F. C. ROBERTS.

TYPE WRITING MACHINE.

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FIG. 1

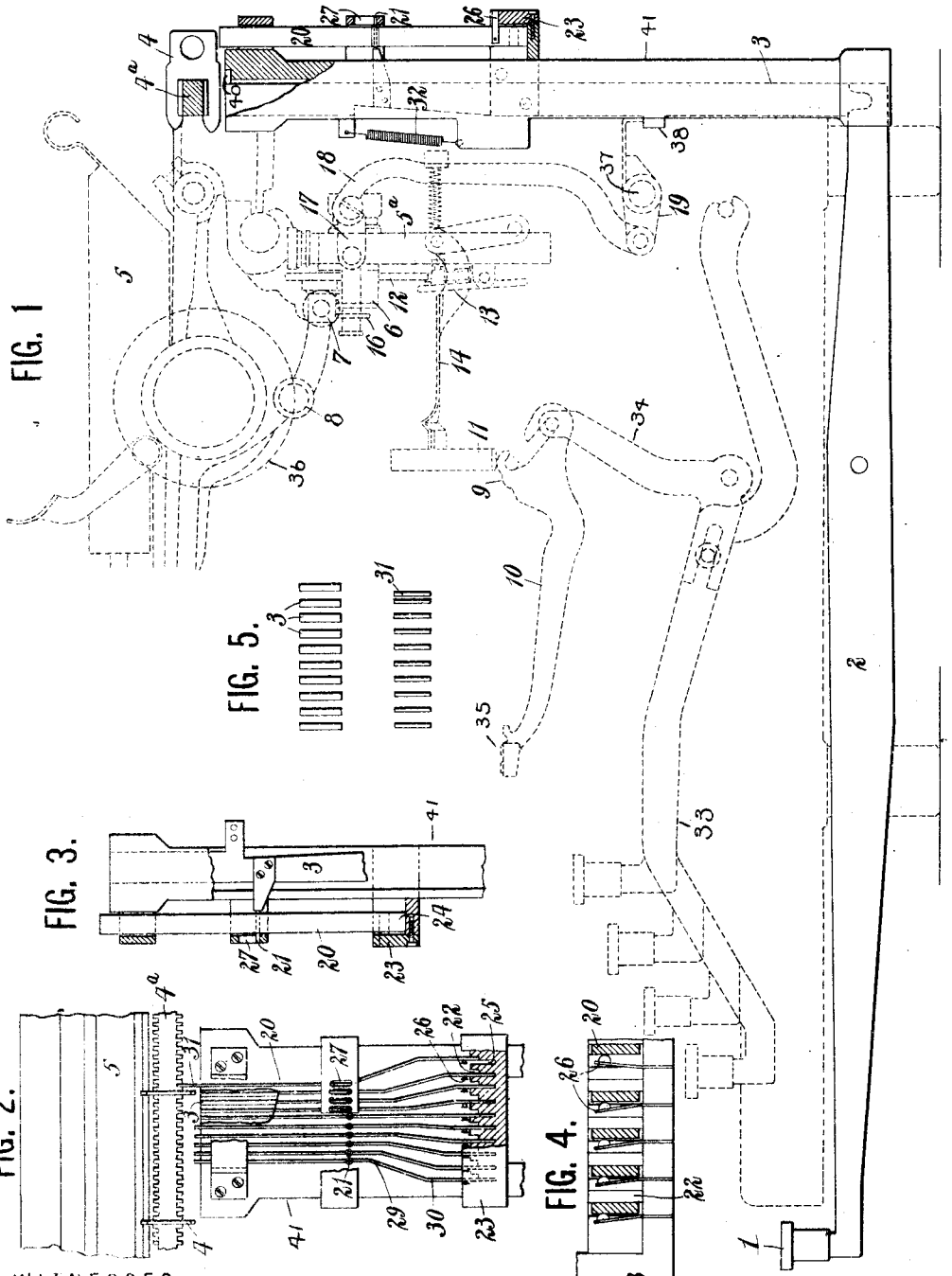


FIG. 5.

FIG. 3.

FIG. 2.

FIG. 4.

WITNESSES:

F. D. Sweet

J. A. Copley

INVENTOR:

Frank C. Roberts

BY

R. C. Stickney

ATTORNEY

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.

1,066,657. Specification of Letters Patent. Patented July 8, 1913.

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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 typewriters equipped with tabulating devices.

The tabulating devices are usually operated from a tabulator key which needs to be held in operative position until the stop brings the carriage to rest, for if the key is released too soon, the rack may reëngage with the letter-feeding device and arrest the carriage short of the desired point.

