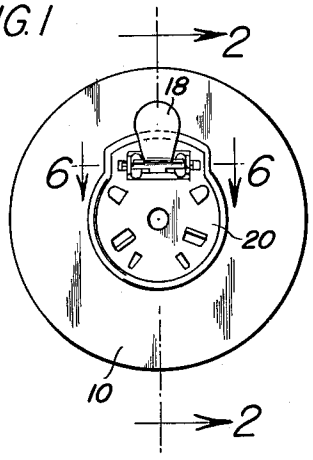
Jan. 10, 1961 W. D. LANDGRAF ET AL 2,967,601

TRIGGER MOUNTING FOR TYPEWRITER SPOOL

Filed July 14, 1959

FIG. 1



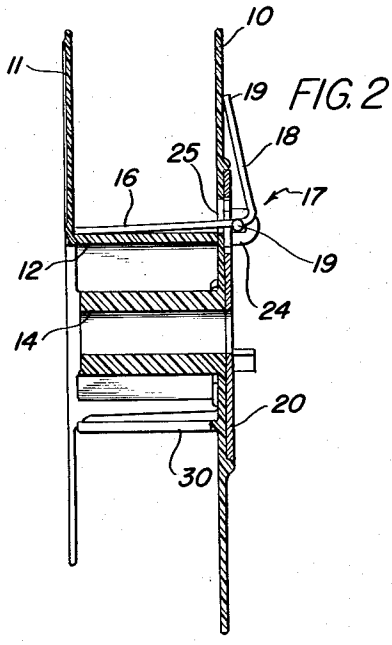


FIG. 2

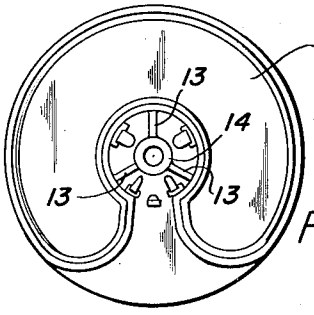


FIG. 3

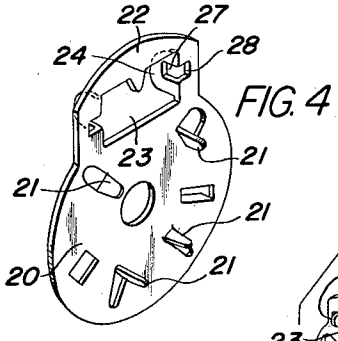


FIG. 4

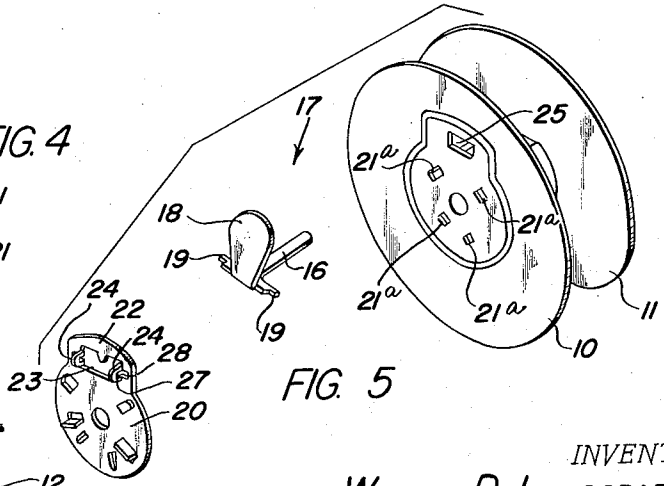


FIG. 5

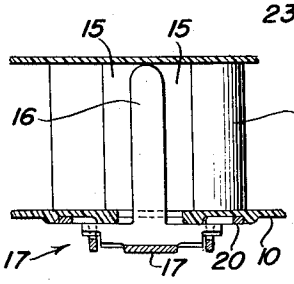


FIG. 6

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TRIGGER MOUNTING FOR TYPEWRITER SPOOL

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1 Claim. (Cl. 197—175)

The present invention relates generally to typewriter spools, and more particularly to typewriter spools having novel mounting and assembly devices for ribbon feed reversing triggers.

The typewriter spool of the present invention may be fabricated of plastic, and includes two parallel flanges, secured to a hub. The spool is designed to rest on one flange, hereinafter called the bottom flange, and a bent metallic trigger lever is provided, which is secured pivotally against the bottom flange at the bend point thereof and includes an external arm extending below the bottom flange, and an internal arm extending generally axially of the hub, the pivot line lying approximately in the plane of the flange. The lever arms may make an angle of slightly less than 90° with respect to one another, and be so arranged that when the external arm is pressed against the flange the internal arm lies flat against the hub. When the internal arm is separated from the hub by rotation about the pivot, the external arm is separated from the flange, and in so separating performs its intended function as a ribbon feed reversing trigger.

The bent lever is secured to the bottom flange by means of a clamping plate, having clamping lugs extending through apertures in the bottom flange, and provided with downwardly depending ears having U-shaped openings for the saddling of the pivot points of the lever against the outer wall of the bottom flange. In prior spools of the general type hereinabove described ears are provided with circular openings, and the ears must be bent over the ends of the pivot points to fasten the trigger in place. In accordance with the present invention, the ears are provided with U-shaped openings, the open ends of the U's facing the flange. The ears thus serve to saddle the pivot points against the flange. Thereby the lever may be assembled to the flange without necessitating bending of the ears during assembly, which simplifies and assures perfection of manufacture.

It is, accordingly, an object of the present invention to provide a novel mounting device for the reversing trigger of a typewriter spool.

