No. 869,547. PATENTED OCT. 29, 1907.

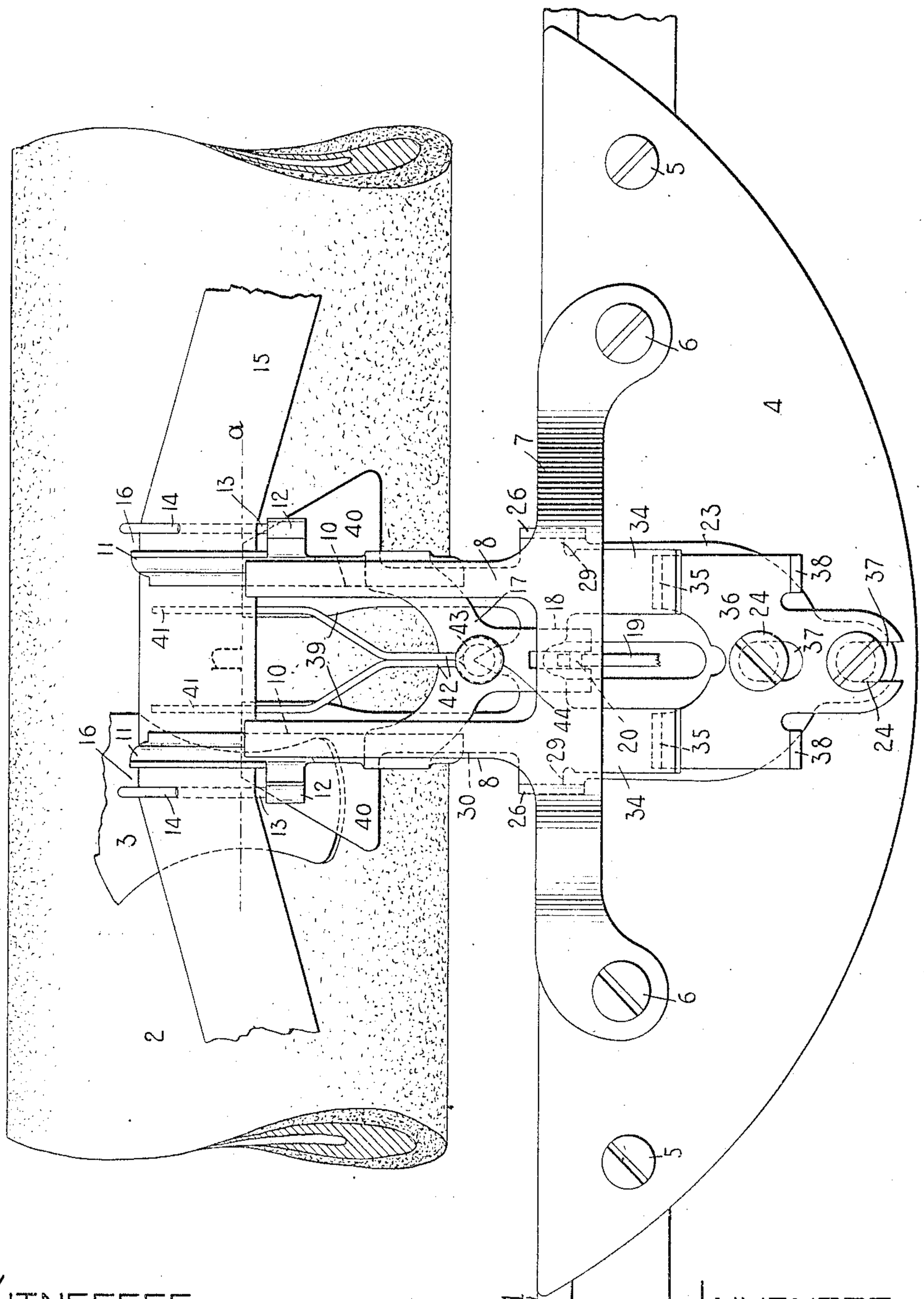
A. W. BUCKWELL.

TYPE WRITING MACHINE.

APPLICATION FILED MAY 17, 1907

2 SHEETS—SHEET 1

FIG. 1.



WITNESSES:

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2 SHEETS—SHEET 2.