My device is in the nature of improved means for keeping the counter-stop in proper position and the carriage released, until the carriage reaches the counter-stop even if the tabulator key is released immediately after being depressed.

The device is here shown applied to an Underwood typewriter furnished with decimal tabulator counter-stops, usually in the form of plungers, which are elevated by means of keys to intercept a stop on the carriage, and which also release the carriage-rack bar from the letter-feed escapement. Each of these plungers is provided with a latch which locks it in its elevated position and holds the carriage rack released until the typewriter carriage is arrested by the plunger. The latch is then automatically released.

In the drawings: Figure 1 represents a sectional side view of a typewriter having my improvements attached. Fig. 2 is a view of the same from the rear. Fig. 3 is an enlarged section viewed oppositely to Fig. 1. Fig. 4 is an enlarged detail. Fig. 5 is a diagrammatic view from above showing the relation of stops and latches in Fig. 2.

In the drawings 1 is a tabulator key of a typewriter, operating through lever 2 to raise a plunger 3, there being ten such plungers set at letter-space intervals so as to arrest the carriage 5 of the typewriter at any selected letter space. Said plunger 3 is guided in a closely fitting slot in a plate 40 at the top of the standard 41 in which said plungers reciprocate, and is adapted to move into the path of stop 4 mounted on rack bar 4^a of the carriage 5 of the typewriter. The carriage 5 is fed forward by means of pinion 6 connected to the escapement wheel 12 and meshing in rack 7 pivotally supported on the carriage at 8. The letter feeding means shown is of the usual Underwood type in which character key levers 33 depress bell cranks 34 to cause type 35 on type bars 10 to print on a platen 36 in the carriage 5, each type-bar 10 comprising a heel 9 adapted to strike a universal bar 11 and control the escapement wheel 12 through dog 13 and link 14. This pinion 6 is disconnected from the carriage when the tabulator key is pressed, in order to allow the typewriter carriage to move up to the plunger. To accomplish this, rack 7 is raised clear of pinion 6 by idle wheel 16 which is mounted on lever 17 and which is moved by plunger 3 through link 18 and lever 19, said lever 19 pivoted at 37 and including a universal extension which is struck by a ledge 38 on each plunger 3 as it rises. Rack 7 thus is held clear of pinion 6 and the carriage is pulled by the spring barrel 5^a till it is brought to rest again by stop 4 striking plunger 3.

Means are provided for holding plungers 3 elevated and for preventing rack 7 from reëngaging with the escapement until the carriage comes to rest with stop 4 against plunger 3. These comprise a latch 20 carried on each plunger 3 by pivot pin 21 and adapted when raised to rest on shelf 22 of guide member 23 (see Fig. 2) and thus support plunger 3. The lower end 24 of said latch 20 is guided in slot 25, one side of which is cut away at the top to form said shelf 22. Spring 26 presses latch 20 against the side of slot 25 so that the latch will catch on the shelf 2, and slot 27 is provided in guide member 28 for the pivot 21 of the latch 20 to ride in.

As shown in Fig. 2 the lower ends of outer latches 20 are bent outwardly at 29 and again downwardly at 30. This affords more room for springs 26 and shelves 22. Latch 20 swings on its pivot when the lower end swings onto shelf 22, so the upper end swings in the opposite direction. This is arranged to be toward stop 4 on the carriage. (See top plan view Fig. 5). The projecting upper end 31 of latch 20 will

then be struck by stop 4, just before the upper end of the plunger 3 is struck by the said stop 4. This swings lower end of the latch 20 clear of the shelf 22 and the plunger 3 carrying the latch will be drawn down again clear of stop 4 by spring 32. This causes rack 7 to reëngage with pinion 6, and then the letter-feed escapement from the type bars controls the carriage.

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

Having thus described my invention, I claim:

1. In a typewriter, the combination of a carriage, a letter-feeding device for said carriage operated by the keys, a stop device for the carriage, a counter-stop to arrest the carriage, a latch carried by the counter-stop, a shelf for the latch to engage, a spring to throw the latch to engage the shelf, and means to release the latch.

2. In a typewriter, the combination of a carriage, a letter-feeding device for said carriage operated by the keys, a carriage stop, a plunger or counter-stop to arrest the carriage, a latch carried by the plunger having an arm which extends into the path of the carriage when the plunger is moved to arrest the carriage, a shelf for the latch to engage, and from which the latch is adapted to be released when the carriage strikes the said arm of the latch.

