

H. W. MERRITT.
TYPE WRITING MACHINE.

Patented May 12, 1896.

[illegible]

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UNITED STATES PATENT OFFICE.

HENRY W. MERRITT, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO THE
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TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 560,041, dated May 12, 1896.

Application filed November 7, 1895. Serial No. 568,207. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. MERRITT, a citizen of the United States, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention in type-writing machines relates to the type-bar bearings, and has for its main objects to provide a construction involving little friction and wear, and hence a more durable and better bearing or working joint than heretofore; and to these ends my invention consists in certain features of construction and combinations of devices as will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevation of a type-bar and its support or hanger involving my improvements. Fig. 2 is an enlarged vertical section taken at the line *x x*, Fig. 1, but omitting the sublever. Fig. 3 is an elevation looking at the inside of one of the cups and showing the antifriction-balls and also, in section, one of the type-bar journals.

In the several views the same part will be found designated by the same letter or numeral of reference.

1 is the type-bar, and 2 its support or hanger. 3 is a sublever pivoted at 4 in the hanger and connected to the type-bar by a loop 5 and to the key-lever (not shown) by a connecting-rod 6. This is the form of type-bar, hanger, and sublever employed in the Densmore machine to which I have applied my improvements in practice; but of course I do not wish to be limited to such a construction and arrangement of type movement, since my improvements now to be specifically described may be employed in type-bar actions in which the support or hanger is otherwise constructed, and in which the actuating sublever is omitted, and the actuating-rod 6 or other operating device used is otherwise connected with the type-bar.

The hanger is made in the form of an inverted U and is adapted to be attached to the top plate or type-ring of the machine by a screw passing down through the hole 7.

The two vertically-arranged arms, sides, or cheek-plates 8 and 9 of the hanger are perforated transversely in line and are screw-threaded interiorly, as at 10 and 11, to receive, respectively, two cups or boxes 12 and 13, each screw-threaded exteriorly, as at 14, to engage with the threaded perforations in the cheek-plates. Each cup or box is provided at its outer end with a square head 15 for the application of a wrench or other tool to facilitate the screwing in and out of the cup.

The type-bar is provided at each side with a journal 16, having a slight taper, being smaller in diameter at its outermost end. These journals are preferably made integral with a central cylindrical portion 17, which is driven tightly into a hole made transversely in the type-bar; but of course the type-bars may be provided with journals in some other manner.

In each cup are shown five antifriction-balls 18, which surround their associate journal and touch and support the same, and also touch the circular interior wall 19 of the cup, as well as the bottom 20 thereof. The three points of contact of each antifriction-ball are indicated at the ends of the radial dotted lines *a*, *b*, and *c*, Fig. 2. From this view it will be observed that, owing to the taper of the pivot or journal on the type-bar, the pivot touches each ball, not on the center line *c* of all the balls, but at a point (*a*) on the inner side of said center line, whereby more than one-half of the ball is encompassed. In other words, the contact-points *a*, *b*, and *c* include more than one-half of the ball, which is a feature of considerable importance, since by this construction and arrangement the ball is prevented from working sidewise toward the root of the journal and is held firmly in proper position at all times, and thus all shake or wobble of the type-bar is avoided. Thus far in practice I have used balls about one-sixteenth of an inch in diameter and have made the taper of the journal or pivot about one-half of a degree. At the balls the diameter of the pivot is about forty-five one-thousandths of an inch; but of course other sizes and proportions may be employed. Although I have shown each set of balls as comprising five in number, it will be understood that the

number of balls may be varied as long as enough balls are used to afford a proper bearing for the pivot or journal. If the type-bar has only one pivot, one set of antifriction-balls and one cup only will be necessary. The cups being adjustable or being adapted to be screwed in the wear may be conveniently taken up, as required. In each angular head 15 is a perforation 21 for the purpose of permitting the introduction of oil, vaseline, or some other suitable lubricant to the bearings, if desired.

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

15 1. In a type-writing machine, the combination of a hanger having a vertical arm or cheek-plate, an adjustable cup or box therein containing a set of antifriction-balls, and a type-bar provided with a lateral tapered pivot 20 or journal entering said cup or box and bearing upon said antifriction-balls, which latter have points of contact, substantially as set forth.

25 2. In a type-writing machine, the combination of a hanger having vertical arms or cheek-plates provided with transverse threaded apertures in line with each other, a pair of externally-threaded cups or boxes screwed into said apertures, a set of antifriction-balls

in each cup or box, and a type-bar having lateral, tapered journals; substantially as set forth. 30

3. In a type-writing machine, the combination of a hanger having arms or cheek-plates provided with transverse apertures, a pair of cups or boxes adapted to said apertures, a type-bar having lateral, tapered pivots or journals, and a set of antifriction-balls in each cup or box surrounding said pivot or journal, the points of contact of each of said balls including or embracing more than one-half of the ball, as and for the purposes set forth. 35 40

4. In a type-writing machine, the combination of the inverted-U-shaped hanger having transverse threaded apertures, the exteriorly-threaded cups or boxes having angular heads and perforations, the set of antifriction-balls in each cup or box, and the type-bar having lateral tapered journals; substantially as set forth. 45 50

Signed at Springfield, in the county of Hampden and State of Massachusetts, this 1st day of November, A. D. 1895.

HENRY W. MERRITT.

Witnesses:

A. J. SMITH,

H. A. HARMAN.