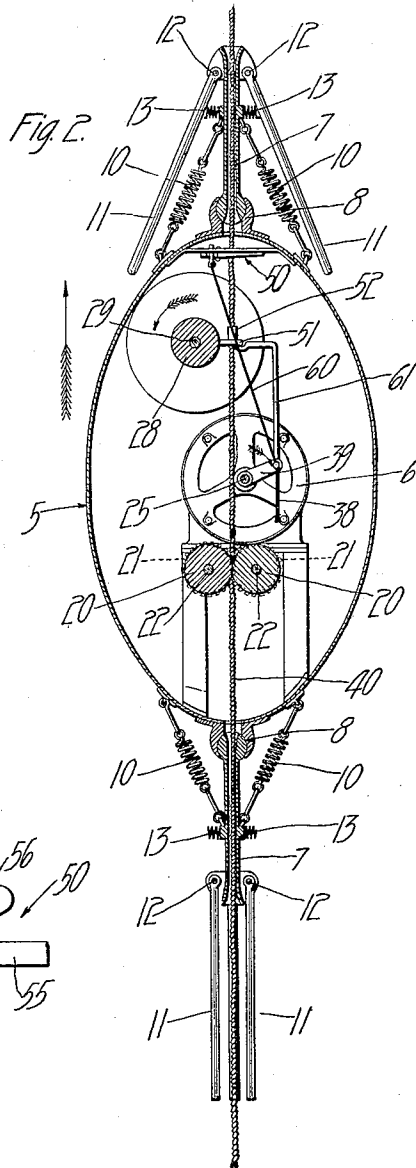
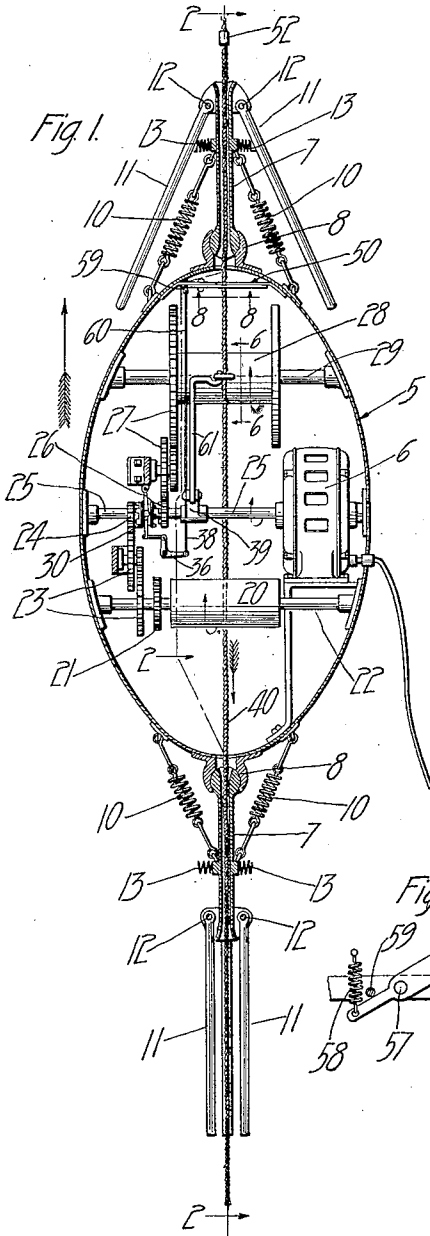


C. W. TAYLOR.
LINE RETRIEVER.
APPLICATION FILED AUG. 28, 1912.

1,062,202.

Patented May 20, 1913.

