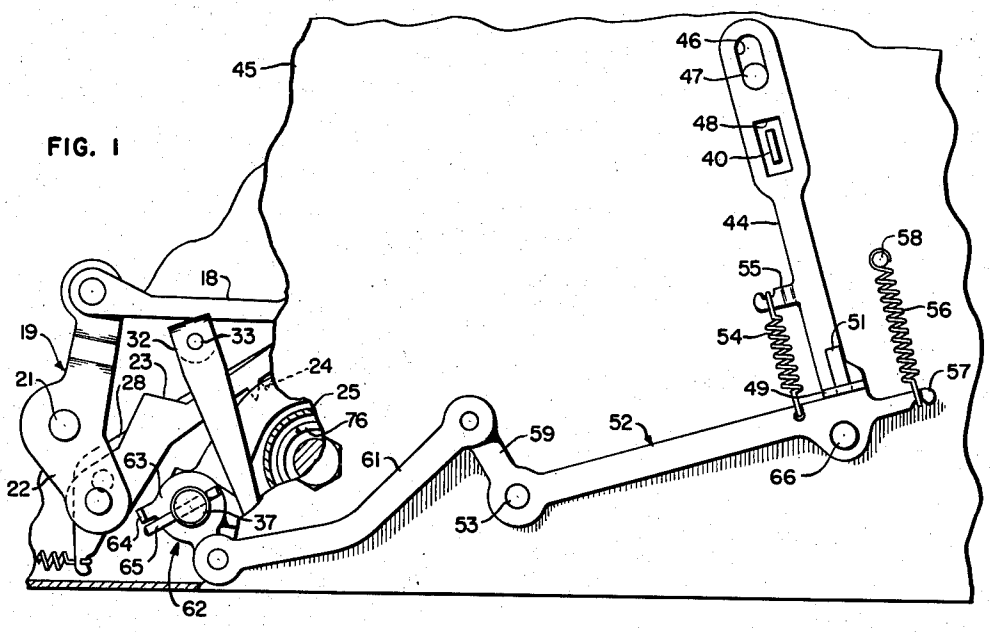
Dec. 6, 1960 I. B. HODNE 2,963,546

LATCHING MEANS FOR TELETYPEWRITER CARRIAGE

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FIG. 1



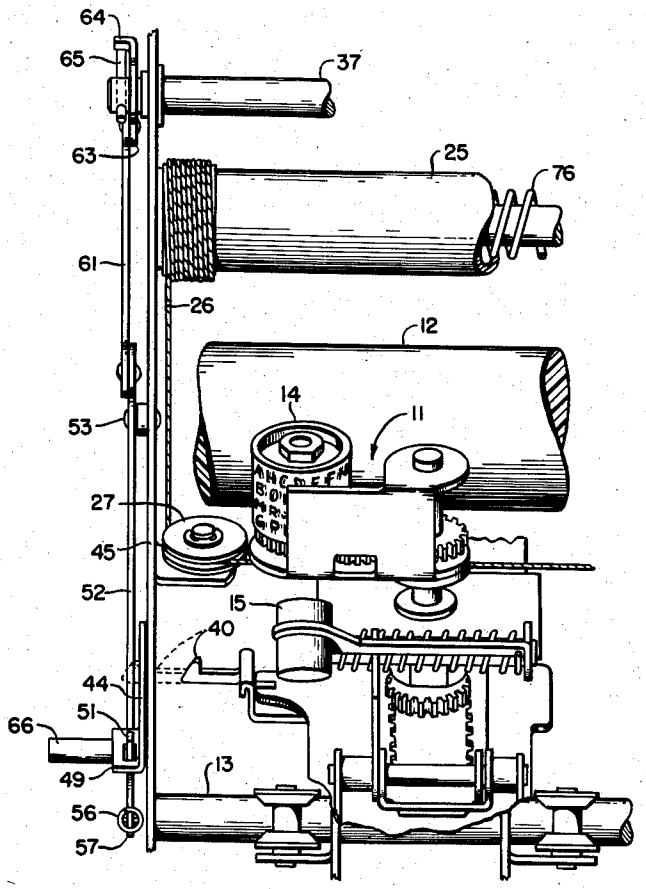


FIG. 2

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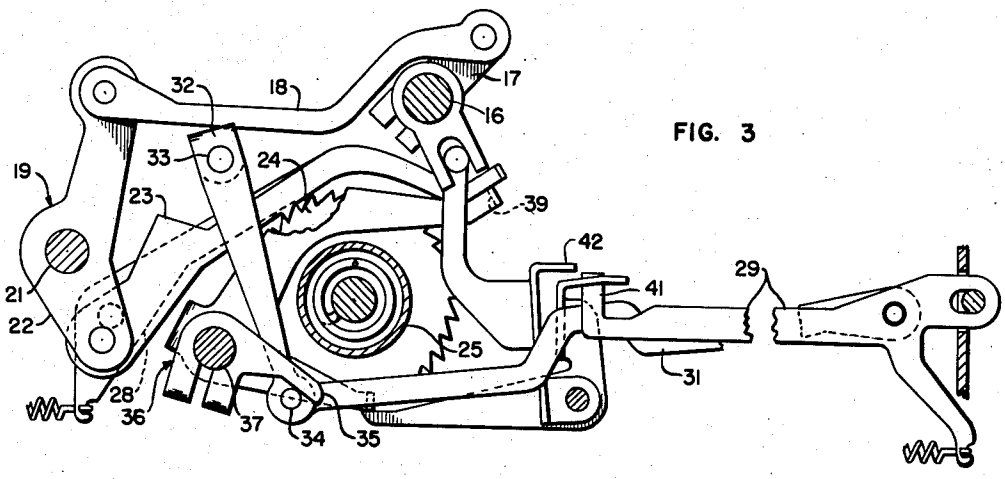


FIG. 3

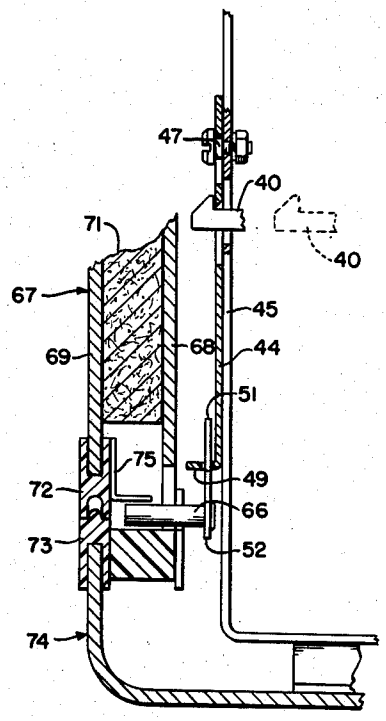


FIG. 4

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LATCHING MEANS FOR TELETYPEWRITER CARRIAGE

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Filed Sept. 17, 1958, Ser. No. 761,610

7 Claims. (Cl. 178—23)

This invention pertains to printing telegraph apparatus and more particularly to carriage control devices therefor.

The primary object of the invention is to provide a means for protecting the movable carriage of a portable teletypewriter during the shipment or transportation thereof.

Another object of the invention is to provide a carriage latching mechanism for a code signal controlled carriage of a telegraph printer which is effective automatically under the control of the printer cover to govern the movement of said carriage.

Under certain conditions of operation, it is necessary that printing telegraph apparatus be capable of withstanding the shock and bouncing of rough handling and transportation over any type of terrain, particularly in military use. These conditions necessitate latching the movable carriage of the printer. This could be done by manually fastening the carriage of the printer to one of the side plates. This method, however, would be objectionable if the unit were inadvertently operated without freeing the carriage, as the positive spacing drive would probably disable the spacing mechanism in trying to move the constrained carriage.

To overcome this difficulty, there is provided in accordance with the present invention, a carriage latch which is effective automatically, upon placement of the printer cover in position, to initiate a carriage return operation followed by the automatic latching of the type carriage in its beginning-of-line position, whereby said carriage will be safely locked against shifting so long as the cover is in place; for example, during shipment or transportation. Upon removal of the printer cover, the carriage will be released automatically, and the carriage return shaft will be restored to its normal operative condition.

The foregoing objects and features of the invention will be more apparent in the following detailed description of the invention when taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is an elevational view of the latching arrangement according to the present invention;

Fig. 2 is a partial plan view of a telegraph printer embodying the present invention;

Fig. 3 is a fragmentary sectional view of the carriage return mechanism, and

Fig. 4 is an enlarged fragmental view of the device according to the invention, with the printer cover in place.

