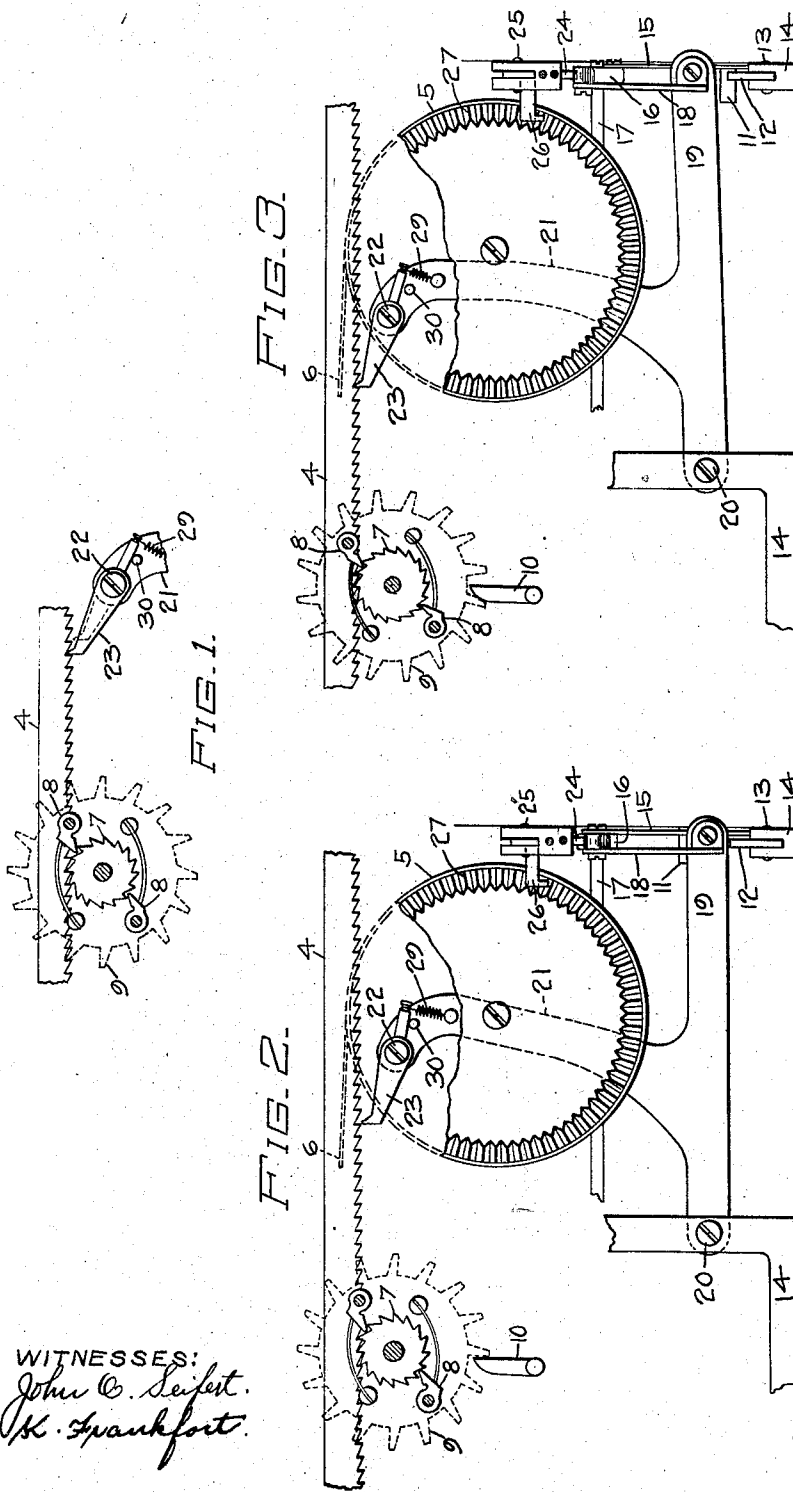


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TYPE WRITING MACHINE.
APPLICATION FILED MAR. 17, 1909.

Patented June 8, 1909.

