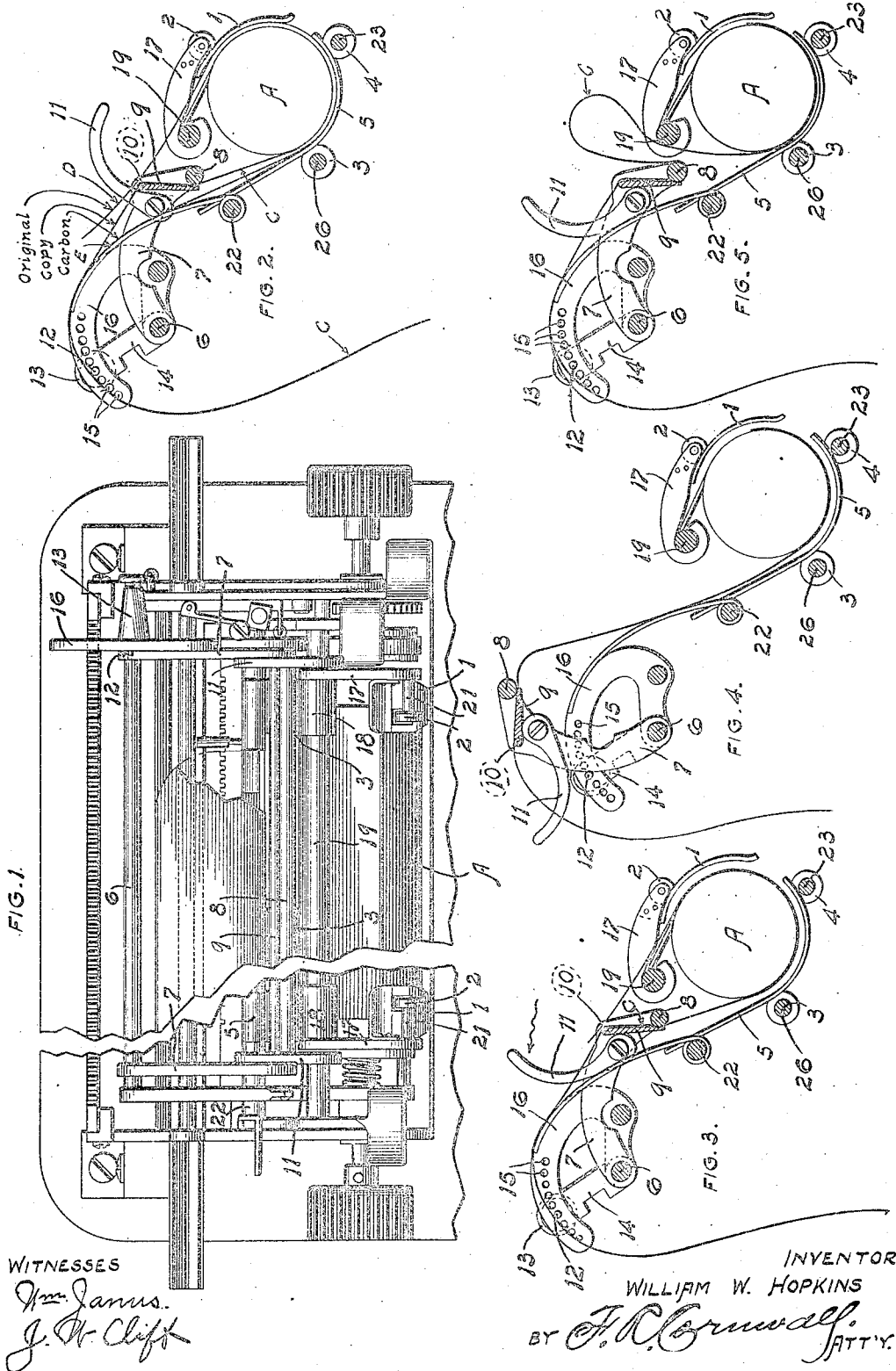


W. W. HOPKINS.
TYPE WRITING MACHINE.
APPLICATION FILED AUG. 5, 1907.

979,671.

Patented Dec. 27, 1910.



UNITED STATES PATENT OFFICE.

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TYPE-WRITING MACHINE.

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Specification of Letters Patent.

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Application filed August 5, 1907. Serial No. 387,210.

