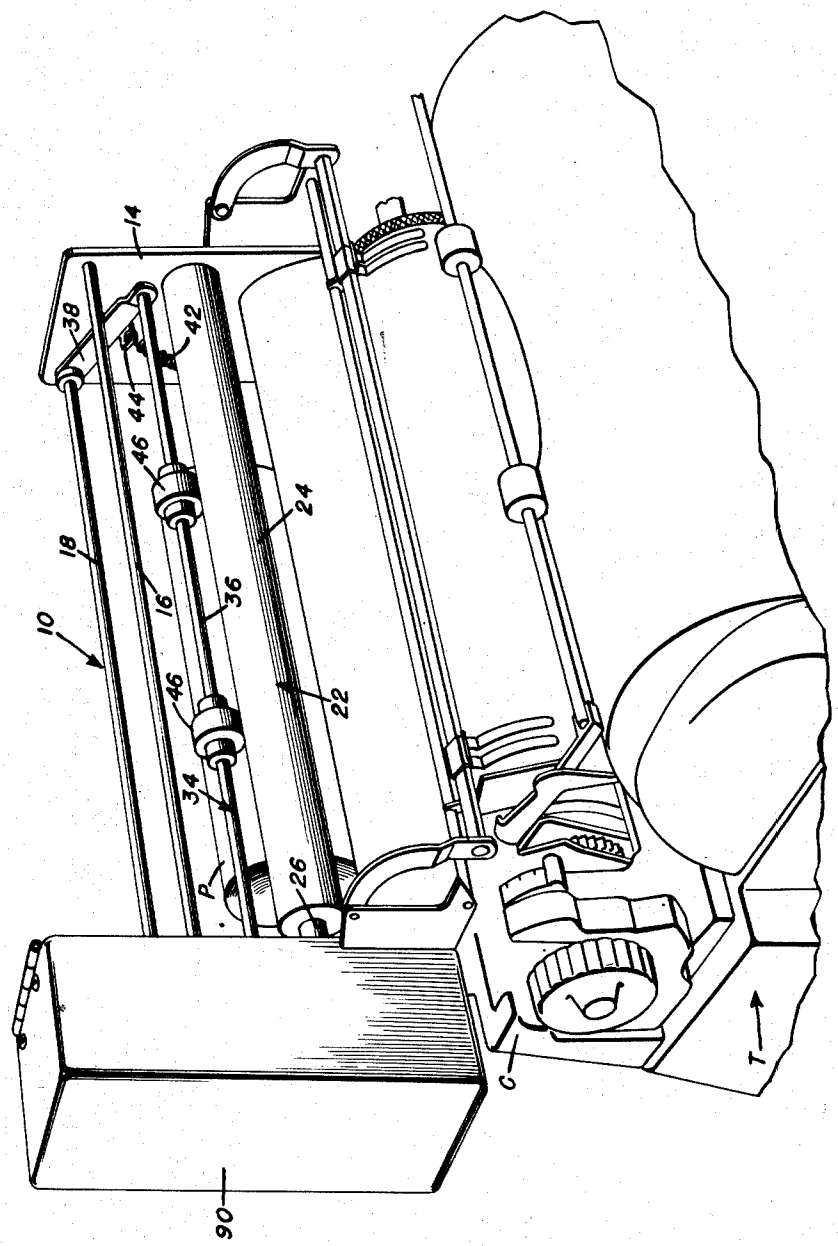
Sept. 21, 1954 L. P. RIDDLE ET AL 2,689,635

