H. W. DAVIS.

TYPE WRITING MACHINE.

APPLICATION FILED APR. 24, 1908.

1,155,707.

Patented Oct. 5, 1915.

2 SHEETS—SHEET 1.

FIG. 1.

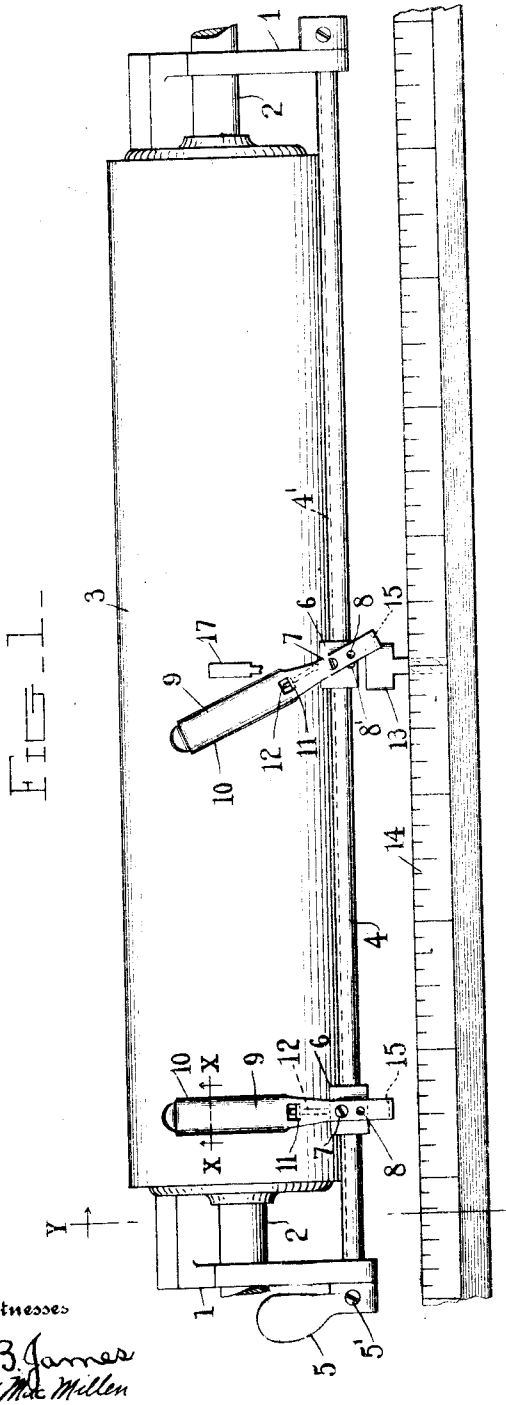


FIG. 2.

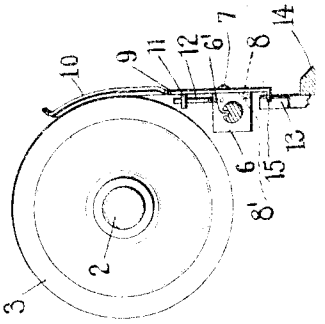


FIG. 3.

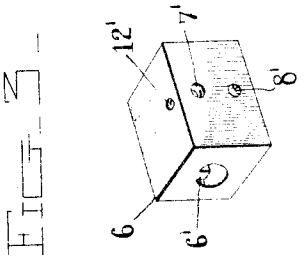
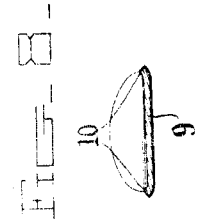


FIG. 4.



Witnesses

L. B. James

W. W. McMillen

Inventor

Horace W. Davis

H. W. DAVIS.

TYPE WRITING MACHINE.

APPLICATION FILED APR. 24, 1908.

1,155,707.

Patented Oct. 5, 1915.

2 SHEETS—SHEET 2.

FIG. 4.