To all whom it may concern:

Be it known that I, WILLIAM W. HOPKINS, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Type-Writing Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view of the carriage of a typewriting machine provided with mechanism embodying the features of my invention. Figs. 2, 3, 4 and 5 are detail views illustrating the different positions of the mechanism for moving the copy sheet rearwardly over the platen.

This invention relates to typewriting machines, and particularly to the carriages of such machines.

When typewriting machines are used for making out bills it is customary to use a copy-sheet or record-sheet of sufficient length to contain several bills. The bill-heads, or sheets of paper upon which the items of the bill are written, are usually provided at their upper end or top with a printed heading containing the name of the company which sends out the bill and also the class of merchandise that the company handles and as this printed heading occupies a great deal of space it is the usual practice to move the copy-sheet rearwardly after each bill has been written so that the portion of the copy-sheet on which the impression of the type has been made will be arranged underneath the printed heading of the next bill-head that is placed in the machine, thereby causing the carbon impressions of the several bills to be arranged close together on the copy-sheet with no wide spaces separating them as would occur if the copy-sheet were simply fed forward with every bill-head that was placed in the machine. In the typewriting machines which have heretofore been in general use this rearward movement of the copy- or record-sheet was effected by rotating the platen but this method of positioning the copy-sheet is objectionable in that it requires a good deal of manipulation on the part of the operator and is also apt to throw the

copy-sheet out of vertical alinement so that it will not feed straight, due to the fact that the copy-sheet is only clamped on one edge. Furthermore, the mechanisms that the machines were provided with for positioning the copy-sheet were cumbersome and comprised a great many parts and also necessitated a wide margin at each edge of the copy-sheet.

The main object of my invention is to provide a typewriting machine provided with a simple form of mechanism for moving the copy-sheet rearwardly without rotating the platen, said mechanism being so constructed that the only thing the operator has to do to arrange the copy sheet in position for the next bill is to actuate a lever which causes the copy-sheet to move rearwardly over the platen. Said mechanism also firmly clamps the copy-sheet across its entire width so that it is impossible for said sheet to shift and thus get out of vertical alinement.

Other desirable features of my invention will be hereinafter pointed out.

Referring to the drawings which illustrate the preferred form of my invention, A designates the platen and B the frame on which the laterally movable carriage of the machine travels. The paper is held in intimate engagement with the platen by means of yielding guide fingers 1 provided with openings through which pressure rolls 2 extend, long pressure and feed rolls 3 and 4 arranged underneath the platen and extending approximately the entire length thereof, and a yielding guide plate 5 conforming to the shape of the platen. Means are provided for throwing the guide fingers and plate and the pressure rolls just referred to out of engagement with the platen so as to release the original and copy-sheet, and I will hereinafter describe fully said means and also the particular construction of the guide plates and pressure rolls. As previously stated, the copy-sheet is longer than the bill-head or "original", preferably of great enough length to receive the carbon impressions of five or six bills, and I also prefer to use a carbon sheet of the same length as the copy-sheet.

In Figs. 2 to 5 I have illustrated in detail the construction of the mechanism which I employ for moving the copy-sheet rear-

wardly over the platen so as to bring the portion thereof that contains the carbon impression of the previous bill, into position so that it will be underneath the printed heading of the next bill-head which is placed in the machine. Said mechanism comprises a rock shaft 6 provided with forwardly projecting arms 7 connected at their outer ends by a rod or member 8 and having a clamping plate 9 pivotally connected thereto, said clamping plate being provided at its ends with trunnions 10 which are journaled in openings in the arms 7. The copy-sheet C, together with the sheet of carbon, is first inserted between the clamping plate 9 and the rod or member 8 which cooperates therewith, the end of the copy-sheet being fed down underneath the platen. After the copy-sheet and carbon have been placed in position, as shown in Fig. 2, the "original" or bill-head D is fed underneath the platen and the operator then proceeds to actuate the type keys to print the items of the bill on the bill-head. The machine, of course, is provided with a line-spacing mechanism, so that the original, carbon and copy-sheet will be fed upwardly over the platen during the operation of making out the bill. After the bill has been completed the operator actuates mechanism which causes the clamping plate 9 to securely clamp the copy C and sheet of carbon between said plate and the cooperating member or bar 8, and then operates the means that moves the guide plates and pressure rolls away from the platen so that the bill-head or original D can be removed. The clamping plate 9 and its cooperating member 8 extends the entire length of the platen so that the copy-sheet and carbon will be clamped across their entire width, thereby making it impossible for the copy to shift or move out of vertical alinement, as would be apt to occur if it were clamped only at one edge. The means for actuating this clamping plate 9 consists of cam levers 11 pivotally connected to the arms 7 and bearing against the rear side of the clamping plate so as to force the lower edge of same toward the bar or member 8 when the cam levers are moved rearwardly in the direction of the arrow in Fig. 3. Only one cam lever 11 is necessary for actuating the clamping plate but I prefer to provide a lever at each end of the carriage so that the operator can use either hand for actuating the clamping plate. After the copy has been clamped and the bill-head or original D has been removed the parts just described will occupy the positions shown in Fig. 3. The operator then grasps one of the cam levers 11 and pushes the same rearwardly and upwardly and thus rocks the shaft 6 to which the arms 7 are connected, this movement of the arms 7 which carry the clamping members 8 and 9, causing the

