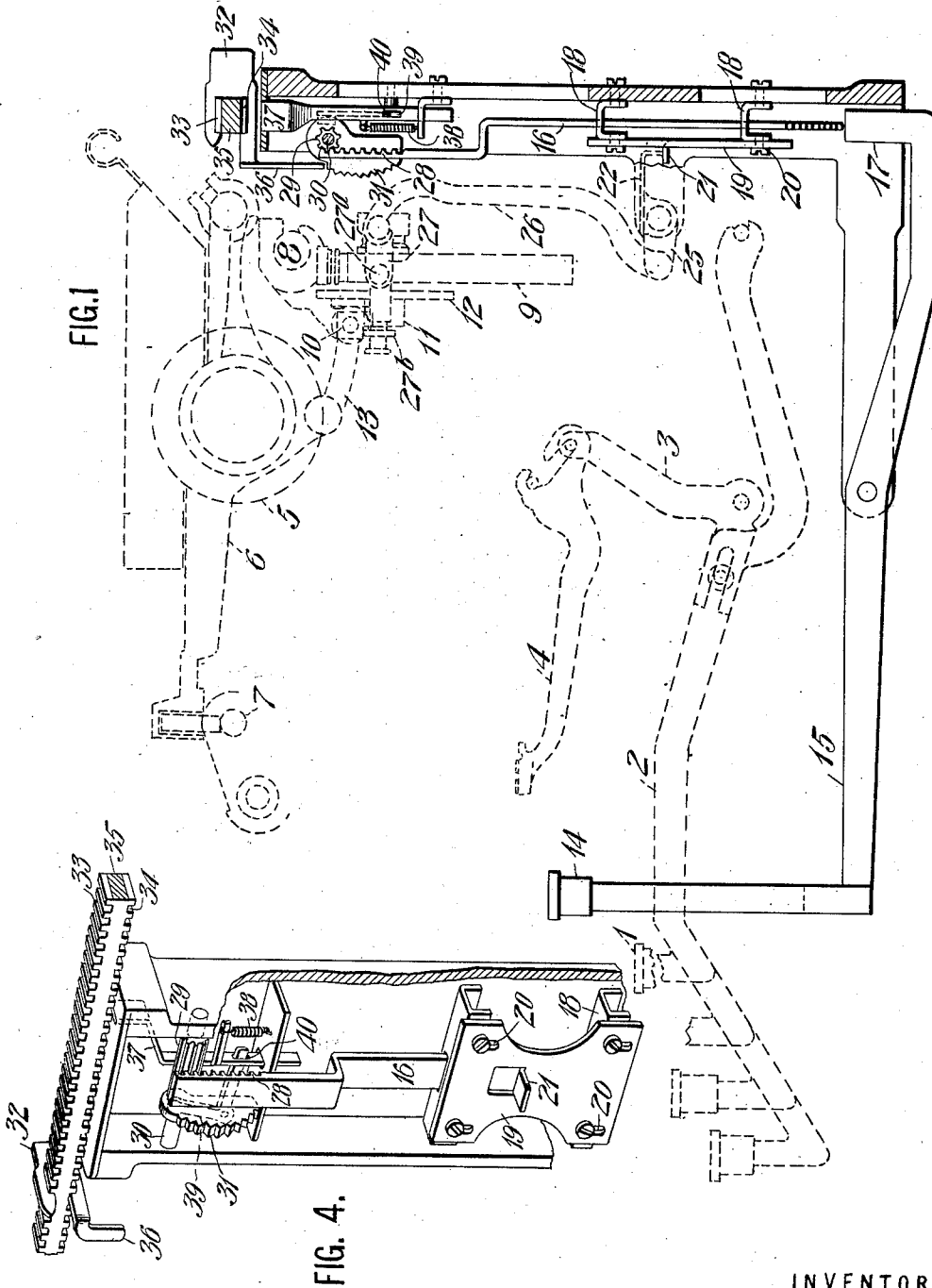


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TYPE WRITING MACHINE.
APPLICATION FILED OCT. 2, 1911.

1,044,332.

Patented Nov. 12, 1912.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

FIG. 2.

