

Nov. 12, 1935.

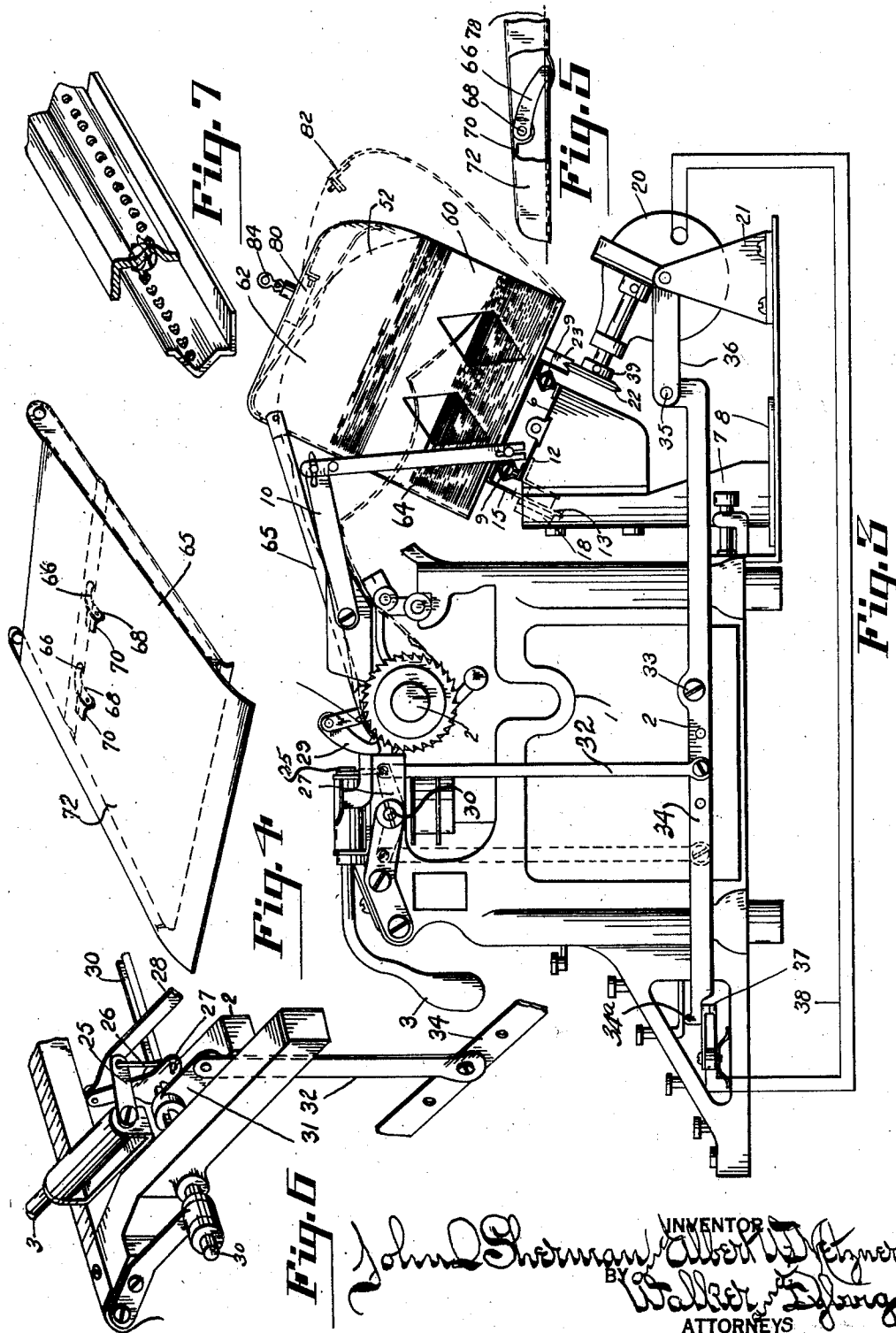
J. Q. SHERMAN ET AL

2,020,805

PAPER RECEIVING CARRIAGE

Filed July 29, 1932

2 Sheets-Sheet 2



INVENTOR
John Q. Sherman
BY
Albert D. Finner
Wallace D. Finner
ATTORNEYS

UNITED STATES PATENT OFFICE

2,020,805

PAPER RECEIVING CARRIAGE

John Q. Sherman and Albert W. Metzner, Dayton,
Ohio; said Metzner assignor to said Sherman