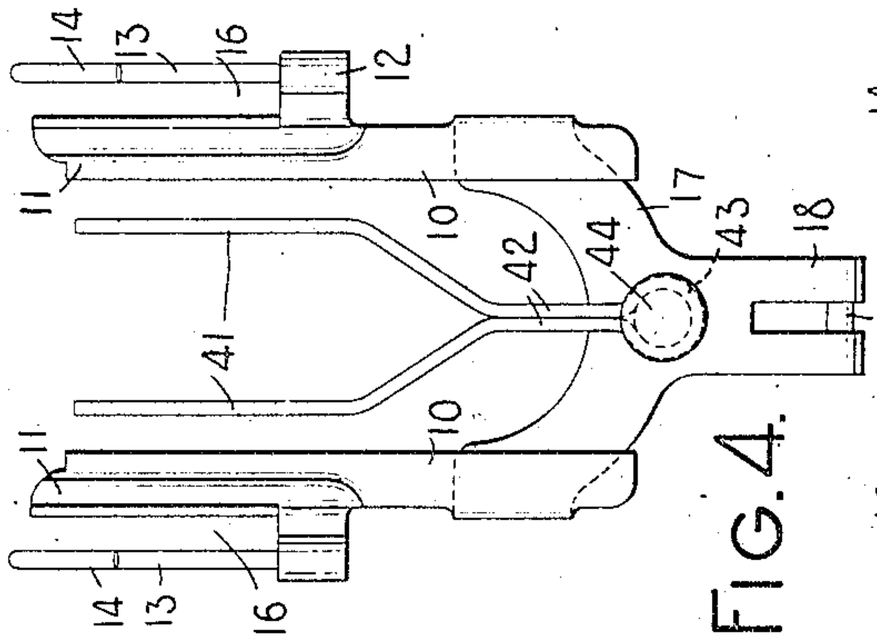

FIG. 4.

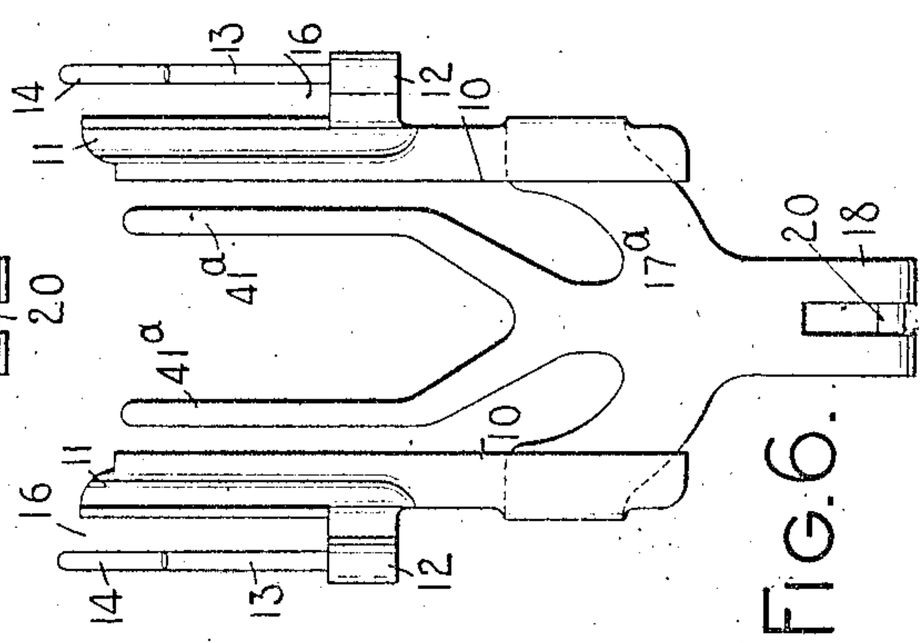

FIG. 6.

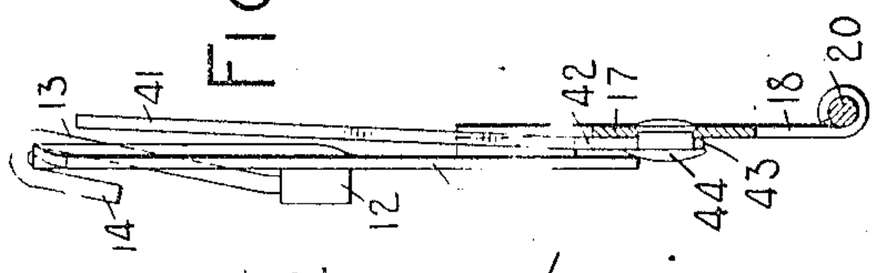

FIG. 3.

