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INKED TYPING RIBBON WITH CLEAN REPLACEMENT MEANS

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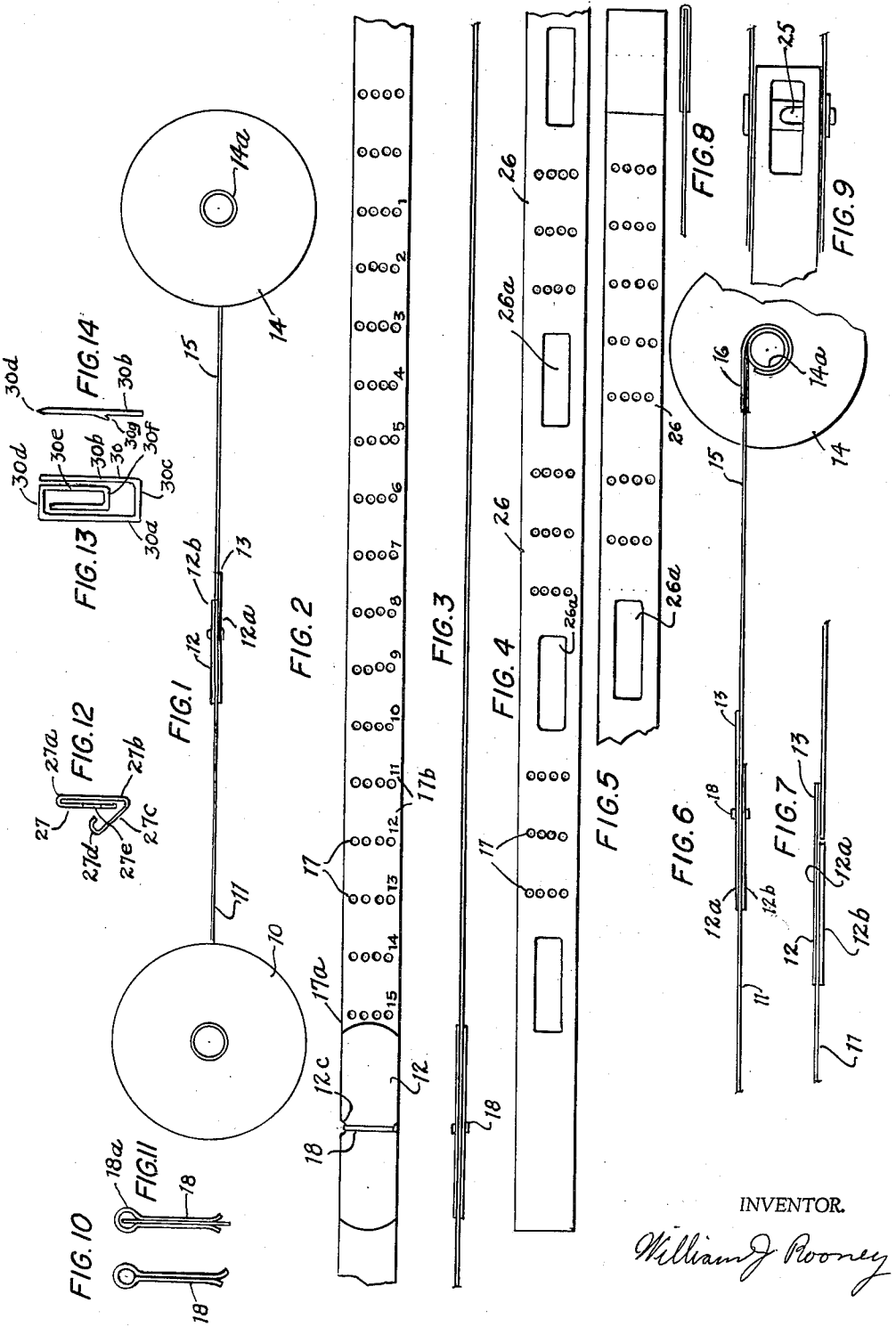

INVENTOR.

