

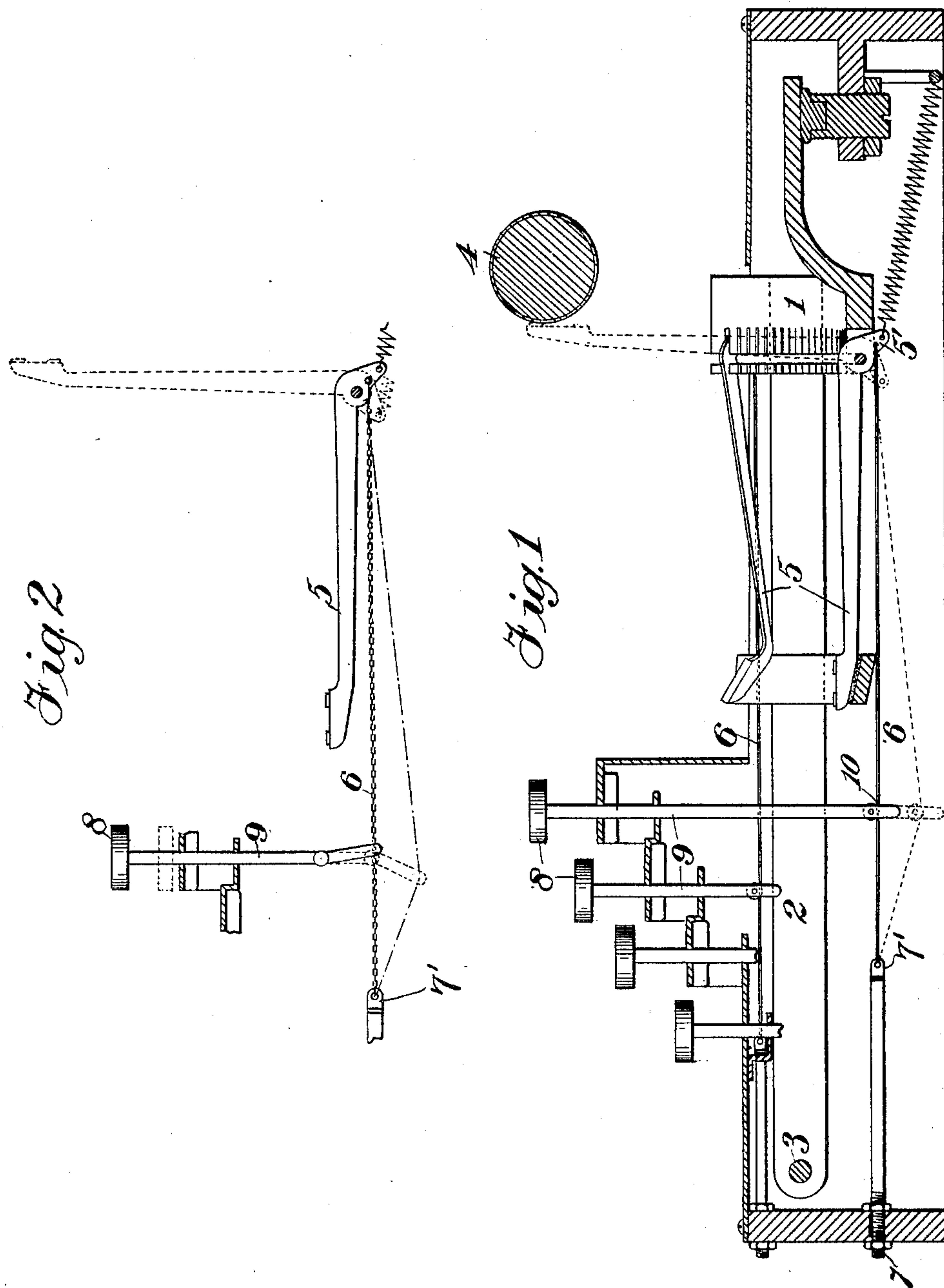
**No. 679,673.**

**Patented July 30, 1901.**

**E. B. HESS.**  
**WRITING MACHINE.**

(Application filed May 16, 1901.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## WRITING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 679,673, dated July 30, 1901.

