

(No Model.)

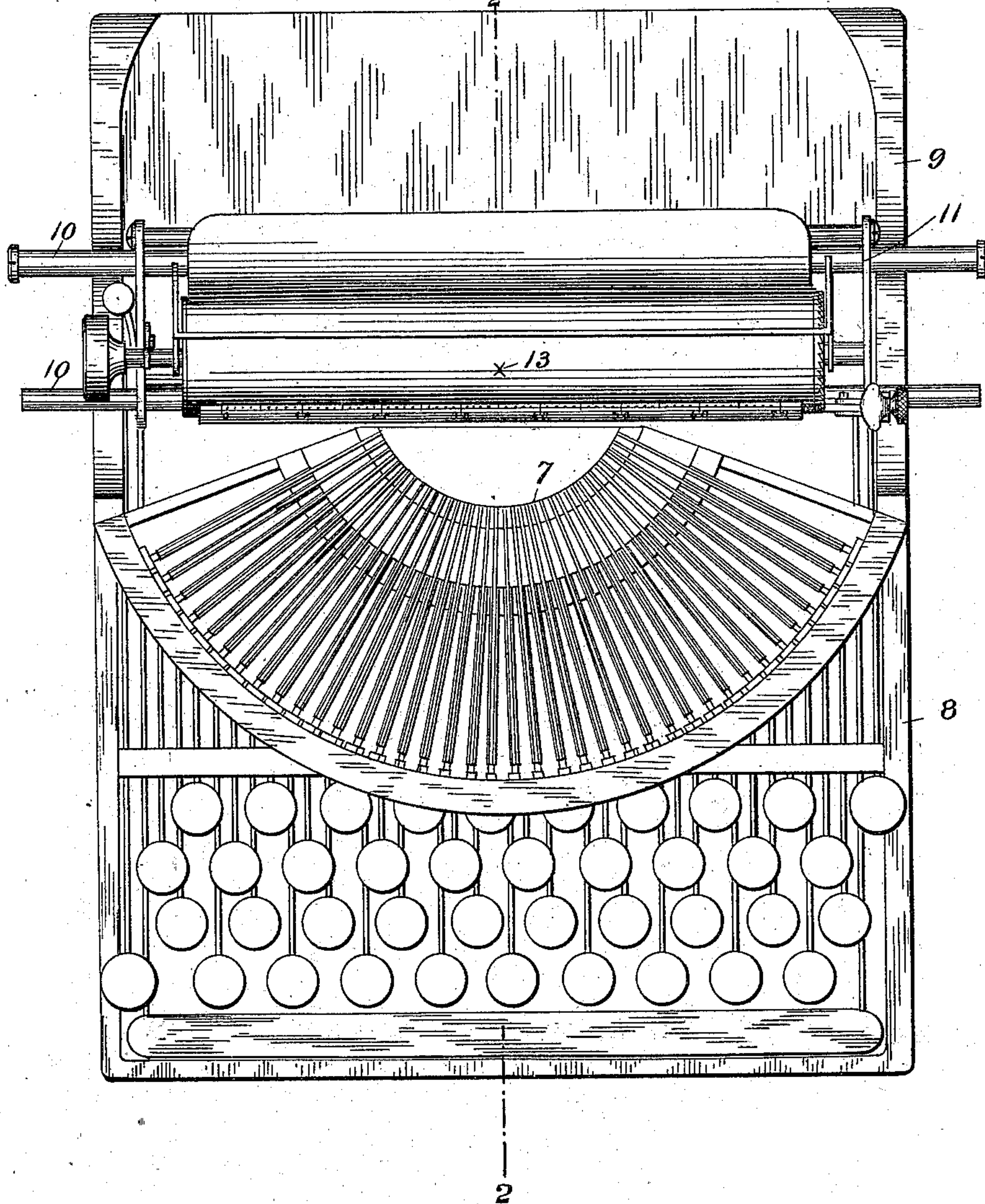
2 Sheets—Sheet 1.

A. W. STEIGER.
TYPE WRITING MACHINE.

No. 557,909.

Patented Apr. 7, 1896.

Fig. 1.



