

UNITED STATES PATENT OFFICE.

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LEVER CONNECTION.

SPECIFICATION forming part of Letters Patent No. 735,092, dated August 4, 1903.

Application filed November 25, 1902. Serial No. 132,736. (No model.)

To all whom it may concern:

Be it known that I, JOHN JAY GREEN, a citizen of the United States, residing in Boonton, in the county of Morris and State of New Jersey, have invented certain new and useful Improvements in Lever Connections, of which the following is a specification.

This invention relates to transmitting connections designed for interposition between the key-levers of type-writing machines and the type-bars thereof.

Intermediate transmitting connections embodying the present improvements are designed especially for use in that class of type-writing machines in which the key-levers are in general disposed at varying angles to the planes of oscillation of transmitting-levers—that is, those levers which serve to communicate motion from the actuated key-levers to the type-bars of the machine. While the intermediate connectors made in accordance with the present invention may be interchangeable with one another—that is, substantial duplicates of each other—they are nevertheless so constructed as to accommodate themselves to the varying angle which exists in a machine of this class between the planes of the respective key-levers and the transmitting-levers connected to such key-levers. Such connectors will be so constructed, moreover, as to embody means whereby the length of the connection may be varied in accordance with the variation in the distance between the parts connected. When operated, the transmission of movement is effected from the actuated key-lever irrespective of the variation of the angle aforesaid and with an absence of side strains.

There is set forth in the accompanying drawings so much of a type-writing machine of the general class hereinbefore referred to as to enable the features of the present improvements to be understood.

In the drawings, Figure 1 is an elevation of a connector constructed in accordance with the present improvements. Fig. 2 is a similar view looking from the right-hand side of Fig. 1. Fig. 3 is partly a section and partly an elevation of so much of a type-writing machine of the class referred to as will enable the application and the use of the present connector to be understood. Fig. 4 is a

plan view, partly in longitudinal section, of a portion of the type-writing machine represented in Fig. 3.

Similar characters of reference designate corresponding parts in all figures.

The particular form of connector for mechanically connecting each of the key-levers of the machine to its corresponding transmitting-lever embodies a loop or stirrup portion, through the bight of which the key-lever passes and in the bottom of which the lever is loosely seated when operative to actuate the corresponding type-bar. Such stirrup portion is designated in the drawings by 2, and each side piece thereof is bent back upon itself, forming a loop which is adapted to embrace a key-lever. The free ends of the sides of the stirrup portion are bent over at an angle, (see the parts 2' 2',) and through aligned perforations therein there passes a rod 3, whose lower end is threaded to engage with a nut 4. The upper end of the rod 3 is bent over to form a hook, such as 3', for connecting with one of the parts—for instance, the transmitting-lever interposed between the key-lever and the type-bar of the machine. It is evident, such being the construction, that by turning the stirrup connection 2 or the rod 3 the distance between the hook 3' and the bottom of the bight may be readily varied to adjust the length of the connecting-rod, providing thus for any variation that may exist in the distance between the key-lever and the part with which such lever is to be connected. The nut 4 is so formed as to be prevented by the sides of the stirrup portion from turning about its axis.

Referring now to Figs. 3 and 4, in which the connecting-rod or connector, as thus described, is applied to its intended purposes in a type-writer of the class possessing the characteristics hereinbefore referred to, the base of the machine is designated in a general way by B, and upon this base there is erected by posts, such as b, a rest 5, against which type-bars, such as 6, lie when not in operation. These type-bars are fulcrumed in slots 7' in a fixed slotted segment 7. The key-levers are designated by 8, the same being fulcrumed in this instance to a fulcrum-rod 8' at the rear of the machine and being guided at their forward ends by a slotted plate 8".

The intermediate transmitting mechanism between each key-lever and the type-bar associated with it comprises in the particular instance illustrated in the drawings a transmitting member 9, all of which members are fulcrumed by a fulcrum-wire 9' in a slotted segment 10, supported by fixed portions of the machine. The intermediate transmitting member is in this instance in the nature of an angle-lever, one of whose arms 9^a is connected by a pivoted link 11 to the hub portion of the type-bar and with the other of whose arms 9^b the hook 3' of the aforesaid connecting-rod or connection is engaged. The key-lever passes through the bight of the stirrup portion 2, and ordinarily a retraction-spring, such as 12, will be employed to return the parts to their normal position of rest after the actuation of the key-lever. The angle-levers 9 are disposed radially about a substantially vertical axis, and it is evident, therefore, since the series of key-levers are substantially parallel that the angular relation between each angle-lever and the key-lever with which it is connected varies with the position of the angle-lever on the slotted segment 10, by reason of the fact that the rod 3 of the connector may be turned axially with reference to the stirrup portion 2. Means thus exist in the connector permitting the connection to be readily made whatever may be the angle aforesaid, and notwithstanding the fact that the angle of each angle-lever with reference to the plane of the key-lever with which it is connected may vary for each pair of connected levers the motion will be transmitted from one to the other in such a manner as to produce a minimum of side strain upon the parts connected. Having thus described my invention, I claim—

1. In a type-writing machine, the combination with a key-lever and a part actuatable therefrom, of an intermediate connector comprising a stirrup portion, a nut removably fitted between the sides of said stirrup portion and held from rotation by such sides, and a threaded rod engaging with said nut, the ends of the stirrup portion being bent inwardly and thereby preventing the nut from being pulled out of engagement with the stirrup portion.

2. In a type-writing machine, the combination with a key-lever and a part actuatable therefrom, of an intermediate connector comprising a stirrup portion in the bight of

which the key-lever is loosely seated, a nut removably tilted between the sides of said stirrup portion and held from rotation by such sides, and a threaded rod engaging with said nut and having a hook-shaped end, the ends of the stirrup portion being bent inwardly and thereby preventing the nut from being pulled out of engagement with the stirrup portion.

3. In a type-writing machine, the combination with a key-lever, of a transmitting-lever, a stirrup having inwardly-bent ends and in the bight of which the key-lever is seated, a rod having at one end a hook engaged with the transmitting-lever and the opposite end threaded and extending in line with said stirrup, and a nut separate from the stirrup and with which the threaded end of the rod engages, said nut being located between the sides of the stirrup and under the bent ends thereof whereby the nut is held from rotation and from displacement relatively to the stirrup.

4. In a type-writing machine, the combination with a key-lever, of a transmitting-lever, a stirrup having inwardly-bent ends and in the bight of which the key-lever is seated, a rod extending through aligned apertures in the inwardly-bent ends of the stirrup portion and having at one end a hook engaged with the transmitting-lever, and the opposite end threaded, and a nut separate from the stirrup and engaging with the threaded end of the rod below the inwardly-bent ends of the stirrup.

5. In a type-writing machine, the combination with a key-lever and a part actuatable therefrom, of an intermediate connector comprising a stirrup portion in the bight of which the key-lever is loosely seated, a nut removably fitted between the sides of said stirrup portion and held from rotation by such sides, and a threaded rod engaging with said nut and having a hook-shaped end, the ends of the stirrup portion being bent inwardly and thereby preventing the nut from being pulled out of engagement with the stirrup portion, and the threaded rod passing through aligning perforations in the inwardly-bent ends of the stirrup portion.

Signed at Nos. 9 to 15 Murray street, New York, N. Y., this 24th day of November, 1902.

JOHN JAY GREEN.

Witnesses:

FRED. J. DOLE,
JOHN O. SEIFERT.