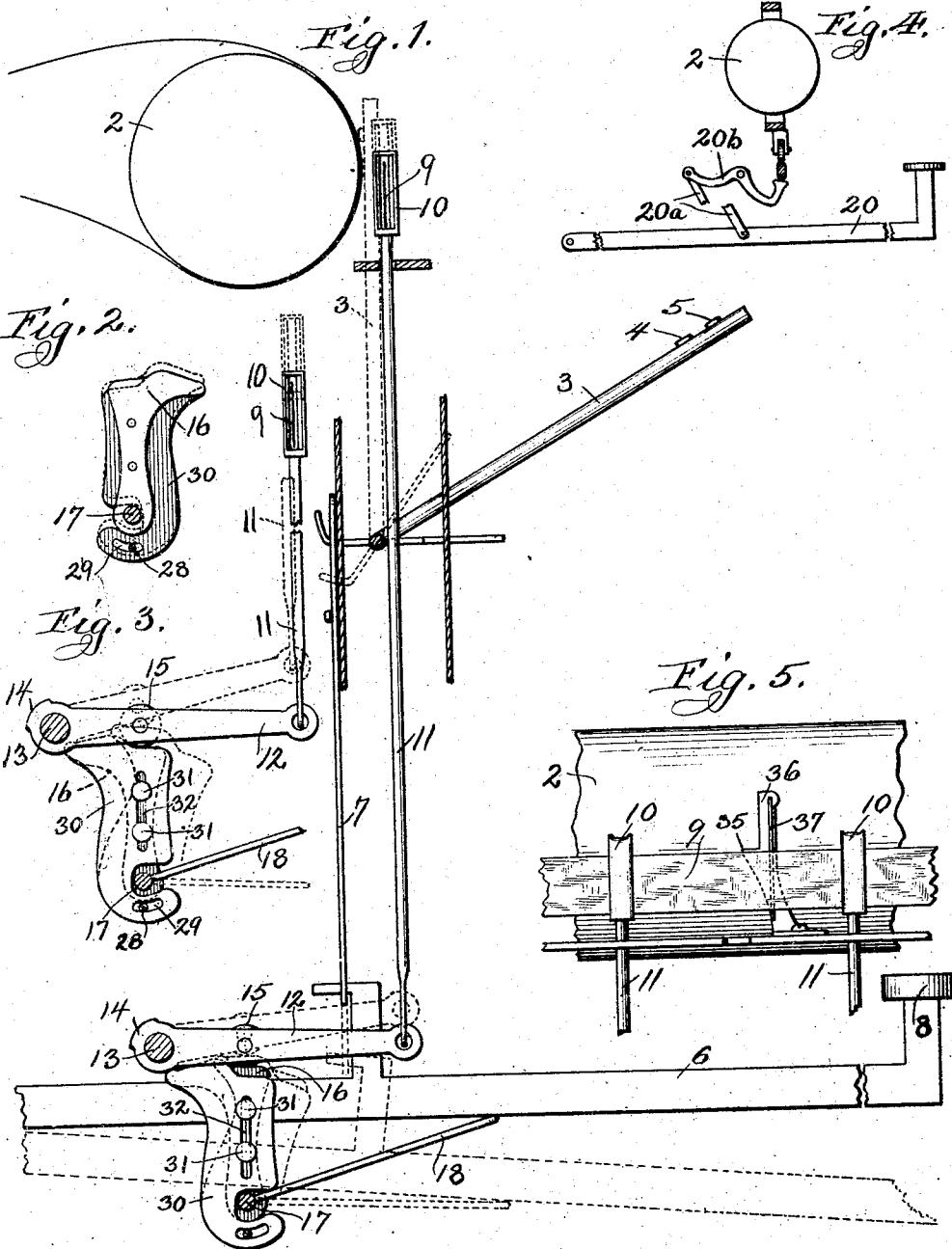


F. SHOLES.
 RIBBON MECHANISM FOR TYPE WRITERS.
 APPLICATION FILED MAY 31, 1904.

929,030.

Patented July 27, 1909.
 2 SHEETS—SHEET 1.



Witnesses;
 R. J. Jacker
 C. F. Grier.

Inventor:
 Frederick Sholes.
 By Robert Lewis Ames,
 Atty.

F. SHOLES.
 RIBBON MECHANISM FOR TYPE WRITERS.
 APPLICATION FILED MAY 31, 1904.

Patented July 27, 1909.
 2 SHEETS—SHEET 2.

929,030.