2 SHEETS—SHEET 1.



Witnesses
A. J. Quinn
Glenn H. Conklin

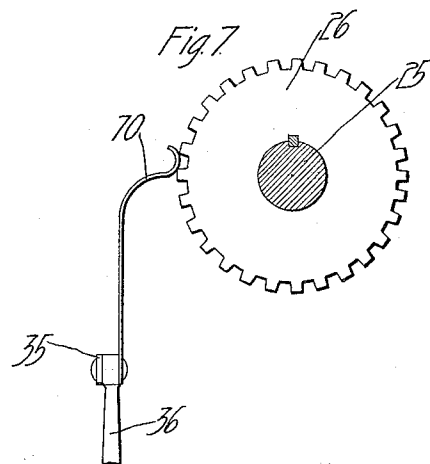
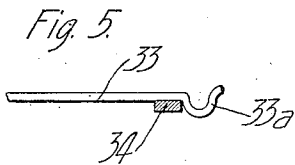
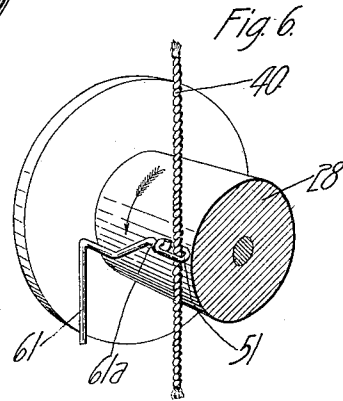
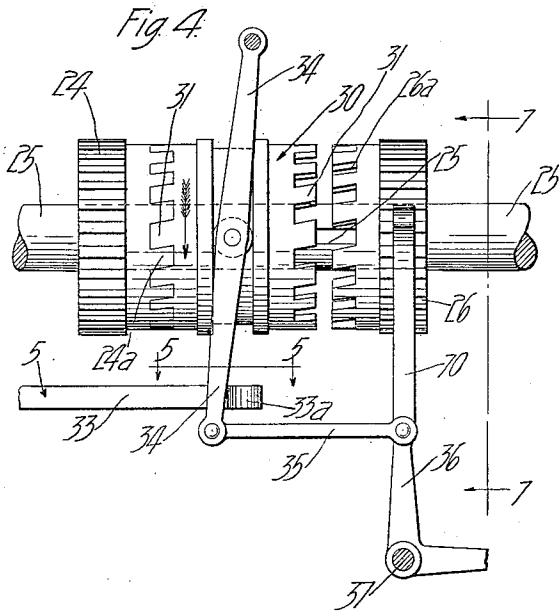
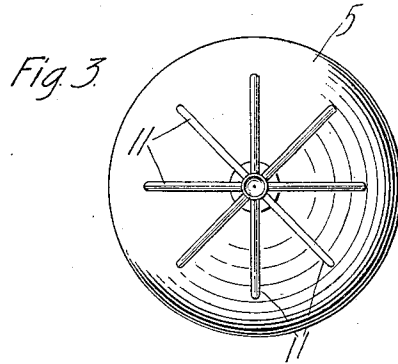
Inventor
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his Attorney.

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2 SHEETS-SHEET 2.



Witnesses
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Elwood H. Conkley

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 his Attorney.

UNITED STATES PATENT OFFICE.

CHARLES W. TAYLOR, OF LOS ANGELES, CALIFORNIA.

LINE-RETRIEVER.

1,062,202.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed August 28, 1912. Serial No. 717,480.

To all whom it may concern:

Be it known that I, CHARLES W. TAYLOR, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles, State of California, have invented new and useful Improvements in Line-Retrievers, of which the following is a specification.

This invention relates to a device adapted to transmit itself along a line and to then bring itself back along the line, winding up the line as it returns; and the prime object of this invention is the provision of a simple device which will accomplish work of this nature.

There are many situations in which my line retriever is of value; but I will only broadly state that the retriever is generally used where a line has been sent out and becomes non-removably attached to some object and it is then necessary to cut the line in order to bring it back. Such situations occur in throwing lines over buildings, in throwing life lines at sea, and in general well drilling operations.

I have illustrated a preferred form of my invention in the accompanying drawings, in which:

Figure 1 is a longitudinal section of my improved device. Fig. 2 is a section taken as indicated by line 2—2 of Fig. 1. Fig. 3 is an end view of the same. Fig. 4 is an enlarged detail of the clutch mechanism of my device. Fig. 5 is a section taken as indicated by line 5—5 on Fig. 4. Fig. 6 is a section taken as indicated by line 6—6 of Fig. 1. Fig. 7 is a cross section taken as indicated by line 7—7 of Fig. 4.

