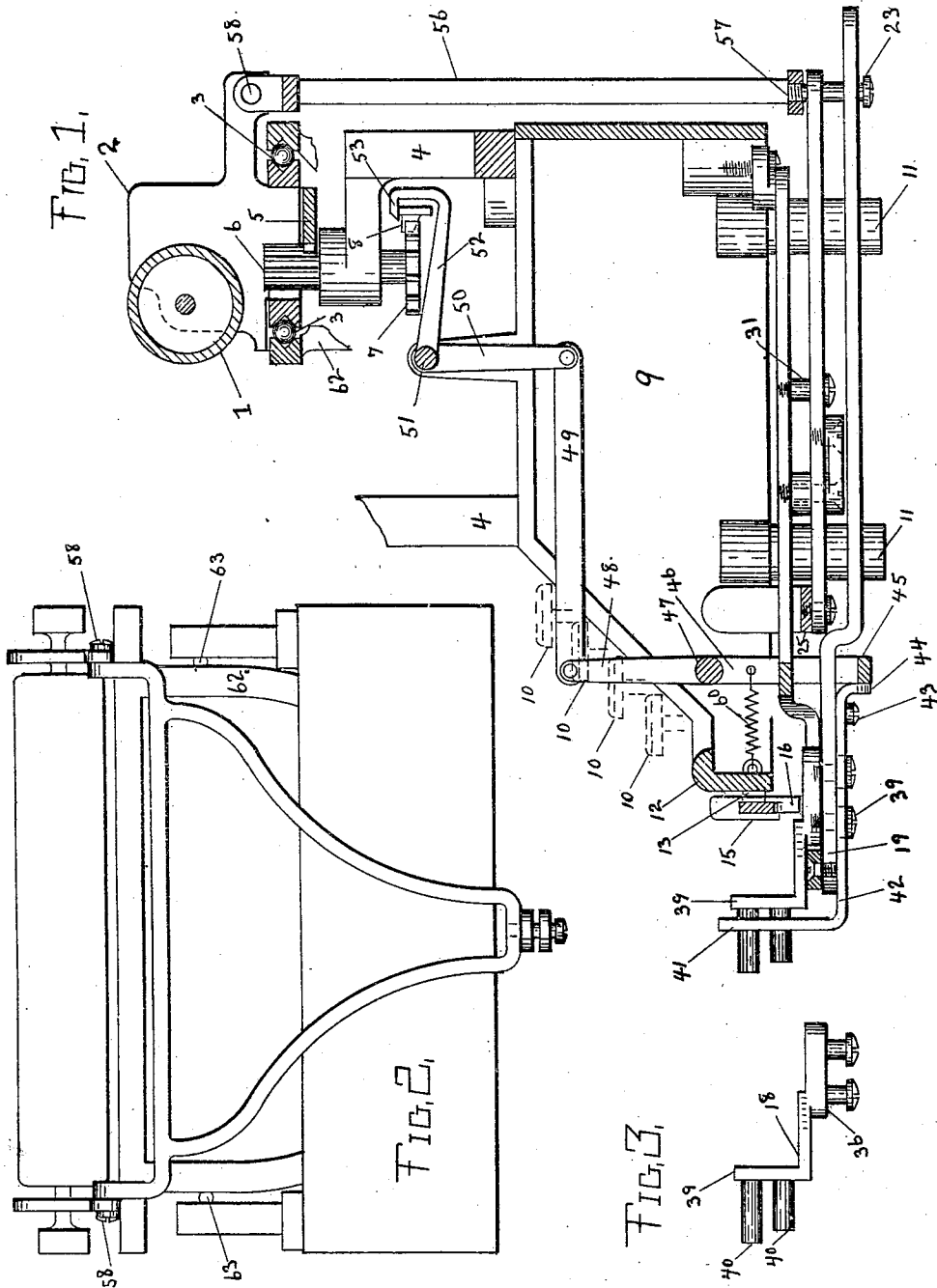


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TYPE WRITING MACHINE.  
APPLICATION FILED SEPT. 21, 1906.

961,101.

Patented June 14, 1910.

