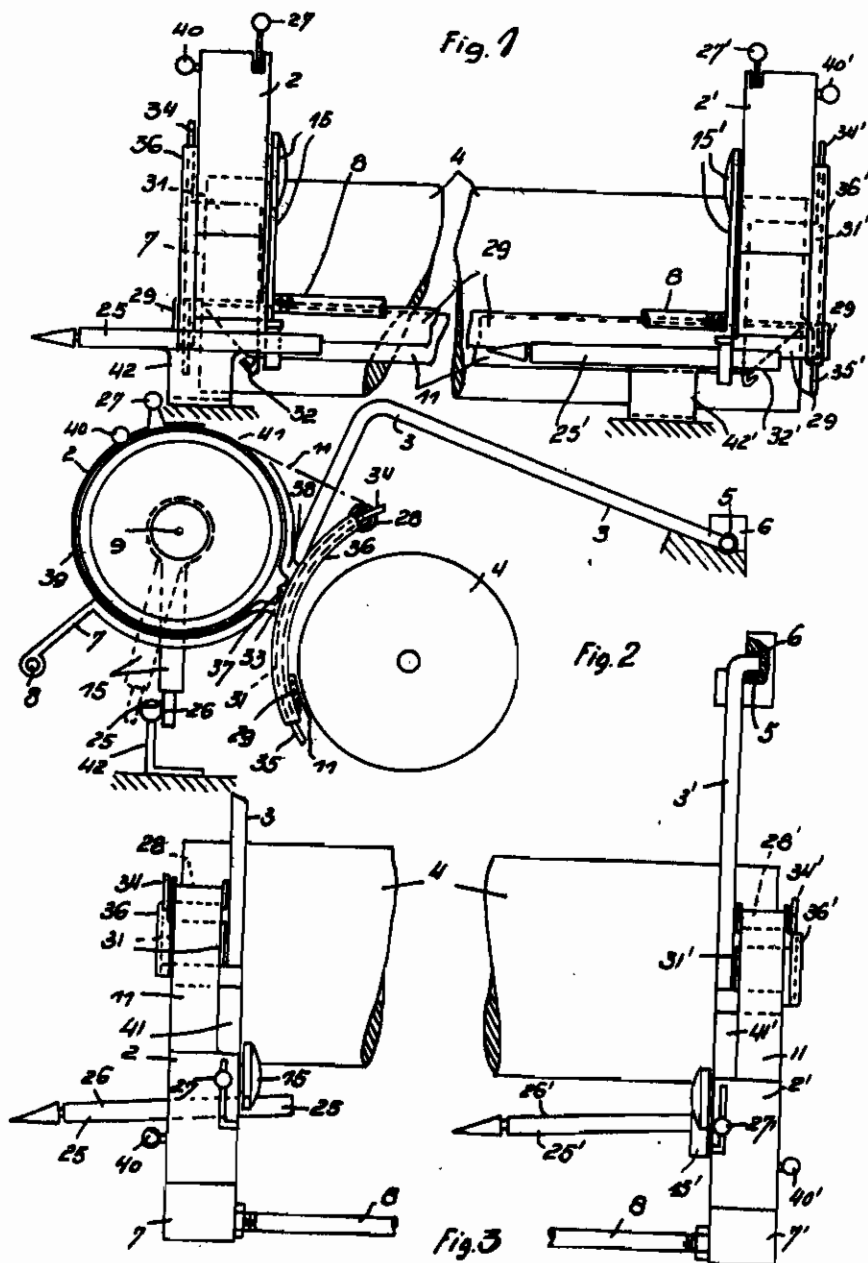


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F. WILLHEIM
TYPEWRITING MACHINES
Filed Jan. 11, 1940

Serial No.
313,429
4 Sheets-Sheet 1



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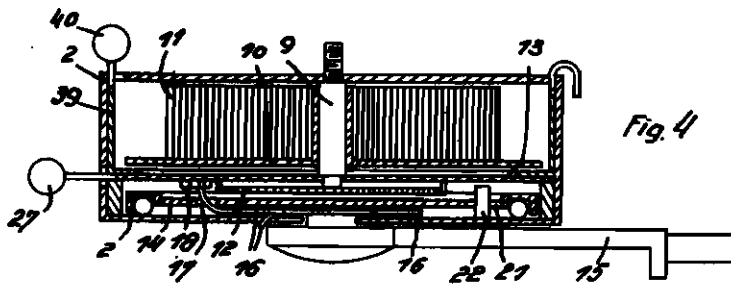


