E. Y. MOORE.

CABLE WINCH.

APPLICATION FILED SEPT. 27, 1916.

1,249,169.

Patented Dec. 4, 1917.

2 SHEETS—SHEET 1.

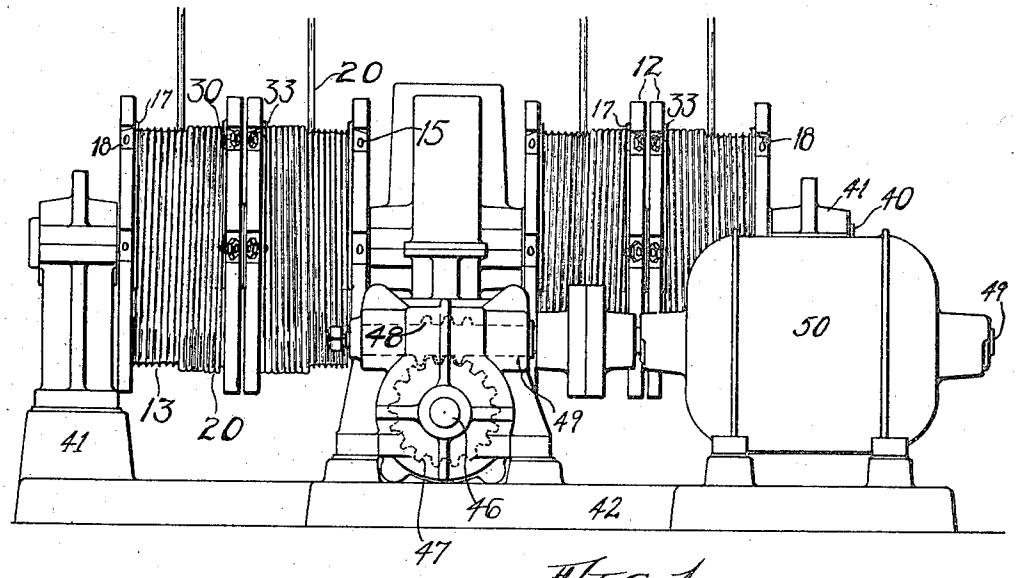


FIG. 1.

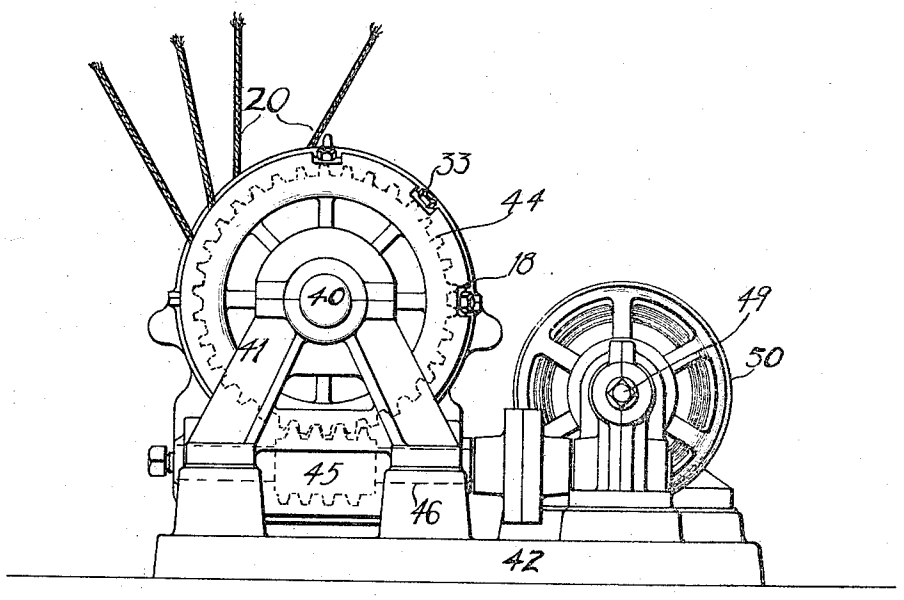


FIG. 2.

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2 SHEETS—SHEET 2.

