

**No. 708,270.**

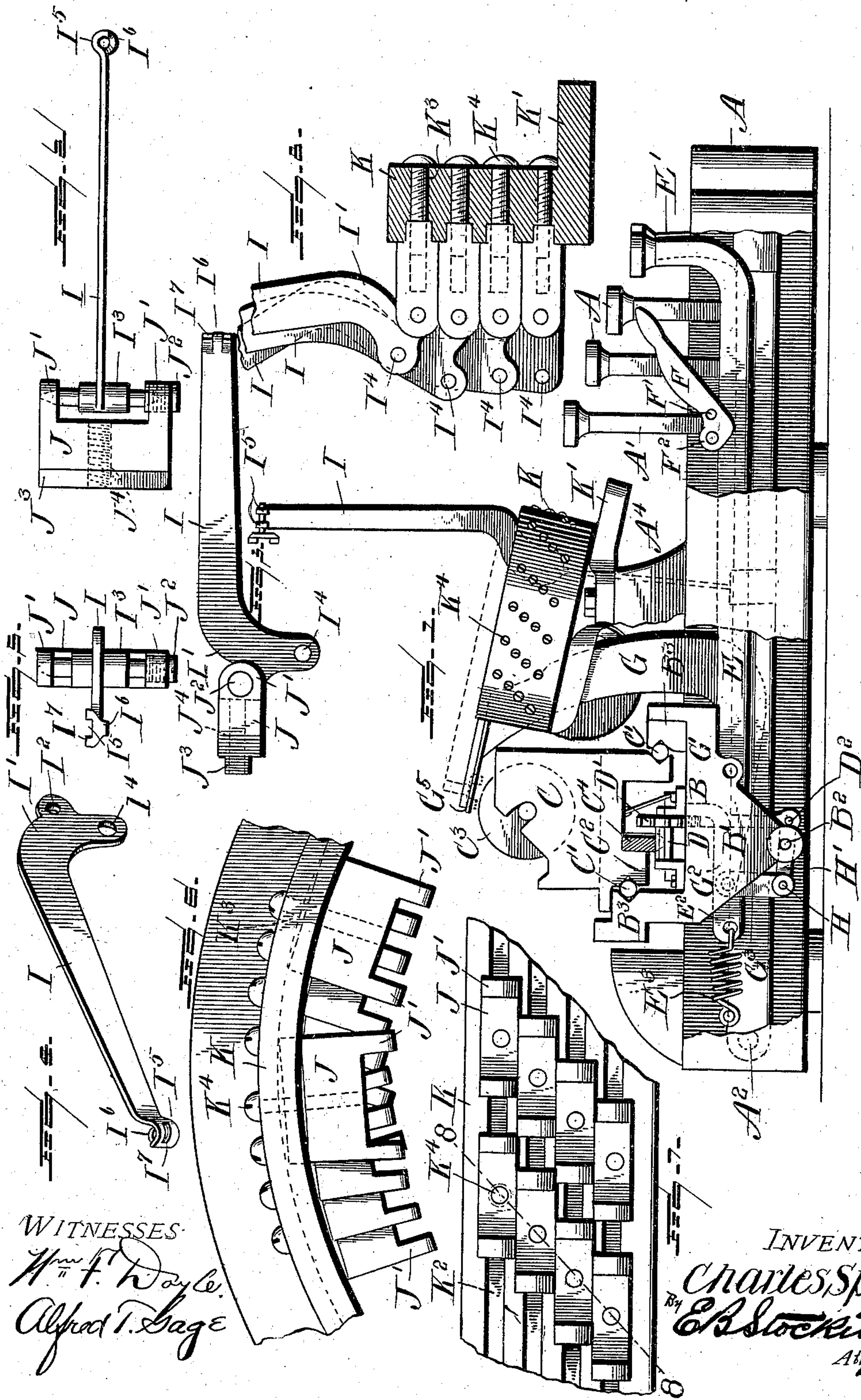
**Patented Sept. 2, 1902.**

**C. SPIRO.**

TYPE WRITER TYPE BAR AND SUPPORT.

(Application filed Oct. 24, 1901.)

