

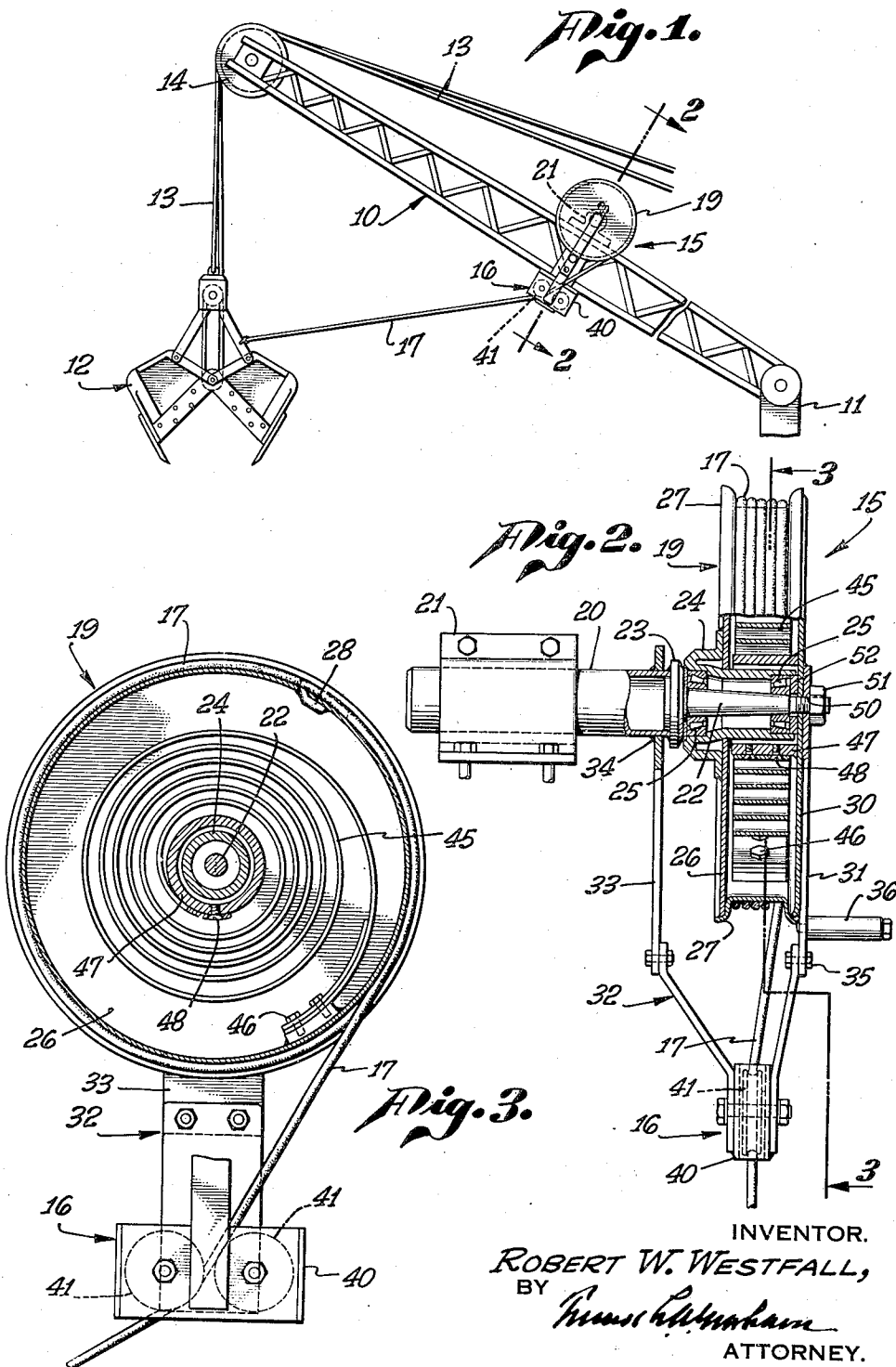
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TAGLINE DEVICE

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TAGLINE DEVICE

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This invention relates to crane mechanism in which a boom is used for supporting a bucket or other material handling device and in which a tagline is used whereby the bucket is prevented from swinging or twisting.

