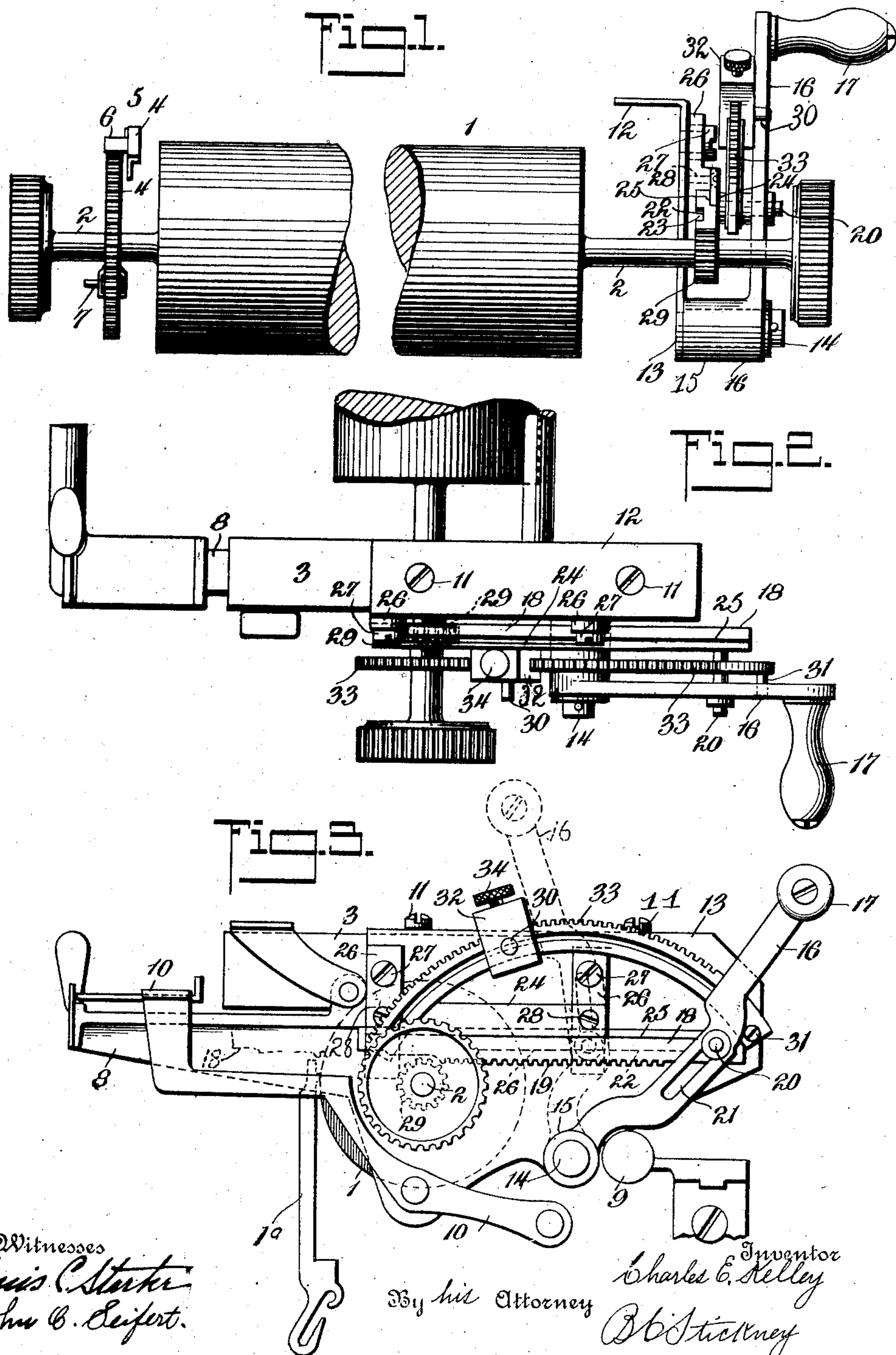


No. 883,462.

PATENTED MAR. 31, 1908.

