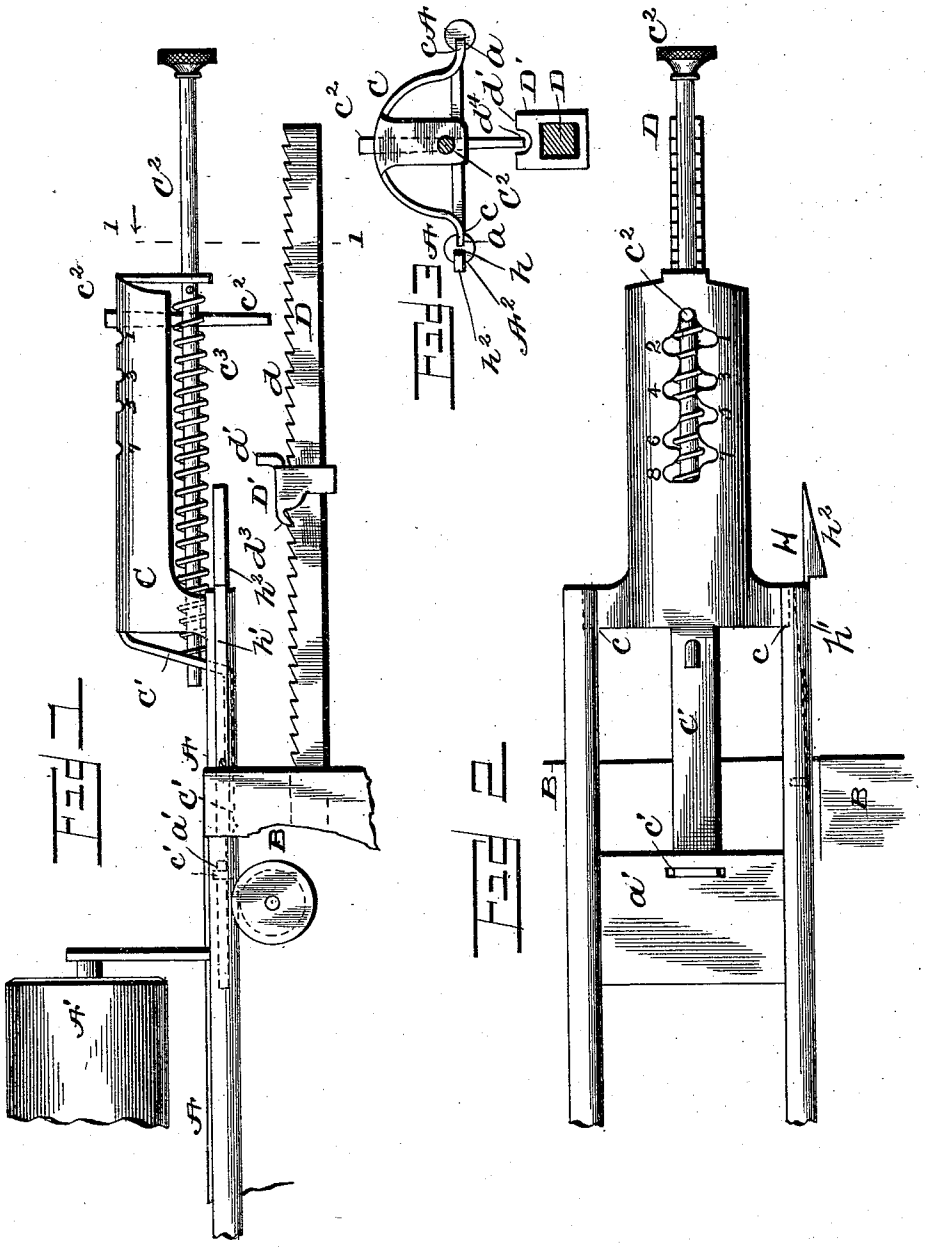
(No Model.) 3 Sheets—Sheet 1.

G. C. BLICKENSDERFER.

TYPE WRITING MACHINE.

No. 472,696. Patented Apr. 12, 1892.



Witnesses
John Dennis
Franklin Moore

Inventor
Geo. C. Blickensderfer
By his Attorneys
Hallock and Hallock

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

G. C. BLICKENSDERFER.

TYPE WRITING MACHINE.

