E. CROSSLEY.

NET PULLING MACHINE.

APPLICATION FILED SEPT. 4, 1912.

1,058,156.

Patented Apr. 8, 1913.

2 SHEETS—SHEET 1.

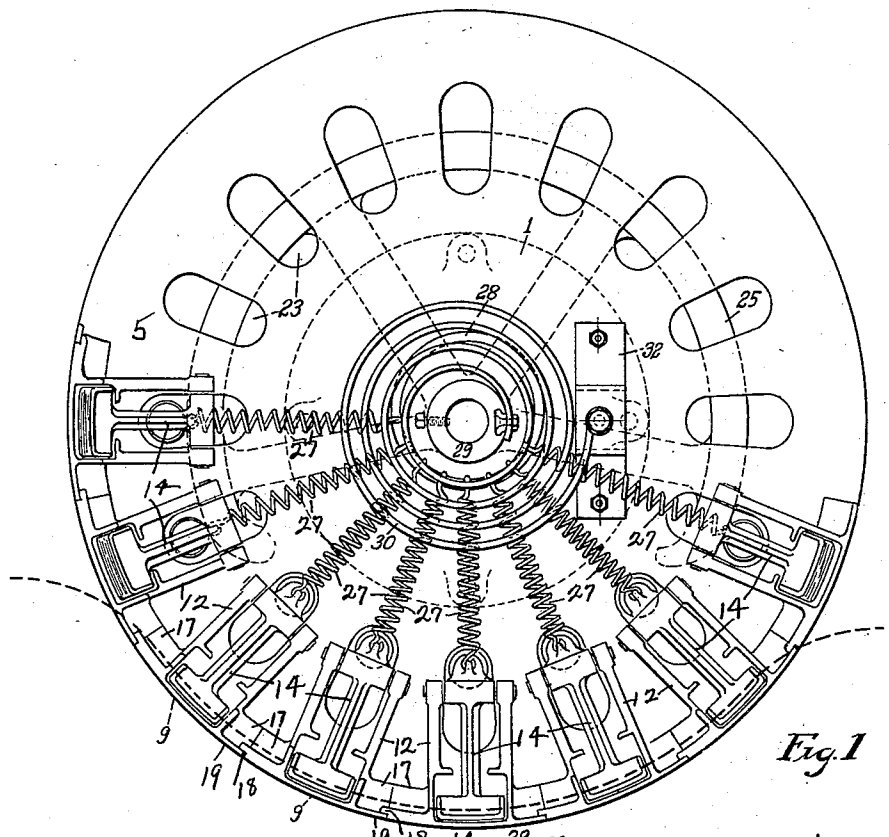

Fig. 1

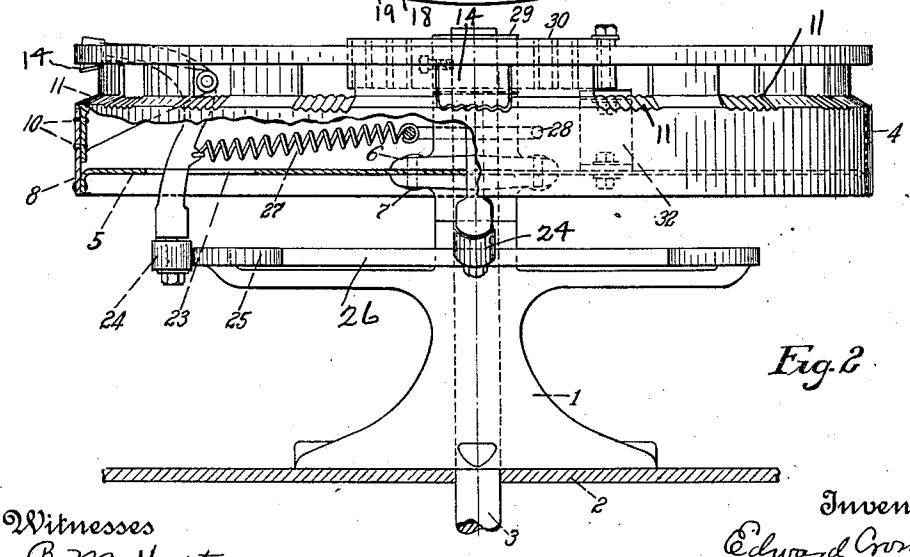

Fig. 2

Witnesses
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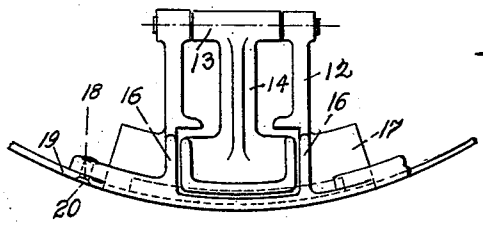
Fig. 3