William J. Rooney

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INKED TYPING RIBBON WITH CLEAN REPLACEMENT MEANS

William J. Rooney, 670 Corliss Ave., Phillipsburg, N.J.
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This invention relates to an improved ribbon for use in typewriters, and all other office and similar machines which employ inked ribbons for printing typed matter, and one of its objects is to provide an inked ribbon system which eliminates the manual feeding of ribbons through the typewriter guides, after an initial ribbon has been properly threaded in service position in a typewriter or other machine which uses an inked ribbon for printing, so that a typist or other machine operator will not soil her fingers in placing a new inked ribbon in service position.

Another object of the invention is to provide an inked ribbon with a self adhesive paper or thin material coupling on its leading end and a coupling strip which is wound on the companion ribbon spool and which remains in feeding relation to the ribbon guides at all times, and is made up of sections of relatively short lengths, which are easily detached from one another, so that an exhausted inked ribbon can be withdrawn from service, after this coupling strip has been severed from the self adhesive paper or other tab carried by the used ribbon.

A still further object of the invention is the provision of a coupling strip for inked ribbons, which is formed with a plurality of longitudinal slots, spaced apart longitudinally from each other, to permit the pivoting of release or reverse mechanism operating levers carried by spools of certain construction, which automatically release and reverse the ribbon feeding mechanism when the spool has discharged its length of inked ribbon.

A further object of the invention is to provide a special stop clip and a terminal adhesive tab, which adapts my invention to typewriters having ribbons provided with stop eyelets.

With the above and other objects in view, the invention comprises certain new and useful constructions, combinations and arrangements of parts, clearly described in the following specification of the accompanying drawings, showing my invention, and in which:

FIG. 1 is a plan view of a pair of ribbon spools showing the inked ribbon of one spool connected to the coupling strip of the other spool.

FIG. 2 is a side elevation of the adhesive tab and a connected portion of the inked ribbon and a considerable length of the coupling strip, showing the transverse weakening lines of the latter, which provide detachable sections thereof for successive coupling to the adhesive terminal starting tabs of inked ribbons.

FIG. 3 is an edge view thereof.

FIG. 4 is a side elevation of a portion of a coupling strip having spaced apart longitudinal reverse lever releasing slots and transverse weakening lines.

FIG. 5 is a similar view of another portion of this coupling strip, showing an adhesive tab for securing the coupling strip to a ribbon spool.

FIG. 6 is an edge view of the adhesive terminal tab and the engaged coupling strip showing a slip-on stop clip.

FIG. 7 is a similar view, showing the coupling strip positioned to engage the adhesive terminal tab.

FIG. 8 is a detail edge view of the adhesive terminal tab for the coupling strip.

FIG. 9 is a detail side view of a self reversing ribbon spool, of well known construction, showing the release slot of the coupling strip aligned with the release lever.

FIG. 10 is a detail side view of a spring stop clip.

FIG. 11 is a detail cross sectional view of the terminal tab of the inked ribbon, showing the stop clip in place thereon.

FIG. 12 is a detail sectional view of another form of a stop clip, which is interlocked with the inked ribbon.

FIG. 13 is a side elevation of another form of a slip-on clip to reverse the ribbon feed.

FIG. 14 is an edge view thereof.

Referring to the accompanying drawings, which illustrate the practical embodiment of my invention, **10** designates a ribbon spool having a fresh inked ribbon **11** wound thereon. The outer end of this ribbon **11** is provided with a self adhesive paper tab **12**, which engages both faces of the ribbon by its flat sections **12***a* and **12***b*, and the section **12***a* is extended beyond the section **12***b* to provide a self adhesive coupling tab portion **13**, which extends outwardly or endwise of the end edge of the inked ribbon **11**.

The inked ribbon **11** is wound on the companion spool **14**, and on the tubular hub **14***a* of this spool the inner end of the coupling strip **15** is wound, and this inner end may be provided with a self adhesive tab **16**, which initially may be folded and thus secured to both side faces of the coupling strip. When it is desired to connect this coupling strip to the spool hub one wing of the self adhesive tab is separated from the strip **15** and then attached to the spool hub, as shown in FIG. 6.

