

March 21, 1933.

G. R. WOOD

1,902,007

PRINTING RIBBON

Filed Nov. 17, 1927

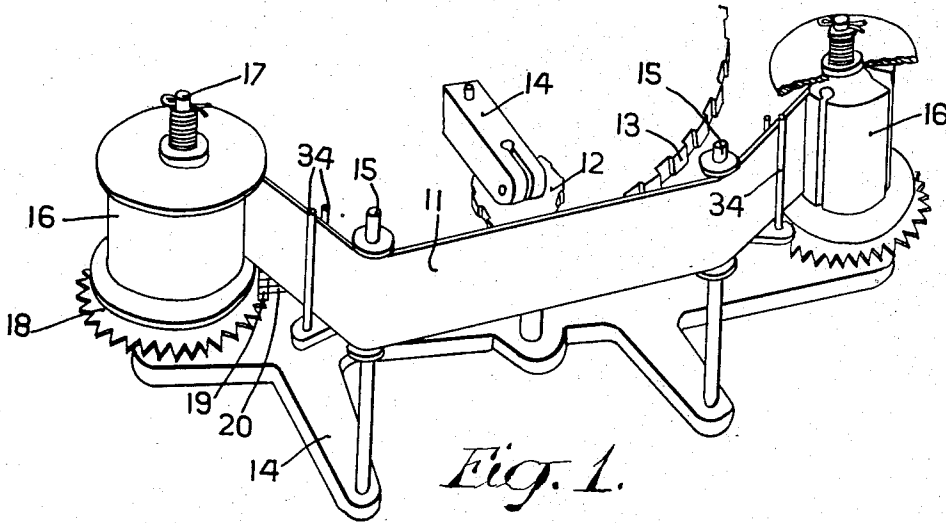


Fig. 1.

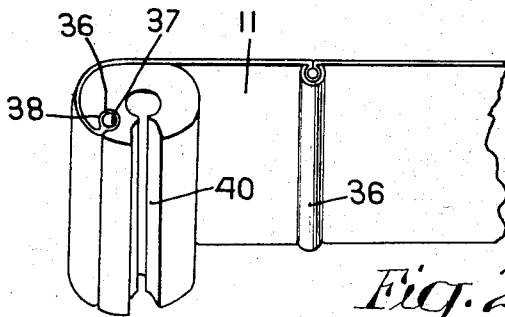


Fig. 2.

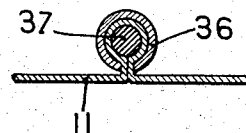


Fig. 4.

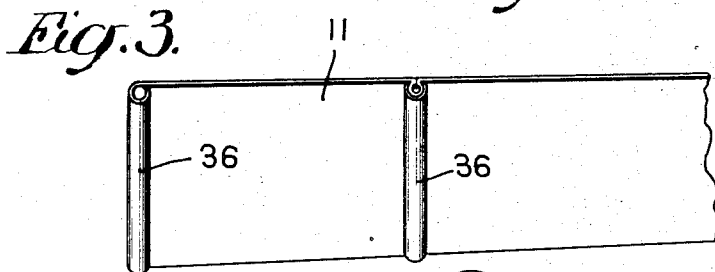


Fig. 3.

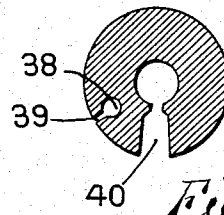


Fig. 5.

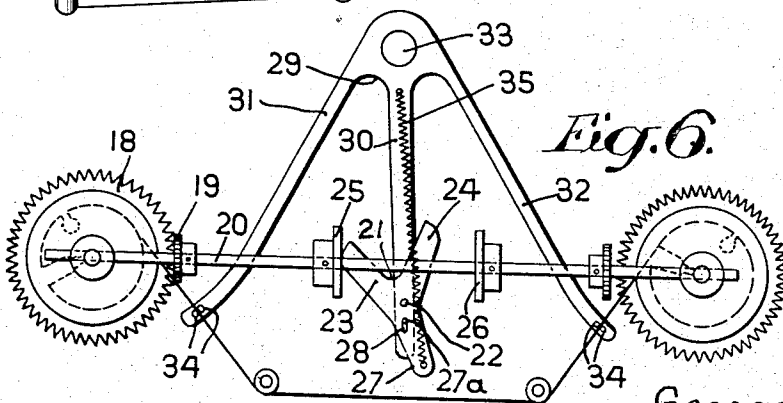


Fig. 6.