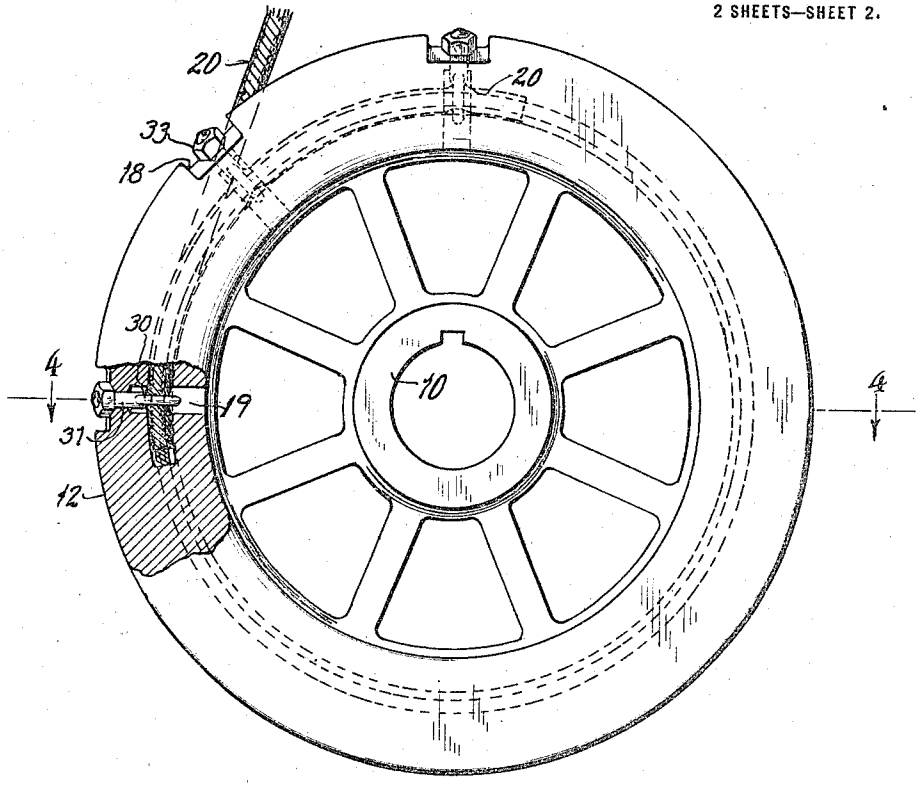
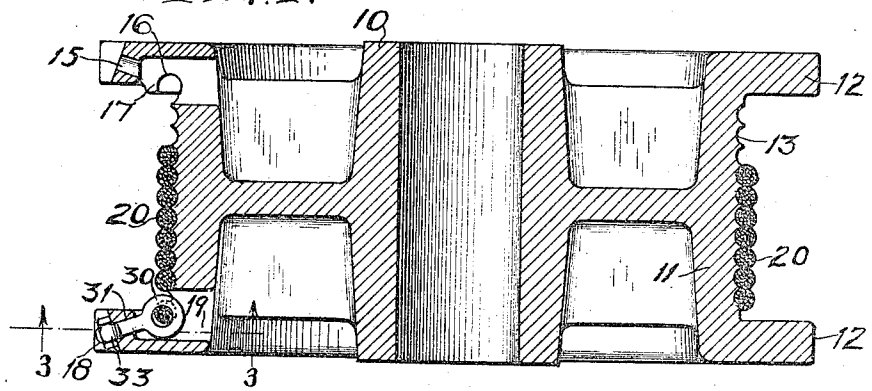


FIG. 3.

FIG. 4.



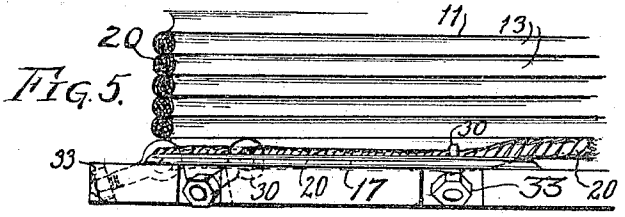


FIG. 5.

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UNITED STATES PATENT OFFICE.

EDWARD Y. MOORE, OF CLEVELAND, OHIO.

CABLE-WINCH.

1,249,169. Specification of Letters Patent. Patented Dec. 4, 1917.

Application filed September 27, 1916. Serial No. 122,390.