Attest:
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J. H. Robinson

Inventor:
Andrew W. Steiger.
by Howes Kellogg.
Attys:

(No Model.)

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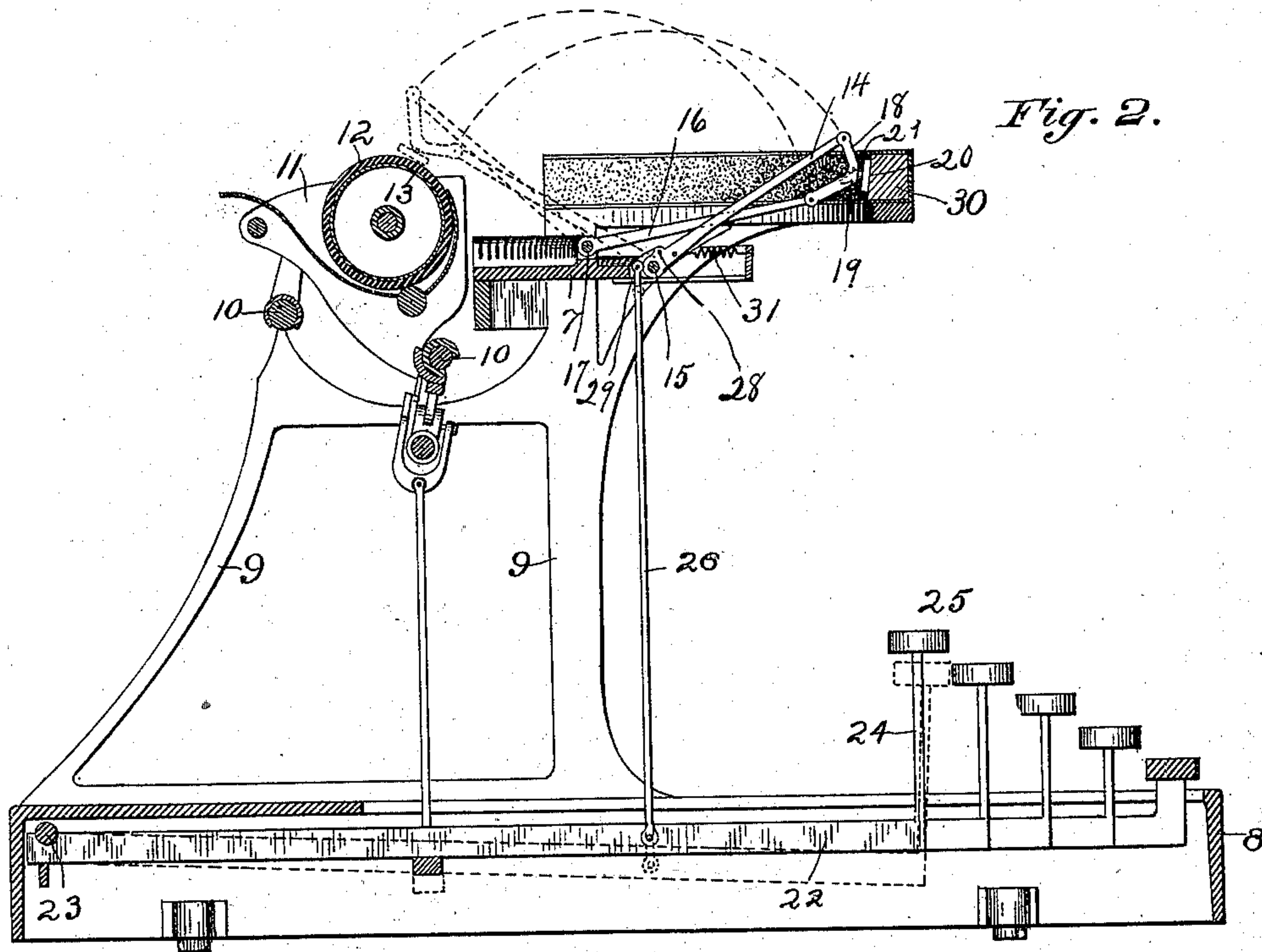


Fig. 2.

