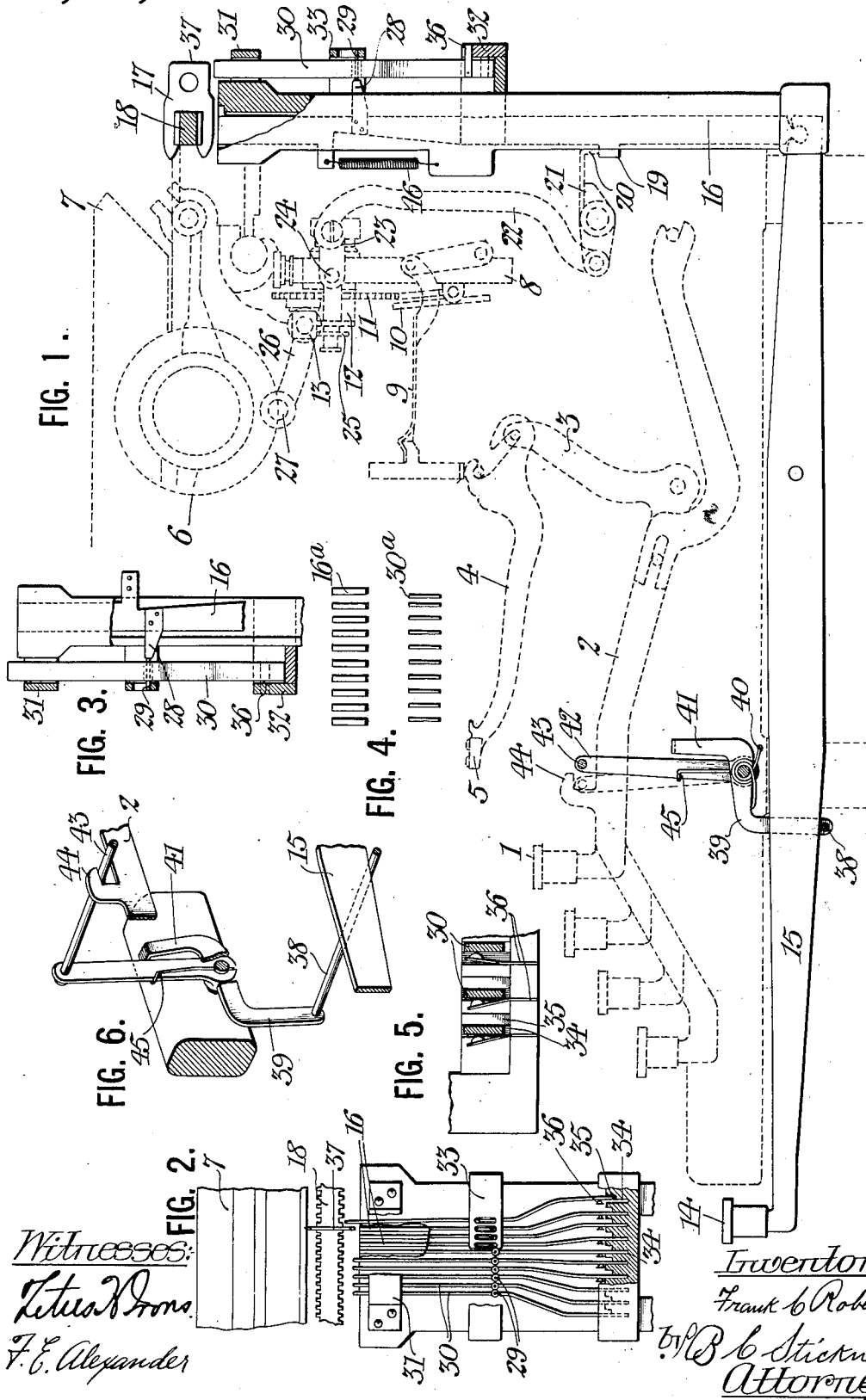


F. C. ROBERTS.
TYPE WRITING MACHINE.
APPLICATION FILED DEC. 19, 1911.

1,066,224.

Patented July 1, 1913.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRANK C. ROBERTS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

1,066,224.

Specification of Letters Patent.

Patented July 1, 1913.

Application filed December 19, 1911. Serial No. 666,726.

To all whom it may concern:

Be it known that I, FRANK C. ROBERTS, a citizen of the United States, residing in Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to tabulator mechanism for typewriters, and is herein shown as applied to an Underwood typewriter.

It is particularly designed for use in typewriters in which the carriage, after it is released from the escapement, has a long travel before it strikes a stop. In such cases, latches are sometimes employed on the tabulator mechanism, to hold the carriage released and the tabulator stops in position till the carriage is arrested. A latch of this kind is shown in my application No. 662,086, filed November 24, 1911. This relieves the operator, but he is liable to strike type keys before the carriage has come to rest.

My invention is designed to overcome this liability. I provide means for locking the type keys so that, after a tabulator key is depressed to set the carriage traveling, it becomes impossible for the operator to depress a type key. The lock is automatically released when the carriage comes to rest.

The type key lock specifically described herein is substantially that disclosed in U. S. patent to Wagner No. 559,345, dated April 28, 1896, although other forms of key-locking mechanism and tabulating mechanism may be employed.

In the accompanying drawings, Figure 1 is a sectional side view of an Underwood typewriter of the type described, with my invention applied. Fig. 2 shows a fragmentary rear view of the denominational stops. Fig. 3 is an enlarged fragmentary side view of a stop and its latch. Fig. 4 is a top view, showing the stops and their latches in their relative positions. Fig. 5 shows the springs pressing the latches. Fig. 6 shows the connections between the tabulator key lever and the type key lock.