CARBON FEED ATTACHMENT FOR TYPEWRITERS

Filed July 3, 1952 2 Sheets-Sheet 1

Fig. 1



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Fig. 2

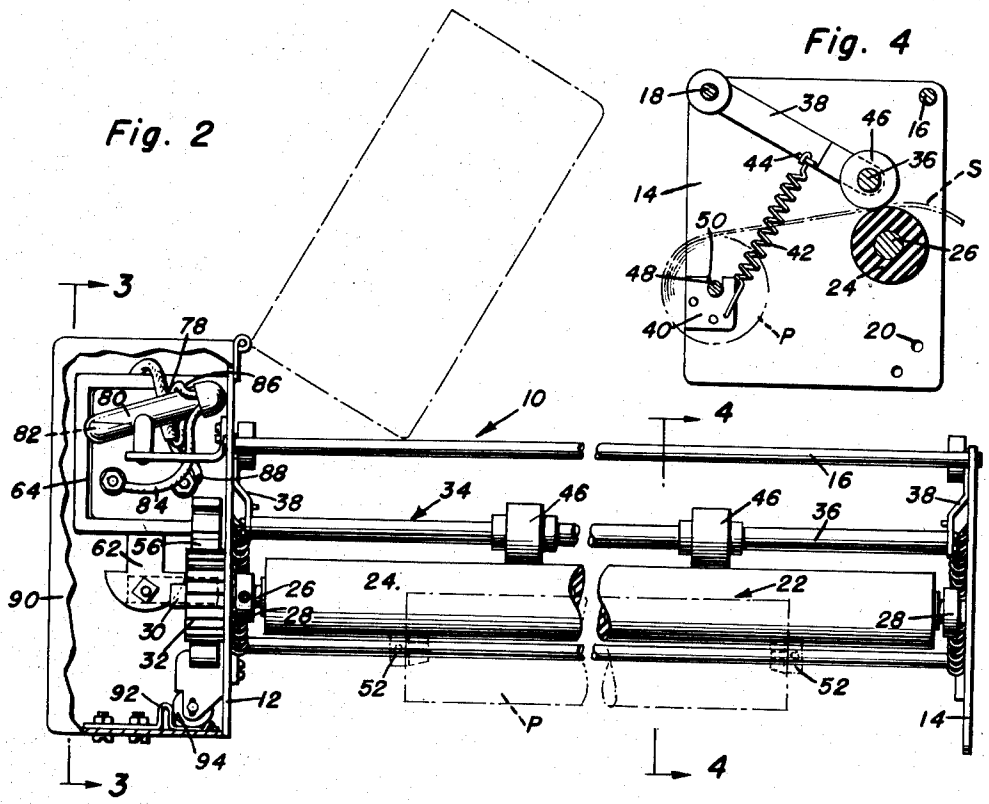


Fig. 4

Fig. 3

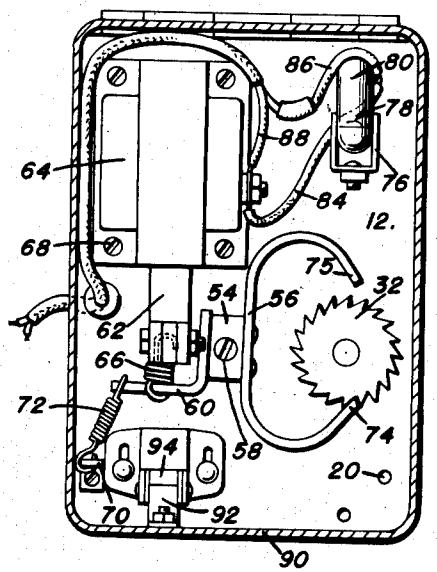
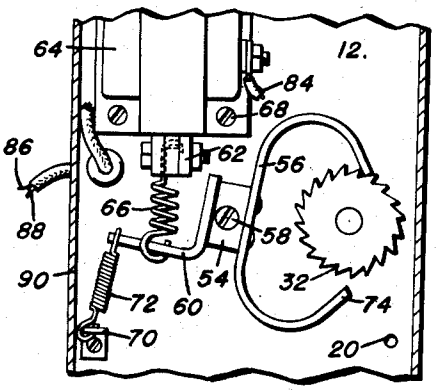


Fig. 5



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CARBON FEED ATTACHMENT FOR TYPEWRITERS

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6 Claims. (Cl. 197—131)

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This invention relates to new and useful improvements in typewriter attachments and the primary object of the present invention is to provide a device that is quickly and readily applied to or removed from the platen carriage of a typewriter and which device will feed carbon in a step-by-step manner as the platen carriage is shifted from one direction to the other.

Another important object of the present invention is to provide a carbon feed attachment for typewriters involving a switch means responsive to shifting of a typewriter platen carriage from one direction to the other for completing a circuit to a solenoid actuated feed roller, whereby the roller will be advanced in a step-by-step manner as the platen carriage of a typewriter is shifted from one direction to the other.

A further object of the present invention is to provide a carbon feed attachment for typewriters wherein the working parts are supported upon a single vertical wall having a cover hinged thereto that will shield the working parts.

A still further aim of the present invention is to provide a carbon feed control mechanism for typewriters that is extremely simple and practical in construction, strong and reliable in use, small and compact in structure, inexpensive to manufacture, assemble and maintain, and which attachment may be quickly and readily applied to or removed from the platen carriage of a typewriter in a convenient manner without harmfully affecting the carriage.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, references being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a fragmentary perspective view of a typewriter and showing the present invention mounted thereon;

Figure 2 is a front elevational view of the present invention, and with parts broken away for convenience of explanation, and with dotted lines showing the cover in its open position;

Figure 3 is an enlarged transverse vertical sectional view taken substantially on the plane of section line 3—3 of Figure 2;

Figure 4 is an enlarged transverse vertical sectional view taken substantially on the plane of section line 4—4 of Figure 2; and

Figure 5 is a view similar to Figure 3 but showing the solenoid actuated and the pawl pivoted to rotate the ratchet.

