May 15, 1951 C. R. ATHY ET AL 2,552,924

CABLE ANCHOR FOR WELL DERRICK LINES

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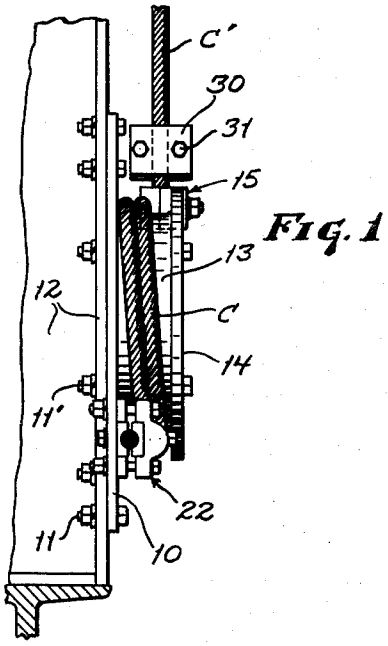


FIG. 1

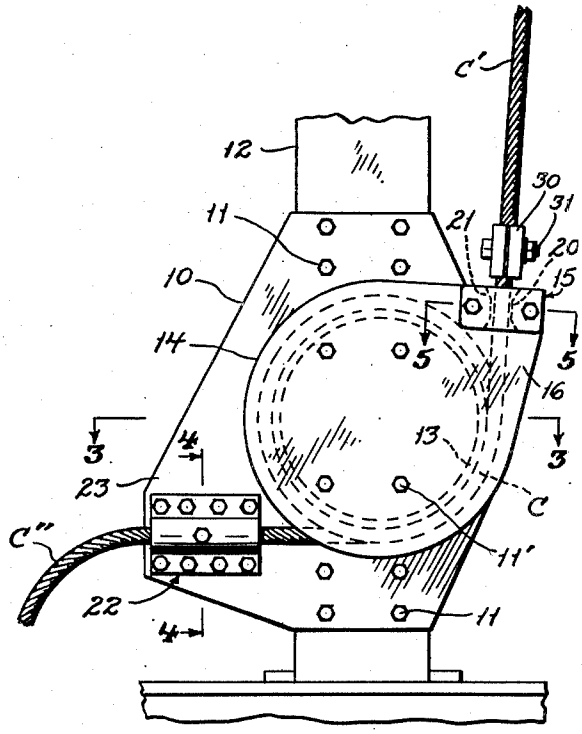


FIG. 2

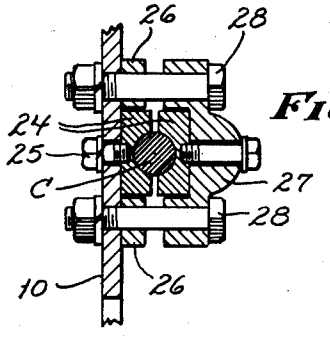


FIG. 4

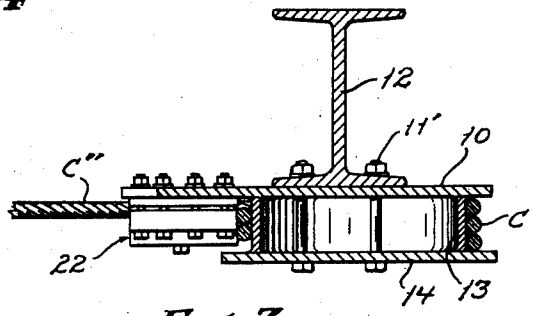


FIG. 3

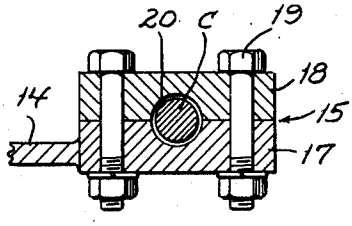


FIG. 5

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CABLE ANCHOR FOR WELL DERRICK LINES

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1 Claim. (Cl. 24—115)

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This invention relates to cable anchors and particularly to an improvement in the type of anchor employing a cable-snubbing drum.

This type of cable anchor is known in the oilfields as a deadline anchor since it is usually employed in retaining the deadline of the block and tackle on the drill hoist. The cable, in such an application, leads down from the fixed block of the derrick to the drum and, after two or three turns about the drum, is securely clamped. The tension in the cable is gradually reduced throughout the turns, due to the contact with the stationary drum surface, so that only a comparatively small amount is present at the clamp. Thus, when the load is removed from the cable and suddenly reapplied, the sudden increase is absorbed by the drum and an injurious effect on the cable at the rigid clamp is prevented.