Various devices have been used for placing a tension on the tagline such as a weight which, however, is unsatisfactory as in such cases the tension placed on the line by the weight is variable due to the various vertical angular positions of the boom for the reason that the weight is usually slidably mounted along the boom. There have also been devices in which an elongated coil spring has been employed of the character used for the operation of window shades but this type also has proven unsatisfactory as the tension on the tagline is at a point removed from the location of the spring and in such devices no satisfactory provision has been made for adjusting the tension on the tagline as may be required according to the character of the material handling device used and the particular kind of work being performed on any particular job.

It is one of the objects of this invention to provide a device of simple form and construction in which the tension means is wholly enclosed in the drum directly in line with the extension of the tagline.

Another object of my invention is to produce a tagline device of simple and compact structure, the parts being so arranged that the tension on the tagline may be readily adjusted.

Another object of the present invention is to provide a tagline device in which the fair lead, the tagline drum and tension means constitute a unit which may be readily assembled and installed.

Further objects and advantages will appear hereinafter from the following description and the drawing. Referring to the drawing, which is for illustrative purposes only,

Fig. 1 is a diagrammatic view of a portion of a crane, the boom supporting the bucket and a form of tagline device embodying my invention mounted on the boom;

Fig. 2 is a vertical sectional view of the tagline device shown in Fig. 1; and

Fig. 3 is a face view partly in section of the device shown in Fig. 2.

More particularly describing the drawing, as shown in Fig. 1, 10 designates the boom of a crane pivotally mounted on a carriage 11. 12 indicates a bucket suspended on the usual cables 13 which pass over sheaves 14 on the end of the boom, the other ends of the sheaves being connected

as is usually done to the hoisting mechanism not shown. Mounted on the boom is diagrammatically shown (see Fig. 1) the tagline device of the present invention generally indicated at 15. As a part of this tagline device is what is usually termed the fair lead 16 through which the tagline as indicated at 17 freely passes, one end of the tagline being connected to the bucket and the other end connected to the drum of the tagline device.

20 indicates a shaft or tubing which supports the tagline pulley. This shaft or tubing is clamped in desired position on the boom by means of a bracket generally indicated at 21. The outer end of the shaft 20 terminates in a spindle, indicated at 22 which is provided with a flange 23 welded to the end of the shaft. Rotatably mounted on the spindle is a bearing housing 24. Any suitable form of bearing, as for instance Timken bearings 25 are interposed between the spindle and the bearing housing. Secured to the bearing housing by means of welding or in any suitable manner, is a side plate 26 of the drum 19. This side plate is welded or otherwise suitably connected to a dished rim 27 which forms the periphery of the drum and receives the tagline 17 coiled thereon. The tagline 17 as shown in Fig. 3 has one end anchored to the drum as indicated at 28. A side plate 30 is welded or otherwise secured to a leg 31 of a fair lead frame generally indicated at 32. The other leg 33 of the frame 32 is welded or otherwise secured to the shaft 20 as indicated at 34. The leg 30 is detachably connected to the fair lead frame by means of a bolt 35 and is also provided with a handle 36 for the purposes hereinafter referred to. The outer end of the fair lead frame supports a housing 40 attached thereto. This housing 40 is provided with rollers or sheaves, indicated at 41 between which the tagline 17 freely extends to the bucket as shown in Fig. 1.

Wholly enclosed within the drum is a flat spiral spring indicated at 45, the outer end of which is secured to the inside of the drum by means of bolts 46 as shown in Figs. 2 and 3. The other end of the coiled spring is attached to a spool 47 by means of screws or bolts 48. The spool 47 is fixed to the cover plate 30 by welding or in any other suitable manner.

In operation it is understood that the tagline pulling on the drum is placed under tension by the spiral spring 45 which is in direct line with the pull of the tagline. If it is desirable to place a different tension on the tagline by reason of various loads which may be on the bucket, this

can readily be accomplished by removing the bolt 35 and by means of the handle rotating the cover 30. This cover plate being directly connected to the inner end of the spring as heretofore described either winds the spring up giving a greater tension on the tagline or by rotating the plate in the opposite direction and unwinding the spring the tension on the tagline is reduced.

