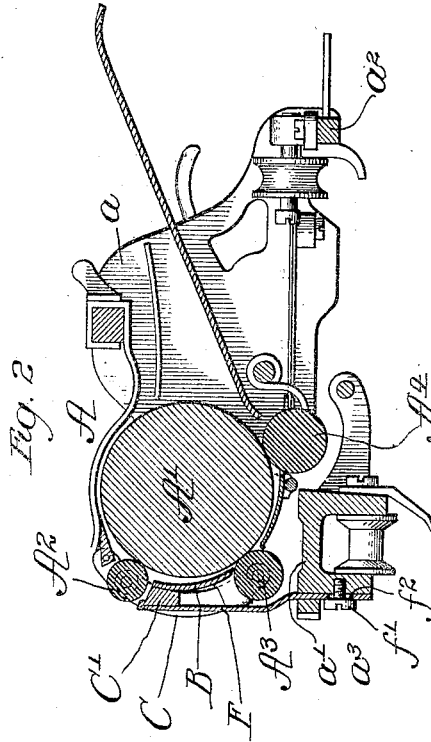
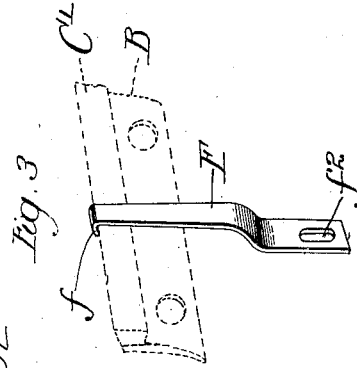
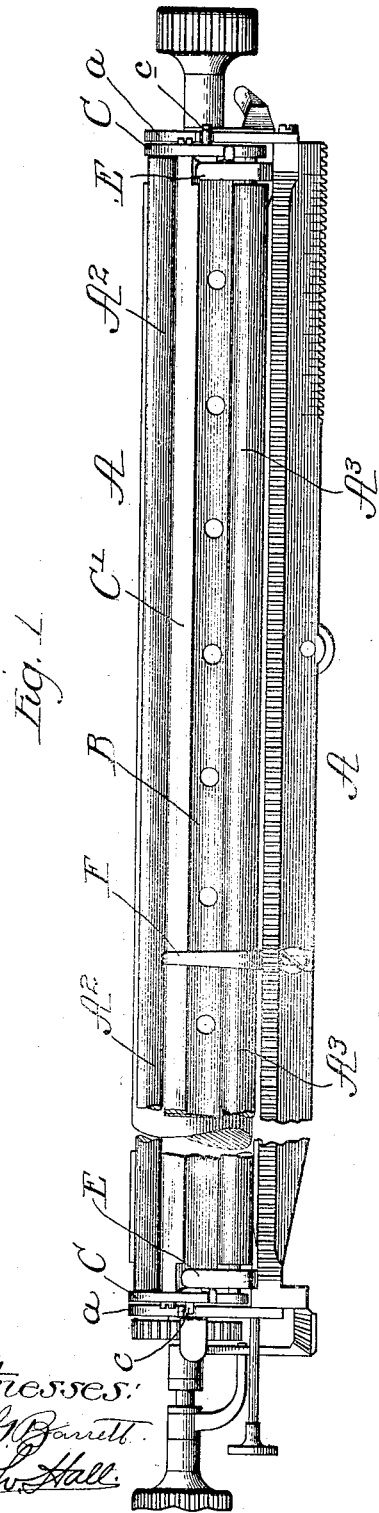


E. M. INGERSOLL.
PAPER GUIDE FOR TYPE WRITING MACHINES.
APPLICATION FILED JUNE 8, 1904. RENEWED JAN. 4, 1906.



Witnesses:
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 by *Boole & Brown*
his Attys

UNITED STATES PATENT OFFICE.

EMMET M. INGERSOLL, OF WOODSTOCK, ILLINOIS, ASSIGNOR TO THE OLIVER TYPEWRITER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

PAPER-GUIDE FOR TYPE-WRITING MACHINES.

No. 824,362.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed June 8, 1904. Renewed January 4, 1906. Serial No. 294,558.

To all whom it may concern:

Be it known that I, EMMET M. INGERSOLL, a citizen of the United States, residing at Woodstock, in the county of McHenry and State of Illinois, have invented certain new and useful Improvements in Paper-Guides for Type-Writing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in paper-guides for the carriages of type-writing machines by which the advance edge of a sheet of paper when inserted into the machine is guided around the platen from one feed or presser roller to the other.