In the drawings 5 designates a shell or frame within and on which my device is mounted, and 6 a suitable motor for operating the device. The shell or frame is preferably made in the form illustrated so that it offers no corners or projections which would impede the progress of the machine over and around obstacles. At each end of the shell or frame there is provided a hollow line guide 7 having preferably a universal joint 8 with the frame. The line guide is supported by spring guys 10 secured to the guide and to the shell or frame 5. At the outer end of the guide 7 there are carried a number of arms 11 pivoted at 12 and adapted to swing from the positions shown in Figs. 1 and 2. Springs 13 normally hold these arms in about the position shown in the upper part of Figs. 1 and 2; but the

arms are free to swing to the positions shown in the lower portions of the figures. If the machine is progressing in the direction indicated by the arrows, the arms on the head end of the machine will assume the positions illustrated in the upper portions of Figs. 1 and 2; and the arms will thereby become guides or the like which will lift and guide the machine over and around any obstacle. On the following end of the machine the arms 11 will be drawn back to the positions illustrated in the lower portions of Figs. 1 and 2 and will therefore not impede the progress of the machine. When the movement of the machine is reversed, the arms will change their position, the arms which were formally at the head of the machine being turned back by the first obstacle which the machine meets so that they then trail behind, and the arms which were formally at the tail of the machine also being turned back by the first obstacle met to thereafter perform their function of guiding the machine over and around other obstacles.

Within the machine, there is mounted, generally speaking, a line transmitter, a line winder, a line cutter, and devices for operating these various mechanisms. The line transmitter is preferably composed in two drums 20 adapted to pass the line between them, the drums being inter-connected by gears 21 arranged on their shafts 22. Base drums are driven through the means of a gearing train 23 driven from a suitable pinion 24 mounted on a shaft 25, which may be the shaft of motor 6. Also mounted on this shaft is another pinion 26 which drives a gearing train 27 to rotate the winding drum 28 mounted on shaft 29. Pinions 24 and 26 are loosely mounted on the shaft 25; that is, they do not normally rotate with the shaft unless connected with it through the medium of clutch member 30. Clutch member 30 is slidably keyed to shaft 25 in the ordinary manner and has two sets of clutch teeth 31 which are engageable with either clutch teeth 26^a of pinion 26 or the teeth 24^a of pinion 24. The teeth are so shaped that they will bend when the clutch is in rotation and power is being transmitted from the clutch member 30 to the pinions, to hold themselves in engagement. This constitutes one means of holding the clutch in either of the extreme positions; but there is another means constituted in a spring

arm 33 having a cam 33^a over which clutch operating arm 34 must pass when the clutch passes from one of its positions to the other. The clutch arm 34 is operated through the medium of a connecting rod 35 from a bell crank lever 36 pivoted at 37 and operated through the medium of a rod 38. Rod 38 connects with an oscillating arm 39 which, for convenience, is mounted on the motor shaft 25. The arrangement is such that oscillation of arm 39 will cause the throwing of the clutch 30 from one position to the other. Ordinarily and normally the clutch is set in the position shown, so that the motor, rotating in the direction indicated, will rotate the line transmitting drums 20 in the directions indicated so as to lead the line 40 through the machine in the direction indicated; or, the line being stationary, to lead the machine along the line in the direction indicated.

The line 40 passes through the machine in the manner shown in the drawings, passing through the line guides 7, through a shearing device 50 and through an eye 51 on the line winding drum 28. This eye is of such dimensions that a suitable obstruction 52, placed on the line 40 at or near its end, will engage the eye and, as the line is fed through the machine in the direction indicated will force the eye and the drum 28 around and in the direction indicated in Fig. 6. This rotation, however, is only momentary and serves to operate the clutch shifting device and also to actuate the shearing device and cause it to cut the line.

