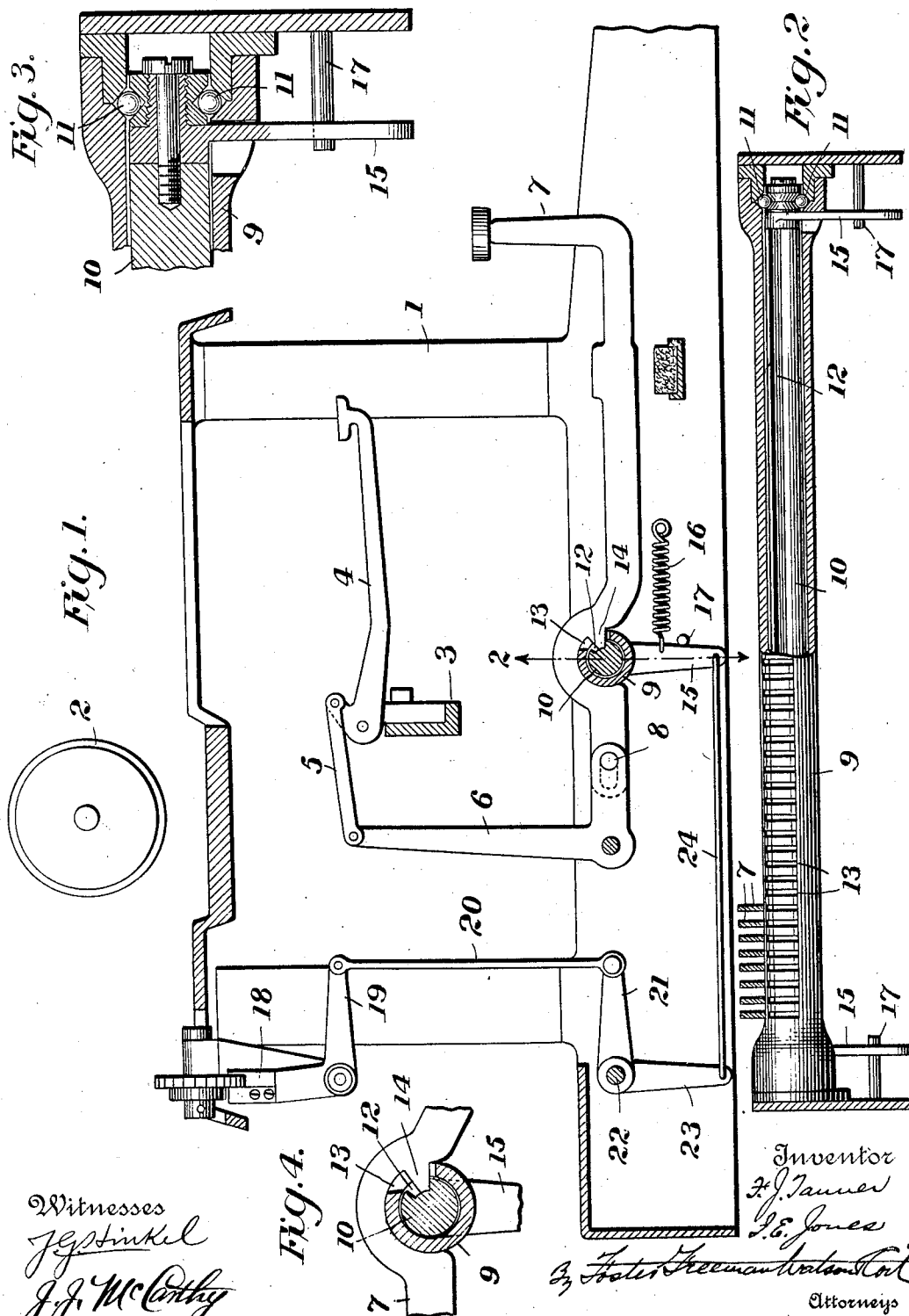


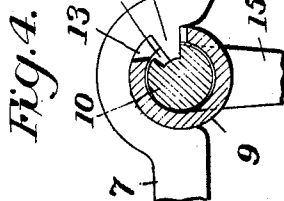
F. J. TANNER & I. E. JONES.
TYPE WRITING MACHINE.
APPLICATION FILED JULY 17, 1908.

938,350.

Patented Oct. 26, 1909.



Witnesses
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UNITED STATES PATENT OFFICE.

FRANK J. TANNER AND IWAN E. JONES, OF SCRANTON, PENNSYLVANIA, ASSIGNORS TO
INTERNATIONAL TEXT BOOK COMPANY, OF SCRANTON, PENNSYLVANIA, A CORPO-
RATION OF PENNSYLVANIA.

TYPE-WRITING MACHINE.

938,350.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed July 17, 1908. Serial No. 444,050.