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Fig 4

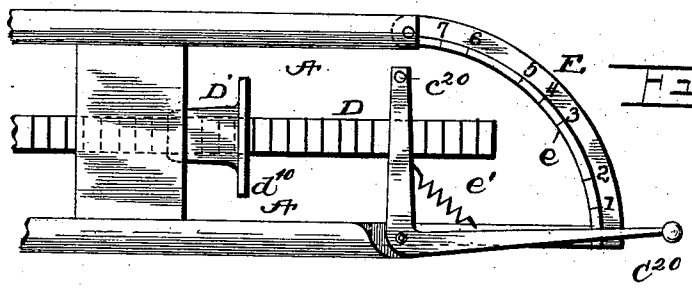


Fig 5

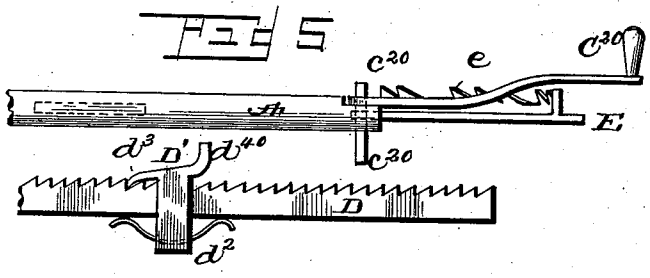


Fig 6

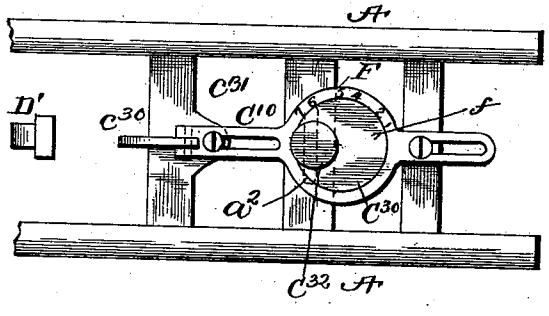
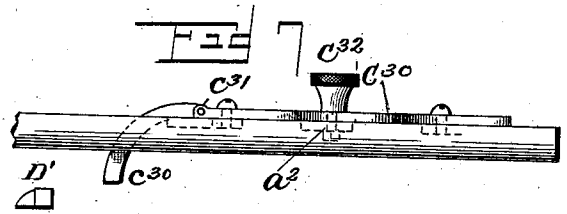


Fig 7



Witnesses

John Devine

Franklin Moore

Inventor

Geo. C. Blickensderfer

By his Attorneys

Hallock and Hallock

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 3.

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TYPE WRITING MACHINE.

No. 472,696. Patented Apr. 12, 1892.

Fig 8

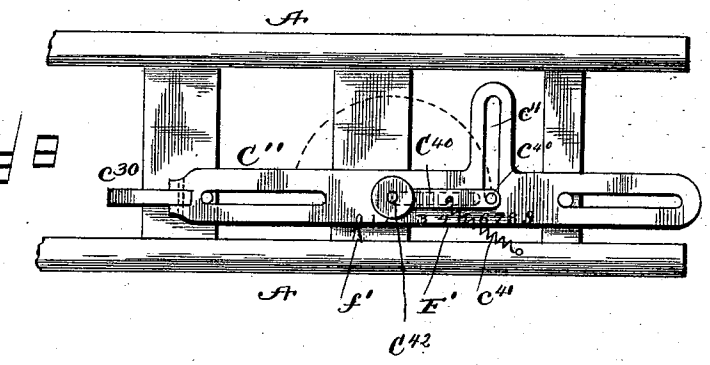


Fig 9

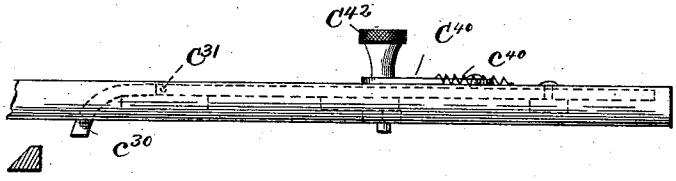
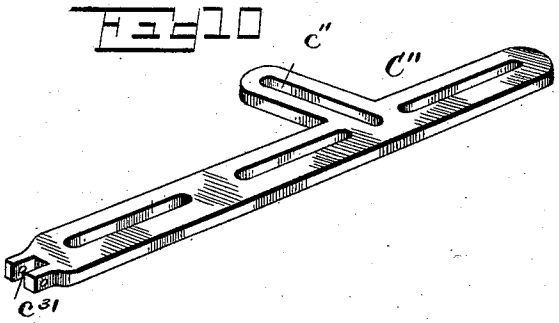


