T. L. KNAPP.

TYPE WRITING MACHINE.

APPLICATION FILED DEC. 23, 1911.

Patented Dec. 10, 1912.

1,046,469.

Fig. 1.

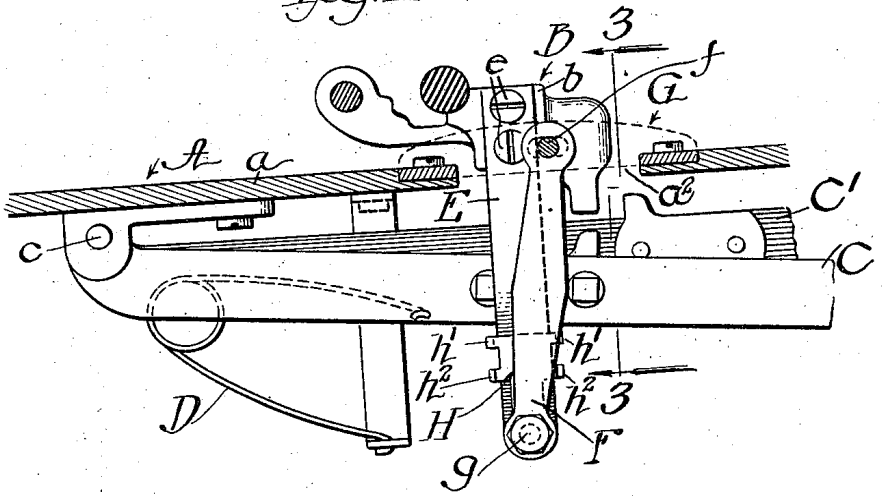


Fig. 2.

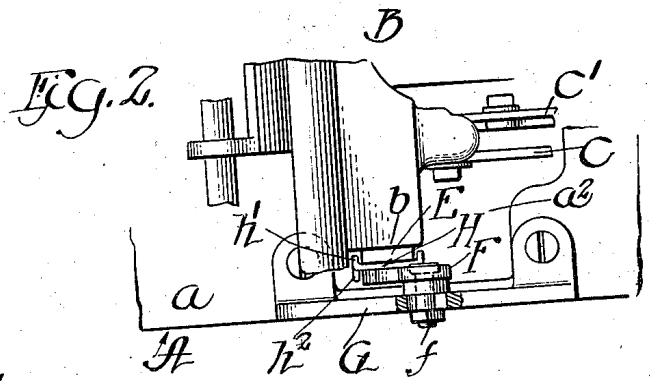
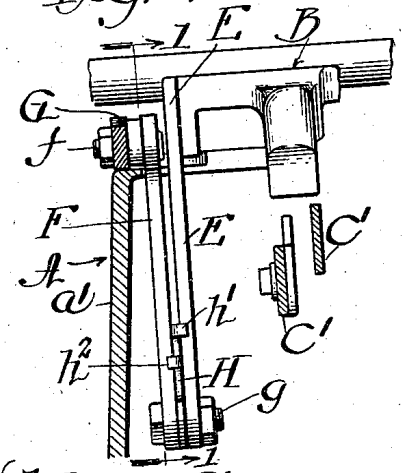


Fig. 3.



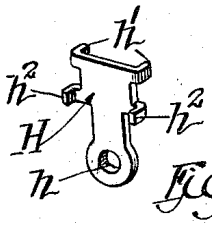


Fig. 4.

Witnesses:
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by Poole & Brown Attys

UNITED STATES PATENT OFFICE.

THERON L. KNAPP, OF WOODSTOCK, ILLINOIS, ASSIGNOR TO THE OLIVER TYPEWRITER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

TYPE-WRITING MACHINE.

1,046,469. Specification of Letters Patent. Patented Dec. 10, 1912.

Application filed December 23, 1911. Serial No. 667,470.

To all whom it may concern:

Be it known that I, THERON L. KNAPP, a citizen of the United States, and a resident of Woodstock, in the county of McHenry and State of Illinois, have invented certain new and useful Improvements in 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 certain novel features of construction in typewriting machines of the kind having a platen-shift mechanism by which the paper-carriage is moved or shifted to bring the platen into position to receive an impression from either of the plurality of types carried by each of the type-bars.

The improvements shown and described herein, and which constitute the present invention, are illustrated in the accompanying drawings, as applied to an "Oliver" typewriting machine, such as shown in the prior patent to H. Cross, No. 837,611, granted December 4, 1906. Said improvements, however, may be applied to other kinds of typewriting machines of the double shift type.

The invention consists of the matters hereinafter described and more particularly pointed out in the appended claims.

In the drawings illustrating my invention—Figure 1 is a view representing a fragmentary longitudinal vertical section through the hollow base of a typewriting machine, the plane of the section being located adjacent one of the lateral depending flanges of the hollow base and taken in a plane indicated by the line 1—1 of Fig. 3; Fig. 2 is a partial top plan view of the parts of the machine shown in Fig. 1; Fig. 3 is a view representing a partial vertical section through the parts of the machine shown in Fig. 1 in a plane indicated by the line 3—3 of Fig. 1; Fig. 4 is a perspective view of a spacing plate to be referred to later.

