J. A. HAGERSTROM.

PAPER GUIDING DEVICE FOR TYPE WRITING MACHINES.

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1,126,451. Patented Jan. 26, 1915.

Fig. 1.

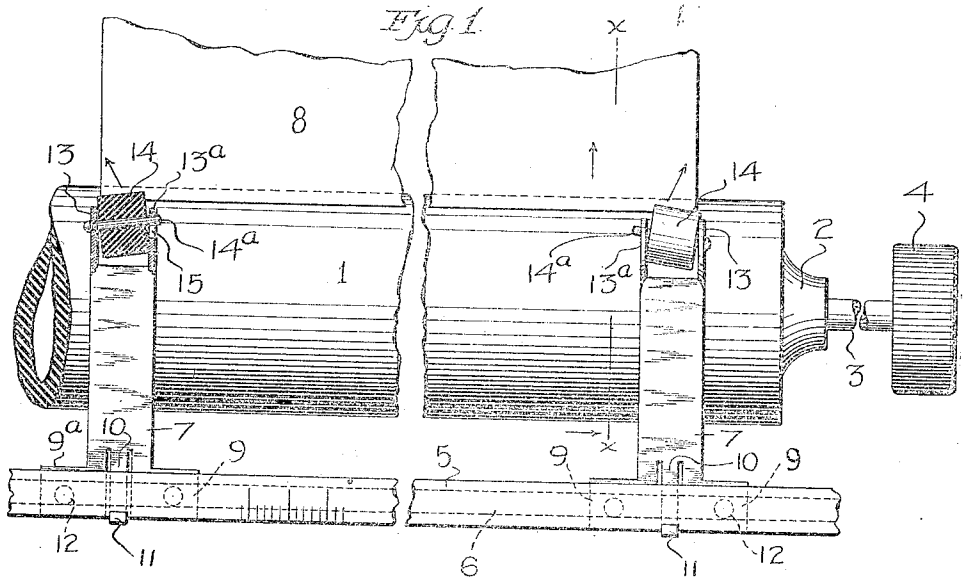


Fig. 2.

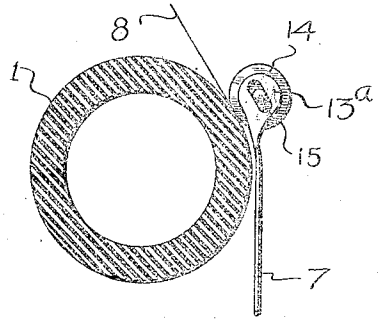
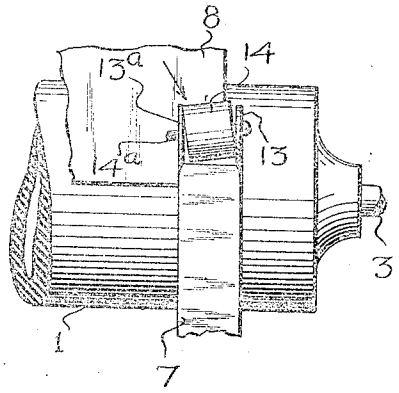


Fig. 3.



WITNESSES

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PAPER-GUIDING DEVICE FOR TYPE-WRITING MACHINES.

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To all whom it may concern:

Be it known that I, JOHN A. HAGERSTROM, a citizen of the United States, and resident of the borough of Brooklyn, city and State of New York, have invented certain new and useful Improvements in Paper-Guiding Devices for Type-Writing Machines, and in order that others skilled in the art may understand, make, and use my invention I give the following specification.

My invention relates to typewriting, adding or like machines in which the paper is fed forward from time to time to receive successive lines of impressions. In such machines the paper is usually held against a platen and the platen is moved forward or backward by suitable feeding devices or directly by the hand. It is common in such machines to provide pressure rollers which usually are pressed upon the paper on the platen near the margins or edges thereof, and are adjustable widthwise of the paper to accommodate paper of different widths. It is a common defect in the paper feeding and guiding devices usually employed upon typewriters and such machines that the paper being held at its margins as mentioned, buckles or bends away from the platen near the center of the sheet; and this defect is particularly noticeable when the direction of paper feed is reversed, as when the platen is turned or moved backward. In some machines a presser roll or finger is provided at the center of the machine for holding the paper at this point in close contact with the platen but such centrally situated presser devices are in the way in adjusting the paper and obstruct a full view of the work.

