



**No. 665,774.**

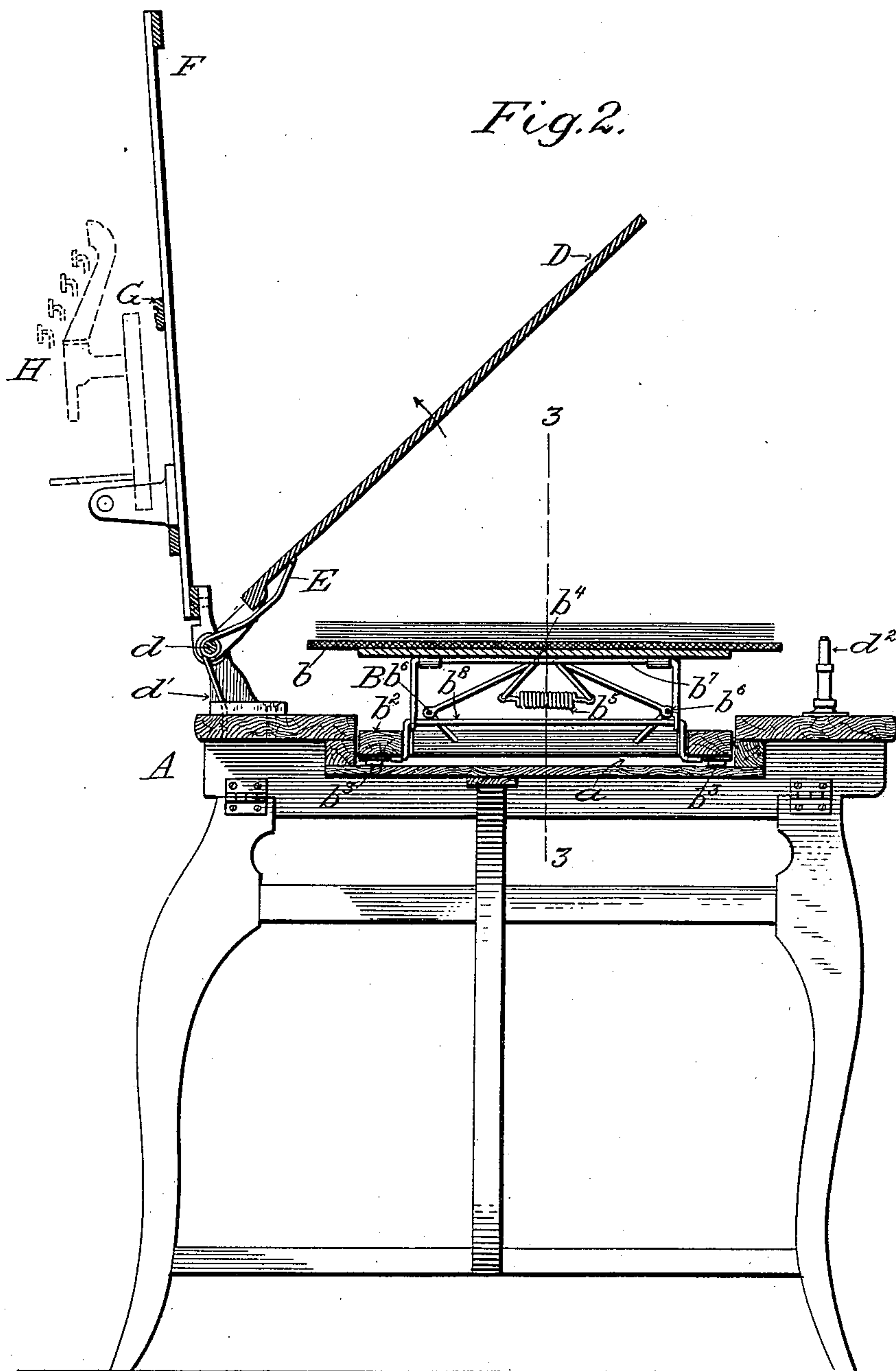
**Patented Jan. 8, 1901.**

**C. ELLIOTT.**  
**TYPE WRITING MACHINE.**

(Application filed June 30, 1900.)

(No Model.)

