

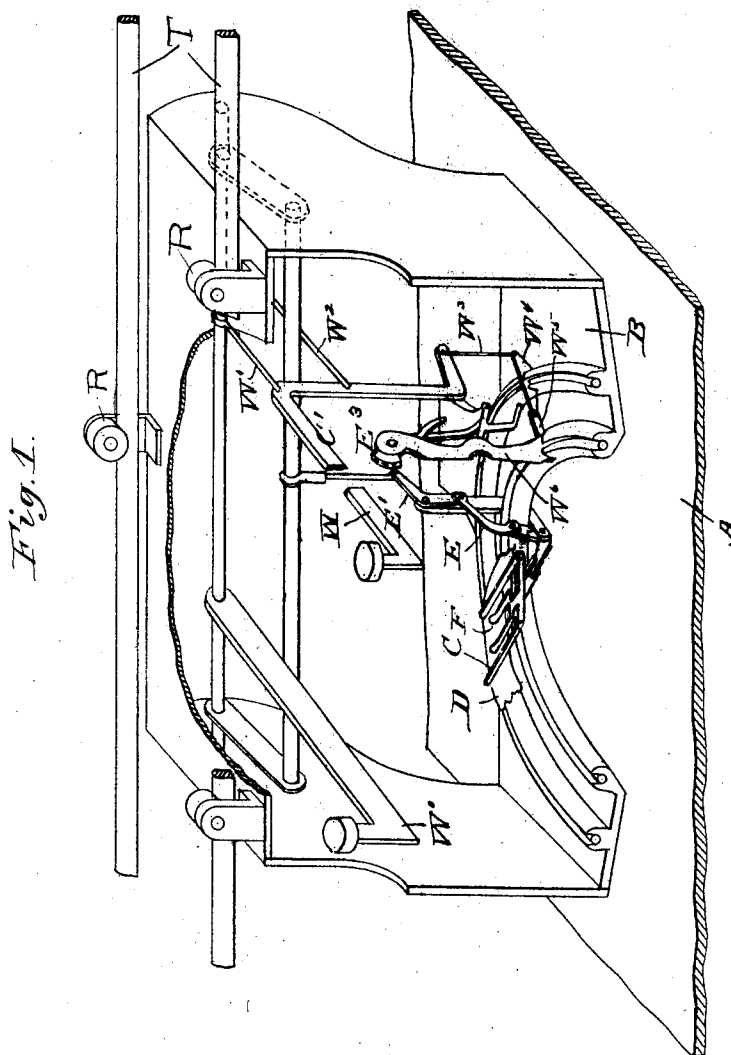
No. 826,486.

PATENTED JULY 17, 1906.

G. W. DONNING.
PAPER PRESSER FOR TYPE WRITERS.

APPLICATION FILED FEB. 19, 1904.

3 SHEETS—SHEET 1.



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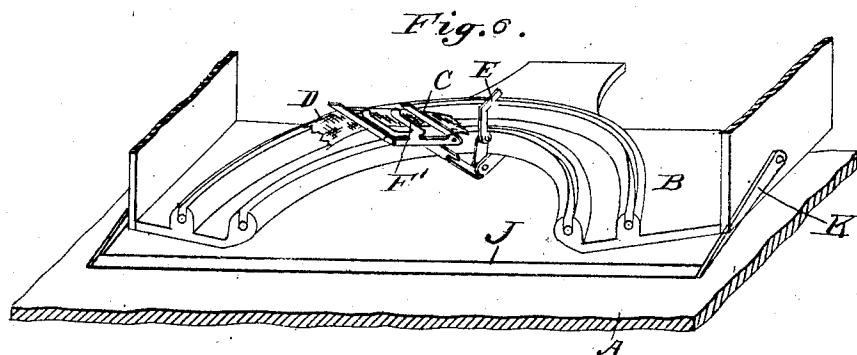


Fig. 3.

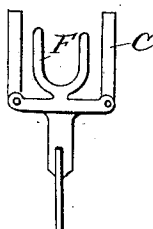


Fig. 2.