Fig 10



Witnesses
John Dennie
Franklin Moore

Inventor
Geo. C. Blickensderfer
By his Attorneys
Hallock and Hallock

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE C. BLICKENSDERFER, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE BLICKENSDERFER MANUFACTURING COMPANY, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 472,696, dated April 12, 1892.

Application filed February 26, 1892. Serial No. 422,867. (No model.)

To all whom it may concern:

Be it known that I, GEORGE C. BLICKENSDERFER, a citizen of the United States, residing at Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to that class of columnating attachments in which one part of the attachment is located upon a fixed part of the machine and the other part of the attachment is upon a movable part of the machine—such, for example, as the device shown in my applications serially numbered 399,117 and 410,893, filed, respectively, July 11 and November 4, 1891. The device shown in this specification differs from those shown in said applications, in that in the latter a series of stops or catches placed side by side on one part of the machine are arranged to engage with a stop or series of stops on the other part of the machine, and which determine the location of the column or columns, the said stop or stops being fixed or movable relative to the part to which they are attached, whereas in this application a single catch or stop is substituted for the series of stops, and said single stop when operated engages the stop or stops that determine the location of the column or columns with the same result as when a series of keys or stops are used for the same purpose.

The special object of my present invention is to simplify the construction and operation, and thereby cheapen the device and expedite its action. To this end I dispense with the series of catches either on the frame of the machine or on the carriage, and I employ a single catch, preferably on the carriage, and a stop or series of stops, preferably on the frame of the machine. The catch has a variable movement relative to the stop, and the stop or stops may be fixed or movable, as shown. When movable, the position of the stop or stops may be varied at will. It is therefore termed a "variable stop," which regulates the position of the column on the paper, and is only changed when it is desired to change the position of the column. The variable catch has to be adjusted at each entry of an item in the column. I therefore prefer to make the catch automatically returnable to its normal position.

To facilitate work, I prefer to place the catch on the carriage in position to be controlled by the hand of the operator while it is engaged in moving the carriage to the left to position the paper for the entry of the item in the column. In the applications above referred to these catches were so arranged that each would stop the carriage a letter-space distance from its companion next in order—as, for example, the catch marked 3 would stop the carriage one letter-space from the point where the catch marked 2 would stop it. Consequently if the catches marked 1 and 2 were used for entering cents and those marked 3 4 5, &c., were used for entering dollars there would be no space left for entering the decimal-point between dollars and cents, or a comma between hundreds and thousands, and so on. I avoid this defect and also dispense with the series of catches by making my variable catch changeable into such positions as will provide for the entry of the amount with proper separating points or spaces, so that the amount printed can be read without effort. In other words, I make said catch variable into a series of graduated positions that are grouped periodically.

My invention is illustrated in the accompanying drawings, as follows:

Figure 1 is a side elevation of my device, showing only part of the carriage A and part of the frame B. Fig. 2 is a top view of the parts shown in Fig. 1. Fig. 3 is a vertical section on the line 1 1 in Fig. 1. Fig. 4 is a top view of an alternative construction. Fig. 5 is a side view of the parts shown in Fig. 4. Fig. 6 is a top view of another alternative construction. Fig. 7 is a side view of the same parts shown in Fig. 6. Fig. 8 is a top view of still another alternative construction. Fig. 9 is a side view of the same parts shown in Fig. 8. Fig. 10 is a perspective view of the bar C″ in Fig. 8.

A marks the carriage, A′ the platen or paper-roller, and B the frame of the machine.

Other letters and figures of reference will be referred to in place in the following general description.

The various alternative constructions shown in the drawings while differing in details possess the same leading features in common, and each embodies my invention.

