

Feb. 17, 1953

A. J. LA BECK ET AL

2,628,506

GEARING

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2 SHEETS—SHEET 1

Fig 1

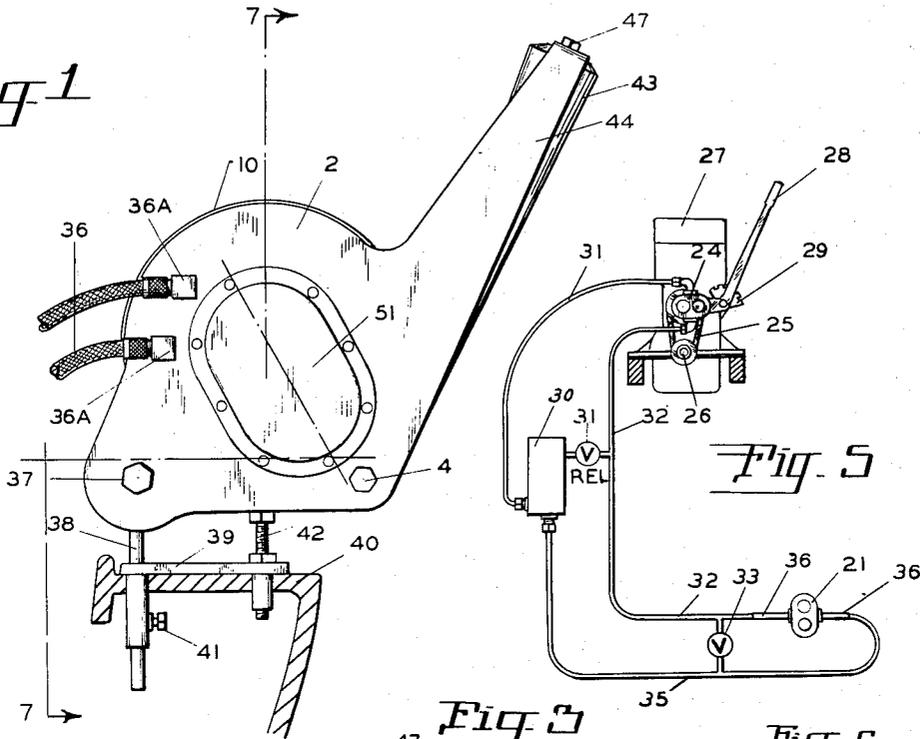


Fig. 5

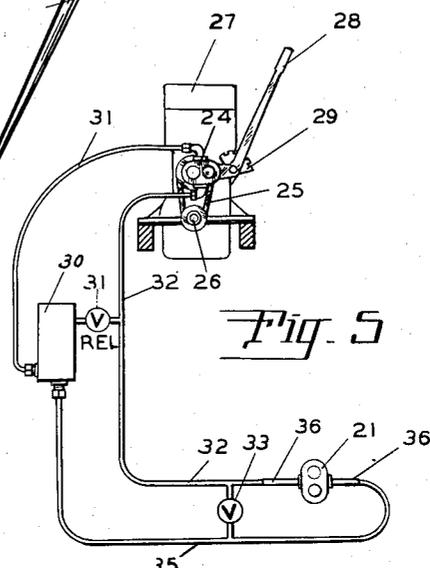


Fig 3

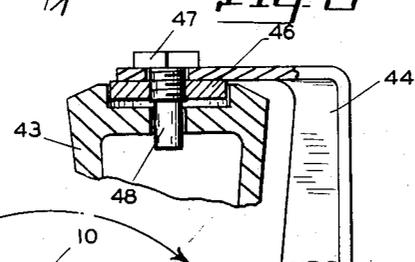


Fig 6

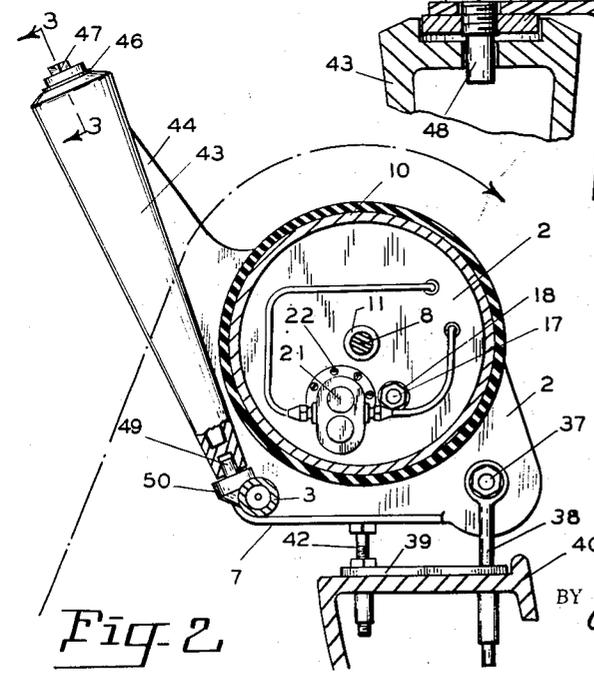
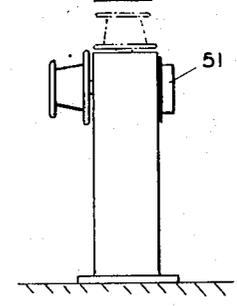
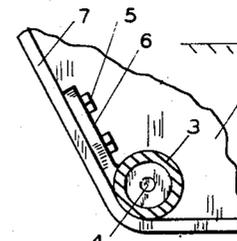


