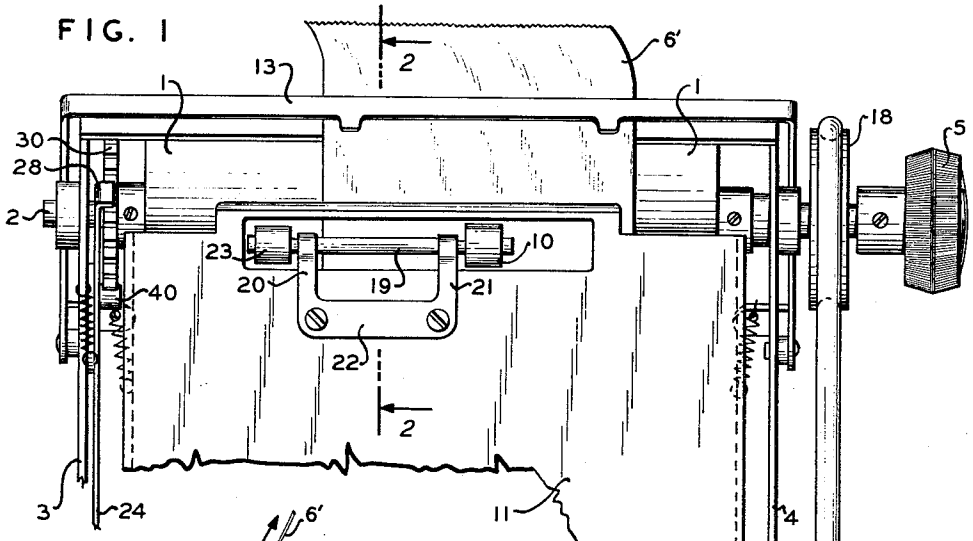
Sept. 5, 1961 C. E. BIEBER 2,998,905

DOUBLE STRIP TALLY ROLL FEED

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FIG. 1