In the construction shown in Figs. 1, 2, and 3 there is a stop-bar D, attached to the frame B and having teeth d pointing toward the catch, and on it is an adjustable stop D′, having a lip d^3 for engaging the teeth d, which holds the stop D′ against movement in one direction when in engagement with the teeth and a stop-lug d' for engaging the catch-pin c^2. The stop D′ is variable and can be adjusted to any point desired to regulate the position on the page of the right-hand figures of a column of amounts. If desired, there may be two or more stops D′ on the bar D, so as to provide for positioning two or more columns. By observing the stop D′, as seen in Fig. 3, it will be seen that the stop-lug d' has a notch d^4 in it for allowing the catch-pin c^2 to pass when standing at normal position.

The variable catch mechanism on the carriage is constructed as follows: In the figures referred to above, C is a semi-cylindrical case or frame-piece having flanges c c, which fit into grooves a in the ends of the carriage-frame pieces, and a tongue C′, having a lip c', that engages with a slot a' in a cross-piece of the carriage frame-work. The part C C′ is easily connected to or detached from the carriage by simply putting it into or taking it out of its place. C^2 is a sliding rod carried in the frame-piece C′ C′, and a spring C^3 serves to hold the rod C^2 at normal position. In the top of the frame-piece C is a longitudinal slot having offsets or notches 1 2 3, &c. On the rod C^2 is a catch-pin c^2, the upper end of which fits in the longitudinal slot just referred to, and the lower end depends over the bar D. By pushing the rod C^2 inwardly and turning it so as to bring the catch-pin c^2 into any of the offsets or notches the lower end of the pin will be brought out of line with the notch d^4 in the stop-lug d', and hence it will impinge against the stop-lug d' and stop the forward movement of the carriage.

In operating the device the operator, we will suppose, desires to print the amount "$20.10." He will push the rod C^2 in until the pin c^2 is opposite the notch marked 4, and then turn the rod slightly, so as to enter the pin c^2 into said notch 4, and he will then continue moving his hand to the left, which will push the carriage forward until the movement is stopped by the contact of the pin c^2 with the stop D′. He will then release the catch-bar C^2, and the spring C^3 will return it to normal, and the operator can operate the type-keys and print in the amount. There are four digits in the amount supposed and also a decimal-point. The operator entered the catch-pin c^2 into notch 4 because he had four digits to print. The space between the notches 2 and 3 will be seen to be a letter-space farther apart than the space between the notches 1 and 2 or 3 and 4 or 4 and 5, and the space between the notches 5 and 6 will be seen to be the same as between 2 and 3, and so is the space between 8 and 9. The objects of these double-width spaces between certain notches is to allow space for punctuation-marks, as the commas between hundreds and thousands, and between hundreds of thousands and millions, and the decimal between dollars and cents, or between units and any fraction thereof.

In the device shown in Figs. 4 and 5 there is the same stop-bar D and the same stop D′, with a stop-lug d^{10}, that is formed differently from the stop-lug d' in the former construction to meet the changed requirements incident to the action of the catch-pin c^{20}.

The variable catch device is constructed and operated as follows: At the right-hand end of the carriage there is a quadrant E, having notches e spaced in proper manner to provide for the points of separation in the printing of amounts, as heretofore described. At the center point of the arc of the quadrant there is pivoted an elbow-lever C^{20}, which carries at its free end a catch-pin c^{20} and at its opposite end a knob or handle, and this part of the lever is made sufficiently flexible to allow it to be depressed, so as to engage the teeth e of the quadrant and to spring out of engagement therewith as soon as released, and a spring e' is provided for returning the lever to normal when left free. As the lever C^{20} is moved around on the quadrant the catch-pin c^{20} is varied in its relative position to the stop D′ and will stop the carriage at various points. In operating this device the operator will move the handle end of the lever to the desired point on the quadrant and bring it into engagement with the tooth e there located, and then while the lever is thus engaged he will move the carriage to a contact of the catch-pin with the stop and then release the lever and allow it to return to normal and then operate the type-keys to print in the desired amount. When the lever C^{20} is at normal, the catch-pin will not engage with the stop-lug d^{10} and the carriage will be free to move without interruption.