Referring now to the drawings in detail, where-

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in for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents the attachment generally including the first and second vertical walls 12 and 14 that are joined and retained in spaced parallel relation by horizontal forward and rear rods 16 and 18. The lower forward corners of the walls 12 and 14 are provided with apertures 20 that will receive fasteners (not shown) whereby the walls 12 and 14 may be removably secured to the ends of a platen carriage C of a well-known typewriter T.

A horizontal feed roller 22 is rotatably supported by the walls 12 and 14. The roller 22 comprises a rubber sleeve 24 whose axial bore accommodates a shaft 26. Apertures provided in the walls 12 and 14 journally receive the ends of the shaft 26 and collars 28 on the ends of the shaft 26 prevent accidental longitudinal shifting movement of the shaft 26 relative to the walls 12 and 14. The end 30 of shaft 26 that projects outwardly through the wall 12 fixedly supports a ratchet 32 for a purpose presently to be described.

A vertically swingable pressure roller 34 is employed for urging carbon against the periphery of the feed roller. The pressure roller includes a supporting rod 36 having laterally projecting arms 38 at its ends that are pivotally received on the rear connector rod 18. Holding plates 40 secured to the inner faces of the walls 12 and 14 are provided with apertures receiving the lower hook ends of coil springs 42. The upper hook ends of the springs 42 engage ears 44 on the arms 38 to yieldingly urge the pressure roller toward the feed roller and rubber collars 46 on the rod 36 against the carbon paper or sheet S that extends over the feed roller.

A carbon holding shaft 48 has its ends received in notches 50 in the upper edges of the plates 40. A pair of longitudinally adjustable gripping sleeves 52 are held adjusted on the shaft 48 by set screws or the like, and the sleeves 52 will engage the ends of a core of carbon paper P to permit rotation of the core with the shaft 48.

A block 54 is secured to the central portion of a C-shaped pawl 56 and is formed with an aperture that receives a pivot 58 that extends through the wall 12. An angle member 60 has one leg secured to the block 54 and the other leg of the member 60 is connected to the core 62 of a solenoid 64 by a coil spring 66. The solenoid 64 is removably supported on the outer face of wall 12 by fasteners 68.

The wall 12 removably supports an ear 70 that engages the lower hook end of a coil spring 72.

The upper end of spring 72 is engaged with angle member 60 to urge the pawl 56 upwardly with its lower end 74 engaged with the ratchet 32 to lock the latter against rotation when the solenoid is deenergized.

A bracket 76 removably secured to the outer face of wall 12 supports a switch 78 comprising a vertically inclined sealed tube 80 having mercury 82 therein that is normally disposed at the lower end of the tube. The upper end of the tube 80 supports a pair of spaced contacts one of which is connected to one terminal of the solenoid 64 by a conductor 84 and the other of which is connected to a circuit wire or conductor 86. The companion circuit wire or conductor 88 of the conductor 86 is connected to the other terminal of the solenoid so that when the wires 86 and 88 are connected to a source of electric current, the circuit to the solenoid will be controlled by the mercury switch 78.

One end of a substantially rectangular cover 90 is hinged to the upper end of wall 12 and supports a keeper 92 at its lower end that will be engaged by a latch roller 94 supported on wall 12 to retain the cover in its closed position shielding the parts of the attachment on the outer face of wall 12.

In practical use of the present invention, the attachment is mounted upon the platen carriage C by fasteners extending through the apertures 20. The roll of carbon paper P is placed upon the shaft 48 and is held relative thereto by the sleeves 52 which are adjusted toward each other to enter the core of the paper P.

The leading edge of the sheet S is extended forwardly over the roller 24 and about the platen of the typewriter T.

During the typing operation, the platen carriage C and the attachment 10 will move leftwardly in a step by step manner. When the carriage is shifted to move to the right, the mercury 82 in tube 80 will be forced to the upper end of the tube 80 to bridge the space between the two contacts at the upper end of the tube 80. When this occurs, the circuit to the solenoid 64 will be completed and the core 62 of the solenoid retracted to impart swinging movement to pawl 56 and cause its upper end 75 to engage a tooth of the ratchet 32 and rotate the ratchet a distance equal to one of its teeth. Then, the mercury 82 will gravitate to the lower end of the tube 80 breaking the circuit to the solenoid and permitting spring 72 to return the pawl 56 to its position shown in Figure 3 with the lower end of the pawl engaged with the ratchet to lock the latter against rotation.