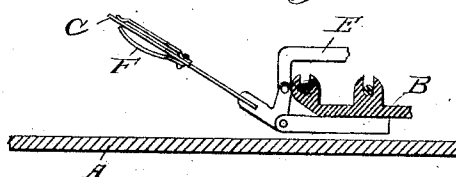


Fig. 4.

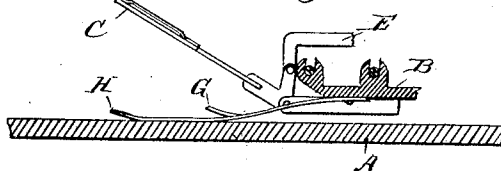
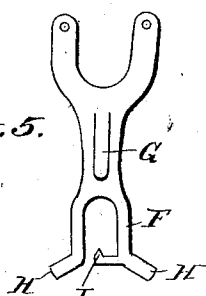


Fig. 5.



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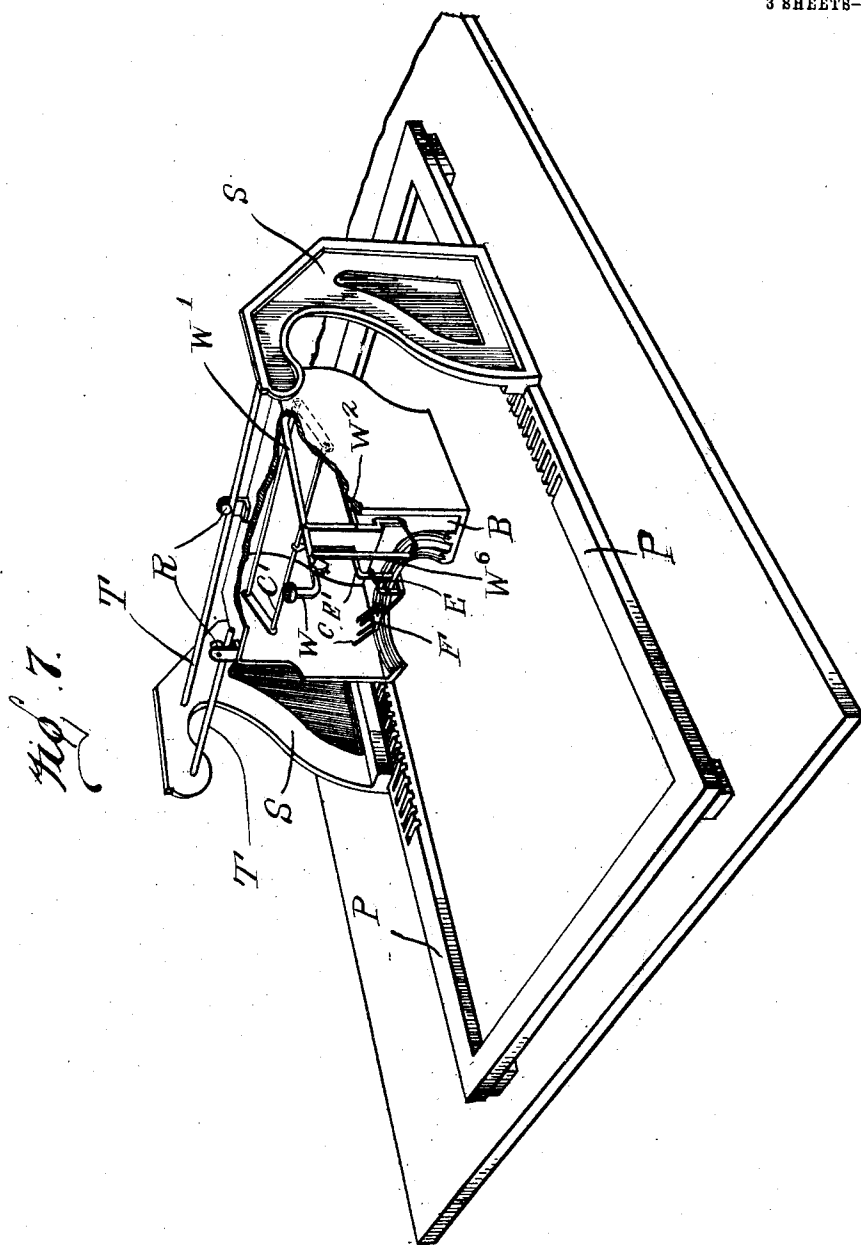
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE

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PAPER-PRESSER FOR TYPE-WRITERS.