To all whom it may concern:

Be it known that I, EDWARD Y. MOORE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Cable-Winches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to machinery, for various purposes, which employ drums to which cables are anchored and on which such cables are wound, this class of machinery being conveniently referred to as winches. In these cable winches, particularly if they are used for heavy duty, it is difficult to efficiently anchor the cable to the drum and at the same time allow its ready removal for repair or replacement.

The object of this invention is to provide an efficient means for anchoring the cable to the drum so arranged that it may effectively secure the cable in use, and at the same time will be readily accessible for releasing the cable. In its preferred embodiment my invention comprises a drum having a flange, and an anchoring device movably mounted in the flange and having an eye through which the cable may be threaded, and having means accessible from the outside for moving the eye to clamp the cable. The invention is hereinafter more fully explained in connection with the accompanying drawings and the essential characteristics are summarized in the claims.

In the drawings, Figure 1 is a side elevation of an electric winch having four cable drums, each equipped with my fastening device; Fig. 2 is an end view of such mechanism; Fig. 3 is an end view, partly sectional, of one of the drums; Fig. 4 is a diametric cross section of such drum; Fig. 5 is a fragmentary edge view of one of the drums.

In the above mentioned drawings 10 indicates a winding drum. Fig. 1 shows four of these drums keyed to a common shaft 40, which may be driven as hereinafter explained. My invention is well adapted for a plurality of drums close together, because it does not require any access to the interior, for the anchorage of the cable, as has heretofore been the common practice. The invention, however, is applicable to one or more drums as desired.

Each drum 10 is provided with a substantially cylindrical body portion 11 having flanges 12 at its edges. The periphery of the body may have a screw-thread groove, as shown at 13. The cable is indicated at 20 in the drawings. It lies about the periphery of the drum and its end portion is anchored thereto by my anchoring devices. Each of these anchoring devices, as shown, consists of an eye bolt 30 having an eye portion through which the cable may be threaded, and having a shank 31 which occupies a radial opening 15 in one of the flanges 12. The shank of the eye bolt is threaded, and screwing on to it is a nut 33 which is adapted to draw the eye bolt outwardly and thus clamp the cable against a shoulder provided partly by an arcual recess 16 formed in the inner face of the flange and partly by an arcual rib 17 on the flange just outside of the recess.

Several eye bolts are preferably provided (three being shown in Fig. 3), and the end portion of the cable passes through these and is thus clamped at several points. I find that three of these clamping anchors are sufficient to effectively lock a cable carrying a very heavy load, though of course their number may be varied as desired.

The radial opening 15, which the eye bolt shanks occupy, are inclined so that the shank extends diagonally outward and the ends of the shanks seat within the recesses 18 formed in the outer edge of the flange and thus protect it. The eye portion of the eye bolt seats partly in a recess 19 formed in the inner face of the flange and continuing as a rectangular hole through the body 11 of the drum. This construction also enables the eye bolts to be originally put in place by passing them through the holes 19 from the inside. The drum is formed with open end spaces communicating with the holes 19. If the drum is of the particular web construction shown in Figs. 3 and 4, such end spaces are present without special formation.

After the eye bolts are in place and the cable threaded through, the tightening of the nuts effectively clamps the cable. To remove the cable at any time it is only necessary to loosen the nuts 33.

Figs. 1 and 2 illustrate the compactness with which a winch having multiple drums may be constructed employing my invention, as it is not necessary to gain access to the interior to anchor the cables. In these views four drums are keyed to a common shaft 40, mounted in standards 41 rising from a bed

42. Keyed centrally on the shaft is a worm wheel 44 which meshes with a worm 45 on an intermediate shaft 46. On this shaft is also a worm wheel 47 meshing with a worm 48 coupled with the armature shaft 49 of an electric motor 50. This double-worm drive illustrates the heavy work which the winch shown is designed to accomplish and thus illustrates the security of the anchorage.

Heretofore it has been customary to extend the inner end of the cable through an opening in the cylindrical surface of the drum and secure it to the inner side, but with a multiple winch, as shown, this would require the tearing down of the winch every time a cable was to be changed. With my construction, as heretofore stated, the cables may be changed simply by loosening the readily accessible nuts 33.

I prefer to provide the openings 15 and arcual shoulders 16 and 17 on each flange 12 of the drum, so that the cable may be anchored at either edge as desired. This is the construction shown in the drawings. In Fig. 1 the two outermost drums have their cables anchored at the inner flanges and innermost drums have their cables anchored at their outer flanges, but my construction allows anchorage at either flange, as is most convenient.

