(No Model.)

C. C. CLARKE.

TYPE WRITING MACHINE.

No. 502,248. Patented July 25, 1893.

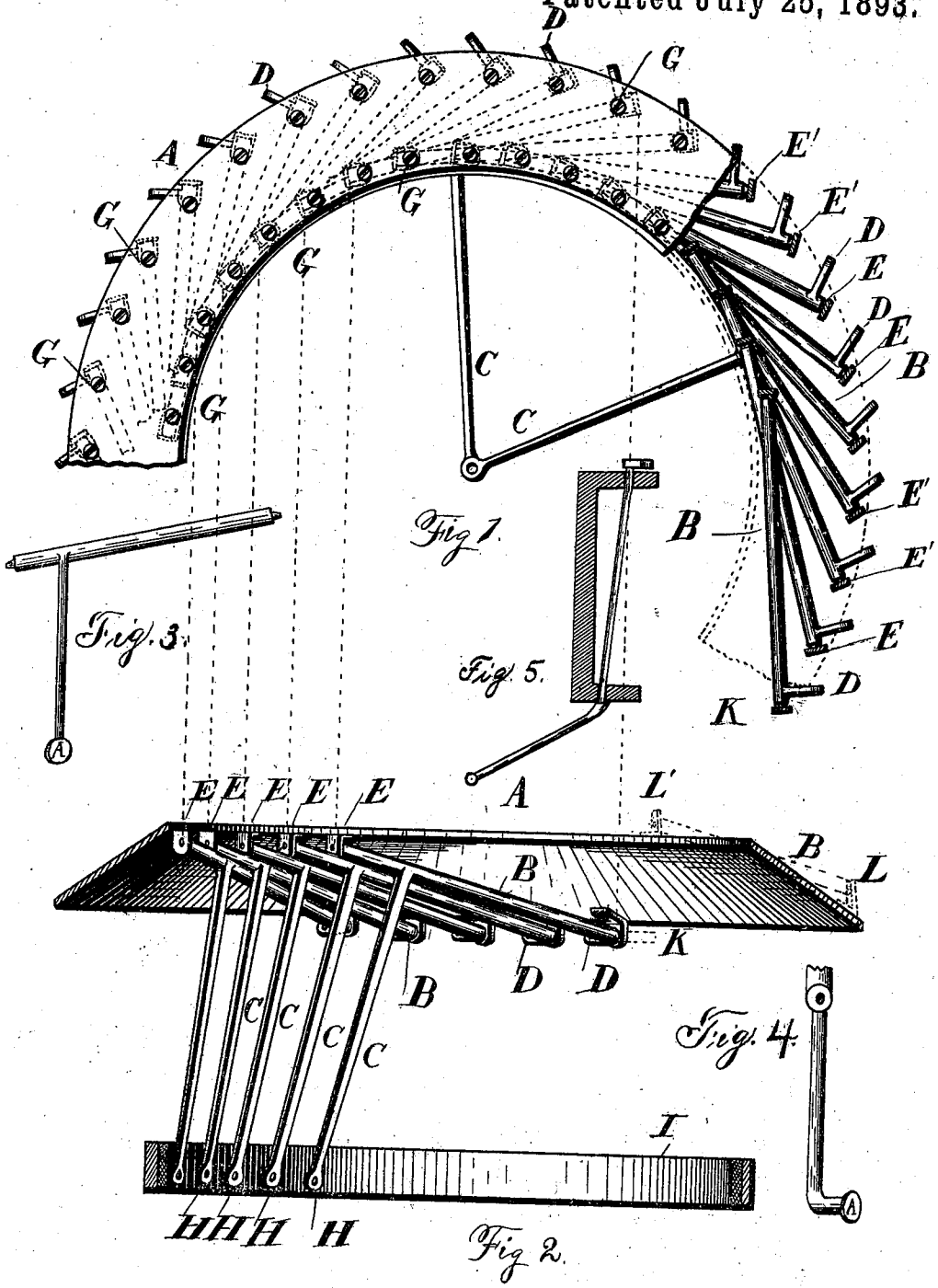

Fig. 1.

Fig. 3.

Fig. 5.

Fig. 4.

Fig. 2.

WITNESSES:

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TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 502,248, dated July 25, 1893.

Application filed March 14, 1891. Serial No. 385,040. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. CLARKE, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Type-Writing Machines; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The subject of this invention is an improvement in the type bars of type writers, and the hangers and supports for the same.

The object of the invention is to make a type writer in which the type bars have longer bearings than in common type-bar machines, and to this end the type bars are made and hung in a manner to secure such result.

Figure 1 of the drawings is a broken top plan of the type bar support of a type writing machine, with a number of type bars in plan. Fig. 2 is a cross section of a type bar support or ring, showing a number of type bars in position. Fig. 3 is a perspective view of type bar and shaft. Fig. 4 is an end elevation of type bar and shaft. Fig. 5 is a modified form of hanger.

A represents a ring, which may be a part of or attached to the top plate of the frame of the machine. This ring may be attached to almost any of the well known forms of type bar machines. By suitable modification, the ring may be substituted by any oval or elliptical or other shaped plate. The ring A is preferably made as the frustum of a hollow truncated cone, but it will appear that it is not specially important what the margin may be.

The type bars have pivotal shafts or rock shafts B, from which the bars proper extend at an angle, which is preferably a right angle. These bars C may be in one piece with the rock shafts B, or may be firmly held thereto by mechanical means. The rock shafts B have operating crank arms D, which are connected to the key wires or finger levers by which the type bars are operated.