Application July 29, 1932, Serial No. 625,930

24 Claims. (Cl. 197—133)

This invention relates to typewriting machines, and more particularly to a motor actuated paper supply and paper receiving compartment carriage therefor, traveling to and fro in unison with the typewriter carriage, but propelled independently thereof whereby the typewriter mechanism may be relieved of load and strain.

While it is old in this art to provide a reciprocatory paper carrier mounted in the rear of the typewriter and a reciprocatory paper receiver also mounted in the rear of the typewriter and actuated to and fro by the movement of the typewriter carriage, in the present instance the paper carrier is provided with propelling means independently of the typewriter by which the carrier is automatically advanced in unison with the movement of the typewriter carriage which acts as a governor restraining and controlling such advance movement. The paper carrier being automatically returned under motive influence, carries with it the typewriter carriage preparatory to the next line writing operation. Such motor actuated return movement of the paper carrier and paper receiving carrier, and writing machine carriage, may be effected by operation of the line spacing device of the writing machine or by operation of a special key or lever that may be automatically arrested when the carrier and typewriter have been returned to a predetermined position.

The object of the invention is to improve the construction as well as the means and mode of operation of paper supply and paper receiving compartment carriers for writing machines, whereby they will not only be cheapened in construction, but will be more efficient in use, automatic in action, uniform in operation, and unlikely to get out of repair.

A further object of the invention is to provide a paper supply and a paper receiving compartment carrier for a writing machine which is propelled independently of but in unison with the traveling carriage of the writing machine and which will not subject the latter to undue stress or strain.

A further object is to provide a receiving compartment adapted to fold the material in its original zig-zag form.

A further object of the invention is to provide actuating means for a paper supply and a paper receiving compartment carrier for a writing machine adapted to impart thereto alternating motion, first in one direction and then in the other.

A further object of the invention is to provide means for automatically returning the writing machine carrier in unison with the return of the paper supply and paper receiving carrier.

A further object of the invention is to provide an automatically traveling carrier for a paper

supply and a paper receiving compartment having propelling means other than the writing machine with which it is employed. The movement of the carrier under its own motive power in one direction is controlled by the operation of the writing machine, and upon actuation thereof in reverse direction it transmits return motion to the typewriting machine carriage.

A further object of the invention is to provide a unitary motor actuated paper supply and paper receiving compartment carrier applicable to different writing machines.

A further object of the invention is to provide means for automatically effecting the return of the paper supply and paper receiving carrier by the operation of the line spacing device of the writing machine.

A further object of the invention is to provide an improved actuator for the paper supply and paper receiving compartment carrier, and means whereby the actuator is intermittently connected with and disconnected from the carrier.

A further object of this invention is to provide improved control means for the motor actuated paper carrier.

A further object of this invention is to provide a locking means for the paper receiving compartment of the carrier whereby the written material may not be removed.

A further object of the invention is to provide a locked paper compartment for receiving the used sheet, and provide a mechanism whereby the paper may not be removed without properly unlocking the paper receiving compartment.

A further object of this invention is to provide a tell-tale device indicating the withdrawal or tampering of the writing material without unlocking the compartment.

A further object of this invention is to provide a device for locking the paper advanced towards the receiving compartment only after a full blank has been written or used, thereby permitting the retracting of a portion of a blank in writing position without marring or defacing the paper already on its way or in the paper receiving compartment.

With the above primary and other incidental objects in view, as will more fully appear in the specification, the invention consists of the features of construction, the parts and combinations thereof, and the mode of operation, or their equivalents, as hereinafter described and set forth in the claims.