Fig 2

Fig 4



INVENTOR
 ALDAN J. LA-BECK
 LELAND E. HOY

BY *[Signature]*

ATTORNEY

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A. J. LA BECK ET AL
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2 SHEETS—SHEET 2

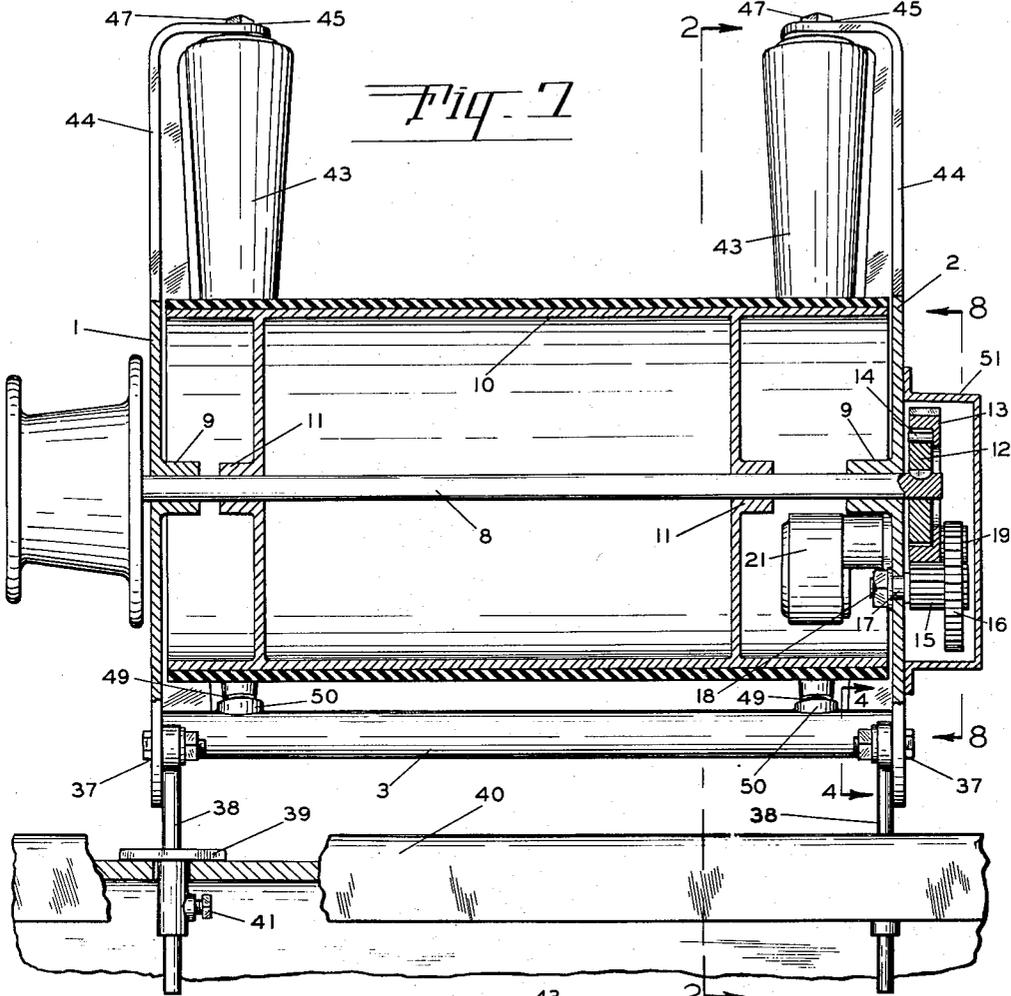


Fig. 7

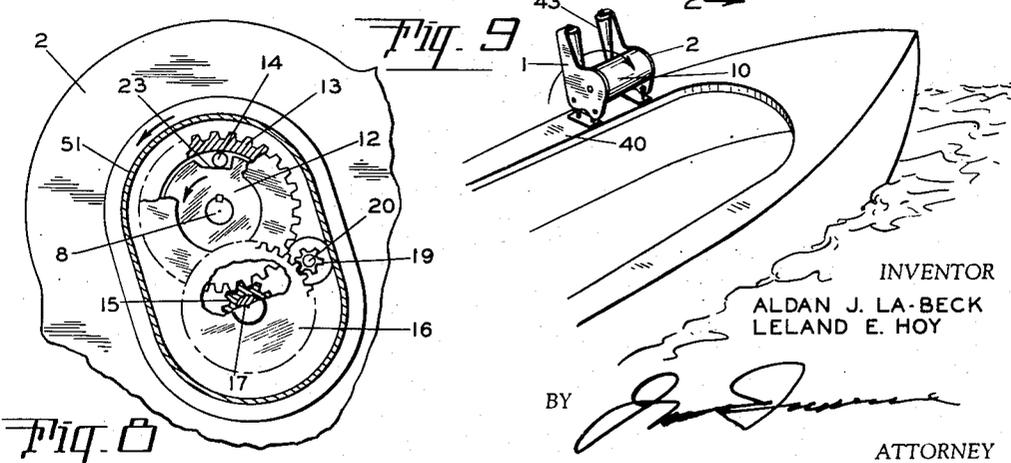


Fig. 8

Fig. 8

INVENTOR
ALDAN J. LA-BECK
LELAND E. HOY

BY *[Signature]*
ATTORNEY

UNITED STATES PATENT OFFICE

2,628,506

GEARING

Aldan J. La Beck and Leland E. Hoy,
Clatskanie, Oreg.

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1 Claim. (Cl. 74-421)

1

Our invention relates to power pick up rolls which are particularly adapted to be mounted to the gunnels of fishing boats for picking up gillnets.

The primary object of our invention is to provide a fluid driving assembly for revolving the roll of the pick up unit. By using a fluid drive system, line shafting, bearings and the like are eliminated, together with troublesome belting, which is now being used.

A further object of our invention is to provide a drive for the pick up roll that will permit shifting the pick up roll unit from one part of the boat to another, and further provide for ease of control from various locations on the boat.

A further object of operating the roll by fluid drive is that pressure safety valves protect the system and the speed of the roll can be varied at will be control valves.

Another feature of our invention is the fact that an over-running clutch is provided within the driving assembly so that in the case where the net is drawn in rapidly the drum will over-run permitting this quick retrieving of the net, but the driven roll will be always ready to assist in pulling the net in when the going gets harder in the pulling in of the net.

Another feature of our invention is the fact that it is self-lubricating, the driving parts running in a bath of oil.

And a further object of the invention is the fact that any number of pick up units can be operated from the same system of power.

These and other incidental objects will be apparent in the drawings, specification and claim.

Referring to the drawings:

Figure 1 is a fragmentary sectional view of the gunnel of a boat, having our new and improved pick up roll unit mounted thereon.

