Sept. 21, 1943. E. E. ROBINS 2,329,943

MEANS FOR SECURING CABLES TO HOIST DRUMS

Filed June 12, 1941

Fig. 1.

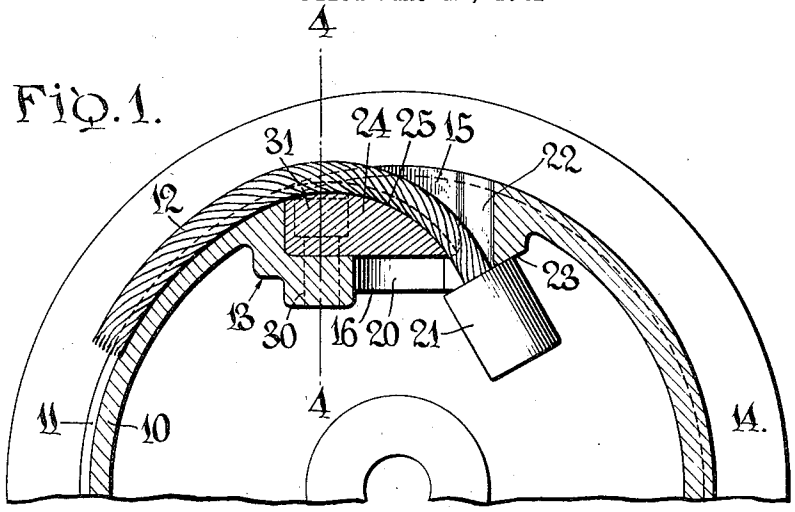


Fig. 2.

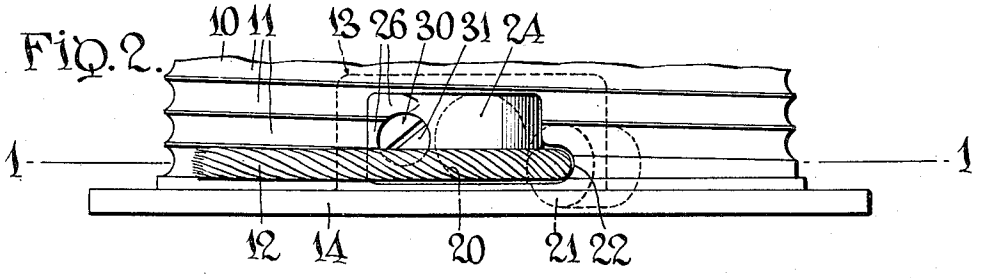


Fig. 3.

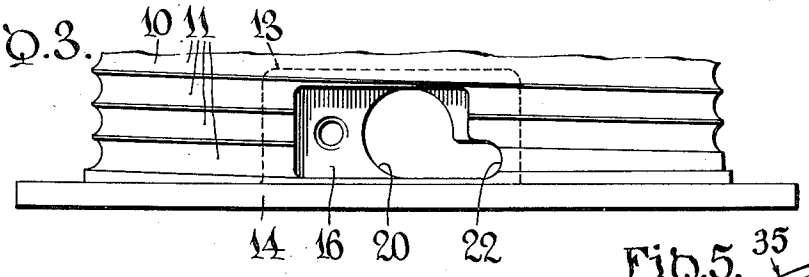


Fig. 4.

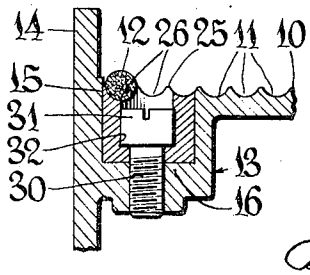


Fig. 5.

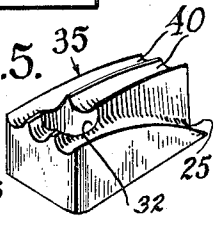
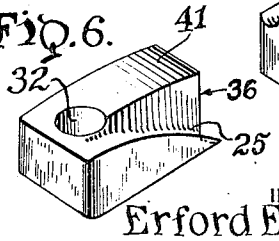


Fig. 6.



INVENTOR
Erford E. Robins,
BY
Beau, Brooks, Buckley & Beau.
ATTORNEYS

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MEANS FOR SECURING CABLES TO HOIST DRUMS

Erford E. Robins, Tonawanda, N. Y., assignor to Columbus McKinnon Chain Corporation, Tonawanda, N. Y., a corporation of New York

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7 Claims. (Cl. 242—117)

My invention relates in general to improvements in hoists and particularly to means for conveniently attaching the cable end to the drum of a hoist.