Fig. 4

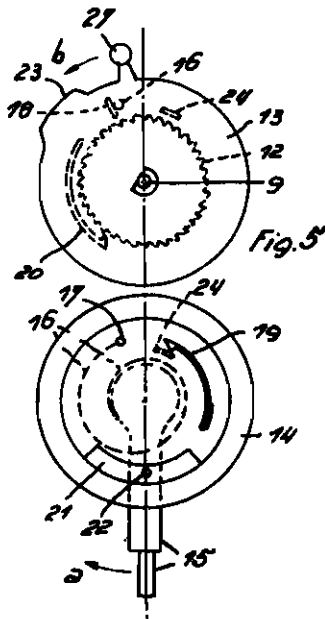


Fig. 5

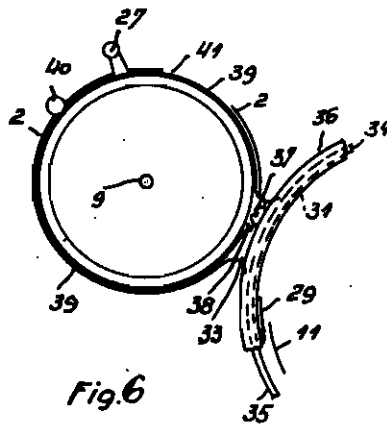


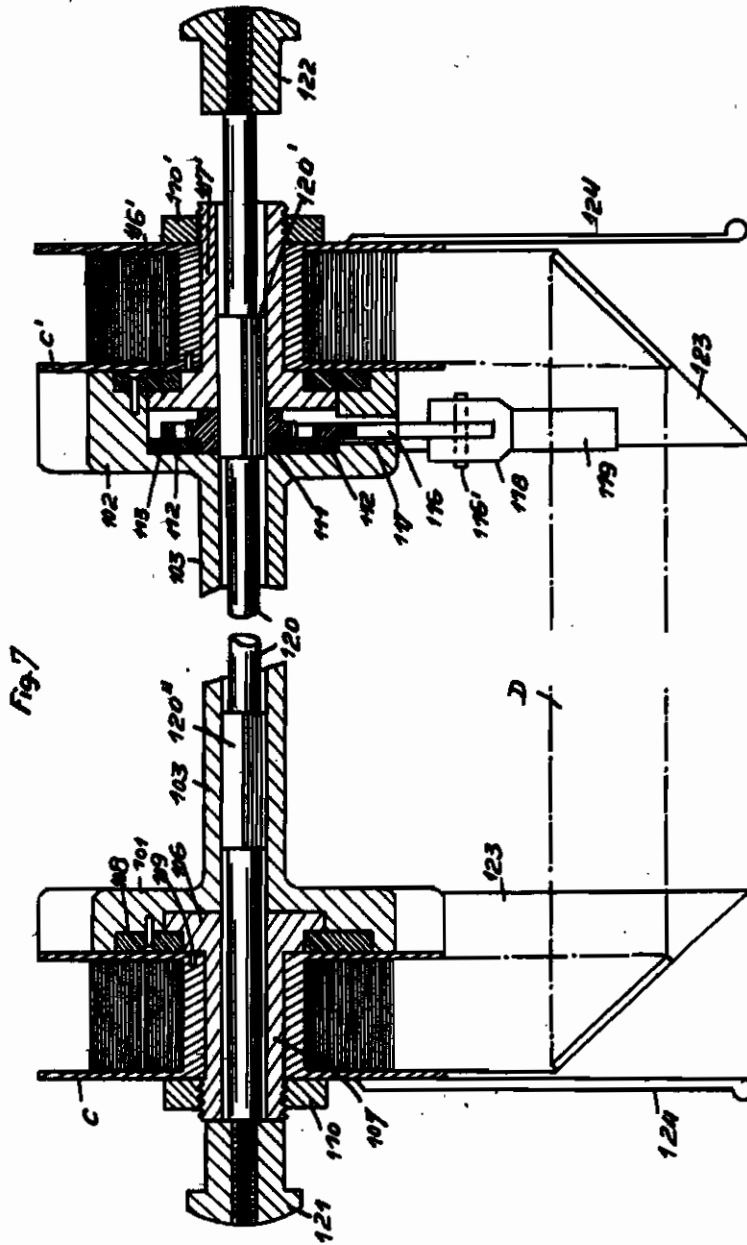
Fig. 6

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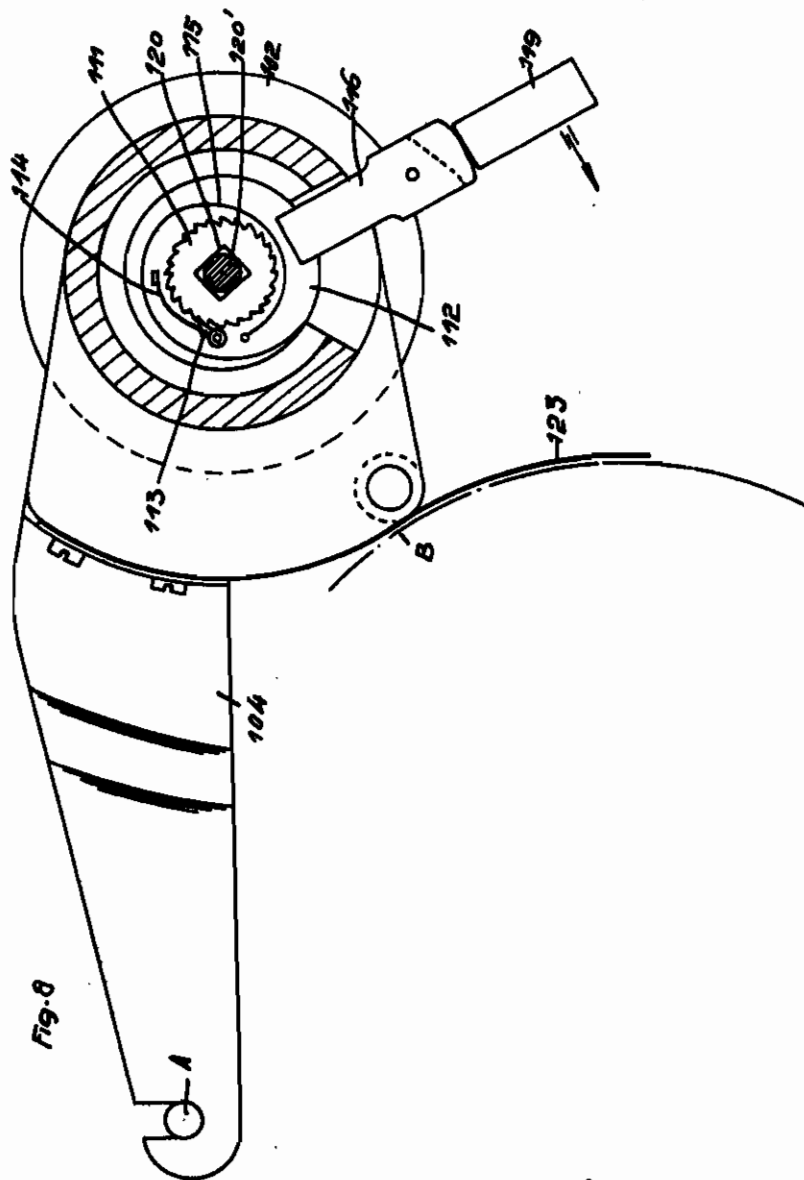


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ALIEN PROPERTY CUSTODIAN

TYPEWRITING MACHINES

François Willheim, Vinay, France; vested in the
Alien Property Custodian

Application filed January 11, 1940

The present invention relates to a device which is adapted to be mounted quickly on a typewriter and which consists, in principle, of an inking ribbon which is stretched, along the typing line of the typewriter, behind the sheet of paper on which the ribbon copy is made.

It is thus possible to obtain two copies of the typewritten text, viz.: a copy which is normally legible, on the front face of a sheet of paper interposed between the auxiliary ribbon and the platen of the typewriter, and another copy which is legible by transparency, on the rear face of another sheet of paper interposed between the auxiliary ribbon and the sheet of paper on which the normal ribbon copy is made. If it is not desired to obtain this second copy, it suffices to cover the corresponding face of the auxiliary ribbon with a protecting strip stretched against said face.

