(No Model.)

3 Sheets—Sheet 1.

G. B. WEBB.

TYPE WRITING MACHINE.

No. 599,429. Patented Feb. 22, 1898.

Fig. 1.

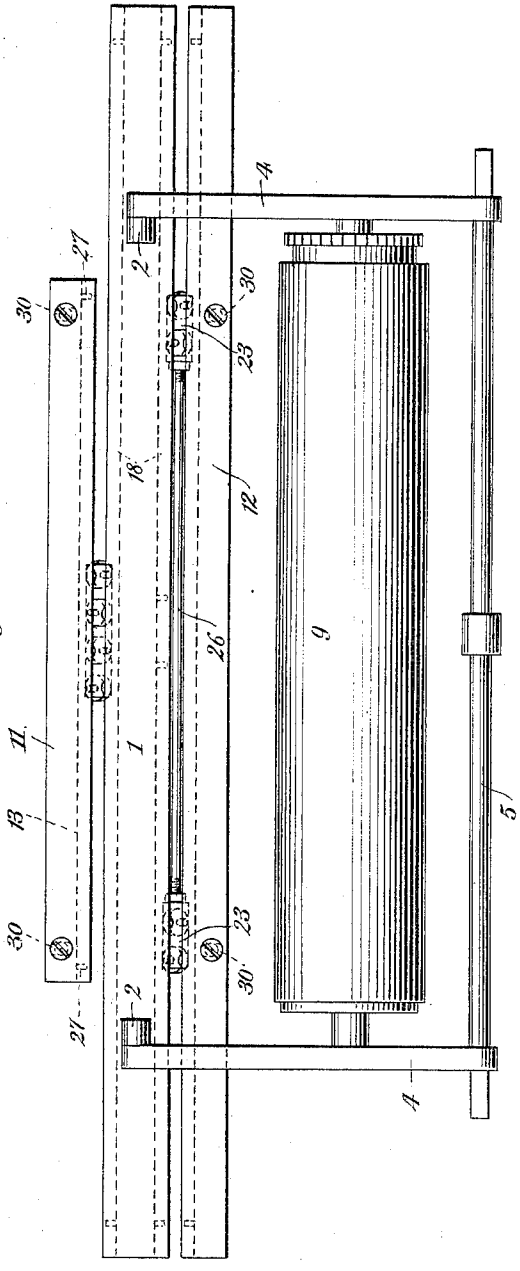


Fig. 4.



Fig. 3.

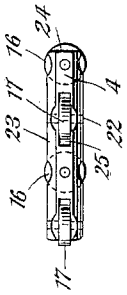


Fig. 5.

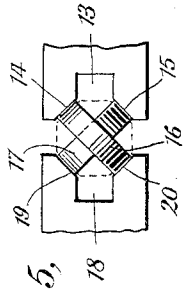
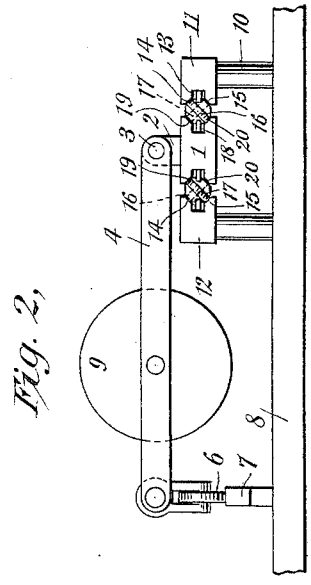


Fig. 2.



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Fig. 8.

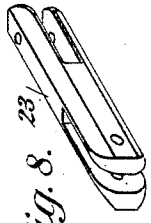


Fig. 6.

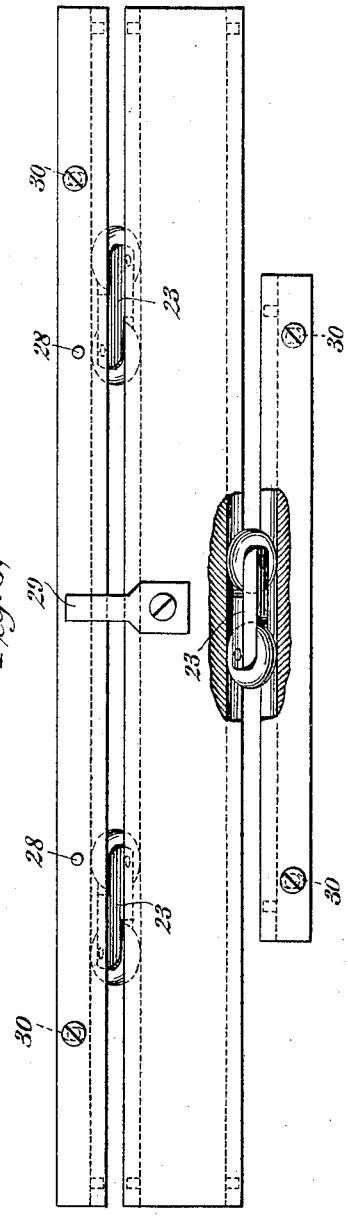


Fig. 9.