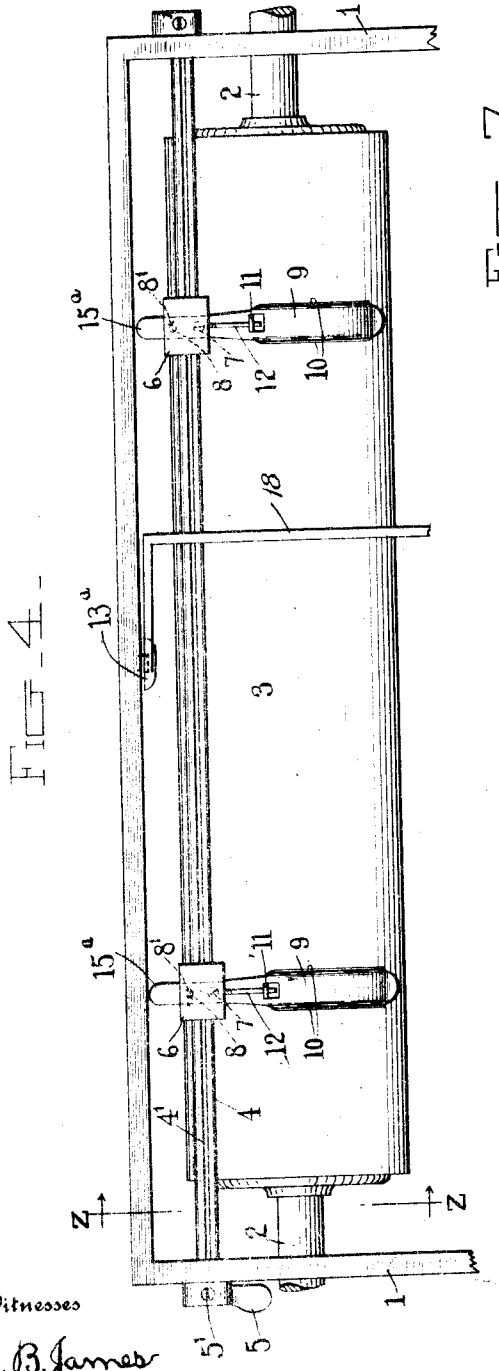


FIG. 7.

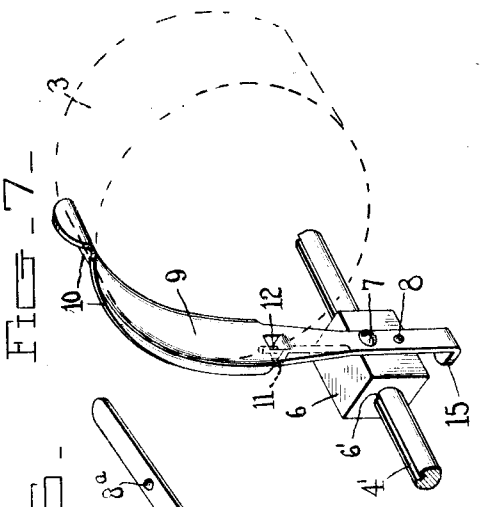


FIG. 6.

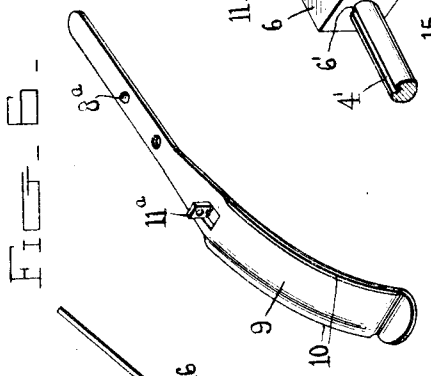
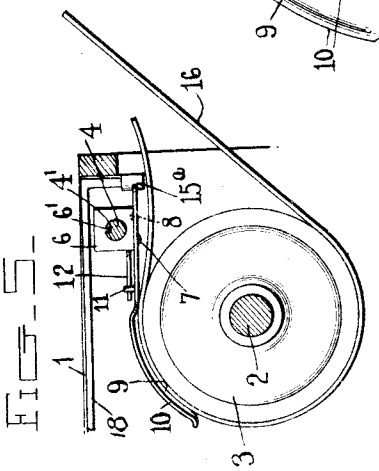


FIG. 5.



Witnesses

L. B. James

Wm. H. MacMillen

Inventor

Horace W. Davis

UNITED STATES PATENT OFFICE.

HORACE W. DAVIS, OF SHARON, PENNSYLVANIA.

TYPE-WRITING MACHINE.

1,155,707. Specification of Letters Patent. Patented Oct. 5, 1915.

Application filed April 24, 1908. Serial No. 429,333.

