United States Patent

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[72] Inventor **Fred C. Hall**
820 Sharon Park Drive, Menlo Park, Calif. 94025

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[54] **DRIVE SPOOL CONSTRUCTION**
2 Claims, 4 Drawing Figs.

[52] **U.S. Cl.** **242/54**
[51] **Int. Cl.** **B65h 75/00,** B65h 17/06
[50] **Field of Search** ..... 242/18 DD, 54, 66, 47, 58.6, 86.5, 78.7

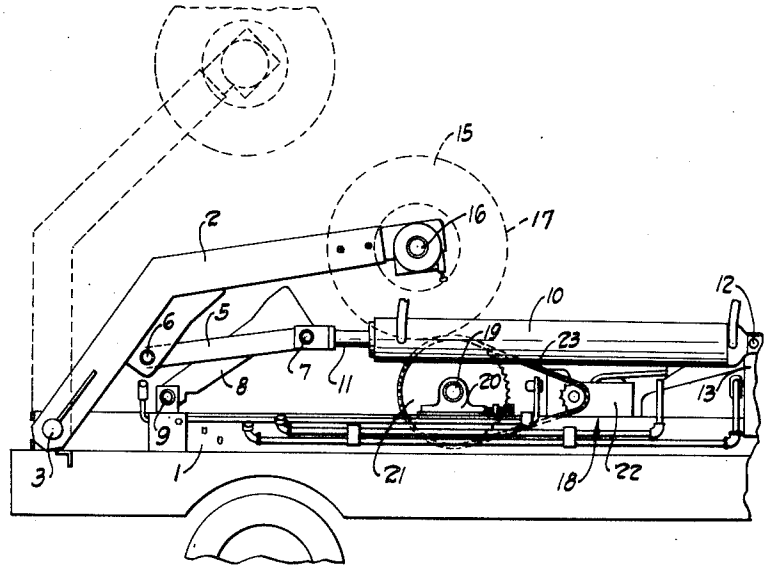
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Primary Examiner—Stanley N. Gilreath
Assistant Examiner—Werner H. Schroeder
Attorney—Robb and Robb

ABSTRACT: The disclosure herein relates to reel driving mechanism and particularly to the actual drive arrangement which is intended to increase the life of the various components as to the usual phases thereof by making possible the adjustment of the actual drive wear surfaces with respect to reel end peripheries so that long life is obtained by shifting the wear surfaces to uniformly provide for the wear thereof. The arrangement is best availed of in a reel driving mechanism wherein the reel is lifted into position and by suitable arrangement possibly forcibly engaged with the friction drive surface, thus accentuating wear under some circumstances, but since the wearing surfaces are adjustable with respect to the drive imposed thereupon, such surfaces can be most usefully availed of and the lives extended thereby.