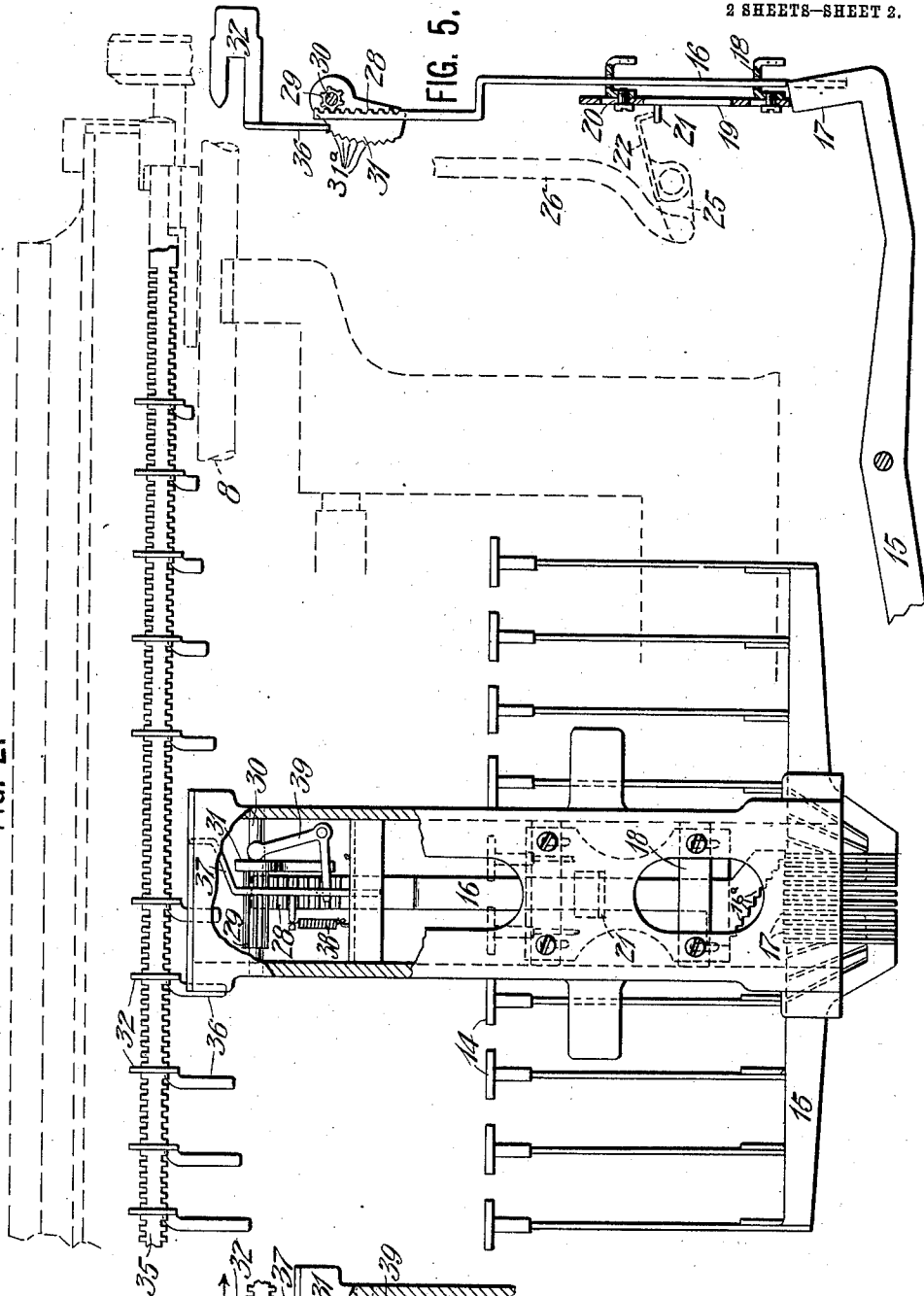
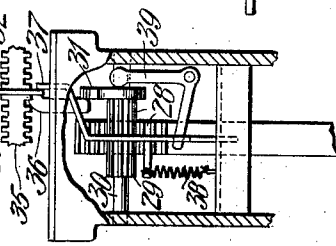


FIG. 5.

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FIG. 3.



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FRANK A. YOUNG, OF NEW YORK, N. Y., ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

1,044,332.

Specification of Letters Patent.

Patented Nov. 12, 1912.

Application filed October 2, 1911. Serial No. 652,314.

To all whom it may concern:

Be it known that I, FRANK A. YOUNG, 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 a new and improved column-skipper, whereby the operator can select the particular column at which the carriage is to stop in the operation of tabulating.

