No. 884,591. PATENTED APR. 14, 1908.

C. E. KELLEY.

TYPE WRITING MACHINE.

APPLICATION FILED DEC. 21, 1907.

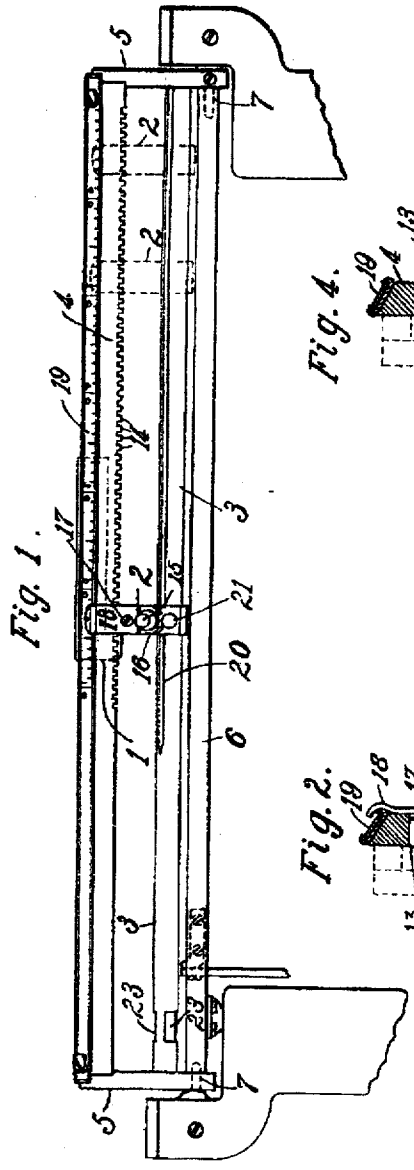

Fig. 1.

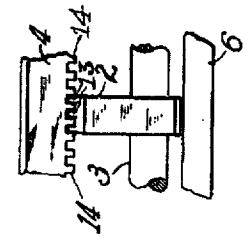

Fig. 7.

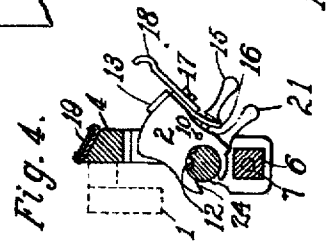

Fig. 4.

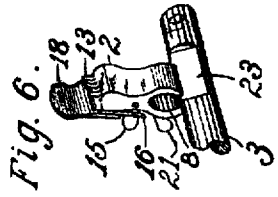

Fig. 6.

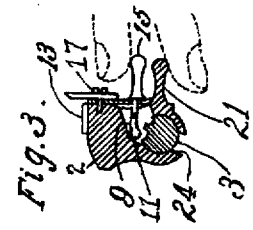

Fig. 3.

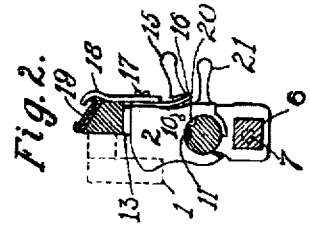

Fig. 2.

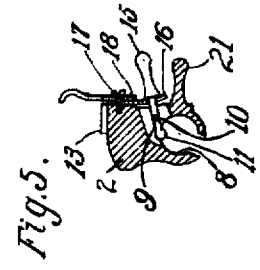

Fig. 5.

WITNESSES

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# 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. 884,591. Specification of Letters Patent. Patented April 14, 1908.

Application filed December 21, 1907. Serial No. 407,456.

*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 the tabulating mechanisms of typewriting and other machines, and particularly to the adjustable stops usually employed for locating the columns on the typewritten page.

In the Underwood typewriting machine, as heretofore constructed, a column stop rack has been mounted upon the machine frame, and the column stops have been independently adjustable along the same. The column stops have been loosely fitted upon a cylindrical rod to enable them to turn into and out of engagement with the rack. Each stop has been held in engagement with the rack by means of a spring-pressed ball mounted on the stop and adapted to fit in the long groove cut along the cylindrical rod. A companion groove has been provided to enable the spring-pressed ball to hold the stop out of engagement with the rack.