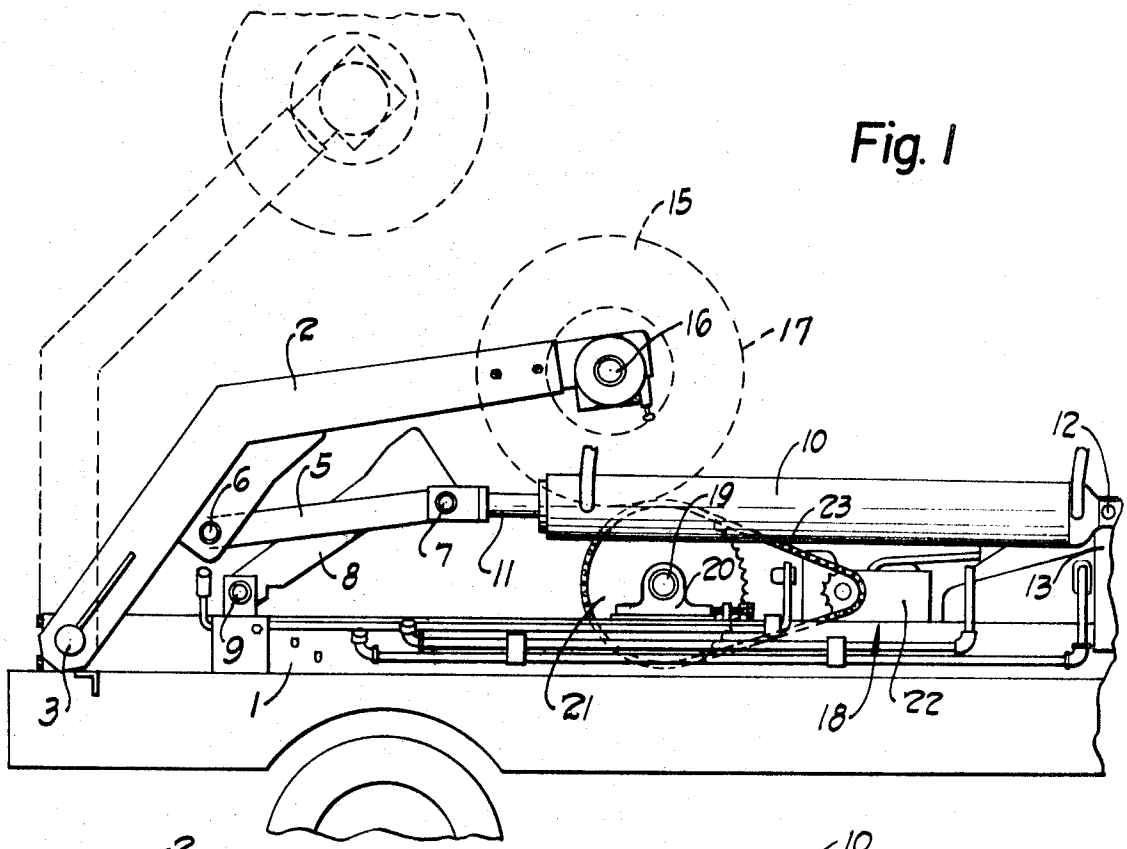


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SHEET 1 OF 2

Fig. 1



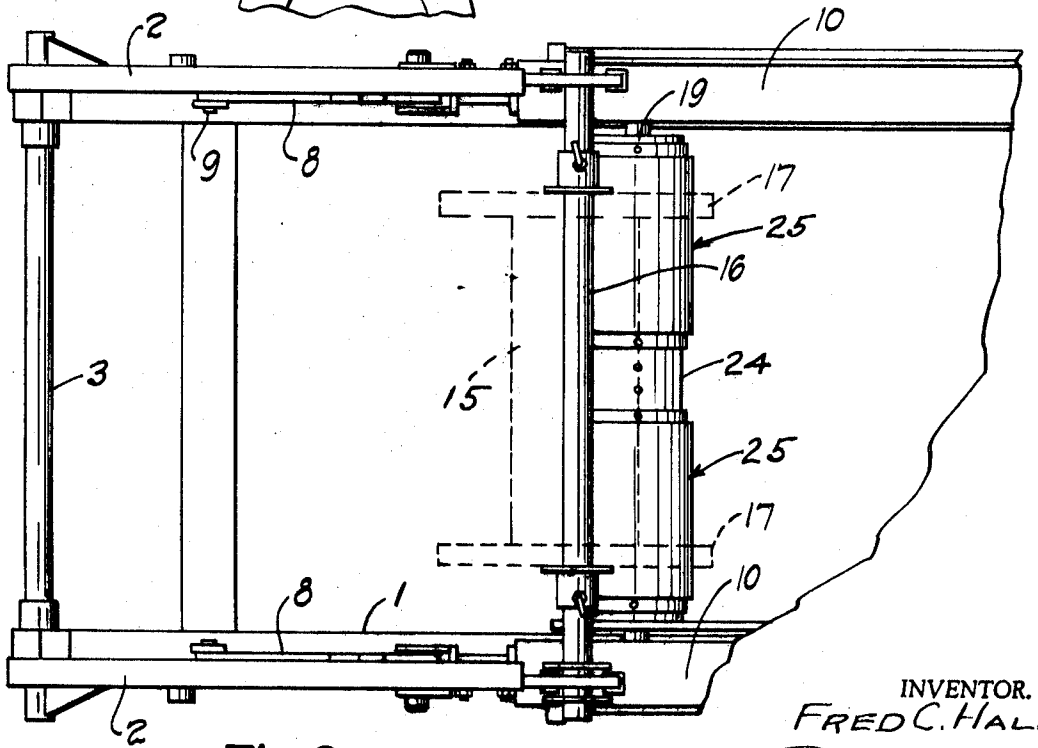


Fig. 2

INVENTOR.
FRED C. HALL
BY Robb & Robb
attorneys

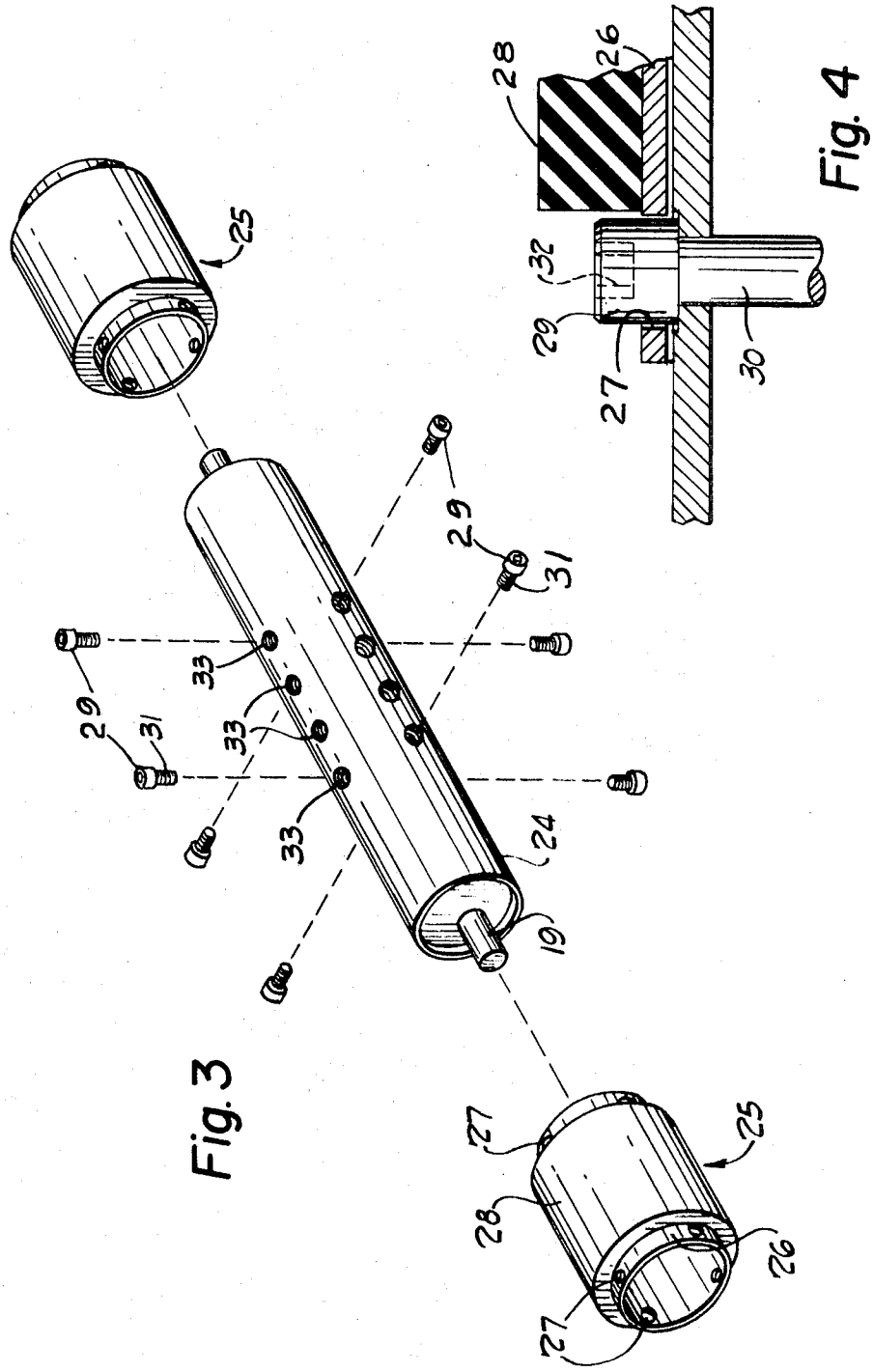


Fig. 3

Fig. 4

INVENTOR.
FRED C. HALL
BY Robb & Robb
attorneys

DRIVE SPOOL CONSTRUCTION

It is a particular object of this invention to provide a reel drive mechanism in which the mechanism itself is generally mounted upon a main frame which is desirably adapted to be mounted on a truck for transport, the drive mechanism including lifting and positioning arms to support a reel and bring the same into contact with the driving mechanism whereby cable may be reeled about the reel under the drive of the driving mechanism and the drive imposed upon the reel varied by frictional contact of the peripheries of the reel ends with the driving means.

Particularly the concept hereof is of driving means which have adjustable wear surfaces so to speak, to make possible longer useful life of the portions which would normally be caused to wear since the friction drive is effected through a resilient material which is in turn mounted upon and arranged in a cylindrical manner to engage the reel ends.

A specific object of the invention is to so arrange the actual driving means which include a spool and collar means positioned thereon, which collar means themselves include the friction drive surface and the collar means being adjustable transversely along the spool so that various portions of the wearing surface may be presented to accomplish the drive action desired.

