

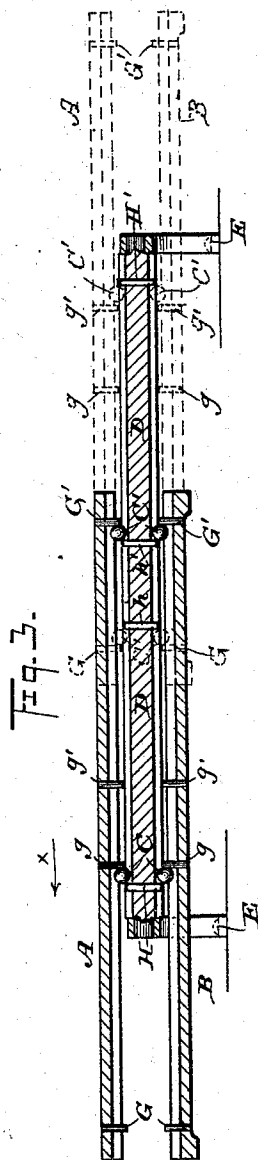
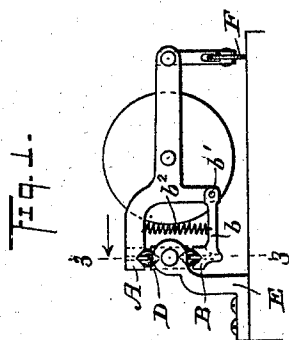
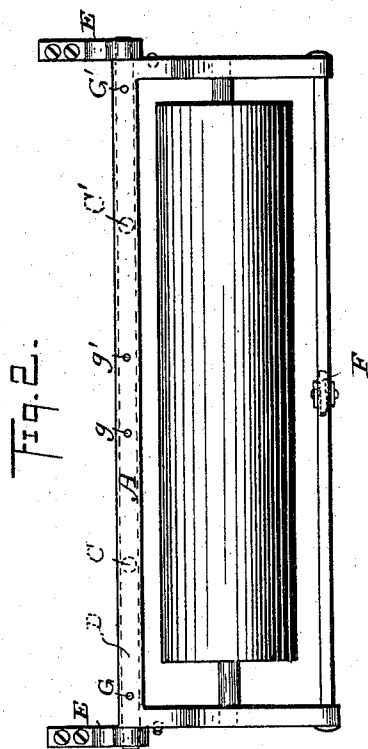
(No Model.)

2 Sheets—Sheet 1.

C. S. BOOTH.
TYPE WRITING MACHINE.

No. 576,359.

Patented Feb. 2, 1897.