Just like the normal ribbon of the typewriter, the auxiliary ribbon gradually unwinds from a bobbin located on one side of the carriage of the machine and rewinds on another bobbin located on the opposite side. As for the normal ribbon, when the auxiliary ribbon has completely passed from one bobbin to the other, the drive is reversed so that said auxiliary ribbon rewinds on the bobbin it has just left.

For actuating the auxiliary ribbon, use is made, according to the invention, of the return movement of the carriage of the typewriter.

The accompanying drawing shows, by way of example, two embodiments of the object of the invention. In said drawing:

Figs. 1 to 6 relates to the first embodiment.

Fig. 1 is a diagrammatical partial front view.

Fig. 2 is a corresponding side view.

Fig. 3 is a partial plan view.

Fig. 4 is a section, on a larger scale, through the axis of a bobbin carrier case.

Fig. 5 shows the details of the mechanism for driving the auxiliary ribbon.

Fig. 6 shows a part of the members illustrated in Fig. 2, but in another position than in this figure.

Figs. 7 and 8 relate to the second embodiment.

Fig. 7 is a partial view, on a large scale, in vertical section through the axis.

Fig. 8 is a transverse section through the actuating members.

The two bobbins which serve for winding the auxiliary inking ribbon are arranged in cases 2 and 2' at both ends of the platen 4 and in front of same, said cases being fixed by welding or other means on supporting arms 3, 3' respectively (Figs. 2 and 3). The supporting arms 3 and 3'

extend in a curved shape adapted to the space conditions above the platen 4, and are pivotally mounted respectively in a journal hole 5 provided in a part 6 of the carriage, which part can be used at the same time as a support for the arms. The two supporting arms 3, 3' are connected together to form a stirrup by a bar 6 by means of the bobbin carrier cases 2, 2' and of plates 7 fixed on said cases.

As shown in Fig. 4, each of the bobbin carrier cases not only contains the bobbin 10 fixed on the shaft 9, but also the driving mechanism effecting the winding of the auxiliary inking ribbon 11, and the members for making the drive inoperative and releasing the bobbin so that the latter can rotate freely during the unwinding, and finally the adjustable supports for the protecting strip. A wheel 12 provided with teeth forming a ratchet is fixed at the inner end of the shaft 9. Above said wheel is located a thin disc 13 which is rotatably mounted on the shaft 9 and which is adapted to be locked in two positions reached by rotation. Below the ratchet wheel 12 is located a second rotatable disc 14 which is supported by means of a ball bearing on the bottom of the case 2 and is secured to a pivoting radial arm 15 placed outside the case. Between the disc 14 and the bottom of the case is placed a tensioned spiral spring 16, the inner end of which is anchored in the bottom of the case, but the outer end of which passes through a hole 17 provided in the lower disc 14 and bears with a certain pressure against a stop 18 on the upper disc 13. The feed pawl 19 is mounted on the top of the disc 14, and the stop pawl 20 on the underside of the disc 13 (Fig. 5). These two pawls are provided with wedge-shaped points and resilient arms, so that they can be brought out of engagement with the stops. The disc 14 is further provided with an arcuate slot 21 through which an abutment finger 22, fixed to the bottom of the case, projects to the height of the stop pawl 20.

In Fig. 5, the two discs 13 and 14 are shown in the positions they occupy one above the other when they are inoperative but ready to operate. The disc 13 is fixed in its position shown by means of a spring (not shown) which is fixed to the bobbin carrier case and bears against the left flank of the tooth-shaped projection 23. The point of the feed pawl 19 bears against an abutment 24 fixed to the under face of the disc 13. The drive (feed) of the ratchet wheel 12 is obtained by the pivoting of the arm 15 in the direction of the arrow α (Fig. 5). The disc 14 is rotated and continues to tension the spring 16. The