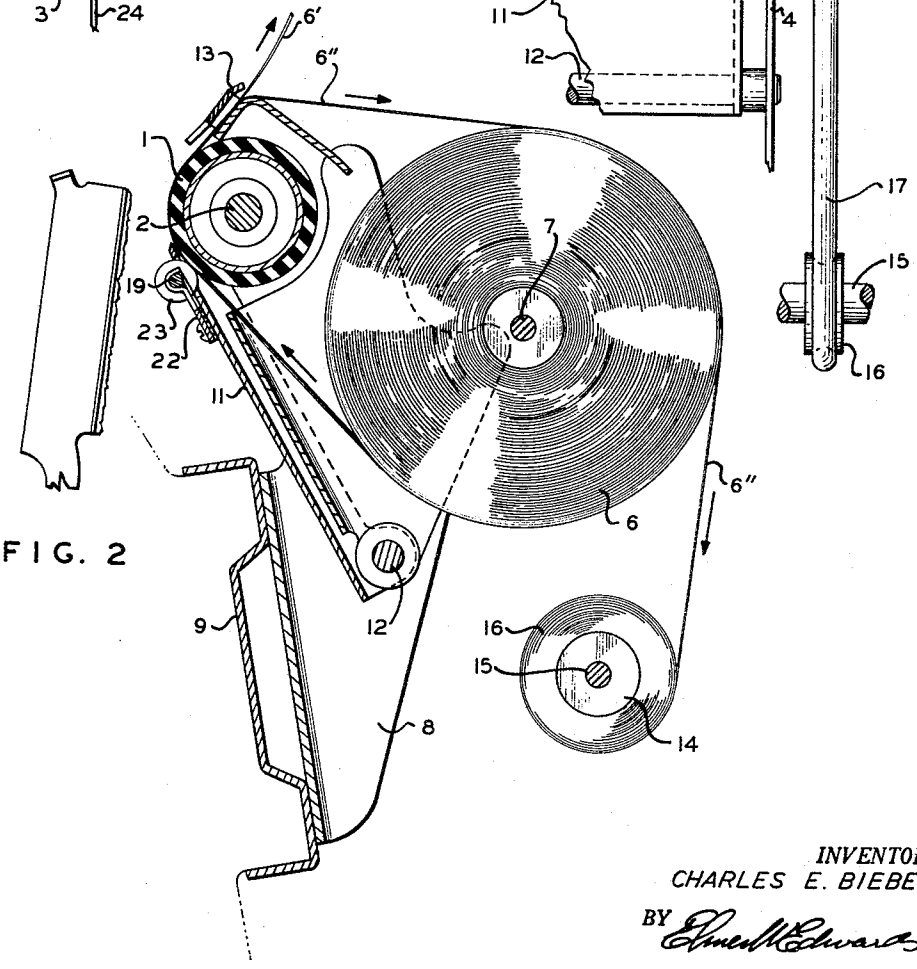


FIG. 2

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FIG. 3

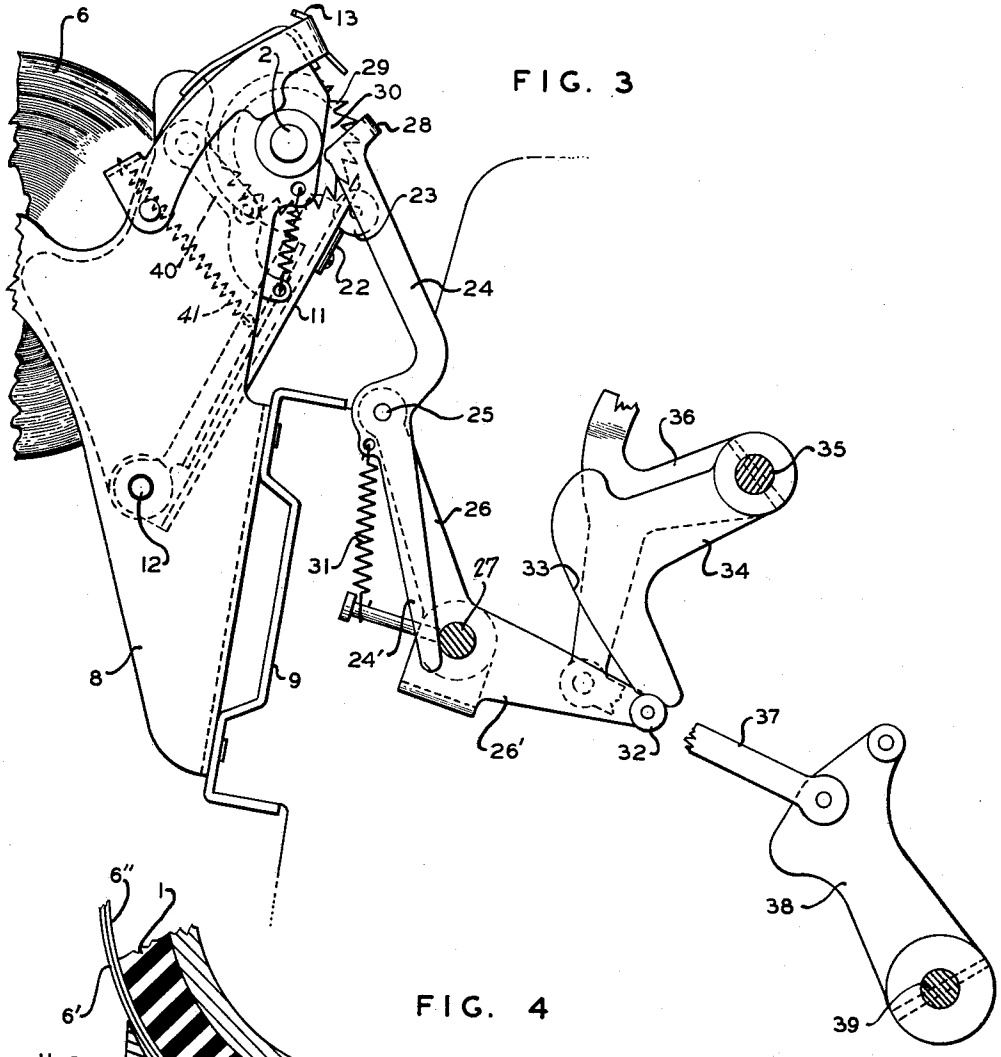
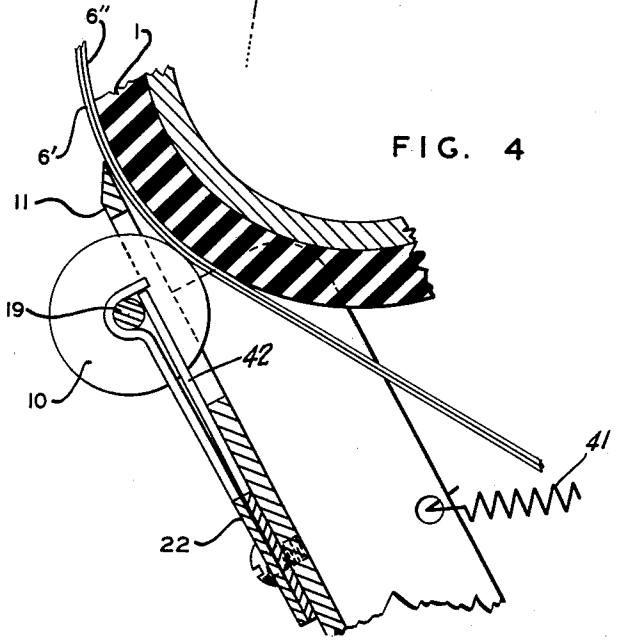