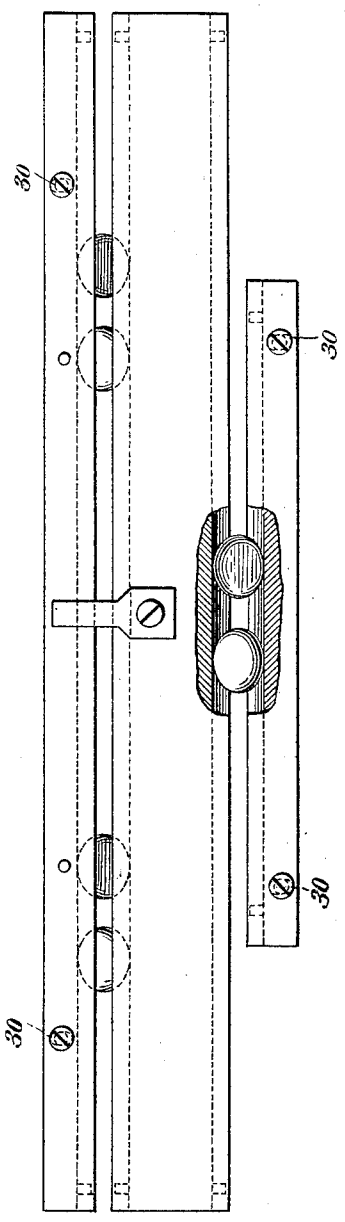


Fig. 7.

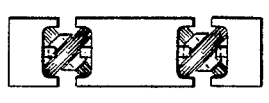


Fig. 10.

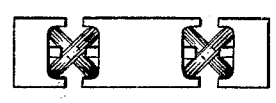


Fig. 11.



Fig. 12.



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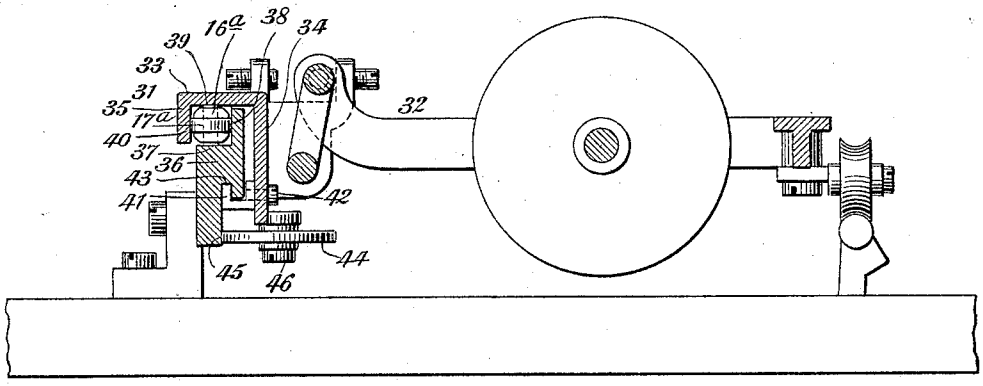
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Fig. 13,



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UNITED STATES PATENT OFFICE.

GEORGE B. WEBB, OF WESTFIELD, NEW JERSEY, ASSIGNOR TO THE WYCKOFF, SEAMANS & BENEDICT, OF ILION, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 599,429, dated February 22, 1898.

Application filed March 2, 1897. Serial No. 625,724. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. WEBB, a citizen of the United States, and a resident of Westfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, &c., of which the following is a specification.

The main object of my invention is to provide an improved construction of "roller-bearing" for the paper-carriages of type-writing machines, which, however, is equally well adapted for other kinds of machines and apparatuses in which it is desired to provide a carriage, frame, or analogous device with that description of bearings known as "roller-bearings."