The inner end of the leg 31 on the fair lead frame is provided with a hole 50 which receives the end of the spindle 22, the leg being retained thereon by means of a nut 51 which engages the threaded end of the spindle. A washer, indicated at 52, is interposed between the cover plate 30 and the adjacent bearing at the outer end of the bearing housing 23.

I claim as my invention:

1. In a crane mechanism having a material handling apparatus suspended from a boom, in combination; a cable drum mounting secured to said boom; a cable drum rotatably mounted on the cable drum mounting; a tagline on said cable drum having one end attached to said material handling apparatus and the other end attached to said drum; a fair lead frame mounted on said cable drum mounting in fixed relation thereto; pulleys on said fair lead frame engageable by said tagline; and a convolute spiral spring in said drum having one end attached to said drum and the other end attached to said fair lead frame.

2. In a crane mechanism having a material handling apparatus suspended from a boom, in combination: a cable drum mounting secured to said boom; a cable drum freely rotatably mounted on the cable drum mounting; a tagline on said cable drum having one end attached to said material handling apparatus and the other end attached to said drum; a fair lead frame mounted on said cable drum mounting in fixed relation thereto; pulleys on said fair lead frame engageable by said tagline; a leg on said fair lead frame rotatably mounted on said cable drum mounting; means for detachably securing said leg to the fair lead frame; and a convolute spiral spring in said drum having one end attached to said drum and its other end attached to said leg.

3. In a crane mechanism having a material handling apparatus suspended from a boom, in combination: a cable drum mounting secured to said boom; a cable drum freely rotatably mounted on the cable drum mounting; a tagline on said cable drum having one end attached to said material handling apparatus and the other end attached to said drum; a fair lead frame mounted on said cable drum mounting in fixed relation thereto; pulleys on said fair lead frame engageable by said tagline; a removable stationary side cover for said pulley; a leg on said fair lead frame secured to said cover; means for

detachably securing said leg to the fair lead frame; and a convolute spiral spring in said drum having one end attached to said drum and its other end attached to said cover.

4. In a crane mechanism having a material handling bucket suspended from a boom, in combination: a cable drum mounting secured to said boom; a spindle on said mounting; a cable drum freely rotatably mounted on said spindle; a fair lead frame secured to the cable drum mounting a releasably fixed cover plate mounted on said fair lead frame for one side of said drum; a convolute spiral spring in said drum having one end fixed to said drum and the other end fixed to said cover plate; means for rotating the cover plate about the axis of the drum and a tagline attached to said bucket at one end and secured to the drum at the other end.

5. In a crane mechanism having a material handling bucket or the like suspended from a boom, in combination; a cable drum mounting secured to said boom; a spindle on said cable drum mounting; a cable drum freely rotatably mounted on said spindle; a tagline secured at one end to said bucket and at the other to said cable drum; a fair lead frame; a leg on said frame secured to said cable drum mounting on one side of said cable drum; a second leg on said frame detachably secured to said frame and having its inner end freely mounted on said spindle; a cover plate for said drum attached to said second leg of the fair lead frame; a spiral spring in said drum having one end attached to said drum and the other end attached to said cover plate; and means for rotating the second leg of the fair lead frame and cover thereon to vary the tension on said spring.

6. In a crane mechanism having a material handling bucket in combination: a shaft, a cable drum freely rotatably mounted on said shaft; a tagline secured at one end to the said bucket and at the other end to said drum; a side plate on said drum in releasable fixed relation to said drum; and a spiral spring in said drum having one end connected to said drum and the other end connected to said side plate and means for rotating said side plate independently of said drum.

7. In an apparatus for placing tension on a tagline, the combination of: a rotatable drum; a tagline on said drum having one end attached to the drum; a convolute spiral spring in said drum having one end attached to the drum; a fixed member supported within the drum; means for securing the other end of the spring to said fixed member; and means for changing the position of the fixed member with relation to the end of the spring attached to the drum.

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