A new source of injury, however, is introduced by the drum in that the slackening of the cable allows the turns to relax and expand. When tension is subsequently applied, the turns must readjust themselves by sliding and crowding upon the drum and each other and are frequently abraded in the process. The danger is also present that one turn will move over atop an adjacent one and will suddenly slide off, under load, with a consequent injurious jolt to the entire system.

Attempts have been made to limit the radial movement of the slackened cable on the drum but, to our knowledge, have not been completely successful in solving the problem. We, on the other hand, have formed a very satisfactory solution in actually limiting the amount of cable which can return to the drum when tension is relaxed. The limiting effect need, therefore, be applied at only one place, namely, where the high-tension part of the cable leaves the drum, instead of on the turns themselves.

A difficulty is encountered in placing an anchor of the present type in service and in subsequent adjustment because of the rather great resistance of the cable to bending and to laying in smooth turns. We have found that a very satisfactory degree of control may be gained by providing a cable guide at the proper point of entry of the high-tension part of the cable to the drum. This, in conjunction with the clamp at the low tension side, defines the cable direction and facilitates the proper positioning of the turns.

Another object, therefore, is to facilitate cable control by provision of a guide for the high-tension part of the cable.

Still another object is to provide a cable anchor of the present type in a very simple form

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which is adapted to be secured against an existing structure, such as the derrick itself, and which, therefore, needs no base structure of its own.

Other objects and advantages will be made apparent by the following specification and claim and by the appended drawings.

In the drawings,

Fig. 1 is an end elevational view of the cable anchor of this invention supported on a structural column;

Fig. 2 is a side elevational view of the same; and

Figs. 3, 4, and 5 are cross-sectional views taken on the correspondingly numbered planes in Fig. 2.

In the drawings, in which a preferred embodiment of our invention is illustrated, it will be seen that a very simple and economical structure is obtained by the use of two flat plates and an interposed band. The base plate **10** is extended, at top and bottom, to provide space for mounting bolts **11**, by means of which the device may be secured to a structural element, such as the column **12**, of the rig. Mounting bolts **11** which occur at the drum location are of appropriate length to extend therethrough.

The snubbing drum, itself, is formed of a band **13** welded or otherwise secured against the plate **10**. The outer or retaining plate **14** is welded or otherwise secured to the outer edge of the band. Both plates extend beyond the band periphery to furnish drum rims.

A cable guide **15**, best seen in Figs. 2 and 5, is carried by an extension **16** of the otherwise circular plate **14**. The guide comprises a split block, half of which is carried by the extension **16**, as shown at **17**, and the other half of which provides a removable cap **18** with retaining bolts **19**. A channel **20** for the cable C is formed in the halves and is preferably flared as indicated at **21**.

A cable clamp **22** is mounted on an extension **23** of the base plate. Two replaceable shoes **24** are adapted to clamp the cable, one being loosely retained on the base plate by a stud **25** and confined by stops **26** and the other being loosely carried in a removable cap **27**. Clamping pressure is applied by means of bolts **28**.

A separable clamp **30** is formed of similar halves and may be secured at any desired point on the cable by means of bolts **31**. The purpose of this clamp is to provide an abutment on the cable which will engage an abutment on the drum structure to prevent an undue amount of cable from uncoiling from the drum. The upper surface of the cable guide **15** very conveniently

furnishes the fixed abutment in the present embodiment.

In the operation of the device the cable leads downwardly, at C', as the deadline of a hoisting system and, after passing through the guide **15**, is wound about the drum for a few turns and then passes through the clamp **22**. The part C'' beyond the clamp usually extends to a reserve cable spool as it is desirable to add increments of cable intermittently to the system to compensate for wear and tear. The clamp **30** is so positioned on the cable that a small separation exists between it and the fixed abutment when the cable is under tension. A slight amount of relaxation of the turns is thus allowed when the cable is slack and a slight "working" is afforded to prevent shock when the load is suddenly reapplied.

While we have illustrated and described specific forms of drum, guide, and clamps, it will be understood that numerous changes may be made without departing from the spirit of our invention. For example, the adjustable clamp **30**, instead of being entirely separate, may be carried by a spring arm rising from the drum structure or may otherwise be movably mounted on the latter.

We claim:

A cable anchor comprising a base member

adapted to be attached to an associated stationary support, a snubbing drum fixed on said base member, a cable having snubbing engagement with said drum, a clamp carried by said base member and to which said cable is directly secured on one side of said drum, a stationary guide coacting with said drum and through which the cable on the opposite side of said drum with respect to said clamp passes, and a cable stop fixed to said cable at a position in which the stop is spaced from said guide when the portion of said cable carrying said stop is under tension and engaged with said guide upon contraction of the cable when the tension thereon is released.

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