The object of my invention is to overcome these defects and to provide a device that insures the paper being fed in either direction closely in contact with the platen throughout its width.

I have illustrated my invention in the accompanying drawings, which form a part of this specification and in which,

Figure 1 is a front elevation of the platen and so much of the associated features of the machine as is necessary for an understanding of the invention, parts being shown in section. Fig. 2 is a transverse sectional view taken on the line X—X of Fig. 1, looking in the direction of the arrow; Fig. 3 is a view of the right presser roll of Fig. 1, in its opposite position, the paper being fed backward.

Similar numerals of reference are applied to corresponding parts in the several views.

The usual cylindrical platen of a typewriting machine is represented at 1, supported on its shaft 3, through the medium of end plate 2. Suitable hand wheels 4 are provided at the ends of the platen shaft 3 for rotating the platen in either direction. The line spacing lever and its associated parts for regularly feeding the platen for line spacing, have not been shown, as they may be of the conventional or any desired type; also for convenience I have shown the hand wheel and shaft at one end only of the platen, the corresponding parts at the opposite end being omitted. On the platen carriage (not shown) is mounted the usual scale bar 5. As I have applied my device to the Victor typewriting machine I have shown the form of scale bar at present used on that machine. This consists of a channeled bar with its channel 6 presented rearwardly and indicated by the dotted lines. Mounted to slide longitudinally of this scale bar are a pair of spring fingers 7, 7. These fingers are adjusted to positions at or near the marginal edges of the paper 8. These fingers are made of spring sheet metal and, in the form shown, have lateral extensions 9 adjacent the rear face of the scale bar 5 and having a flange or shoulder 9^a extending forwardly over the top edge of the scale bar. The fingers 7 are also provided with a central tongue 10 extending downwardly at the rear of the scale bar and forwardly beneath the lower edge of the same and having an upturned flange 11, engaging the front face of the scale bar. By this construction the fingers 7 are resiliently mounted upon the scale bar and have a spring pressure at their upper ends toward the platen. In the lateral extensions 9 are mounted anti-friction rolls 12, which run in the channel 6 at the rear face of the scale bar, thus rendering the fingers easily adjustable longitudinally of said bar. The upper ends of each of said fingers are provided with a pair of ears 13, 13^a, struck up from the metal of the finger to form a pair of bearings for the feed roll 14. These feed rolls are usually of rubber and are provided with an axial pin or shaft 14^a extending therethrough and

projecting beyond the ends of the roller so as to form journals therefor. The journal ends of the pins 14ª have bearings in apertures formed in the ears 13, 13ª. According to my invention I so mount the feed rolls in each finger in such way as to permit the roll to move axially into angular or inclined positions with respect to the platen axis or with respect to the direction of feed of the paper. This I accomplish by causing the outer end of the feed roll pin or axis 14ª to maintain a fixed position, while the inner end thereof is free to move or "float" to a limited extent, that is, the axis or pin 14ª of the feed roll has a limited pivotal movement about its outer end. For this purpose I form the bearing for the inner end of said feed roll as a slot 15, in the inner ear 13ª of the fingers 7, as clearly shown in the left finger of Fig. 1 and in Fig. 2. This slot 15 is preferably formed on the arc of a circle concentric with the platen axis. The bearings in the outer ears 13 are circular in form and of a size to receive the pin 14ª with sufficient freedom to permit it to assume the angular or inclined positions shown in Figs. 1 and 3.

