Fig. 3.
This invention relates to a compensating device for winding and reeling machinery and more particularly to means for accurately directing skeins of rope, cable, and similar material onto the winding reel.

Machinery conventionally used for forming cables, rope, and similar multiple component strands include an integrating element which brings the individual cords into twined relationship and the closed or finished cable is thereafter tensioned and wound onto a suitable reeling device. In order to accomplish even winding of the cable upon the reel, it is necessary to provide a traverse mechanism which guides the cable back and forth over the reel in a continuous motion to lay the turns or convolutions thereof in an even pattern. Devices of this nature are shown and described in the copending application of the present applicant, Serial No. 353,257, filed May 6, 1953, now Patent No. 2,763,979.

In these devices, it is usually necessary to provide a quick reversal of the traverse mechanism which guides the cable back and forth across the reel when the turns of the cable reach the flanges at the ends of the reel to avoid binding at the extremities of the movement and to insure a new series of turns in a reverse direction to the opposite side.

An object of the present invention is to provide means whereby the lateral disposition of the skein may be advanced or retarded at will as it is fed into the reel. Another object of the invention is to supply means in the form of a reversible motor which can advance or retard the movement of the traversing guide which directs the length of the material under tension onto the winding device or reel. A further and important object is to provide an auxiliary element readily applicable to existing machinery for performing these functions with slight modifications.

The invention accordingly contemplates machinery for reeling cable comprising a traversing guide movable back and forth in front of a reeling device, a carriage for the traversing guide, a main drive connected with the carriage for moving the traverse guide reversely across the reel, an auxiliary drive for advancing said carriage at a greater speed than that provided by the main drive and means for temporarily rendering the main drive inoperative during operation of the auxiliary drive.

Referring to the drawings, it will be observed that:

Fig. 1 is a plan view of a conventional winding device embodying the features of the invention;

Fig. 2 is a side elevation of such a device viewed from the left side of the machinery shown in Figure 1;

Fig. 3 is an end elevation showing in particular the control mechanism applied to the traversing element;

Fig. 4 is a side elevation of the traversing mechanism taken from the left side of Fig. 3;

Fig. 5 is a sectional showing in particular the overriding mechanism provided according to the principles of the present invention.

In the drawings, and particularly in Figs. 1 and 2 thereof, it will be seen that the closed or formed cable enters into a pair of tensioning drums 11 and 12 mounted on a base 13. These drums are formed respectively with convolute grooves 13a and 14a and are mounted on axles 15 and 16 journalled in the base 13. Gears 17 and 18 at the inner end of the axles 15 and 16 mesh with the drive pinion 19 mounted on shaft 20 which is driven by a sprocket 21 and main drive chain 22. Also on the drive shaft 20 is a drive sprocket 23 which translates motive power to gear box 24, connected in turn to the reeling mechanism shown generally at 25. From the tensioning drums, the cable 10 is directed between the traversing guide 26 of the reeling mechanism 25 and from there finally onto the reel 27.

The reeling mechanism 25 conventionally includes a stand or frame having uprights 28, braces 29, and base cross members 30. The reel 27 is secured to a shaft 31 which is journaled in bearings 32 mounted on the braces 29. The shaft 31 is driven by sprocket 34 through chain 35 and idler sprockets 36 and 37. The idler 36 is fixedly mounted on the left upright 28, as viewed in Figure 1, looking toward the traversing mechanism 25, and the idler 37 is mounted on an adjustable arm 38 for tensioning the drive chain 35. The chain 35 is driven by sprocket 39 on a power takeoff shaft from the gear box 24. Also on the same power takeoff shaft is a second sprocket 39 for a chain 40 which is connected with a sprocket 41 mounted on a variable drive 42.

It will be observed in Figure 3 that the traverse guide 26 is threaded at the top and bottom to upper and lower threaded traverse rods 43 and 44 respectively which move the traverse guide 26 back and forth in front of the cable reel 27, as more clearly shown in Fig. 1. The threaded traverse rod 44 is driven through drive chain 45 connected at the end of the traverse rod 43. As shown in Figs. 3 and 5, the upper traverse rod 43 is conventionally driven by an automatic reversing gear mechanism shown generally at 45. This reversing gear mechanism is driven at variable speeds through chain drive 46 from variable drive 42 and drive sprocket 47. The reversing gear mechanism includes reversing gears 48 and 49, as shown in Figs. 3 and 5. The main drive sprocket 47 is fixedly mounted on the reversing gear 48 and both reversing gears 48 and 49 float rotatably on the main drive shaft 59 connected with the upper threaded reverse rod 43, as shown in Fig. 5. The reversing gears 48 and 49 are driven in opposite directions through an intermediate gear 51, and power takeoff is effected through main clutch member 52 provided on each side with clutch faces 53 and 54 and slidably keyed at 55 to the main drive shaft 50. The floating reversible gears 48 and 49 are respectively provided with cooperating inner clutch faces 56 and 57.