To all whom it may concern:

Be it known that we, FRANK J. TANNER and IWAN E. JONES, citizens of the United States, and residents of Scranton, Lackawanna county, State of Pennsylvania, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

The present invention comprises improvements in typewriting machines and it relates particularly to an improved universal bar and connections for operating the escapement and any other parts which are required to be moved at each operation of the key levers.

The invention will be described in connection with the accompanying drawing in which,

Figure 1 is a sectional view of a typewriting machine taken on the vertical plane from front to rear and showing only such parts as are necessary to an understanding of the present invention; Fig. 2 is a partial section on the line 2 of Fig. 1; Fig. 3 is an enlargement of a part of Fig. 2, showing the bearing in section; Fig. 4 is an enlargement of part of Fig. 1.

Referring to the drawing, 1 indicates the frame of a typewriting machine, 2 the platen, 3 the type bar support, 4 a type bar, 5 a link connecting the pivotal end of the type bar with the upper end of a sub-lever 6 and 7 a key lever which is operatively connected with the sub-lever at 8.

The key levers 7 are mounted upon a stationary tube 9 having circular recesses in their lower edges which conform to the upper part of said tube and bar thereon. Within the tube 9 is a rock shaft 10 constituting a universal bar. This shaft is free from the tube 9 throughout its length, as indicated in Figs. 3 and 4, and its ends are preferably supported in ball bearings 11 of suitable construction so that the shaft may rock freely. The shaft 10 is provided with a longitudinal groove or slot 12 and the tube 9 has a series of transverse slots or openings 13 which are longer than the width of the slot 12 and overlie said slot. Each of the key levers has a tooth 14 which passes through the corresponding slot 13 in the tube 9 and into the longitudinal slot or opening 12 in the universal rock shaft 10. The normal position of the rock shaft and the

key levers is shown in Figs. 1 and 4 in which the teeth of the key levers rest upon or against the front or lower side wall of the slot 12 and stand somewhat above the lower ends of the slots 13. It will be evident that when any key lever is rocked by depressing its forward end it will turn about the tube 9 and its tooth will engage and turn the universal rock shaft 10. On releasing the key lever the rock shaft will be turned to its normal position by a spring suitably located. As shown, two arms 15 are rigidly connected to the rock shaft and a spring 16 normally holds one of the arms against a stop 17. It will be understood that the spring for restoring the rock shaft to normal position may be connected to any part which is connected with the rock shaft and that the stop may be applied to any such part.

In the drawing we have shown an escapement 18, the pawls of which are carried by a rocker 19 connected with an arm 15 of the universal bar by means of a link 20, arm 21, rock shaft 22, arm 23, and link 24. It will be understood that any other part which is required to be moved by the universal rock shaft, such as a ribbon vibrator, may be connected to the shaft in any suitable manner.

It will be noted that the slot 12 in the universal rock shaft 10 is considerably wider than the teeth 14 of the key levers. These parts are so proportioned that when the shaft is rocked by any one of the keys it will not move or affect the other keys. The movement of the rock shaft will, of course, be very slight on account of being co-axial with the fulcrum of the key levers. The key levers of course turn about the same axis as the rock shaft.

Having described our invention what we claim and desire to secure by Letters-Patent is,

1. In a typewriting machine, the combination with the key levers and with a fixed fulcrum for said key levers, of a universal rock shaft coaxial with the fulcrum of the key levers, means connected with each of the key levers for rocking said shaft, and an escapement mechanism operated by said shaft.

2. In a typewriting machine, the combination with a series of key levers, of a fulcrum for said key levers, a universal rock shaft,

concentric with said fulcrum, a tooth or projection on each key lever arranged to engage and rock said shaft when the key lever is operated, and an escapement mechanism operated by said shaft.

3. In a typewriting machine, the combination with a series of key levers, of a tubular fulcrum for said key levers, and a universal rock shaft co-axial with said fulcrum, each of the said key levers being adapted to rock said shaft when operated.

4. In a typewriting machine, the combination of a fixed fulcrum bar, a rock shaft co-axial with said bar, a longitudinal slot in said rock shaft, and a series of key levers fulcrumed on the bar and having teeth engaging the slot in said shaft.

5. In a typewriting machine, the combination of a fixed fulcrum bar having transverse slots therein, a rock shaft co-axial with said bar, and a series of key levers mounted on said fulcrum bar and having teeth or projections extending through the slots therein and engaging the rock shaft.

6. In a typewriting machine, the combination of a tubular fulcrum bar, a series of key levers each having a segmental recess in its lower edge adapted to receive said bar, a rock bar, a rock shaft co-axial with the bar, and teeth or projections on the key levers extending through the fulcrum bar and into engagement with the rock shaft.

7. In a typewriting machine, the combination with the escapement, of a universal rock shaft, connections between said universal rock shaft and escapement, a series of key levers arranged to rock about the axis of said rock shaft, and teeth or projections extending from said key levers into engagement with said rock shaft, for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK J. TANNER.
IWAN E. JONES.

Witnesses:

FRANK LAMBADER,
BLAIR V. BENSON.