No. 826,486.

Specification of Letters Patent.

Patented July 17, 1906.

Application filed February 19, 1904. Serial No. 194,396.

To all whom it may concern:

Be it known that I, GEORGE W. DONNING, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Paper-Pressers for Type-Writers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is to provide a movable paper holding or pressing device for flat-platen type-writers whereby the paper sheet is maintained and held in close contact with the platen or with other sheets of paper at the printing-point and along the printing-line, and thereby preventing creeping or bulging of the paper at the printing-point, so that as each imprint by the type is made there will be no blurring or misplacing of the letter printed. In type-writers of this class where the paper to be written on is laid flat upon the platen or impression-surface, even where the said paper is closely held to the platen at its edge or edges, as by appropriate clamping devices or work-holders, there is usually an objectionable air-space formed between the paper and the platen or between several layers of paper at any point of the platen removed from the clamps, and this air-space develops and increases as the successive blows are delivered by the type in printing. Although this air-space may perhaps be absent when the sheet is first laid on the platen, yet if this air-space is formed, however minute, the successive blows of the type will tend to cause the paper to creep and frequently to such an extent that unless the paper used be very heavy and stiff it will have a tendency to buckle and move far enough from its original location seriously to interfere with the proper alinement, finish, and appearance of the written page. It has been observed in the use of this class of machines that the creeping, blurring, and buckling of the paper develop much more rapidly after the writing has been well started than it does at first when the sheets of paper lie comparatively close together. It is therefore obvious that could the several sheets of paper be kept in actual contact each with the others and the whole mass of paper, one or a

multiple of sheets, be kept in close contact with the platen the creeping would be entirely prevented. To this end, therefore, I have constructed a device to be attached to and used with a writing-machine and which will during the downward stroke of the type-bar and in advance of the actual blow of the type upon the paper be moved to bear down on the paper at or near the printing-point and expel any air which may lie there at that point between the several sheets of paper or between the paper and the platen or impression-surface.

It will be manifest in view of the accompanying description and drawings that the invention is capable of various modifications and that the desired result may be attained in several specific ways; but I have illustrated and described only my preferred embodiment of the most simple and easily applied of the many forms which have occurred to me.

In the accompanying drawings, forming a part of the specification, and in which like letters of reference indicate corresponding parts, Figure 1 is a fragmentary view in perspective, showing a portion of the flat platen or writing-surface, also the moving frame of a downwardly-acting writing mechanism adapted to move thereover for printing upon paper laid flat upon said platen, and also a simple form of my invention mounted thereon, the several detail parts of the writing mechanism being omitted to avoid confusion. Fig. 2 is a view in side elevation, partly in section, showing my improved paper-presser mounted upon a movable support, with which it moves. Fig. 3 is a view in plan of the under side of the ribbon-guide upon which I elect to dispose and attach the presser device. Fig. 4 shows a modified form of the presser device, the same being disposed independent of the ribbon-guide. Fig. 5 is a detached view in plan of the presser device in the form illustrated in Fig. 4. Fig. 6 illustrates a modification of the form shown in Fig. 4, and Fig. 7 is a perspective view showing the writing-mechanism support carrying the paper-presser mounted for longitudinal and lateral movement.

In the drawings, A represents a flat platen and the support of the writing mechanism of a flat-platen type-writer capable of being moved over the platen with a step-by-step

movement to permit the printing thereon of characters to form words, sentences, and lines of printed matter.