Owing largely to the binding effect of the stop upon the rod that has been produced by the spring detent, it has been found difficult to adjust the stops easily to the exact position desired, that is to say, to bring the stop tooth exactly in register with the notch in the rack.

One of the objects of my invention is to overcome this trouble and to render it easy to adjust the stop the minute distances that are sometimes necessary to secure the exact register before turning the stop into engagement with the rack. To this end, I provide a spring-pressed detent in the form of a lever, upon the end of which is formed a knob or ball to engage the groove in the rod; and this lever is formed with a handle which is adjacent to another handle also formed upon the stop, so that by pressing the handles toward each other, the detent is entirely released, and binding action between the stop and the rod is avoided, and hence the stop may be adjusted as little or as much as desired, and with the greatest freedom and accuracy.

On said machine, the column stops have been formed with eyes to fit upon said rod and have been permanently attached thereto. It has been found impracticable to add one or more column stops to the machine when occasion has arisen, since the rod is usually secured by its ends between two arms forming the ends of the closed frame.

Another of the objects of my invention is to avoid this difficulty and render it practicable to take off and replace at will column stops of the kind described. To this end, I reduce the column stop rod near one end, preferably by cutting recesses or flats therein, and I cut away sufficient of the eye of the column stop to enable it to slip off from the reduced portion of the rod.

In the accompanying drawings, Figure 1 is a rear elevation showing sufficient of an Underwood typewriting machine to illustrate my improvements, a single column stop being shown in working position. Fig. 2 is a sectional elevation of parts seen at Fig. 1. Fig. 3 is a sectional elevation of a column stop and rod with the detent released from the rod. Fig. 4 is a view similar to Fig. 2, but showing the column stop swung back and held in a position of disuse. Fig. 5 is a sectional elevation of a column stop. Fig. 6 is a perspective view illustrating the manner of detaching or attaching a column stop to the rod. Fig. 7 is a front elevation of a column stop in working position.

In the Underwood typewriting machine, the carriage stop, which is indicated at 1, is adapted to abut against a column stop 2, one or more of which may be mounted upon a cylindrical rod 3 and rotatable thereon into and out of engagement with the tooth of the rack 4. Both the rack and the rod are fixed at their ends to arms 5. The latter are also connected by a bar or shaft 6, the whole forming a frame adapted to rock forwardly and backwardly upon pivots 7 to bring the column stop 2 into and out of engagement with the carriage stop 1. The stop has a cylindrical eye 8 to fit upon the rod 3 snugly, but so as to slide and turn freely thereon. A lever 9 pivoted at 10 to the column stop is formed at its inner end with a knob or ball 11 to engage a groove 12 formed longitudinally in the rod 3, to hold the teeth 13 on said stop in engagement with the teeth 14 of the rack bar. A handle 15 is formed upon the lever, and a spring 16 secured upon the column stop engages the hilt of said handle to hold the knob 11 yieldingly in engagement with the groove 12. A single screw 17 may secure

both said spring and an index 18 to the column stop; said index coöperating with the usual scale 19 provided upon rack bar 4. A second groove 20 is formed on the rod 3 rearwardly of the groove 12 to be engaged by the knob 11 to hold the column stop 2 out of the path of the carriage stop 1, Fig. 4.

When it is desired to adjust the column stop, the handle 15 is grasped simultaneously with the handle 21 formed on or fixed to the stop 22 adjacent to the handle 15, and the handles are pressed towards each other, Fig. 3, the lever 9 being thereby caused to swing up to release the column stop from the groove 12, whereupon the stop is rotated backwardly about the rod 3 to clear the teeth 13 from the rack, and the stop is then adjusted to the right or left at Fig. 1, as far as desired, the final minute adjustment being readily effected to bring the teeth 13 into register with the rack teeth 14 to permit the column stop to be turned forwardly to working position.

Near the left hand end of the rod 3, Fig. 1, I form cutaways 23 to reduce the bar substantially in thickness; and in the eye of the column stop I form a slot 24 to change the eye from a closed eye to an open eye, the slot being of such width that it will pass freely over the reduced portion of the rod at 23, so that the column stop may be readily withdrawn from or put back upon the rod at Fig. 6. Thus more stops may be added as required from time to time; or superfluous stops may be withdrawn.