point of the feed pawl 19 immediately escapes by sliding from the abutment 24 and comes into engagement with a tooth of the ratchet wheel 12, so that said wheel 12 and consequently the shaft 9 of the auxiliary ribbon bobbin are rotated. This movement of the pivoting arm 15 is imparted, according to the invention, by the longitudinal movement of the carriage carrying the platen 4. For this purpose, for each bobbin carrier case and for actuating each pivoting arm 15 and 15', there is provided an actuating bar 25, 25' fixed on the stationary frame of the typewriter in such a position that its inner surface 26 or 26' is swept, each time the carriage is pushed back and consequently at each change of line, by the pivoting arm of the engaged driving mechanism. The actuating surfaces 26, 26' become inclined (as shown in the plan view of Fig. 3) in the direction in which the carriage is pushed, consequently from left to right, towards the platen 4. Owing to this, one of them (the actuating surface 26, in the case of Figs. 1 to 3) imparts to the engaged pivoting arm 15, a swinging movement towards the platen (in the direction of the arrow *a*, in Fig. 5), whereas the other pivoting arm 15', which belongs to the disengaged driving mechanism, passes in front of the outer side of the actuating bar 25' and is not actuated. As soon as the actuated pivoting arm 15 has passed the actuating bar 25, it is retracted, together with the disc 14, by the tensioned spring 16, to the inoperative position (medial position shown in Fig. 6), so that it travels, during the movement of the carriage, while the immediately following line is written, on the outer side of the bar 25 from right to left, as shown in chain dotted lines in Fig. 2. The pointed end of the bars 25, 25', where the pivoting arm actuated, 15 or 15', engages the inner actuating surface 26 or 26', is resiliently connected to the other part of the bar so that the point can escape from the pivoting arm 15 or 15' which is returning on the outer side of the bar.

The actuating mechanism of the bobbin is of course always disengaged on one of the sides of the platen (on the right hand side according to Figs. 1 and 3). In order to disengage the actuating mechanism, the disc 13 is rotated by means of the knob 27 in the direction of the arrow *b* (Fig. 5) until the spring referred to above, which is fixed to the case of the bobbin, engages behind the right flank of the projection 23. At the end of this rotary movement, the conical surface formed at the tip of the stop pawl 20 engages the abutment finger 22 fixed to the bottom of the case, so that the pawl 20 is brought out of engagement with the teeth of the ratchet. Owing to the tension of the spring 16, its end follows the stop 18. The disc 14 together with the pivoting arm 15 consequently follow the rotary movement of the disc 13, so that the feed pawl 19 does not leave the abutment 24 and therefore remains disengaged, while the pivoting arm 15 swings from the medial position (shown in Fig. 5) in the opposite direction to the arrow *a*, and consequently even when the carriage is pushed from left to right, it passes in front of the outer side of the bar 25 without being actuated.

According to the invention, all the members serving to guide the auxiliary inking ribbon 11, from the bobbins to the typing line and along same, and also the adjustable supports 36, 36' for the protecting strip 29 which, in the example shown, is stretched in front of the auxiliary inking ribbon, are also supported by the bobbin car-

rier cases 2, 2'. The arcuate ribbon guide plate 31, the lower end of which is provided, in the usual manner, with an oblique slit 32 for changing the direction of the ribbon, is fixed by means of a brace 33 to the bobbin carrier case 2. The outer side of said plate 31 is provided, at both ends, with bar-shaped extensions 24, 35 and acts as a guide for the likewise arcuate support 36 of the protecting strip 29. Said support 36 is of channel cross-section and engages, by means of a rounded projection 37, in a projection 38 of corresponding shape formed in a ring 39 which is inserted around the bobbin in the bobbin carrier case 2 and which can be rotated, by means of a knob 40, from a position in which the protecting strip fixed to the support 36 covers the auxiliary inking ribbon 11 (Fig. 2) to a position in which the protecting strip no longer covers the auxiliary inking ribbon (Fig. 6). The upper projection 34 of the ribbon guide plate 31 carries a small roller 26 for guiding the auxiliary inking ribbon 11 between the bobbin carrier case 2 and the guide plate 31.

The bobbin carrier cases 2, 2' are slotted over a peripheral portion 41, 41' located at the top, so that a very visible mark which is on the auxiliary inking ribbon 11 shall appear in this slot when the drive of the bobbins is to be reversed by means of the knobs 27, 27'.