The lateral movement of the writing mechanism is provided for by hanging support B, by means of rollers R, from transverse guiding-rods T, carried by standards S. These latter are designed to travel longitudinally on track-rails P to enable the writing mechanism to pass from one line of writing to another. These constructions, which are not in themselves new with the present application, are illustrated, to some extent conventionally, in Fig. 7.

In Fig. 1 is illustrated a key-lever W, carried by parallel pivoted links W' and W² and connected, through depending link W³, rocker-bar W⁴, and link W⁵, with the downwardly-acting type-bar W⁶. No claim is made to these constructions, as they form the subject-matter of an application filed October 26, 1903, Serial No. 178,603. It will be noted that the universal space-bar C' underlies link W' and is operated at every depression of a key-lever. While link W' lies at some distance above the universal bar, and therefore the type-bar begins its downward movement before the actuation of the ribbon-guide and paper-presser, yet the connections of the parts are such and the distances traveled by the type-bar and paper-presser are so proportioned that the latter contacts with the paper before the impact of the type. Lever W⁶ may be used as a spacing-lever.

In this class of machines the ribbon D is interposed between the printing mechanism and the paper laid on the platen, so that as each type is thrown downward to print it will in the usual manner press the ink-ribbon upon the paper to cause an impression to be made. In the more modern forms of machines in this class the inking-ribbon is preferably led through a ribbon-guide C, Fig. 1, which guide is arranged and connected to the universal spacing-bar C', by which it is caused to vibrate or tilt at each depression of the type-bar, so that as the type is thrown down to print the ink-ribbon will be lowered or advanced to lie over the printing-point where the type must strike and when the type-bar has been impressed and is withdrawn the ribbon will be raised or removed therewith from the printing-point to render the printed work visible to the operator. Herein I make no specific claim to the said ribbon-guide nor the manner of operating the same by means of the type-bar-actuating mechanism, since this is a separate invention and constitutes subject-matter in my pending application, filed May 15, 1902, Serial No. 107,471; but in referring thereto I wish to be understood as indicating a form of device and its manner of operating to which the present invention is particularly appli-

cable, and in which device of said other application (Serial No. 107,471) there are means disclosed for operating the ribbon-guide in connection with which the device of the present case in some forms is operated.

As shown in Figs. 1, 2, and 3, the guide is pivotally mounted on the base-plate of the traveling support B for supporting the printing mechanism and connected, by means of a link E, bell-crank E', and rod E², with some part of the moving printing mechanism, such as the universal space-bar C' or any other appropriate part which is operated in the depression of each type-bar, and thus move the ribbon-guide C to a position immediately over the printing-point of the machine at each stroke of a type-bar to print.

Upon the ribbon-guide C, I prefer in some instances, as in Figs. 1, 2, and 3, to dispose a presser-arm F, preferably formed of thin spring metal and attached to or formed as a part of the ribbon-guide C and formed in the shape of a yoke, so that it will surround the printing-point, and it is preferably bent downward and bowed, as shown in Fig. 2, to cause it to bear with resilient force upon the writing-surface when the guide is in its lowered position for permitting the ribbon to receive the blow of the type to print. I prefer to cut away the forward portion of the presser-arm F to form a forked or yoked plate, as shown, so that it may bear on each side and at the rear of the printing-point, though of course, as will be observed, it may be made circular in form and entirely surround the printing-point. It may readily be understood that at each depression of the ribbon-guide C the spring presser-arm F carried thereby will bear down on the paper at or near to the printing-point and cause it to lie flat and in close contact with the platen. By disposing the presser-arm F upon the traveling carriage it is manifest that as the machine is moved to print or is moved from line to line the presser-arm will move with it, and thus always be in position to operate for its intended purpose wherever the carriage is positioned for writing. In lieu, however, of attaching the presser-arm to the ribbon-guide, as in Figs. 1, 2, and 3, it may be found convenient to attach it directly to the fulcrum-plate of support B or other part of the machine, as shown in Fig. 4. As thus disposed it will preferably always lie near the paper and not be raised intermittently and may have an upwardly-bent spring, lug, or projection G formed on or attached to its upper surface in position to be struck by and receive a thrust from the ribbon-guide C each time the latter descends, which thrust tends to force the presser-arm downwardly and against the paper to force the air out from under the paper at the printing-point.