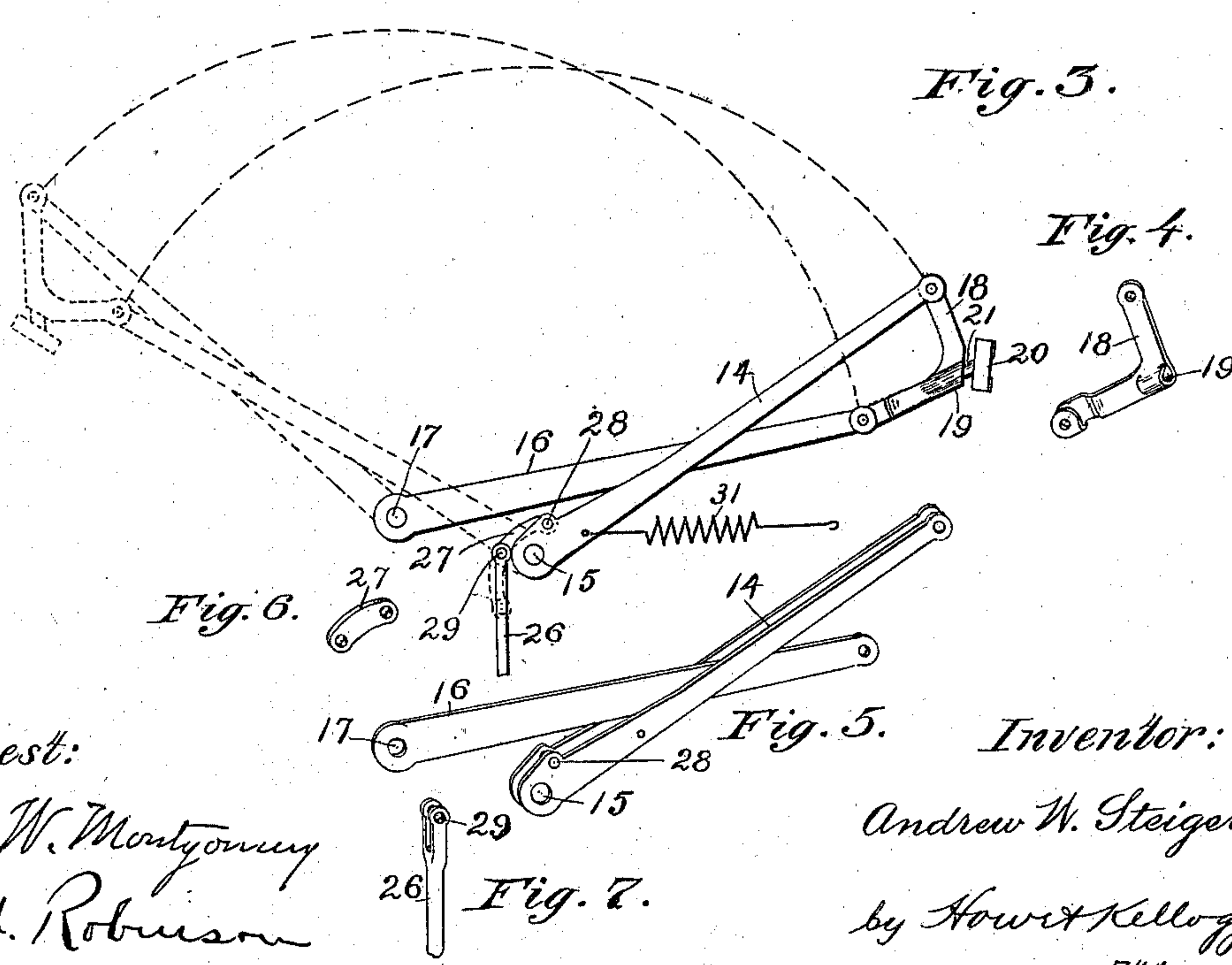


Fig. 3.

Fig. 4.

Fig. 6.

Fig. 5.

Fig. 7.

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UNITED STATES PATENT OFFICE.

ANDREW W. STEIGER, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE JACKSON TYPEWRITER COMPANY, OF BOSTON, MASSACHUSETTS.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 557,909, dated April 7, 1896.

Application filed July 31, 1895. Serial No. 557,676. (No model.)