2 SHEETS—SHEET 1.



WITNESSES:

*Wm Benson.*  
*C. W. Towell, Jr.*

INVENTOR

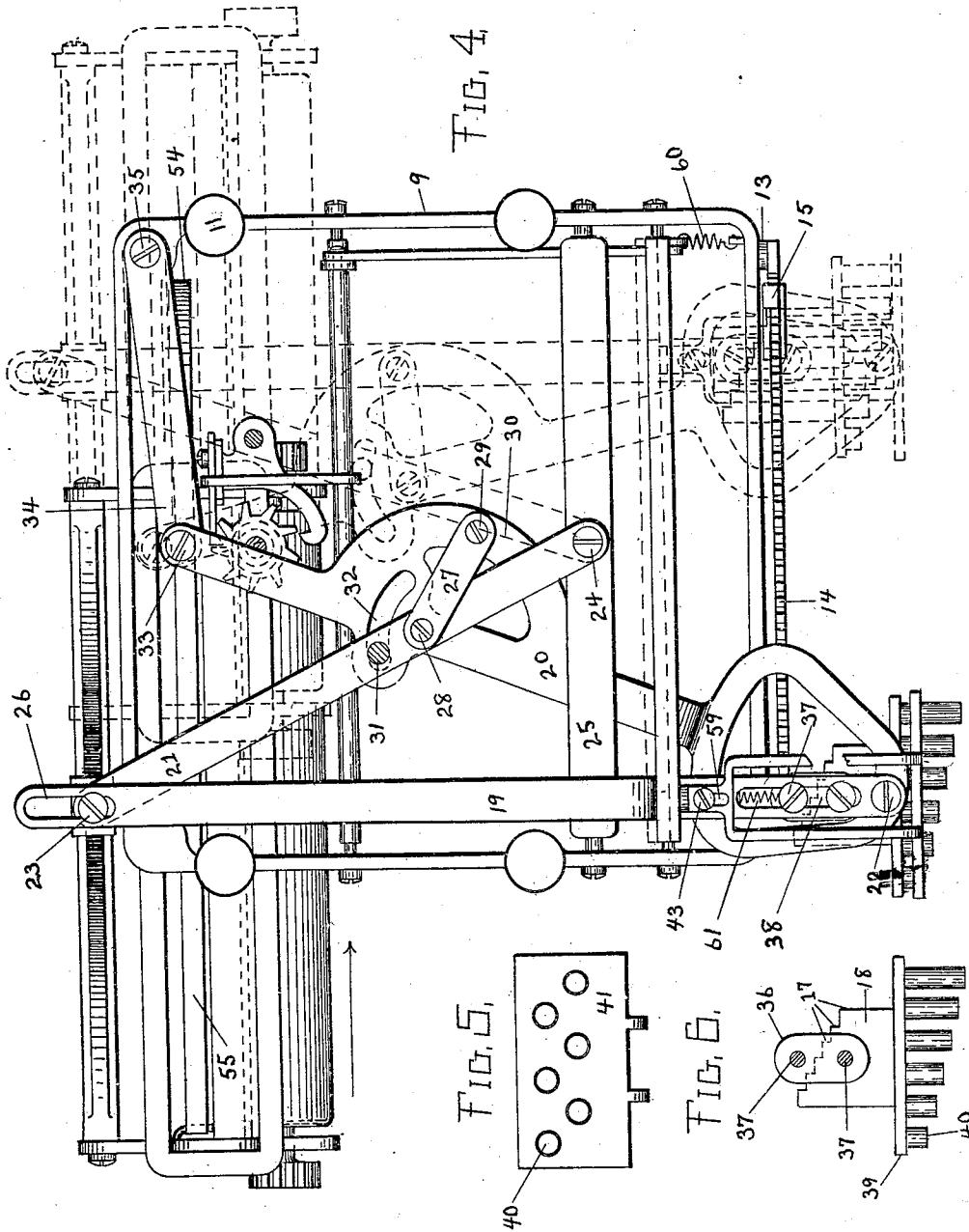
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WITNESSES:

Wm Benson  
Curtiss J.

INVENTOR

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# UNITED STATES PATENT OFFICE.

LEE S. BURRIDGE, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

961,101.

Specification of Letters Patent. Patented June 14, 1910.

Application filed September 21, 1906. Serial No. 335,616.

*To all whom it may concern:*

Be it known that I, LEE S. BURRIDGE, a citizen of the United States, residing in the borough of Manhattan, city, county, 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 machines.