As shown in the drawings, A indicates the base-frame of the machine. Said base-frame has a horizontal top wall or portion a and the depending flanges, or marginal walls a' at the sides and back parts thereof forming a hollow structure within which the operating levers are located and supported in a familiar manner. The hollow base A also forms an inclosure or casing to protect from injury the parts constituting the means for supporting the shift-frame, to be hereinafter referred to.

B indicates a shift-frame (the one end of which appears in the drawings) of the form employed in the "Oliver" typewriting machine, such as described and shown in the patent heretofore named. Said shift-frame B in this kind of machine is located above the top horizontal wall a of the hollow base-frame of the machine and is capable of movement backward and forward to either side of a central position, so that the paper on the platen of the paper-carriage (not shown) carried by the shift-frame will be brought into position to receive the impression from either of the plurality of types carried by each of the type-bars.

C, C′ indicate the shift-levers located at the left-hand side of the machine. Said shift-levers extend in a direction from the front to the rear of the machine and are pivotally connected at their rear ends to the top horizontal wall a of the base-frame by means of a horizontal rod c extending transversely of said shift-levers. Depressing one of the shift-levers C, C′, will cause the shift-frame B to be moved or shifted to one side of a central position while depressing the other of said shift-levers C, C′, after the first depressed shift-lever has been released, will cause the said shift-frame B to be moved or shifted to the other side of said central position, for the purpose above described.

D indicates a spring which acts on the shift-lever C to lift the same and which tends to return the shift-frame B to its central position when shifted to either side thereof. A similar spring (not shown) is provided for the shift-lever C′.

Referring to the means for supporting the forward end of the shift-frame B, E indicates a depending arm which extends downwardly from the end b of the shift-frame B, through an opening a^2 formed in the top wall a adjacent the upright marginal wall a' of the hollow machine base. As shown in the drawings, said arm E is made separate from the main part of the shift-frame B and is rigidly connected thereto by screws e. Said arm E is suspend-

ed from the top wall *a* of the machine base by means of a link or hanger F, which is connected at its upper end by a transverse pivot-screw *f* to a longitudinally extending plate G rigidly secured to the upper surface of said top wall *a* and is connected at its lower end by a transverse pivot-screw *g* to the lower end of the arm E. A similar construction, as shown and described, is provided at the opposite end of the shift-frame B. The links or hangers F thus support the forward end of the shift-frame B in such a manner as to permit a forward and backward movement of the same from an intermediate central position by the swinging of the lower ends of said links forwardly and backwardly from a central vertical position.

The construction thus far described, is substantially as shown in the patent granted to George J. Griffiths, No. 1,015,559, and dated January 23, 1912, and needs no further description.

H indicates a spacing-plate located between the depending arm E and the suspension link F and is provided with an aperture *h* through which extends the pivot-screw *g*. By this construction the plate is rotatively supported. Said plate H extends upwardly between the depending arm E and the suspension link F to a point distant or remote from the pivot-screw *g*. As shown in the drawings, said plate H is provided with two oppositely disposed pairs of lugs, one pair *h'*, *h'* at its upper end, adapted to engage the lateral edges of the depending arm E, and the other pair h^2, h^2, vertically below the first pair and adapted to engage the lateral edges of the suspension link F. The lugs of each pair are spaced a sufficient distance apart to allow for a slight amount of relative oscillatory movement between the spacing plate and the member adapted to be engaged by the lugs. By reason of the said lugs, the plate H is held in its spacing or operative position between the depending arm and the suspension link and is prevented from moving therefrom by rotating or swinging around the pivot-screw *g*. This construction provides a simple and efficient means for spacing the depending arm and the suspension link or hanger apart throughout their entire length. Moreover, by reason of the plate extending upwardly between the depending arm and the suspension link to a point remote or distant from the pivot-screw on which it is mounted, said depending arm and the suspension link are prevented from coming into contact near their upper ends by reason of a bending or flexing movement toward each other, as would be possible in case of the use of a simple spacing washer, as heretofore used. The lugs *h'*, *h'* and h^2, h^2, not only retain the spacing plate in its operative position between the depending arm E and the suspension link F, as above described, but in addition said lugs are an advantage in assembling the machine by reason of the fact that they act to hold the suspension link in vertical position while the shift-frame is being secured in place.

I claim as my invention:—

1. A device of the character described, in combination with two relatively movable members, a pivot-member providing pivotal connection between said members at one of their ends, and a spacing plate located between said members and rotatively supported upon said pivot-member, said plate extending between said members from said pivot-member to a point remote therefrom and being provided at its lateral margins with oppositely disposed pairs of outwardly bent lugs adapted for engagement with the respective lateral edges of said members.

2. In a device of the character described, the combination with a support, a shiftable member mounted thereon, an arm rigidly secured at its upper end to said support, a suspension link or hanger pivoted at its upper end to said shiftable member, a pivot-member providing a pivotal connection between said arm and link at their lower ends, and a spacing plate located between said arm and link and rotatably supported upon said pivot-member, said plate extending upwardly between said arm and link from said pivot-member to a point remote therefrom, and being provided with oppositely disposed pairs of outwardly projecting integral lugs adapted for engagement with the respective lateral edges of said arm and link.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 18th day of December A. D. 1911.

THERON L. KNAPP.

Witnesses:
B. C. YOUNG,
A. J. MULLEN.