To all whom it may concern:

Be it known that I, HORACE W. DAVIS, a citizen of the United States, residing at Sharon, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention pertains to improvements in typewriting machines and is directed especially to those paper feeding means by which the paper is held against the face of the platen after leaving the control of the feed rolls proper. In the greater number of machines now on the market, the paper finger, to whatever place it has been manually adjusted, will be struck by the type when, during the travel of the carriage from right to left, the paper finger assumes the position of the printing point. In some machines this defect has been overcome by slidably mounting the paper finger on the carriage rod and providing a projection on the machine frame at the printing point, or to the right thereof. Upon coming in contact with the projection, the paper finger is held by it and is prevented from covering the printing point in the continued travel of the carriage. The latter method is, however, objectionable as continual readjustment of the paper finger is necessary.

To overcome the above cited objectionable features of paper fingers at present in use, I provide a paper finger both slidable and rotatable, so that during the travel of the carriage when the paper finger approaches the printing point the projection will swing the paper finger to one side without disturbing its slidable support, and after the paper finger passes the printing point the finger will be automatically returned to normal position.

Other objects and purposes of my invention will appear from an inspection of the drawing, the specification describing the same and the claims appended thereto, in which are set forth the features of construction, combinations of elements and arrangements of parts properly comprised within the scope of the same.

In the drawings, wherein are shown several of the possible embodiments of my invention, Figure 1 is a front view of a visible, front strike typewriter (irrelevant parts being omitted) with my invention applied thereto; Fig. 2 is a cross-sectional view taken on line Y—Y of Fig. 1; Fig. 3 is a perspective view of the slide block on a larger scale than that shown in Fig. 1; Fig. 4 shows a modification of my invention adapted to a top strike typewriter; Fig. 5 is a cross sectional view taken on the line Z—Z of Fig. 4; Fig. 6 is a perspective view of the paper finger shown in Fig. 4, on an enlarged scale; Fig. 7 shows a further modification of my invention as applied in Fig. 1, the finger in this figure being mounted between the slide block and the platen; Fig. 8 is a cross-sectional view, on an enlarged scale, of the paper finger, taken on line X—X of Fig. 1.

Referring to the several figures, in which like reference characters designate like parts, 1 represents the platen frame, carried by a carriage, irrelevant portions of which are omitted from the drawing, 2 the platen axle, and 3 the platen of a typewriting machine. In Figs. 1 and 2, 4 is the platen rod extending along the front of the platen, and having its bearings rotatably mounted in the forwardly extending ends of the platen frame 1. Exteriorly of the frame, the rod is provided with a finger piece 5, secured to it by means of the screw 5′, by means of which the rod may be rotated to move the paper fingers away from the platen. A spring (not shown) is employed to retain the tensioning of the paper fingers against the platen. The rod 4 is provided with a longitudinal groove 4′ upon which the blocks 6, provided with feather 6′, are splined. The paper finger 9 is pivotally secured to the block 6 by means of screw 7, screwed into threaded opening 7′. The paper finger proper is stamped from a sheet of thin resilient metal and is provided with a beveled head and sides 9, whereby the finger may be rotated on its bearing or otherwise move over the paper with the least possible resistance. The tail of the paper finger is turned inwardly at 15 to form an ear, and between said ear and pivotal point 7 is an inwardly extending projection 8, adapted to normally rest in a corresponding depression 8′ in the block 6, whereby the paper finger is steadied in its normally erect position. The tongue 11 is stamped from the paper finger and bent on its lower edge in the direction of the block and to a position substantially parallel to the ear 15. Said tongue 11 is provided with a perforation through which an upright spring 12,

fixed at its lower end in the block 6, loosely passes.

In adapting my device to the style of machine shown in Figs. 1 and 2, I preferably mount on the scale bar or on any other suitable portion of the base a projecting member 13. This projection has, on the side facing the ear 15, a cam surface located in the path of the ear and upon which, in the travel of the carriage, the ear is adapted to ride. The location of the projection 13 is always directly in line with the printing point.

From the foregoing description it will be seen that I have provided a paper finger which will not be struck by the type in printing and which, when once adjusted, need not be readjusted after it has been rotated by the projection on the machine frame.