C. E. KELLEY.  
TYPE WRITING MACHINE.  
APPLICATION FILED DEC. 31, 1907.





# UNITED STATES PATENT OFFICE.

CHARLES E. KELLEY, OF NEW YORK, N. Y., ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## TYPE-WRITING MACHINE.

No. 883,462.

Specification of Letters Patent.

Patented March 31, 1908.

Application filed December 31, 1907. Serial No. 408,805.

*To all whom it may concern:*

Be it known that I, CHARLES E. KELLEY, a citizen of the United States, residing in New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to typewriting machines, especially those used for purposes of billing, where carbon records of successive short bills are preserved upon a single long record sheet which remains in the machine during the writing of several bills.

In such machines, a crank is usually provided at the right hand end of the platen frame and connectible to the platen to give it a backward rotation to receive a fresh bill and then a forward rotation to bring the first line on the fresh bill to writing position. Usually the crank or the parts operated thereby have been placed in such a position that during the forward stroke of the crank, these parts dip down below the top of the framework of the machine, which is an objection, since it renders it necessary always to have the right hand end of the carriage pushed over far enough to the right to enable the crank or parts turning therewith to avoid striking the top of the machine frame: and it sometimes happens that the carriage is moved rapidly to the left when said crank or its parts are so depressed and injury is done to said parts by the collision thereof with the side of the machine frame.

One of the principal objects of my invention is to effect the desired backward rotation of the platen by means of a simple forward stroke of a crank from a position at the back of the platen frame to a position at the front thereof without the necessity of swinging the crank down below the bottom contour of the platen frame or the carriage on which it is supported. To effect this result, I provide a small pinion upon a platen axle, and mount upon the platen frame a rack which extends horizontally backward from the pinion, but it is normally out of engagement therewith to permit the ordinary line by line spacing. I pivot a crank in rear of and below the platen axle and extended up-

wardly and rearwardly from the pivot and connected loosely to the rack, preferably by a pin and slot. The rack is normally drawn back by the crank out of engagement with the pinion; but by a forward movement of the crank, the rack is thrown into mesh with the pinion and the latter rotated. An adjustable stop is provided for limiting the forward throw of the crank, and hence the backward throw of the platen. The pinion, rack and crank are of such proportions that a single throw of the forward crank effects more than one full backward revolution of the platen.

In the accompanying drawings, Figure 1 is a front elevation showing my improvements applied to an Underwood front strike writing machine. Fig 2 is a plan thereof. Fig. 3 is an end elevation of the carriage and the improvements thereon.

The usual platen 1 is mounted by means of an axle 2 in a platen frame, one end of which is seen at 3. Upon the axle is mounted a line space wheel 4 operated by the usual lever 5 and pawl 6 and provided with the usual spring detent 7. The platen frame is mounted upon the usual letter feeding carriage 8, running upon a rail 9 and provided with a lever 10 to release the carriage from the control of the letter spacing mechanism (not shown).

By means of screws 11, I secure upon the end of the platen frame 3 a flange 12 of a vertical plate or bracket 13 from the lower portion of which projects a stud 14, upon which is mounted a hub 15 of a lever or crank 16 having a handle 17 and intended to rotate the platen backwardly and forwardly for billing purposes. A rack bar 18 having gear teeth 19 on its under side is mounted horizontally in rear of the platen axle to slide forwardly and rearwardly; and it has a projecting pin 20 to engage a radial slot 21 formed in the crank 16, whereby the latter can reciprocate the rack bar. The rack bar has a groove 22 extending along its rear face to fit upon guiding ribs or grooves 23 provided upon the bracket 13. A keeper 24 fits in a groove 25 extending along the top of the rack bar and retains the latter in position. The ribs 23 are formed upon



26 secured by screws 27 to the vertical plate or bracket 13, and the keeper 24 is secured to said arms by screws 28.

Upon the platen axle 2 is rigidly secured a pinion 29, into engagement with which the rack 18 is movable to enable the latter to rotate the platen.