The principal object of the invention is to simplify and improve the means for arresting the letter-spacing carriage of a typewriter at any selected denominational point, and particularly to render the operator's control of the carriage more certain and convenient.

In carrying out the invention, I provide a carrier to swing or move across the machine in front of the keyboard, and upon the carrier I mount denomination-selecting devices. This carrier is caused to move with said letter-spacing carriage, by means of suitable movement-transmitting mechanism pivoted upon the framework of the machine and connected to both the carriage and the carrier. In this instance, the movement-transmitting mechanism is in the form of a linkage, which causes the carrier to have a parallel motion in a straight line across the machine, although other movement-transmitting-mechanism may be employed for the purpose.

The denomination stop mechanism herein illustrated comprises a series of finger-pieces or push rods of graduated lengths, and connected to a graduated stop, means being provided for arresting the finger as soon as the stop corresponding to the finger-piece that is operated is adjusted to position to cooperate with a column stop mounted upon the framework of the machine. Said finger-pieces are shown projecting different distances through a plate which forms part of a carriage-releasing mechanism, and is arranged to be moved by the finger a limited distance for releasing the carriage during the last part of each stop positioning movement.

Other features and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is a sectional elevation taken from front to rear of a "Sun" typewriting machine showing my improvements applied thereto. Fig. 2 is a rear elevation of the machine.

Fig. 3 is a side elevation of a sliding stop provided with graduated push rods or finger-pieces. Fig. 4 is a plan of the machine inverted showing in full lines the positions of the parts at the beginning of a line of writing, and in dotted lines their positions near the completion of a line of writing. Fig. 5 is a front elevation of a carriage-releasing plate with the denomination-selecting finger-pieces projecting therethrough. Fig. 6 is an inverted plan of the graduated stop member seen in elevation at Fig. 3.

In said "Sun" machine, the types strike rearwardly against the front side of a platen 1, which is mounted upon a carriage 2 traveling upon balls 3 across a framework 4, and pivoted with a letter spacing rack 5, engaging a pinion 6, the latter connected to an escapement wheel 7 provided with any usual escapement devices 8. Said framework includes a rectangular base 9 having the usual front keyboard 10 and resting upon feet 11.

Mounted upon the front bar 12 of the base by means of studs 13 is a rack 14 along which is adjustable a column stop 15, of which several may be provided, said stop having a pendent tooth 16 to engage any one of a series of steps 17 formed at letter-space intervals upon a stop-member 18, which is mounted upon a carrier 19, the latter arranged at the front of the keyboard and below the framework of the machine, and designed to travel across the machine together with the carriage 2. Said carrier is illustrated in this instance in the form of a long bar extending from the keyboard back under the framework to the rear of the machine. It is mounted for a parallel motion upon the ends of two levers 20, 21, which are suitably connected to the framework of the machine and to each other.

22 designates the pivotal connection of the forward end of the bar 19 to the forward end of the lever 20, and 23 indicates the pivotal connection of the rear end of said bar to the rear end of the lever 21. The latter is fulcrumed at 24 upon a bridge 25 extending across the base, and the rear end of the carrier bar 19 is slotted at 26 to accommodate the swinging movement of 23 about the axis 24. Said levers 20 and 21 may be connected between their ends in any suitable manner to cause their front and rear ends respectively to move in unison from side to side of the machine. For instance a link 27

may be pivoted at 28 to the lever 21 and at 29 to an offset portion 30 formed upon the lever 20. By means of said connected levers, the bar 19 is caused to have a parallel motion across the machine.

In order to cause the pivot 22 upon the front end of the lever 20 to follow a straight path across the machine, a pin 31 is provided upon the lever 21 to engage a slot 32 formed in the lever 20, said slot being curved in such a manner as to produce the desired straight line motion of the pivot 22. The rear end of the lever 20 may be pivoted at 33 upon the end of an idle link 34 pivoted at 35 upon the framework 9. Since the pivot 22 of the lever 20 moves in a straight line, it guides the carrier 19 in a straight path across the machine, so that the proper cooperation is made practicable between the column stop 16 and the various stepped stops 17.

The graduated stop-member 18 is mounted upon a base 36, which by means of two shoulder screws 37 is guided in backward and forward sliding movements in a slot 38 formed in the front end of the carrier 19, whereby any of the steps 17 may be set back to position to engage the stationary column stop 16 upon the release of the carriage.

