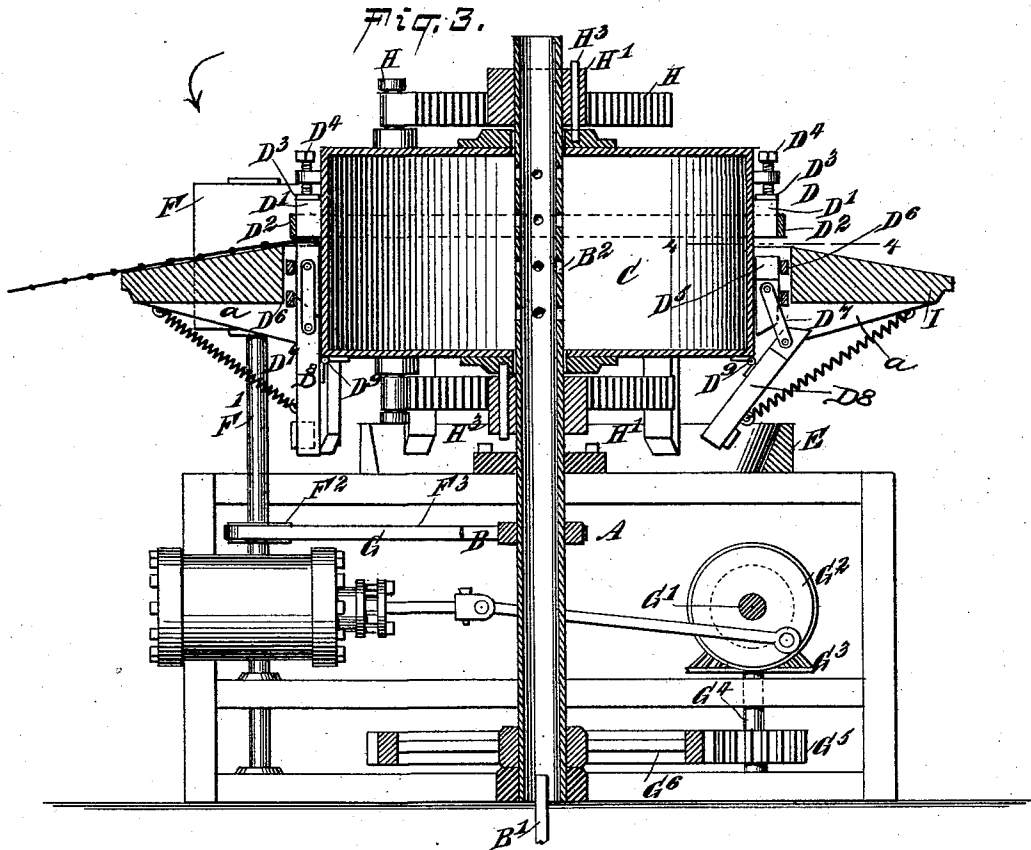
(No Model.)

2 Sheets—Sheet 2.

J. W. ATWOOD.  
NET LIFTING DEVICE.

No. 572,399.

Patented Dec. 1, 1896.



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# UNITED STATES PATENT OFFICE.

JOHN WALTER ATWOOD, OF MALDEN, MASSACHUSETTS, ASSIGNOR TO HIMSELF, AND THE A. BOOTH PACKING COMPANY, OF CHICAGO, ILLINOIS.

## NET-LIFTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 572,399, dated December 1, 1896.

Application filed November 22, 1895. Serial No. 569,805. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN WALTER ATWOOD, of Malden, in the county of Middlesex and State of Massachusetts, have invented a new and Improved Net-Lifting Apparatus, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved lifting-machine more especially designed for taking up or hauling in gill fish-nets, fish-trawls, or set lines or ropes in a very simple and effective manner.

The invention consists principally of a revolvable drum carrying at its periphery clamps adapted to engage the net, line, or like device and release the same after drawing it a suitable distance.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement as applied and with the vessel in section. Fig. 2 is an enlarged plan view of the improvement with part broken out and showing by dotted lines the position of the cam for opening the clamps. Fig. 3 is a sectional side elevation of the same on the line 3 3 of Fig. 2. Fig. 4 is a sectional plan view of part of the drum on the line 4 4 of Fig. 3, and Fig. 5 is a front elevation of the same with parts broken out. Fig. 6 is a plan view of a hereinafter-fully-described part.