In Fig. 1 is shown a typewriter provided with a paper receiving compartment mounted on the same carrier that supports the paper supply. Fig. 2 discloses a piece of manifold material that may be used to advantage with this type of typewriter and receiving compartment. Fig. 3 discloses another modification showing a paper com-

partment that is locked. Fig. 4 discloses a detail view of the delivery mechanism or guide intermediate the platen and the paper receiving compartment. Fig. 5 is a detail fragmentary view of the paper locking mechanism found in the paper delivery mechanism disclosed in Fig. 4. Figs. 6, 7 and 8 are enlarged fragmentary perspective views of parts of the driving mechanism. Fig. 9 shows cam release mechanism.

Like parts are indicated by similar characters of reference throughout the several views.

Referring to the drawings, the reference character 1 is a conventional form of writing machine or typewriter having a traveling carrier 2 in which may be mounted the usual platen roll and provided with the usual line spacing mechanism including the operating lever 3 for advancing the platen roll through a step by step movement at the completion of succeeding lines of writing. The invention is likewise applicable to writing machines of the billing machine type wherein the traveling carrier moves the type relative to a stationary platen. It is to be understood that the invention does not depend upon the particular type or style of writing machine and that the typewriter disclosed in the drawings is employed merely for illustrative purposes.

Mounted in the rear of the writing machine for to and fro travel in unison with the typewriter platen carrier is a paper supply carrier 5 mounted in rearwardly inclined position upon a guide track 6 supported upon standards 7 arising from a base 8. The carrier 5 is provided with anti-friction bearings 9 between its base and the guide track 6. It is further provided with adjustable arms 10 extending on opposite sides of the reciprocatory carriage 2 of the typewriter, whereby the carrier and carriage are operatively interconnected for unison travel. Such connection permits free vertical movement of a platen carriage as is ordinarily necessary with such carriage for writing capital letters and symbols when used but maintains the relative relation of the carrier and paper carriage during their to and fro travel.

Mounted upon a suitable dependent bracket 12 secured to the supporting track 6, as is illustrated more particularly in Fig. 8, is a spring propeller comprising a gear pinion 13 actuated by a convolute spring 14 and having operative driving engagement with a gear rack 15 carried upon the reciprocatory paper supply carrier 5. The propeller pinion 13 is loosely journaled upon a supporting stud 16 fixedly secured to the bracket 12 and slotted at 17 to receive one end of the convolute actuating spring 14, the opposite end of which is secured to the propeller pinion. The spring 14 is enclosed within a housing comprising a cap portion 18 having telescopic engagement with a circular flange or enclosure 19 upon the propeller pinion and surrounding the actuating spring 14.

The actuating spring 14 is tensioned or wound by the retractive movement of the paper supply carrier which, operating through the gear rack and pinion, imposes upon the spring sufficient tension to drive the paper supply carrier through its range of movement in unison with the travel of the writing machine carriage. The spring actuator means, however, propels the paper carrier independently of the driving or power influence of the writing machine. The writing machine carriage operates as a governor to control the advance movement of the paper carrier under influence of the spring actuator limiting it

to a step by step movement determined in the usual manner by the operation of the writing machine keys. Thus while the traveling paper carrier moves in unison with the writing machine carrier, the latter is subjected to no strain or load, and instead of affording the propelling influence as is usual in such combination, the writing machine carrier in the present instance affords a retarding influence, restraining the advance of the paper carrier and limiting its movement under influence of the spring motive means to a rate of travel synchronous with that of the writing machine carriage.

In order to automatically return the traveling paper carriage after each line writing operation, there is provided an electric motor 20 mounted for oscillatory motion in a supporting bracket or standard 21 and operating through a suitable speed reduction mechanism preferably, though not necessarily, of the worm gear type to drive 20 a friction wheel 22 having operative engagement with a friction bar 23 also carried upon the base portion of the reciprocatory paper carrier 5. The friction wheel 22 is intermittently moved into and out of driving engagement with the bar 23 by the oscillatory adjustment of the actuating motor 20. Such adjustment of the actuating motor together with the closing of the energizing circuit is, as here shown but not necessarily, effected by the operation of the line spacing mechanism controlled by the lever 3.