2 SHEETS—SHEET 1.



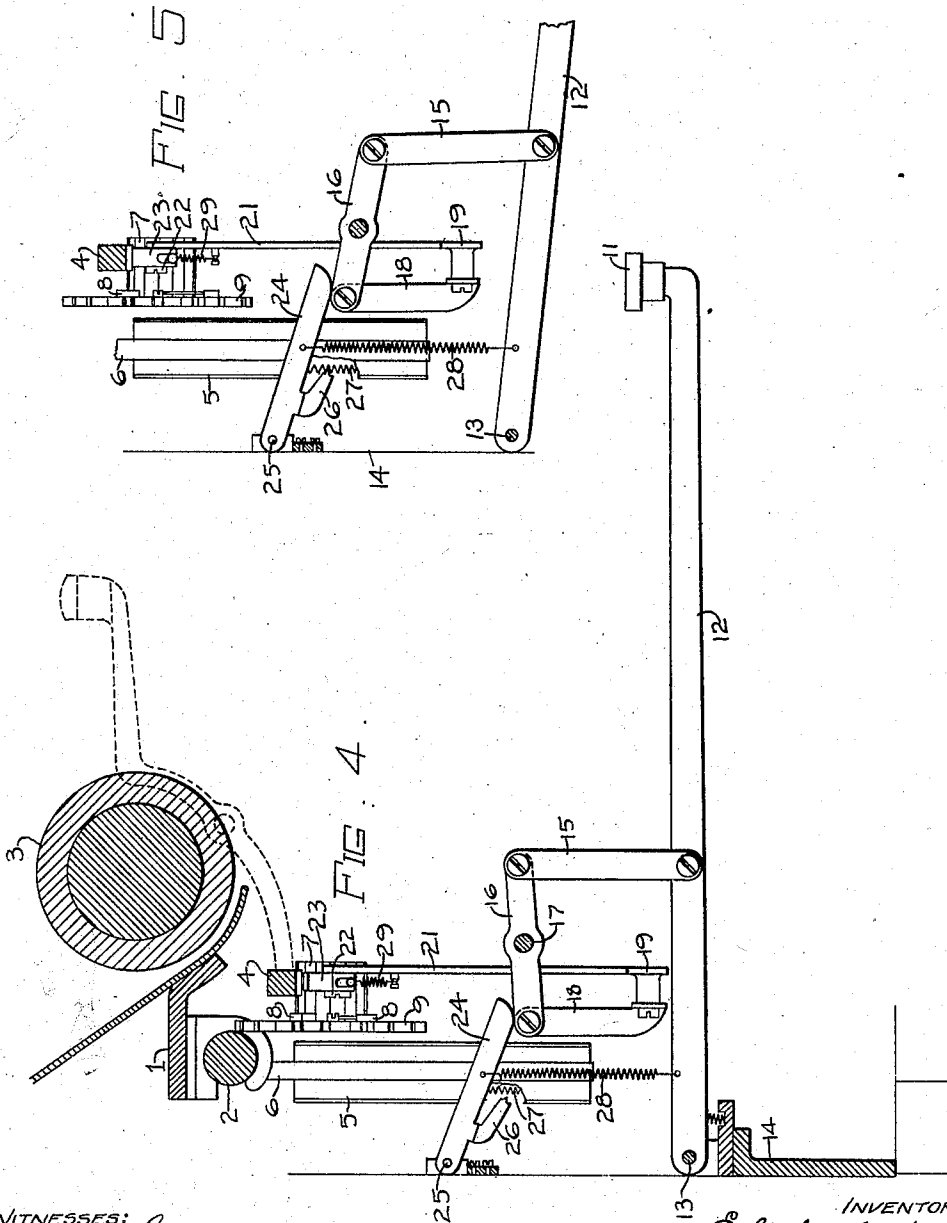
WITNESSES:
John C. Seifert.
H. Frankfort.

INVENTOR:
Elisha E. Strong,
BY B. B. Stickney,
ATTORNEY

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INVENTOR:

Elisha C. Strong,
By *D. C. Stettin,*
ATTORNEY

UNITED STATES PATENT OFFICE.

ELISHA E. STRONG, OF PARIS, FRANCE, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 924,593.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed March 17, 1909. Serial No. 483,978.

To all whom it may concern:

Be it known that I, ELISHA E. STRONG, a citizen of the United States of America, residing in Paris, France, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to mechanism whereby the power-driven carriage of a typewriting machine may be spaced backwardly by means of a key at the keyboard.

The object of the invention is to provide a simple, easily operated device that may be readily applied to existing machines, for back-spacing the carriage and preventing overthrow thereof.

In carrying out the invention, a back-spacing pawl is pivoted upon the end of a lever adjacent to the usual escapement rack, and a key is connected to said lever to move it, and throw the pawl into engagement with the rack, to back-space the carriage. At the same time, the key moves a dog into engagement with a notched wheel which is provided upon the usual carriage-driving spring-barrel, and prevents excessive backward movement or overthrow of the carriage.

In the accompanying drawings, Figure 1 is a diagrammatic rear elevation of a fragment of a back-spacing device, to illustrate the first step in the operation of the back-spacing pawl. Fig. 2 is a rear elevation showing the back-spacing devices in normal positions. Fig. 3 is a view similar to Fig. 2, but showing the carriage as having been spaced backwardly. Fig. 4 is a sectional side elevation of the back-spacing devices and carriage; showing the parts in normal positions. Fig. 5 shows the back-spacing devices in effective positions.