FIG. 4



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DOUBLE STRIP TALLY ROLL FEED

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Filed Nov. 21, 1958, Ser. No. 775,498
3 Claims. (Cl. 226—187)

The invention relates to feed devices for advancing paper strip past the usual printing platen of well-known business machines or the like and more particularly to improved means for advancing in unison around the printing platen two tally strips, earlier wound upon a common support spindle in an interposed relation so as to form a single roll.

Because of paper thickness tally rolls wound in the above manner will cause the outer one of the rolls of paper to be of a longer length than that of the inner roll. Also, the usual pressure rollers as heretofore provided for holding a tally tape against the feed platen will cause a drag upon the outer tape so that slippage occurs at the engagement of the two paper surfaces during a tape feeding operation effected by a rotation of the platen. Thus heretofore for dual tally roll tapes the inner wound tape as advanced by a rotation of the printing platen will act to rotate the tally roll proper to a greater extent than the outer wound tape will feed past the printing platen. Therefore, as both tally strips are fed from the roll the outer strip will gradually build up a slack therein and eventually is caused to hang downwardly along the rear framework of the machine to such an extent that an excessive loose fold is formed therein considerably separated from the tally roll proper. It is common practice to provide machines of the above character with numerous mechanisms spaced along the rearward framework and which are operable by means spaced along the carriage for controlling automatic operations thereof. Because of such indiscriminate slack build-up within the tally tape it has been found that the tape often becomes entangled with such control devices and is therefore apt to interfere with their proper operation, or to become torn during a carriage shifting operation. Further, for the purpose of streamlining the design appearance, tally roll tapes are frequently completely enclosed in a suitable casing and the loose tape is caused to become pleated and thus to jam up at the feed throat opening.

The present invention provides an extremely simple auxiliary paper feed means whereby to effect a dual feed operation to the overlapping strip of a dual roll tally tape and to obviate thereby the above disadvantages.

Other objects and advantages of the invention will be pointed out in the following description and claims and illustrated in the accompanying drawings, which disclose, by way of example, the principle of the invention and the best mode, which has been contemplated, of applying that principle.

In the drawings:

FIG. 1 is a front elevation of a printing platen carriage supporting the novel paper feed means.

FIG. 2 is a cross sectional elevation taken along the line 2—2 of FIG. 1 and showing the dual strip tally roll.

FIG. 3 is a left side elevation showing a means for line spacing the carriage platen.

FIG. 4 is an enlarged fragmentary detail view of certain of the paper feed elements shown in FIG. 2.

The present invention is adapted to be associated equally well with any of the well-known business machines which employ either a stationary type printing platen or wherein a printing platen is mounted in a shiftable carriage such as, for example, that shown in connection with a listing calculator as disclosed in U.S. Patent

No. 2,323,205 issued to Loring P. Crosman on June 29, 1943.