The coupling strip **15** is constructed of flexible ribbon or material which will not stretch, and is formed with a series of transverse weakening lines **17**, which are disposed at right angles to the length of the coupling strip and which are spaced apart equal distances from each other. These weakening lines are shown to be formed by small perforations, but any other form of weakening may be employed.

The self adhesive tab **12** is formed with a notch **12***c* on its upper edge which is engaged by the U-shaped spring clip **18**, which has a slip-on fit on this tab, and is held from longitudinal shifting by engagement of the notch **12***c*. This spring clip serves to do the work performed by eyelets, in reversing the ribbon feeding mechanism.

When the inked ribbon is exhausted and is no longer of service value, it is disconnected with the coupling strip, by severing the end section **17***a* of this coupling strip. When a fresh inked ribbon is placed in service position, the endmost section of the coupling strip is again engaged with the self adhesive tab of the inked ribbon, using a ribbon so provided or equipped.

As the self adhesive tab **12** is free of ink and clean, the typist or other machine operator can freely handle the inked ribbon, thus protected. The connecting of the outer end of the coupling strip with the replacement inked ribbon takes place, while the coupling strip is properly threaded through the ribbon guides of the machine. When the receiving ribbon spools starts to wind up the inked ribbon, the coupling strip is first wound on the spool, and as this takes place the inked ribbon is moved step-by-step through the ribbon guides, and automatic winding and reverse winding of the ribbon then continues until the inked ribbon again requires replacement.

The inked ribbon may be initially provided with the coupling strip, which being completely free of ink, can be threaded through the ribbon guides without the operator or user soiling his or her hands.

When inked ribbons are used on spools which are provided with built-in reverse operating levers, such as **25**, in FIG. 9, the coupling strip **26** is formed with longitudinal slots **26***a*, spaced apart longitudinally from each other, and of sufficient number to permit the outer end of the release and reversing lever **25** to freely pass through the successive turns of the coupling strip on the ribbon spool, so that automatic reverse of the ribbon feed takes place.

The coupling strip should have a total length sufficient to make several turns on a ribbon spool, and when initially or factory connected with the inked ribbon, provides a protective covering for the inked ribbon on the spool.

The spring clip 18 is of U-shaped and has a spring bend 18*a* on its upper end, which provides a finger grip for placing the clip on the ribbon terminal tab, and for removing it.

The notch 12*c* formed in the replacement strip 12, permits the U-shaped spring clip 18 to be mounted astride the ribbon, so that the connecting bend of this clip can be disposed below the upper edge of the ribbon, and the upper end of the clip will not get caught in the reversing lever of the ribbon mechanism, and obstruction of the ribbon feed will be avoided. The clip is constructed so that its lower end will not project below the lower edge of the ribbon. This construction prevents the clip from binding in either of the feed spools, as the ribbon is wound and unwound. This spring clip does not pierce the ribbon fabric, and is held in place by the initial tension of the clip, the legs of which are in contact with each other before the clip is mounted on the ribbon.

The lower ends of the spring clip are divergent from each other, so the clip may be readily forced on the ribbon, and this construction permits of the removing of the clip from the ribbon.

In FIG. 12 I show another form of the spring clip, which comprises a member having an inner leg 27 connected by the U-bend 27*a* to the intermediate leg 27*b*, and a third or outer leg 27*c*, which is formed with a piercing prong 27*d*, adapted to be forced through the hole 27*e* formed in the inner leg 27. This clip is placed astride the ribbon tab and the bendable outer leg 27*c* is forced toward the inner leg and the prong 27*d* is forced through the leg 27 and through the terminal tab of the inked ribbon and clinched against the inner side of the intermediate leg 27*b*, thus securing the stop clip in service position, against displacement in all directions.