In the present disclosure there has been shown, merely for illustrative purposes, a conventional type of line spacing mechanism wherein the operating lever 3 mounted upon the traveling carriage 2 is provided with a rock arm 25 connected by a link 26 with a rocker member or bell crank lever 27 connected by a reciprocatory link 28 with an actuating pawl 29 engaging the usual ratchet wheel upon the writing machine platen roll. Such construction has been illustrated in Figs. 1, 3 and 6. In the present construction the rocker arm 27 is slidable to and fro upon a splined rock shaft 30 mounted in the frame of the writing machine. Thus the rocker member 27 which, in the ordinary writing machine construction, is pivoted directly to the traveling carriage, in the present instance travels to and fro upon the rock shaft 30 as the platen carrier is reciprocated and is operated to rock such splined rock shaft 30 simultaneously with the actuation of the spacing mechanism. That is to say whenever the line spacing lever 3 is manipulated to advance the platen roll, the rocking motion is transmitted to the shaft 30 through the rock arm 25, link 26 and rocker member 27, whatever the lineal position of the traveling carrier may be. Secured upon the splined rock shaft 30 is a rock arm 31 connected by a link 32 with a motor control lever 34 pivoted at 33 to the frame of the writing machine. The rear end of this motor control lever 34 is connected by a loose pivotal or slotted connection 35 with an arm 36 upon the oscillatory motor 20. The oscillation of the motor control lever 34, under influence of the line spacing mechanism to which motion is transmitted through the link 32, turns the actuating motor 20, in its mounting 21, to engage the friction wheel 22 thereof with the friction bar 23 upon the base of the traveling paper carrier. At the same time the forward end of the motor control lever 34 being depressed by the oscillatory motion of such lever closes an electric switch 37 thereby closing the motor energizing circuit 38 through a suitable source of electrical energy 75

and energizing the motor 20 to return the paper carrier. Adjustably secured upon the base of the paper carrier in such position as to engage the hub 39 of the friction wheel 22 is a cam 40 which, as the paper carrier reaches the limit of its return movement, operates to depress the friction wheel 22 out of driving engagement with the bar 23 by turning the motor 20 about its pivotal connection with its mounting 21 thus arresting the return movement of the paper carrier. This camming action of the cam 40 upon the hub 39 of the friction wheel 22 at the same time operates through the arm 36 to return the motor control lever 34 to its normal position thereby permitting the switch 37 to open, de-energizing the motor circuit. For economy of manufacture and simplicity of adjustment, the disengaging cam 40 is carried upon a slotted slide block 41 which straddles the bar 23 and is adjustably secured thereon by a set screw 42. By adjustment of the cam 40, the range of travel of the paper carrier 5 may be varied.

In the construction heretofore described, there are employed two actuators or propellers, one of which comprises the spring actuated driving gear 13 propelling the paper carrier in one direction and the other comprising the motor actuated friction wheel 22 propelling the paper carrier in reverse direction. The retracting motor has sufficient power to overcome and rewind the actuating spring 14 of the primary propelling pinion 13, whereby the latter is retensioned at each retracting operation preparatory to the next line writing operation. Not only does the motor 20 possess sufficient power to overcome and rewind the primary actuating spring, but it also serves to automatically return in unison with the paper carrier the traveling writing machine carriage with which the paper supply carrier is operatively connected for unison travel. Thus while the writing machine carriage controls the paper carrier during its operative movement in one direction, the paper carrier in turn propels the carriage during its retractive movement. Although the actuator for retracting the traveling paper carrier is preferably controlled by the operation of the normal line spacing mechanism of the writing machine, as has been heretofore described, it may, if desired, be controlled by a special key and to this end the forward extremity of the motor control lever 34 has been provided with a head 34a by which the lever may be manually depressed to tilt the motor 20 to effect operative engagement of the friction wheel 22 and bar 23 and at the same time close the motor circuit switch 37.