With reference to the drawings a printing platen 1 is fast upon a shaft 2 bearinged for rotation within suitable support plates 3 and 4, which comprise the left and right end framing of a printing carriage of any well-known structure. The usual twirler knob 5 fast to one end of the shaft 2 serves for manually rotating the shaft and platen in the customary manner when inserting a work sheet or tally tape around the printing platen. In the instant case a dual tape tally roll 6 which is first wound upon a common spool is thereafter mounted for rotation upon a support spindle or rod 7 secured within the usual end plates 8 fast to the rear framing 9 of the platen carriage. The tape strips 6', 6'' are then threaded as one, first between platen 1 and a friction roller means 10, hereinafter to be more fully described, and thence to a throat opening formed by the platen 1 and a suitable guide plate 11, pivotally secured to a rod 12 fast within the carriage end plates 3, 4. Subsequently the tape strips are initially advanced past the throat opening and around the platen 1 by a rotation of said platen through means of the manual twirler knob 5, as in usual manner. During said movement of the tapes the outer tape strip 6' will advance freely past the usual tear-off knife 13 while the inner tape strip 6'' is passed over the tally roll proper and made fast to a wind-up spool 14, keyed for rotation with a shaft 15 bearinged in suitable manner within the carriage end framing 3, 4. Shaft 15 has fast thereon a pulley wheel 16 which has a resilient drive belt connection 17 with a pulley wheel 18 fast to the shaft 2 of the printing platen 1. Thus an operation of the platen for advancing the tape will act also to effect a wind-up operation of the tape strip 6'' around the spool 14.

Line space means adapted to the purpose of advancing a printing platen step by step in an operation of the cyclic devices incident to a machine operation are well known. Briefly, in the present instance a feed pawl 24 is pivotally mounted at 25 upon a bell crank lever 26, loosely mounted upon a fixed rod 27. Pawl 24 is provided with a tooth 28 adapted for engagement with the teeth 29 of a ratchet wheel 30 fast to the platen shaft 2. With the parts at their normal condition of rest a lower arm 24' of pawl 24 engages the rod 27, so that said pawl is held in a clockwise position, against the tension of a related spring 31, and tooth 28 will be held away from ratchet wheel 30. The opposite arm 26' of bell crank 26 is provided with a roller 32 engaging the cam edge 33 of a lever 34 fast to a transverse shaft 35. Secured also to shaft 35 is an arm 36 having link connection 37 with a rock arm 38 secured to a power shaft 39, reciprocated in known manner by machine cyclic devices such as disclosed in U.S. Patent No. 1,946,572 issued to Loring P. Crosman, February 13, 1934.

Upon a forward clockwise operation of shaft 39 rock arm 38, through link 37 and arm 36, rocks shaft 35 and the lever 34 thereon in a counterclockwise direction so that cam edge 33 falls away from the roller 32, whereupon spring 31 will impart counterclockwise movement also to the bell crank lever 26. During said operation of bell crank 26 the pivot stud 25 carries feed pawl 24 toward ratchet wheel 30 and tooth 28 engaging yieldably therewith will move downwardly for engagement with a subsequent tooth of said ratchet wheel. Thereafter during a return stroke of rock arm 38 cam edge 33 restores bell crank 26 and feed pawl 24 will move upwardly to rotate the ratchet wheel 30 and the platen 1 one or more steps, that is, until the lower arm 24' of said pawl, engaging shaft 27, is caused to be rocked clear of the teeth of the ratchet wheel 30. A suitable spring click pawl 40 serves thereafter to hold both ratchet wheel 30 and the platen 1 in adjusted position.

During the above described indexing operation of the feed platen 1 the inner tally tape strip 6'' due to frictional engagement with the platen will be advanced around the platen and, by means of the previously described belt means 17, is caused also to be wound upon the spindle 14. At the same time, by virtue of the frictional engagement between the tapes the outer tape 6' is caused to be advanced beyond the tear-off knife 13. For the reasons earlier set forth however such advancement of the outer tape past the tear-off knife 13 will be less than the portion of said tape which is caused to be unwound each time from the spindle 7. Therefore, special feed means are now provided whereby to augment the movement of the outer tape strip 6' over and above the usual movement imparted thereto as described for the platen 1.