The presser-arm F is preferably formed as a yoke the same as in the form illustrated in

Figs. 1, 2, and 3, and on each member of the yoke are upwardly, laterally, and forwardly projecting arms H H, Fig. 5,—that is, at the extreme ends of the forked portion of the presser-arm F. These arms H are for the purpose of causing the presser-arm to slide freely over the edges of any paper that may lie on the platen when the writing mechanism may be moved back and forth over the platen. I may, if desirable, also form on the presser-arm F a pointer or index I, which will serve to indicate to the operator the exact point on the paper at which the next letter will be printed when the printing mechanism is operated. In order to cause the presser-arm to bear against the paper with a cushioned though forcible pressure and at the same time to prevent tearing of the paper, I curve the members of the arm intermediate their ends outwardly toward their bearing-surfaces. This construction has the advantage that there are no projecting ends, sharp edges, or other portions of the presser-arm to cause lining or blurring from carbons upon sheets beneath.

In all the preferred constructions the presser-arm is actuated to exert pressure against the paper or platen immediately adjacent the printing-point. For this purpose the presser-arm is located between the ribbon-holding devices of the ribbon-guide and the members of the arm are placed in close relation to each other. The paper-presser is carried at such a distance below the ribbon-guide as to clear the ribbon, thus avoiding accumulation of ink on the arm and its transfer to the paper.

In Fig. 6 I have illustrated a further modification of my invention. In this form a transverse blade J is hinged by arms K to frame B and is arranged to lie immediately in front or back of the line being printed. The ribbon-guide C is so adjusted as to contact with blade J on its downward travel to force air out from beneath the work. In order to prevent the ribbon from contacting with the blade, the ribbon-guide is provided with spring-fingers F', similar in appearance to presser member F, which contact with the blade.

In Fig. 1 only so much of the writing mechanism has been illustrated as is necessary to show the relation of the presser member thereto. The writing mechanism is made capable of transverse movement across the platen for letter-spacing by means of tracks T, upon which the mechanism is hung through rollers R. Since the presser member is carried by the ribbon-guide and the latter in turn is mounted on the writing mechanism, it follows that the foot F is transversely movable with the writing mechanism, as well as partaking of the latter's longitudinal movement for line-spacing. In this way the position of the member upon the platen is

changed at each impact of a type, so that the air is sure to be dispelled beneath each successive printing-point. In order to maintain the paper free from underlying air at the printing-points, it is necessary that such air should be constantly kept in motion away from the points of impact of the type.

Hitherto it has been proposed absolutely to remove the air-cushion by means of a follower device extending the full width of the platen and in continuous contact with the paper in advance of the printing-point. Tests have proved such an arrangement ineffectual for the purpose. In the first place such follower structures move over the platen only during line-spacing and are expected eventually to force all the air out under the front edge of the sheet; but it has proved impracticable, especially when manifolding, to remove absolutely the air lying upon the platen and between the sheets. Further, when this method has been employed it has been found that air is brought in behind the follower, and in consequence around the printing-point, through the loosening of the sheets effected by the type. Again, demonstration has shown that to be effective the presser member must contact with only a very small surface. In the present invention I do not attempt to remove the cushion. I merely dispel it in the sense of driving apart from beneath the printing-point and force the air from one part of the platen while permitting its access to the remainder. By causing the presser member to bear against the work immediately adjacent the printing-point and making the contacting portion of small area I succeed in causing the sheets to lie flat and close to the platen just at the printing-point, which of course is all that is necessary. In order to get the best results, the presser member is constructed so as immediately to inclose the printing-point and is of such reduced dimensions with reference to the platen that it bears upon only a small portion of the latter. It is obvious that were the presser-foot, when depressed, to cover a large space it would displace so much air that some would be driven beneath the descending type, forming a cushion at the very point it is essential to avoid one. Moreover, if the foot were as large as indicated so much air would be compressed beneath it that the paper would not be forced into contact with the platen by the time the type descended.

