

E. B. HESS & L. C. MYERS.
RIBBON SPOOL.
APPLICATION FILED JAN. 15, 1919.

1,301,696.

Patented Apr. 22, 1919.

Fig. 1.

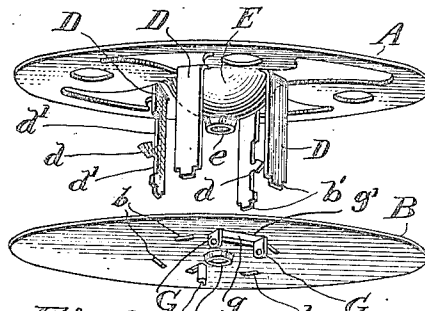
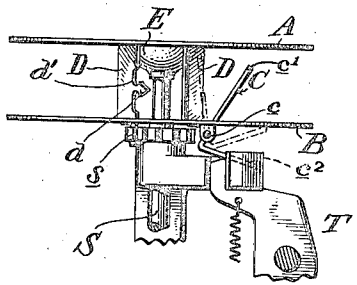


Fig. 2.

Fig. 3.

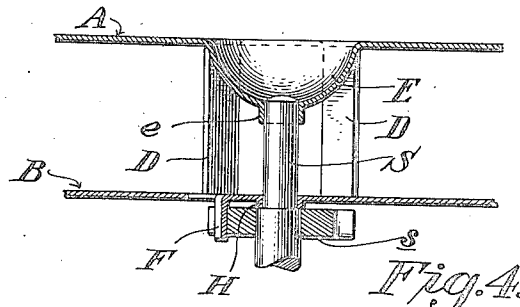
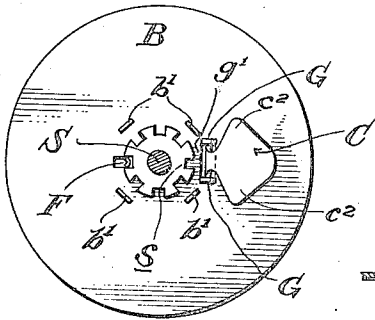


Fig. 4.

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UNITED STATES PATENT OFFICE.

EDWARD B. HESS, OF NEW YORK, AND LEWIS C. MYERS, OF BROOKLYN, NEW YORK,
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RIBBON-SPOOL.

1,301,696.

Specification of Letters Patent.

Patented Apr. 22, 1919.

Application filed January 15, 1919. Serial No. 271,218.

To all whom it may concern:

Be it known that we, EDWARD B. HESS, a citizen of the United States, residing at New York, in the county of New York and State of New York, and LEWIS C. MYERS, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Ribbon-Spools, of which the following is a specification.

This invention relates particularly to ribbon spools of the kind used on typewriting machines, and more especially to ribbon spools which are adapted for use on the well known Royal typewriting machine in which provision is made for removably supporting spools on the machine and for automatically advancing the ribbon and reversing it at the proper times. Letters Patent of the United States, No. 1,084,656, granted to the Royal Typewriter Company, Inc., as the assignee of Lewis C. Myers, shows a machine of this kind equipped with such spools, and our improved spool is particularly designed for use with machines of the general construction shown in said patent.

A spool designed for the purposes above mentioned should be light, strong and durable; should consist of few parts, and should be so constructed that it may be quickly and accurately applied to the particular kind of machine on which it is to be used. It should, furthermore, be so constructed that it may be properly connected with its supporting shaft, and the device which it carries for operating the ribbon reversing mechanism should be so adjusted as to engage such mechanism at proper times, and only at such times so that the reversing operation of the ribbon may be accurately and seasonably performed.

By our invention we have combined these necessary or desirable features in a ribbon spool, comprising two circular plates, disks, or flanges, connected by a hub which holds the disks a suitable distance apart and provides a drum on which the ribbon is wound. The hub is formed by legs which are integral parts of one of the disks and the ends of which are riveted or otherwise suitably secured to the other disk. Each of the disks is formed with a suitable bearing for the supporting shaft, and the lower disk is formed integrally with a projection adapted to easily connect with a supporting shaft in

such manner that the spool will revolve with said shaft. The lower disk is also formed with integral ears having bearings for the trunnions of a trip device, which is in the form of a gravity lever having an arm adapted to lie close to the hub of the spool and be held there by the ribbon, and another arm disposed below the lower disk and which is adapted to engage the reversing mechanism when the ribbon is unwound and releases said trip device.