The above device is fully disclosed and described in my copending application, Serial No. 584,321, filed January 2, 1932. In the above referred to application, a paper supply carrier has been disclosed.

In the modification disclosed in this application, a paper receiving compartment 60 supported on the carrier 5 receives at least a portion of the used paper as it is delivered from the typewriter. This permits the operator to make copies of the bills, statements, invoices, or whatever may be used on the machine, and deliver the carbon copies in the paper receiving compartment 60 without depositing each one individually and manually. In order to facilitate the delivery of the paper from the platen to the paper receiver 60, a guide 54 suitably carried on the arms 10 has one end located near the platen of the typewriting machine and the other end extending up

over the paper supply carrier 5. Thus the paper is delivered directly from the platen to the paper receiver 60.

In the modification disclosed in Figs. 3, 4, 5 and 7, the typewriter mechanism and the driving mechanism for the paper carrier and the paper receiver is identical. However, in the modification disclosed in Fig. 3, the paper supply carrier 60 is mounted underneath the paper receiving compartment 62. The paper supply carrier 60 is provided with an open end 64 through which the paper supply is withdrawn and fed to the platen roller of the typewriting machine and returned through a suitable guide 65 that is preferably completely enclosed as best seen in Fig. 4 so as to supply the carbon copy to the paper receiving compartment 62. In some cases, both the ribbon and carbon copies may be delivered to the paper receiving compartment. Whenever it is desired to prevent the operator of the typewriter from tampering with the written material which has already been supplied to the paper receiving compartment 62, it is desirable to lock the compartment 62 so the operator cannot open the compartment. A suitable lock 80, carried by the paper receiving compartment 62, is used to lock the closure 82 in position so that the closure 82 cannot be opened without the use of a key 84. When this is done, it is also desirable to provide a tell-tale or lock so that the paper cannot be withdrawn from the compartment 62 without being mutilated. In the present modification this has been accomplished by providing a pair of pawls or dogs 66 pivotally mounted at 68 to the brackets 70 carried by the cover 72 of the paper guide 65. These dogs or pawls 66 are so situated as to engage apertures 74 and 76 in the manifolding material paper 78 disclosed in Fig. 2. Preferably the dogs 66 are so positioned that the distance from the platen roll to the dogs 66 is at least equal to the length of one blank so that it is possible to withdraw or retract the blank on the typewriter platen to make corrections thereon, but as soon as this blank is advanced into the guide, and the apertures 74 and 76 have passed the dogs 66, it is then impossible to retract the blank already fed beyond the dogs. As soon as this is attempted, the dogs will engage the apertures 74 and 76 and prevent withdrawal of the blank that has already been advanced past writing position. The pawls 66 serve as a tell-tale by mutilating the writing material whenever the withdrawal of the written copies through the guide 65 is attempted, so that the proper authorities may be apprised of the fact that an attempt has been made to tamper with the written record.

From the foregoing it may be readily seen that it is impossible or practically impossible for the operator of the machine, without the use of the key 84, to remove the written material from the receiving compartment 62 without such removal being detected. Although the receiving compartment has been disclosed in connection with a typewriter, it could be used with a billing machine, or any other machine for making records on paper which is stored in a suitable compartment. Instead of the pawl 66 engaging the apertures 74 and 76 usually punched in the paper for filing purposes, the pawls 66 could, of course, be arranged to engage the pin holes 90 in the edges of the writing material, but this would not permit the retraction of the blank that is being written upon in the machine. It is also possible to provide dogs having suitable teeth to engage the paper when paper is used that is not pro-

vided with punched holes for filing or feeding purposes.

The guide 54 is so arranged with respect to the paper receiving compartment 50 that a manifold material advancing from the writing position through the guide 54 is automatically stacked in the original zig-zag formation in the receiving compartment, 50. This is very desirable as thereby a minimum amount of space is required in the receiving compartment.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute, the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific features shown, but that the means and construction herein disclosed comprise the preferred form of several modes of putting the invention into effect, and the invention is therefore claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

We claim:

1. In a writing machine having a traveling carriage supporting a platen, the combination of a carrier and a plurality of compartments mounted on said carrier, one of said compartments supplying writing material to the writing machine and the other compartment receiving the written copies, and means for advancing the written copies from the writing position to said compartment, said means including stops preventing the withdrawal of the written copies from said compartment.