The improved machine is mounted on a suitably-constructed frame A, in which is journaled a vertically-disposed shaft B, preferably made hollow, and on which is loosely mounted a drum C, carrying at its periphery a series of clamps D, each independent of the other and placed suitable distances apart, as plainly indicated in Fig. 2. Each of the clamps D is provided with a block D', made of rubber or like elastic material and held in a bearing or guideway D<sup>2</sup>, secured to the peripheral surface of the drum C. The top of the block D' is attached by a plate D<sup>3</sup>,

held on a screw D<sup>4</sup>, screwing in a lug C', projecting from the drum C.

Directly below the block D' is arranged a movable clamping-block D<sup>5</sup>, fitted to slide in suitable bearings D<sup>6</sup>, likewise secured to the peripheral surface of the drum C, as plainly illustrated in Figs. 4 and 5, and the lower end of this block D<sup>5</sup> is pivotally connected by links D<sup>7</sup> with the upper end of a spring-pressed lever D<sup>8</sup>, the links being connected at the lower edge thereof. The adjacent ends of the block D<sup>5</sup> and the lever D<sup>8</sup> are beveled, so that when the said lever D<sup>8</sup> is in a vertical position the block D<sup>5</sup> and said lever are in alinement and the block D<sup>5</sup> is in an uppermost position to securely engage and clamp the net, line, or like device. The lower ends of the levers D<sup>8</sup> of the clamps D are respectively provided with retractile springs D<sup>10</sup>, the springs being connected to their respective levers and to the table I, to be hereinafter described. The springs tend to draw the levers D<sup>8</sup> outward, so as to swing the blocks D<sup>5</sup> upward and cause them to engage with the blocks D'. When, however, the drum C revolves to bring the levers D<sup>8</sup> into contact with the cam E, the cam moves the levers inward, so as to permit the blocks D<sup>5</sup> to drop and open the clamps, such operation being against the tendency of the springs D<sup>10</sup>.

A yielding connection is made between the drum C and the hollow shaft B, and for this purpose springs H are provided, secured at their inner ends to collars H', fastened on the hollow shaft B, while the outer ends of the said springs are fastened on pins H<sup>2</sup>, secured to the top and bottom of the drum C. Now it will be seen that when the shaft B is rotated a like motion is given to the drum C, and the clamps D are opened and closed during one revolution of the drum, so that any article passing in the space between the two blocks D' and D<sup>5</sup> is clamped in between the blocks upon the block D<sup>5</sup> closing by the action of the cam or guideway E. The article thus clamped is carried around on the drum until finally the clamp opens by the cam or guideway E acting on the lever D<sup>8</sup> to swing the latter in an inclined position.

The yielding connection between the drum

C and the hollow shaft B is made for the purpose of compensating for any slip or uneven pull caused by the article clamped between the blocks D' and D<sup>5</sup> of the clamps, so that the driving mechanism for imparting a rotary motion to the shaft B is not disturbed. The shaft B is made hollow to permit of introducing steam through a pipe B' to heat the drum C, so that the clamps work properly in cold weather, especially if ice or snow tend to block the clamps. The steam passing into the pipe B can readily pass into the drum C through perforations C<sup>2</sup>, formed in that part of the pipe extending within the drum.

A revolving brush F serves to remove the line, net, or like article from the clamps as soon as they open, and this brush F is secured in the upper end of a shaft F', journaled in the frame A and connected by a pulley F<sup>2</sup> and belt F<sup>3</sup> with the hollow shaft B. Thus when the latter is rotated a rotary motion is given to the drum C and the said brush F for the purpose previously stated. A rotary motion is given to the shaft B by a suitable motor, preferably an engine G, located on the frame A and carrying on its main shaft G' a beveled gear-wheel G<sup>2</sup> in mesh with a beveled gear-wheel G<sup>3</sup>, secured on a shaft G<sup>4</sup>, extending vertically and journaled in suitable bearings in the main frame A.

