Jan. 18, 1944. A. E. ROCKWOOD 2,339,652

RIBBON SPOOL

Filed Feb. 23, 1942

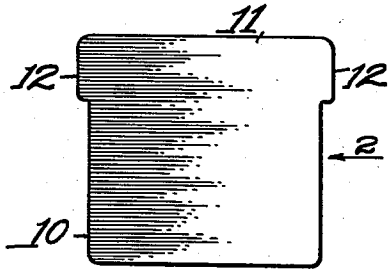


Fig. 1

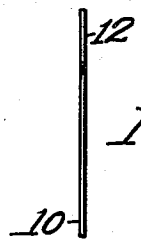


Fig. 2.

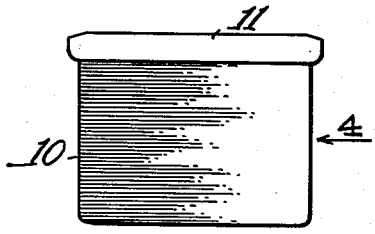


Fig. 3.

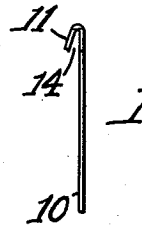


Fig. 4.

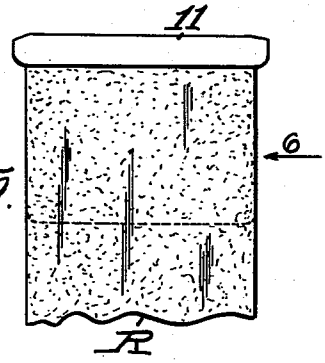


Fig. 5.

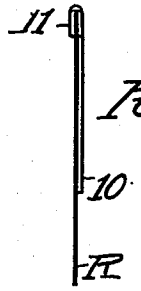


Fig. 6.

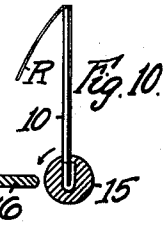


Fig. 10.

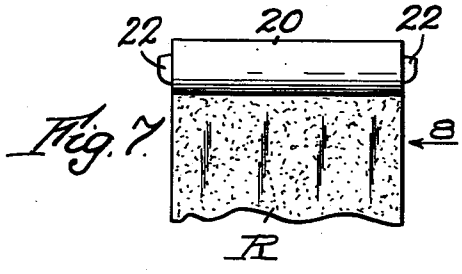
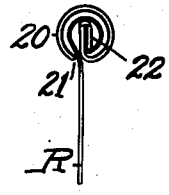


Fig. 7.

Fig. 8.



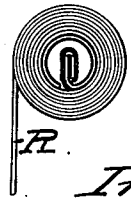


Fig. 9.

Inventor
Albert E. Rockwood
By attorney
Chas. T. Hawley

Patented Jan. 18, 1944 2,339,652

UNITED STATES PATENT OFFICE

2,339,652

RIBBON SPOOL

Albert E. Rockwood, Gardner, Mass., assignor to Simplex Time Recorder Co., Gardner, Mass., a corporation of Massachusetts

Application February 23, 1942, Serial No. 431,994

4 Claims. (Cl. 242—74)

This invention relates to a spool especially designed to receive and hold one end of an inked ribbon such as is used in time recorders, time stamps and other recording machines.

It is the general object of my invention to provide an improved ribbon spool which may be easily and economically manufactured and in which provision is made to firmly and securely grip and hold the attached ribbon end.

A further object of my invention is to provide a ribbon spool which may be made from a single piece of sheet metal in a defined series of steps which constitute a new and improved method of production.

My invention further relates to certain arrangements and combinations of parts and certain ordered procedure which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawing, in which

Fig. 1 is a front elevation of a blank from which my improved spool may be formed;

Fig. 2 is a side elevation thereof;

Fig. 3 is a front view of the blank after the first bending operation;

Fig. 4 is a side view of the blank shown in Fig. 3;

Fig. 5 is a front elevation of the blank with one end of a ribbon attached thereto;

Fig. 6 is a side elevation, looking in the direction of the arrow 6 in Fig. 5;

Fig. 7 is a front elevation of the spool and ribbon in assembled relation and final form;

Fig. 8 is a side elevation, looking in the direction of the arrow 8 in Fig. 7;

Fig. 9 is a side elevation of a finished spool with a ribbon wound thereon; and

Fig. 10 is a sectional view of a spool forming device.

