

N. H. ANDERSON,
 TYPE WRITING MACHINE.
 APPLICATION FILED MAR. 29, 1913.

1,166,805.

Patented Jan. 4, 1916.

2 SHEETS—SHEET 1.

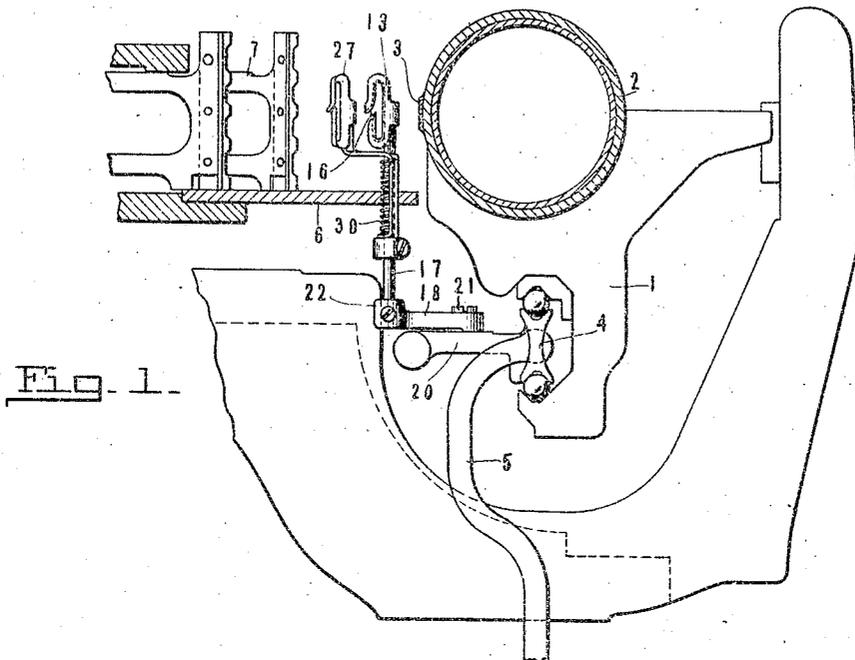


Fig. 1.

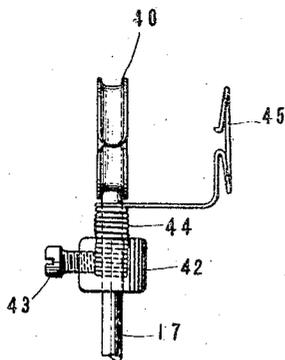


Fig. 7.

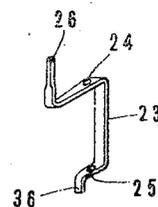


Fig. 5.

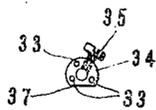


Fig. 6.

Witnesses:
Eric B. Kramer,
Jesse A. Holton.

