

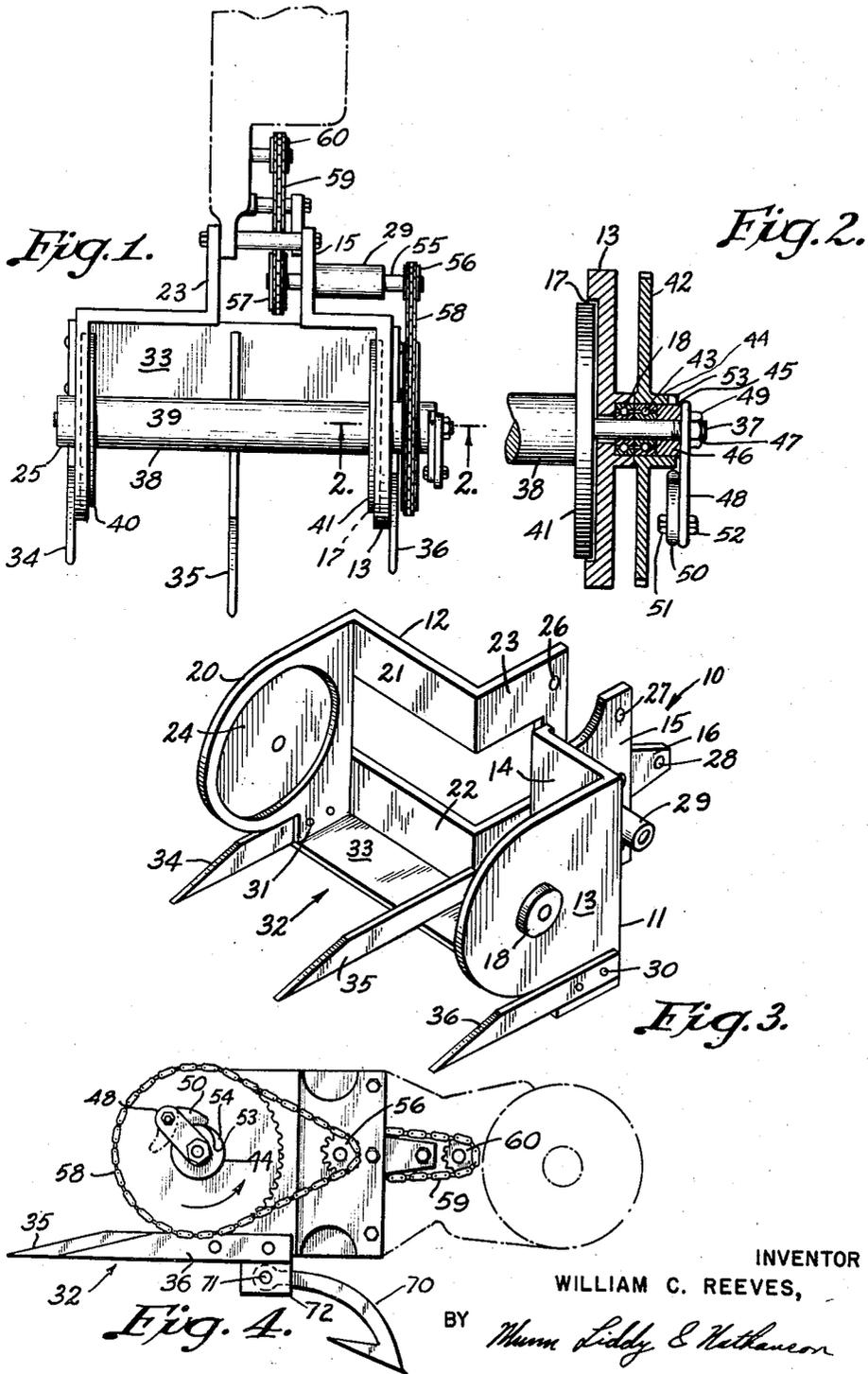
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PORTABLE WINCH

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PORTABLE WINCH

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1 Claim. (Cl. 254—186)

The invention relates to a portable winch.