It is another object of the present invention to provide a novel structure for securing the pivoted trigger lever of a typewriter spool to the flange of a typewriter spool, wherein the structure possesses ears having U-shaped openings which open toward the flange and saddle pivot points of the lever against the flange, eliminating any necessity for bending the ears over the pivot points in order to secure the trigger lever to the spool.

The above and still further objects, features and advantages of the present invention will become apparent upon consideration of the following detailed description of one specific embodiment thereof, especially when taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a view in plan of a spool according to the invention, as seen from the underside;

Figure 2 is an enlarged view taken in section on the line 2—2 of Figure 1;

Figure 3 is a view in plan of the spool of Figure 1, as viewed from above;

Figure 4 is a view of a trigger mounting plate, taken in perspective;

Figure 5 is an exploded view in perspective of the spool trigger and trigger mounting plate of Figures 1–4, inclusive, illustrating the mode of assembly; and

Figure 6 is a view in section taken on the line 6—6 of Figure 1.

Referring now more particularly to the accompanying drawings, the reference numerals **10**, **11** denote two parallel generally circular flanges, joined by a hub **12**. The flanges **10**, **11** and the hub **12** may be one integral structure, fabricated of plastic, for example only.

The walls of the hub may include integral spokes **13**, for strength, these extending to an inner boss **14**. The hub **12** is provided with a flat **15**, extending over an angle of about 20°, centrally of which extends one arm **16** of a reversing trigger **17**. The latter has the shape of a bent lever, including a second arm **18**, which lies with its end **19** in contact with flange **10** on its outside when arm **16** lies parallel to the flat **15**. The trigger lever **17** is pivoted at its bend, on two oppositely extending pivot points **19**, and the arms **16**, **18** make an angle of slightly less than 90°.

The trigger lever **17** is mounted on the flange **10** by means of a clamping plate **20**, which is provided with lugs **21**, which extend through suitable apertures **21***a* in the flange **10** and are bent under to secure the plate **20** to the flange **10**. The plate **20** is generally circular but includes a radial extension **22** having a transverse window or opening **23**. Two ears **24** protrude from the transverse ends of the window **23**, and extend at right angles to the flange **10**, outwardly thereof. The window **23** is aligned with a window **25** in the flange **10**, through which arm **16** extends.

The ears **24** each include a U-shaped opening, as **27**, the openings extending into the radial extension **22**, at **28**. The U-shaped opening **27** serves to saddle pivot points **19** against the outer wall of flange **10**, and the extensions **28** of the openings **27** serve to provide slots within which lie the pivot points **19**.

In fabricating a typewriter ribbon spool according to the invention, the trigger lever **17** is placed in position, and the plate **20** positioned thereover. The lugs **21** then extend through the apertures **21***a* and are bent over to secure the plate **20** to the flange **10**. This operation secures the trigger lever **17** in place, and provides bearings for its pivot points **19**. It is then not necessary, as has been the case pursuant to the teaching of the prior art, to provide ears having bearing apertures and to strike up the ears **24** after the plate **20** has been mounted so as to place the pivot points **19** within the apertures. This results not only in economies of manufacture, in that the operation is rapid and requires no skill, but has also been found to assure perfect alignment of the trigger lever **17** and freedom from spool breakage during fabrication. The ears **24** may be bent perfectly, in mass production, prior to assembly, and whereas the prior art procedure has proven difficult and expensive and to lead to considerable spoilage, the procedure and construction of the present invention has effected a reduction of such spoilage to zero and effected time economies in assembly.

By virtue of the utilization of a U-shaped opening **27** in ears **24**, and the consequent utilization of the outer surface of flange **10** as a reference bearing point for the pivots **19**, perfect alignment of trigger levers **17** is achieved automatically in all cases, without consequent time consuming adjustments, and without spoilage.

In operation, one end of a ribbon (not shown) is secured to a projection **30** lying diametrically opposite the lever arm **16**, the ribbon then proceeding under the arm

16 for one turn and thereafter over the arm 16. In consequence, when the end of the ribbon is attained, during operation of the typewriter, the ribbon allows arm 16 to fall radially outward, which in turn allows arm 18 to fall axially outward. This action reverses ribbon feed.

While a preferred embodiment of the invention has been illustrated in the accompanying drawings, and described hereinabove, in which is employed a metallic clamping plate 20, secured to the flange 10 by means of lugs 21, it is possible, within the scope of the invention as defined by the appended claim to utilize a clamping plate formed of plastic material, cemented to the flange 10, or in any other desired manner secured thereto.

While we have described and illustrated one specific embodiment of our invention, it will be clear that variations of the details of construction which are specifically illustrated and described may be resorted to without departing from the true spirit and scope of the invention as defined in the appended claim.

What we claim is:

A spool for a typewriter ribbon, including a hub and parallel flanges extending from said hub perpendicularly

of the axis of said hub, a mounting plate secured to the exterior wall of one of said flanges, said mounting plate including a window communicating with a further window in said one of said flanges, adjacent the outer periphery of said hub, said mounting plate including parallel ears extending outwardly of said mounting plate at the ends of said first mentioned window, said ears each including a U-shaped opening having its open end adjacent to and communicating with said outer wall of said one of said flanges, and a bent trigger lever having one arm extending through said windows and between said flanges adjacent to said outer periphery of said hub and having another arm extending generally radially and adjacent said outer wall of said one of said flanges, said bent trigger lever having oppositely extending pivot points saddled by said U-shaped openings and lying against said outer wall of said one of said flanges.

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