My invention consists, primarily, in combining with the carriage or the like and suitable tracks or ways detached rolls or disks arranged crosswise of each other and in certain other features of arrangement and construction and combinations of devices, all as will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a plan view of a portion of a type-writing machine embodying my improvements. Fig. 2 is an end view of the same. Fig. 3 is a side elevation of the rear rolls and their truck or carrier. Fig. 4 is an end view of the same. Fig. 5 is an enlarged end view of the construction shown at Fig. 2. Fig. 6 is a plan view, partly in section, showing my invention carried out in another form. Fig. 7 is an end view thereof. Fig. 8 is a perspective view of the roll holder or truck shown at Fig. 6. Fig. 9 is a plan view, partly in section, showing my invention carried out in still another form. Fig. 10 is an end view of the same. Fig. 11 is a vertical section showing my invention carried out under another modification. Fig. 12 is a similar view showing my invention carried out in another form, and Fig. 13 is a vertical section showing my invention embodied in still another form.

Referring more particularly to Figs. 1 to 5, inclusive, 1 designates a bar, frame, or carriage having at its upper side ears 2, to which are hinged at 3 the end bars 4 of a platen carriage or frame, in this instance comprising the said end bars and a front bar 5, carrying a supporting-wheel 6, which travels upon a track 7 on the top plate 8. The platen 9, as usual, is supported by the end bars 4. On the rear side of the bar or carriage 1 is supported by posts 10 a rail 11, and on the front side of said bar or carriage is similarly supported a rail 12. The rail 11 is formed longitudinally and centrally with a groove 13 and with inclined faces or bearing-surfaces 14 and 15 on opposite sides of said groove, the said faces 14 and 15 being arranged at right angles to each other and forming tracks or ways for small rolls or disks 16 and 17. The rear side or edge of the bar or carriage 1 is formed with a central longitudinal groove 18 and with inclined faces 19 and 20 on opposite sides thereof, arranged at right angles to each other to form tracks or ways or bearing-surfaces for the said rolls or disks 16 and 17. The inclined faces 14 and 20 are parallel with each other, and the inclined faces 15 and 19 are also parallel. The rolls or disks 16 and 17 are arranged at right angles to each other, the roll or disk 16 bearing on the faces or ways 14 and 20 and the roll or disk 17 bearing on the faces or ways 15 and 19. The roll or disk 16 has a fixed pivot or center 21, and the roll or disk 17 has a fixed pivot or center 22, arranged at right angles to the pivot or center 21. Said pivots, centers, or axles are supported in a frame or holder 23, which is formed or provided with a slot 24 for the reception of the roll 16 and with a slot 25 at right angles to the slot 24 for the reception of the roll 17. The roll-holder shown at Figs. 1 and 3 is provided with two pairs of the rolls 16 and 17. The front rail or guide-bar 12 and the front side or edge of the carriage 1 are made to correspond exactly with the rear rail and rear side or edge of the carriage—that is to say, the front rail has two oppositely-inclined faces 14 and 15, arranged at right angles to each other, and the front side of the carriage has two oppositely-inclined faces 19 and 20, arranged at right angles to each other, and the faces 14 and 20 are parallel with each other, as are the faces 15 and 19. At this front side of the carriage there are also two pairs of rolls 16 and 17, the rolls 16 being adapted to the

faces 15 and 19 and the rolls 17 being adapted to the faces 14 and 20. Each pair of the front rolls is set in a holder or frame 23; but these holders or frames are widely separated though united by a tie-rod 26, which may be screwed into the inner end of each roll-holder, as shown at Fig. 1. The rolls of each pair are arranged at right angles to each other in slots or housings in the holder and have separate and independent pivots, as before described with reference to the rear pairs of rolls. All of the rolls shown at Figs. 1 to 5, inclusive, have cylindrical faces or treads, while all of the tracks or bearing-surfaces have plane faces adapted to such rolls. The rolls and trucks are prevented from escaping from the tracks or ways by means of stops 27, which may be located at the ends of the fixed rails and at the ends of the carriage or at other suitable points. An examination of Fig. 2 will disclose that the bar or carriage 1 is firmly supported or sustained in all directions by the said angularly-arranged rolls or disks and their coacting bearings. For example, the carriage is prevented from descending by the rolls 17 on the front side (shown in full lines) and the rolls 17 on the rear side. (Shown in dotted lines.) The carriage is prevented from ascending or being lifted by the rolls 16 on the front side (shown in dotted lines) and by the rolls 16 on the rear side, (shown in full lines,) and the carriage is held against any tendency to rock or tilt or skew by the pairs of rolls on both sides. Thus by means of the angularly-arranged sets of rolls the carriage is firmly and properly supported at all times and under all circumstances, and during its movements it is compelled to travel in practically a straight line, thereby conducing to better alinement of the printing and to also travel with the minimum of friction.