**3 Sheets—Sheet 2.**



**WITNESSES:**

Wm. B. Burdette  
J. A. Elmore

INVENTOR

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BY

BY *P. T. Dodge*  
ATTORNEY



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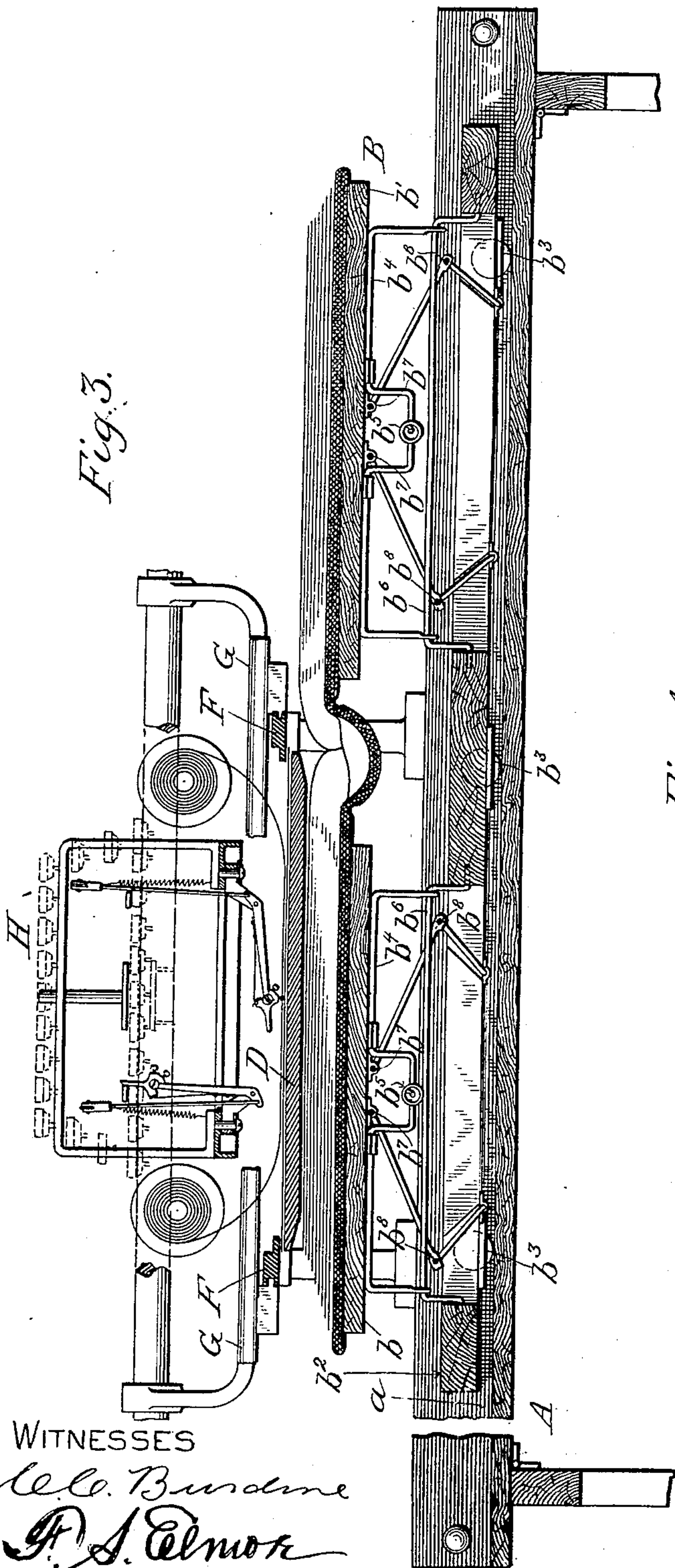
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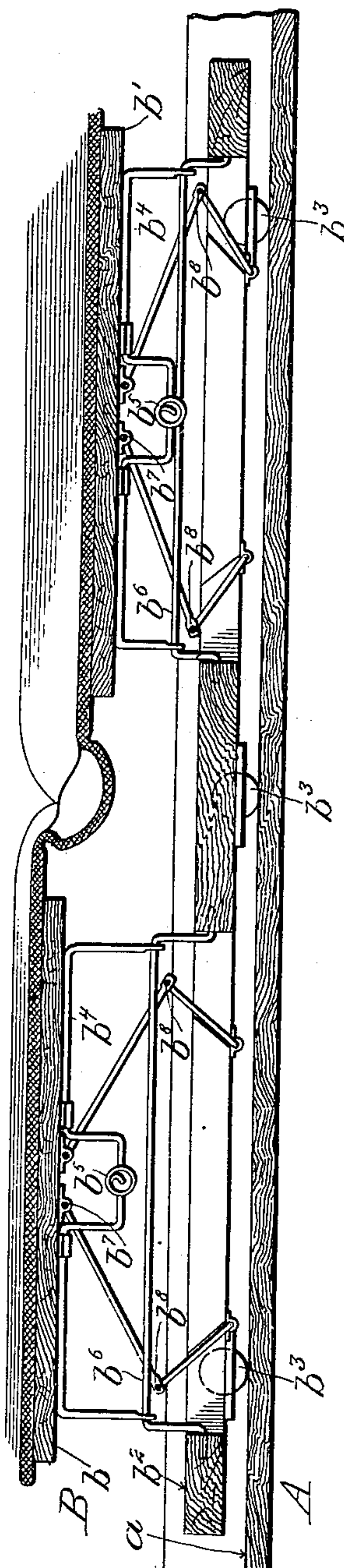
Fig. 3.



