Dec. 30, 1941. W. W. BOISTURE 2,268,178

TAPE REEL

Filed April 8, 1941

Fig. 1.

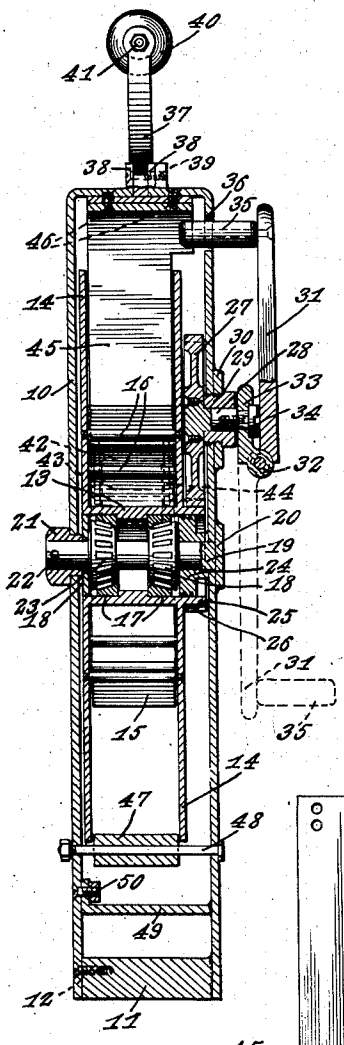


Fig. 2.

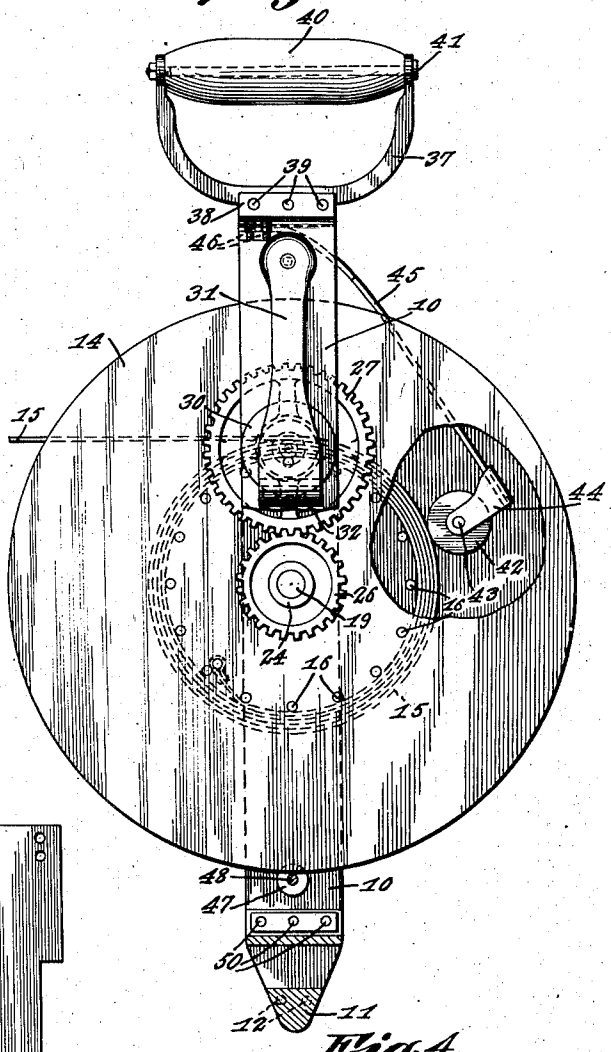


Fig. 3.

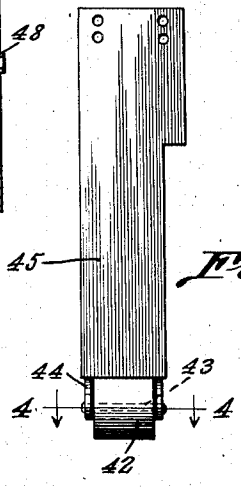
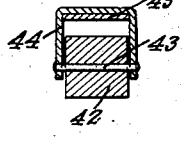


Fig. 4.



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Patented Dec. 30, 1941

2,268,178

UNITED STATES PATENT OFFICE

2,268,178

TAPE REEL

Worth W. Boisture, Berwind, W. Va.

Application April 8, 1941, Serial No. 387,523

3 Claims. (Cl. 242—84.8)

This invention relates to tape reels and has for an object to provide a tape reel for an engineer's steel tape having roller bearings properly placed to eliminate drag due to friction between the tape carrying reel and the spindle.

A further object is to provide a device of this character which can be easily dismantled for inspection and repairs.

A further object is to provide a multiple gear winding mechanism for accelerating winding and unwinding of the tape.

A further object is to provide a device of this character suitable for long ribbon tapes from two hundred to five hundred feet long while maintaining lightness and compactness of the device consistent with strength and ruggedness.