Referring now to Figs. 6, 7, and 8, two pairs of rolls or disks are shown at the rear side of the carriage and one pair only at the front side. Each pair is mounted in a holder 23, slotted or bifurcated at each end for the reception of the pair of rolls and perforated to receive the pivots of said rolls. The rolls or disks shown in these views have convex faces, and in consequence thereof the tracks or bearings therefor are made concaved or grooved, as shown at Fig. 7, to match said faces. Excepting for the shape of the rolls and their bearings the construction shown at Figs. 6 and 7 is substantially the same in principle as that shown in the previous views. The rolls of each pair are arranged crosswise of each other or in intersecting planes and the bearings for each roll are diagonally arranged. The movements of the carriage may be limited in each direction by stop-pins 28, which are adapted to arrest an arm or projection 29, fixed midway of the carriage and extending rearwardly to the plane of said stop-pins.

Referring now to Figs. 9 and 10, a construction somewhat similar to that shown at Fig. 6 is again exhibited; but in this instance the disks or rolls are not provided with trucks or holders, nor are they provided with pivots or axles. They are, however, arranged in pairs and with the rolls or disks of each pair disposed at an angle to each other. The tracks or bearings are the same as those shown at Fig. 7.

In Figs. 1, 6, and 9 the rails are preferably slotted transversely, as shown at 30, so that they may be adjusted to and from the carriage upon releasing the holding screws or bolts in order that the rolls or disks may be maintained in the best possible working condition relatively to their bearings.

Referring to Fig. 11, the same angular arrangement of rolls is again exhibited, but the faces or treads of the same are made V-shaped and their bearings are made angular to match or correspond.

Referring to Fig. 12, the angularly-arranged rolls similar to those hereinbefore described are here shown as made with V-shaped grooves in their peripheries and their bearings are made V-shaped or angular to match.

Referring now to Fig. 13, a somewhat more marked variation of my invention is exhibited and is shown combined with the platen carriage or frame of a Remington No. 6 typewriting machine. In this form of my invention 31 designates the roller-carriage, and 32 the platen-carrier, pivotally connected thereto. The carriage 31 comprises a horizontal top portion 33 and two vertical depending portions or members 34 and 35. 36 is a fixed rail for said carriage, and said rail has a horizontal bearing portion 37 and a vertical bearing portion 38. The under surface of the top member 33 of the carriage forms or is provided with a bearing 39, which is opposite to the bearing 37 on the rail, and the inner side of the depending member 35 of the carriage forms or is provided with a bearing 40, which is opposite to or parallel with the bearing 38 on said rail. A vertically-disposed roll or disk 16^a travels on the bearings 37 and 39 and a horizontally-disposed roll or disk 17^a travels on the bearings 38 and 40. The rolls or disks 16^a and 17^a are arranged in pairs crosswise of each other, and there may be as many pairs as may be desired. The rolls 16^a support the carriage in a vertical direction and the rolls 17^a support or steady the carriage horizontally. To prevent the carriage from rising and from tilting or rocking, it is provided with a flanged plate or finger 41, which may be secured to the member 34 by a screw 42, which finger or plate enters a slot or groove 43 in the under side of the fixed rail and travels therein during the movements of the carriage, but without contacting with the surfaces thereof. The said plate or finger is, however, arranged very close to the sides of the slot or groove, so that it may speedily come in contact therewith to prevent any tendency of the carriage to rise or to tilt or rock rearwardly. To prevent any forward rocking or tilting of the carriage, it is provided at its lower end with a

horizontal wheel 44, (one or more,) which travels on a bearing 45 on the lower front vertical face of the fixed rail 36.

From the drawings and from the above description it will be seen that the weight of the carriage 31 and also the weight of the platen-carrier 32 when turned up are supported by the rolls 16^a and their bearings 37; also, that the roll 17^a, together with the roll or wheel 45, (which may be mounted on a stud 46,) and their tracks or bearings support the carriage laterally; also, that the wheel 45 and its track prevent the carriage from rocking or tipping forwardly; also, that the plate or finger and the right-hand wall of the groove prevent the carriage from tilting rearwardly, and also that the said plate or finger and the base of the said groove prevent the carriage from rising or from being accidentally lifted from the bearing-rail. When it may become necessary to detach the said carriage, the flanged plate or finger is of course unscrewed and removed.