copy-sheet C and carbon to be drawn rearwardly over the platen, as illustrated in Fig. 11. The operator then moves the arms 7 and the clamping members which they carry back to normal position, as shown in Fig. 5, and inserts the next bill-head in the machine. The bill-head is then fed into printing position by rotating the platen, the rotary movement of the platen also feeding the copy-sheet and carbon forwardly until all the slack in same, shown in Fig. 5, has been taken up. The operator then releases the clamping plate so that the copy-sheet and carbon can feed forwardly with the bill-head as the operator proceeds to print the items of the bill. It will thus be seen that the portion of the copy-sheet that contains the carbon impression of the previous bill that was made out will be located underneath the printed heading of the second bill-head so that the carbon impression of the second bill will be arranged close to the carbon impression of the first bill on the copy-sheet.

In order that the operator may move the copy-sheet and carbon rearwardly over the platen a distance equal to the depth of the printing at the top of the bill-heads I have provided a stop 12 for engaging one of the arms 7 and limiting its rearward movement. This stop 12 is adjustable so that the distance which the copy-sheet and carbon are moved rearwardly can be varied to correspond with the depth of the printing on the top of the bill-heads which are used. The stop 12 preferably consists of a spring-actuated pin or plunger that is mounted in a sleeve 13 on an arm 14 which is journaled on the rock shaft 6, the pin 12 being adapted to project through one of the openings 15 in a plate 16 secured to the carriage. The mechanism just described for moving the copy-sheet and carbon rearwardly comprises very few parts and is of simple construction, it can be operated quickly and easily by the operator, and as the copy-sheet is clamped across its entire width there is no possibility of it getting out of vertical alinement.

While I have herein stated that the carbon sheet is clamped with the copy-sheet and is moved rearwardly over the platen with same, it will, of course, be understood that a carbon sheet of the same length as the bill-head could be used, in which case the carbon would not be clamped between the members 8 and 9 but would be inserted with each bill-head.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a typewriting machine, a platen, means for feeding an original and a copy sheet, and means independent of the platen for moving the copy sheet rearwardly a pre-

determined distance independently of the original sheet.

2. In a typewriting machine, a platen, means for feeding an original and a copy sheet, and means independent of the platen for moving the copy sheet rearwardly an adjustable distance independently of the original sheet.

3. In a typewriting machine, a platen for supporting a copy sheet, a transfer sheet, and an original which has only a portion of its space available to receive printing impressions, means for feeding all of said sheets in one direction for the same distance, and means independent of the platen for retracting the copy sheet or moving it in the reverse direction after the original has been completed so as to compensate for the unavailable printing space on the original, the means last referred to being so designed that it can move the copy sheet in only one direction; substantially as described.

4. In a typewriting machine, a platen, means for feeding an original and a copy sheet, and means in the form of a reciprocating frame for moving the copy sheet rearwardly a predetermined distance independently of the original sheet.

5. In a typewriting machine, a platen, means for feeding an original sheet and a copy sheet, a pivoted frame for moving the copy sheet rearwardly a predetermined distance independently of the original sheet, and means for regulating the distance of movement of said pivoted frame.

6. In a typewriting machine, a platen, means for feeding an original and a duplicate over the platen, means independent of the platen for clamping said duplicate, and means for bodily moving said clamping means to draw the duplicate rearwardly over the platen in the reverse direction to that in which it is fed during the operation of writing on the original so as to position a portion of the duplicate that contains impressions under the upper portion of the next original that is placed in the machine; substantially as described.