Figure 2 is an end sectional view taken on line 2-2 of Figure 7 of the pick up unit and mounting to the gunnel of the boat.

Figure 3 is an enlarged fragmentary sectional view of one of the bearings associated with the guide rollers of the pick up unit.

Figure 4 is a fragmentary detail view illustrating how the end pieces of the pick up roll unit are connected together by a spacer bar.

Figure 5 is a diagrammatical layout of the power unit of the boat and the fluid pumping unit, valve control within the pipe lines leading to the motor of the pick up roll unit.

Figure 6 is a side view of our invention applied to a winch or crab hoist.

Figure 7 is a longitudinal sectional view of the pick up drum unit, taken on line 7-7 of Figure 1,

2

parts of the gunnel of the boat broken away for convenience of illustration.

Figure 8 is a detail sectional view taken on line 8-8 of Figure 7, illustrating the driving gear assembly.

Figure 9 illustrates how the pick up roll unit is mounted to the gunnel of a fishing boat.

Referring more specifically to the drawings:

Our new and improved pick up roll for gillnets consists of end plates or frames 1 and 2, spaced apart by the spacing bar 3, which is secured to the end plates by the cap screws 4 and 5. The cap screw 4 entering the end of the bar through the plate, while the cap screw 5 connects the bar by way of ears 6 forming part of the bar 3, to the angle portion 7 of the end plates 1 and 2.

A shaft 8 is journaled within bearings 9 of the end plates and has the drum 10 keyed thereto by way of the hubs 11, forming part of the drum 10. Keyed to one end of the shaft 8 is an over-running clutch assembly, consisting of the hub 12, about which rotates the ring gear 13 for driving the hub 12 by way of the over-running rollers 14.

Referring to Figures 7 and 8, an idler pinion 15 forming part of the spur gear 16 is journaled to the spindle shaft 17 which is secured to the end plate 2 by way of the locking nut 18. The spur gear 16 is driven by the pinion gear 19, which is keyed to the shaft 20, the said shaft 20 extending through the end plate 2 and into the fluid motor 21, which in turn is secured to the end plate 2 by the bolts 22, referring to Figures 2 and 7. We do not wish to be limited to the type of fluid motor shown or to locating the same inside the unit.