Application filed May 16, 1901. Serial No. 60,537. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD B. HESS, a citizen of the United States, residing in the borough of Brooklyn, city of New York, State of New York, have invented certain new and useful Improvements in Writing-Machines, of which the following is a specification.

This invention relates to means for actuating the type-bars and is subordinate to the generic claims made in my application filed April 26, 1901, Serial No. 57,588.

In the accompanying drawings, Figure 1 is a vertical longitudinal section showing such parts of a machine as to illustrate the one application of the invention; Fig. 2, a detail view showing a single type-bar and its actuating devices.

The type-bar segment 1 may be mounted in the rear end of a horizontally-disposed rocking frame 2, pivoted at 3 near the front of the machine.

4 is the platen, and 5 type-bars, two only being shown, pivoted in the segment and normally lying toward the front of the machine. The type-bar segment is mounted below the plane of the platen and is arranged vertically, or substantially so, and the type-bars pivoted therein normally lie away from the platen in a position horizontal, or substantially so.

The machine indicated is a front-stroke shifting-segment machine. The invention is, however, applicable to other styles of machines.

Each type-bar is shown as having a projection 5' beyond its pivot, with which a flexing actuating device or connection 6 is joined. This connection consists of a length of wire, chain, or cord, the front end of which is attached to a fixed point on the frame, which is shown as a screw-bolt 7, seated in the front plate of the machine and having a swiveling eye 7' at its end, to which the connection 6 is attached. Finger-pieces 8, arranged in a bank in front of the type-bars, have stems 9, which respectively engage the flexing connections. In one form the connection passes through an eye or loop 10 in the stem, which may also have mounted in it a roller bear-

ing on the connection. In another a link on the end of the stem is connected by a loose or hinge joint with the flexing connection, which latter would then by preference be a chain, as shown in Fig. 2.

The invention is not limited to any specific devices interposed between the finger-piece and flexing connection by which the latter is flexed to throw the type-bar to the printing-point with a pull. When a finger-piece is depressed, the connection 6 is flexed downwardly, its rear end being thus caused to move toward the front of the machine to exert a pull on the type-bar. In this operation the connection on each side of the point of flexure is subjected to tensile strain in a straight line, the connection being unsupported or unattached to any part except the type-bar, the fixed point, and the device (whatever it may be) that produces the flexure. The flexing connections lie in a horizontal or substantially horizontal position under the type-bars and as a whole conform generally in disposition to the curve of the type-bar segment. The distance between the fixed point and point of flexure determines the depth of depression of the finger-piece. When being depressed, the part of the connection in front of the point of flexure swings around the fixed point as a center of motion, and the part in rear swings around a shifting center of motion, which is the point of attachment to the type-bar. This construction has a minimum number of parts. The parts are or may be very light and yet strong, since the connection is subjected only to tensile strain, and consequently the cost of construction is small. This case is specifically distinguished from the above application mentioned and from the application filed jointly by myself and Joseph M. Stoughton, May 13, 1901, Serial No. 59,948, and from my application filed May 13, 1901, Serial No. 59,949, by the fact that the connection 6 is flexible at all points throughout its length. A characteristic feature of this type-bar-actuating mechanism is that at the beginning of the movement of the type-bar it has a minimum velocity and op-



poses a minimum resistance to its actuation, the velocity and resistance increasing during the excursion of the type-bar toward the printing-point. At all stages of the movement, however, the touch is light and the action of the type-bar is lively and energetic.

The broad subject-matter comprising a flexing connection extending between the part or type-bar to be actuated and a fixed point, whether such connection be composed of jointed links or otherwise, and means for flexing the connection, whatever they may be, is claimed in my prior application filed April 26, 1901. The subject-matter herein shown is subordinate to said prior application, and the claims herein are limited to features of construction not shown in said prior application.