It is an object of this invention to devise a winch for use in the logging or similar industries, which is light enough to be readily portable, yet which is so constructed that it will perform the tasks previously assigned to heavier non-portable winches.

A further object of the invention is to devise a portable winch which is power-operated and which, together with its power means is still sufficiently light in weight as to be easily moved from place to place.

Another object of this invention is to provide a winch which can readily be attached in the field to existing power means, such as a chain saw motor.

Still another object of my invention is to provide a winch which has means to prevent fouling of the line, and also means to insure even loading of the drum as the line is wound in.

In addition, this invention includes a novel dog-tooth arrangement for transmitting power to the drum and which can be disengaged to permit paying out the line.

These and other objects and advantages will become apparent from the following description and the accompanying drawings, in which:

Figure 1 is a plan view showing the winch and a portion of a chain saw motor used for driving the winch.

Figure 2 is a sectional view taken on line 2—2 of Figure 1.

Figure 3 is a perspective view of the sections of the winch which form a housing for the drum and a support for the other parts.

Figure 4 is a side elevational view.

Similar reference characters in the several figures indicate similar elements.

Reference character 10 indicates the housing comprising two generally Z-shaped side sections 11 and 12. Section 11 consists of a plate 13, a leg 14 and another plate 15 having a smaller plate 16 attached thereto. Plate 13 has a recess 17 in which one side plate of a drum or reel is received and a boss 18 in which an anti-friction bearing is mounted. Section 12 consists of a plate 20, a leg formed of two parallel segments 21 and 22 and a third plate 23. Plate 20, leg segments 21, 22 and plate 23 are respectively parallel to and horizontally aligned with plate 12, leg 14 and plate 15. Plate 20 has a recess 24 in which the other side plate of the drum is received, and a boss 25 in which an antifriction bearing is mounted. Plates 23 and 15 have aligned holes 26 and 27 therethrough for receiving bolts which are utilized in fastening the winch to a source of power, such as the chain saw motor shown in phantom lines in Figures 1 and 4 and in holding the side portions 11 and 12 in position. Plate 16 which is firmly affixed to plate 15 as by welding also has a hole 28 therethrough for receiving a bolt used in connecting to a power source. Plate 15 has in addition an extended boss or hub 29 having spaced bearings mounted within the ends thereof.

Attached to the bottom of sections 11 and 12 by

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bolts 30 and 31 is a bottom section generally indicated by the numeral 32. The section 32 consists of a plate 33 having pointed prongs or dogs 34, 35 and 36 attached thereto as by welding. Dog 35 extends forward farther than dogs 34 and 36 (see Fig. 4).

Shaft 37 is rotatably mounted within the bearings such as 19 of hubs 18 and 25. Drum 38 is non-rotatably mounted on shaft 37. The drum comprises a cylindrical tube 39 having two flanges 40 and 41 which are partially received in recesses 24 and 17.

Adjacent hub 18, sprocket wheel 42 is rotatably mounted on shaft 37 by anti-friction bearing 43. Hub 44 of sprocket 42 has a central bore 45 for receiving spacer 46, as well as bearing 43. Shaft 37 has left-handed threads 47 thereon. A pawl carrier 48 having a nut-like extension 49 is threaded onto shaft 37. Pawl 50 is mounted on carrier 48 by means of nut 51 and bolt 52 so that the pawl can pivot thereon. The pawl is so mounted on the carrier that it overlies the hub 44 of sprocket wheel 42 and is pivoted about an axis extending parallel to the axis of shaft 37. Hub 44 has a tooth 53 formed thereon by cutting out channel 54 therein. The pawl 50 is formed complementary to channel 54 and the end thereof abuts tooth 53 when line is being reeled in.

Shaft 55 is rotatably mounted in boss or hub 29 and has sprocket wheels 56 and 57 non-rotatably mounted thereon. Chain 58 extends between sprockets 56 and 42, and chain 59 extends between sprocket 57 and sprocket 60. Sprocket 60 is a drive sprocket mounted on the chain saw motor shown in phantom lines in Figures 1 and 4.

