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TAPE WINDING DEVICE

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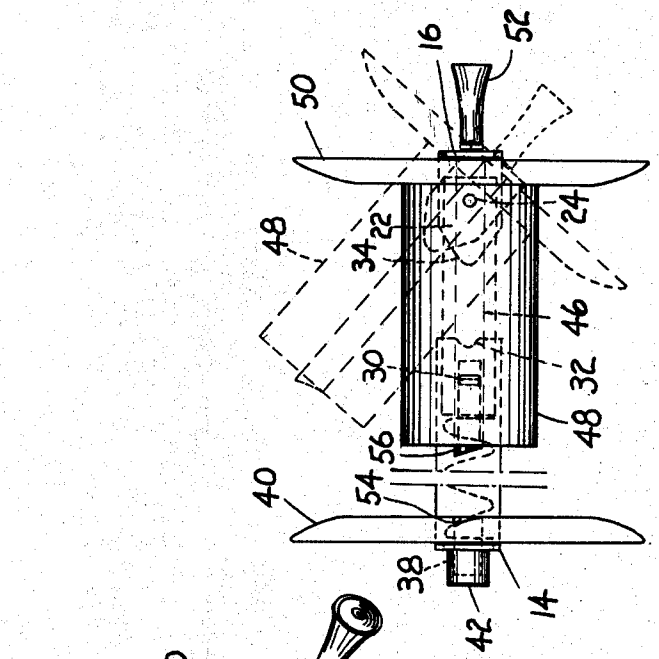


Fig. 2.

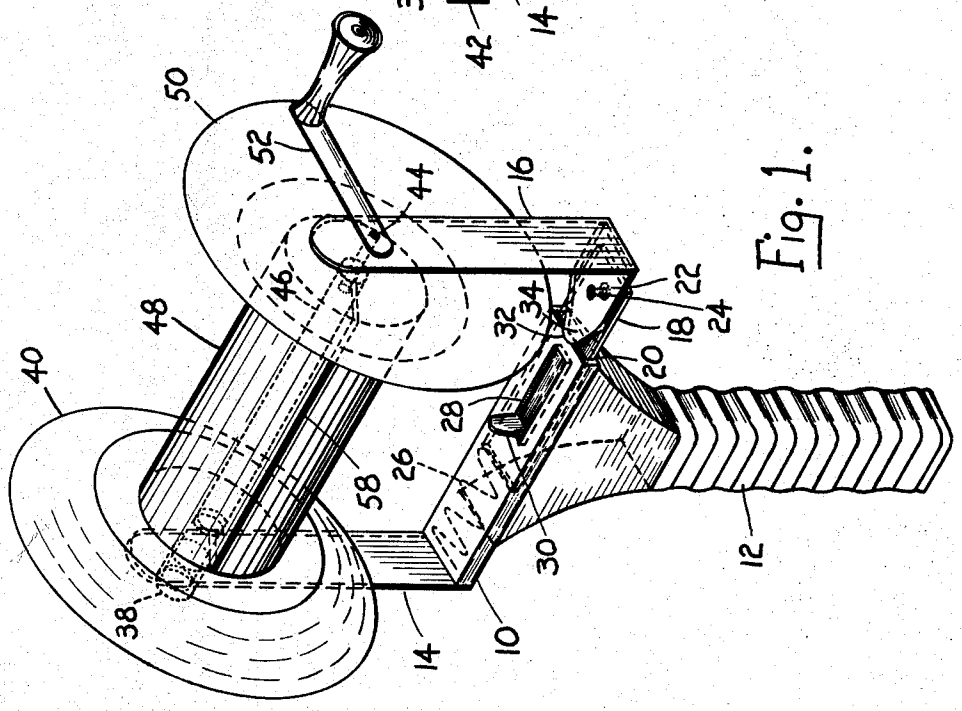


Fig. 1.

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TAPE WINDING DEVICE

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This invention relates to a new and useful tape winding device.

A primary objective of the present invention is to provide a tape winding device which facilitates the convenient winding of tape thereon and which has means facilitating easy removal of the tape therefrom.

Another object of the present invention is to provide a tape winding device having a winding drum adapted for detachment from one support arm thereof facilitating easy removal of tape wound on the drum.

A more particular object of the present invention is to provide a tape winding device having a pair of arms supporting a winding drum therebetween and being transversely adjustable for separating said winding drum from one of the arms; and furthermore to provide one of said winding drum supporting arms with a pivotal support such that said arm and the winding drum may be pivoted laterally to expose the end of the drum for removing tape from the end of the drum.

Still another object is to provide a device of the type described which is conveniently manipulated by the operator in performing its intended functions.

The invention will be better understood and additional objects will become apparent from the following specification and claims, considered together with the accompauying drawings, wherein the numerals of reference indicate like parts and wherein:

FIGURE 1 is a perspective view of the present tape winding device in a position for receiving and holding tape; and

FIGURE 2 is a top plan view of the device and showing, in full and dotted lines, positions of the drum for tape removal.

Referring in particular to the drawings, the present device comprises a hollow body portion **10** supported integrally on a handle **12**. A pair of drum supporting arms **14** and **16** are mounted on the body portion **10**, these arms extending substantially at right angles to the body portion in a direction opposite from the handle **12** and being parallel to said handle and to each other.

The supporting arm **14** is integrally secured to one end edge of the body portion **10**, and the supporting arm **16** is supported on a slide plate **18** projecting into an open end **20** of the hollow body portion **10**. Arm **16** has a right angle bottom flange **22** seated on the upper surface of slide plate **18** and pivotally connected to said plate by means of a pivot pin **24**. As will be described in greater detail hereinafter, the pivotal support of the arm **16** permits positioning thereof between the full and dotted lines shown in FIGURE 2.