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 typewriting and tabulating mechanism, the combination with a rack and a cylindrical rod extending along the rack, of a column stop having an open eye to engage said rod and both turn and slide upon the latter, the rod being at one end reduced or cut away sufficiently to permit the column stop to be drawn off from the rod; said column stop having a tooth to engage the rack.

2. In a typewriting and tabulating mechanism, the combination with a rack, of a cylindrical rod supported at its ends and extending along the rack, a column stop having a tooth to engage the rack and formed with an open eye to fit upon said rod to permit rotation of the stop to disengage the tooth from the rack and also to permit the stop to slide along the rod, the latter being at one end reduced or cut away to permit the column stop to be drawn off from the rod.

3. In a typewriting and tabulating mechanism, the combination with a rack, of a column stop adjustable along the rack and movable into and out of engagement therewith, and means to support the column stop in engagement with a rack; said supporting means extending the entire length of the rack and provided only at its end with a cut away portion to permit detachment of the column stop.

4. In a typewriting and tabulating mechanism, the combination with a rack, of a rod extending along the rack, a column stop having a tooth to engage the rack and mounted to turn upon said rod to disengage the tooth from the rack and to slide along said rod to engage different rack teeth, and means extending along the rod to hold the column stop in engagement with the rack; said column stop having an open eye to engage said rod, and the latter being at one end reduced or cut away sufficiently to permit the column stop to be drawn off from the rod.

5. In a typewriting and tabulating mechanism, the combination with a rack, of a cylindrical rod extending along the rack, a column stop having a tooth to engage the rack and mounted to turn upon said rod to disengage the tooth from the rack and to slide along said rod to engage different rack teeth, a groove extending along the rod to be engaged by a detent upon the column stop to hold the latter in engagement with the rack; said column stop having an open eye to engage said rod; and the latter being at one end reduced or cut away sufficiently to permit the column stop to be drawn off from the rod.

6. In a typewriting and tabulating mechanism, the combination with a rack, of a cylindrical rod extending along the rack, a column stop having a tooth to engage the rack and mounted to turn upon said rod to disengage the tooth from the rack and to slide along said rod to engage different rack teeth, grooves extending along the rod to be engaged by a spring detent upon the column stop to hold the latter either in or out of engagement with the rack, a finger piece to release said detent, and a coöperating finger piece upon the column stop; said column stop having an open eye to engage said rod, and the latter being at one end reduced or cut away sufficiently to permit the column stop to be drawn off from the rod.

7. In a typewriting and tabulating mechanism, the combination with a rack, of a rod extending along the rack, a column stop having a tooth to engage the rack and mounted to turn upon said rod to disengage the tooth from the rack and to slide along said rod to engage different rack teeth, grooves extending along the rod to be engaged by a detent upon the column stop to hold the latter in engagement with the rack, and a finger piece to release said detent; said column stop having an open eye to engage said rod, and the latter being at one end reduced or cut away sufficiently to permit the column stop to be drawn off from the rod.

8. In a typewriting and tabulating mechanism, the combination with a rack, of a cylindrical rod extending along the rack, a col-

umn stop having a tooth to engage the rack and having an eye fitted upon the rod, the stop being rotatable about the rod to disengage the tooth from the rack and also slidable along the rod, a groove being provided along the rod, and the column stop having a spring detent to engage the groove to hold the stop in engagement with the rack, and a finger piece to release said detent.

9. In a typewriting and tabulating mechanism, the combination with a rack, of a cylindrical rod extending along the rack, a column stop having a tooth to engage the rack and having an eye fitted upon the rod, the stop being rotatable about the rod to disengage the tooth from the rack and also slidable along the rod, a groove being provided along the rod, and the column stop having a spring detent to engage the groove to hold the stop in engagement with the rack, and a finger piece to release said detent; said detent and finger piece being pivoted upon the column stop.

10. In a typewriting and tabulating mechanism, the combination with a rack, of a cylindrical rod extending along the rack, a column stop having a tooth to engage the rack and having an eye fitted upon the rod, the stop being rotatable about the rod to disengage the tooth from the rack and also slidable along the rod, a groove being provided along the rod, and the column stop having a spring detent to engage the groove to hold the stop in engagement with the rack, and a finger piece to release said detent; said detent and finger piece being pivoted upon the column stop, and having a coöperating finger piece on the column stop.

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