On the shaft G<sup>4</sup> is fastened a pinion G<sup>5</sup> in mesh with a gear-wheel G<sup>6</sup>, secured on the shaft B, so that when the engine is set in motion a rotary motion is transmitted to the said shaft B by the gear-wheel G<sup>6</sup>, pinion G<sup>5</sup>, shaft G<sup>4</sup>, and beveled gear-wheels G<sup>3</sup> and G<sup>2</sup>, of which the latter is secured on the main shaft G' of the said engine.

When the machine is used on the deck of a vessel, as illustrated in Figs. 1 and 3, then the shaft B is disposed vertically and the drum C is surrounded by and supports a circular table I, which revolves with the drum and has its top surface slanting upwardly and outwardly, as plainly indicated in Fig. 3. The net, line, or other device to be clamped passes up the table I into the space between the blocks D' and D<sup>5</sup> of an open clamp D, to be there engaged upon the clamp closing, as previously explained. From this table I extends a stationary table J at one side of the vessel to a guiding device K, supported on the rail of the vessel L, as plainly indicated in Fig. 1. This guiding device K is provided with a horizontally-disposed roller K<sup>1</sup> and two vertically-disposed rollers K<sup>2</sup> at the ends of the roller K<sup>1</sup>. The top surface of the latter leads onto the table J, and the net, line, or like device passing from the water upward is engaged between the rollers K<sup>2</sup> and passes over the roller E' to the table J and from the latter to the circular table I, to be engaged by the clamps D, as previously explained. Now as the drum C rotates, the net, line, or like device is dragged along to be finally released on the opposite side from that on which it was clamped. As the clamps D follow one

another upon closing, a continuous grip is had on the line, net, or like device, so that the said net or line is readily drawn up from the water and passed into the vessel L.

The device may be used directly over the water, and in this case the tables I and J and the guiding device K are entirely dispensed with and the frame A is mounted on a turntable secured to the side of the vessel L, with the shaft B extending horizontally. The net, line, or like device is then passed between the open clutches to be clamped therein and carried upward by the revolving drum, to be finally released when the respective closed clamp reaches the inside of the vessel.

I do not limit myself to the special means shown for closing and opening the clamps, as other devices, such as springs, may be used. Furthermore, the yielding connection between the shaft B and the drum C may be entirely dispensed with and the said drum directly fastened to the shaft B by suitable means—for instance, by pins H<sup>3</sup> passing through the collars H' and engaging the top and bottom of the drum C, as shown in Fig. 3.

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

1. An apparatus of the class described, provided with a revoluble drum, clamps arranged on the periphery thereof, each clamp comprising an elastic block, a guideway for the same, an adjustable plate engaging the top of the block, a movable block directly opposite the said elastic block, a lever pivoted on the drum and adapted to actuate the said movable block, a link for connecting said lever with said movable block, a stationary cam capable of moving the lever and a spring pressing the lever, substantially as shown and described.

2. An apparatus of the class described, provided with a revoluble drum, clamps arranged on the periphery thereof, each clamp comprising an elastic block, a guideway for the same, an adjustable plate engaging the top of the block, a movable block directly opposite the said elastic block, a lever pivoted on the drum and adapted to actuate the said movable block, the adjacent ends of the said movable block and lever being beveled, a cam capable of moving the lever, and a spring pressing the lever, substantially as shown and described.

3. The combination with a frame, of a vertical shaft revolubly mounted therein, a drum fixed to the shaft, a series of stationary blocks carried by the drum, a movable block for each stationary block and carried by the drum and capable of sliding toward and from the respective stationary blocks, levers fulcrumed on the drum, links respectively connecting the levers and the movable blocks, a table outrunning from the drum and moving therewith, retractile springs respectively connected to the levers and to the table, and a cam fixed to the frame and capable of being

engaged by the levers, the cam being arranged to move the levers against the tendencies of the springs, substantially as described.

5 4. The combination with a frame, of a vertical shaft revolubly mounted therein, a drum  
carried by the shaft, stationary blocks carried on the drum, movable blocks respectively  
10 sliding toward and from the stationary blocks, levers fulcrumed to the drum, links

respectively connecting the levers and movable block, springs pressing the levers, and a cam for moving the levers against the tensions of the springs, substantially as described.

JOHN WALTER ATWOOD.

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JOHN W. GILLIGAN.