To all whom it may concern:

Be it known that I, ANDREW W. STEIGER, a citizen of the United States, residing in Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Type-Bars for Type-Writers, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to an improvement in type-writing machines, and more particularly to that part of such machines known as the "type-bar." It belongs to that class known as "jointed" type-bars, and has for its object to provide suitable mechanism whereby a sufficient number of type-carriers to accommodate the type or characters necessary in a writing-machine may be arranged around a common printing-point, under which is made to move a paper carriage or carrier, and the type-carriers are made to move, by their respective finger-keys, to carry the printing-face of the type from an inking pad or surface, where the type normally rest, and impress them upon the paper on the upper part of a paper-carrier at the common printing-point in plain sight of the operator.

In the accompanying drawings, Figure 1 is a general plan of a writing-machine embodying my invention, showing more particularly the relative position of the type-bar, the paper-carriage, and the actuating finger-keys. Fig. 2 is a vertical longitudinal section through Fig. 1 on line 2 2, showing the movement of the type-bar, all but one of said type-bars being omitted to avoid confusion. Fig. 3 is a detached view of the type-bar and its several parts, showing its movements; and Figs. 4, 5, 6, and 7 are detail views of the several parts of the type-bar.

In Figs. 1 and 2 the base 8 is shown provided with the upright supports 9 9, carrying parallel rails 10 10, adapted to form sliding-ways for the paper-carriage 11, with a cylindrical platen 12, arranged to have a step-by-step longitudinal movement past the printing-point 13.

The type-bars are radially arranged in a "basket" 7, concentric with the printing-

point 13, and consist of the driving-link 14, pivoted in the basket at 15 and preferably made of two parallel pieces, and the guide-link 16, pivoted at 17. To the outer or swinging end of these links is pivoted a type-carrier 18, having a socket 19, into which is set the type 20.

The stem 21 of the type is preferably set at such an angle with its face that when the face is impressed upon the platen at the printing-point the stem will stand vertically. In the normal position of the bars the type rest on an inking pad or surface 30, arranged concentrically with the basket 7 and supported on the standards 9 9.

In the machine shown in the drawings I have shown each type as carrying two characters, or what are known as "upper-case" and "lower-case" letters, thus necessitating a shifting of the carriage as the upper or lower case characters are desired to be printed; but they may be made to carry only a single character.

The type-bar is actuated to be moved inward and impressed on the paper by means of the usual key-levers 22, pivoted at 23 in the frame 8 and having at their forward ends the stem-keys 24 and finger-buttons 25, there being a lever for each of the type-bars; and these levers are connected to actuate the bars by means of a connecting-rod 26 and a link 27. The rod 26 is pivoted at its lower end to the key-lever and extends upward to a point near the pivot 15 of the driving-link 14 on the inner side thereof. The link 27 is a short link, preferably curved, and is connected at its lower end to the upper end of the rod 26 by a pivot 29 and at its upper end to the driving-link 14 by the pivot 28. The connection of the pulling-rod 26 with the driving-link by means of this link 27 affords a shifting pulling-point for the link 14 and enables sufficient motion to be imparted to the key-lever with a comparatively slight depression thereof. The pivotal connection 28 between the upper end of the link 27 and the driving-link 14 is so placed in relation to the pivot 15 of said driving-link that when the type-bar is thrown over to the printing-point a line through the

pivot 28 and the pivotal point 15 of the guide-link will be nearly at right angles to the pull of the connecting-rod 26. The link 27 is of such length and is so pivoted to the connecting-rod 26 that when the type-bar is in its normal position, the type resting on the ink-pad 30, a line drawn through the pivotal points 29 of said link and connecting-rod will be at about a right angle to the pull of the latter.

By this arrangement of the link the pull power of the finger-bar upon the type-bar is the same at both the beginning and the end of the stroke, the pivot 29 being at a right angle to the pull-rod at the beginning of the stroke and the pivot 28 at a right angle at the end thereof. A spring 31 may be attached to each bar and to the frame of the machine to return it to the pad after the printing has been accomplished.

The movement of the type-bar is fully shown in Fig. 3, the bar being shown by full lines in its normal position when resting on the inking-surface and by dotted lines when moved over to rest on the printing-point.