A feature of this invention is a device having contact points arranged at graduated distances from the pivotal center thereof, to cooperate with adjustable column-stop tappets having graduated lengths to correspond with said contact-points. The motion of the carriage itself operates through the tappet to project a counter-stop to arrest the carriage at the selected column.

In the accompanying drawings, the invention is shown in connection with an Underwood machine.

Figure 1 is a diagrammatic view in side elevation with parts in section to show the underlying structure. Fig. 2 is a fragmentary rear view in elevation, with parts broken away to show the underlying structure. Fig. 3 is a view similar to Fig. 2, showing the parts after operation. Fig. 4 is a fragmentary perspective view. Fig. 5 is a fragmentary view, showing one of the column selecting keys in the act of releasing the carriage and operating the column-selecting device.

Keys 1 depress levers 2 to vibrate bell cranks 3 and swing type bars 4 up to strike rearwardly against the front side of a platen 5. Said platen is mounted on a carriage 6 running on tracks 7, 8, and is driven by a spring barrel 9, and also has a rack 10 meshing with a pinion 11 connected to an escapement wheel 12, the escapement dogs which are operated at every key stroke being omitted. The rack 10 is hung on arms 13 so that it may be lifted out of engagement with the pinion 11 to release the carriage.

Column-selecting keys 14 are mounted on levers 15, each one of which is adapted to engage a common selecting bar 16 at the rear, so that when any one of the keys 14 is depressed, the selecting bar 16 will be raised a greater or less extent according to

which key is depressed. It will be seen that the rear portion of the lever 15 has a riser 17 which may be of equal height in each lever. The selecting bar 16, however, may be formed on its under edge with steps 16^a located at unequal distances from the risers 17, so that each of the keys 14 will move idly to a different extent before the lever 15 comes in contact with the selecting bar 16, and therefore before the selecting bar 16 is actuated. The selecting bar 16 may be guided by slots in guides 18.

The upper end of the selecting bar 16 may be provided with a rack 28 which engages a pinion 29 mounted on a shaft 30. The pinion 29 may be provided with a shoulder 31, which is slidingly mounted on shaft 30 and secured to the pinion 29 so as to rotate therewith. It will be noted that this shoulder is provided with a series of steps or teeth 31^a at progressively increasing radial distances from the center of the shaft 30 on which it slides and rotates. These steps 31^a correspond to the steps 16^a on the bottom of the selecting bar 16, there being one for each of the column-selecting keys 14. If the uppermost step 16^a on the bottom of the selecting bar 16 is engaged by its corresponding riser, the bar 16 will be lifted, and the gear 29 rotated to a minimum extent, so that the first step 31^a will be brought uppermost, or to its working position.

The shoulder 31 is movable into the path of any of a plurality of tappets 36 on stops 32 which may be connected to the carriage 6 in any suitable manner, as for example, by being detachably secured in upper and lower slots 33 and 34 provided in a bar 35 secured to the carriage. These stops are detachable and adjustable. The body portions of the stops 32 do not engage the shoulder 31, but there is provided a depending leg or tappet 36 on each stop, which is adapted to contact with the shoulder 31, whereby the latter may be forced along the shaft 30. This projects a counter-stop 37 mounted on the machine frame and adapted to engage any of the column stops 32. This counter-stop 37 may be mounted so as to move vertically in any suitable manner, and is normally held down out of use by means of a returning spring 38.

When one of the tappets 36 engages shoulder 31, the latter (together with pinion 29), is slid over to the right, thereby turning a

bell crank 39, one arm of which loosely passes through a slot 40 provided in counter-stop 37.

It will thus be seen that when the column stops 32 have been once adjusted, the carriage can be jumped to any one of the columns, and the operation of tabulating may be effected by merely striking the corresponding column selecting key 14. In depressing the key 14, the lever 15 is actuated, so that the riser 17 thereon comes in contact with the corresponding step on the bottom of the selecting bar 16, so as to raise the same an amount equal to the difference between the height of the step above the top of the riser 17 and the movement of the bar 16. In lifting the bar 16, the shoulder 31 may be swung to an angle corresponding to the extent of movement of the selecting bar 16, so that one of the steps 31^a thereon (which are located at different distances from the center of motion of shoulder 31), will be raised to a position where it will be engaged by the corresponding tappet 36. The movement of the carriage, when the corresponding tappet 36 thereon comes into engagement with the particular step 31^a, will slide the gear 29 and the member 31 to the right, thereby shifting the counter-stop 37 upwardly, through the medium of the bell crank 39, into engagement with one of the stops 32, thus arresting the carriage at the particular column selected.

