Dec. 26, 1933. J. E. DALE 1,941,250

FAIR LEAD

Original Filed Dec. 30, 1929

Fig. 1.

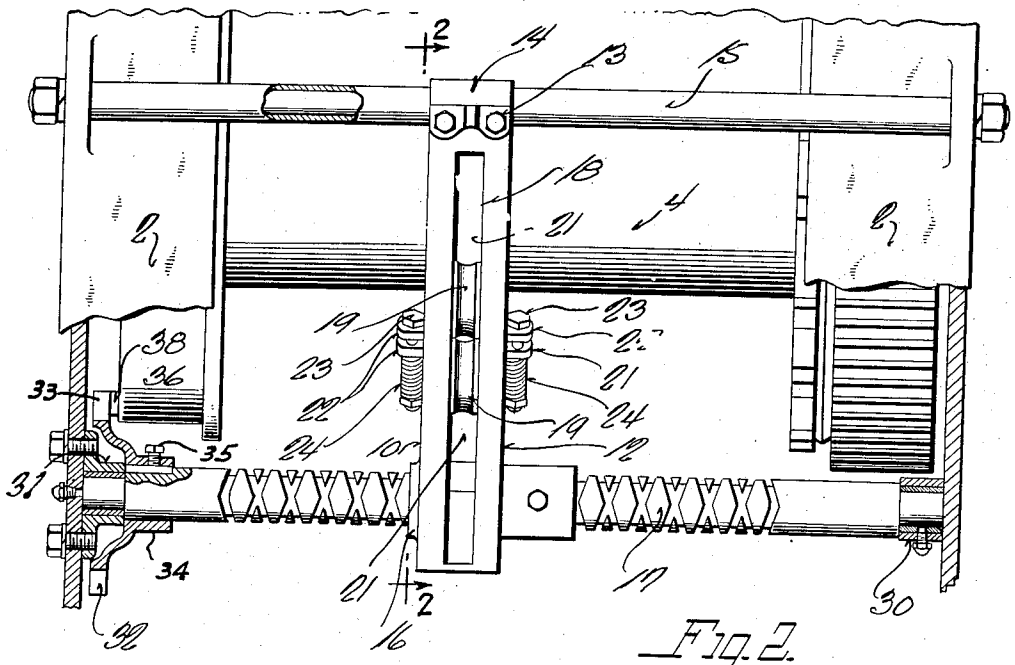


Fig. 2.

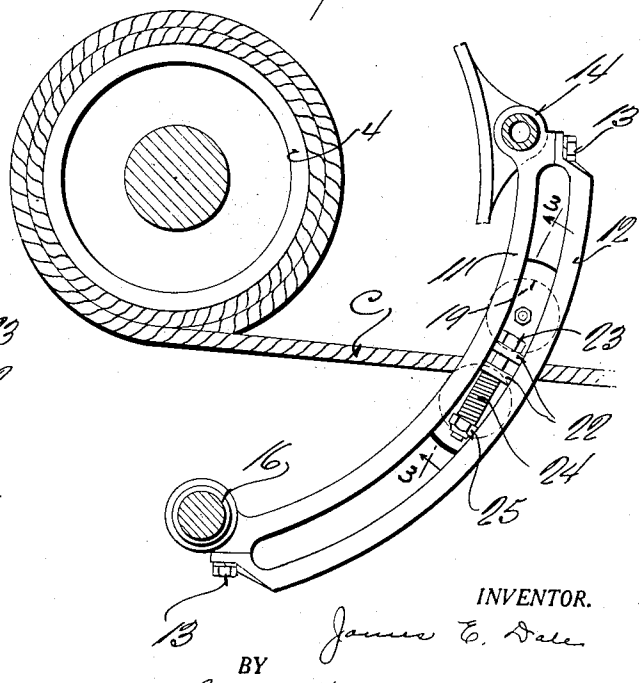
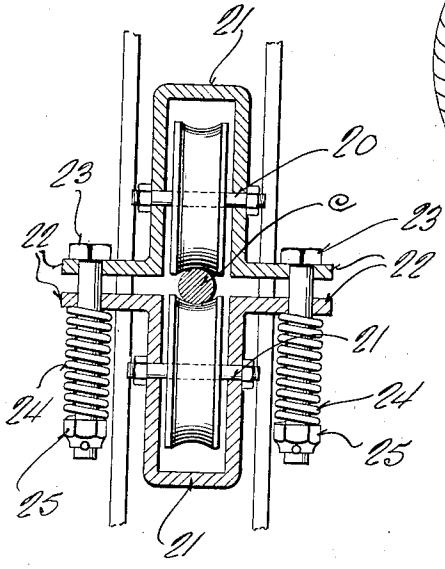


Fig. 3.



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FAIR LEAD

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Original application December 30, 1929, Serial No. 417,397. Patent No. 1,797,331, March 24, 1931. Divided and this application February 19, 1931. Serial No. 516,899

3 Claims. (Cl. 254—190)

This invention relates to fair leads for hoists and the present application is a division of my pending application for fair leads filed December 30, 1929, Serial No. 417,397 now Patent No. 1,797,331, granted March 24, 1931.