It is recalled that both tally strips 6', 6'' are fed around platen 1 between a friction roller means 10. Said roller is constructed of any suitable elastomeric material which provides a high coefficient of friction with the tally paper and is held in yieldable engagement with the outer tally strip 6', whereby to effect an operation thereof, in the manner as will now be described.

Roller 10 is fast upon one end of a shaft 19, which shaft is rotatably mounted upon the distal ends of a pair of spaced spring leaf arms 20, 21, formed of a U-shaped member 22 fast to the guide plate 11 pivoted upon cross rod 12, which plate also may preferably be constructed of resilient stock. A suitable spring 41 serves to bias plate 11 toward the platen 1. The opposite end of shaft 19 extends beyond the side edge of the tally strips 6', 6'' and has fast thereon a friction roller 23 held by means of said guide plate 11 in yieldable engagement with the peripheral surface of the platen 1. Thus any rotation of said platen will act to rotate the roller 23 and by means of shaft 19 will also rotate the roller 10. Roller 10 however is constructed to be of a larger diameter than the diameter of the roller 23 and due to the said difference in diameters of said rollers any movement of the platen in advancing the inner tape 6'' and thereby the outer tape 6' will act to effect also a peripheral displacement of the roller 10 in excess of the said movement effected to the outer tape by a movement of the inner tape. Therefore, said operation of the roller 10 will act to increase such movement of the outer tape sufficiently so that any slack which otherwise would occur within the outer tape strip is now caused to be taken out during each increment of advance as imparted by the feed platen 1.

It is observed that such increase of movement to the outer or read tape 6' has also the added advantage of increasing the spacing between successive indicia recorded thereon over that in the recording of a duplicate record of said indicia in the normal space manner effected to the inner or storage tape member 6''.

When worn, rollers 10, 23 may be replaced by simply manually rocking plate 11 clear of the platen 1 and pulling the shaft 19 free from the resilient fingers 20, 21. A new roller unit may then be added by merely snapping new shaft 19 in position between the fingers 20, 21 and suitable resilient backing fingers 42 fast to the rock plate 11, as best seen in the enlarged illustration FIG. 4.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to a preferred embodiment, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention. It is the intention, therefore, to be limited only as indicated by the scope of the following claims.

What is claimed is:

1. In an apparatus of the class described having a rotatable record feed platen for engaging a record strip which is wound in interposed manner with other record strips to form a multiple strip tally roll from which said strips are fed simultaneously during an operation of said feed platen; the combination therewith of auxiliary feed means including a drive roller frictionally rotated by engagement with said feed platen, a feed roller adapted for frictional engagement with a record strip remote from said platen by other of said record strips, an operating shaft interconnecting the said rollers for effecting a positive rotation of one by the other, resilient support means for said shaft including a first pair of resilient arms and a pair of resilient arms cooperating therewith for releasably holding said shaft, a rockable support plate for said resilient support means and adapted to yieldably hold the related said rollers respectively in constant engagement with the said feed platen and the said remote record strip, and wherein said drive roller is of smaller diameter than the diameter of the said feed roller, and wherein an operation of said drive roller simultaneously with an operation of said multiple record strips by an operation of said feed platen will cause a positive related added movement from the drive roller to the said feed roller for advancing the remote record strip.

2. In an apparatus of the class described having a rotatable record feed platen for engaging one of a pair of record strips together wound in interposed manner whereby to form a dual strip unitary tally roll from which both said strips are fed simultaneously by an operation of said platen, in combination therewith; auxiliary feed means for advancing one of said record strips an additional increment of movement simultaneously with a movement as imparted to both said strips by operation of said feed platen and thereby to take up the slack as imparted to one of the said strips during the record feed operation, and including a drive wheel frictionally operable by operations of said feed platen, a feed roller of larger diameter than the diameter of said drive wheel and engageable with one of said tally roll record strips, and a shaft effecting positive drive connection between the friction drive wheel and said feed roller.

3. The invention according to claim 2 and including a resilient support means for said shaft adapted to maintain the said drive wheel and the said feed roller in constant frictional engagement respectively with the said feed platen and the last said tally roll record strip.

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