It is necessary to release the rack 10 from the pinion 11 when one of the column keys 14 is operated. This is accomplished by the riser 17 of each key, during its final movement, engaging a universal bar or slide 19, which may have a pin-and-slot connection 20 with guides 18, permitting a vertical movement at the operation of any one of the keys 14. The slide 19 is provided with an extension or lug 21, to engage a lever 22, having an arm 25 connected to a link 26, one end thereof connected at its opposite end to a lever 27 pivoted at 27^a and provided with a roller 27^b engaging under the rack 10, so that when any one of the column-selecting keys 14 is actuated, the rack 10 will be shifted from engagement with the pinion 11, whereby the carriage 6 will be free to move under the influence of the spring barrel 9.

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. The combination of a typewriter carriage having a series of tappets of graduated sizes, a pivoted shoulder formed so that different portions thereof move into the paths of different tappets when the shoulder is rotated to different positions, said shoulder being movable by the tappets, column-stops 65 associated with said tappets, and a counter-

stop projected into the path of the column-stops by the movement of said shoulder effected by any tappet.

2. The combination of a typewriter carriage having a series of tappets of graduated sizes, a pivoted shoulder formed so that different portions thereof move into the paths of different tappets when the shoulder is rotated to different positions, said shoulder being movable by the tappets, column-stops associated with said tappets, a counter-stop projected into the path of the column-stops by the movement of said shoulder effected by any tappet, a pinion connected to said shoulder to rotate the same, a rack to rotate said pinion, and key-operated means to advance said rack different distances, according to the key operated.

3. The combination of a typewriter carriage having a series of tappets of graduated sizes, a pivoted shoulder formed so that different portions thereof move into the paths of different tappets when the shoulder is rotated to different positions, said shoulder being movable by the tappets, column-stops associated with said tappets, a counter-stop projected into the path of the column-stops by the movement of said shoulder effected by any tappet, a pinion connected to said shoulder to rotate the same, a rack to rotate said pinion, and key-operated means to advance said rack different distances, according to the key operated, said pinion and shoulder being movable axially while the pinion remains in mesh with the gear.

4. The combination of a typewriter carriage having a series of tappets of graduated sizes, a pivoted shoulder formed so that different portions thereof move into the paths of different tappets when the shoulder is rotated to different positions, said shoulder being movable by the tappets, column-stops associated with said tappets, and a counter-stop projected into the path of the column-stops by the movement of said shoulder effected by any tappet, a bell crank or lever being engageable by said shoulder, and having a connection to said counter-stop to project the same.

5. The combination with a carriage, of a series of tappets of graded sizes connected to said carriage, a shoulder movable into the path of any of said tappets, keys for selectively controlling the position of said shoulder; said shoulder being pivotally mounted and having a plurality of tappet-engaging points at successively increasing radial distances from the point about which said member pivots, and also being movable in axial direction by any of said tappets, and a counter-stop projected by means of the movements of said shoulder effected by said tappets.

6. The combination with a carriage, of a plurality of tappets connected to said car-

riage so as to travel therewith, said stops being graded successively in a series so as to offer different points of contact, a shoulder adapted to be interposed in the path of said stops, said shoulder member having a plurality of contact points graded so as to be located at successively increasing distances from a common point, a gear connected to said shoulder so as to rotate the same, a permutation selecting bar adapted to operate said gear and having a series of steps projecting one beyond the other, and a set of position selecting key-levers to engage said steps on the selecting bar and terminating substantially at the same level, so as to be located unequal distances from the steps, whereby said key levers will have different

amounts of free or inactive movement before actuating said bar.

7. The combination with a carriage, of a plurality of column-stops and tappets connected to said carriage, a shoulder having a plurality of successive points graded so that each is capable of movement to effective position for engaging its associated tappets, a counter-stop, and operative connections between said shoulder and said counter-stop, whereby the latter is projected by the former, the shoulder being movable by any of said tappets for projecting the counter-stop.

FRANK A. YOUNG.

Witnesses:

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