It is well known to those skilled in the art that in the usual hoist construction, the full length of the cable is passed through a radial opening in the drum, and the cable makes a sharp bend at the point where it emerges from the drum, with the result that kinking of the cable occurs and consequently weakening thereof.

The principal object of my invention therefore has been to provide means for securing a cable to a hoist drum by which the anchor at the end of the cable may be passed through an opening in the drum and securely locked in place, without having to thread the entire length of the cable through the opening in the drum.

A further object has been to provide means for closing the opening through which the anchor is passed and to provide such closing means with an anvil surface of smooth curved contour whereby all sharp bends may be avoided in the cable and it may be brought to the surface of the drum in smooth unbroken curves of such radii that kinking will be impossible.

Another object has been to provide abutment means on the interior of the drum for the anchor at the end of the cable and engagement with said anchor by a lateral movement away from the center of the hole through which the anchor passes, and at substantially tangential arrangement with said hole.

Moreover, my device is so constructed that the insert block and the means for securing it in place are located under the first convolution of the cable on the drum and are therefore locked in place by said cable.

Furthermore, my means are so constructed that the clamping block and the screw for securing the same in place take no part of the tensional strain in the cable, thereby providing means which are simple and strong.

Moreover, my securing means are simple, strong and durable and relatively inexpensive to manufacture.

The above objects and advantages have been accomplished by the device shown in the accompanying drawing, of which:

Fig. 1 is a fragmentary, transverse, sectional view taken through a hoist drum showing my invention and is taken on line 1—1 of Fig. 2.

Fig. 2 is a fragmentary, plan view of the invention.

Fig. 3 is a similar view showing the drum with the insert block removed.

Fig. 4 is a longitudinal section through the drum taken on line 4—4 of Fig. 1.

Figs. 5 and 6 show modified forms of insert blocks.

In the accompanying drawing I have shown my invention as applied to a cable hoist, but it is obvious that it is applicable to many other uses where it is necessary to secure a cable.

In the drawing, 10 represents the drum of the hoist which is shown in fragmentary manner and which is provided with the usual helical groove 11 for the reception of the cable 12 of the drum.

In carrying out my invention, the drum at the starting end of the cable is provided with an inwardly extending housing 13, arranged adjacent the flange 14 at that end of the drum. This housing is provided with a recess 15 which is terminated at its lower end by means of a bottom wall 16.

The bottom wall of the housing is formed with an aperture 20 made of a size sufficient to permit the usual cable anchor block 21 to pass therethrough. Formed in the side of the housing opposite the place where the cable emerges from the drum is a radial recess 22. This recess is offset longitudinally with relation to the center of the aperture 20 and extends substantially in tangential direction therefrom. This recess is of such size as to permit the passage of the cable 12 but prevents the passage of the anchor block 21. The housing is provided on its under face with an abutment 23 arranged at such an angle that it will cooperate with the upper surface of the anchor block when the cable and block are in their final positions upon the drum.

An insert block 24 is provided for closing the aperture 20 and for keeping the cable in the recess 22 as well as maintaining the anchor block 21 in engagement with the surface 23. This insert block is fitted into the recess 15 and also functions to provide a smooth curved surface of relatively large radius to support the cable as it emerges from the drum. To this end the block is formed with an upper surface 25 curved so as to meet and support the cable as it emerges from the drum and to carry it up to the point where it will engage the groove 11 of the drum, thus preventing all possibility of kinking. The upper surface of this block may be provided with grooves 26 registering with the grooves 11 of the drum. If desired, the grooves 26 of the block 24 may be extended the full length of the block as shown in Fig. 5. In this figure the block 35 is provided

with grooves 40 which support the second and third convolutions of the cable across the entire length of the recess 15. Furthermore, instead of providing grooves 40 as shown in the form of Fig. 5, the top surface 41 of the block 36 of Fig. 6 may be substantially flat transversely, and at such a position radially of the drum as to extend across the bottoms of the grooves thereof for supporting the second and third convolutions of the cable. Each of the blocks 35 and 36 is, of course, formed with a curved recess 25 for supporting the cable as it emerges from the drum and meets the first groove thereon. A countersunk hole 32 is formed in each block for the reception of the screw 30.

From the foregoing it is obvious that the insert block 24 will be held in place within the recess 15 by means of the cable 20 of the hoist without additional fastening means. It is preferable, however, to provide suitable fastening means for the insert block and for this purpose I employ a screw 30. The head 31 of the screw is set into a countersunk aperture 32 to such a depth that the top surface of the head lies just below the groove 26 formed in the block whereby, should the screw become loose, it will be prevented from working its way out of the aperture because of the presence of the cable. The screw passes through the block and into the bottom wall 16 of the housing.