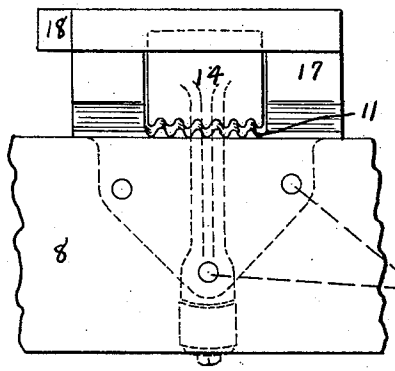


Fig. 4

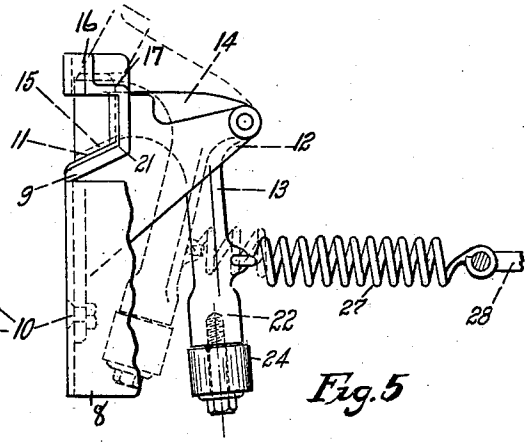


Fig. 5

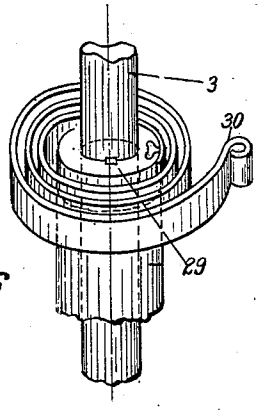


Fig 6

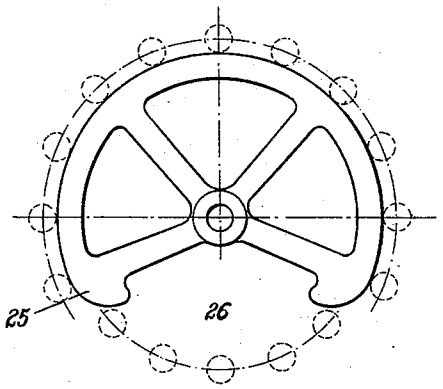


Fig. 7

Witnesses

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UNITED STATES PATENT OFFICE.

EDWARD CROSSLEY, OF ERIE, PENNSYLVANIA.

NET-PULLING MACHINE.

1,058,156. Specification of Letters Patent. Patented Apr. 8, 1913.

Application filed September 4, 1912. Serial No. 718,442.

To all whom it may concern:

Be it known that I, EDWARD CROSSLEY, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented new and useful Improvements in Net-Pulling Machines, of which the following is a specification.

This invention relates to net pulling machines and consists in certain improvements in the construction thereof as will be hereinafter fully described and pointed out in the claims.

The object of the invention is to provide a simple and efficient means for pulling fish nets.

The invention is illustrated in the accompanying drawings as follows:—

Figure 1 shows a plan view of the machine. Fig. 2 shows a front elevation of the machine. Fig. 3 shows a plan view of one of the gripping jaws and frame. Fig. 4 a front elevation of the same parts. Fig. 5 a side elevation of the same parts. Fig. 6 a perspective view of the driving spring. Fig. 7 a plan view of the jaw actuating cam.