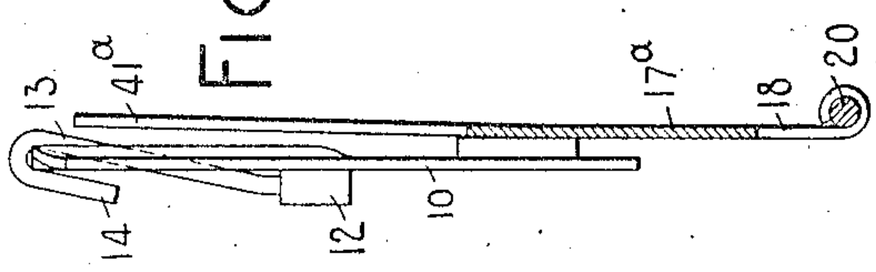

FIG. 5

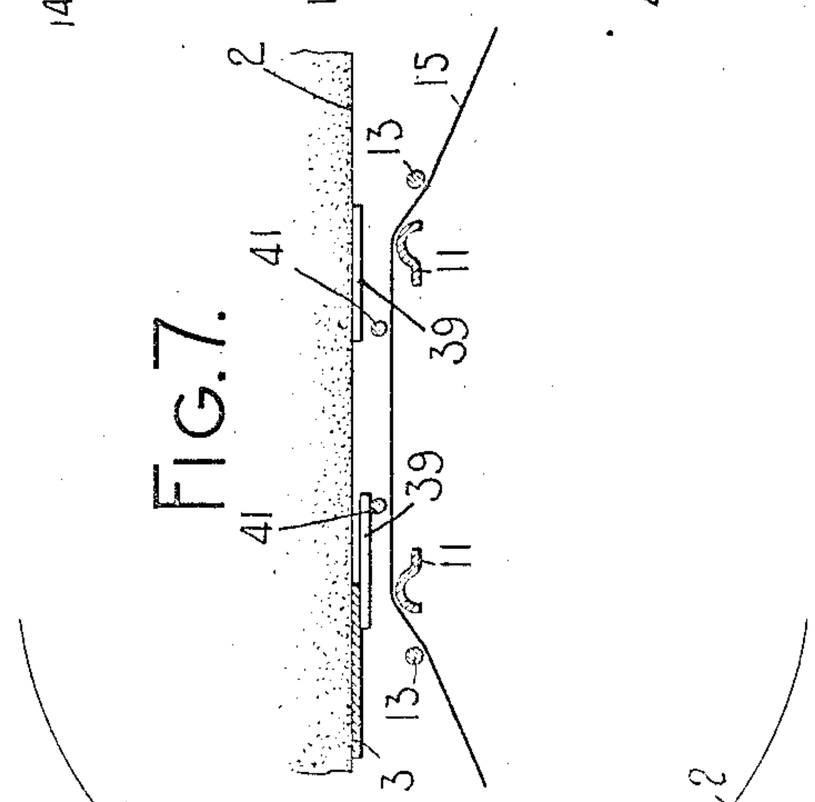

FIG. 7.

FIG. 2.

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UNITED STATES PATENT OFFICE.

ARTHUR W. BUCKWELL, OF NEW YORK, N. Y., ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 869,547. Specification of Letters Patent. Patented Oct. 29, 1907.

Application filed May 17, 1907. Serial No. 374,115.

To all whom it may concern:

Be it known that I, ARTHUR W. BUCKWELL, a citizen of the United States, and a resident of the borough of Manhattan, city of 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.

My invention relates to typewriting machines and more particularly to means for preventing the ribbon from catching when it is actuated by the ribbon vibrator.

Heretofore, especially in visible typewriters, difficulty has been experienced in the ribbon at times catching on portions of the machine, such for instance as a portion of the paper directing means or the card guide or holder when the ribbon is actuated by the vibrator.

One of the main objects of my present invention is to provide means for overcoming these difficulties and to provide simple and efficient means for guiding said ribbon as it is moved transversely of its length by the ribbon vibrator and for preventing the ribbon during such movements from catching and being held against movement.

To the above and other ends which will hereinafter appear, my invention consists in the features of construction, arrangements of parts and combinations of devices set forth in the following specification and particularly pointed out in the appended claims.