Plate **18** has a slidable mounting connection with the hollow body portion **10** and is urged toward arm **14** by a tension spring **26** suitably connected at one of its ends to the inner end of plate **18** and at its other end to body portion **10** adjacent the arm **14**. This spring thus urges and normally holds the plate **18** in an inner position but allows said plate to be moved manually in a direction away from the arm **14**.

The upper surface of body portion **10** has a longitudinally extending elongated slot **28** for receiving an upwardly projecting tab **30** integral with the plate **18**. This tab comprises a finger engaging member for readily sliding the plate away from drum **14**.

The end edge of body portion **10** adjacent the arm **16** has a notch or recess **32**, best seen in dotted lines in FIGURE 2, and the flange **22** has a pointed end **34** for engagement with this notch **32** to anchor the arm **16** against pivotal movement. As will be seen hereinafter, such anchored position of the arm **16** is accomplished in a position of tape winding of the mechanism.

Journaled in the arm **14** adjacent the upper end thereof is a stub shaft **38** on which is integrally mounted a drum flange or disc **40**. The flange **40** is disposed on the inner surface of arm **14**, and the outer end of shaft **38** has a removable end cap **42** for purposes of assembly and disassembly.

Journaled in the arm **16** adjacent the upper end thereof is a pin **44** forming an integral part of a shaft **46** which carries a winding drum **48**, said drum being suitably secured to the shaft **46** for rotation therewith. A drum flange or disc **50** is secured to the end of drum **48**. The free end of pin **44** projects beyond the outer surface of the arm **16** and has a crank **52** attached thereto for rotating the drum.

A detachable connection is provided between stub shaft **38** and shaft **46**, and for this purpose and as best seen in FIGURE 2 the stub shaft **38** projects through the drum flange **40** and terminates at its inner surface in a notch or groove **54** set in from the inner surface of drum flange **40**. The shaft **46** projects beyond the adjacent end of drum **48** and is adapted for engagement with the notch **54** to establish a drive connection between the shafts **38** and **46**. This connection is maintained by the tension force of spring **26** but may be broken by moving the arm **16** away from arm **14**.

When it is desired to wind tape on the drum the parts are arranged such that the shafts **38** and **46** are in engagement. Thus, a complete winding drum having both end flanges associated therewith is available for receiving the tape. The drum **48** has a radial slot **58** for removably connecting the end of the tape thereto. Upon reception of the end of the tape in the slot **58** the crank **52** is then operated to wind the tape on the drum. When it is desired to remove the tape from the drum it is merely necessary to move the slide **18** away from the supporting arm **14** by means of tab **30** which of course moves the entire assembly of supporting arm **16** and drum **48** in the same direction. This separates the tongue and groove connection of shaft portions **38** and **46**. Such movement of the slide **18** also disengages the pointed end **34** of flange **22** from the notch **32**. Thereupon the supporting arm **16** and its assembly can be rotated relative to the plate **18** to a lateral angular position shown in dotted lines in FIGURE 2. This exposes the one end of the drum and the tape may be slid off such exposed end.

The supporting arm **16** and its assembly may then be rotated back to a position wherein shaft portions **54** and **56** are in alignment, and upon releasing the tab **30**, the spring **26** moves the slide toward the arm **14** to re-establish a drive connection between said shaft portions. The pointed end **34** of flange **22** again engages in notch **32** to anchor the arm **16** and its assembly positively against pivotal movement.

The present device may be utilized for many purposes and combines ready portability with ease of operation and efficiency of performance. As an example it may be used in the handling of tape which is discharged from an electrocardiograph since it facilitates the necessary holding and manipulation of the tape for inspection.

It is to be understood that the form of my invention herein shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A tape winding device comprising a body portion, first and second parallel arms projecting from said body portion in spaced relation and at substantially right angles to said body portion, a drum rotatably supported on said first arm for winding tape thereon, said drum having a rotatable, detachable supporting connection with said second arm, said first arm being pivotally supported on said body portion for pivoting the drum laterally away from said second arm upon detaching said drum from said second arm to expose said end of the drum whereby tape on the drum may be moved off the exposed end.

2. The tape winding device of claim 1 wherein said first arm is slidably supported on said body portion for detaching said drum from said second arm and pivoting the drum away from said second arm.

3. The tape winding device of claim 1 wherein said first arm is slidably supported on said body portion for detaching said drum from said second arm and pivoting the drum away from said second arm, the detachable connection between said shaft and said second arm including a stub shaft rotatably supported in said second arm, and disengageable tongue and groove means on said stub shaft and said drum.

4. The tape winding device of claim 1 including a plate slidably supported in said body portion and pivotally supporting said first arm.

5. A tape winding device of claim 1 including a plate slidably supported in said body portion and pivotally supporting said first arm, and a finger engaging tab on said plate for sliding the latter relative to said housing.

6. The tape winding device of claim 1 including a plate slidably supported in said body portion and pivotally supporting said first arm, and including means biasing said plate toward said second arm to urge said drum into supporting connection with said second arm.

7. A tape winding device comprising a body portion, first and second parallel arms projecting from said body portion in spaced relation and at substantially right angles to said body portion, a first tape confining flange integral with said second arm, a drum rotatably supported on said first arm for winding tape thereon, a second tape confining flange integral with said drum at the end of the latter opposite from said first tape confining flange, said drum having a rotatable, detachable supporting connection with said second arm, said first arm being pivotally supported on said body portion for pivoting the drum laterally away from said second arm and said first tape confining flange upon detaching said drum from said second arm to expose said end of the drum whereby tape on the drum may be moved off the exposed end thereof which has been rotated away from said first tape confining flange.

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