Upon the front of the plate 18 is provided a vertical flange 39 in which are fixed push buttons or finger-pieces 40 preferably arranged alternately in two rows, Fig. 5, so as to give room for manipulation and being of graduated lengths. All of said push rods 40 project through holes formed in a vertical plate 41 extending in front of the flange 39. This plate is formed by bending up the front end of a bar 42 which slides at its rear end upon a screw 43, and is supported in front by said rods 40. Said bar 42 is formed with a rear lip 44 to press backwardly a horizontal bar 45 extending across the machine and having at its ends arm 46 forming a bail, which is secured upon a transverse horizontal rock shaft 47. The function of said transverse bar 45 is to release the carriage; one of said arms 46 being lengthened at 48 and connected by a link 49 to an arm 50, pendent from a horizontal transverse rock shaft 51, the latter carrying an arm 52 having a finger 53 to engage the escapement devices 8, and force the latter out of engagement with the escapement wheel 7, whereby the carriage is released, and may run forward freely under the influence of its driving spring 54, the latter connected to the carriage by a strap 55, Fig. 5. The movement of the carriage is communicated to the carrier 19 by means of an arm or frame 56 into the lower end of which is threaded at 57 the screw 23 of the parallel motion mechanism. Said arm 56 is hinged at 58 to the carriage so that the lower end thereof may swing out to accommodate the curvilinear

movement of the screw 23 about the axis 24. Whenever any of the finger pieces 40 is pressed forwardly by the finger, the stop-member 18 is thrust back and during the last part of such movement the finger engages the carriage releasing plate 41, and moves back the same together with the slide-bar 42 and transverse bar 45, thereby releasing the carriage. The plate 41 is arrested in its backward movement by engagement of the front end of a slot 59 with the screw 43, Fig. 4, and this determines the extent of displacement of the stepped stop member 18 from normal position, and hence, which of the stops 17 shall be brought to position, to engage the column stop 16. If the extreme left hand button 40 at Fig. 6 is selected and pushed back, the movement of the member 18 would be least, and the extreme left hand stop 17 would be positioned to engage the stop 16. Upon the other hand, if the extreme right hand push rod 40 is operated, the plate 18 would be given an extreme movement, and the extreme right hand one of the set of stops would be brought into position to engage said stop 16; while any of the intermediate stops 17 may be brought into use by operating its corresponding push rod or key 40. The carriage releasing mechanism is returned to normal position by a spring 60, and the stop member 18 is returned by a spring 61. The carriage 2 shifts up and down to enable different types to print.

The carriage track frame 62 shifts up and down upon ball-bearings 63, Fig. 2, as usual in the Sun machine, and it will be understood that there is sufficient play or yield at the joint between the lever 21 and the bridge 25, as well as at the other joints of the parallel motion mechanism to accommodate the up and down shifting of the carriage 2, which is very slight.

It will be seen that owing to the arrangement of the denomination stop carrier at the keyboard, the operator can very conveniently control the movements of the carriage both for tabulating work, and also for returning the carriage to begin a new line, or otherwise manipulating the carriage; the provision of a carriage releasing member upon the carrier controlling member 19 at the front of the keyboard being a great convenience.

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

Having thus described my invention, I claim:

1. In a typewriting machine having a keyboard, a framework, and a letter-spacing carriage mounted to travel over the framework, the combination of a denomination-stop mechanism including a carrier mounted upon the framework for movement across

the same, and having denomination selecting devices in front of said keyboard, movable devices mounted upon said framework to connect said carriage and said carrier, and a column stop mounted upon the framework to cooperate with said denomination stops.

2. In a typewriting machine having a keyboard, a framework, and a carriage mounted to travel over the framework, the combination of a carrier mounted beneath the framework for movement across the machine, and extending from front to rear of the machine, denomination-selecting devices on said carrier at the keyboard, movement-transmitting connections extending from said carriage to the front and rear ends of said carrier, and including movable members mounted upon said framework, and a column-stop mounted upon the framework to cooperate with said denomination-selecting devices.

3. In a typewriting machine having a keyboard, a framework, and a letter-spacing carriage mounted to travel over the framework, the combination of a carrier movable across the machine near the keyboard and bearing denomination-stop devices, an arm extending down from the carriage and connected with the carrier, a movement-transmitting mechanism having front and rear bearings upon the framework and connected at its rear end to said arm and at its forward end to said carrier, and a column stop mounted upon the framework to cooperate with said denomination-stop devices.

