

(No Model.)

2 Sheets—Sheet 1.

W. F. AHEARN.  
NET LIFTING MACHINE.

No. 571,033.

Patented Nov. 10, 1896.

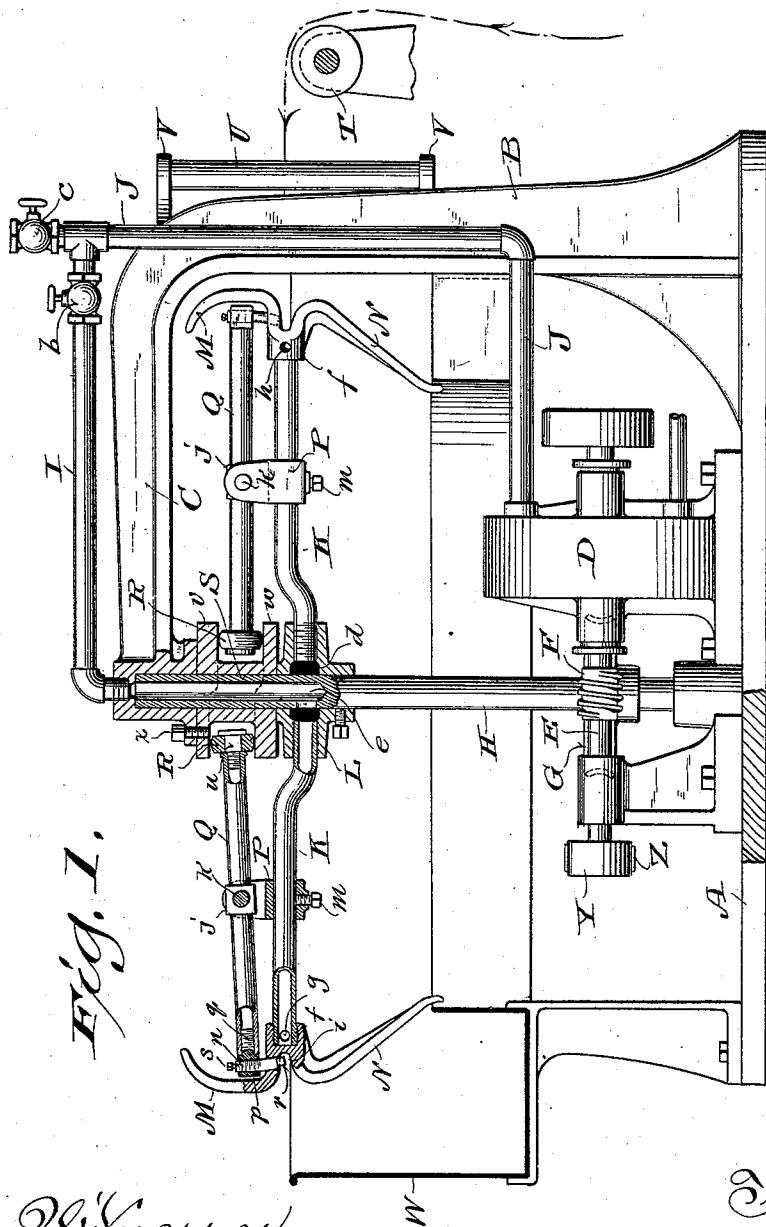
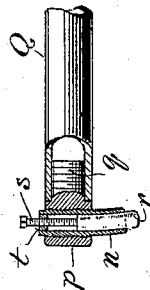


Fig. 1.

Fig. 2.



Witnesses:  
Geo. W. Young,  
H. E. Oliphant

Inventor:  
William F. Ahearn  
By H. G. Underwood  
Attorney

(No Model.)

2 Sheets—Sheet 2.

W. F. AHEARN.  
NET LIFTING MACHINE.

No. 571,033.

Patented Nov. 10, 1896.