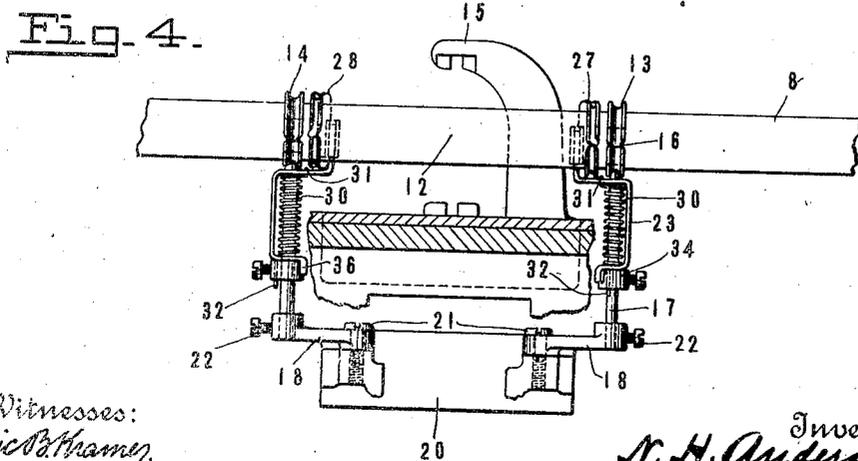
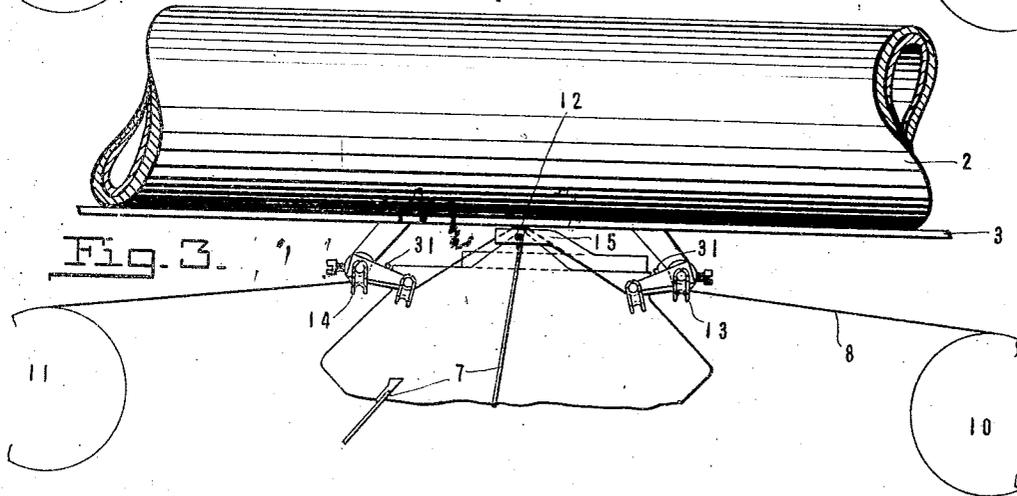
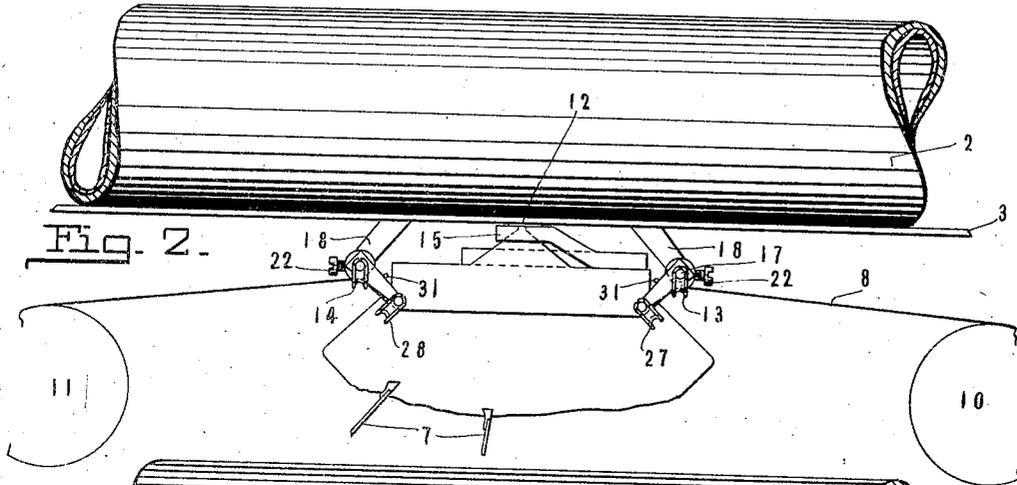
N. H. Anderson Inventor
 By his Attorneys
Duell Warfield Duell

N. H. ANDERSON.
 TYPE WRITING MACHINE.
 APPLICATION FILED MAR. 29, 1913.

1,166,805.

Patented Jan. 4, 1916.

2 SHEETS—SHEET 2.



Witnesses:
Eric Balthamer
Jesse A. Holloway

Inventor
N. H. Anderson
 By his Attorneys
Dull, Warfield & Dull

UNITED STATES PATENT OFFICE.

NILS H. ANDERSON, OF MIDDLETOWN, CONNECTICUT, ASSIGNOR TO THE NOISELESS TYPEWRITER COMPANY, OF MIDDLETOWN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

TYPE-WRITING MACHINE.