In operation, the usual bill-head, the carbon paper and record sheet are placed in the machine around the platen and written upon by type bars 1<sup>a</sup> to make out the bill and simultaneously produce a carbon copy thereof on the record sheet. The bill is then withdrawn in the usual manner, leaving the record sheet and the carbon paper in the machine. Then the handle 17 is grasped and the crank 16 pulled forwardly until it strikes a fixed stop 30. By means of the forward movement of the handle, the rack teeth 19 are moved into mesh with the tooth of the pinion 29, and the latter is rotated together with the platen 1. Then a fresh bill is inserted in the machine and the crank 16 is thrown back to its normal position against a fixed stop 31, thereby turning the platen forwardly to bring the bill to position to write on the first line thereon, and also carrying the rack 18 back out of mesh with the pinion, so that the platen may be freely rotated forwardly or backwardly line by line independently of the rack. The guides 23, 24 maintain positive engagement of the rack with the pinion after they become engaged and during the remainder of the forward stroke of the crank and also during the return stroke thereof until the crank carries the rack to a position back of the pinion. The stop pin 30 is mounted upon a block 32 adjustable along a curved rack 33, the block having a thumb screw or other device 34 to engage the teeth in the rack 33, so that the length of the stroke of the crank 16 and hence the extent of revolution of the platen may be regulated. The rack 18 preferably is of such length as to effect more than an entire revolution of the platen at each stroke of the rack to accommodate long bill heads.

It will be seen that the crank 16 is pivoted below and in the rear of the platen axle 2, and that it remains substantially within the contour of the carriage, Fig. 3, the forward throw of the crank being indicated in dotted lines. The crank normally inclines upwardly and somewhat rearwardly from the pivot, and plays back and forth in rear of the axle 2. At no time does it swing down below the bottom contour of the carriage, and hence there is no liability that it may collide with the top plate of the machine frame.

The arrangement of crank and sliding rack is also advantageous in case of machines in which the carriage is hinged to turn up to expose the writing, since the moving parts,

namely the crank and the rack, are confined substantially within the contour of the carriage at all points in their operation. The rack in moving forwardly, still remains within the contour of the side of the carriage, as seen in dotted lines at Fig. 3.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination with a revoluble platen and a platen frame, of a pinion on the platen axle and connected thereto, a straight rack extending backwardly from the pinion, an upstanding lever loosely connected to said rack, and means for limiting the forward and backward strokes of the lever; said lever connected to move said rack into and out of engagement with the pinion, and guiding means being provided for the rack to maintain the latter in mesh with the pinion until the completion of the return stroke of the lever.

2. In a typewriting machine, the combination with a revoluble platen, of a pinion mounted upon the platen axle and connected to the platen, a straight rack in rear of the pinion and normally out of engagement therewith, a lever mounted upon the platen frame and connected to said rack to move it into engagement with the pinion, means maintaining the engagement of the rack and pinion during the forward and return strokes of the lever, the lever being capable upon its return stroke of moving the rack out of mesh with the pinion, and adjustable means for limiting the lever stroke.

3. In a typewriting machine, the combination with a revoluble platen and a platen frame, of a pinion connected to the platen, a straight rack mounted upon the platen frame and extending forwardly and backwardly and normally out of engagement with the pinion, said rack of sufficient length to effect more than an entire revolution of the pinion and platen, a lever connected to the rack to move the same into engagement with the pinion to rotate the latter, means for maintaining engagement between the rack and pinion during the reciprocation of the lever, and adjustable means to limit the stroke of the lever; the latter being connected to withdraw the rack from the pinion.

4. In a typewriting machine, the combination with a revoluble platen, a platen axle, a platen frame, in which said axle is journaled and a line-space mechanism for the platen, of a pinion mounted on the platen axle outside of the platen frame, a rack normally out of mesh with the pinion and extending rearwardly therefrom, means for guiding said rack in a forward and backward movement, a crank pivoted at its lower end upon the platen frame in rear of the platen axle and having a pin-and-slot connection to the rear

portion of said rack, the rack being movable by the crank into engagement with the pinion, and rack-guiding means being constructed to maintain engagement of the rack with  
5 the pinion during the forward and rearward strokes of the rack, and the latter being movable by the crank rearwardly out of engagement with the pinion, a sector provided with

an adjustable stop for limiting the forward stroke of the crank, and a stop to limit the 10 return stroke of the crank.

CHARLES E. KELLEY.

Witnesses:

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JOHN O. SEIFERT.