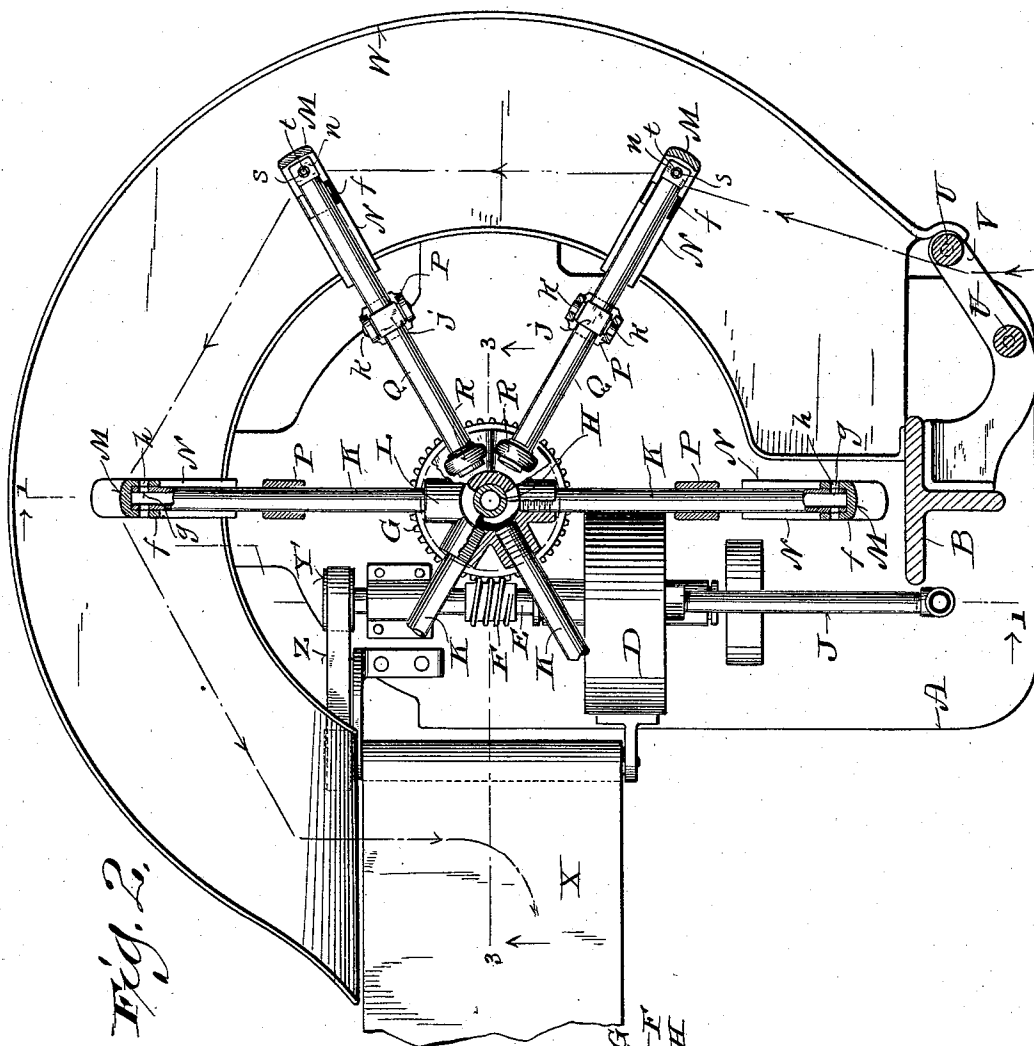


Fig. 2.

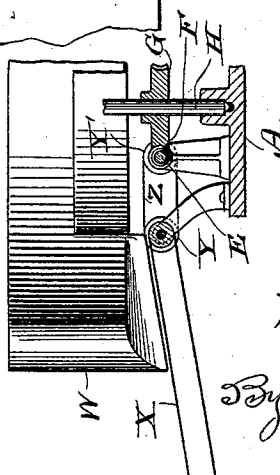


Fig. 3.

Witnesses:  
Geo W Young  
H. E. Oliphant

Inventor:  
William F. Ahearn  
By H. G. Underwood  
Attorney

# UNITED STATES PATENT OFFICE.

WILLIAM FRANK AHEARN, OF TWO RIVERS, WISCONSIN, ASSIGNOR OF  
ONE-HALF TO PETER GAGNON, OF SAME PLACE.

## NET-LIFTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 571,033, dated November 10, 1896.

Application filed February 17, 1896. Serial No. 579,490. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM FRANK AHEARN, a citizen of the United States, and a resident of Two Rivers, in the county of Manitowoc and State of Wisconsin, have invented certain new and useful Improvements in Net-Lifting Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide a simple, economical net-lifting machine capable of operation without an attendant, and which will not damage fish, corks, or leads.