I claim as my invention—

1. In a writing-machine a flexing actuating connection flexible throughout its length and adapted to be flexed on the depression of a finger-piece, and having one end operatively connected to the part to be actuated and the opposite end connected to a fixed point, and means applied to the connection intermediate its ends to swing the part thereof in front of the point of flexure about said fixed point as a center of motion, and the part in rear of the point of flexure about its point of connection as a center of motion, to thereby change the angular disposition of the connection between its front and rear ends for the purpose set forth.

2. In a writing-machine, a flexing actuating connection flexible throughout its length and having its front end operatively connected to a fixed point, and its opposite end connected to the part to be actuated and movable toward and from said fixed point, and means for flexing such connection to change its angular disposition between its end and exert tensile strain thereon from the point of flexure to its opposite ends respectively.

3. The combination of a pivoted type-bar, its actuating connection flexible throughout its length adapted to be flexed on the depression of a finger-piece and having one end operatively connected to the type-bar and the opposite end connected to a fixed point, and means applied intermediate its ends to flex it, the connection being so disposed that when flexed the end connected with the type-bar is caused to approach such fixed point.

4. The combination of a pivoted type-bar, its actuating connection flexible throughout its length and having one end operatively connected to the type-bar and the opposite end connected to a fixed point, a finger-piece and a device which on the depression of the finger-piece acts to flex it and change its angular disposition between the point of flexure and its respective ends and subject it to tensile strain on both sides of the point of flexure.

5. The combination of a pivoted type bar or carrier, its operating connection flexible throughout its length, operatively connected with the type-bar at one end and at its opposite end connected with a fixed point, and means applied to the flexing connection intermediate its ends to depress or flex it whereby in the beginning of the movement of the type-bar it has a minimum velocity and opposes a minimum of resistance to its actuation, the velocity and resistance increasing during the excursion of the type-bar toward the printing-point.

6. The combination of a pivoted type-bar having an extension or projection beyond its pivot, a type-bar-operating connection flexible throughout its length, operatively connected at one end with said projection and at the other end attached to a fixed point, and a finger-key jointed to such connection intermediate its ends and acting to depress or deflect it, whereby in the beginning of the movement of the type-bar it has a minimum velocity and opposes a minimum of resistance to its actuation, the velocity and resistance increasing during the excursion of the type-bar toward the printing-point.

7. The combination of a pivoted type-bar having an extension projecting beyond its pivot, a type-bar-operating connection flexible throughout its length and connected at one end directly to said projection and at the other end to a fixed point and normally lying in such a position that when deflected the type-bar is actuated by a pull upon said projection, and a finger-piece having a stem acting on said connection intermediate its ends to deflect it and thereby throw the type-bar to the printing-point.

8. The combination of a platen, a segmental type-bar support arranged below the plane of the platen, type-bars pivoted therein, connections flexible throughout their length for operating the type-bars and each operatively connected at one end to its corresponding type-bar and at the opposite end to a fixed point, and means acting upon said flexing connections intermediate their ends for flexing them and throwing the type-bars to the printing-point, said connections being so disposed that when flexed their ends, operatively connected with the type-bars, are moved toward such fixed points.

9. The combination of a platen, a segmental type-bar support arranged below the plane of the platen and in a plane vertical or substantially so, type-bars pivoted in such support, normally lying away from the platen in a position horizontal or substantially so and adapted when actuated to strike against the front face of the platen, connections flexible throughout their length for operating the type-bars and each operatively connected at one end to its corresponding type-bar and at the opposite end to a fixed point, and means



acting upon said flexing connections intermediate their ends for flexing them and throwing the type-bars to the printing-point, said connections being so disposed that when  
5 flexed their ends, operatively connected with the type-bars, are moved toward such fixed points.

In testimony whereof I have hereunto subscribed my name.

EDWARD B. HESS.

Witnesses:

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CLAY MILLER.