In operation my invention will work as follows: The paper finger or fingers are adjusted to any position on the rod 4 where they will control the sheet of paper being written upon. It must be understood that a finger may be placed directly in the center of the line of print if desired. Upon the carriage feeding toward the left in letter spacing, the paper finger approaches the printing point, where, in the ordinary construction, it would be struck by the type. In the form shown in Figs. 1 and 2, however, the ear 15 is met by the projection 13, causing the paper finger to rotate on its pivot 7, past the printing point. On the next printing or letter space the tail of the paper finger is flexed outwardly by the ear riding up on the cam face of the projection. As the carriage continues in letter spacing the ear 15 passes from the control of the cam 13, and the finger is returned under the impulse of the spring 12 to its normally erect position. On the return of the cariage to begin a new line, the paper finger is rotated in the opposite direction.

The reason for turning the ear 15 inwardly, as shown in Figs. 1 and 2, is to allow the projection 13 to lie in the same plane as that in which the platen shifts, so that the paper finger will be operative in either the upper or lower case.

Modifications of Figs. 1 and 2 are operative upon the same principle as that set forth, and it must be understood that I am not limiting myself to any specific construction, but am claiming broadly the principle of a paper finger adapted to avoid being struck by the type as it approaches the printing point, without changing the location of the paper finger relative to the platen.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is;

1. In a typewriting machine having a carriage, a paper finger rotatable in the direction of the carriage feed and means for rotating the paper finger in such direction, substantially as shown and described.

2. In a typewriting machine having a rotatable platen, the combination of a paper finger and means for automatically rotating the paper finger in a plane parallel to the platen axle, substantially as shown and described.

3. In a typewriting machine having a carriage, a paper finger and means fixed to the machine frame for rotating the paper finger during the travel of the carriage, substantially as shown and described.

4. A typewriting machine having a carriage, a machine base, a paper finger, stationary means for moving said paper finger relative to the carriage and machine base during the travel of the carriage.

5. In a typewriting machine, the combination of a paper finger slidable and rotatable in the same plane, and means for rotating the paper finger, substantially as shown and described.

6. In a typewriting machine having a platen carriage, the combinaton of a paper finger and means mounted on the machine base for rotating the paper finger during the travel of the platen carriage, substantially as shown and described.

7. In a typewriting machine having a carriage, the combination of a paper finger slidable and rotatable in the direction of the carriage feed and means for automatically rotating said finger in said direction, substantially as shown and described.

8. In a typewriting machine, the combination of a paper finger having its axis of rotation at substantially right angles to the face of the finger and means for rotating the finger, substantially as shown and described.

9. In a typewriting machine having a carriage, the combination of a paper finger, stationary means for swinging the paper finger in one direction during the travel of the carriage and secondary means for swinging the paper finger back to its normal position, substantially as shown and described.

10. In a typewriting machine, the combination of a paper finger, means for automatically swinging the paper finger and other means for returning the paper finger to normal position, substantially as shown and described.

11. In a typewriting machine having a carriage having a shiftable, traveling platen, the combination of a paper finger and stationary means for rotating the paper finger during the travel of the platen while the platen is in either upper or lower position, substantially as shown and described.

12. In a typewriting machine having a platen frame, the combination of a paper

finger rotatably mounted on the platen frame, and means for automatically rotating said paper finger during the travel of the platen frame, said means being operative while the platen frame is in either the upper or lower case position, substantially as shown and described.

13. In a typewriting machine, the combination of a block, a thin resilient paper finger pivoted on said block, means carried by the machine frame for moving said paper finger in one direction and means carried by the block for moving the paper finger in the opposite direction, substantially as shown and described.

14. In a typewriting machine having a carriage, the combination of a block, a paper finger pivoted on said block, a member operative upon the travel of the carriage for rotating the paper finger in one direction and a second member adapted to rotate the paper finger in the opposite direction, substantially as shown and described.

15. In a typewriting machine having a carriage, the combination of a paper finger, said finger crossing the line of print, and stationary means for rotating the paper finger when it approaches the printing point, substantially as shown and described.

16. In a typewriting machine, the combination of a block, a paper finger mounted on the block, means mounted on the machine frame for rotating the paper finger alternately in two different directions, means mounted on the block for returning the paper finger to normal position after said finger has passed beyond the control of the first named means, and means for assisting in retaining the paper finger in normal position, substantially as shown and described.