3. In a typewriter, the combination of a carriage, a letter-feeding device for said carriage operated by the keys, a carriage stop, a plunger or counter-stop adapted to be elevated to arrest the carriage, a latch bar extending parallel to the plunger and moving with it and adapted to be struck and moved by the carriage when elevated, a spring to swing said latch to engage the frame, and to engage the carriage before said plunger engages the carriage, said spring also adapted to be compressed when the said carriage moves the latch so that the latch frees itself from the frame and releases the plunger.

4. In a typewriter, the combination of a carriage, a letter-feeding device for said carriage operated by the keys, a carriage stop, a plunger or counter-stop adapted to be raised to arrest such feed, a bar pivoted to said plunger having one arm adapted to rest on a ledge to lock said plunger, and another adapted to be struck by said carriage to release said lock, a guide slot in the main frame for the pivot for said bar, and a spring tending to move said bar to locking position.

5. In a typewriter, the combination of a carriage, a rack bar for letter-feeding said carriage, a carriage stop, a plunger or counter-stop, a key adapted to disconnect said rack from the letter-feeding device and raise said plunger to arrest the free movement of said carriage and a latch pivoted on said plunger for maintaining said rack and plunger in the position moved by said key.

6. In a typewriter, the combination of a carriage, a rack bar for letter-feeding said carriage, a stop for the carriage, a plunger or counter-stop, a key adapted to disconnect said rack from the letter-feeding device and to raise said plunger to arrest the free movement of said carriage, a bar pivoted on said plunger, having one end adapted to be struck by said carriage when it is raised with the plunger, having also an end to rest on a ledge from which it is thrown by the impact of said carriage, a spring serving to press said latter end on the ledge when the bar is raised and make it serve as a latch there, and a spring drawing down said plunger and reconnecting said rack and letter-feeding device, when said bar is free from the ledge.

7. In a typewriter, a carriage, a member to stop said carriage, a latch pivoted on said member, and adapted to swing into engagement with a fixed step, to lock said member and means on the carriage to swing said latch on its pivot to release it.

8. In a typewriter, a carriage, a member to stop said carriage, a latch carried by said member to lock it in position to stop said carriage, a spring tending to draw said member from said position, a spring moving said latch to engage with a fixed shelf, and means on the carriage to release said latch, and permit said first spring to move said member.

9. In a typewriter, a carriage, a series of members adapted to be moved to a position to stop said carriage, a latch pivoted on each of said members to lock it in operative position, and means on the carriage to swing the latch on its member, before the carriage engages said member.

10. In a typewriting machine, the combination with a traveling carriage, of a stop thereon, of a plunger to intercept said stop, a holding member, a latch on said plunger and a pivot on which said latch is carried whereby said latch may be swung to intercept said holding member and hold said plunger erect, and whereby said plunger when held erect may be released by said stop striking said latch, so that said plunger may directly strike said stop and arrest said carriage, whereby imperfect operation of the tabulating plunger by falling and thereby arresting the carriage prematurely is prevented.

11. In a typewriting machine, the combination with a typewriter carriage and a tabulator plunger arranged to arrest said carriage, of a close fitting guide in which said plunger travels, a latch pivoted on said plunger, a catch on which said latch is arranged to catch when said plunger is raised,

a spring arranged to so swing said latch, and an extension of said latch arranged to lie in the path of said carriage, so that said stop will swing said latch free of said catch and cause the plunger to be released.

12. In a typewriting machine, the combination with a traveling carriage and a stop thereon, of a tabulating plunger arranged to arrest said carriage by said stop, a latch on said plunger to hold it set, means for swinging said latch on said plunger into the path of said stop, so that said stop will reach said latch before it reaches said plunger, and a spring for withdrawing said plunger.

13. In a typewriter, the combination of a carriage, a letter-feeding device for said carriage operated by the keys, column-stops on the carriage, a counter-stop engageable by the column-stops to arrest the carriage, and a latch pivoted on said counter-stop to hold it projected, and releasable by the column-stop prior to the engagement of the column-stop with the projected counter-stop.

14. In a typewriting machine, the combination of a carriage, column-stops, a set of denominational counter-stops, means connected to said counter-stops to release the carriage, latches on said counter-stops, and means for projecting the counter-stops and bringing the latches within the path of the column-stops.

15. In a typewriting machine, the combination of a carriage, releasable letter-feeding mechanism therefor, tabulating mechanism for said carriage including a carriage stop and a key-operated counter-stop, and a latch on said key-operated stop movable by said key into the path of said carriage stop; means being provided for the releasing of said latch by said carriage stop prior to the engagement of the carriage stop with the counter-stop.

FRANK C. ROBERTS.

Witnesses:
WM. J. MEEHAN,
A. S. COUTURIER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."