The shearing device may be composed of a pair of shear members 55 and 56 pivoted with relation to each other at 57, and a spring 58 adapted to operate the moving shear member to cut the line 40. A trigger 59 normally prevents the operation of the member 56; and this trigger is mounted on or connected to a rod 60 which is connected directly to the oscillating arm 39. Oscillation of the arm 39 in the direction indicated in Fig. 2 will cause the retraction of the trigger and allow the shears to operate to sever the line. Movement of the oscillating arm 39 in the direction indicated is caused through the medium of a suitable finger 61 with a hook 61^a at its free end engaging the eye 51, the finger being mounted directly on arm 39 so that a movement of the eye in the direction indicated in Fig. 6 will cause the oscillation of the arm 39 in the direction indicated in Fig. 2. Oscillation of the arm in this direction will cause the movement of the clutch 30 from the position shown in Fig. 4 to the opposite position and will immediately cause the winding drum 28 to begin rotation in the direction indicated in Figs. 1 and 2. This will cause the line 40 to be wound up on the drum and to pass through the machine in the direction oppo-

site to that indicated in Fig. 1 and will cause the machine to travel back along the line opposite to that therein indicated.

There may be a means provided for holding drum 28 from rotation in the direction indicated in Fig. 1 until the clutch shifting operation has taken place; in other words, to prevent any accidental rotation of the drum so as to disengage the eye 51 from the hook 61^a until the hook and the finger 61 have fulfilled their purpose by shifting the clutch and causing the operation of the line severing device. This may be comprised in a spring pawl 70 mounted on the bell crank lever 36 and adapted to engage with the teeth of pinion 26 to prevent rotation of the pinion through any frictional or accidental means. But the pawl or detent 70 is of such design that it will allow the rotation of the drum 28 as indicated in Fig. 6 when the obstruction 52 comes into forcible contact with the eye 51. When the clutch 30 shifts to the position engaging with the clutch 26^a of pinion 26, the pawl or detent 70 is thrown out of engagement with the pinion teeth and allows the pinion to be freely driven.

In the operation of my device the line to be retrieved is first threaded through the mechanism as illustrated and the motor is started after the parts have been set in the positions shown in Figs. 1 and 2. This causes the transmitting drums 20 to operate on the line and causes the machine to transmit itself along the line until the obstruction 52 engages with the eye 51. The winding drum 28 will then be rotated rearwardly, in the direction indicated in Fig. 6, to cause the cutting of the line and to cause the shifting of the clutch. This throws the power off the transmitting drum and onto the winding drum. Winding the line up in the opposite direction causes the machine to return over the line, winding the line up as it progresses.

Having described my invention, I claim:

1. A line retriever, comprising a frame, a motor thereon, a line transmitting device, a line winding device, and means for operatively connecting either the line transmitting or winding device to the motor.

2. A line retriever, comprising a frame, a motor thereon, a line transmitting device, a line winding device, a line cutter, means for connecting either the line transmitting or winding device to the motor, and means for operating said connecting means and for simultaneously operating the line cutter.

3. In combination with a line having a suitable obstruction thereon, a retriever comprising a frame, a motor thereon, a line transmitting device, a line winding drum having an eye through which the line may pass and with which the obstruction thereon may engage, a line cutting device, mechanical connective means between the motor and

either the line transmitter or winder, and means operatively connected with the said eye on the line winding drum to operate the said connective means and to cause the operation of the line cutter.

4. In combination with a line having a suitable obstruction thereon, a retriever comprising a frame, a motor thereon, a pair of line transmitting drums rotating in opposite directions to transmit the line between them, a line winding drum, an eye on the periphery of the winding drum through which the line passes and with which said obstruction thereon may engage, trains of gearing between the motor and the transmitting and winding drums, a clutch adapted to connect either of said trains of gearing to the motor shaft, means to hold said clutch in position to operatively connect either of said trains,

a line shearing device, spring means for operating the same, a trigger normally holding said shearing device open for the free passage of the line therethrough, a pivoted arm having connection with said clutch and with said trigger, and a finger mounted on said arm and normally engaging with the eye on the winding drum, the arrangement being such that the transmission of the line causes its obstruction to engage with the eye and move it to operate said pivoted arm to operate the shear trigger and the clutch.

In witness that I claim the foregoing I have hereunto subscribed my name this 19th day of August 1912.

CHARLES W. TAYLOR.

Witnesses:

ELWOOD H. BARKELEW,
JAMES T. BARKELEW.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."