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UNITED STATES PATENT OFFICE

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PRINTING RIBBON

Application filed November 17, 1927, Serial No. 233,979, and in Canada September 15, 1927.

This invention relates to new and useful improvements in inking ribbons and particularly to inking ribbons used in time clocks and the like, and the object of the invention is to provide a new and improved attachment for the ribbon which can be easily and economically installed at any desired point to operate the ribbon reversing mechanism.

Another object is to provide an attachment of the class stated which will form an anchoring means for a printing ribbon.

In my invention, I provide a slotted sleeve of thin flexible or spring material into which the printing ribbon is inserted and to hold or anchor the ribbon in place a piece of wood or holder is pressed into the sleeve clamping the ribbon between the inner wall of the sleeve and the outer wall of the holder or piece of wood. Two such sleeves are fitted on each end of the ribbon and spaced from one another, one acting as an anchoring means and the other as a reversing means for the ribbon feeding mechanism. The anchoring sleeve fits into a circular groove in each ribbon spool, the groove having a slot extending towards the outer face of the cylinder. A slotted recess is formed in the face of the cylinder to receive the reversing means, said slot being formed in proximity to the circular groove.

In the drawing which illustrates one form of my invention:

Fig. 1 is a perspective view of the ribbon in position on a time clock.

Fig. 2 is a perspective view of the ribbon feeding cylinder showing the ribbon anchoring and reversing attachment.

Fig. 3 is a developed perspective elevation of the end of the ribbon.

Fig. 4 is a sectional plan of the ribbon reversing attachment.

Fig. 5 is a section plan of ribbon winding roller or feeding mechanism.

Fig. 6 is a side elevation of a typical ribbon feed reversing mechanism.

Referring more particularly to the drawing, 11 designates an inking or printing ribbon which passes over the faces of the type wheels 12 and 13 rotatably mounted in a frame 14, and driven from a source not

shown. The faces of said wheels have numerals formed thereon and in the case shown 12, indicates the hour of the day and 13 the minutes. Extending upwardly from the frame are the spindles 15 which are so positioned that they guide the ribbon in its passage between the winding rollers 16. These winding rollers are each mounted on and adapted to rotate with the spindles 17, which project upwardly on the frame. These spindles have each secured thereto a toothed wheel 18, which are driven by toothed pinions 19, secured to the ends of a rotatably mounted shaft 20. This shaft is slidably mounted on the frame, and is so operated that when the toothed pinion on one end is engaging with its adjacent toothed wheel the pinion at the other end is out of engagement with the adjacent toothed wheel and vice-versa. The following mechanism is used for moving the shaft to reverse the winding of the ribbon, that is to wind it from one winding roller onto another. The reversing lever 21 consists of a triple armed lever pivotally mounted on a pin 22 secured to the frame. The two lower arms 23 and 24 engage with the faces of the discs 25 and 26 respectively, these discs being secured to and spaced from one another on the shaft 20 and near the centre thereof. An upwardly extending arm 27 engages with a slot 28 through the medium of an outwardly extending pin 27a. The slot is formed in a pivotally mounted lever 29 having three arms 30, 31 and 32, each formed at an angle to one another and pivoting about the pin 33 secured to the frame. The central arm 30 has the slot formed therein. The outer arms extend outwardly from said centre arm and are provided with guide rods 34 one on each side of the ribbon and in proximity thereto. These guide rods are preferably positioned between the spindles 15 and the winding rollers for the purpose hereinafter stated. A tension spring 35 is connected in any suitable manner to the end of the arm 27 and to the lever 29 near the pivoting centre thereof and in such a manner that it will tend to pull the reversing lever from the dead centre position, either to one side or the other, according to its position. The