1,166,805.

Specification of Letters Patent.

Patented Jan. 4, 1916.

Application filed March 29, 1913. Serial No. 757,487.

To all whom it may concern:

Be it known that I, NILS H. ANDERSON, a citizen of the United States, residing at Middletown, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to typewriting machines, and with regard to certain more dominant features thereof, to ribbon mechanism and associated and coacting parts for controlling the position and movement of the ribbon in the vicinity of the printing point.

One of the objects of the present invention is to provide a simple and practical ribbon mechanism which will be durable and efficient in action.

Another object is to provide a mechanism of the above character which will be inexpensive to manufacture and easy to assemble.

Another object is to provide improved ribbon guiding and tensioning devices which will be automatic and independent in action.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, wherein are shown two of various possible embodiments of this invention, Figure 1 is a side elevation, partly in section, of such parts of a typewriting machine as are necessary to understand the invention; Fig. 2 is a plan view of certain parts in normal position; Fig. 3 is a similar view with the same parts in the position occupied at the printing moment; Fig. 4 is a front elevation partly in section; Figs. 5 and 6 are detail views of parts of the construction shown in Fig. 1; and Fig. 7 is a detail view of a modification.

Similar reference characters refer to similar parts throughout the different views of the drawings.

In the accompanying drawings the present invention is shown in Fig. 1 as applied to a Noiseless typewriting machine provided with a horizontally reciprocating carriage 1 carrying a platen roller 2 and a flat platen 3 of the usual style in machines of this make. This carriage rolls along a shaft rail 4 which is connected by means of a downwardly disposed link 5 at each end with any desired form of double shift mechanism for moving the carriage up or down from its normal printing position when printing different case characters. In the upper part of the machine is a bed plate 6 along which a plurality of radially disposed type carriers 7, having three type each, slide toward and from the printing point when actuated by key-controlled means, not herein shown.

A ribbon 8 (Fig. 2) is fed from one ribbon spool 10 to another 11 on the opposite side of the machine. The ribbon is disposed between the type and the printing point 12 at the end of the path of travel of the type 7 in such a manner as to be engaged by the type as they move back and are carried into engagement with the paper on the platen during the printing operation.

As the above-mentioned machine is of the visible front impression style it is desirable to hold the ribbon normally away from the printing line in order that the operator may have an unobstructed view of the printed portion of the page. By moving the ribbon toward and from the platen in substantially the path of travel of the type carriers there is a decided advantage in the general construction as well as increased efficiency, as a simpler form of ribbon guide permitting a straight feed from one spool to the other may be used. It is therefore unnecessary to fold or turn the ribbon around various corners, thus causing greater wear upon the ribbon and requiring a greater amount of energy to feed the ribbon from one spool to the other.

As herein shown, the ribbon is fed through separate and relatively fixed ribbon guides, 13, 14 mounted at opposite sides of a type guide 15 positioned adjacent the printing point 12, and with respect to which all the type carriers are radially disposed. These ribbon guides are preferably stamped from sheet metal and provided with curved edges to prevent undue wear upon the ribbon, and each is provided with an opening 16 to

permit the ribbon to be slipped edgewise therethrough without unwinding the ribbon from the spool and threading the end through the guide. These stationary ribbon guides 13, 14 are secured in any desired manner to the upper part of posts 17 which are adjustably mounted in adjustable arms 18 carried by the forward part of a bracket 20 projecting from the central part of the shift rail 4. The supporting arms 18 are held in place by means of screws 21 passing through them in such a manner as to permit the arms 18 to be rotated about them to any desired position, whereupon the screws 21 are tightened to hold the brackets in place. The posts 17 are also vertically adjustable by means of set screws 22 in order that the ribbon may be properly positioned with respect to the type guide 15. If the ribbon interferes with the type guide when shifted, the set screws 22 may be loosened and the posts moved in order that the edges of the ribbon will not become jammed between the type and guide during the printing operation.