The main drive pinion 52 is provided with a circumferential channel for trunnions 58 which are operated by the pivoted reversing lever 59 shown at the upper limit in Fig. 3 provided with a spring 60. The upper end of the threaded traversing guide 26 has an arm 61 for automatically reversing the rotation of the threaded traversing rods 43 and 44 at opposite ends of the travel. The arm 61 rides over a shiftable rod 62 until it engages collars 63 and 64 near the extremities of the shaft. The movement automatically shifts the reversing lever 59, as shown in Figs. 3 and 5, and, through the action of the spring 60, the main drive clutch 52 is alternately shifted to the left and to the right to reverse the rotation of the traversing rod 43 and move the traversing guide back and forth to lay the convolutions of cable onto the reel 27 in an even pattern.

The operation and mechanism, as described hereinafter, is conventional in machines for winding and reeling cables and similar multiple strand elements after the stranding operation.
The embodiment which comprises the subject matter of the present invention includes a separate and, if desired, remotely controlled motor 65, preferably reversible, connected through chain 66 with an electrically operated clutch 67 which operates the lower traverse rod 44 and the upper reverse rod 43 through the connecting chain 43a. Referring to Figure 5, it will be observed that a friction clutch 68 is interposed between the drive shaft 50 and the upper threaded traverse rod 43. The alternate friction plates of the friction clutch 68 rotate with the traverse rod 43 and with the main drive shaft 50.

It will be appreciated that with the foregoing arrangement and with, for example, the traverse guide 26 moving to the left in Figs. 1 and 3, it is desired to advance, retard or reverse the disposition of the closed cable onto the winding reel 27. Motor 65 is energized through suitable switching means (and at the same time clutch 67 is engaged) and the traversing rods 43 and 44 then rotate either at a faster rate than the main drive shaft 50 or in a direction opposite that of the shaft 50, thereby causing the clutch 68 to slip, and the traverse rods 43 and 44 and the traverse guide 26 then move independently of the main drive shaft 50.

It will be appreciated that this arrangement provides for an extremely accurate and selective control for the cable guiding mechanism and enables the operator to maintain full control over the cable guiding machinery. These and other advantages will become increasingly apparent to those skilled in the art from the foregoing specification and the accompanying claims.

I claim:

1. An override control mechanism for reeling machinery having a traversing guide for directing cable onto the winding reel, a rotatable threaded traverse rod and reversing clutch for moving the traversing guide back and forth over the reel to lay convolutions of cable onto a reel, a main drive connected through the reversing clutch with the threaded traverse rod, a friction clutch between the reversing clutch and the traverse rod, an auxiliary drive connected to the traverse rod at the opposite end thereof from the friction clutch, the friction clutch functioning to render the main drive temporarily inoperable while the auxiliary drive alters the normal movement of the traverse rod and disposition of the cable onto the winding reel.

2. An override control mechanism as set forth in claim 1 wherein the auxiliary drive is a reversible motor so that the traversing guide may be either advanced or reversed in normal movement at the will of the operator.

3. An override control mechanism for reeling machinery having a traversing guide for directing cable onto the winding reel, a rotatable threaded traverse rod and reversing clutch for moving the traversing guide back and forth over the reel to lay convolutions of cable onto the reel in an even pattern, a main drive for the traverse rod, a friction clutch connected at one side of the traverse rod with the reversing clutch, and an auxiliary drive connected with the other side of the traverse rod whereby the auxiliary drive may be energized to rotate the traverse rod at a greater speed and accelerate the movement of the traversing guide over the movement normally provided by the main drive.

4. Machinery for reeling cable comprising a traversing guide movable back and forth in front of a reeling device, a carriage for moving the traversing guide reversely across the reel, a friction slip clutch disposed between the main drive and the carriage for the traversing guide, and a reversible motor connected at the other side of the carriage for actuating the carriage independently of the main drive by means of the friction clutch to advance or reverse the movement of the traversing guide across the reel.

5. Machinery for reeling cable comprising a traversing guide movable back and forth in front of a reeling device for directing cable onto a winding reel, a rotatable threaded traverse rod and reversing clutch connected at one end of the traverse rod, a main drive for the traverse rod connected with the reversing clutch, an auxiliary drive connected at the other end of the traverse rod and friction means for coupling the reversing clutch with the traverse rod, the said motor being reversible and effective upon functioning of the auxiliary drive to permit rotation of the traverse rod and movement of the traversing guide by the auxiliary drive independently of the reversing clutch.

6. Reeling machinery apparatus as set forth in claim 6, wherein the separate clutch device is constituted by a friction clutch connecting the reversing clutch side with the traverse rod.

7. Reeling machinery apparatus as set forth in claim 6, wherein the auxiliary drive is constituted by a reversible motor capable of operating the traverse rod and traversing guide in both directions independently of the main drive.

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