The motor 21 drives the spur gear 16 by way of the pinion 19 while the pinion 15 drives the ring gear 13 in the direction of the arrow. When this happens the roller 14 runs up on the inclined surface 23 of the hub 12 locking the clutch assembly and revolving the drum 10 through the shaft 8, which will assist in pulling the gillnet into the boat as indicated by the arrow in Figure 9.

When the fisherman presses down on the net causing the same to engage the surface of the roller, and in the event that the fisherman can pull the line more speedily than the roller will assist him, the over-running clutch assembly will permit the roller 10 to revolve with the net at a higher rate of speed than that from which it is being driven. This is an outstanding feature of our invention. In order to facilitate the operation of the fish net over the roller 10 a rubber covering 10A has been applied to the surface of the roller.

Referring to Figure 5, which is a diagram-

matical layout of the fluid system used to operate the motor 21. A fluid pump of any conventional design is indicated at 24 and is driven by the belt 25 from the crank shaft 26 of the motor 27, when the lever 28 is positioned on the quadrant 29 to cause the belt 25 to tighten. The pump 24 is mounted to the lever 28 and moves with the same. We do not wish to be limited to this particular hook up, as there are many various ways to drive the fluid pump 24.

A fluid reservoir 30 supplies fluid to the pump 24 by way of the pipe 31, the pump forcing the fluid through the pipe 32 to either the bypass valve 33 or the fluid motor 21. A relief valve 34 is located between the reservoir 30, and the pipe 32 to limit the amount of pressure developed within this pipe line.

We will now describe the operation of driving the motor 21 from the engine 27 of the boat. The lever 28 is moved to tighten the belt 25. This drives the pump 24 pumping fluid from the reservoir 30 out through the pipe 32 to either the by-pass valve 33 or the motor 21. The valve 33 may direct the fluid from the pipes 32 to the return pipe 35 by-passing the motor 21, but when this valve is fully or partially shut off the motor 21 will receive a fluid supply driving the same, revolving the drum 10 as above described. The pipe lines 31, 32 and 35 may be trained through any desired location on the hull of the boat in order to reach the motor 21.

Flexible tubing 36 is applied to the pick up roll unit at 36A so that the unit can be moved without interfering with the pipe lines in general, as this unit is pivotally mounted at 37 to the vertical standards 38, which are adjustably mounted within the bases 39 secured to the gunnel 40 of the boat.

The elevation of the standards 38 are governed by the set screws 41 and the angle of the lifting roll unit is determined by the adjustable supports 42 associated with the base plate. We do not wish to be limited to this structure as other mechanical equivalents may be used, but the general idea is to be able to pivot the lifting roll assembly about the point 37 in or out of operating position.

There may be any number of roll lifting units applied to the fluid supply line system, and this is one of the advantages obtained by using a fluid drive for operating the roll of the lifting unit.

Tapered guide rolls 43 are journaled to the unit for guiding the net over the top of the roller 10. These rollers are rotatably mounted to the arms 44 at 45. Referring to Figure 3, a circular disk or washer 46 is locked to the arms 44 by way of the set screws 47 which extend down through the ends 48 of the rollers 43. The ob-

ject of the washer 46 is to prevent the net from getting tangled up within the roller as this washer prevents the net from getting between the roller and its bearing.

Referring to Figure 2, the lower ends of the rollers 43 are journaled to the stub pins 49 associated with the cross spacer bar 33 by way of the bases 50 forming part of the bar. The gear assemblies associated with the lifting device are housed in a cover plate 51 so that they can run in a bath of oil, eliminating the necessity of lubricating the unit while in operation.

Although certain specific embodiments of the invention have been shown and described, it is obvious that many modifications thereof are possible. The invention, therefore, is not to be restricted except in so far as is necessitated by the prior art and by the spirit of the appended claim.

What we claim is:

Driving means for a pick-up roll for gillnets, including a hollow horizontally disposed roller mounted on a shaft, one end of which extends through a supporting frame, said driving means comprising a fluid motor mounted on said frame within the horizontally disposed hollow roller, the motor shaft extending through the frame to the outside thereof adjacent the roller shaft, a pinion on the outer end of said shaft, a gear meshing with the said pinion, a pinion secured on the shaft of the gear and rotating therewith, a ring gear meshing with the pinion on the shaft with the gear, a clutch element mounted on the end of the shaft carrying the hollow horizontally disposed roller, the clutch member having a cut-out portion with one wall thereof inclined, and a roller mounted in the depression, the roller when in contact with the inclined wall of the depression frictionally binding the clutch member and ring gear together.

ALDAN J. LA BECK.
LELAND E. HOY.

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