In the construction shown in Figs. 6 and 7 the variable catch c^{30} is in the form of a curved pawl, which, when the bar to which it is attached is at normal, as shown in the drawings, is held up from contact with the stop D′ by one of the cross-bars of the carriage; but when the said bar is moved out of normal the pawl will drop into position to engage the stop. The said bar C^{10} is mounted on the carriage and guided so as to be moved longitudinally by an eccentric C^{30}, which has its pivot seated in a slot a^2 in one of the cross-pieces of the carriage-frame and is provided with means for rotating it. To move

the bar C^{10} back and forth, the pivot-button c^{32} of the eccentric C^{30} is grasped and the eccentric turned until the pawl or variable catch-pin c^{30} has reached the desired position. A scale F on the bar and a pointer *f* on the eccentric serve to indicate the position of the catch-pin.

In the construction shown in Figs. 8, 9, and 10 the parts are much the same as in the last-mentioned construction, except that the eccentric is supplanted by a lever C^{40} and the bar C^{11} has a right-angled slot c^{11}, in which a pin c^{40} on the lever enters and serves to move the bar longitudinally as the lever is turned, and a spring c^{41} serves to return the lever to normal. The lever C^{40} is pivoted upon one of the cross-pieces of the carriage by a pin c^{42}, having an enlarged head. The pin passes through a slot a^4 in the bar C^{11}, and is shown in dotted lines under lever C^{40} in Fig. 8. By turning the pin c^{42} the lever is swung on an arc, and the pin c^{40}, acting upon the front wall of the slot c^{11}, forces the bar C^{11} forward to the desired position. In this construction I show the scale F′ on the side of the bar C^{11} and the pointer on the carriage-frame.

In Figs. 1, 2, and 3 is shown a spear H, made of spring metal and secured in a recess *h* in one of the rods or ways A^2 (preferably the one nearest the operator) of the carriage. The shaft *h*′ is preferably flat and is within the recess, and the head h^2 is of any desired form and projects beyond the end of the rod or ways A^2, to which it is secured. The lip of the head normally projects beyond the rod A^2 and in line with the frame, so that when the carriage is moved a certain distance further movement to finish the traverse is stopped by the lip striking the frame of the machine. By depressing the spear-head into the recess *h* the carriage will be free to move forward and complete the full traverse. By making the lip with an inclined face the return movement of the carriage can be made without stoppage, as the spear-head, by reason of its inclined face hitting the edge of the frame, will be depressed, and therefore not catch on said frame to stop the carriage. This movable stop differs from the movable stop shown and claimed in my application, Serial No. 410,230, filed October 29, 1891, in that in the latter the stop must be lifted to allow the carriage to move to the right after it has been moved the full distance to the left—that is, when the movable stop has been lifted to permit of the full traverse—whereas the movable stop shown in this specification allows the operator to move the carriage to the right past the stop on the frame without further manipulation, as the spear-head, by reason of its inclined surface, is made to recede into the recess, and consequently out of the path of the stop on the frame.

I do not claim herein the combination of a frame, a carriage having a predetermined traverse on said frame, and a movable stop normally in the path of traverse and to temporarily stop the carriage before the end of its movement, whereby the operator is enabled to properly complete a line, nor when in such a combination the movable stop is on the carriage, nor when in such a combination the stop is manually movable out of the way of the stop on said frame, if the movable stop is on the carriage, or vice versa; nor do I herein claim the combination, in a columnating attachment, of a stop and a catch-lever on the part of the machine opposite to the stop and having a variable throw relative to said stop, nor when said stop is on the frame and the lever is on the carriage, as such a construction forms part of the subjects-matter of my application Serial No. 410,230, filed October 29, 1891; nor do I claim in this specification the combination of a frame having a series of stops (that may be adjustable) in the path of the paper-carriage, and said carriage having a key-controlled stop mechanism normally out of the way of said stop when the carriage is moved, as such a construction forms part of the subjects-matter of my application, Serial No. 410,231, filed October, 1891.

In this description and in the subjoined claims the terms "variable catch" and "variable stop" are used. By these terms I intend to express the following meaning: A catch is that part which is brought into position to engage the stop at each entry of an item in the column of figures, and it is a variable catch when it is moved to a number of different positions, so as to provide for the entry of items having more or less digits than the preceding item. A stop is that part against which the catch contacts and determines the position of the column on the sheet. A stop is variable when it can be adjusted so as to vary the position of different columns. A variable stop when once adjusted is not changed until the column is completed; but, on the other hand, a variable catch may be changed at each entry of an item in the column.