WITNESSES

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Fig. 4.



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# UNITED STATES PATENT OFFICE.

CRAWFORD ELLIOTT, OF NEW YORK, N. Y., ASSIGNOR TO THE ELLIOTT & HATCH BOOK TYPEWRITER COMPANY, OF NEW YORK.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 665,774, dated January 8, 1901.

Application filed June 30, 1900. Serial No. 22,189. (No model.)

*To all whom it may concern:*

Be it known that I, CRAWFORD ELLIOTT, of New York, county of New York, and State of New York, have invented a new and useful Improvement in Type-Writing Machines, of which the following is a specification.

This invention has reference to that class of type-writing machines in which a downwardly-acting writing mechanism is used in connection with a flat plate or platen to sustain the leaf of a book having its body supported below and independently of the platen.

While not restricted thereto, I have shown my improvement as embodied in a machine having the same general organization as that shown in the Hatch and Hillard patent, No. 620,125, dated February 28, 1899.

The invention consists, essentially, in the combination, with the platen, which stands normally at rest, of a normally stationary book-support arranged to be shifted at will right and left beneath the platen and comprising two vertically - yielding leaves or boards adapted to underlie and support the two sides of the book, so that one side or the other of the book may be brought in position to permit a leaf to be turned over and supported upon the platen while being printed upon by the movable writing-machine, and this regardless of the thickness of the book and of the variation in thickness between the two sides.

Referring to the drawings, Figure 1 is a perspective view showing my book-supporting mechanism and a book thereon in connection with the platen and the base-frame which supports the type-writer, the frame being turned to an upright position and the book being shown in place on the support.

Fig. 2 is a vertical section lengthwise of the book on the line 2 2 of the preceding figure, the base-frame with the writing-machine thereon and the platen being both shown in elevated position. Fig. 3 is a transverse vertical section on the correspondingly - numbered line of Figs. 1 and 2 with the various parts in their operative positions. Fig. 4 is a similar section through the book-support alone, illustrating the change in the relation of its two sides to compensate for the variation in the relative thickness of the two sides

of the book. Fig. 5 is an elevation of a modification.

Referring to the drawings, A represents a table or bed to sustain the type-writing mechanism and the book-support. This table may be constructed with its surface of flat form or other suitable form, but is preferably constructed, as shown, with a longitudinal depression or channel *a* to receive and guide the book-support B. This support consists of two vertically-adjustable boards or leaves *b* and *b'*, adjustably mounted upon a base-frame *b<sup>2</sup>*, preferably provided with supporting-rollers *b<sup>3</sup>*. The leaves *b* and *b'* are intended to receive and support the two sides of the book in which the printing is to be effected, and the support as a whole is mounted in the top of the table, so that it may be shifted easily to the right or left in order to bring one side of the book or the other within the field of action of the writing mechanism. This book support or carriage remains at rest during the writing operation. The two leaves *b* and *b'* are preferably spring-supported, and the connections between them and their base-frame are preferably such that the two leaves may rise and fall independently, they being maintained at all times in a horizontal or approximately horizontal position. The preferred arrangement of the spring-supports, as shown in the drawings, consists for each leaf of the parallel rock-shafts *b<sup>4</sup>*, mounted on the under side of the leaves, their middle portions being bent downward and connected by a spiral spring *b<sup>5</sup>*, while their outer ends are cramped or bent downward and connected by swinging links *b<sup>6</sup>* to the base-frame *b<sup>2</sup>*. The spring pulling on the rock-shafts tends to throw their lower ends downward, and thus to elevate the leaf.