A further object of the invention is to keep the machine warm when exposed to weather of freezing temperature, said invention consisting in certain peculiarities of construction and combination of parts, hereinafter set forth with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents an elevation of my improved net-lifting machine, partly in section, in the direction indicated by line 1 1 in Fig. 2; Fig. 2, a plan view of the machine, partly in horizontal section; Fig. 3, a sectional view of a lower portion of the machine on the plane indicated by line 3 3 in Fig. 2, and Fig. 4 a detail partly-sectional view illustrating an adjustable pressure-block in connection with a rock-lever of said machine.

Referring by letter to the drawings, A represents a base-plate, B a standard rising from the base, and C an arm extension of the standard parallel to the base. Mounted on the base is a rotary steam-engine D, of any suitable construction, the shaft E of this engine being provided with a worm F, that meshes with a worm-wheel G, fast on a shaft H, that has its bearings in said base and standard-arm. The base, standard, and standard-arm constitute the frame of my machine, but any other suitable frame may be employed, and the worm-shaft E may be driven by any suitable motor, although a steam-engine of some variety is preferable.

The vertical shaft H is preferably hollow, as herein shown, ordinary hydraulic pipe being suitable for the purpose, and a valve-controlled steam-conveying pipe I is shown coupled to the upper hollow bearing for said pipe.

The pipe I is also shown coupled to another valve-controlled pipe J, through which exhaust-steam from the rotary engine D finds its escape. The pipe-valves *b c* are so arranged that the exhaust-steam may find its way into the atmosphere from pipe J, or be conveyed to the hollow shaft H through pipe I, that communicates therewith, this arrangement of said valves being clearly shown in Fig. 1.

Arms K radiate from a spider L, fast on the vertical shaft H, and the arms herein shown are pipes fitted in said spider, the latter being made hollow to form a chamber *d*, into which steam is admitted through a port *e* in said shaft.

Sockets *f* of net-guards are fitted on the outer ends of the arms K, and the latter being hollow they are provided with ports *g*, that register with other ports *h* in the sockets, thus permitting the escape of steam that finds its way through said arms.

Each net-guard comprises an upper finger M and a lower finger N, divergent from a horizontal groove *i*, deep enough to catch the float and lead lines of a net, but too shallow to permit the entrance of fish, leads, or corks.

The arms K are provided with fulcrum-blocks P for levers Q, and these blocks are preferably adjustable on said arms longitudinally of the latter, as shown in Fig. 1. As a matter of detail the levers Q are preferably made from gas-pipe and have sleeves *j*, provided with trunnions *k*, that engage the blocks P, the latter being held in place by set-screws *m*, as shown in Fig. 1. The outer end of each lever is provided with a plunger that extends through an opening in a corresponding net-guard to come within the groove of the latter. Each plunger preferably comprises a sleeve *n*, screw-threaded in a hollow boss *p*, having a shank *q* in screw-thread engagement with a lever Q, a plug *r*, of rubber, fitted in the sleeve to extend from the lower end of the same, a screw *s* exertive against the upper end of the plug, and a bearing-plate *t* for the screw, this bearing-plate being set in the upper end of said sleeve.

The inner end of each lever is shown as provided with an arbor *u* for an antifriction-roller R, that comes intermediate of cam-

flanges *v w* of a sleeve *S*, that surrounds the shaft *II*, but is made fast to the standard-arm *C* by screws *x* or other suitable means. The rise of one cam-flange being opposite the depression of the other, the levers *Q* have a positive rock on their fulcrums to reciprocate the plungers above specified, the latter operating at predetermined intervals to automatically grip and release the net-lines caught in the net-guard grooves. The working ends of the plungers being rubber, the net is not liable to injury when the gripping action takes place, and by proper adjustment of the screws *s* these rubber ends or plunger-plugs may be lowered from time to time in order to compensate for wear.

The machine thus far described being set up in a fishing-boat, an incoming net is traveled over a horizontal roller *T* and guided between a pair of vertical rollers *U*, journaled in brackets *V*, made fast to the standard *B* or other suitable portion of the machine-frame. The lead and float lines of the net being clamped in one of the guards above specified, the machine is started and thereafter the operation of lifting said net is entirely automatic. The cams embodied in the machine are timed to cause a grip of each plunger on the net-lines when the net-guard corresponding to said plunger has passed the vertical guide-rollers *U*, this grip being maintained for about one-half a revolution of the head comprising the spider and arms above specified. The slack of the net comes within a circular trough *W*, that constitutes part of the machine, and is high enough on the outside to serve as a wind-guard. When the grip-plungers are brought away from contact with the net in the rotating guards, said net and its contents fall onto a conveyer *X* for carriage to where the fish may be conveniently handled. The conveyer herein shown is an endless apron that travels on suitable rollers, one of which has a pulley *Y*, driven by a belt *Z*, that in turn is driven by another pulley *Y'* on the shaft *E* of the rotary engine, and the arrows in Fig. 2 clearly illustrate the travel of a net being lifted by the machine.