The operation of my invention is as follows: When the paper is fed into the machine and the hand wheel 4 is turned to feed the paper upwardly (as viewed in the drawings) the friction and pressure of the feed rolls 14 on the paper together with the movement of the paper causes said feed rolls to assume the inclined positions with respect to the platen axis and also to the direction of travel of the paper, as shown in Fig. 1. This causes the feed rolls to exert an outward or divergent traction on the paper as indicated by the arrows that tends to pull the sides of the paper laterally, causing it to lie flat and smooth throughout its width against the platen. When it is necessary to turn the paper in a backward or downward direction the pressure of the feed rolls 14 on the paper and the friction between them and the paper causes said feed rolls to assume the reversed inclined position indicated in Fig. 3 in which the traction of the roll on the paper is in the direction of the arrow, that is in an outward direction tending to draw the paper outwardly thereby causing the same to lie flat and smooth against the platen throughout its width.

Preferably the pins or shafts 14ª of the feed rolls are so mounted in said rolls that they rotate with the roll, thus the pin or shaft tends to roll along the edge of the slot 15 and more readily and certainly assume the inclined positions described, according to the direction of movement of the paper.

By my invention I have provided a device which insures the paper lying close to the platen throughout its width, without attention from the operator in whichever direction the paper may be fed.

While I have illustrated and described my device as applied to the feed or presser rolls on spring fingers, it will be understood that it may be applied to feed or presser rolls at other positions on or about the platen. Also the invention may be applied to a flat platen or wherever presser or guiding rolls act upon a moving sheet of paper or the like.

Various modifications may be made from the precise form herein shown to accommodate the invention to different makes or styles of machines and for use in different locations on a machine without departing from the principle thereof.

I claim:

1. Means for guiding and feeding the paper in typewriters and like machines, said means comprising a pair of guiding or feeding rolls mounted to bear upon the margins of the paper, the axis of each of said rolls being fixedly positioned at one end thereof and free to have limited movement with the paper at the other end thereof in either direction of the paper feed.

2. In a machine of the character described, means for causing lateral or edgewise traction on the paper, said means comprising marginally located presser rolls, a stationary bearing for the marginal ends of the axes of said rolls, and a floating bearing for the inner ends of said axes, whereby said rolls may turn axially about their marginal ends and incline outwardly as and for the purpose described.

3. In a paper guiding device for typewriting and like machines, a presser roll bearing upon the paper for guiding and feeding the same, said presser roll having one end of its axis movable with the paper into inclined positions with respect to the direction of feed of the paper, as and for the purpose described.

4. The combination with a platen or paper support of a paper feeding or guiding roll coöperating therewith, means for holding said roll in frictional contact with the platen or paper thereon, a pair of bearings for the ends of the axis of said roll, one of said bearings being fixed as to position and the other of said bearings being extended in the direction of feed of the paper, substantially as and for the purpose described.

5. In a machine of the character described, means for feeding and guiding the paper, said means comprising a positively driven roll and marginally located rolls, frictionally driven thereby, a pair of axial bearings for each margin roll, one of said bearings being of fixed position and the other of said bearings being extended in the direction of movement of the paper, whereby said frictionally driven rolls may move

to axially inclined positions with respect to the positively driven roll.

6. In a machine of the character described, the combination of a pair of marginally located presser rolls for guiding and feeding the paper, a pair of axial bearings for each of said rolls, one of said bearings being of fixed location, the other of said bearings being in the form of a slot, extending in the direction of the paper feed.

7. In a machine of the character described, the combination of a platen or paper support, marginally located paper fingers mounted adjacent the platen, a paper guiding and feeding roll axially mounted in each finger to bear upon the platen or paper thereon, the outer ends of the axes of said rolls being stationary in position, and the inner ends of said axes having limited movement in the direction of movement of the paper.

8. In a machine of the character described, the combination of a platen or paper-support, a pair of marginally located paper-fingers having resilient pressure toward the platen, a pair of ears on each finger, the outer ear of each finger having a bearing therein to receive and confine one end of the axis of a presser roll, the inner ear of each finger having an elongated bearing therein to receive the other end of the presser roll axis and permit movement of said end of the axis in the direction of movement of the paper, and a presser roll for each finger having its axis mounted in said bearings substantially as described.

9. A device of the character described having in combination coöperating paper-feeding and guiding devices, said devices consisting of a positively-actuated roll or support and a presser roll bearing thereon, axial bearings for the presser roll, the bearings at one end of the presser roll axis being floating to permit the axis of the presser roll to turn about its other end in the direction of movement of the paper.

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