A specific object of the invention is to so arrange the spool member and collars through which the drive is effected so that not only can transverse shifting be effected, but actual end-for-end positioning or reversal of the respective parts be effected so that a still greater variation in the drive area is possible to provide.

Other and further objects of the invention will be understood from a consideration of the specification appended hereto, and disclosed in the drawings wherein:

FIG. 1 is a fragmentary side elevation view showing a reel drive mechanism and the relationship of the portions thereof in which this invention is located.

FIG. 2 is a top plan view, largely fragmentary showing other aspects of the relationship of the parts hereof.

FIG. 3 is an exploded view in perspective showing the various components of the reel drive means and particularly the spool member and associated parts whereby the drive is provided to the reel and the manner in which the various adjusted positions of the respective parts are possible to be accomplished.

FIG. 4 is a fragmentary view largely in section, illustrating the actual way of connecting the frictional means with the spool member upon which the same are seated.

Referring now to FIG. 1, the reel drive mechanism hereof is somewhat conventional, including a base or main frame 1 of generally rectilinear configuration, having lift arms 2 pivotally arranged at 3 to the base frame 1, this being further illustrated in FIG. 2 to show the lift arms 2 as being spaced at opposite sides of the main frame 1, these arms in turn being connected by links 5 at one end by the pivots 6 to the arms 2, and at the other end by pivots 7 to lift links 8 likewise spaced at opposite sides of the main frame 1, and pivotally connected at 9 thereto.

At the pivotal connection 7, suitable hydraulic piston and cylinder units 10 are in turn connected as by the piston rods 11 thereof to the pivots 7, and at opposite ends by the pivots 12 to upright 13 extending upwardly from the main frame.

Suitable hydraulic instrumentalities may be provided as will be apparent to those skilled in the art to direct hydraulic fluid to opposite ends of the piston and cylinder units 10, thereby causing the arms 2 to swing into the dotted line positions for example, as illustrated in FIG. 1, or in the full line positions of such figure, wherein a reel indicated in dotted lines at 15 located and supported for pivotal rotation on a transversely extending axle 16 is shown with the reel ends denoted 17 in engagement with the drive mechanism now to be described.

The drive mechanism is indicated generally at 18, and includes a drive shaft 19 which is mounted in suitable bearings in pillow blocks 20 for rotatively supporting the actual driving instrumentalities which will be described in detail momentarily.

The shaft 19 is driven at one end by a suitable pulley such as 21 from a motor 22 by belt 23, the pulley 21 of course being connected to the shaft 19 to compel rotation thereof.

The shaft 19 in turn, as illustrated in FIG. 3, is equipped with a spool member 24 which is cylindrical and suitably supported on the shaft 19 so as to be compelled to rotate therewith.