Having described the invention, what is claimed as new is:

1. In a typewriter including a platen carriage, a carbon feed attachment comprising a pair of vertical walls attached to the carriage, horizontal rods connecting the walls, a feed roller rotatably supported by the walls, a pressure roller urged toward said feed roller, a ratchet on one end of the feed roller disposed at the outer face of one of said walls, a pawl carried by said one of said walls for engaging the ratchet to rotate the feed roller, a solenoid on said one wall and connected to the pawl and to a source of electric current, and a switch electrically connected to the solenoid and operable by inertia in response to shifting of the carriage from one direction to the other for actuation of the switch to its circuit closing position.

2. In a typewriter including a platen carriage, a carbon feed attachment comprising a pair of vertical walls attached to the carriage, horizontal rods connecting the walls, a feed roller rotatably supported by the walls, a pressure roller urged toward said feed roller, a ratchet on one end of the feed roller disposed at the outer face of one of said walls, a pawl carried by said one of said walls for engaging the ratchet to rotate the feed roller, a solenoid on said one wall and connected to the pawl and to a source of electric current, and a switch electrically connected to the solenoid and responsive to shifting of the carriage from one direction to the other for actuation of the switch to its circuit closing position, said switch comprising a vertically inclined sealed tube having mercury therein normally disposed at its lower end and a pair of spaced contacts at its upper end, the space between said contacts being bridged by the mercury as the mercury is moved to the upper end of the tube.

3. In a typewriter including a platen carriage, a carbon feed attachment comprising a pair of vertical walls attached to the carriage, horizontal rods connecting the walls, a feed roller rotatably supported by the walls, a pressure roller urged toward said feed roller, a ratchet on one end of the feed roller disposed at the outer face of one of said walls, a pawl carried by said one of said walls for engaging the ratchet to rotate the feed roller, said pawl being substantially C-shaped and having upper and lower ends for selectively engaging the ratchet, a horizontal pivot securing the central portion of said pawl to said one of said walls, and means operatively connected to said pawl and responsive to shifting of the carriage from one direction to the other for swinging the pawl to move the upper end into engagement with the ratchet while moving the lower end of the pawl from the ratchet in order to rotate the ratchet and the feed roller.

4. In a typewriter including a platen carriage, a carbon feed attachment comprising a pair of vertical walls attached to the carriage, horizontal rods connecting the walls, a feed roller rotatably supported by the walls, a pressure roller urged toward said feed roller, a ratchet on one end of the feed roller disposed at the outer face of one of said walls, a pawl carried by said one of said walls for engaging the ratchet to rotate the feed roller, said pawl being substantially C-shaped and having upper and lower ends for selectively engaging the ratchet, a horizontal pivot securing the central portion of said pawl to said one of said walls, a sealed tube supported in a vertically inclined position on said one wall and having mercury therein normally disposed at its lower end, a pair of spaced contacts at the upper end of said tube, a solenoid supported on said one wall and operatively connected to said pawl for swinging the pawl, and a pair of electrical conductors extending from a source of electric current, one of said conductors being connected to one terminal of the solenoid and the other conductor being connected to one of said contacts, the other of said contacts being connected to the other terminal of said solenoid, the space between said contacts being bridged by the mercury as the mercury moves to the upper end of said tube in response to shifting of the carriage from one direction to the other.

5. The combination of claim 4 and a cover hinged to said one of said walls for covering the solenoid, pawl and tube, and latch means locking the cover in its closed position.

6. A carbon feed attachment for typewriters,

said attachment comprising first and second vertical walls adapted to be mounted on a platen carriage, connecting rods joining the walls, a feed roller rotatably supported by said walls and having an end projecting outwardly from said first wall, a pressure roller including laterally projecting arms pivotally mounted on one of said rods and swingable toward and away from said feed roller, spring means engaging the arms and urging the pressure roller toward the feed roller, a ratchet on said end of said feed roller, a vertically swingable C-shaped pawl centrally pivotally attached to said first wall and having upper and lower ends for sequentially engaging the ratchet, spring means engaging the pawl to yieldingly retain the lower end of said pawl engaged with the ratchet to lock the latter against rotation, a solenoid supported on said first wall and

having a core attached to said pawl for swinging the pawl to move the upper end of the pawl against the ratchet for rotating the ratchet, and switch means on the first wall operatively connected to the solenoid for energizing the solenoid upon shifting of the attachment from one direction to another in response to similar shifting of a platen carriage on which the attachment is supported.

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