A further object is to provide a device of this character which will be formed of a few strong, simple and durable parts, which will be inexpensive to manufacture, and which will not easily get out of order.

With the above and other objects in view, the invention consists of certain novel details of construction and combinations of parts hereinafter fully described and claimed, it being understood that various modifications may be resorted to within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawing forming a part of this specification:

Figure 1 is a longitudinal sectional view of an engineer's steel tape reel constructed in accordance with the invention.

Figure 2 is a side elevation of the tape reel with a portion broken away to expose the hold down spring pressed roller.

Figure 3 is a detail front elevation of the hold down spring pressed roller removed from the device.

Figure 4 is a cross sectional view taken on the line 4—4 of Figure 3.

Referring now to the drawing in which like characters of reference designate similar parts in the various views, 10 designates a U-shaped frame preferably formed of strap metal. A spacer 11 is welded at one end to the end of the right side of the frame and is secured by a screw 12 to the other side of the frame.

A hub 13 is provided with circular end flanges 14 to form a reel for a long ribbon steel tape 15, which is wound upon an annular series of pins 16 concentric with the hub and secured at the ends, by riveting or otherwise, to the end flanges 14 of the reel.

The hub is provided with recesses 17 at the ends for receiving tapered roller bearings 18 which engage a spindle 19 formed with a flat head 20, which is welded to the right side of the reel frame 10. A knob 21 is engaged on to the opposite end of the spindle and engages the other side of the frame, the knob being locked in place by a pin 22, as shown in Figure 1.

A pair of dust collars 23 and 24 are mounted on the spindle outside of the roller bearings 18 and seal the bearings dust and weather tight so that the long life of the bearings will be promoted.

The hub 13 is provided with an extension 25, which extends beyond the right rear flange and is provided with a gear ring 26.

A relatively large gear 27 is provided with an integral shaft 28 which is journalled in the bore of a nipple nut 29, which is engaged in a threaded opening in the right side of the frame 10. The gear meshes with the gear ring 26. A lock washer 30 is threaded on to the nipple nut and engages the right side of the frame to hold the nipple nut against accidental turning.

A handle 31 is hinged, as shown at 32, to a leaf 33 which is secured to the gear shaft 28 by a screw 34. The handle is provided with a wood cylindrical grip 35 which projects through an opening 36 in the right side of the frame 10 when the handle is not in use.

A handle yoke 37 is secured between flanges 38 which project from the cross member of the frame, by bolts 39. A wood handle 40 is connected to the yoke by a bolt 41, as is conventional.

A hold down roller 42 is mounted on an axle 43 carried by an inverted U-shaped yoke 44. One end of a leaf spring 45 is secured to the yoke and the other end of the leaf spring is widened at the extreme end and is secured to the transverse member of the frame 10 by bolts 46. The leaf spring extends downwardly between the flanges 14 of the reel, as best shown in Figure 1, and holds the roller 42 yieldably against the outermost convolution of the steel tape 15, to hold the tape compactly in place and prevent too free running off of the tape when the tape is being unwound from the reel.

A roller 47 is disposed upon a bolt 48 forming an axle, the bolt being secured to the sides of the frame 10 in such manner as to dispose the roller 47 between the flanges 14 of the reel and space the flanges as well as reinforce the flanges near the bottom of the inverted U-shaped frame to resist distortion.

To additionally reinforce the sides of the frame **10** near the bottom thereof, a stiffener bar **49** is fixed at one end by welding, or otherwise, to the right side of the frame near the spacer **11**. The end of the stiffener bar **49** is turned upwardly to lie along the left side of the frame and is secured thereto by bolts **50**.

From the above description it is thought that the construction and operation of the invention will be fully understood without further explanation.

What is claimed is:

1. In an engineer's steel tape, a hub having side flanges forming a tape containing reel, a concentric series of transversely disposed pins secured to the flanges and spaced from the hub, a steel measuring tape wound on the pins, said hub having recesses at both ends, tapered roller bearings in said recesses, a U-shaped frame having sides disposed outside of the flanges, a spindle engaged by the roller bearings and secured to the sides of the frame, dust collars closing the ends of the hub outside of the bearings to protect the bearings, said hub being extended beyond one of the reel flanges, a ring gear on the extended portion of the hub, a relatively large gear mounted for rotation on one of the sides of the frame and meshing with the ring gear, a shaft for the large gear projecting through one of the sides of the frame, a folding handle secured to the shaft, and means secured to the frame engaging the tape and holding the tape in compact form against too free unreeling.

2. The structure as of claim 1 and in which said means comprises a leaf spring secured at one end to the transverse portion of the U-shaped frame and extending at the free end between the flanges of the hub, and a roller on the free end of the spring engaging the outermost convolution of the tape.

3. The structure as of claim 1 and in which said handle comprises a leaf secured to the shaft of the large gear, a handle hinged to the leaf, and a cylinder grip extending at a right angle to the handle and adapted to be received in an opening in one of the sides of the frame in folded position.

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