From the foregoing it will be obvious that when a cable is to be attached to a drum equipped with my invention, the anchor block 21 which is, as is well known initially secured to the end of the cable 12, is passed through the opening 20 and then moved longitudinally of the drum to a point where it registers with the recess 22. The cable is then moved into this recess. While the cable is temporarily held in a substantially radial direction in the recess 22, the insert block 24 is placed in the recess 15 and the screw 30 passed therethrough and into the wall 16 where it is securely fastened in place. The cable is then drawn over the curved top surface of the insert block and engaged with the first groove 11 of the drum in a smooth gradual curve, thus preventing harmful kinking or bending. When the cable is thus moved over the top of the insert block, the anchor block 21 will be brought to the proper angle so that its upper surface will engage with the abutment 23 formed on the housing. Thus, by the insertion of the block 24, the cable is not only held within the recess 22, but when the cable is in place upon the drum it serves to lock all the parts together. When it is desired to remove or replace the cable for any reason, it is only necessary to unwrap it from the drum and then to remove the insert block, after which the anchor block may be passed through the aperture 20.

Obviously, some modifications of the details herein shown and described may be made without departing from the spirit of my invention or the scope of the appended claims, and I do not, therefore, wish to be limited to the exact embodiment herein shown and described, the form shown being merely a preferred embodiment thereof.

Having thus described my invention, what I claim is:

1. A hoist drum having a cable anchoring portion formed with a peripheral cable-anchoring recess having an enlarged communicating entrance opening, the latter permitting free passage of an enlarged anchoring head inwardly therethrough for anchoring engagement in the recess, and a removable closure for the entrance opening, said closure having a cable supporting surface over which the cable passes as it leaves the recess, whereby the cable will serve to hold the closure in place.

2. A hoist drum having a cable anchoring portion formed with a peripheral cable-anchoring recess having an enlarged communicating entrance opening, the latter permitting free passage of an enlarged anchoring head inwardly therethrough for anchoring engagement in the recess, and a removable closure for the entrance opening, said closure having a cable supporting surface extending peripherally in the direction of the wind of the cable and over which the cable passes as it leaves the recess, whereby to give support to the cable from the recess to the cable supporting periphery of the drum.

3. A hoist drum having a cable anchoring portion formed with a peripheral cable-anchoring recess having an enlarged communicating entrance opening, the latter permitting free passage of an enlarged anchoring head inwardly therethrough for anchoring engagement in the recess, a removable closure for the entrance opening, said closure having a cable supporting surface over which the cable passes as it leaves the recess, whereby the cable will serve to hold the closure operative, and means carried by said closure and said drum for securing the closure in place, said securing means being accessible from said cable supporting surface.

4. A hoist drum having a cable anchoring recess formed in its periphery and provided with a cable anchoring aperture formed in its bottom wall, said aperture having an enlarged communicating entrance opening, the latter permitting passage of an enlarged anchoring head inwardly through said bottom wall for anchoring engagement in the opening, and a removable closure for the entrance opening disposed in said recess, said closure having a cable supporting surface over which the cable passes as it leaves the cable anchoring aperture, whereby the cable will serve to hold the closure in position.

5. A hoist drum having a cable anchoring recess formed in its periphery and provided with a cable anchoring aperture formed in its bottom wall, said aperture having an enlarged communicating entrance opening, the latter permitting passage of an enlarged anchoring head inwardly through said bottom wall for anchoring engagement in the opening, and a removable closure disposed within said recess and extending over said entrance opening, said closure having a cable supporting surface which is covered by more than one convolution of said cable, whereby the cable will serve to retain said closure in position.

6. A hoist drum having a cable anchoring recess formed in its periphery and provided with a cable anchoring aperture formed in its bottom wall, said aperture having an enlarged communicating entrance opening in offset relation therewith, the latter permitting passage of an enlarged anchoring head inwardly through said bottom wall for anchoring engagement in the aperture, and a removable closure for the entrance opening disposed in said recess, said closure having a cable supporting surface over which the cable passes as it leaves the cable anchoring aperture, whereby the cable will serve to hold the closure in position.

7. A hoist drum having a cable anchoring recess

formed in its periphery and provided with a cable anchoring aperture formed in its bottom wall, said aperture having an enlarged communicating entrance opening, the latter permitting passage of an enlarged anchoring head inwardly through said bottom wall for anchoring engagement in the aperture, and a removable block disposed within said recess for closing said entrance opening, means for securing said block in said opening, said block having a cable supporting surface over which the cable passes as it leaves the cable anchoring aperture, said means for securing being located beneath the cable when engaged with the block.

ERFORD E. ROBINS.