1 marks the base of the machine. This is secured to a deck as 2. The drive shaft 3 is journaled in the case 1 and extends ordinarily through the deck to a source of power (not shown). The reel 4 is journaled in the shaft 3. The reel is formed with a web plate 5 of wrought iron. This web is secured between the parts of a hub 6 by rivets 7. The outer edge of the web is flanged and a wrought metal shell 8 secured to this flange. The clamp or grip frames 9 are secured to the shell 8 by rivets 10. These frames have the sloping gripping surfaces 11. Gripping jaw supporting arms 12 extend inwardly on the frame, and the gripping jaws 13 are pivoted between the arms 12. The jaws are in the form of bell cranks, the jaw arm 14 extending forward to bring the jaw surface 15 to a position that will engage the surface 11 as the jaw swings. The jaws operate between the upward extensions 16 of the frames 9. Projections 17 extend circumferentially from the frame, one of the projections in each frame being cut away at 18 so as to receive the end 19 of the projection of the adjacent frame. The ends are secured together by the rivets 20 so that the frames with their projections form a complete annulus. The frames also have the grooved projections 21 the bottoms of which are continuations of the surfaces 11 so that when the jaws are open the frames present a continuous groove to receive the net. It will be noted that the gripping surface 11 and the bottom of this groove slope downwardly. This assures the disengagement of the net when the jaws are opened.

The cam arms 22 of the jaws 13 extend downwardly through slots 23 in the web 5 and terminate in rollers 24. The rollers operate against the cam 25. The cam 25 extends from the base 1. The cam has the cut away portion 26. Springs 27 are secured to the arms 22 and extend inwardly to a floating ring 28.

The operation of the machine is as follows:—The net as it is pulled is led into the groove under the jaws at a point just before where the rollers pass off the cam 25. As the roller passes off the cam the spring 27 pulls the jaw down to gripping position and the jaw is held in this position through the space 26. The space is sufficient to allow about five jaws to close on the net. When the roller passes the space 26 it contacts the cam 25 and this forces the arm 22 out and the arm 14 up, thus releasing the net.

It will be noted that the floating ring shifts its position as the reel rotates by reason of the difference in the spring tensions of the springs on the arms on the cam and springs attached to the arms in the space 26. This permits of the use of comparatively short springs, inasmuch as the springs on the arms on the cam are relieved by the shifting of the ring and on the other hand the shifting of the ring pulls the springs on the arms in the space 26 inwardly so as to give the jaws proper pressure to hold the net. It will also be noted that the working parts are so covered and protected as to prevent the nets catching in them.

It is preferable to yieldingly connect the reel with the drive shaft so that if the reel catches, time may be had to stop the machine before the net is damaged. For this reason, I provide the scroll spring 30. This is connected with the collar 29 fixed on the shaft 3 and to a bracket 32 on the web 5. The scroll spring permits of a close coupling of the parts so the reel forms a housing preventing the catching of the net.

What I claim as new is:—

1. In a net pulling machine, the combination of a reel having outwardly extending

gripping surfaces thereon; jaws in the form of bell cranks pivoted on the reel and having one arm extending outwardly and engaging the gripping surface and the other arm extending in an axial direction; and means acting on the axially directed arm for actuating the jaw.

2. In a net pulling machine, the combination of a reel having outwardly extending gripping surfaces thereon; jaws in the form of bell cranks pivoted on the reel and having one arm extending outwardly and engaging the gripping surface and the other arm extending in an axial direction; a cam for forcing the axially directed arms outwardly to open the jaw; and springs secured to said axially directed arms to draw them inwardly and to move the jaws to gripping position.

3. In a net pulling machine, the combination of a reel having outwardly extending gripping surfaces thereon; jaws in the form of bell cranks pivoted on the reel and having one arm extending outwardly and engaging the gripping surface and the other arm extending in an axial direction; a cam for forcing the axially directed arms outwardly to open the jaw; springs secured to said axially directed arms to draw them inwardly and to move the jaws to gripping positions; and a floating ring to which the springs are secured.

4. In a net pulling machine, the combination of a reel formed of a plate web; a shell secured to the web; grip frames secured to the shell, said frames having gripping surfaces and secured in series on the shell to form a continuous band; jaws pivoted on the frames; and means for actuating the jaws as the reel is rotated.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EDWARD CROSSLEY.

Witnesses:
V. C. HESS,
B. M. HARTMAN.