2. In a writing machine having a carriage supporting a platen, said carriage having a to and fro movement, the combination of a track, a plurality of compartments carried by said track, one of said compartments being locked, with a guide mechanism extending from the platen to said compartment, said guide mechanism preventing the tampering of the writing material in said compartment.

3. In a writing machine having a platen, the combination with a supply compartment for furnishing writing material to said platen, said supply compartment being normally accessible for replenishing the supply of record material and a normally inaccessible receiving compartment for receiving the written material delivered from said platen, of a guide extending from said platen to said receiving compartment, said guide including a tell-tale mechanism including members mutilating the record material when reversed.

4. In a writing machine having a platen, the combination with a plurality of compartments, one normally accessible for furnishing material to the platen and the other normally inaccessible for receiving writing material from the platen, of a guide extending from said platen to said receiving compartment, and means carried by said guide for preventing the unauthorized removal of the writing material advanced through said guide.

5. In a writing machine having a platen, the combination with a plurality of compartments,

one of said compartments furnishing writing material to the platen and the other of said compartments receiving the written material from the platen, of a guide extending from the platen to the receiving compartment, and a finger mounted in said guide for preventing the removal of the written copies from said receiving compartment through said guide.

6. In a writing machine having a platen, the combination of a plurality of compartments, one of which furnishes writing material provided with line perforations, the other receiving copies of the written material advanced from the platen with a guide extending from the platen to said receiving compartment, and a plurality of fingers aligned with said perforations arranged to prevent the withdrawal of the written copies through said guide.

7. A typewriter having a platen mounted in a carriage having a to and fro movement, characterized by a plurality of compartments, one of said compartments furnishing writing material to the platen, and the other compartment receiving writing material from the platen, and a guide extending from said platen to said receiving compartment said guide including means for preventing reversal of the writing material, a motor actuating said compartments in one direction, and independent means for actuating said compartments in another direction.

8. In a writing machine having a platen mounted in a carriage having a to and fro movement, the combination of a plurality of compartments, one of said compartments receiving written copies from said platen, of a guide extending from said platen to said receiving compartment, with means for preventing the withdrawal of the written copies through said guide.

9. In a writing machine having a platen mounted in a carriage having a to and fro movement, the combination of a receiving compartment, a guide extending from said receiving compartment to said platen for supplying the written copies from the platen to said receiving compartment, said guide including mechanism for preventing withdrawal of the written copies, with a motor for causing the receiving compartment to travel in unison with the carriage in one direction, and independent driving means co-operating with the carriage traveling means in actuating the compartment in the other direction.

10. In a writing machine having a platen mounted in a carriage having a to and fro movement, the combination of a receiving compartment, and a guide extending from the receiving compartment for supplying the written copies from said platen to said receiving compartment, and a tell-tale mechanism preventing the removal of the written copies from said receiving compartment, with a mechanism for driving the carriage in one direction, a motor for actuating the compartment in unison with said carriage in one direction, and independent driving means for actuating the compartment in unison with the carriage in the other direction.

11. In a typewriting machine, having a platen mounted in a carriage having to and fro movement, the combination of a receiving compartment, and a guide extending from said receiving compartment for supplying the written copies from said platen to said receiving compartment, said guide completely enclosing the copies as they advance from the platen to the receiving compartment.

12. In a typewriting machine, having a platen mounted in a carriage having a to and fro movement, and means for actuating said platen, the combination of a receiving compartment, a guide extending from the receiving compartment for supplying written copies from said platen to said receiving compartment, said guide including means for preventing withdrawal of the written copies, and driving means independent of the means for actuating said carriage for advancing the compartment in one direction.