The object of the invention resides in the provision of a novel form of traveling guide which not only guides but also grips the cable to prevent the same from uncoiling and entangling under any circumstances. If, for instance, the cable should be under heavy tension as in pulling a stump and the stump is suddenly released by the ground or the cable snaps under excessive load, the gripping engagement between the guide and the cable will hold the convolutions properly positioned and tightly wound on the drum even though tension of the cable beyond the guide be entirely relieved. Another advantage of the guide resides in its ability to automatically position itself at the proper level for effective cooperation with the cable. Thus, as the cable is built up on the drum in successive layers the guide will raise automatically and on the other hand when the cable is paid out and there are less layers on the drum, the guide will lower automatically. The guide partakes of the same action depending upon the relative level of the load with respect to the hoist.

Other objects and advantages reside in certain novel features of the construction, arrangement and combination of parts which will be hereinafter more fully described and particularly pointed out in the appended claims, reference being had to the accompanying drawing, forming a part of this specification, and in which:

Figure 1 is a fragmentary view partly in front elevation and partly in section showing a drum of a hoist having a fair lead organized therewith and embodying the present invention;

Figure 2 is a fragmentary view in section taken on line 2—2 of Figure 1; and

Figure 3 is a similar view taken on line 3—3 of Fig. 2.

For the general construction of the hoist, reference is made to my pending application above referred to. For the purpose of the present invention it will be sufficient to understand that the hoist, as shown in Figure 1, has side frame members 2 supporting a power driven drum 4 in accordance with the usual practice. The drum is also driven and controlled in a conventional manner.

The present invention proposes the provision of a fair lead including a traveling carrier 10 made up of curved or arc-shaped parts or sections 11 and 12 secured together by bolts 13 (see Figure 2). The section 11 is provided with a guide 14 at one end which slidably receives a transverse guide rod 15 extending between and secured to the side frame members of the hoist, as shown in Figure 1. The other end of the section 11 of the carrier is formed with a nut 16 which is interfitted with a double threaded or double acting screw 17. The front and rear sections 11 and 12 of the carrier are provided with alined and longitudinally extending slots 18 which accommodate the edges or peripheries or a pair of rollers or guide sheaves 19.

As shown in Figure 3, the guide pulleys 19 are rotatably mounted on pins 20 fastened in oppositely disposed U-shaped brackets 21. The U-shaped brackets 21 have their legs formed with lugs 22 which extend into the guide-way formed between the sections 11 and 12 to slidably support the pulley assembly on the carrier. For holding the two brackets 21 assembled and maintaining the pulleys 19 in gripping engagement with the cable, bolts 23 are passed through bolt holes in the lugs 22 and having their heads engaged with the lugs 22 of one of the brackets. On each bolt 23 a spring 24 is mounted and is urged against the adjacent lug 22 by means of a nut 25 threaded on the outer end of the bolt. The cable wound on the drum 4 is designated at C and passes between and is gripped and guided by the pulleys 19 as shown in Figure 2.

The screw 17 is rotatably supported at its ends in bearings 30 and 31 suitably secured to the side frame members 2 of the hoist (see Figure 1). Adjacent the bearing member 31 a sprocket wheel 32 is provided and has its teeth 33 offset from its hub 34. The hub 34 is suitably secured as at 35 to the screw 17. The teeth 33 of the sprocket wheel 32 are disposed adjacent and in overlapping relation to a flange 36 formed at one end of the drum, as clearly shown in Figure 1. A suitable number of drive pins 38 are mounted on the flange 36 and coact with the teeth 33 of the sprocket wheel 32 to rotate the sprocket wheel and consequently the screw 17 whenever the drum is rotated.

It will be noted that the pulleys 19 are urged into gripping engagement with the cable by the springs 24. Due to this gripping engagement the convolutions of the cable on the drum are retained in proper position and under proper tension even where there is no tension on the cable beyond the pulleys 19. This feature is especially desirable as it avoids uncoiling and entangling of the convolutions of the cable on the drum un-

der the influence of back lash or when the load on the cable is suddenly released as well as under other conditions.

Further, the pulleys 19 are so mounted and supported in the traveling carrier as to be self-leveling under the influence of the cable. In other words, the pulley assembly rises and falls depending upon the level of the load or upon the number of layers of cable wrapped about the drum.

The invention claimed is:

1. A fair lead for use with the cables of hoisting mechanism including a slotted carrier supported for traversing movement with respect to the hoist, said carrier having alined front and rear slots to provide for the passage of the cable therethrough and also having side slots, a pair of oppositely arranged U-shaped brackets having outwardly directed lugs slidably interfitted with the side slots of the carrier, spring means connected with the lugs for urging the brackets together and pulleys rotatably mounted on the brackets and engageable with the cable under the influence of said spring means.

2. A fair lead for use with the cables of hoisting drums and comprising a carrier, a pair of pulleys cooperable with the cable, an individual bracket supporting each pulley for rotation, cooperating means between the brackets and the carrier for supporting the brackets for free and unrestrained bodily movement toward each other, and spring means cooperable with the brackets to urge them into gripping engagement with the cable and thereby preclude backlash from uncoiling and entangling the convolutions of the cable on the drum.

3. A fair lead for use with the cables of a hoisting mechanism and comprising a carrier having means at its end adapted to coact with supporting and traversing mechanism, said carrier having a slot extending fore and aft therethrough to provide a passage for the cables, pulleys mounted in said fore and aft slot and engageable with the cables, means mounting the pulleys for rotation and for floating movement longitudinally of the carrier, said carrier having transverse slots extending longitudinally thereof and said means having elements projecting into said slots for guiding the pulleys as they shift bodily with respect to the carrier.

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