In FIGS. 13 and 14 I show a modified form of the stop clip; which consists of a wire form having a U-shaped outer form or part 30, providing parallel bars 30*a* and 30*b* and a connecting bar 30*c*. To the upper end of the leg or bar 30*a* a cross bar 30*d* is connected, and an inner U-shaped form or part 30*e* is formed on this cross bar 30*d*. The upper cross bar 30*d* is offset, as shown in FIG. 14, to provide a finger hold, and the cross bar 30*f* of the inner U-shaped part 30*e*, is also offset at 30*g*, so that the user can more easily slip the clip on the ribbon tab.

Having described my invention I claim as patentable:

1. An inked ribbon for type printing machines, having a self adhesive terminal tab on its outer end, and a coupling strip of wholly uninked ribbon material coupled to said adhesive tab and provided with transverse weakening lines dividing said coupling strip into successively detachable sections capable of successive coupling engagement with a ribbon terminal adhesive tab and provided with means for connecting the inner end of the coupling strip to the hub of a ribbon spool, said coupling strip being formed with a plurality of longitudinally spaced apart reverse lever receiving slots, through which a pivoted spool reverse lever may freely operate.

2. An inked ribbon for typing service, comprising an inked ribbon provided with an adhesive tab secured to opposite sides thereof and extending beyond the end of the ribbon, a coupling strip having detachable sections connected by its endmost section to said adhesive tab and having a length sufficient to make several turns on a holding ribbon spool and to pass completely through the ribbon guides of a machine on which the ribbon is used for typing service and having a winding spool connected with said coupling strip, said coupling strip being of flexible ribbon material wholly uninked and presenting a clean service surface on both sides thereof for manual handling.

3. In combination, an inked ribbon for typing service an adhesive strip attached to opposite sides of one end of the inked ribbon and having an adhesive coupling tab extending endwise of the end of the inked ribbon, the adhesive strip having a notch on its upper edge disposed below the upper edge of the inked ribbon, a U-shaped spring wire clip mounted astride the adhesive strip and the inked ribbon with its upper bend end disposed in the notch and below the upper edge of the inked ribbon and detachable from the adhesive strip and inked ribbon, and arranged so that its lower edges do not project below the lower edge of the inked ribbon, and an uninked strip of corresponding ribbon width to that of the inked ribbon having one end coupled to the coupling tab of the adhesive strip and provided with successively detachably tab sections successively numbered to number the tab sections remaining on the uninked ribbon strip.

4. In combination, an inked ribbon for typing having on one end thereof a self adhesive strip engaged with the opposite sides of the inked ribbon and adherent to said sides and covering the upper edge of the inked ribbon and having a single self adhesive tab extending endwise of the inked ribbon, and a ribbon winding spool having one end of an uninked strip having a width corresponding to that of the inked ribbon and provided with a series of successively numbered tab portions and weakening lines disposed transversely between said tab portion, the highest number being located on the outermost tab portion and representing the total number of all of said tab portions, and the numbers decreasing inwardly and each successive number representing the total remaining tab portions on said uninked ribbon strip, the innermost end portion of said uninked ribbon strip having a self adhesive tab attachable to the spool of a ribbon feeding mechanism.

5. In combination, a pair of ribbon feeding spools, an inked ribbon for typing service wound on one of the spools, an uninked ribbon strip of corresponding width to the inked ribbon having one end thereof attached to the other spool and provided with successively detachable tab portions, said tab portions being successively numbered and the highest number being located on the outermost tab portion and representing the total number of tab portions on said ribbon strip and each succeeding tab portion having a number representing the total number of tab portions remaining on the ribbon strip after any detachment of any of said tab portions outwardly thereof, an adhesive strip attached to both sides of the end of the inked ribbon and provided with a coupling tab extending endwise thereof and attached to the outermost tab portion of said uninked ribbon strip, said adhesive strip being of a self adhesive quality and being capable of successive attachment to the succeeding tab portions, and a reverse stop detachably mounted on the adhesive strip inwardly of the upper edge of the inked ribbon.

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