Supported on the spool member 24, is a pair of collar means generally denoted 25 which are identical as will be understood, and thus one will be used to describe the actual construction, the other being identical as will be appreciated.

The collar means 25 includes a cylindrical part 26 of some length, substantially less than that of the actual spool member 24 itself, this cylindrical part 26 having the radially disposed openings 27 therein at 90 degree locations.

It should be noted that the opposite end of the part 26 is similarly provided with openings 27, identically arranged to those at the opposite end previously described, for purposes which will presently appear.

A suitable friction drive or wear surface 28 is adhered to the exterior surface of the part 26 as by vulcanizing in some manner so as to be drivably connected therewith. The surface 28 extends substantially the full length of the part 26 but permits the openings 27 to be exposed to receive fasteners therein, and as illustrated in FIG. 4 in detail with the heads of such fasteners which may be denoted 29, the body being denoted 30 thereof, and of course having threads at the lower extremities as illustrated in FIG. 3, denoted at 31.

The heads 29 are provided with a socket 32 as indicated to receive a suitable wrench for manipulation of the fasteners in a manner which we believe will be apparent to those skilled in the art.

In any event, the openings 27 are of such a size as to receive the heads 29 as desired, and prevent relative rotation of the cylindrical parts, and thereby the entire collar means with respect to the spool member 24.

The spool member 24, as indicated in FIG. 3, is equipped with a series of openings 33, spaced at 90 degree positions circumferentially of the spool member 24, and thus when the openings 27 are suitably arranged with regard to the openings 33, the fasteners may be inserted therewithin and suitably manipulated so as to bring the heads into position shown in FIG. 4.

The axial positions of the openings 33 will be in any preferred distance apart, so that longitudinal movement of the collar members 25 along the spool member 24 may be effected to present a different wearing portion of the surface 28 to the reel ends 17 as conditions and wearing may dictate.

It will be understood that while there are two positions shown for each of the members 25 in FIG. 3, the reverse positioning of the respective members 25 may be effected so that actually four different wearing areas are presented in each of said members.

As wear may occur, the members may be shifted accordingly or replaced when conditions warrant, when the entire wear surface of the collar members 25 are worn so that they no longer have available any friction drive wearing surface which will effect the rotation of the reel 15 to coil, cable, or the like thereon.

From the foregoing it will be apparent that a novel arrangement is provided which will make possible long wear and long life, as well as suitable friction drive operation to effect the rotation of reels of varying widths, and variously positioned along the axle 16.

It is noted that the cylindrical part 26 is of an interior diameter which is somewhat greater than the outer diameter of the spool member 24, an thus there is adequate clearance so that the part 26 may be easily removed from the spool member 24.

Since there is the clearance indicated, the fasteners 29 and specifically the heads thereof, as shown in FIG. 4, bottom on the member 24 and extend through openings 27 to provide a means for driving the collar means 25 which is of course fastened to and compelled to turn with the cylindrical part 26.

There are thus provided several drive points so to speak—in fact, in the disclosure hereof four for each of the collar means **25** in any event as indicated in the other figures in the drawing.

The collar means **25** thus in effect floats with respect to the spool member **24** and is not distorted by the pressure applied to the spool which it is driving.

I claim:

1. In a reel loader of the class described, in combination, a main frame, means on the frame to lift and position a reel having reel ends with respect thereto and drive means for said reel comprising a cylindrical spool member connected to the drive means, cylindrical collar means mounted on said spool member and shiftable therealong, said collar means having a resilient friction drive surface extending therearound for engagement with a reel end in response to operation of the lift means aforesaid, and means to adjustably fix the collar means comprising fastener means engaging the collar means and spool member in the positions to which the collar means is shifted, whereby driving engagement of the collar means and reel ends may be correspondingly adjusted.

2. The combination as claimed in claim **1**, wherein the collar means comprises a pair of substantially identical parts having fastener engaging openings at the ends, the friction drive surface extends between the openings, and the spool member is formed with a series of fastener receiving openings spaced therealong, said fastener engaging and receiving openings being arranged to provide for longitudinal adjusted positioning of the collar means and for end-for-end reversal and connection for drive transmission, and fastener means in said openings.

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