Witnesses

Will S. Lowrie

Cornelia A. Skinkle

Inventor

Chris S. Booth

By his Attorney

Wm A. Skinkle

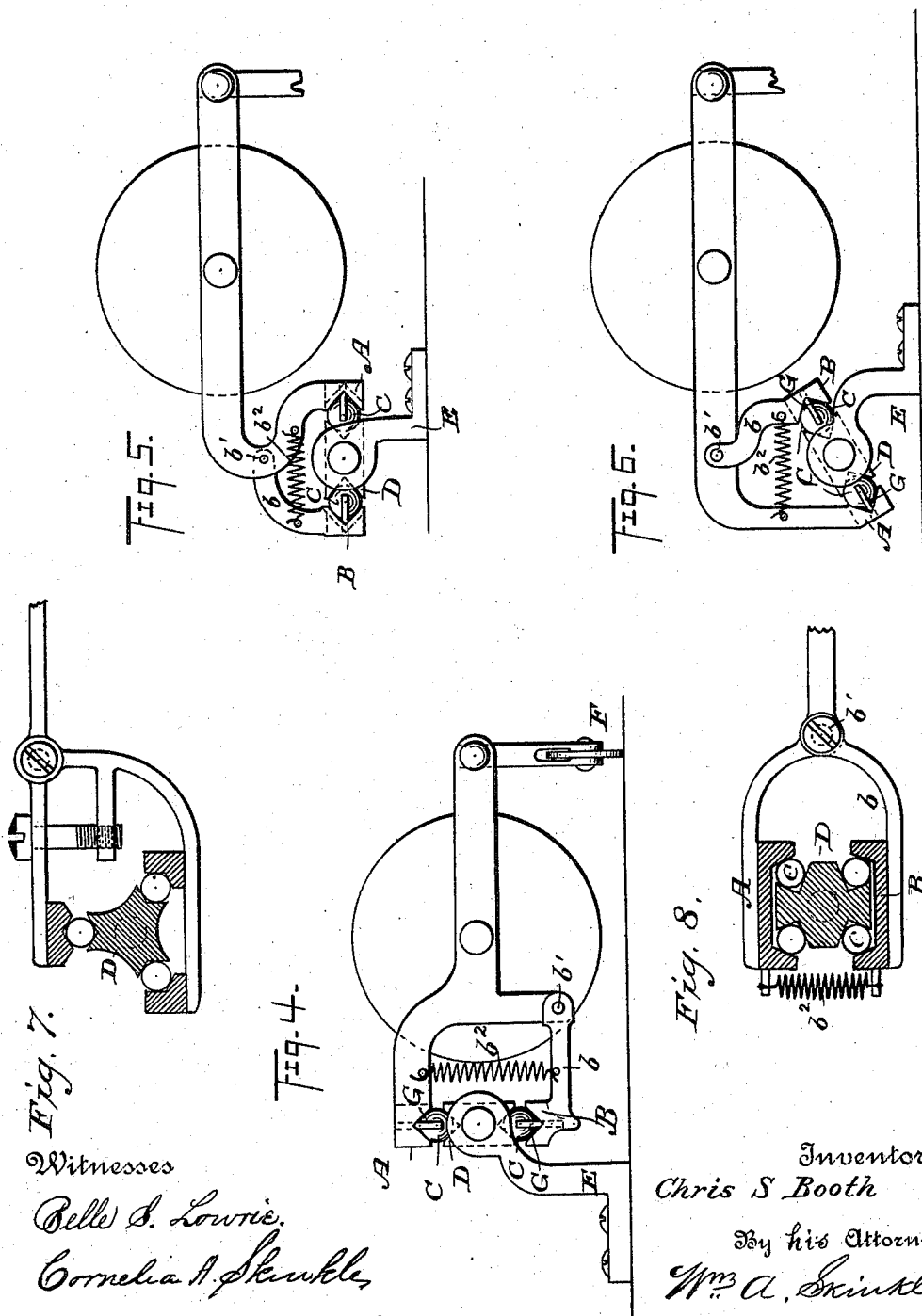
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2 Sheets—Sheet 2.

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Witnesses

Belle S. Lowrie.

Cornelia A. Skunkle

Inventor
Chris S. Booth

By his Attorney
Wm. A. Skunkle

UNITED STATES PATENT OFFICE.

CHRIS S. BOOTH, OF CAMP POINT, ILLINOIS.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 576,359, dated February 2, 1897.

Application filed March 30, 1893. Serial No. 468,394. (No model.)

To all whom it may concern:

Be it known that I, CHRIS S. BOOTH, a citizen of the United States, residing at Camp Point, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Type-Writers, of which the following is a specification that will enable those skilled in the art to which my invention pertains to make and use the same.

My invention relates to type-writers of that class in which the platen-roller is mounted on a traversing carriage which carries the paper to and fro across the machine over a common point at which all the type make their impression. Its objects are to produce a ball-bearing mechanism for type-writers that will reduce the friction of the platen-carriage on its guideways, to provide means for ready access to all the parts, and for adjusting the tracks to compensate for wear and hold them in firm working contact with the balls and to permit the platen-carriage from being thrown up without disturbing the relations of the balls and tracks; and it consists in a suitable arrangement of parts to carry out these objects.

The accompanying drawings show my invention in the best form now known to me, but many obvious changes within the skill of a good mechanic might be made in the details thereof without departing from the spirit of my invention as set forth in the claims at the end of this specification.

Figure 1 is an end elevation of the platen-roller carriage equipped with my invention. Fig. 2 is a plan view thereof, and Fig. 3 a vertical longitudinal section through the track-rail on the line 3 3 of Fig. 1. Fig. 4 is a view on an enlarged scale of the parts shown in Fig. 1. Figs. 5, 6, 7, and 8 represent some of the many modifications which have occurred to me and which will be described hereinafter.

The platen-carriage is provided with two longitudinal tracks A B, the former of which is rigidly attached to the carriage and the latter supported by arms *b* at each of its ends, which are pivoted at *b'* to the carriage-frame and pressed by a spring *b²* toward the track A. These tracks A B are suitably grooved to receive antifriction-balls C C, and between them is a double grooved track or rail D, which is pivotally mounted in bearing-brack-

ets E, secured to the upper surface or any other suitable portion of a type-writer frame, the balls also lying in the grooves of this rail.