When a key is depressed, the key-lever 22 is moved downward into the position indicated in dotted lines in Fig. 2 and the connecting-rod 26 pulls the pivot-link 27 until the link assumes the position substantially in line with the connecting-rod, its pivot 28 assuming at the end of the stroke the position which the pivot 29 occupied at the beginning thereof, the pivot 29 being drawn downward to the point indicated in dotted lines in Fig. 3.

The ink-pad is located in substantially the same horizontal plane as the impression-roll, and therefore does not obstruct a view of the latter. Hence the work is open to the inspection of the operator from the position in which he sits in operating the key-levers.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a type-writing machine the combination with actuating key-levers, of a type-bar having a driving-link, a guide-link, a type-carrier, a connecting-rod, and a supplementary link substantially as and for the purpose set forth.

2. In a type-writing machine, the combination of a paper-carriage carrying a cylindrical impression-roll, an inking-surface arranged opposite to said carriage in substantially the same horizontal plane, a type-bar pivoted between said carriage and said inking-surface and normally holding the type against said inking-surface and swinging from this position, when operated to a position to impress the type upon the upper surface of the roller in the paper-carriage; a key, a key-lever, and connecting mechanism for operating the type-bar, substantially as set forth.

3. In a type-writing machine, the combination with a step-by-step paper-carriage carrying a cylindrical impression-roll, and an ink-

ing-pad disposed opposite said roll in substantially the same horizontal plane, of a type-bar pivoted between the roll and the ink-pad and normally holding the type against said ink-pad, said type-bar consisting of a guide-link supported at one end on a pivot and at the other end pivotally connected to the lower arm of a bell-crank-shaped type-carrier, and a driving-link pivoted at one end to the frame of the machine at a point in front of and below the pivot of the guide-link, and at the other end to the upper arm of the bell-crank-shaped type-carrier, whereby when said type-bar is operated to impress the type it will swing in an arc of a circle to invert the bell-crank-shaped type-carrier and bring the type with its face against the roll, substantially as set forth.

4. In a type-writing machine, the combination of a type-bar consisting of a guide-link pivoted at one end to the basket and at the other end to the lower arm of an elbow-shaped type-carrier, a driving-link pivoted at one end to the frame of the machine, below and in front of the pivot of the guide-link, and at the other end to the upper arm of said type-carrier; an elbow-shaped type-carrier, a key, a key-lever, a connecting-rod attached at one end to said key-lever and at the other end to the driving-link by means of a supplementary link, as described, whereby the whole power of the finger-stroke will be given to the type-bar at the beginning and at the end of the movement of the keys, substantially as set forth.

5. In a type-writing machine, having a type-bar, a key-lever, and a connecting-rod, a means of connection between said type-bar and said connecting-rod, consisting of a link (as 27) pivoted at one end to the connecting-rod and at the other end to the type-bar, in such manner that the full power of the pull of the connecting-rod will be imparted to the type-bar at the beginning and at the end of the stroke, substantially as set forth.

6. In a type-writing machine, the combination of a frame, a step-by-step paper-carriage supported on said frame, and an inking-pad also supported on said frame, a basket disposed between said carriage and inking-pad, a compound type-bar pivoted in said basket and provided with a type-carrier, and a type supported in said type-carrier and provided with a shank disposed at an obtuse angle to the face of the type, means for swinging said type-bar to throw the type from the ink-pad to the impression-roll of the paper-carriage, the stem of the type standing parallel to the vertical axial line of the basket when the type is impressed upon the printing-surface.

7. In a type-writing machine, the combination of a paper-carriage, carrying a cylindrical impression-roll, an inking-surface arranged opposite said carriage in substantially the same horizontal plane, a type-bar pivoted be-

tween said carriage and said inking-surface
and adapted to swing its type alternately into
contact with the inking-surface and impres-
sion-roll, a key-lever, connecting mechanism
5 between the key-lever and type-bar for oper-
ating the latter, and a key for actuating the
key-lever.

In testimony whereof I have hereunto sub-
scribed my name this 18th day of July, A. D.
1895.

ANDREW W. STEIGER.

Witnesses:

CHAS. A. KELLOGG,
CHAS. F. HOWE.