In order to prevent the tipping or canting of the leaf, I mount under each end, at right angles to the shafts above named, two rock-shafts *b<sup>7</sup>*, each having its ends turned downward and connected with the middle crank portion of a horizontal rock-shaft *b<sup>8</sup>*, the ends of which are seated in the base-frame. These crank-shafts, in connection with those first named, constitute "a parallel-motion device," permitting the leaf as a whole to rise and fall, but keeping it constantly in its horizontal po-



sition. It is to be understood that any equivalent arrangement of parts which will permit the leaves to rise and fall may be substituted.

The springs are made of such strength and so adjusted that the leaves *b* will carry the weight of any book which may be laid upon them. The fact that the two leaves may rise and fall independently admits of the leaves on opposite sides being brought to the same horizontal plane, or, in other words, to the same level, regardless of the point at which it may be opened—that is to say, regardless of the fact that there may be a greater thickness of leaves on one side than on the other. This leveling of the open book is a matter of decided advantage and convenience in the operation of the type-writer.

*D* represents a flat rigid platen of metal hinged at one end on a horizontal rod *d*, fixed in standards or other supports *d'*, attached to the table, so that the platen may be turned upward to facilitate the adjustment of the book thereunder and then turned downward on the underlying side of the book, so that the leaf to be printed upon may be laid over and supported upon the upper surface of the platen.

In order to limit the downward motion of the platen and to sustain it normally in a horizontal position or position parallel with the underlying leaf-support, a standard *d<sup>2</sup>* is fixed on the table as shown. The platen may be fixed in position; but when hinged it permits the book and the leaf to be more conveniently adjusted in relation thereto.

In order to relieve the operator of the labor of lifting the platen, which may be of large size and quite heavy, I propose to use a counterbalancing-spring, preferably made in the form shown at *E*, Figs. 1 and 2, in which it will be seen that the spring has two arms coiled around the hinged rod *d*, with a middle portion extended under the platen and the two ends extended downward to engage the table or other fixed support. The middle portion of this spring exerts a constant upward pressure on the platen, and when made of sufficient strength it will serve to lift the platen and maintain it in an elevated position, as shown in Fig. 2, thus leaving the hands of the operator free for the manipulation of the adjustment.

*F* represents an open rectangular base-frame to support the secondary frame *G*, which in turn supports the machine *H*. It is most conveniently hinged on the same rod as the platen and arranged to close down on top of the latter for the purpose of confining the leaf of the book in place thereon and of bringing the writing mechanism in proper relation to the surface of the paper. The secondary frame *G* is arranged to slide lengthwise of the base-frame for the purpose of line-spacing and the type-writer proper arranged to travel transversely of the secondary frame for letter and word spacing, feed mechanisms being provided to effect these two movements. The

construction of the writing mechanism, its secondary frame, base-frame, and the platen may all be the same as in the patent above referred to, except that in the present structure the base-frame is fixed against lateral motion and is mounted on a pivot which does not require to be vertically adjustable.

In the operation of the machine herein described the base-frame bearing the writing mechanism and the platen are both turned up out of the way. A book, opened at any desired point, is then laid upon the leaves of the traveling support and the frame shifted to the right or left, as required, in order to permit the leaf to be printed upon to be brought in proper position. The platen is then turned down on the body of the book and the leaf to be written upon turned over upon the platen and the base-frame turned down to bring the writing mechanism in proper position. Although the spring *E* is of sufficient weight to lift the platen, the weight of the overlying base-frame will keep it down in operative position. When the writing on one page is completed, the base-frame *F* is lifted and the book-supporting frame moved to the opposite side of the table, thus bringing the other side of the book beneath the platen, after which the other side of the leaf or the next leaf, as the case may be, is placed in position and the base-frame again closed up.