Having thus described my invention, what I claim is:

1. The combination, with a drum having a peripheral flange, of a cable adapted to be wound on the drum, means carried by the flange for anchoring the end of the cable, and means at the periphery of the flange for releasing said anchoring means.

2. The combination of a drum having a peripheral flange, a cable adapted to be wound thereon, an arcuate recess on the inner side of the flange in which the end portion of the cable may seat, and means operable from the periphery of the flange for forcing said end portion at one or more points against the shoulder provided by the recess to clamp the cable.

3. The combination of a drum having a peripheral flange, a cable adapted to be wound thereon, an arcual recess on the inner side of the flange in which the end portion of the cable may seat, and means mounted in the flange and operable from the outer periphery thereof for drawing said end portion outwardly to clamp the cable.

4. The combination of a drum having a peripheral flange, an arcual rib on the inner face of the flange, a cable adapted to be wound on the drum, and a device mounted in the flange and operable from the outer periphery thereof and adapted to engage the cable and clamp it against the rib.

5. The combination of a drum having a radial flange, a cable adapted to be wound on the drum, an eye bolt adapted to have the cable threaded through it and having its shank extending outwardly and loosely mounted in the radial flange, and means engaging said shank to bend the cable and clamp it.

6. The combination of a drum having a peripheral flange, a cable adapted to be wound on the drum, an eye bolt adapted to have the cable threaded through it and having its shank extending outwardly through the flange, and a nut screwing on said shank and adapted to draw the eye bolt outwardly and thus clamp the cable.

7. The combination of a drum having a flange with an arcual shoulder on its inner face, a cable adapted to be wound on the drum, a device adapted to engage the cable and having a shank extending through the flange substantially to its periphery, and a nut accessible at the periphery of the flange and screwing on said shank and adapted to draw the device outwardly and thus clamp the cable against the arcual shoulder.

8. The combination of a drum having a peripheral flange with an opening in it, an eye bolt having its shank extending outwardly and occupying said opening, and a nut screwing on the shank.

9. The combination of a drum having a radial flange with a radial opening in it and a recess on the inner side of the flange communicating with said opening, an eye bolt having its shank occupying said opening and its eye-portion occupying said recess, and a nut screwing on the outer end of the shank.

10. The combination of a drum having at its edge a radial flange with a radial opening in it, an eye bolt having its shank occupying said opening and its eye at the inner end thereof, an opening through the cylindrical body of the drum in juxtaposition to said eye, a nut screwing on the outer end of the shank, and a cable extending through the eye.

11. The combination of a winding drum having a hub, web, cylindrical body and an edge flange, the outer face of which is substantially a radial plane, there being one or more radial openings through such flange which are inclined away from the drum and terminate at the peripheral edge of the flange, and one or more recesses in the inner face of the flange and one or more openings from the hollow of the drum between the hub and cylindrical body to said recess or recesses, one or more eye bolts having their bodies extending into the recesses in the flange and having their shanks occupying said inclined radial openings, and one or more nuts screwing onto said shanks, whereby a cable may be clamped to the drum by the turning of said nuts.

12. The combination of a drum having

two edge flanges each with an outwardly extending opening in it, an eye bolt having its shank adapted to occupy said opening in either peripheral flange, a nut screwing on the outer end of the shank, and a cable extending through the eye bolt and adapted to be wound on the drum.

13. In a winch, the combination of a plurality of drums side by side and close to each other, edge flanges on said drums, the adjacent faces of which are substantially radial planes, cables, and means accessible from the outside for anchoring the ends of the cables to one of the edge flanges of the corresponding drum.

14. In a winch, the combination of a plurality of drums side by side, peripheral flanges at the edges of said drum, cables adapted to be wound on the respective drums, means carried by the flanges of the drums and extending outwardly through such flanges for anchoring the cables, and means accessible at the outer periphery of the flanges for operating said devices.

15. In a winch, the combination of a plurality of drums side by side and close to each other, each provided with a pair of edge flanges, a device carried by one of the flanges of each drum for anchoring the cable to the drum, and means accessible from the outer periphery of the flange for operating said device.

In testimony whereof, I hereunto affix my signature.

EDWARD Y. MOORE.

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