In the accompanying drawings, wherein like reference characters indicate corresponding parts in the various views, Figure 1 is a fragmentary, enlarged, detail front elevation showing a portion of the platen, a portion of a paper finger, a card guide, a ribbon vibrator and one form of device embodying my invention, said device being shown affixed to the vibrator. Fig. 2 is a vertical central fore and aft sectional view of the parts shown in Fig. 1, the front section only of the platen being shown. Fig. 3 is a detail central vertical sectional view, taken fore and aft of the machine, of a ribbon vibrator with one form of device embodying my invention applied thereto. Fig. 4 is a detail front elevation of the same. Fig. 5 is a view corresponding to Fig. 3 but showing another form of a device embodying my invention. Fig. 6 is a front elevation showing the form of device which is illustrated in Fig. 5. Fig. 7 is a diagrammatic view in horizontal section through the ribbon vibrator and adjacent parts.

In the present instance I have shown my invention applied to a Monarch machine, although it should be understood that my invention may be embodied in other styles of typewriting machines.

The top plate 1 of the machine supports a carriage (not shown) in which a cylindrical platen 2 is mounted to rotate, said carriage moving from side to side over the top plate in the usual manner. Suitable paper fingers 3 are mounted on the carriage and project downwardly in front of the platen and across the printing line indicated by the dotted line *a* in Fig. 1. In the drawing, the paper finger is broken away and only the lower portion thereof is shown. A front plate 4 is secured to the top plate of the machine by screws 5. Secured to this front plate and to the top plate by screws 6 is a fixed guide 7 which has upwardly extending arms 8 grooved in the outer sides thereof as at 9 for coöperation with inwardly bent edges 10 of a ribbon vibrator which is preferably made of sheet metal and may be constructed as represented in detail in Figs. 3 and 4. The edges 10 constitute parts of upwardly directed arms 11 which are spaced apart and are situated on opposite sides of the printing point. Bearings 12 are provided on said arms to receive the lower ends of upwardly extending pins or arms 13 which have hook-like members 14 at the upper ends thereof.

From an inspection of Figs. 1 and 2 it will be seen that the ribbon 15 extends first forward of one of the arms 13 and under the hook-like member 14 thereof and then back of the associated arm 11 and across the space between the two sets of arms, thence back of the opposite arm 11 and in front of the associated arm 13. In other words, the ribbon in passing from one spool to another passes through the space or slotted passage way 16 formed between each pair of arms 11 and 13 and back of the arms 11 and forward of the arms 13. A cross piece 17 unites the arms of the vibrator and is provided with a depending stem 18 which is pivoted to an actuating lever 19 at 20. The actuating lever is pivoted at 21 to a depending lug 22 on the top plate of the machine. The rear end of the actuating lever 19 is connected to devices for operating it, which devices may be of the general character shown in the patent to Jacob Felbel and Carl Gabrielson, No. 703,339, dated June 24th, 1902 and in which automatic means are employed to present different widthwise portions of the ribbon to the printing point in order to use the ribbon widthwise as well as longitudinally. In Fig. 1 the parts are shown in the positions which they occupy when the lowermost portion of the ribbon is presented to the printing point.

In the Monarch machine a paper directing device or card guide or holder is employed such as is shown in the accompanying drawing, this paper device as here illustrated being of the character shown in the patent to George A. Seib, No. 821,382, dated May 22nd, 1906. A plate-like supporting bracket 23 is secured to the front plate 4 by shouldered headed screws 24, the shoulder portions 25 of said screws bearing against the face of the bracket plate and securing it in position.