4. In a typewriting machine having a keyboard, a framework, and a letter-spacing carriage mounted to travel over the framework, the combination of a carrier at the keyboard, denomination-selecting devices upon said carrier, mechanism pivoted upon the framework and connected to said carrier to guide the latter across the machine, an arm extending from the carriage to said mechanism, and a column stop.

5. In a typewriting machine having a keyboard, a framework, and a letter-spacing carriage mounted to travel over the framework, the combination of a carrier having denomination selecting devices at said keyboard and extending rearwardly beneath said framework, devices pivoted and mounted upon said framework and connected to the forward and rear portions of said carrier to guide the latter across the machine, means connecting said carrier to said carriage to cause it to move with the latter, and a column stop.

6. In a typewriting machine having a keyboard, a framework, and a letter-spacing carriage mounted to travel over the framework, the combination of a carrier having denomination-selecting devices at the keyboard and extending rearwardly therefrom, a linkage pivoted upon said framework, and connected to the front and rear ends of said

carrier to cause the latter to have a parallel movement in a right line across the machine, a connection from said carriage to said linkage, and a column stop to cooperate with said denomination-mechanism.

7. In a typewriting machine having a keyboard, a framework, and a letter-spacing carriage mounted to travel over the framework, the combination of a carrier having denomination-selecting devices at the keyboard and extending rearwardly therefrom, a linkage pivoted upon said framework and connected to the front and rear ends of said prising a lever pivotally connected at its rear end to the rear end of said carrier and pivoted at its forward end upon the framework, and a second lever pivoted at its forward end to the front of said carrier and pivotally supported at its rear end upon the framework, said levers connected to each other between their ends, a connection from said carriage to said linkage, and a column stop.

8. In a typewriting machine having a keyboard, a framework, and a letter-spacing carriage mounted to travel over the framework, the combination of a carrier having denomination-selecting devices at the keyboard and extending rearwardly therefrom, a linkage pivoted upon said framework, and connected to the front and rear ends of said carrier to cause the latter to have a parallel movement in a right line across the machine, a connection from said carriage to said linkage, and a column stop to cooperate with said denomination-mechanism; said linkage comprising a lever pivotally connected at its rear end to the rear end of said carrier and pivoted at its forward end upon the framework, and a second lever pivoted at its forward end to the front of said carrier, and pivotally supported at its rear end upon the framework, said levers connected to each other between their ends, means being provided between said levers for causing the forward end of the second lever to follow a straight line across the machine.

9. In a typewriting machine having a keyboard, a framework, and a letter-spacing carriage mounted to travel over the framework, the combination of a carrier having denomination-selecting devices at the keyboard and extending rearwardly therefrom, a linkage pivoted upon said framework, and connected to the front and rear ends of said carrier to cause the latter to have a parallel movement in a right line across the machine, a connection from said carriage to said linkage, and a column stop to cooperate with said denomination-mechanism; said linkage comprising a lever pivotally connected at its rear end to the rear end of said carrier and pivoted at its forward end upon the framework, and a second lever pivoted at its forward end to the front of said carrier, and

pivoted at its rear end upon an idle link, the latter being pivoted upon the framework; said levers connected to each other between their ends by means of a link for imparting swinging movement from one lever to the other, a pin projecting from one of said levers, and a curved slot in the other of said levers engaged by said pin to cause the forward end of the second lever to follow a straight path across the machine.

10. In a typewriting machine having a keyboard, a framework, a letter-spacing carriage mounted to travel over the framework, and a column stop, the combination of a carrier having denomination selecting-devices at the keyboard, and extending rearwardly therefrom, a lever pivoted at its forward end upon the framework and pivoted at its rear end to an arm which is hinged upon said carriage, means loosely connecting the rear end of said carrier to the rear end of said lever to accommodate the swinging movement of the latter, and a second lever pivoted at its forward end to the front of said carrier, and pivotally supported at its rear end upon the framework; said levers connected to each other between their ends, and means being provided between said levers to cause the front end of the second lever to follow a straight path across the machine.

11. In a tabulating mechanism comprising a power-driven letter-spacing carriage, and a column stop, the combination of a stepped or graduated stop member mounted upon a part which travels with the carriage, a series of finger-pieces mounted upon said stepped-stop member, a carriage releasing mechanism including a movable plate through which said finger-pieces project different distances, and means for arresting the plate when moved by the finger upon actuation of any of said finger pieces.