Having reference to Figs. 1 and 2, the latching mechanism according to the present invention relates to a page printer or recorder of the type, for example, disclosed in copending application, Serial No. 734,907, filed May 13, 1958, by R. W. Nordin. Referring to Fig. 2, the movable type carriage **11** is adapted to travel to and fro across the printer, with respect to the platen **12**, on track **13**. In the embodiment shown, the carriage **11** carries a type wheel **14** and a spring loaded print hammer **15** actuated in the manner disclosed in said copending application.

Accompanying each printing operation is a character spacing operation which is effectuated under the control of the mechanism shown in Fig. 3, wherein, as more fully described in said copending application, the shaft **16** is rocked once during each printing cycle, to cause the lever arm **17** fixed thereto, to oscillate; which motion is communicated through link **18** to a spacing lever **19** mounted pivotally on the shaft **21**. Carried on arm **22** of said lever **19** is a spacing pawl **23** which cooperates with a spacing ratchet **24** carried on the spacing drum **25**.

As disclosed in said copending application, the type carriage **11** is attached to a cable **26** (Fig. 2) which extends around a pair of pulleys **27** (only one of which is shown) and is wrapped around the spacing drum **25**, the ends of said cable **26** being secured to opposite ends of said drum **25**, in a manner such that, upon rotation of said drum **25**, during the character spacing operation, a coiled carriage return spring **76** inside the drum **25** will be wound to store energy therein to effectuate a carriage return operation, as will presently appear.

When the shaft **16** rocks back and forth once for each printing cycle, the arm **17**, through link **18**, will oscillate lever **19** to actuate the pawl **23** to rotate the drum **25** one angular step to cause the cable **26** to advance the carriage **11** one character space (toward the right, as viewed in Fig. 2). Juxtapositioned to the spacing pawl **23** is a detent pawl **28**.

Referring again to Fig. 3, the carriage return function lever **29**, as more fully described in said copending application, carries pivotally thereon one end of a link **31**, the other end of which is connected pivotally to the end of a lever arm **32** pivotally carried on a stud **33** mounted in the side frame. Projecting from the pivotal connection between the link **31** and the arm **32** is a stud **34** which cooperates with an arm **35** of a U-shaped bell crank lever **36** clamped to the carriage return shaft **37**, the other arm of which terminates in a laterally directed portion **39** adapted to span the extremities of both the spacing pawl **23** and the detent pawl **28**. When the carriage return function lever **29** is selected, in the manner disclosed in said copending application, its extremity **41** will be presented into the path of the oscillating bail **42**. When the bail **42** is oscillated, the carriage return function lever **29** will be actuated rightwardly (as viewed in Fig. 3). The link **31**, being connected to lever **29** will also be actuated rightwardly, thereby causing the stud **34**, through its camming action with arm **35**, to rotate the lever **36** counterclockwise to thereby cause the laterally directed extremity or portion **39** to lift both of the pawls **23** and **28** away from the ratchet **24**. Thus, the carriage return spring **76** is now free to unwind and effect the return of the type wheel carriage **11** to the left or beginning-of-line position, as is well known in the art.

The type carriage **11** is provided with a latch or hook member **40** (Fig. 2) adapted to cooperate, as will hereinafter appear, with a latching slide member **44** slidably mounted on the side frame **45**. Referring to Fig. 1, the slide member **44** is provided with a slot **46** through which slide member **44** is cooperably related slidably with a stud **47** fixed to the side frame **45**. Slide member **44** is provided with a slot **48** adapted to have latching relation with the latch or hook member **40**. The slide member **44** is formed at its lower extremity with a laterally directed portion **49** which is slotted to receive a projection **51** integrally formed on a lever **52** mounted pivotally on a stud shaft **53** fixed to the side frame **45**. Slide member **44** and lever **52** are yieldably connected for movement together, except under certain predetermined conditions, by a contractile spring **54** distended between lever **52** and a projection **55** on slide **44**.

Lever 52 is normally biased clockwise about stud shaft 53 (as viewed in Fig. 1) by a contractile spring 56 distended between the extremity 57 of lever 52 and a stud 58 fixed to side frame 45. Arm 59 of lever 52 is connected pivotally to one end of a link 61, the other end of which is pivotally connected to a member 62 carried freely (rotationwise) on the carriage return shaft 37. Member 62 is provided with a lug 63 terminating in a laterally directed portion 64 which cooperates with a pin 65 mounted fixedly in the carriage return shaft 37. Normally, the carriage return shaft 37 is free to be rocked counterclockwise in response to a carriage return signal (as will hereinafter appear) to initiate the carriage return function or operation without affecting the members 62, 61 and 52 just described, in which event the pin 65 will merely move away from the lug 63. However, as will presently be seen, the shaft 37 may be rocked counterclockwise independently of signals by the lug 63 acting on the pin 65 to initiate a carriage return operation merely by placing the printer cover down over the printer.