It is clearly apparent from the foregoing description that all the component members of this auxiliary inking ribbon device may be manufactured and mounted in the same shape and with the same dimensions for all models of typewriters. Only the wire supporting arms 3, 3' which can be readily shaped and the very simple supports 42, 42' provided for the actuating bars 25, 25' have to be shaped and calculated in each case so as to adapt them to the model of typewriter in question. The supporting arms 3, 3' with the bobbin carrier cases 2, 2' which are fixed thereto are connected by a bar 6, the length of which corresponds to the model of typewriter, to form a stirrup which can then be fitted on the typewriter, and subsequently removed without difficulty, as a support for the whole auxiliary inking ribbon device, by simply hooking the resilient ends of the supporting arms in the previously drilled journal holes 5. In order to facilitate the insertion of the auxiliary inking ribbon between two sheets of paper, the stirrup can be swung downwards in the journal holes and completely folded down in case the auxiliary inking ribbon is not being used.

According to Figs. 7 and 8, the device according to the invention comprises two boxes 101, 102 connected together by a tube 103. The boxes 101 and 102 each carry a lug 104 (Fig. 8) forming a hook at its free end. The lugs 104 are intended to hook on to a rod A with which is provided, behind the platen, the type of typewriter for which the device such as it is illustrated is intended. This method of fixing enables the device to be lifted readily, for changing the sheets on the machine, by simply swinging it about the rod A. It is obvious that the method of fixing should and can be appropriate, in the same connection, for each type of typewriter to which it is desired to apply the device.

The box 101 contains a plate 106 which is integral with a hollow mandrel 107 on which one of the bobbins C is fitted. The plate 106 is kept in its housing by a ring 106 that allows it to rotate. It is secured to the bobbin C by a projec-

tion 109. The bobbin is kept on its mandrel by a knurled nut 110.

The box 102 also contains a plate 106' which is integral with a hollow mandrel 107' for the other bobbin C'. The plate 106' is kept in its housing by a ring 108' in such a manner that it can rotate. The knurled nut 110' keeps the bobbin C' on its mandrel.

Between the plate 106' and the bottom of the box 102 is arranged a ratchet wheel 111, on the hub of which is loosely mounted a washer 112. Said washer carries a pawl 113 which is held in engagement with the ratchet by a spring 114. The washer 112 is itself connected to the box 102 by a spiral retracting spring 115 (Fig. 8). Said box is provided with a radial arm 116 projecting from the box through an appropriate opening 117 that enables it to oscillate through a certain angle. A jaw 118 is pivoted at 116' to the arm 116 in such a manner as only to move same when said jaw is subjected to a push. Said jaw carries a roller 119 on a longitudinal spindle. The roller 119 is adapted to co-operate with a ramp, not shown, provided on a fixed part of the typewriter, on the right hand side thereof. Said ramp exerts a push on the roller 119, at each return movement of the typewriter carriage, and consequently rotates the ratchet 111.

The ratchet 111 is slidably mounted on a square part 120' of a shaft 120 which passes through the tube 103 and which overlaps on either side of the bobbins C, C'. Said shaft can be moved longitudinally, a distance limited by the abutment, against the mandrels 107, 107', by means of knobs 121, 122 it carries at each of its ends. The shaft 120 is further provided, to-

wards the box 101, with a square part 120'' which is adapted to engage with a similar shaped part of the perforation of the mandrel 107.

In the position shown in Fig. 7, the shaft 120 is completely pushed towards the right. Its square part 120', which is constantly connected to the ratchet 111, is furthermore engaged in a similar shaped part of the perforation of the mandrel 107'. On the contrary, the square part 120'' is completely disengaged from the mandrel 107. It is therefore the mandrel 107' which is in this case actuated at each actuation of the arm 116, and the auxiliary ribbon D is wound on the bobbin C'. If, on the contrary, the rod 120 has been pushed completely towards the left, it still remains connected to the ratchet 111, but is no longer connected to the mandrel 107', whereas it is connected to the mandrel 107. In this case it is the bobbin C which is actuated and on which the ribbon winds.

At 123—124 there have been shown the guides on which the auxiliary ribbon changes direction, as known, as it leaves and returns to the bobbins. Said guides are provided at 124 with projections which are likewise known and which serve for hooking the ends of the protecting strip with which the auxiliary ribbon is covered when it is desired to obtain only one copy of the typewritten text, as provided for in the previous case.

While I have illustrated and described the preferred forms of construction for carrying my invention into effect, these are capable of variation and modification, without departing from the spirit of the invention.

FRANÇOIS WILLHEIM.