12. In a typewriting machine having a keyboard, a framework, a letter-spacing carriage mounted to travel over the framework, and a column stop at the keyboard, the combination of a carrier arranged at the keyboard and connected to said carriage, a graduated stop member mounted upon said carrier and movable into engagement with said column stop, a series of finger pieces connected to said graduated stop member, and means for arresting the finger at different points in the movement of said graduated stop member according to the finger-piece operated.

13. In a typewriting machine having a keyboard, a framework, and a letter-spacing carriage mounted to travel over the framework, the combination of a carrier mounted at the keyboard and connected to said carriage, cooperating stop members, one of which is graduated, one stop member mounted upon said carrier and the other

upon said framework, a series of finger-pieces connected to one of said stop members for moving it into engagement with the other, a carriage releasing mechanism including a plate movable by the finger when pressing any of said finger-pieces, the latter projecting different distances from said plate, and means for arresting said plate.

14. In a typewriting machine having a keyboard, a framework, and a letter-spacing carriage mounted to travel over the framework, the combination of a carrier mounted at the keyboard and connected to said carriage, cooperating stop members, one of which is graduated, one stop member mounted upon said carrier and the other upon said framework, a series of finger pieces of graduated lengths fixed to the stop member upon said carrier, a plate mounted upon said carrier in proximity to said finger-pieces and movable by the finger at the operation of the finger-pieces, a carriage releasing mechanism including a transverse bar mounted upon the framework, and movable by said plate at any point in the travel of said carrier, and means for arresting said plate.

15. In a typewriting machine having a keyboard, a framework, and a power-driven letter-spacing carriage mounted to travel over the framework, the combination of a carrier mounted at the keyboard and connected to said carriage, a column stop mounted upon the framework at the keyboard, a graduated stop movable upon said carrier, a series of finger-pieces of graduated lengths extending from said graduated stop, a plate through which said finger-pieces project, means whereby said plate is mounted to slide upon said carrier, a carriage releasing mechanism including a transverse bar mounted upon the framework and movable by said plate at any point in the travel of said carrier, and means for arresting said plate.

16. In a typewriting machine having a keyboard, a framework, and a power-driven letter-spacing paper carriage mounted to travel relatively to the keyboard, the combination of a carrier mounted at the keyboard and connected to said carriage, denomination-selecting devices mounted upon said carrier, a carriage releasing mechanism including a part mounted upon said carrier, and a column stop mounted upon the framework of the machine.

17. In a typewriting machine having a keyboard, a framework, and a power-driven letter-spacing paper carriage mounted to travel relatively to the keyboard, a tabulating mechanism including a carrier mounted at the keyboard and connected to said carriage, denomination-selecting devices mounted upon said carrier, and a carriage releasing mechanism including both a part mount-

ed upon said carrier, and movable at the operation of the denomination selecting devices, and a bar mounted upon the framework and engageable by said movable part at any point in the travel of the carriage.

18. In a typewriting machine having a keyboard, a framework, and a power-driven letter spacing carriage mounted to travel over the framework, the combination of a carrier mounted at the keyboard independently of the carriage, devices pivoted upon said framework and connected to the carriage for transmitting movement to said carrier, denomination-selecting devices mounted upon said carrier, a carriage releasing mechanism mounted upon the framework and operable by a part mounted upon said carrier, and means to cooperate with said selecting devices for variably arresting the carriage.

19. In a typewriting machine having a keyboard, a framework, and a power-driven letter spacing paper carriage mounted to travel relatively to the keyboard, the combination with means traveling with the car-

riage to control the same and extending from the carriage downwardly and forwardly beneath the framework to the keyboard, and carriage-releasing mechanism including a part at the keyboard mounted upon said traveling means.

20. In a typewriting machine having a keyboard, a framework, and a power-driven letter spacing paper carriage mounted to travel relatively to the keyboard, the combination with means traveling with the carriage to control the same and extending from the carriage downwardly and forwardly beneath the framework to the keyboard, carriage-releasing mechanism including a part at the keyboard mounted upon said traveling means, and cooperating carriage stops, one mounted upon the framework, and the other upon said traveling means.

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Witnesses:

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