The object of the invention is to provide a device for holding properly in place the intermediate portion of a paper-guide of the general character mentioned in constructions where the length of the guide is such (as in an extra long carriage) that the guide cannot well be made sufficiently stiff or rigid to prevent the guide from bending or flexing and wherein the central part of the guide tends to shift out of its proper position in relation to the presser-rollers and the platen.

My improvement is herein shown as applied to the carriage of an "Oliver" type-writing machine; but it may be adapted to other machines where the same general features of construction of the paper guiding and holding devices used in the Oliver type-writing machine are present.

As shown in the drawings, Figure 1 is a front elevation of the carriage of an Oliver type-writing machine, showing my improvement applied thereto. Fig. 2 is a cross-section of the carriage. Fig. 3 is a perspective view of the holding device, showing a part of the paper-guide in dotted lines.

As shown in the drawings, A designates as a whole the carriage of an Oliver type-writing machine, A' the platen thereof, and A² A³ A⁴ the presser-rollers by which the paper is guided about the platen and by which it is held properly in place against the platen during the printing operation. Said carriage comprises in general terms end plates *a a* and longitudinal connecting-bars *a' a'*, upon the

front bar of which is formed the rack-bar *a*³ of the letter-spacing mechanism.

B designates a curved guide-plate or paper-shield located at the front of the platen and between the upper and lower presser-rollers A² A³ and by which the advance margin of a sheet of paper which is being inserted into a machine is guided as it passes from the lower to the upper presser-roller. The said front presser-rollers are mounted in a frame comprising end pieces C C and a longitudinal connecting-bar C', which extends between and is connected at its ends with said end pieces. Said bar C' is connected with said end pieces by means permitting it to rock on its longitudinal axis, and the guide B is affixed at its upper margin to said bar and depends therefrom. Said guide is thus free to swing at its lower margin toward and from the platen. The shafts of said presser-rollers are rotatively mounted in the upper and lower ends of said end pieces C of the frame. The frame thus carrying the presser-rollers A² A³ and the guide-plate B is movably and removably mounted in the carriage of the machine by means of studs *c c*, projecting laterally from said end pieces, and enter forwardly-opening notches in the end plates *a a* of the carriage-frame. The parts thus described are held in place and pressed toward the platen by means of leaf-springs E E, which are attached at their lower ends to the carriage and bear at the upper or free ends against the ends of the guide-plate B, the springs permitting the guide-plate to yield away from the platen to accommodate the thickness of a number of sheets of paper. The construction of said frame and the manner of mounting the same and the rollers and guide on the carriage are substantially the same as shown in the prior United States Letters Patent to Knapp, No. 693,033, granted on the 11th day of February, 1902, and need not be further described. Such other parts of the carriage illustrated which constitute no part of the present improvements are not herein described, but are the usual parts of an Oliver type-writing machine.

The improvements constituting the present invention consist of a device or devices for supporting or holding properly in place the intermediate portion of the guide-plate

B with respect to the platen and to the front presser-rollers. Heretofore the bar *C'*, to which said guide-plate B is attached, has been supported only by its connection with the end pieces *C* of the movable frame. In machines having extra long carriages it has been found that said bar and the guide tend to bend or flex at the central portion thereof when upward or outward pressure is applied thereto, as when inserting a heavy sheet of paper or a number of sheets of paper into the carriage, thus resulting in pressing the guide-plate B upwardly away from the lower presser-roller in advance of the margin of the entering sheet, thereby seriously interfering with the proper passage of the sheet or sheets of paper around the platen. In order to remedy this defect, I provide an attachment consisting of an arm F, which is attached at its lower end to the carriage-frame and extends upwardly to and engages the central part of the supporting-bar in a manner to prevent the central part of said bar and the plate attached thereto from bending or flexing outwardly. Said arm is also made of yielding character to permit the central part of the guide-plate to yield bodily outward with its ends and the end pieces *C' C'* to which it is pivoted when a thick sheet of paper or a number of sheets of paper are inserted into the carriage. Said arm is thereby adapted to act with the springs E E to hold the guide-plate as a whole pressed toward or adjacent to the platen. Said arm F in the instance illustrated consists of a flat leaf-spring which is affixed at its lower end in any suitable manner to the longitudinal member *a'* of the carriage-frame and is engaged at its upper end with the bar *C'*, which carries the guide-plate B in a manner to prevent said bar from both bending outwardly and rising. As herein shown, said arm is provided at its upper end with a hook-shaped portion *f*, which hooks over the top of the bar *C'*. The arm is attached at its lower end to the longitudinal member of the carriage, in the instance illustrated by means of a headed screw *f'* extending through a slotted opening *f²* in the lower end of the arm and into the carriage-frame member. Said slotted opening enables the arm to be vertically adjusted with respect to the carriage-frame in fitting the same to the machine. If a single supporting or holding arm F be employed, it is located midway between the ends of the guide-plates B; but more than one arm may be used, in which event they are so disposed as to receive equally the stress brought upon the guide tending to displace the same. It is obvious that the same general results will be obtained if the arm be made otherwise than of spring material—as, for instance, the part F may be made rigid and yieldingly connected with the carriage-frame by a spring connection.