I claim—

1. In a writing-machine, the combination with the platen and the writing mechanism of a flat-platen type-writer, the latter transversely movable for letter-spacing and longitudinally movable for line-spacing; of means for dispelling the air-cushion beneath work upon the platen, comprising a presser member carried by the writing mechanism and

arranged to press work against the flat platen at or near the printing-point.

2. In a writing-machine, the combination with the platen and the writing mechanism of a flat-platen type-writer, the latter transversely movable for letter-spacing and longitudinally movable for line-spacing; of means for dispelling the air-cushion beneath work upon the platen, comprising a flexibly-mounted presser member movable transversely with the writing mechanism during the movement thereof for letter-spacing and longitudinally therewith during line-spacing, and means whereby the presser member is actuated to press the paper against the platen at or near the printing-point.

3. In a writing-machine, the combination with the platen and the writing mechanism of a flat-platen type-writer, the latter transversely movable for letter-spacing and longitudinally movable for line-spacing; of means for dispelling the air-cushion beneath work upon the platen, comprising a flexibly-mounted presser member actuated by the writing mechanism to press work against the flat platen at or near the printing-point and transversely and longitudinally movable with the writing mechanism.

4. In a writing-machine, the combination with the platen and the writing mechanism of a flat-platen type-writer, the latter transversely movable for letter-spacing and longitudinally movable for line-spacing; of means for dispelling the air-cushion beneath work upon the platen, comprising a flexibly-mounted normally elevated presser member actuated by the writing mechanism to press work against the flat platen at or near the printing-point just prior to the impact of the type upon the platen, and transversely and longitudinally movable with the writing mechanism during letter and line spacing.

5. In a writing-machine, the combination with the platen and the writing mechanism of a flat-platen type-writer, the latter laterally and longitudinally traveling for letter and line spacing respectively; of means for dispelling the air-cushion beneath work upon the platen, comprising a flexibly-mounted presser member arranged to travel with the writing mechanism during letter and line spacing, and means whereby said member is intermittently actuated during writing to press work against the flat platen at or near the printing-point.

6. In a writing-machine, the combination with the platen and the writing mechanism of a flat-platen type-writer, the latter laterally and longitudinally traveling for letter and line spacing respectively; of means for dispelling the air-cushion beneath work upon the platen, comprising a flexibly-mounted normally elevated presser member arranged to travel with the writing mechanism during letter and line spacing, and means whereby

said member is depressed and raised into and out of forcible contact at or near the printing-point with work upon the platen at moments just prior to the impact of the type and after such impact respectively.

7. In a writing-machine, the combination with the platen and the writing mechanism of a flat-platen type-writer, the latter laterally and longitudinally traveling for letter and line spacing respectively; of means for dispelling the air-cushion beneath work upon the platen, comprising a flexibly-mounted presser member carried by the writing mechanism and actuated thereby into and out of forcible contact at or near the printing-point with work upon the platen at moments just prior to the impact of the type and after such impact respectively.

8. In a writing-machine, the combination with the platen and the writing mechanism of a flat-platen type-writer, the latter transversely movable for letter-spacing and longitudinally movable for line-spacing; of means for dispelling the air-cushion beneath work upon the platen, comprising a flexibly-mounted presser member transversely and longitudinally movable with the writing mechanism and actuated thereby previous to each depression of a type to press work against the flat platen at or near the printing-point, such pressure being removed during the movement of the writing mechanism for letter-spacing.

9. In a writing-machine, the combination with the platen and the writing mechanism of a flat-platen type-writer, the latter laterally and longitudinally traveling for letter and line spacing respectively; of means for dispelling the air-cushion beneath work upon the platen, comprising a flexibly-mounted presser member movable with the writing mechanism and having an interior open region, and means whereby said member is depressed and raised into and out of forcible contact with work upon the platen immediately inclosing the printing-point at moments just prior to the impact of the type and after such impact respectively.