(No Model.)



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## TYPE-WRITER TYPE-BAR AND SUPPORT.

SPECIFICATION forming part of Letters Patent No. 708,270, dated September 2, 1902.

Original application filed July 20, 1901, Serial No. 69,112. Divided and this application filed October 24, 1901. Serial No. 79,859. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES SPIRO, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Type-Writer Type-Bars and Supports, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to type-writers, and particularly to the type-bar and its support in that character of machines known as a "bar-lock" type-writer.

15 An object of the invention is to provide an improved construction and arrangement of segmental plate for the type-bar hangers and to so arrange the hangers therein that the most desirable length of pivot may be secured in connection with the arrangement of the 20 largest possible number of bars within a given area.

Another object of the invention is to provide an improved construction of type-bar adapted to be formed of sheet material.

25 Other objects and advantages of the invention will hereinafter appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

30 In the drawings, Figure 1 represents a side elevation of a type-writer embodying my invention and having parts of the base broken away. Fig. 2 is a plan of a type-bar and hanger. Fig. 3 is a side elevation of the same. 35 Fig. 4 is a perspective of the type-bar. Fig. 5 is a front view of the type-bar and hanger. Fig. 6 is a detail elevation of the arc-plate, having the hangers arranged therein. Fig. 7 is an elevation of these hangers, and Fig. 8 40 is a vertical section on the line 8 8 of Fig. 7.

Like letters of reference indicate like parts throughout the several figures of the drawings.

45 This case is a division of my prior application filed July 20, 1901, Serial No. 69,112, in which the novel construction of carriage and cradle therefor is claimed.

50 The letter A designates the base of a type-writing machine, which may be of any desired construction or configuration, and has mount-

ed therein a series of key-bars A', pivoted at any desired point—for instance, as at A<sup>2</sup>.

The oscillating cradle B is shown as provided with a pivoting-lug B' and aperture B<sup>2</sup>, also at its upper portion with raceways B<sup>3</sup>, 55 carrying ball-bearing C' and coöperating with similar ways C<sup>2</sup> on the carriage C, which is also provided with the platen C<sup>3</sup> and feed-rack C<sup>4</sup>. This rack is driven by a pinion D, having an escapement-wheel D', coöperating 60 with an oscillating dog D<sup>2</sup>. The cradle may be shifted by a key E, having a finger-piece E', and restored by an extension E<sup>2</sup>, carrying a spring E<sup>3</sup>. The shift-key may be held in position by a cam-lever F, pivoted at F' and 65 having a projection F<sup>2</sup>, as shown. The ribbon-arm G is pivoted at G' upon the cradle and the end G<sup>2</sup> thereof connected by a link G<sup>3</sup> with a universal bail H, which also operates the dog mechanism D<sup>2</sup> through a rock- 70 arm H' for that purpose.

The type-bar I herein described is adapted to be formed of sheet material and of an integral piece thereof, so that it can be produced by a simple stamping operation and 75 the necessity for extensive handwork thereon obviated. This bar is provided at one end with an extension I' in the plane of the bar at an angle thereto and provided with a ligament-eye I<sup>4</sup>, and the body portion beyond this 80 extension has therein an aperture I<sup>2</sup>, adapted to receive the pivot I<sup>3</sup>, which is mounted in the ears J' of the hanger J and adjusted therein by means of the threaded socket J<sup>2</sup>, mounted in one of the ears J'. The opening or eye I<sup>4</sup> is 85 formed to receive one end of the usual ligament, which extends to the key-bars A' of the machine. At the opposite end a type-socket is formed by slitting the body of the bar, as at I<sup>5</sup>, and pressing outward the tongue 90 I<sup>6</sup> thus formed, while the end portion I<sup>7</sup> is curved in the opposite direction, so as to form a socket adapted to receive the type containing two characters, as usual in type-writers embodying a shifting device. 95

The type-bar hangers J are mounted upon an arc-plate or segmental bearing K, which is provided at its lower portion with a plate K' and adapted to be supported from the base of the machine by means of standards A<sup>4</sup>. 100