The springs *b²* are sufficiently strong to prevent the tracks A B from spreading, and thus allowing the balls to escape when the platen-roller is thrown up, as is frequently done in type-writing to investigate the progress of the work.

As will be seen by Figs. 2 and 3, I employ two sets of balls, located at each side of the transverse center of the carriage when it stands in a midway position, as shown in Fig. 2. These sets of balls are sufficiently far apart longitudinally to prevent the carriage from cramping and binding on its bearings. The front of the carriage may be supported in any suitable manner. In the drawings I have shown a roller F, such as is commonly used in many of the type-writers now in the market.

In operation the movement of the balls in their tracks is only half the movement of the carriage, so that when the carriage reaches the extremes of its movements, as shown by full lines in one position in Fig. 3 and by dotted lines in the other position, the tracks A B project beyond the ends of the rail D.

It is quite essential to the proper carrying out of my invention that the opposing balls of each set C C and C' C' should practically lie opposite each other in the grooves of the rail D at all times. Now it might be possible by jarring or otherwise disturbing the machine to disturb the relative positions of the balls in one or both sets, so that one ball of a set might lead or lag behind its mate. I have therefore set rectifying-pins G G' *g' g'* in the tracks A B and other pins H *h* and H' *h'* in the rail D in such positions that the balls of each set are brought into exact opposition each time the carriage reaches the extremity of its throw in either direction. Thus it will be seen that when the carriage has moved in the direction of the arrow X, Fig. 3, to the extremity of its throw the balls C are brought opposite each other by the pins H and *g* and the balls C' are also brought into alinement by the pins G' and *h'*. On the other hand, when the carriage has reached the extremity of its throw in the direction of the arrow Y

the balls C will be alined between the pins G and h, while the balls C' will be similarly acted upon by the pins g' and II' in the tracks and rail, respectively.

5 In Fig. 5 I have shown the tracks A and B so arranged that the balls oppose each other horizontally instead of vertically, as shown in Figs. 1, 2, 3, and 4. In Fig. 6 they are shown as opposing each other at an angle instead of
10 either vertically or horizontally, as in the preceding figures.

Instead of the tracks A B being drawn together by springs with a yielding pressure, which I prefer as being self-compensating for
15 any irregularity in the tracks or rails or wear that might occur in use, they might be connected by screws, which would permit of any desired adjustment of the distance between them.

20 Instead of the two outer tracks A and B forming part of the carriage they might be supported by the standards E from the frame of the machine, and the single rail D between them form part of the carriage. This, how-
25 ever, would be a mere transposition of the parts that it would not require invention to carry out.

Instead of the balls being arranged in sets of two, as shown in the preceding figures, they
30 might be arranged in opposing sets of three or four, as shown in Figs. 7 and 8.

Having thus described my invention, what I claim as new and useful, and desire to secure by Letters Patent, is—

35 1. In a type-writer, the combination of a main frame, a grooved rail pivotally supported on or near its axial line in bearings on the frame, a platen-carriage having oppositely-grooved tracks, and opposing sets of

balls lying in the grooves of the rail and 40 tracks substantially as hereinbefore set forth.

2. In a type-writer, the combination of a main frame, a platen-carriage, an oppositely-grooved rail, oppositely-grooved tracks on each side of the rail, opposing sets of balls in 45 the grooves of the rail and tracks, one of the tracks being rigidly supported while the other is movable relatively to it with springs to press the movable track toward the rigid one substantially as set forth. 50

3. In a type-writer the combination of the main frame, an oppositely-grooved rail supported therefrom, the platen-carriage, the grooved tracks on opposite sides of the rail and the opposing sets of balls lying in the 55 grooves, one of the tracks being rigidly connected to the platen-carriage to which the other track is connected by pivoted arms, with means for drawing the tracks together substantially as set forth. 60

4. In a type-writer, the combination of the main frame, the grooved rail pivotally supported on or near its axial line in bearings on the frame, the platen-carriage, the grooved 65 track-bars, one of which is rigid with the carriage and the other supported by arms pivoted to the carriage, with springs for drawing the tracks together and the opposing sets of balls in the grooves all arranged substantially as and for the purpose set forth. 70

In testimony whereof I affix my signature, in the presence of two witnesses, at Camp Point, Illinois, March 13, 1893.

CHRIS S. BOOTH.

Witnesses:

HENRY T. REED,
ALFRED H. SEATON.