

950,029.

Fig. 1.

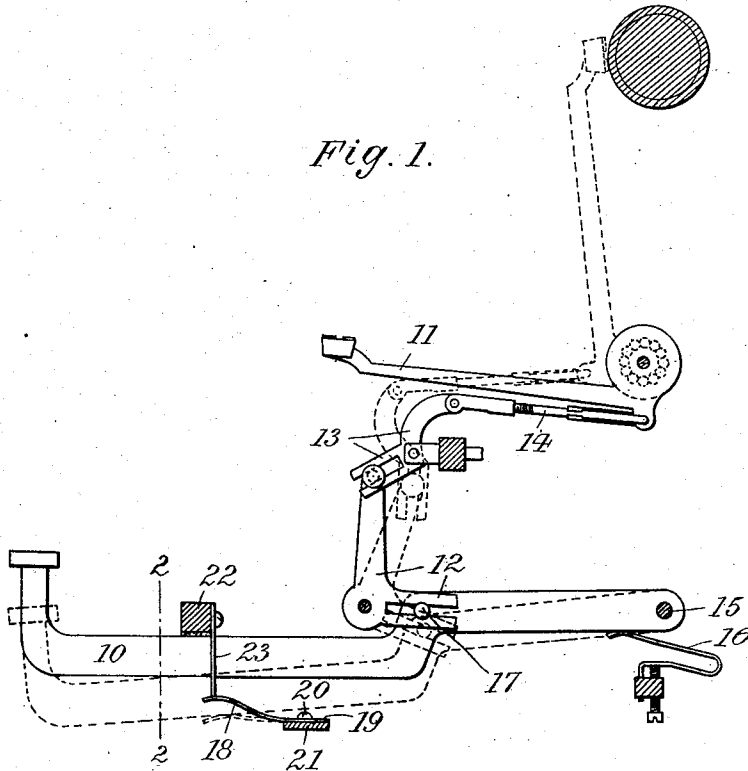


Fig. 2.

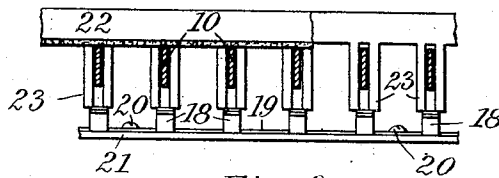
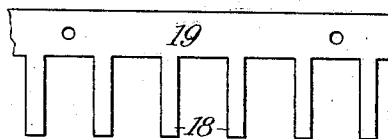


Fig. 3.



Lyman R. Roberts Inventor
 By his Attorney Frank J. Friesen

UNITED STATES PATENT OFFICE.

LYMAN R. ROBERTS, OF RUTHERFORD, NEW JERSEY.

TYPE-WRITING MACHINE.

950,029.

Specification of Letters Patent.

Patented Feb. 22, 1910.

Application filed December 1, 1909. Serial No. 530,712.

To all whom it may concern:

Be it known that I, LYMAN R. ROBERTS, a citizen of the United States, residing at Rutherford, Bergen county, State of New Jersey, have invented new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to an improved type-writing machine and more particularly to novel and effective means for insuring a light touch, a quick action, and a rapid rebound of the type bar.

As heretofore generally practiced, the return movement of the key and the type-bar was exclusively effected by the return spring and by the weight of the type-bar. But as the return spring engages the rear end of the key-lever in close proximity to its pivot, its efficiency is limited, so that the type-bar is apt to linger unless the spring is made of considerable strength. The use of a strong return spring, however, is objectionable, because it will impart a hard touch to the key, so that it cannot be employed in practice.

By my invention a quick action and a light touch is obtained without increasing the strength of the return spring, so that the speed of the machine is increased and less physical exertion is required for its manipulation.

In the accompanying drawing: Figure 1 is a side elevation of part of a type-writer embodying my invention; Fig. 2 a cross section on line 2—2, Fig. 1, and Fig. 3 a detail of part of the recovery spring.

As illustrated, the key-lever 10 of the type-writing machine actuates the type-bar 11 by means of the articulated bell cranks 12, 13 and connecting wire 14, but it is obvious that a different action may be employed. Key-lever 10 is fulcrumed near its rear end as at 15, and is here engaged by a return spring 16, as usual. Below the forward end of lever 10 and preferably in front of the power transmitting gudgeon 17, there is arranged an additional spring 18 which I term a recovery spring. The correlation of the parts is such that when lever 10 is raised, a gap is formed between its lower face and the active end of the spring, and that near the end of its downstroke the lever will come into contact with the spring, so as to place the same under tension. Thus, during the first part of its stroke, the lever is influenced by return spring 16 only, while

near the end of its stroke and after it has acquired an impetus, the lever will also be brought into operative engagement with recovery spring 18. This recovery spring will thus assume part of the function heretofore exclusively performed by the return spring, so that the strength of the latter may be diminished. In other words, as the key-lever is, during its principal play, engaged by a comparatively weak return spring only, a light touch is insured, while the energy accumulated by the descending key is not wasted as heretofore, but is utilized to place the recovery spring under tension. The latter will therefore assist in effecting a rapid return of the type-bar, especially as owing to its location near the front of the key-lever, a powerful leverage is obtained. Furthermore, spring 18, in addition to its function of effecting a rapid recovery of the type-bar, constitutes a cushioning device for the key-lever, which, by absorbing the shock at the end of the stroke, materially eases the operation of the machine.

In practice, each key-lever may be provided with its individual recovery spring, but if desired, the springs of the several levers may be made integral with a common back, to constitute a comb-plate 19, as shown in the drawing. This comb-plate is secured by screws 20, or otherwise, to a rail 21, extending across the type-writer beneath the several keys thereof. A second transverse rail 22 carrying the usual comb-shaped guards 23, that straddle the key-levers, is arranged above the latter and in advance of rail 21. The relative arrangement of the parts is such that the active forward ends of springs 18 obtain, normally, a bearing against the lower edge of the guard 23, so that the latter constitutes an abutment which checks the upward play of the springs.

I claim:

1. A type-writer provided with a key-lever, a spring spaced therefrom and adapted to be engaged by said lever during the latter part of its downstroke, and lifting means adapted to actuate the lever when out of engagement with said spring.

2. A type-writer provided with a key-lever, a return spring in permanent engagement with said lever, and a recovery spring spaced from said lever and adapted to be engaged by the lever during the latter part of the downstroke.

3. A type-writer provided with a key-

lever, a return spring engaging the rear end of the lever, and a recovery spring arranged at a distance below the forward portion of said lever.

- 5 4. A type-writer provided with a key-lever, a spaced recovery spring below the same, an abutment for said spring, and lifting means adapted to actuate the lever when out of engagement with said spring.
- 10 5. A type-writer provided with a key-lever, a spaced recovery spring below the same, a guard that straddles the lever and constitutes an abutment for said spring, and lifting means adapted to actuate the lever
- 15 when out of engagement with said spring.

6. A type-writer provided with a key-lever, a return spring engaging the rear end of the lever, a recovery spring arranged at a distance below the forward portion of said lever, and a guard that straddles the lever 20 and constitutes an abutment for the recovery spring.

Signed by me at New York city, (Manhattan,) N. Y., this 30th day of November, 1909.

LYMAN R. ROBERTS.

Witnesses:

WILLIAM R. SCHULZ.
FRANK V. BRIESEN