This arc-plate has upon its inner concave face a series of peripheral grooves  $K^2$ , and at suitable intervals apertures  $K^3$  extend through the plate  $K$  and intersect said grooves. The hangers  $J$  are provided upon one face with a flange or lug  $J^3$ , adapted to enter the groove  $K^2$ , and each of the hangers is provided with a threaded socket  $J^4$ , adapted to receive the ends of the securing-screws  $K^4$ , which pass through the apertures  $K^3$  of the plate  $K$  and into the hangers. In order to secure the greatest number of these hangers within the least area and to permit the use of the shortest possible type-bars, the hangers are staggered or stepped upon the inner face of the plate  $K$ , as shown in Figs. 6 and 7, so that each type-bar will lie at one side of an adjacent bar, and therefore be free to operate without contact therewith. As shown in Fig. 7, these hangers are arranged in series of four steps; but it will be obvious that the number of steps and the particular arrangement of the hangers can be changed at will without departing from the essential feature involved in the arrangement thereof. The arrangement and construction of hangers permit the use of a single pivot therein, with the type-bar fastened midway between the bearings thereof. It has been found very difficult to produce a bearing for type-bars which would be of the necessary width to secure the most efficient action, as it is desirable to have a long bearing for the bar and to secure the largest possible number of characters in the machine with the type-bar fastened to its pivot midway between both bearings in the hanger or type-bar bracket. By the arrangement disclosed it will be seen that this result is accomplished and sufficient room is left between the hangers for the adjustment of the threaded bearing for the pivot.

It will be obvious that changes may be made in the details of construction and configuration of the several parts and that the novel features herein described may be applied to other and different characters of type-writers from that illustrated without departing from the spirit of the invention as defined by the appended claims.

Having described my invention, what I claim is—

1. In a type-writer, a paper-carriage and platen, an arc-plate disposed with its upright concave face oblique to the horizontal and opposite said platen, and type-bar hangers mounted upon the concave face of said plate; substantially as specified.

2. An arc-plate for supporting type-bar hangers comprising a flange having upon its concave face a groove and an aperture extending from the convex face of said plate and intersecting said groove; substantially as specified.

3. In a type-writer, an arc-plate provided with a longitudinal groove upon its concave face and a series of apertures extending from said groove to the opposite face, a hanger having a flange adapted to enter said groove, a securing device passing through the aperture in said plate and entering said hanger, and a type-bar mounted in said hanger; substantially as specified.

4. In a type-writer, an arc-plate having parallel longitudinal grooves upon one face, and a series of hangers mounted thereon in different horizontal planes and with their vertical centers in different vertical planes; substantially as specified.

5. In a type-writer, a carriage and platen, a segmental plate disposed with its upright concave face oblique to the horizontal and opposite said platen, and a series of type-bars and hangers staggered or stepped upon the concave surface of said plate next to said platen; substantially as specified.

6. A type-bar hanger comprising a block having a threaded transverse aperture therein, pivoting-ears at opposite ends, and a securing-flange extending longitudinally across the back of said hanger in alinement with said aperture; substantially as specified.

7. A type-bar comprising a plate having the body thereof at one end slitted and pressed in opposite directions to form an eye to receive a type-shank; substantially as specified.

8. A type-bar comprising a plate having the body thereof at one end slitted and pressed in opposite directions to form an eye to receive a type-shank and provided at its opposite end with an extended portion having a pivoting-aperture and connecting-eye for a ligament; substantially as specified.

9. A type-bar comprising a plate having the body thereof at one end slitted and pressed in opposite directions to form an eye to receive a type-shank and provided at its opposite end with an extension below the body of the plate and having a pivoting-eye beyond said extension and a ligament-eye below said pivoting-eye; substantially as specified.

10. A type-bar comprising a plate having the body thereof at one end slitted and pressed in opposite directions to form an eye adapted to receive a type-shank and at its opposite end provided with an extension in the plane of the bar extending at an angle thereto and provided with a ligament-eye, and a body portion having a pivoting-eye beyond said extension; substantially as specified.

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

CHARLES SPIRO.

Witnesses:

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MICHAEL P. CARRIGAN.