As seen in Figs. 1 and 4, the lever 52 carries thereon a stud 66 adapted to cooperate with the printer cover 67. In the present embodiment, the cover 67 comprises an inner lining 68, an outer lining 69 and intermediate sound proofing material 71. The lower rail 72 of the cover 67 is adapted to rest on a supporting rail 73 of the base portion 74. Secured to the rail 72 of the cover 67 in appropriate position to cooperate with the stud 66 is an angle member 75.

In the normal operation of the telegraph printer shown in Fig. 2, the received signals will cause the printing of characters, as disclosed in said copending application, and the operation of the character spacing mechanism to rotate the spacing ratchet 24 counterclockwise (as viewed in Fig. 3) to move the type carriage 11 step by step rightwardly, as viewed in Fig. 2. Then, when a carriage return signal is received, the carriage return function bar 29 will be selectively operated to bring projection 41 thereon into the path of bail 42 to impart rightward movement to bar 29 and link 31 connected thereto, which, as previously described, will, through stud 34 and arm 35 cause the member 36 through projection 39 to disengage the spacing pawl 23 and detent pawl 28 from the spacing ratchet 24, thereby permitting the carriage return spring 76 to rotate the cylinder 25 to return the type carriage 11 to the left to the beginning of line position, whereat the latch or the hook member 40 will be projected through the opening provided therefor in the side frame 45, and also through slot 48 in the slide member 44, but no physical cooperation between latch 40 and member 45 will occur at this time because the slide 44 is still in its upward position shown in Fig. 1 (and is not yet conditioned for latching by the placement of the cover over the printer, as will presently appear), so that the printing and character spacing operations may again take place.

However, when the cover 67 is placed over the printer and is caused to rest on the rail 73, the bracket 75 on the cover 67 will impinge against the stud 66 and cause the slide 44 to be drawn downwardly against the action of spring 56 to bring the slot 48 into latching relation with the latch or hook member 40, as indicated in Fig. 4. The slide 44 and lever 52 will move as a unit due to the yieldable spring connection 54 therebetween. At the same time, the lever 52 will be rotated clockwise about its pivot 53 to actuate the link 61 rightwardly (Fig. 1) and thereby rotate the member 62 counterclockwise, which through the coaction between projection 64 and pin 65 will rock the carriage return shaft 37 counterclockwise, thus simulating the action imparted automatically to shaft 37 by stud 34 and arm 35 (Fig. 3) in response to received signals. The rocking of the shaft 37 in this manner by the placement of the cover 67 over the printer will cause the pawls 23 and 24 to be lifted out of engagement with the ratchet 24 to permit the carriage return spring 76 to rotate the cylinder 25 to return the type carriage 11 leftwardly (Fig. 2) to its beginning-of-line position.

However, under this condition, the hook member 40 will cam the slide 44 upwardly, stretching the spring 54 momentarily, and become latched behind plate 44 as shown in Fig. 4. The spacing mechanism and the carriage return mechanism will thus become immobilized, and the type carriage 11 will be locked against any shifting movement, as long as the printer cover 67 is in place.

Although a certain embodiment of the invention has been shown in the drawings and described in the accompanying specification, it is understood that this invention is not limited thereto, but is capable of modifications and rearrangement without departing from the spirit and scope of the invention.

What is claimed is:

1. In combination, a recorder, a carriage movable to effect character spacing, signal responsive means, character spacing means, means controlled by said signal responsive means for effectuating the operation of said character spacing means, carriage return mechanism, means controlled by said signal responsive means for effectuating a carriage return operation, a case for said recorder comprising a base portion and a cover portion, a latch carried by said carriage, a latching means cooperable with said latch, said latching means conditioned upon the placement of said cover portion onto said base portion for consummating a latching engagement with said latch, and further means controlled by said cover portion, said further means effective independently of said signal responsive means to initiate a carriage return operation to establish said latching engagement, whereby said carriage is rendered immovable for the duration of said placement.