In the well known Underwood typewriting machine, to which my invention is shown applied, the usual carriage 1, running upon a rail 2, supports a platen 3, and has an escapement rack 4. The carriage is propelled by a spring-barrel 5, which is connected to the carriage by means of a strap 6. The rack meshes with a pinion 7, the latter connected by back-check pawls 8 to an escapement wheel 9, the latter controlled by dogs 10. The pawls 8 permit the carriage to be run backwardly independently of the escapement wheel 9.

According to the present invention, a key

11 is provided at the keyboard of the machine upon the forward end of a lever 12, which is fulcrumed at 13 upon the framework 14, and between its ends is connected by a link 15 to a lever 16. The latter, which is pivoted upon a suitable support 17, is connected by a link 18 to an arm 19 of an elbow lever, which is pivoted at 20 upon the framework, and also comprises an upstanding arm 21, to the top of which is pivoted at 22 a back-spacing pawl 23, adjacent to the rack, but normally clear of the same, as at Fig. 2.

Upon depressing the key 11, the lever 12 is carried down together with the link 15, and the lever 16 is rocked to lift the link 18 and thereby swing arm 19 up from the Fig. 2 to the Fig. 3 position. The point of the pawl 23 swings to the left about the pivot 20, at Fig. 2, and first carries the pawl into engagement with a rack tooth, as seen at Fig. 1, where the normal position of the pawl is indicated in dotted lines. The final portion of the movement of the lever 19, 21, causes the pawl to drive the rack back a letter-space from the Fig. 1 position to the Fig. 3 position, so that the clicks 8 catch upon the succeeding teeth of the pinion 7. The backward movement imparted to the rack 5 is sufficient to compensate also for the backlash of the escapement wheel 9 from the Fig. 2 to the Fig. 3 position; so that depression of the key 11 insures that the carriage shall be set back and come to rest one letter space back of its original position.

The rear end of the lever 16 engages and lifts an arm 24 pivoted at 25 upon the framework, and having a dog 26 which is lifted into engagement with a notched or toothed wheel 27 secured or formed upon the spring-barrel 5. This dog prevents accidental movement of the spring barrel; and since the latter is connected to the carriage by means of the strap 6, it will be seen that the dog 26 renders it impossible for the carriage to overthrow or to have an excessive movement at the back-spacing operation. Upon relieving the key 11 from pressure the same is returned to normal position by a spring 28, which is connected to the key lever 12 and to the arm 24, and the elbow lever 21, 19 returns to normal position together with the key. A spring 29 holds the back-spacing pawl 23 normally against a stop 30 provided upon the arm 21, but yields

to permit the pawl to ride over the rack teeth during the return of 21 to normal position.

The spring 28 is connected to the arm 24 to withdraw the dog 26 from the notched wheel 27; this withdrawal of the dog occurring during the back lash of the spring-barrel 5 as the escapement wheel 9 turns from the Fig. 3 to Fig. 2 position. This takes place at the initial portion of the return movement of the key, and thereafter the dog 26 swings down idly to the Fig. 4 position.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination with a power-driven carriage having an escapement rack, of a lever pivoted upon the machine frame and carrying at one end a pawl adjacent to said rack, a lever bearing a key, a third lever between said levers and connected to both of them, and a device engaged by said third lever to prevent overthrow of the carriage at the back-spacing operation.

2. In a typewriting machine, the combination with a carriage having escapement devices, and a spring barrel connected to said carriage, of means to operate upon the escapement devices, to back-space the carriage, and means to bear upon said spring barrel to prevent overthrow of the carriage at the back-spacing operation.

3. In a typewriting machine, the combina-

tion with a carriage having escapement devices, of a spring barrel connected to said carriage to drive the same, a key having means operating on said escapement devices to space the carriage backwardly, and means operated by said key to operate upon said spring barrel to prevent overthrow of the carriage at the back-spacing operation.

4. In a typewriting machine, the combination with a carriage having escapement devices, and a spring barrel connected to the carriage, of a pawl operated by a key to engage said escapement devices to back-space the carriage, a toothed or notched wheel upon said spring barrel, and a dog operated by said key to engage said wheel at the back-spacing operation to prevent overthrow of the carriage.

5. In a typewriting machine, the combination with a carriage having an escapement rack and a spring barrel connected to the carriage, of a lever pivoted upon the machine frame and carrying at one end a pawl adjacent to said rack, a key connected to said lever to move the pawl into engagement with the rack and set the carriage backward, a toothed or notched wheel upon said spring barrel, and a dog operated by said key to engage said wheel at the back-spacing operation to prevent overthrow of the carriage.

ELISHA E. STRONG.

Witnesses:

LOUIS S. FERRIS,
ELLWOOD AUSTIN WELDEN.