Pivotaly mounted upon the posts 17 are swinging guide carrying arms 23, the body portion of which is of stamped sheet metal, as shown in Fig. 5, having a somewhat U-shaped form in order to engage the post at two points 24, 25, spaced apart sufficiently to provide a secure bearing for the turning movement of the arm. Mounted upon the upper ends 26 of the body portion of the guide arms are auxiliary ribbon guide eyes 27, 28 of substantially the same form as that mounted upon the upper part of the post 17. Wound about the post, between the bearing points 24, 25 in the upper and lower parts of the body portion of the guide arm 23, is a spiral spring 30, the upper end 31 of which coacts with the arm 23 and the lower end 32 passes through one of several openings 33 (Fig. 6) in a supporting collar 34 adjustably mounted upon the post 17 below the guide arm and held in place by a set screw 35. The lower part of the guide arm is provided with a downwardly projecting lug 36 adapted to coact with a flattened surface 37 of the collar to prevent overthrow or limit the swing of the guide arm in its rotary movement about the post 17. The tension of the spring 30 may be regulated by inserting the lower part of the spring in any of the several openings 33 provided in the collar.

The operation of this embodiment of the invention is substantially as follows: Assume the parts to be in the position shown in Fig. 2, the springs 30 are under slight tension and the arms 23 are positioned to hold the ribbon relatively taut and away from the printing point. The ribbon remains in this position until a type carrier 7 is moved into engagement therewith, where-

upon it carries the ribbon back into engagement with the paper upon the platen. The tension exerted on the ribbon by the type carrier will cause the guide arms 23 to swing about the posts 17 upon which they are mounted and tighten the springs. As soon as the type carrier is released the springs will return the guide arms to normal position and again tighten the ribbon. If a side type action is used, the ribbon guide arm at that side will be actuated to a greater extent than the opposite guide arm. The actual length of the ribbon between the stationary guides 13, 14 when in normal position is slightly less than the amount of ribbon between the same points at the printing moment.

The guides 27 and 28 may really be considered separate and independent parts forming a pair of automatically actuated ribbon guides. They are automatic in so far as they are actuated solely by the type carrier in contra-distinction to being actuated through the universal bar mechanism or other parts, thereby materially increasing the load upon the key levers required to overcome the momentum and friction of such parts.

If it should be desired to adjust the relative position of the ribbon either toward or from the platen, or in a vertical direction in order to position the ribbon with respect to the type guide 15 this may be easily done by loosening the desired adjusting screws and moving the parts into their new positions.

The modification shown in Fig. 7 is substantially the same in principle as that above described and shown. This figure illustrates a left-hand ribbon guide and comprises a guide member 40 which is mounted upon the upper end of the post 17 in substantially the manner in which the ribbon guides 13 and 14 are mounted.

Secured directly to the post 17 is a collar 42 which is held in place by a set screw 43 adapted to support and engage the lower end of a spiral spring 44. The upper end of this spring extends laterally to one side and is provided with a loop 45 through which the ribbon is adapted to pass. This loop 45 forms an auxiliary guide corresponding to the movable guides 27 and 28, as shown in Fig. 4. The relative position of the guide members 40 and 45 may be adjusted vertically and the auxiliary guide 45 may be adjusted in a fore and aft direction by loosening the set screw 43 and turning the guide to the desired angle.

As the operation and method of use of a tension device such as above described are substantially the same as that shown in Fig. 1, further explanation thereof is believed to be unnecessary.

It is thus seen that this invention pro-

vides a simple and practical ribbon guide and tensioning mechanism which is cheap to manufacture and easy to assemble and one which is adapted to accomplish, among others, all of the objects and advantages above set forth.

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

1. In a typewriting machine, in combination, a platen, a type carrier adapted to coact therewith, ribbon supporting means located at opposite sides of the printing point, ribbon guides mounted upon the ribbon supporting means adapted to swing about vertical axes toward and from the printing point, and spring means interposed between the ribbon supporting means and the ribbon guides for yieldingly holding said guides in normal position.

2. In a typewriting machine, in combination, a shiftable platen carriage, a shift rail along which said carriage is adapted to travel, supporting means mounted upon said shift rail, and ribbon guides rotatable about vertical axes mounted upon said supporting means.