13. In a writing machine having a platen mounted in a carriage having a to and fro movement, said typewriting machine including a driving mechanism for actuating said carriage in one direction, the combination of a receiving compartment and a guide extending from the receiving compartment for supplying the written copies from the platen to said receiving compartment, said guide including means for preventing withdrawal of the written copies, a motor for actuating said receiving compartment in one direction, and auxiliary driving means independent of said carriage driving means for actuating the compartment in the other direction.

14. In a writing machine, a platen, means for advancing the writing material circumferentially through said platen, a receiving compartment for receiving the written copies of said material, and a guide extending from the platen towards said receiving compartment for guiding the written copies from the platen to the receiving compartment, said guide including means for preventing withdrawal of the written copies.

15. In a typewriter having a platen mounted in a carriage having a to and fro movement, the combination of a plurality of compartments, one of said compartments furnishing writing material to the platen and the other compartment receiving the writing material from the platen, a guide extending from said platen to said receiving compartment, said guide including means for preventing withdrawal of written material, a motor for actuating the compartments in one direction, independent means for actuating said compartments in another direction, said independent means actuating said guide, and means for advancing the carriage in unison with said compartments.

16. In a typewriting machine, the combination of a rotary platen mounted in a reciprocatory carriage with a sealed compartment for receiving at least a portion of the record material advanced around the platen, supporting means upon which the sealed compartment is mounted for reciprocation with said carriage, and means for preventing the unauthorized removal of the record material from the compartment.

17. In a typewriting machine, the combination of a rotary platen with a sealed compartment for receiving at least a portion of the record material coming from the platen, and means for preventing the withdrawal of the record material by reverse rotation of the platen.

18. In a typewriting machine, the combination of a platen mounted in a reciprocating carriage, a feeding mechanism for advancing the writing material to the platen with a sealed compartment for receiving at least a portion of the writing material supplied to the platen, supporting

means upon which the sealed compartment is mounted for reciprocation with said carriage and means associated with said compartment for preventing the withdrawal of the written material supplied to said sealed compartment by the retraction of the written material by the feeding mechanism.

19. In a typewriting machine, the combination of a carriage having a to and fro movement, a platen mounted in said carriage, with a sealed compartment for receiving the record material from said platen, said receiving compartment having a to and fro movement with the carriage, and means for preventing the withdrawal of the writing material from said sealed compartment.

20. In a typewriting machine, the combination of a carriage having a to and fro movement, a platen mounted in said carriage, with a sealed compartment having an opening for receiving at least a portion of the written material, and means for preventing the withdrawal of the written material from said compartment through said opening.

21. In a typewriting machine, the combination of a carriage having a to and fro movement, a rotary platen mounted in said carriage, feeding mechanism associated with said platen for advancing the writing material past the writing position, with a compartment for receiving at least a portion of the record material from said platen, said compartment having an opening through which the record material enters, and means for preventing the withdrawal of the record material through said opening.

22. In a typewriting machine for manifold record material supplied from a pack of sheets arranged in zig-zag formation, a platen mounted in a reciprocatory carriage, means for advancing the record material circumferentially around said platen, a receiving compartment for receiving written copies of said record material, mounting means upon which the receiving compartment is mounted for reciprocation with the carriage, and a guide for directing said copies from the platen to the receiving compartment, said guide and the receiving compartment cooperating to fold the copies in the original zig-zag formation.

23. In a typewriting machine for folded manifold record material the combination of a rotary platen mounted in a reciprocatory carriage with a sealed compartment for receiving at least a portion of the record material advanced around the platen said compartment folding the record material in its original form, mounting means upon which the sealed compartment is mounted for reciprocation with the carriage, and means for preventing the unauthorized removal of the record material from the compartment.

24. In a typewriting machine, for manifold record material supplied from a pack of sheets arranged in zig-zag formation, the combination of a carriage having a to and fro movement, a platen mounted in said carriage with a sealed compartment for receiving at least a portion of the writing material, means associated with said compartment for refolding the forms in their original zig-zag formation.

JOHN Q. SHERMAN.
ALBERT W. METZNER.