The rock shafts B are made of a considerable length, so as to get as much distance between the bearings as can conveniently be done, and the ends of the bars have their journals or bearings in the hangers or brackets E, E′, which hangers or brackets are of uniform length and attached to the ring A, by screws G, so as to be adjustable thereon, or by rivets or other suitable devices, or the hangers may be turned down from the edges of the ring A, or cast with said ring, according to the character of the ring or type bar support. Now, as the ring A is the frustum of a truncated cone, the brackets E′, attached to the under side of said ring and near the outer edge of said ring, will be in a different horizontal plane from the brackets E′, which are near the inner side of said ring A, and the bearings of one end of shafts B will be higher than the bearings of the other end. The shafts B are not arranged radially to the ring B, but at a tangent to the circle of the inner face of said ring, as well as at an incline from a horizontal plane. By this tangential and inclined arrangement of the rock shafts, a much greater number can be arranged in a given sized ring in position to support type bars, than if the rock shafts and their right angled type bars were all in the same plane. The bars C, extending at a right angle from shafts B, will support type or printing characters at the end farthest from the rock shafts, as at H H. The bars may extend at other than a right angle according to the inclination of the shaft B.

The type bars C, shafts B, and levers D are preferably in one piece, for each printing character, and the face of the type will be at the proper incline to strike to the proper center for printing, and when properly arranged on the ring A, all the rock shafts will extend in the tangential direction described, and the type bars when hanging down will not hang perpendicularly, but will be inclined from the perpendicular, but when the rock shafts B are rocked the type bars will swing to a horizontal and about a radial position with reference to the ring. The printing character A will present its face in a plane oblique to the axis of shaft B, so as to be about horizontal when swung to striking position at the center of the ring.

The shield or guard I in Fig. 2 is arranged to stop the type bars when they are in their

depressed positions. As shown in dotted lines K, the crank lever may extend inward from the rock shaft B, and the type bar may thus be operated by a push instead of a pull, as usual.

Instead of applying the brackets E E′ to the under surface of the ring or support A, the same may be applied to the upper side of said ring, as outlined in dotted lines Fig. 2, at L L′ and these brackets, and may be adjustable thereon by means of the set screws.

If the type levers be not hung in a circle, they must be made of different lengths, or projected at different distances from the ends of the shafts B, or extended in some angle other than a right angle from said shafts. Hence, I consider the arrangement shown to be preferable.

The inner ends of the rock shafts are shown as lapping by each other. This is a good arrangement, but if the rock shafts B are of unequal length, that is, arranged one long shaft and then a shorter shaft, a different arrangement of the brackets would be possible. The type levers C are preferably extended from the sides of the rock shafts near their inner ends.

The broad idea of my invention is that the bearings for the type bars shall be a considerable distance apart, and not in the same horizontal plane, and that the type carried by the type bars shall strike to a common center. It will be apparent that the same result may be attained whether the type bars C are straight or bent, so that the direction is such as to bring the type all to the same center. It will also appear that the inclined arrangement of the pivotal shaft, of the type bars may be produced by a variation in the length of the hangers in which the ends of said bars are supported, as shown in Fig. 5 and said hangers may be attached in such case to a flat ring or support instead of the frusto-conical ring A. In fact, many modifications will suggest themselves to the skilled artisan.

The illustration does not attempt to show the connections by which the type levers are manipulated, or the parts for holding the paper and inking device, as the same may be any well known mechanism for this purpose.

What I claim, and desire to secure by Letters Patent, is—

1. A type-writing machine, having a series of type-bars supported on a horizontal ring or plate, each type-bar connected to a suitable pivot-shaft whose ends are journaled in a different horizontal plane, substantially as specified.

2. In combination with the supporting plate of a type writing machine, a rock shaft and type bar projecting at the side of the axial line of said shaft, and brackets supporting the two ends of the rock shaft at different horizontal planes, substantially as described.

3. In combination with the supporting plate of a type writing machine, having a central opening, a series of rock shafts arranged tangential to a circle drawn about said opening, the rock shafts having type bars projecting from the sides thereof, and hangers supporting the ends of the rock shafts at different elevations so that all the bars strike to a common center substantially as described.

4. In combination with the supporting plate of a type writer, a pair of hangers attached to said plate and a type bar shaft having its ends journaled in said hangers, in different horizontal planes, and having a type bar and an operating crank projecting from the sides thereof, substantially as described.

5. The combination with the supporting plate of a set of type bar rock shafts and type bars projecting from the sides of said shafts and supporting brackets screwed to the plate and supporting the ends of the rock shafts in different horizontal planes.

6. The combination with the truncated frusto conical ring, of a series of brackets or bearings projecting from said ring near the outer and inner edges thereof, a series of rock shafts having their ends supported in said bearings in different horizontal planes, and type bars projecting from the sides of said rock shafts, so that the printing characters on the bars all strike to the same center.

7. The combination with the frusto conical ring A, of the brackets E E′ secured to the outer and inner edges thereof, the rock shafts B extending tangentially as described and with the ends at different elevations, and the type bars projecting from the sides of said bars so as to hang obliquely but to strike to a common center, all substantially as described.

8. In a type writer the combination with the supporting plate of brackets adjustable on said plate, and type bars supported in said brackets with the ends of their pivotal shafts at different elevations, substantially as described.

9. A bar for type writers having the face of its printing character in a plane oblique to the axis of the pivot of said bar.

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

CHARLES C. CLARKE.

Witnesses:
G. W. KEAR,
H. P. HITCHCOCK.