7. In a typewriting machine, a platen, means for feeding an original and a copy sheet forwardly over the platen during the operation of writing on the original, means for clamping said copy sheet, and means under control of the operator for bodily moving said clamping means to draw the copy sheet rearwardly over the platen in the reverse direction to that in which it is fed during the operation of writing on same so as to render every portion of the copy sheet available for receiving printing impressions; substantially as described.

8. In a typewriting machine, a platen adapted to form a support for a bill-head and a copy sheet that are fed forwardly over the platen during the operation of making

out the bill, means arranged at the rear of the platen for clamping said copy sheet, and means for bodily shifting said clamping means to draw the copy sheet rearwardly over the platen in the reverse direction to that in which it is fed during the operation of making out the bill so as to bring that portion of the copy sheet which contains the impression of the printing on the last bill underneath the heading of the next bill that is inserted in the machine; substantially as described.

9. In a typewriting machine, a platen adapted to form a support for an original and a copy sheet, a pair of members extending the entire width of said copy sheet and adapted to clamp the copy sheet between them, and means for bodily shifting said clamping members relatively to the platen to draw the copy sheet rearwardly over the platen in the reverse direction to that in which it is fed during the operation of writing on the original so as to arrange a portion of the copy sheet that contains printing underneath the top portion of the next original that is introduced into the machine; substantially as described.

10. In a typewriting machine, a platen over which an original and a copy sheet are fed forwardly during the operation of writing on the original, a member and a cooperating manually operated clamping member between which said copy sheet is arranged, and means for bodily shifting both of said clamping members away from the platen to draw the copy sheet rearwardly over the platen a less distance than it was fed forwardly; substantially as described.

11. In a typewriting machine, a platen adapted to form a support for an original and a copy or duplicate sheet of greater length than the original, members extending parallel to the platen and having said copy sheet arranged between them, means for causing said members to clamp the copy sheet after the original has been removed from the machine, and means for shifting both of said members relatively to the platen to draw the copy sheet rearwardly over the platen in the reverse direction to that in which it is fed during the operation of writing on the original so as to render every portion of the copy sheet available to receive printing impressions; substantially as described.

12. In a typewriting machine, a platen adapted to form a support for an original and a copy sheet, members between which said copy sheet passes, means for causing said members to clamp the copy sheet, and movable arms which carry both of said members whereby said members may be shifted relatively to the platen to draw the copy sheet rearwardly over the platen and thus bring a printed portion thereof adjacent the

upper edge of the next original that is placed in the machine; substantially as described.

13. In a typewriting machine, a platen adapted to form a support for an original and a copy sheet arranged underneath the original and of greater length than same, a pair of members located at the rear of the platen and extending parallel thereto, the copy sheet being arranged between said members, means for causing said members to clamp the copy sheet, and swinging arms to which said members are connected, said arms being adapted to be moved after the original has been taken out of the machine so as to draw the copy sheet rearwardly over the platen in the reverse direction to that in which the original is fed during the operation of printing on same and for a less distance than it was fed forwardly with the original; substantially as described.

14. In a typewriting machine, a platen adapted to form a support for a sheet of paper, a swinging arm located adjacent each end of the platen and at the rear thereof, a member extending parallel to the platen and connected to the outer ends of said arms, a pivotally mounted clamping plate carried by said arms and cooperating with said member to clamp the sheet of paper, and a cam lever for forcing said clamp plate toward the member which cooperates therewith; substantially as described.

15. In a typewriting machine, a platen adapted to form a support for a sheet of paper, means for clamping said sheet, movable devices carrying said clamping means, and a stop for determining the limit of movement of said devices; substantially as described.

16. In a typewriting machine, a platen adapted to form a support for a sheet of paper, clamping members between which said sheet passes, movable devices which carry said clamping members and which are adapted to be actuated to move the sheet relatively to the platen, and an adjustable stop for determining the limit of movement of said devices; substantially as described.

17. A typewriting machine provided with a carriage, a platen mounted on said carriage and adapted to form a support for a sheet of paper, swinging arms secured to the carriage adjacent the ends of the platen, clamping members carried by said arms and having the sheet of paper arranged between them, and an adjustable stop located adjacent one of said arms for controlling its limit of movement; substantially as described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this second day of August 1907.

WILLIAM W. HOPKINS.

Witnesses:

WELLS L. CHURCH,
GEORGE BAKEWELL.