When the vertically-adjustable and laterally-movable book-support is used, a vertical adjustment of the platen and base-frame in relation to the table or other support is unnecessary—that is to say, the support *d* at the rear and *d<sup>2</sup>* at the front may be of fixed height.

It is to be observed that by the employment of the hinged rigid platen and the hinged overlying frame carrying the writing mechanism, in combination with the underlying carriage and its vertically-adjustable leaves, it is rendered possible for the operator to adjust a book of any size and weight quickly and easily in the proper relation to the platen, the confining-frame, and the writing mechanism. It is not necessary for the operator to lift the book after it is placed on the machine. As all parts above the book can be turned up out of the way and are self-supporting, both hands may be used in the adjustment of the book. When the hinged platen is turned down, it has the effect of depressing the underlying side of the book to the required level. After the platen is thus adjusted the leaf to be printed upon may be turned over upon it, adjusted in position, and secured by turning down the upper frame. It is to be observed that during all these operations the two hands of the operator are free for the purpose of adjusting the book and that without disturbing the book access may be had instantly to any part of the page for correction or other purposes. It is to be observed that the arrangement shown does not necessitate any vertical adjustment of the base-frame or other parts supporting the writing mechanism and platen



and that it does not require any provision for the lateral adjustment of these parts. For these reasons I am enabled to construct the machine cheaply and to give the parts extreme rigidity.

Having described my invention, what I claim is—

1. In a machine for writing in books, the combination of the following elements: a base or support, a laterally-shiftable carriage mounted thereon and provided with rising and falling leaves to sustain the respective sides of the book; a flat rigid platen, to sustain a leaf of the book, hinged that it may turn up to expose the book and carriage; an open base-frame, hinged to rise independently of the platen and adapted to confine the leaf upon the latter; and a downwardly-acting writing-machine, sustained by and movable laterally and longitudinally over the base-frame, substantially as described.

2. In a book type-writer, the table, having a longitudinal depression in its top, in combination with the laterally-shiftable carriage, mounted and guided in such depression and provided with vertically-movable book-supporting leaves, a rigid platen supported at one end from the table by a hinged connection and at the opposite end by a rigid support, an open base-frame, hinged to swing upward and downward in relation to the platen, and a downwardly-acting writing mechanism supported on the base-frame and movable laterally and longitudinally thereover.

3. In a book type-writer, the combination of a table, a flat rigid platen mounted at a distance above the table and sustained therefrom at one end by a hinged connection and at the other end by a rigid support, said platen fixed against lateral movement, a base-frame lying above the platen and hinged to swing upward independently thereof, and a downwardly-acting writing mechanism mounted on the base-frame and movable longitudinally and laterally thereover, whereby the platen and the machine are sustained

rigidly in a horizontal position when in action and permitted to turn upward independently to allow the adjustment of the book and the leaf to be printed upon, also to permit access to the surface of the leaf without disturbing its adjustment.

4. In a type-writing machine, in combination with a suitable support for the book, a flat rigid platen, hinged to swing upward and adapted to sustain the leaf to be printed upon, a spring connection tending to raise said platen when released, and an open-hinged frame carrying the writing mechanism and arranged to turn down above the platen, whereby the sheet is confined in position and the weight of the overlying frame and machine applied to keep the platen down in operative position.

5. In a book type-writer, a support for the book, in combination with an overlying flat hinged platen to bear upon the body of the book and sustain the top leaf, and a lifting-spring acting thereon.

6. In a book type-writer and in combination with a downwardly-acting writing mechanism, a flat platen and means for supporting the same rigidly in position to sustain the leaf to be printed on, and an underlying spring-supported leaf to sustain one side of the book beneath and against the platen.

7. In a book type-writer, the combination of a spring-supported leaf to sustain one side of the book, a rigid platen mounted to turn down upon and depress the book and also to sustain the leaf to be printed upon, and an overlying downwardly-acting writing mechanism, mounted to swing independently out of the way, whereby the adjustment of the book, the platen and the leaf is permitted while the writing-machine is out of the way.

In testimony whereof I hereunto set my hand, this 27th day of June, 1900, in the presence of two attesting witnesses.

CRAWFORD ELLIOTT.

Witnesses:

JOHN F. GEORGE,  
M. A. DRIFFILL.