The structural form of the device and the manner of attaching it to the machine-frame may be varied, and I do not wish, therefore, to be limited to such specific details, except as hereinafter made the subject of specific claims—as, for instance, the bar *C'* illustrated constitutes, in effect, a rock-shaft, to which the guide-plate B is attached at its upper edge and which gives longitudinal stiffness to said guide-plate while the arm F presses upon or engages said bar *C'*, so as to hold the same from outward movement without interfering with the rocking movement of the bar and the inward and outward movement of the free or lower margin of the guide-plate. If, however, the said guide-plate be without said bar *C'* or is longitudinally stiffened otherwise than by the presence of such bar, the said arm F may engage or press upon the guide-plate opposite or adjacent to its longitudinal pivotal axis with the same general results.

I claim as my invention—

1. The combination with a paper-carriage, platen, a longitudinal paper-guide pivotally connected at its ends with the carriage-frame and springs pressing the swinging margin of the guide toward the platen, of an arm affixed to the carriage-frame and engaging the paper-guide at a point opposite its pivotal axis and between the ends of said guide to prevent the central part of the latter from flexing or bending outwardly.
2. The combination with a paper-carriage, platen, a longitudinal paper-guide pivotally connected at its ends with the carriage-frame to afford movement of one margin of the guide toward and from the platen, and springs acting on the ends of the guides to hold the guide as a whole adjacent to the platen and also to yieldingly press the swinging margin thereof toward the platen, of a yielding or spring arm mounted on the carriage-frame and engaging the guide at a point opposite its pivotal axis and between the ends of said guide to hold the central part of the latter from bending or flexing outwardly.
3. The combination with a paper-carriage, platen, a longitudinal paper-guide pivotally connected at its ends with the carriage-frame and springs pressing the swinging margin of the guide toward the platen, of an arm affixed to the carriage-frame and engaging the guide at a point opposite its pivotal axis and between the ends of said guide to prevent the central part of the latter from flexing or bending outwardly, said arm being so attached to the guide as to also prevent the same from bending or flexing upwardly.
4. The combination with a paper-carriage, platen, a longitudinal paper-guide pivotally connected at its ends with the carriage-frame to afford movement of one margin of the guide toward and from the platen, and

springs acting on the ends of the guides to hold the guide as a whole adjacent to the platen and also to yieldingly press the swinging margin thereof toward the platen, of a
 5 yielding or spring arm mounted on the carriage-frame and having interlocking engagement with the guide between the ends of the latter to hold it from both outward and upward flexure.

10 5. The combination with a paper-carriage, a platen and a longitudinal paper-guide which is connected at its ends with the carriage-frame, of a yielding or spring arm attached at its lower end to the carriage-frame,
 15 and provided at its upper end with a hook which engages the central part of the guide in a manner to prevent the same from rising.

6. The combination with a paper-carriage, a platen, upper and lower presser-rollers at

one side of the platen, a frame movable to- 20
 ward and from the platen in which the shafts of said presser-rollers are rotatively mounted, and a guide-plate located between said
 25 presser-rollers and connected at its ends with said presser-roller frame, of a holding-arm
 25 attached to the carriage-frame and connected with the guide intermediate the ends of the latter to prevent the central part of said
 30 guide from bending outwardly and rising.

In testimony that I claim the foregoing as
 my invention I affix my signature, in pres- 30
 ence of two witnesses, this 15th day of April,
 A. D. 1904.

EMMET M. INGERSOLL.

Witnesses:

C. H. DONNELLY.

E. R. HOY