The upper end of the bracket plate is formed with perforated ears 26 to form bearings for a pivot rod 28, said rod likewise projecting through bearings in ears 29 formed on and projecting rearwardly from a card holder or guide 30. A spring 31 is coiled around the pivot 28 and bears at one end 32 against the card guide and at the opposite end 33 against the outer face of the bracket plate 23. The pressure of the spring is thus exerted to force the upper free end of the card guide towards the platen. The card guide may be H-shaped, the lower depending arms 34 thereof being curved forward as shown in Fig. 2 to form cam faces for coöperation with forward projecting fingers 35 on a sliding member or locking plate 36. Said locking plate is slotted at 37 for coöperation with the shoulder portions of the screws 24, so that the plate 36 is adapted to be moved up and down and into and out of engagement with the cams formed by the bent arms 34 to positively force the upper end of the card guide towards the platen or release it from positive pressure. In order to facilitate the movement of the locking plate 36 finger pieces 38 are provided by which it may be manipulated. The upper portion of the card guide comprises two arms 39 with outwardly projecting extensions 40. These arms are spaced apart and extend on opposite sides of the printing point and terminate at their upper ends at the line *a* as shown in Fig. 1, which line is coincident with the bottoms of the characters at the printing line so that the card guide also constitutes a line indicator. The construction of the parts is such that when either of the paper fingers 3 reaches the card guide, said paper finger passes behind said card guide, so that said card guide receives a slight forward deflection at the upper end thereof around its pivot 28 as shown in Figs. 1 and 2. The portions thus far described are similar to those employed in the Monarch machine.

In practice it has sometimes been found that the reciprocation of the ribbon vibrator will carry the lower edge of the ribbon above the upper free ends of the card guide, especially when the ribbon vibrating mechanism is in position where the lower portion of the ribbon is interposed in the path of the types and especially when the upper edge of the card guide is deflected forwardly by one of the paper guides 3, as shown in Fig. 7, In order to prevent the ribbon from being caught upon the card guide 30 or paper directing device, I have provided an auxiliary device which in one form comprises fingers 41 which are situated between the two sets of arms 11 and 13, as shown in Figs. 1 and 3, and project upwardly in rear of the ribbon or back of its path of travel and between the ribbon and the card guide, as shown in Figs. 1 and 2, so as to act as a guide for the ribbon and to prevent it from catching on top of the card guide. At the lower parts, the fingers 41 are bent towards each other and meeting extend down in contact as at 42, terminating in a loop 43 that surrounds the shank of a rivet 44 which connects the device to the ribbon vibrator. From an inspection of Figs. 2 and 3 it will be seen that these arms 41 are inclined rearwardly from the point where they are secured to the ribbon vibrator to their upper ends and that said arms are situated on opposite sides of the printing point, and also between the ribbon vibrator and the platen. The construction is such that the arms 41 constitute an auxiliary safety device or safety fingers for preventing the lower edge of the ribbon from catching on the upper edge of the card guide and interfering with the proper operation of the mechanism.

In Figs. 5 and 6 I have shown another form of a device embodying my invention in which the fingers 41^a are formed as an integral part of the ribbon vibrator, the arms projecting upwardly with a slight rearward inclination from the cross bar 17^a of the vibrator. Otherwise the parts are constructed in essentially the same manner as heretofore described.

In the operation of the device the safety fingers 41 or 41^a, moving upwardly with the ribbon vibrator in rear of the ribbon and forward of the card guide will prevent the lower edge of the ribbon from catching on the upper edge of the card guide, and will hold the lower edge of the ribbon forward and away from the card guide so that during the downward movement of the vibrator from its uppermost position the ribbon is also prevented from catching on the guide. The safety fingers being interposed between the ribbon and the platen, effectually prevent the ribbon from contacting with the platen or the paper, except when struck by a type, and also prevent interference between the ribbon and any part that may be arranged between the ribbon and the platen. As these fingers are liable to be more or less deflected from one cause or another, I prefer to make them of light spring metal. Preferably the fingers 41 extend an appreciable distance above the top edge of the card-holder to insure that the ribbon shall not get caught on the card-holder even if the vibrator be violently actuated and the ribbon be quite loose between spools.

Ordinarily the upper edge of the card guide hugs the platen or the paper or card thereon so closely that there is little liability of the lower edge of the ribbon catching on the card guide. This catching of the ribbon in the prior construction is more liable to occur when the upper end of the card guide is forced outwardly by a paper finger 3; but by my invention all catching of the ribbon is now entirely avoided.

The ribbon guard, fender or safety device, so-called, may be of any desired form and detailed construction, so long as it serves the primary purpose of preventing the inking ribbon from catching upon any device or devices which may be employed adjacent the ribbon to assist or serve in any way in the directing, feeding, guiding or handling of the paper or other material to be written upon carried by the platen; and the term "directing" in the following claims is employed in a generic sense and as comprehending all such devices.

Various changes may be made in the construction without departing from the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting machine, the combination with a platen and a ribbon vibrator having a slot on each side of the printing point, of auxiliary safety fingers interposed between the ribbon and platen.