By circulating steam through the machine the latter may be kept warm when exposed to weather of freezing temperature to thus prevent its working parts from becoming clogged with ice.

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

1. A net-lifting machine comprising a rotative shaft, arms radiating from the shaft, net-guards carried by the arms, and reciprocative net-gripping plungers operative in conjunction with the guards.

2. A net-lifting machine comprising a rotative shaft, arms radiating from the shaft, net-guards carried by the arms, levers fulcrumed on said arms, plungers that being connected to the levers operate in conjunction with the net-guards, and suitable means for automatic-

ally rocking said levers at predetermined intervals.

3. A net-lifting machine comprising a rotative shaft, arms radiating from the shaft, net-guards carried by the arms, levers fulcrumed on said arms, plungers that being connected to the levers operate in conjunction with the net-guards, and fixed cams arranged to cause a rock of said levers at predetermined intervals.

4. A net-lifting machine comprising a rotative shaft, arms radiating from the shaft, net-guards that are carried by the arms and comprise fingers radiating in opposite direction from a groove, levers fulcrumed on said arms, plungers that being connected to the levers extend through the guards into the grooves of the same, and suitable means for rocking said levers at predetermined intervals.

5. A net-lifting machine comprising a rotative shaft, arms radiating from the shaft, net-guards carried by the arms, levers fulcrumed on said arms, suitable means for rocking the levers at predetermined intervals, and plungers consisting of bosses at the outer ends of said levers, sleeves that being set in the bosses reciprocate in the net-guards, grip-plugs arranged in the sleeves to extend therefrom, and screws arranged to adjust the plugs.

6. A net-lifting machine comprising a rotative shaft, arms radiating from the shaft, net-guards carried by the arms, levers fulcrumed on said arms, plungers that being connected to outer ends of said levers operate in conjunction with the net-guards, antifriction-rollers on the inner ends of the aforesaid levers, and cams arranged to oppose the antifriction-rollers in opposite directions, the rise of one cam being opposite the depression of the other.

7. A net-lifting machine comprising a hollow rotative shaft, a steam-supply pipe in communication with the shaft, a series of hollow radial arms also in communication with the shaft, net-guards that being carried on the arms have steam-outlets in register with similar outlets pertaining to said arms, and reciprocative grip-plungers operative in conjunction with the net-guards.

8. A net-lifting machine comprising a hollow rotative shaft, a valve-controlled pipe for exhaust-steam from an engine employed to drive said machine, a valve-controlled branch of said pipe communicating with the hollow shaft, a series of hollow radial arms also communicating with said shaft, net-guards that being carried on the arms have steam-outlets in register with similar outlets pertaining to said arms and reciprocative grip-plungers operative in conjunction with the net-guards.

9. A net-lifting machine comprising a series of rotative arms, net-guards carried by the arms, reciprocative net-gripping plungers operating at predetermined intervals in conjunction with the net-guards, and a wind-guard trough for the slack of an incoming net.

10. A net-lifting machine comprising a series of rotative arms, net-guards carried by

the arms, reciprocative net-gripping plungers operating at predetermined intervals in conjunction with the net-guards, guide-rollers for an incoming net, and a wind-guard trough for the slack of said net.

11. A net-lifting machine comprising a series of rotative arms, net-guards carried by the arms, reciprocative net-gripping plungers operating at predetermined intervals in conjunction with the net-guards, a trough for the slack of an incoming net, and a conveyer arranged to receive said net from the trough.

12. A net-lifting machine comprising a suitable frame, a rotary steam-engine, a shaft in gear with the engine, arms radiating from the

shaft net-guards carried by the arms, levers fulcrumed on said arms, plungers carried by the levers to operate in conjunction with the net-guards, suitable means for rocking the levers at predetermined intervals, guide-rollers for an incoming net, and a trough for the slack of said net.

In testimony that I claim the foregoing I have hereunto set my hand, at Two Rivers, in the county of Manitowoc and State of Wisconsin, in the presence of two witnesses.

WILLIAM FRANK AHEARN.

Witnesses:

JOSEPH DIVERNE,  
NELSON ALLIE.