What I claim is as follows:

1. In a columnating attachment for typewriting machines, the combination of a stop and a catch variably engaging and manually adjustable relative to said stop at the entry of each item, and which automatically reverts to a uniform normal position relative to said stop.

2. In a columnating attachment for typewriting machines, the combination of a stop and a longitudinally-movable catch variably engaging and manually adjustable relative to said stop at the entry of each item, and which automatically reverts to a uniform normal position relative to said stop.

3. In a columnating attachment for typewriting machines, the combination of a stop and a catch normally out of the path of the stop, variably engaging and manually adjustable relative to said stop at the entry of each item, and which automatically reverts to a uniform normal position relative to said stop.

4. In a type-writing machine, the combination of a stop, a catch having variable movements relative to said stop, and a plate having points for engagement with said catch when the latter has moved a predetermined distance.

5. In a type-writing machine, the combination of a stop, a catch having variable movements relative to said stop, and a plate having points for engagement with said catch, and said points being arranged in groups, for the purpose set forth.

6. In a type-writing machine, the combination of a paper-carriage, a stop for stopping said carriage attached to the frame of the machine, and a variable catch on the carriage under the control of the operator's hand used for moving the carriage for contacting with said stop, and thereby stopping the carriage at points corresponding to the points of adjustment of said catch.

7. In a type-writing machine, the combination of a paper-carriage, a stop on the frame of the machine for stopping the carriage, and a catch device on the carriage that is variable longitudinally of said carriage and under the control of the operator's hand used for moving the carriage for contacting with said stop, and thereby stopping the carriage at points predetermined by the adjustment of said catch device.

8. In a type-writing machine, the combination of a paper-carriage, a stop on the frame of the machine for stopping the carriage, and a catch device on the carriage that is variable longitudinally of said carriage into a series of graduated positions for contacting with said stop, and thereby stopping the carriage at points predetermined by the adjustment of said catch device.

9. In a type-writing machine, the combination of a paper-carriage, a variable stop on the frame of the machine for stopping the carriage, and a catch device on the carriage that is variable longitudinally of said carriage into a series of graduated positions for contacting with said stop, and thereby stopping the carriage at points predetermined by the adjustment of said catch device and stop.

10. In a type-writing machine, the combination of a paper-carriage, a stop on the frame of the machine for stopping the carriage, and a catch device on the carriage that is variable longitudinally of said carriage into a series of graduated positions and under the control of the operator's hand and for moving the carriage for contacting with said stop, and thereby stopping the carriage at points predetermined by the adjustment of said catch device.

11. In a type-writing machine, the combination of a paper-carriage, a stop on the frame of the machine for stopping the carriage, and a catch on the carriage that is variable into a series of graduated positions grouped periodically for contacting with said stop, and thereby stopping the carriage at points predetermined by the adjustment of said catch device.

12. In a type-writing machine, the combination of a paper-carriage, a variable stop on the frame of the machine for stopping the carriage, and a catch on the carriage that is variable into a series of graduated positions grouped periodically for contacting with said stop, and thereby stopping the carriage at points predetermined by the adjustment of said catch device and stop.

13. In a type-writing machine, the combination of a paper-carriage, a stop on the frame of the machine for stopping the carriage, and a catch on the carriage that is variable into a series of graduated positions grouped periodically and under the control of the operator's hand used for moving the carriage for contacting with said stop, and thereby stopping the carriage at points predetermined by the adjustment of said catch device.

14. In a type-writing machine, the combination of a paper-carriage, a stop on the frame of the machine for stopping the carriage, and a catch on the carriage that is variable into a series of graduated positions longitudinally of the carriage, grouped periodically for contacting with said stop, and thereby stopping the carriage at points predetermined by the adjustment of said catch device.

15. In a type-writing machine, the combination, with the paper-carriage, of a variable-catch mechanism for stopping said carriage at any predetermined point, said catch mechanism being adapted to stop the carriage in a series of positions grouped periodically, whereby in printing various amounts in columnated order the numerals of like denomination will be in vertical order and so grouped as to have the separating spaces or points in proper position.