In this way we obtain a three-part spool comprising an upper disk, a lower disk, and a tripping device. These parts are all connected to form a complete spool without the use of any other parts and yet experience has demonstrated that a spool of this special construction is more serviceable than others of its class heretofore used.

In the accompanying drawings:—

Figure 1 shows a side elevation of a typewriter ribbon spool embodying our improvements and it also shows how the spool is supported on a shaft and how the trip device forming part of the spool engages the ribbon reversing mechanism of the machine.

The remaining figures are on an enlarged scale.

Fig. 2 shows the three parts of the three-part spool separated and indicates how readily they may be assembled.

Fig. 3 is a bottom plan view of the spool showing also how it is connected with its supporting shaft.

Fig. 4 shows a vertical section of the spool and also indicates how the spool is supported and connected with its shaft.

The three-part spool comprises an upper plate, disk or flange A, a lower plate, disk or flange B, and a trip device C. These three parts are shown separated in Fig. 2. In order to form the hub or drum of the spool, the metal is cut in the manner indicated to form strips D, which are turned at right angles to the disk, forming legs suitably spaced and arranged to provide a drum on which the ribbon is wound. These legs are all formed on one disk, preferably the upper disk. Said disk A is also formed with a depressed portion E at the center, which is flanged as indicated at *e* to form one of the bearings through which the supporting shaft S extends. One or more of the legs D may be provided with a pointed projection *d* to which the end of the ribbon may be attached

before it is wound on the spool. It will be observed by reference to Fig. 2 that the leg D is recessed at d' on opposite sides of the projection so that the end of the ribbon may lie within recesses adjacent said projection. Where two or more projections d are employed, they are preferably so disposed as to properly attach the end of the ribbon whether it be applied from the right hand or from the left hand side. This construction for the upper disk is entirely practical, it being obvious that by simple cutting and pressing operations the upper disk, with its shaft bearing and with the legs for the ribbon of the spool, may be quickly and easily made by suitable tools or dies.

The lower disk B is formed with slots b to receive the reduced ends b' of the legs D and these ends may be riveted, upset, or secured to the lower disk by suitable tools. The lower disk B is formed with an integral projection F, which extends downwardly at right angles to the disk and is preferably curved in cross section as shown. It is produced by suitably cutting the metal and turning down the formed portion in the manner clearly indicated in Fig. 2. It is adapted to engage any one of the notches or recesses in the flange or collar s on the shaft S. It will be observed that the connection between the spool and the shaft may be accomplished by simply dropping the spool on the shaft, the device F easily engaging one of the notches which are arranged in circular series around the collar. In order to provide bearings for the trip device C, ears G are provided on the bottom of the lower disk. These ears are integral with the lower disk and are provided with openings to receive the trunnions c of the trip device C. The lower disk is also formed with a flanged opening H, through which the shaft S extends and in which it has a bearing.

The trip device C is preferably of the form shown in Fig. 2, being made from a single piece of metal having an arm c' adapted to lie close to or within the hub of the spool, and an arm c'' adapted to connect with the ribbon reversing mechanism, as indicated in Fig. 1. The device C is operated by gravity when released by the ribbon, but when the ribbon is wound upon the drum it securely holds the device in an elevated position so that it will not come in contact with the reversing mechanism T. This operation is similar in all respects to that shown in the Myers patent above referred to. The trunnions c , it will be observed, are formed integrally with the remaining portions of the trip device and may readily be mounted in the bearings of the ears G.

The arm c' of the trip device extends through the opening g in the lower disk made by cutting out and bending down the ears G, and the device is so mounted on said

ears that the arm c' when released by the ribbon can only move to a limited extent as indicated in Fig. 1, its outward movement being limited by the wall g' of the opening g . When moved to the extent indicated it is in proper position to engage the ribbon reversing mechanism T.

Preferably the depressed portion E of the upper disk extends a considerable distance below the horizontal plane of the disk proper. While this is not an essential feature, it has some advantages. By bringing the upper shaft bearing e nearer the lower bearing H, better alinement is obtained and greater stability is given between the connection of the spool and its shaft, and this construction also reduces to an appreciable extent the length of the shaft which is thus terminated below the top of the spool. Furthermore, it adapts the spool for attachment to machines having both long and short shafts, there being already on the market many thousand machines to which the spool could not be properly applied unless the upper shaft bearing were lowered in the manner shown.