Keys 1 of the typewriter depress levers 2 to move bell cranks 3 to swing type bars 4 upwardly and rearwardly, to cause types 5 to strike against a platen 6 on a carriage 7. The carriage is drawn forward in letter-spacing direction by means of a spring 8, and

its letter feed is controlled by a universal bar 9 operating dogs 10, which work in escapement wheel 11. On the axle of said escapement wheel is a pinion 12 working in a rack bar 13 of the carriage, and thus controlling its feed. A decimal tabulator key 14 mounted on a lever 15 raises its decimal plunger 16 to intercept a stop 17 on a rack bar 18 of the carriage, and thus arrests the carriage at any desired point. On each of said plungers 16 is a shoulder 19 arranged to strike against a universal bar 20, which swings an arm 21 to depress a link 22, and thus swings arm 23 around pivot 24 to raise rack 13 out of the pinion 12 by means of idle wheel 25 on said arm 23.

The rack 13 is mounted on short arms 26 pivoted at 27 on the carriage, thus enabling it to easily rise. The plungers 16, of which ten are shown, each carry an arm 28 on which is a pivot 29 carrying a swinging latch 30, which is guided in guides 31, 32 and 33 fixed to the tabulator stop frame. The lower end of each of these latches is arranged to work in a slot 34 in the bottom guide 32, and the top of each slot is widened at 35, so that the latch may swing outwardly when it reaches that point, and rest on the shelf formed by such widening. A spring 36 presses each latch 30 to insure that it shall swing out to engage the shelf. When so swung out, the last stop and its latch present the appearance shown in Fig. 2 and at 16^a and 30^a in Fig. 4. If the stop 16, shown in Fig. 1, were raised, its latch 30 would be swung out, as shown in Fig. 4, the carriage released, and the carriage would travel till the projection 37 of the stop 17 struck latch 30^a. This would swing the latch around its pivot against the pressure of spring 36, and thus its lower end would be over the deep part of this slot, into which it would then fall as the stop is dragged down by spring 46. The result of this structure is that whenever a denominational stop is raised, it is held in position until its latch is struck by the carriage stop. When so struck, it is immediately free, and the stop plunger can return and so permit the rack on the carriage to reengage with the escapement. Thus it would be possible for the tabulator key to be released and for a type key to be struck, before the carriage has reached the limit of its travel, as deter-

mined by a stop thus operated. To prevent a key from being so struck, I have arranged beneath a tabulator key lever, a universal bar 38, which operates a lock for type keys

5 1. This lock, as shown, comprises an arm 39 carrying said universal bar 38, which is normally swung toward the front of the machine by a spring 40, and carries a second arm 41, which is arranged to strike a freely

10 swinging arm 42, and by the depression of lever 15, the said arm 42 swings a universal bar 43 mounted on it, under hooks 44 of the type levers 2, and thus holds them against depression. A spring 45 normally swings

15 arm 42 rearwardly, and thus frees the type key levers from said lock, so that the raising of lever 15 by release of the finger after it has been freed from its latch, will permit the operation of the type keys; but since

20 lever 15 moves with stop 16, as has been pointed out above, the lever 15 will remain depressed until the carriage reaches the limits of its travel, so the type keys are locked till that time. When, therefore, my

25 invention is applied to a typewriter, the operator need waste no time observing whether the carriage has reached the limit of its travel after a tabulator key is operated, for the complete operation of the stops

30 is certain and the premature operation of a type key is impossible.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

35 Having thus described my invention, I claim:

1. The combination with a plurality of tabulator keys controlling denominational stops, of latches for said stops, a universal

40 bar operated by said keys, a spring returning said universal bar, a rock arm carrying said bar, and a type key lock operated by said universal bar.

2. The combination with a plurality of tabulator keys controlling denominational stops, of latches for said stops, a universal bar operated by said keys, a rock arm carrying said bar and rocking a second arm, a

45 swinging arm struck by said second arm, carrying a universal bar, and a hook on each type bar arranged to be engaged by

said second universal bar to lock said type levers.

3. The combination with a tabulator key lever and a latch, of a bar moved by said

55 key lever, a pivoted arm carrying said bar, a spring holding said bar against said lever, a second arm fast to said first arm, and a type lever lock operated by said second arm.

4. A typewriter comprising a type key lock, a tabulator mechanism, latches for said mechanism, and means for operating said lock from the tabulator keys, said means being normally disconnected from said lock.

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5. A typewriter comprising a type key lock, a tabulator mechanism, latches for said mechanism, key levers controlling said mechanism, and a lever pivoted on the frame moved by said levers to operate said lock.

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6. The combination with a plurality of tabulator keys controlling denominational stops, of latches for said stops, a universal bar operated by the levers of said tabulator keys, type key levers, and a type key lock

75 engaging directly on said type key levers operated by said universal bar.

7. The combination with a plurality of tabulator keys controlling denominational stops, of latches for said stops, a universal

80 bar operated by the levers of said keys, a rock arm carrying said bar, type key levers, and a type key lock engaging directly on said type key levers operated by said universal bar.

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8. In a typewriting machine, the combination with keys, of a bar, arms on which said bar swings, upward extensions of said arms, rock arms which they swing, and a locking bar on said rock arms.

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9. In a typewriting machine, the combination with character keys, of tabulator keys, a bar for locking said character keys, a universal bar operated by said tabulator keys, and rock arms on said universal bar

95 comprising extensions to directly contact with said locking bar to lock said character keys.

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