3. In a typewriting machine, in combination, a shiftable platen carriage, a shift rail along which said carriage is adapted to travel, supporting means mounted upon said shift rail, and independently operating ribbon guides mounted at opposite sides of the printing point upon said supporting means.

4. In a typewriting machine, in combination, a shiftable platen and platen carriage, a shift rail along which said carriage is adapted to travel, a bracket projecting from said shift rail, upwardly projecting posts on said bracket, and ribbon guides mounted upon said posts adapted to swing toward and from the platen.

5. In a typewriting machine, in combination, a shiftable platen and platen carriage, a shift rail along which said carriage is adapted to travel, a bracket projecting from said shift rail, upwardly projecting posts on said bracket, and ribbon guides mounted thereon to swing independently of each other toward and from the printing line.

6. In a typewriting machine, in combination, a shiftable platen and platen carriage, a shift rail along which said carriage is adapted to travel, a bracket projecting from said shift rail, upwardly projecting posts on said bracket, ribbon guides mounted to swing independently of each other toward and from the printing line, and automatic actuating means for returning said ribbon guides to normal position.

7. In a typewriting machine, in combination, a shiftable platen and platen carriage, a shift rail along which said carriage

is adapted to travel, a bracket projecting from said shift rail, upwardly projecting posts on said bracket, relatively stationary ribbon guides mounted on the upper part of said posts, and auxiliary ribbon guides associated therewith movable toward and from the printing line.

8. In a typewriting machine, in combination, a shiftable platen and platen carriage, a shift rail along which said carriage is adapted to travel, a bracket projecting from said shift rail, upwardly projecting posts on said bracket, ribbon guides mounted to swing about said posts toward and from the printing line, and spring means for holding said ribbon guides in normal position.

9. In a typewriting machine, in combination, a shiftable platen and platen carriage, a shift rail along which said carriage is adapted to travel, a bracket projecting from said shift rail, upwardly projecting posts on said bracket, ribbon guides mounted to swing about said posts toward and from the printing line, spring means for holding said ribbon guides in normal position, and means for limiting the swinging movement of said guides.

10. In a typewriting machine, in combination, a shiftable platen carriage, a rail along which said carriage is adapted to travel, a supporting member associated with said rail, and a pair of ribbon guides comprising a relatively fixed and a relatively movable ribbon-engaging portion mounted at each side of the printing point upon said supporting member and shiftable with said platen.

11. In a typewriting machine, in combination, a shiftable platen carriage, a rail along which said carriage is adapted to travel, a supporting member associated with said rail, a pair of ribbon guides comprising a relatively fixed and a relatively movable ribbon-engaging portion mounted at each side of the printing point upon said supporting member and shiftable with said platen, and means for adjusting one of said pairs of ribbon guides independently of the other.

12. In a typewriting machine, in combination, a shiftable platen carriage, a rail along which said carriage is adapted to travel, a supporting member associated with said rail, a pair of ribbon guides comprising a relatively fixed and a relatively movable ribbon-engaging portion mounted at each side of the printing point upon said supporting member and shiftable with said platen, and means permitting an independent, vertical adjustment of said ribbon guides.

13. In a typewriting machine, in combination, a shiftable platen carriage, a rail along which said carriage is adapted to