16. In a type-writing machine, the combination, with the paper-carriage, of a variable-catch mechanism for stopping said carriage at any predetermined point, said catch mechanism being carried by the carriage and under the control of the operator's hand used for moving the carriage and adapted to stop the carriage in a series of positions grouped periodically, whereby in printing various amounts in columnated order the numerals of like denomination will be in vertical order and so grouped as to have the separating spaces or points in proper position.

17. In a type-writing machine, the combination of a stop connected with the frame of the machine and a variable catch-pin for engaging said stop and means for varying the position of said pin that is controlled by the hand of the operator used for moving the carriage.

18. In a type-writing machine, the combination of a stop connected with the frame of the machine and a variable catch-pin for engaging said stop, and means for varying the position of said pin that is controlled by the hand of the operator used for moving the carriage,

and a spring for automatically returning the said pin to its normal position when said varying means are released by the operator.

19. In a type-writing machine, the combination of a variable stop connected with the frame of the machine and a variable catch-pin for engaging said stop and means for varying the position of said pin that is controlled by the hand of the operator used for moving the carriage.

20. In a type-writing machine, the combination of a variable stop connected with the frame of the machine and a variable catch-pin for engaging said stop, and means for varying the position of said pin that is controlled by the hand of the operator used for moving the carriage, and a spring for automatically returning the said pin to its normal position when said varying means are released by the operator.

21. In a type-writing machine, the combination of a stop connected with the frame of the machine and a variable catch-pin for engaging said stop, a graduated scale for indicating the proper points for adjusting said pin, which scale-points are arranged in periodical groups for the purposes mentioned, and means for varying the position of said pin that are under the control of the operator's hand used in moving the carriage.

22. In a type-writing machine, the combination of a variable stop connected with the frame of the machine and a variable catch-pin for engaging said stop, a graduated scale for indicating the proper points for adjusting said pin, which scale-points are arranged in periodical groups for the purposes mentioned, and means for varying the position of said pin that are under the control of the operator's hand used in moving the carriage.

23. In a type-writing machine, the combination of a stop connected with the frame of the machine and a variable catch-pin for engaging said stop, a graduated scale for indicating the proper points for adjusting said pin, which scale-points are arranged in periodical groups for the purposes mentioned, and means for varying the position of said pin that are under the control of the operator's hand used in moving the carriage, and a spring for automatically returning the said pin to normal when said varying means are released by the operator.

24. In a type-writing machine, the combination of a variable stop connected with the frame of the machine and a variable catch-pin for engaging said stop, a graduated scale for indicating the proper points for adjusting said pin, which scale-points are arranged in periodical groups for the purposes mentioned, and means for varying the position of said pin that are under the control of the operator's hand used in moving the carriage, and a spring for automatically returning the said pin to normal when said varying means are released by the operator.

25. In a type-writing machine, the combination of the stop-bar D, connected to the frame of the machine, the variable stop D′ on said bar, the frame-piece C C′, detachably connected with the paper-carriage frame and having a notched slot in the part C thereof, the sliding bar C^2, the said frame-piece, the spring C^3 for reacting said bar, and the catch-pin c^2, carried by said bar.

26. In a type-writing machine, the combination of the stop-bar D, connected to the frame of the machine, the variable stop D′ on said bar, the frame-piece C C′, detachably connected with the paper-carriage frame and having a slot in the part C thereof, having notches 1 2 3 4 &c., therein arranged in groups with double-width spaces between the said groups, the sliding bar C^2 in said frame-piece, the spring C^3 for reacting said bar, and the catch-pin c^2, carried by said bar.

27. In a type-writing machine, the combination of a bar or frame having teeth and a stop adjustable upon said bar or frame and having a lip engaging with said teeth, which holds said stop against movement in one direction, and a catch normally out of the path of said stop.

28. In a type-writing machine, the combination of a frame, a carriage having a predetermined traverse on said frame, and a movable stop normally in the path of traverse and to temporarily stop the carriage before the end of its movement, said movable stop having a lip which engages with the fixed stop when the carriage is moved to the left, and an inclined face which engages the fixed stop to throw the movable stop out of line with the fixed slot when the carriage is moved to the right.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE C. BLICKENSDERFER.

Witnesses:
M. F. HALLECK,
FRANKLIN MOORE.