The angularly-arranged rolls 16^a and 17^a, if made cylindrical, should, preferably, be mounted in a holder or truck, as before; but if the faces of said rolls be made either convex or V-shaped or grooved, as shown in the other views, with corresponding bearings, then it would not be necessary to employ such trucks or holders.

The two parallel longitudinal bearings or tracks on the carriage, bar, or frame and the two opposing parallel longitudinal bearings or tracks on the fixed guide rail or rails form or produce an open rollway in which the disks or rolls are arranged in one or more pairs and with one roll or disk of one pair disposed crosswise of the other roll or disk of said pair.

Although in all the views I have shown the rolls of each pair as arranged at right angles to each other, this precise angle is not essential, although I prefer it.

It will be observed that in all cases the rolls or disks are detached from or independent of the carriage and guide-rail and like ball-bearings have a travel in the space between the carriage and the guide-rail exactly or approximately one-half that of the carriage, each roll or disk bearing at diametrically opposite points on a way on the carriage and on a way on the guide-rail. The term "detached" has reference only to the carriage and guide-rail and does not mean that the rolls or disks are unprovided with trucks, as in Fig. 9.

The carriage, bar, or frame 1 may be arranged in an upright position instead of horizontally, as shown, in which case the guide-rails would be arranged above and below said carriage in lieu of in front and rear thereof.

Various other changes in detail construction and arrangement may be made without departing from the spirit of my invention.

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

1. The combination of a carriage, bar or frame, tracks or ways, and a pair of detached rolls or disks, one roll or disk of the pair being arranged crosswise of the other; substantially as set forth.

2. The combination of a carriage, bar or frame having two parallel longitudinal bearings, a fixed guide-rail having two opposing parallel longitudinal bearings, thus forming between them a rollway, and one or more pairs of detached rolls or disks within said rollway, and the rolls or disks of each pair being arranged one crosswise of the other; substantially as set forth.

3. The combination of a carriage, bar or frame, a pair of fixed guide-rails, and a plurality of detached rolls or disks arranged in pairs on opposite sides of said carriage, bar or frame, the rolls or disks of each pair being arranged crosswise of each other; substantially as set forth.

4. The combination of a carriage, bar or frame, a fixed guide-rail, an independently-movable truck or holder, and a pair of rolls or disks mounted in said truck or holder, one crosswise of the other; substantially as set forth.

5. The combination of a carriage, bar or frame, a fixed guide-rail, a truck or holder having two slots or openings arranged one at an angle to the other, and a roll or disk mounted to turn in each slot or opening; substantially as set forth.

6. The combination of a carriage, bar or frame having suitable bearings, and one or more pairs of detached rolls or disks adapted to said bearings; the rolls or disks of each pair being arranged crosswise of each other substantially as set forth.

7. The combination of a carriage, bar or frame having on one side two bearing-faces or tracks, a fixed guide-bar having also two bearing-faces or tracks opposing those of the carriage, bar or frame, and one or more pairs of rolls or disks adapted to said bearing-faces or tracks, the rolls or disks of each pair being arranged one crosswise of the other; substantially as set forth.

8. The combination of a carriage, bar or frame having on each side a pair of bearing faces or tracks, a pair of fixed guide-rails having each a pair of bearing faces or tracks, and a plurality of pairs of rolls or disks adapted to the said several sets or pairs of bearing-faces or tracks, the rolls or disks of each pair being arranged one crosswise of the other; substantially as set forth.

9. The combination of a carriage, bar or frame, a fixed guide-rail, rolls or disks arranged in pairs one roll or disk of each pair being disposed crosswise of the other, and diagonally opposite bearing-faces or tracks in the carriage and guide-rail for the said rolls or disks; substantially as set forth.

10. The combination of a carriage, bar or frame having a pair of bearing-faces or tracks,

a fixed guide-rail having a pair of bearing-faces or tracks, one or more pairs of rolls or disks, one roll or disk of each pair being arranged crosswise of the other, and a truck or holder for each said pair of rolls or disks; substantially as set forth.

11. In a roller-bearing, an open rollway, a pair of detached rolls or disks, one arranged at an angle to the other in said rollway and each bearing at diametrically opposite points upon suitable tracks or ways forming said rollway; substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 26th day of February, A. D. 1897.

GEORGE B. WEBB.

Witnesses:
PHILLIPS ABBOTT,
K. V. DONOVAN.