Referring to the drawing, my improved spool is preferably formed from a single blank 10 of thin sheet metal such as sheet steel. The blank 10 has an end portion 11 widened at each side to form projections 12 for a purpose to be described.

After the blank is thus formed from sheet metal, commonly by a press or punch operation, the end portion 11 of the blank is bent about its transverse median line to the position shown in Figs. 3 and 4, with an open recess 14 provided to receive one end of a ribbon R.

The end of the ribbon is then inserted in the recess 14, and the bent-over part of the end portion 11 is firmly pressed downward to the position shown in Figs. 5 and 6, with the end of the ribbon R firmly gripped by said bent-over part.

The blank and ribbon end are then inserted in a slotted mandrel 15 (Fig. 10) which is thereafter rotated adjacent a guide or rest 16 to bend the blank to the form shown in Figs. 7 and 8, with the body portion of the blank forming a circular spool barrel 20, and with the ribbon R extending out through a slot 21 in the barrel 20 and adjacent the free edge of the rolled body portion. The mandrel 15 may be rotated manually or by suitable application of power.

After the ribbon has been attached as shown in Figs. 5 and 6, and after the blank has been rolled as shown in Figs. 7 and 8, the ribbon may be wound on the spool as shown in Fig. 9 and another and similar blank may be attached to the free end of the ribbon and formed into a second spool.

The end portion 11 of the blank is made somewhat wider than the body of the blank so that the finished spool may present projecting lugs 22 (Fig. 7) which are of double thickness and strength and which may be engaged by suitable clutch devices for feeding the ribbon through a machine. These clutch devices and the method of operating them to intermittently advance the ribbon are in commercial use and form no part of my present invention.

From the foregoing description, it will be seen that I have provided a ribbon spool which may be easily and economically manufactured from a sheet metal blank by a series of simple bending and forming operations. Spools can thus be manufactured so cheaply that they can be permanently attached to the ribbon and may be thrown away with the ribbon when the ribbon is worn out.

This is a very desirable feature, as the removal and replacement of ribbons from spools which remain permanently in the machine is a disagreeable operation which consumes considerable time and also frequently soils or discolors clothing or other adjacent material.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. A ribbon spool formed from a single piece of sheet metal and comprising a hollow longitudinally slotted barrel having an end portion extending substantially diametrically inward adjacent the slot in said barrel, said end portion having a reversely doubled and bent-over end wholly within said barrel and shielded from said slot by

said end portion, and said bent-over end securely and permanently gripping the inserted end of a ribbon between said bent-over end and the adjacent inner surface of said inwardly projecting end portion.

2. A ribbon spool formed from a single piece of sheet metal and comprising a hollow longitudinally slotted barrel having an end portion extending inward adjacent the slot in said barrel, said end portion having a doubled and bent-over end wholly within said barrel, said bent-over end securely and permanently gripping an end of a ribbon inserted under said bent-over part, and the ends of said doubled and bent-over part extending axially beyond the ends of said spool barrel and constituting driving lugs for said spool.

3. The method of making a ribbon spool which comprises forming a flat sheet metal blank, bending over one end of said flat blank to provide a doubled end with a transversely extending recess, inserting an end of a ribbon in said recess, pressing said doubled end to close said recess and permanently grip said ribbon end, and thereafter winding the body of said blank about said doubled end into a barrel of circular cross section enclosing said end and providing an axially extending slot adjacent to the free edge of said rolled blank through which the ribbon extends outward for winding on said barrel, and said doubled end being positioned entirely within said wound barrel.

4. The method of making a ribbon spool which comprises forming a sheet metal blank, bending over one end of said blank to provide a doubled end with an axially extending recess, inserting an end of a ribbon in said recess, pressing said doubled end to close said recess and permanently grip said ribbon end, thereafter inserting said doubled end and said gripped ribbon end in a rotatable mandrel, and rotating said mandrel to form the body of said blank into a circular barrel having a longitudinal slot for said ribbon.

ALBERT E. ROCKWOOD.