My winch is also provided with an additional dog, prong or hook. As illustrated in Figure 4 hook 70 is pivotally connected by pin 71 to two depending bosses, one of which is indicated by reference character 72. The other boss is an exact duplicate of boss 72 and is positioned on the opposite side of hook 70 from boss 72. The bosses are attached to the bottom plate 33. Hook 20 can be used by simply placing the winch on a stump or log. The hook will then serve as an anchor for spooling the cable. The hook is to the rear of the center line of the drum and is adapted to engage a log or other obstacle to the rear of the drum axis and in a plane substantially tangential of the drum. Hook 70 is in actuality another prong similar to prong 35.

When line is being reeled onto the drum the drum is rotated counterclockwise as viewed in Figure 4. Thus, the line is reeled in at the bottom of the winch. The drum is driven by the chain drive described above. Pawl 50 is in engagement with tooth 53 during the time the drum is being driven by said drive. When it is desired to pay out the line the dog or pawl 50 is disengaged and placed in the position shown in dotted lines in Figure 4. In order to disengage the pawl, the drum is rotated by hand, while the sprocket wheel is held in position, in such a manner that the pawl leaves channel 54.

As stated previously, the central prong 35 is longer than the two end prongs 34 and 36. The prongs are provided for engaging in a stump, log, or side of a tree while winding in a line, and since the central prong extends forwardly of the other two it is possible to work the motor and winch from side to side about the central prong. This insures that the line will be evenly distributed on the drum. The winch can also be oscillated about the hook on prong 70 in a manner similar to that described with respect to prong 35. The cable is wound in at the bottom of the winch. The prongs are thus immediately below the line of pull or load line and project substantially tangentially of the drum and parallel to the line of pull or load line. The prongs are substantially in the plane of plate 33 when engaged in a log or stump.

Suitable handles for carrying and holding the motor are provided on the saw motors in use today. Thus, none are shown on the winch proper, although, obviously they may be provided thereon. As mentioned above, the line is fed into the drum immediately above the prongs instead of at the top of the drum. Thus, the torque tending to turn the device about the prongs can be more easily controlled.

As an alternative method of operation, hinged hook 70 can be employed. With this hook the winch can be laid on a stump or log, and the holding of the winch or spooling of the line can be easily accomplished.

From the foregoing description it is apparent that I have devised a winch of great utility. My winch can be easily carried by one man and can be readily shifted from place to place as work progresses. The winch is particularly useful in logging operations where it can be used for pulling winch lines uphill, thus eliminating pulling by hand. In such work the winch must be portable since it is never needed twice in the same place.

While I have shown and described a preferred form of my invention, it will be understood that variations in details and form may be made without departure from the invention as defined in the appended claim.

I claim:

A winch comprising two generally parallel side portions, each comprising a plate having a recess therein, a leg extending at right angles to said plate and a plate parallel to the first mentioned plate, a shaft extending through said first mentioned plate of each side portion, a drum secured to said shaft, said drum having side plates, said last mentioned side plates being received in said recesses, a sprocket wheel rotatably mounted on said shaft, a pawl carrier in driving engagement with said shaft, a pawl mounted on said carrier in driving engagement with a tooth on a hub of said sprocket wheel, a second shaft

mounted in one of the plates of one of said side portions, a sprocket wheel mounted on both ends of said shaft, a drive chain between one of the last mentioned sprocket wheels and the first mentioned sprocket wheel, power means for driving said winch, means for connecting said side portions and power means together so as to form a single unit, a sprocket drive gear in said power means, a chain between the last mentioned sprocket drive gear and the other sprocket gear mounted on said second shaft, said side portions being connected by a bottom plate underlying said drum, three prongs extending outwardly from said bottom plate lying in the plane of said plate, one of said prongs being equally spaced from the other two prongs and extending outwardly from said bottom plate further than said other two prongs.

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