2. In a typewriting machine, the combination with a platen, a ribbon vibrator, and a relatively fixed paper directing device, of an auxiliary safety device interposed between the ribbon and paper directing device and extending above the latter, for preventing the ribbon from catching on said paper directing device.

3. In a typewriting machine, the combination with a platen, a ribbon vibrator and a relatively fixed paper directing device, of auxiliary safety fingers carried by said vibrator and interposed between the ribbon and paper directing device and extending above the latter, for preventing the ribbon from catching on said paper directing device.

4. In a typewriting machine, the combination with a platen, and a ribbon vibrator having a pair of arms on each side of the printing point with a space between the arms of each pair through which space the ribbon is guided, of auxiliary safety fingers between the ribbon and platen and between the pairs of arms of the vibrator and on opposite sides of the printing point.

5. In a typewriting machine, the combination with a platen, and a ribbon vibrator having a pair of arms on each side of the printing point with a space between the arms of each pair through which space the ribbon is guided, of auxiliary spring safety fingers carried by the vibrator and extending between the ribbon and platen and between the pairs of arms of the vibrator and on opposite sides of the printing point.

6. In a typewriting machine, the combination with a platen, a ribbon vibrator having a pair of arms on each side of the printing point with a space between the arms of each pair through which space the ribbon is guided, and a paper directing device, of an auxiliary safety device extending between the ribbon and said paper directing device, for preventing the ribbon from catching on said paper directing device.

7. In a typewriting machine, the combination with a platen, a ribbon vibrator having a pair of arms on each side of the printing point with a space between the arms of each pair through which space the ribbon is guided, and a paper directing device, of auxiliary safety fingers extending between the ribbon and said paper directing device and between the pairs of arms of said vibrator and on opposite sides of the printing point, for preventing the ribbon from catching on said paper directing device.

8. In a typewriting machine, the combination with a platen, a ribbon vibrator having a pair of arms on each side of the printing point with a space therein through which the ribbon is guided, and a paper directing device, of auxiliary spring safety fingers carried by said vibrator and extending in the rear of said arms thereof and between the ribbon and platen and between the ribbon and said paper directing device, for preventing the ribbon from catching on said paper directing device.

9. In a typewriting machine, the combination with a platen, a ribbon vibrator, and a paper directing device carried by a fixed portion of the machine and situated between the platen and the vibrator and terminating at or near the printing line, of an auxiliary safety device extending between the ribbon and said paper directing device, for preventing the ribbon from catching on said paper directing device.

10. In a typewriting machine, the combination with a platen, a ribbon vibrator, and a paper directing device carried by a fixed portion of the machine and situated between the platen and the vibrator and terminating at or near the printing line, of auxiliary spring fingers extending between the ribbon and said paper directing device and on opposite sides of the printing point, for preventing the ribbon from catching on said paper directing device.

11. In a typewriting machine, the combination with a platen, a ribbon vibrator, and a spring pressed paper directing device carried by and pivoted to a fixed portion of the machine and situated between the platen and the vibrator and terminating at or near the printing line, of auxiliary spring fingers carried by the ribbon vibrator and extending between the ribbon and said paper directing device and on opposite sides of the printing point, for preventing the ribbon from catching on said paper directing device.

12. In a typewriting machine, the combination with a platen and a paper handling device mounted on the framework of the machine at or in the vicinity of the printing point, of a ribbon vibrator and a ribbon guard or fender carried by the vibrator and interposed between the ribbon and the paper handling device.

13. A ribbon vibrator having a set of three arms on each side of the printing point, the ribbon being guided behind the middle arm of each set and in front of the other two arms.

14. A ribbon vibrator having slotted passageways for the ribbon and also a supplementary safety device arranged back of the path of travel of the ribbon.

15. A ribbon vibrator having an open space in front of the printing point, a slotted passageway for the ribbon on each side of the printing point, and having also a supplementary arm on each side of the printing point back of the path of travel of the ribbon.

16. A ribbon vibrator having on each side of the printing point a guide arm or arms with a slotted passageway for the ribbon, and having a pair of supplementary arms back of the ribbon between the guide arms, one supplementary arm on each side of the printing point.

Signed at the borough of Manhattan, city of New York in the county of New York and State of New York, this 16th day of May, A. D. 1907.

ARTHUR W. BUCKWELL.

Witnesses:
E. M. WELLS,
J. B. DEEVES.