Both the upper and lower shaft bearings are preferably formed by downwardly extending flanges as shown, inasmuch as this provides enlarged bearing surfaces. The depression E as shown is substantially hemispherical, but it may be otherwise formed. If the spool is to be applied to a machine having a long shaft the depression may be entirely omitted and the disk may then be provided with a suitable flanged bearing for the upper portion of the shaft.

A ribbon spool constructed in the manner before described and as shown in the accompanying drawings is especially adapted for use on visible typewriting machines of the Royal type, but some parts of our invention are suitable for spools for use in other kinds of typewriting machines or on machines of other kinds in which films, ribbons or tapes are wound upon spools.

We claim as our invention:—

1. A three-part typewriter ribbon spool, comprising two disks and a trip device, one of said disks being formed with a centrally arranged shaft bearing and with legs joined integrally at their inner ends to said disk and bent inwardly toward the central axis of the disk to provide a hub or drum for the ribbon, the other disk being connected to the first-mentioned disk by said legs and being provided with integral ears to which the trip device is pivoted and provided also with a centrally arranged shaft bearing and an integral projection for connecting the spool with a supporting shaft.

2. A ribbon spool for typewriting machines, comprising a disk formed with legs joined integrally at their inner ends to said disk and bent inwardly toward the central

axis of the disk and disposed at an angle to the plane of the disk to provide a hub or drum for the ribbon, a second disk to which the legs of the other disk are secured and which is formed with integral ears and a projection for engaging the supporting shaft of the spool, and a lever for operating the ribbon-reversing mechanism pivotally connected with said ears.

3. A ribbon spool for typewriting machines, comprising upper and lower disks, a hub formed by integral parts of one of the disks bent inwardly toward the central axis of the disk and having their ends secured to the other disk, an integral projection on the lower disk for connecting it with a spool support, and means carried by said lower disk for actuating the ribbon-reversing mechanism of a typewriting machine.

4. A ribbon spool for typewriting machines, comprising upper and lower disks, a hub formed by integral parts of one disk bent inwardly toward the central axis of the disk and which have their outer ends secured to the other disk, a projection extending from one of the disks for connecting the spool with a support, integral ears extending outward from said disk, and a tripping lever provided with integral trunnions having bearings in said ears.

5. A ribbon spool for typewriting machines, comprising upper and lower disks, a hub formed by integral legs of one of the disks bent inwardly toward the central axis of the disk and secured to the other disk and having spaces between them, integral ears extending downwardly from the lower disk, and a tripping lever pivotally connected with said ears having an upper part adapted to enter between said legs and a lower part arranged at an angle to the upper part and adapted to make contact with the lower disk to limit the inward movement of the upper part of said lever.

6. A ribbon spool for typewriting machines, comprising two disks, one of which is formed with an integral centrally ar-

anged shaft-bearing portion bent inward toward the other disk, the other disk being provided with a bearing for the shaft, a hub or drum interposed between the two disks, a tripping device pivotally connected with one of said disks, and means carried by said last-mentioned disk for connecting the spool with its supporting shaft.

7. A ribbon spool for typewriting machines, comprising upper and lower disks, said upper disk being formed with a bearing portion extending downwardly and inwardly toward the other disk, the lower disk being formed with a bearing portion for its supporting shaft, a hub or drum interposed between the two disks, a tripping device pivotally connected with the lower disk, and means carried by the lower disk for connecting the spool with its supporting shaft.

8. A ribbon spool for typewriting machines, comprising an upper disk formed with a centrally arranged depressed portion having a shaft bearing at its lower end, a lower disk formed with a centrally arranged shaft bearing, a hub or drum interposed between the two disks and connecting them, a trip device pivotally connected with the lower disk, and means carried by the lower disk for connecting the spool with its supporting shaft.

9. A ribbon spool for typewriting machines, comprising upper and lower disks, said upper disk being formed with a flanged bearing portion extending inwardly toward the lower disk and with integral legs bent inwardly toward the central axis of the disk to provide a hub or drum for the ribbon, a lower disk connected to the ends of said legs and having a bearing portion for the supporting shaft, and means carried by the lower disk for connecting the spool with said shaft.

In testimony whereof, we have hereunto subscribed our names.

EDWARD B. HESS.
LEWIS C. MYERS.