above mechanism may be operated by my improvement which lies in the attachment secured to the ribbon for moving the aforementioned levers. The attachment may also be used as an anchoring means as hereinafter illustrated. A detail of the attachment is shown very clearly in Figure 4 of the attached drawing and consists of a slotted sleeve 36 and a shaped holder 37. The holder is preferably circular in shape and fits into the sleeve with the ribbon between its outer surface and the inner surface of the sleeve. The ribbon passes down the slot when placing it in position. It will be readily seen that by pressing the free edges of the sleeve together or by pressing the edges of the slot together, the ribbon is clamped between said edges, and the sleeve, holder and ribbon prevented from movement independent of one another. A similar sleeve and holder may be placed at each end of the ribbon to form an anchoring means for securing the ribbon to the winding roller. A hole 38 is drilled or otherwise formed in each of the winding rollers and a slot 39 is formed in the face of the rollers to allow the ribbon to pass therethrough. This construction forms a groove, the innermost portion or that portion nearest the center of the roller being of greater diameter than the slot on the face of the roller. Two such holders and sleeves are fitted to each end of the ribbon, one at the extreme end to form an anchor and the other spaced from said end and adapted to engage with the guide rods to reverse the movement of winding. The reversing sleeve and holder fits into a slot 40 formed in the face of the winding roller, so that when said ribbon is wound around the roller it will fit closely against the face of the cylinder.

In operation the ribbon with holders and sleeve attached thereto is secured to the winding roller by passing the sleeve through the holes 38 and allowing the ribbon to pass through the slots. The ribbon is then wound around one of the rollers only and then attached to the spindles 17 in such a manner that they will rotate therewith. In winding itself around the roller, the reversing sleeve and holder fits into the groove in the wall of the roller. In reversing, the sleeve spaced from one end engages with the guide rods 34, and presses against the lever 39, operating same causing the lever arm 23 and 24 to contact with the discs to move the shaft 20 and the pinions into or out of engagement with their adjacent toothed wheels.

This attachment is easily and economically installed and is a decided improvement over the attachments of the same nature at present in use wherein the sleeve is sewn to the ribbon and sometimes the ribbon is split and the sleeve attached to adjacent ends to form a continuous strip. The device herein described is quickly attached to any part of

the ribbon without cutting or sewing and forms a very efficient means for reversing the direction of travel of the ribbon or for anchoring same.

Having thus described my invention, what I claim is:—

1. An attachment for printing ribbons in time clocks and the like, comprising a printing ribbon, a pair of spaced cylindrical sleeves having slots formed in their walls, a pair of ribbon holders adapted to press the ribbon against the inner walls of the sleeves, one of said sleeves being positioned at the extreme end of the ribbon to form an anchoring means and the other sleeve being spaced from said end for operating a ribbon reversing gear, a winding roll for the ribbon, a groove in said roll to receive the cylindrical sleeve at the extreme end of the ribbon and a slot in proximity to said groove adapted to receive the other sleeve and allow the ribbon to contact with the surface of the winding roll.

2. A ribbon mechanism comprising a spool rotatable to wind a ribbon thereon, a sleeve, a holder for holding the end of the ribbon to the sleeve, said holder being removable to free the ribbon from the sleeve, said spool being provided adjacent its circumference with a slot of the shape of the sleeve to receive the latter after its attachment to the ribbon and a restricted narrow passage leading from the slot to the outside of the spool to receive the ribbon.

3. A ribbon mechanism comprising a spool rotatable to wind a ribbon thereon, a slot formed in the spool to receive the end of the ribbon, a ribbon feed reversing projection on the ribbon spaced from said end and mounted on the side of the ribbon contacting the spool, and another slot in the spool to receive said projection.

4. A ribbon mechanism comprising a spool rotatable to wind a ribbon thereon, a cylindrical sleeve formed with slotted wall, a round holder for insertion in said sleeve to frictionally hold the end of said ribbon to the sleeve, said spool being formed with a slot in the outer periphery the shape of said sleeve to loosely hold the latter, said ribbon extending from the slot in the sleeve through the slot in the spool.

5. A ribbon mechanism comprising a spool rotatable to wind a ribbon thereon, means for attaching one end of the ribbon to the spool, an adjustable projection for reversing ribbon feed carried by the ribbon at a distance from said end, said spool being shaped with a slot to receive the projection as the ribbon is wound on the spool.

6. A ribbon mechanism comprising a spool rotatable to wind a ribbon thereon, means for attaching one end of the ribbon to the spool, a cylindrical sleeve, a round holder for frictionally holding said sleeve to said ribbon so

that the sleeve extends from one side of the ribbon as a projection for reversing ribbon feed, said ribbon spool being shaped with a slot to receive the entire projection as the ribbon is wound on the spool.

In testimony whereof I hereto affix my signature.

GEORGE R. WOOD.

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