- travel, a supporting member associated with said rail, a pair of ribbon guides comprising a relatively fixed and a relatively movable ribbon-engaging portion mounted at each side of the printing point upon said supporting member and shiftable with said platen, and means adapted to permit an independent adjustment of said guides fore and aft the machine.
- 10 14. In a typewriting machine, in combination, a platen carriage, a bracket, a pair of upwardly projecting posts adjustably mounted upon said bracket, one at each side of the printing point, a stationary ribbon guide secured to the upper part of said posts, pivotally mounted arms adapted to swing about said posts, auxiliary guides carried by said arms, and spring means for yieldingly holding said arms in normal position.
- 15 15. In a typewriting machine, in combination, a platen carriage, a bracket, a pair of upwardly projecting posts adjustably mounted upon said bracket, one at each side of the printing point, a stationary ribbon guide secured to the upper part of said posts, pivotally mounted arms adapted to swing about said posts, auxiliary guides carried by said arms, spring means for yieldingly holding said arms in normal position, and means adapted to limit the movement of said arms.
- 20 16. In a typewriting machine, in combination, a platen carriage, a bracket, a pair of upwardly projecting posts adjustably mounted upon said bracket, one at each side of the printing point, a stationary ribbon guide secured to the upper part of said posts, pivotally mounted arms adapted to swing about said posts, auxiliary guides carried by said arms, spring means adapted to yieldingly hold said arms in normal position, and means for adjusting said arms in a vertical direction.
- 25 17. In a typewriting machine, in combination, a platen carriage, a bracket, a pair of upwardly projecting posts adjustably mounted upon said bracket, one at each side of the printing point, a ribbon guide secured to the upper part of said posts, a collar on each post below said ribbon guide, an arm supported by said collar and adapted to swing about said post, and means associated with said arm and collar adapted to limit the rotary movement of said arm.
- 30 18. In a typewriting machine, in combination, a platen carriage, a bracket, a pair of upwardly projecting posts adjustably mounted upon said bracket, one at each side of the printing point, a stationary ribbon guide secured to the upper part of said posts, a collar on each post below said ribbon guide, an arm supported by said collar and adapted to swing about said post, means associated with said arm and collar adapted to limit the rotary movement of said arm, and a spring coacting with said arm and collar adapted to resiliently hold said arm in normal position.
- 35 19. In a typewriting machine, in combination, a platen carriage, a bracket, a pair of upwardly projecting posts adjustably mounted upon said bracket, one at each side of the printing point, a ribbon guide secured to the upper part of said posts, a collar on each post below said ribbon guide, an arm supported by said collar and adapted to swing about said post, means associated with said arm and collar for limiting the rotary movement of said arm, means coacting with said arm and collar adapted to resiliently hold said arm in normal position, and means adapted to permit an adjustment of the tension of said spring.
- 40 20. In a typewriting machine, in combination, a platen, a shiftable support therefor, a type carrier having different case characters adapted to coact with the platen, and ribbon guides supported from said shiftable support adapted to swing toward and from the printing line under the action of the type carrier as it moves toward and from the platen.
- 45 21. In a typewriting machine, in combination, a platen, a shiftable support therefor; a type carrier having different case characters adapted to coact with the platen, ribbon guides supported from said shiftable support adapted to swing toward and from the printing line under the action of the type carrier as it moves toward and from the platen, and means for limiting the swinging movement of said guides.
- 50 22. In a typewriting machine, in combination, a platen, a shiftable support therefor, a type carrier having different case characters adapted to coact with the platen, ribbon guides supported from said shiftable support adapted to swing toward and from the printing line under the action of the type carrier as it moves toward and from the platen, means for limiting the swinging movement of said guides, and spring means for yieldingly holding said guides in normal position.
- 55 23. In a typewriting machine, in combination, a platen, a shiftable support therefor, a type carrier having different case characters adapted to coact with the platen, ribbon guides supported from said shiftable support adapted to swing toward and from the printing line under the action of the type carrier as it moves toward and from the platen, means for limiting the swinging movement of said guides, means for yieldingly holding said guides in normal position, and means for permitting adjustment of said guides relatively to the printing line.
- 60 24. In a typewriting machine, in combination, a platen, a shiftable support there-
- 65 70 75 80 85 90 95 100 105 110 115 120 125 130

for, a plurality of radially disposed type carriers adapted to coact with said platen, upwardly projecting posts adjustably mounted on said support, and a pair of ribbon guides mounted on each of said supports at opposite sides of the printing point, one of the guides of each pair being movable toward and from the platen by the action of the type carrier.

10 25. In a typewriting machine, in combination, a platen, a shiftable support therefor, a plurality of radially disposed type carriers adapted to coact with said platen, upwardly projecting posts adjustably mounted on said support, a pair of ribbon guides mounted on

each of said posts at opposite sides of the printing point, one of the guides of each pair being relatively fixed and the other movable toward and from the platen by the action of the type carrier, means for limiting the swinging movement of said movable guides, and means for resiliently maintaining said movable guides in normal position.

15

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

NILS H. ANDERSON.

Witnesses:
C. A. KELSEY,
Jos. DODD.