17. In a typewriting machine having a carriage, the combination of a paper finger which crosses the line of print and means, acting on said paper finger during the feed of the carriage, for rotating the finger as it approaches the printing point, substantially as shown and described.

18. In a typewriting machine having a carriage, the combination of a paper finger which crosses the line of print, means fixed to the machine frame for rotating said finger as it approaches the printing point and means for rotating said finger to normal position after it has passed the printing point, substantially as shown and described.

19. In a typewriting machine having a carriage, the combination of a paper finger which crosses the line of print, means fixed to the machine frame for moving the paper finger in one direction as it approaches the printing point and means for moving the paper finger in the opposite direction as it leaves the printing point, substantially as shown and described.

20. In a typewriting machine having a carriage, the combination of a paper finger made of thin resilient metal, said finger being pivotally mounted on the carriage, and primary and secondary means for maintaining said finger in normal position, said means coacting between the finger and the pivotal support, substantially as shown and described.

21. In a typewriting machine having a carriage, the combination of a paper finger of thin resilient metal, said finger being pivotally mounted on the carriage, means fixed to the machine frame for rotating the finger, and spring means opposing said first named means, substantially as shown and described.

22. In a typewriting machine having a carriage, the combination of a paper finger, said finger crossing the line of print, and means for automatically rotating the paper finger when it approaches the printing point, substantially as shown and described.

23. In a typewriting machine having a carriage, the combination of a paper finger which crosses the line of print, means for automatically rotating said finger as it approaches the printing point, and means for rotating said paper finger back to normal position after it has crossed the printing point, substantially as shown and described.

24. In a typewriting machine having a carriage, the combination of a paper finger which crosses the line of print, means for automatically moving the paper finger in one direction as it approaches the printing point and means for moving the paper finger in the opposite direction as it leaves the printing point, substantially as shown and described.

25. In a typewriting machine having a carriage, the combination of a paper finger pivotally mounted on the carriage, spring means for maintaining the paper finger in a normal erect position, a projection fixed to the machine frame adjacent to the printing point, and an elongation on said paper finger adapted to contact with said projection and cause the paper finger to rotate in opposition to the spring means, substantially as shown and described.

26. In a typewriting machine having a carriage, the combination of a paper finger and means for automatically rotating said finger as it approaches the printing point during the feed of the platen carriage, substantially as shown and described.

27. In a typewriting machine, the combination of printing instrumentalities, a paper feeding device that crosses the printing line and travels past the printing point, and means acting on said paper feeding device for preventing the printing instrumentalities from striking the same.

28. In a typewriting machine, the combination of printing instrumentalities, a paper feed device that crosses the printing line,

and means for compelling the paper feed device to move past the printing point before a printing instrumentality can strike it.

29. In a typewriting machine, the combination of a platen, a plurality of paper fingers coöperative with the platen and movable therewith and each mounted for movement relatively thereto, and means coöperative with said paper fingers for moving each of them individually past the printing point independently and by a movement of each of said fingers relatively to the platen.

30. In a typewriting machine, the combination of a carriage, a paper feed device carried thereby, and means for moving said paper feed device past the printing point by a movement of the paper feed device relatively to the carriage, said means being carried in part by the carriage and in part by the frame of the machine.

31. In a typewriting machine, the combination of a carriage, a paper feed device carried thereby, and means for moving said paper feed device past the printing point by a movement of the paper feed device relatively to the carriage, said means being carried in part by the carriage and in part by the frame of the machine, said means being operated by the travel of the carriage.

32. In a typewriting machine, the combination of a carriage, a paper feed device carried by the carriage and movable past the printing point, and means whereby said paper feed device is caused to move faster than the carriage when said device passes the printing point.

33. In a typewriting machine, the combination of a carriage, a paper feed device which is carried by the carriage and crosses the printing line and passes the printing point, and means whereby said paper feed device is caused to cross the printing point and to clear the path of the printing instrumentalities during the interval between two successive printing movements of the printing instrumentalities.

34. In a typewriting machine, the combination of a carriage, a paper controlling device which is carried by the carriage and crosses the printing line, and means whereby said paper controlling device is caused to move across the printing point from an unprinted portion of the line to a printed portion thereof.

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

HORACE W. DAVIS.

Witnesses:

CHAS. T. STOCKTON,

FRED A. SERVIS.