10. In a type-writer, the combination with the platen and the flat-platen writing mechanism the latter laterally and longitudinally traveling for letter and line spacing respectively; of means for dispelling the air-cushion beneath work upon the platen, comprising a flexibly-mounted spring presser member movable with the writing mechanism, and means whereby said member is depressed and raised into and out of forcible contact with work upon the platen at or near the printing-point at moments just prior to the impact of the type and after such impact respectively.

11. In a writing-machine, the combination with the platen and the writing mechanism of a flat-platen type-writer; of a movable member actuated by the writing mechanism to

have a down-and-up movement at moments prior to the impact of a type and after such impact respectively, and a presser member actuated by said movable member to force work against the flat platen at or near the printing-point.

12. In a writing-machine, the combination with the platen and the traveling writing mechanism of a flat-platen type-writer; of a movable member carried by the writing mechanism and actuated thereby to have a down-and-up movement at times prior to the impact of a type and after such impact respectively, and a presser member movable with the writing mechanism and actuated by said movable member to force work against the flat platen at or near the printing-point.

13. In a writing-machine, the combination with the platen and the traveling writing mechanism of a flat-platen type-writer; of a ribbon-guide actuated to have a down-and-up movement at times prior to the impact of the type and after such impact respectively, and a presser member movable with the writing mechanism actuated by the ribbon-guide to force work against the flat platen at or near the printing-point.

14. In a writing-machine, the combination with the platen and the traveling writing mechanism of a flat-platen type-writer; of a ribbon-guide carried by the writing mechanism and actuated thereby to have a down-and-up movement at times prior to the impact of the type and after such impact respectively, and a centrally-open spring presser member mounted on the ribbon-guide and carried thereby into forcible contact with work upon the platen inclosing the printing-point.

15. In a flat-platen type-writer and in combination with the flat platen thereof, the printing mechanism, and a ribbon-lifting mechanism thereon; a presser member carried by the latter and arranged to hold the paper in contact with the flat platen at or near the printing-point when the printing mechanism is actuated to print.

16. In a writing-machine, the combination with the platen and the writing mechanism of a flat-platen type-writer; of a ribbon-guide thereon and actuated thereby toward and from the platen at moments prior to the impact of the type and after such impact respectively, and a presser member carried by the ribbon-guide and arranged to press work against the platen at or near the printing-point upon the depression of the guide.

17. In a writing-machine, the combination with the platen and the writing mechanism of a flat-platen type-writer; of a ribbon-guide actuated thereby toward and from the platen, devices on the guide for holding the ribbon, and a paper-presser arranged to exert a pressure on the paper adjacent the printing-point, said paper-presser being carried by the ribbon-guide and located between and below said devices so as to clear the ribbon.

18. In a writing-machine, the combination with the platen and the traveling writing mechanism of a flat-platen type-writer; of an oscillating device pivoted to said writing mechanism on a transverse axis and actuated thereby into forcible contact with work upon the platen prior to the impact of each type.

19. In a writing-machine, the combination with the platen and the traveling writing mechanism of a flat-platen type-writer; of an oscillating device pivoted at its rear end to said mechanism and projecting forward therefrom to inclose the printing-point, and connection between said device and the writing mechanism whereby the former is depressed into forcible contact with work upon the platen prior to the impact of each type.

20. In a writing-machine, the combination with the platen and the writing mechanism of a flat-platen type-writer; of a ribbon-guide pivoted to said writing mechanism and extending forward over the printing-point, a presser member carried by said guide, and connection whereby the ribbon-guide is depressed prior to the impact of each type to carry said presser member into forcible contact with work upon the platen.

21. In a writing-machine, the combination with the platen and the writing mechanism of a flat-platen type-writer, said mechanism including a suitable support laterally movable for letter-spacing; of an oscillating device pivoted at its rear end to said support and projecting forward therefrom over the printing-point, and connection between said device and the writing mechanism whereby the former is forced against work upon the platen prior to the impact of each type.

In testimony whereof I affix my signature in the presence of two subscribing witnesses.

GEORGE W. DONNING.

Witnesses:

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JOHN R. WILTSIE.