2. In combination, a recorder, a carriage movable to effect character spacing, signal responsive means, character spacing means, means controlled by said signal responsive means for effectuating the operation of said character spacing means, carriage return mechanism, means controlled by said signal responsive means for effectuating a carriage return operation, a case for said recorder comprising a base portion and a cover portion, a latch carried by said carriage, a latching means cooperable with said latch, said cover portion and said latching means having cooperating facilities, whereby upon placement of said cover portion onto said base portion said facilities are effective to condition said latching means for latching engagement with said latch, and further means controlled by said facilities, said further means effective independently of said signal responsive means to initiate a carriage return operation to establish said latching engagement, whereby said carriage is rendered immovable for the duration of said placement.

3. In combination, a recorder having a movable carriage, means for moving said carriage to effect character spacing, said carriage having a latching position, means for moving said carriage into said latching position, a cover for said recorder, a latch carried by said carriage, latching means mounted on said recorder and conditioned upon the placement of said cover on said recorder for retentive engagement with said latch, and additional means mounted on said recorder and operable upon the placement of said cover on said recorder to initiate operation of said means for moving said carriage to said latching position, said conditioned latching means becoming effective upon movement of said carriage into said latching position to latch said carriage in said latching position to preclude transmission of shock through the walls of said cover to said carriage.

4. In combination, a recorder having a frame and a carriage movable to effect character spacing, character spacing means, said carriage having a latching position,

means for moving said carriage into said latching position, a cover for said recorder, a latch mounted on said carriage, latching means mounted on said frame and conditioned upon the placement of said cover on said recorder for retentive engagement with said latch, and additional means mounted on said frame and operable upon placement of said cover to initiate operation of said means for moving said carriage into said latching position and to disable said character spacing means, said conditioned latching means becoming effective upon movement of said carriage into said latching position to engage said latch and restrain said carriage in said latching position and in spaced relation to the walls of said cover.

5. In combination, a base, a recorder having a frame mounted on said base, a carriage mounted on said recorder and movable longitudinally to effect character spacing, character spacing means, said carriage having a latching position, means for moving said carriage into said latching position, a cover for said recorder constructed to fit over said recorder and adapted to be attached to said base, the internal dimensions of said cover exceeding the overall dimensions of said recorder a predetermined amount, a latch mounted on the carriage, latching means mounted on said frame and conditioned upon placement of said cover over said recorder for engagement with said latch, and trip means mounted on said frame and operable upon said cover placement to disable said character spacing means and to actuate said means for moving said carriage into said latching position, said conditioned latching means becoming effective upon movement of said carriage into said latching position to engage said latch and restrain said carriage from longitudinal movement with the ends of the carriage spaced from the walls of said cover.

6. In combination, a recorder having a frame and a carriage movable to effect character spacing, character spacing means, a carriage return mechanism, a cover for said recorder having internal dimensions exceeding the overall dimensions of said recorder a predetermined amount, a latch mounted on one end of said carriage, latching means mounted on one end of said frame and conditioned upon the placement of said cover on said

recorder for engagement with said latch, additional means mounted on said frame and effective upon said cover placement to effect a carriage return operation and to render said carriage non-responsive to said character spacing means, said conditioned latching means effective upon said carriage return operation to engage said latch and restrain said carriage from movement with the ends of said carriage spaced from the walls of said cover, and said additional means effective upon removal of said cover to render said carriage again responsive to said character spacing means.

7. In combination, a recorder having a frame and a carriage movable longitudinally from a beginning of line position to effect character spacing, character spacing means, a carriage return mechanism for moving said carriage to said beginning of line position, a cover for said recorder having internal dimensions exceeding the overall dimensions of said recorder a predetermined amount, a latch mounted on one end of said carriage, latching means mounted on one end of said frame adjacent said beginning of line position and conditioned upon placement of said cover on said recorder for engagement with said latch, and additional means mounted on said frame and effective upon said cover placement to render said carriage non-responsive to said character spacing means and to actuate said carriage return mechanism to move said carriage to said beginning of line position, said conditioned latching means effective upon movement of said carriage to said beginning of line position to engage said latch and restrain said carriage from longitudinal movement with the ends of said carriage spaced from the walls of said cover, said additional means effective upon removal of said cover to deactuate said carriage return mechanism and to render said carriage again responsive to said character spacing means.

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