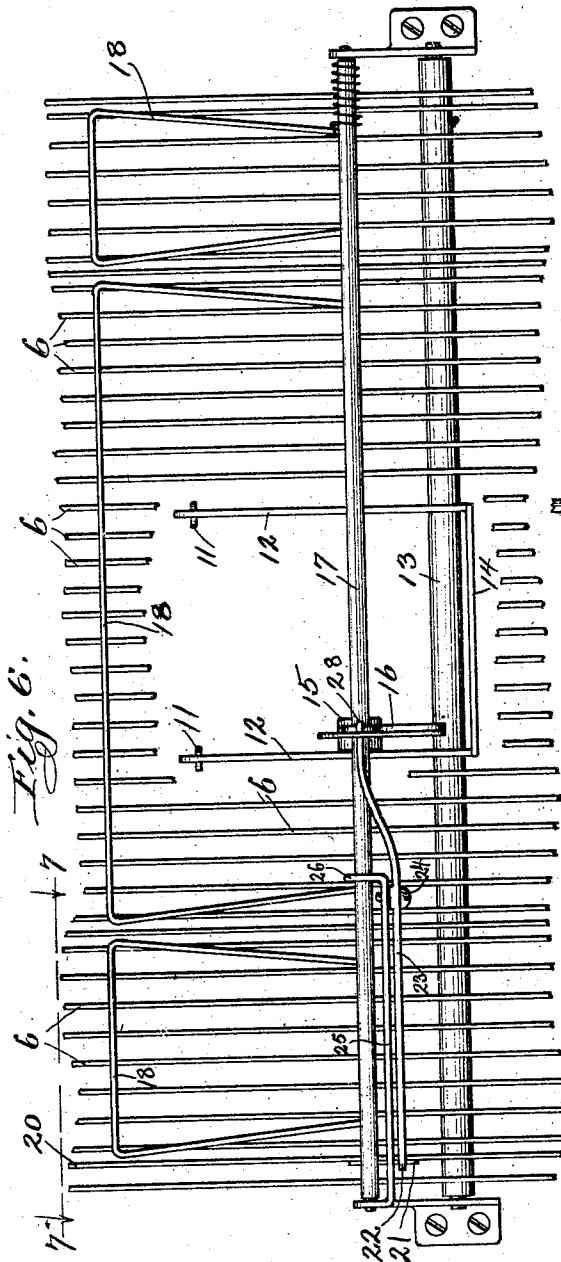


Fig. 9.

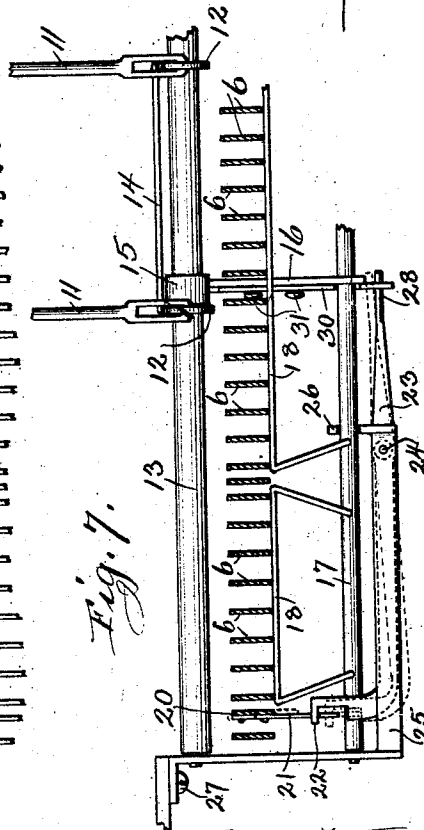
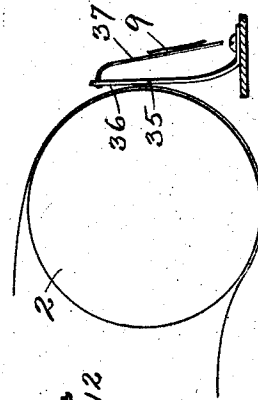
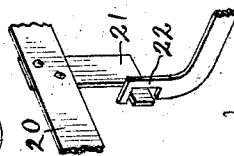


Fig. 7.

Witnesses:
 R. J. Jaeger
 C. F. Lier

Fig. 8.



Inventor:
 Frederick Sholes,
 By Robert Lewis Ames,
 Atty.

UNITED STATES PATENT OFFICE.

FREDERICK SHOLES, OF CHICAGO, ILLINOIS.

RIBBON MECHANISM FOR TYPE-WRITERS.

No. 929,030.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed May 31, 1904. Serial No. 210,355

To all whom it may concern:

Be it known that I, FREDERICK SHOLES, a citizen of the United States of America, and resident of Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Ribbon Mechanism for Type-Writers, of which the following is a specification.

My invention relates to improvements in ribbon mechanism for typewriters, and consists: First, in means whereby when the upper case type upon the type bars are used, the ribbon is shifted by the depression of the printing key from its normal position into position for engagement by such upper case type, and; second, in means for suitably controlling and guiding the ribbon at or near the printing point. These improvements are particularly adapted to the so-called "visible writing" machines, since in such machines a narrow ribbon is employed, normally resting to one side of the line of printing to avoid concealing the same and is caused to shift at the moment of printing to the proper position to be struck by the type, and again to return to one side of the printing point when the key is released. For such upper case printing a shift key is employed for shifting or raising the printing roller or platen to accommodate the upper case type, and it has been common heretofore to shift or raise the ribbon holding or guiding devices simultaneously with the platen to permit making the proper impression from the upper case type. In my invention, however, I provide means whereby whenever it is desired to employ the upper case type, the ribbon is caused to shift or raise for each depression of a printing key, from its normal position to a sufficient distance or height to accommodate such upper case type. This method of operating the ribbon dispenses with the mechanism necessary to simultaneously shift the platen and ribbon for upper case work, and otherwise simplifies and cheapens the cost of the machines. Again, such shifting of the ribbon for each character printed, whether of the lower or upper case, renders the writing entirely visible at all times.

In the class of machines mentioned, particularly of the "front striking" type, trouble has been experienced with the ribbon catching upon the pointer in being raised and lowered, and considerable trouble and expense have been gone to by various manufac-

turers to avoid the same, in some instances the pointers being constructed with prongs upon each side of the printing point, but with the disadvantage that a portion of the writing is thus concealed. In my improvements I avoid the difficulty by providing a ribbon guide in connection with the pointer, which at all times prevents the trouble mentioned and at the same time permits the use of a pointer that does not conceal the printed matter.

My invention will be best understood by reference to the accompanying drawings, forming a part of this specification, which show one embodiment of the invention which has been worked out for commercial purposes, the same reference characters being used throughout the several views of the drawings to designate like parts, and in which:

Figure 1 is a side elevation of the ribbon lifting or shifting mechanism; Fig. 2 is a detail view of the other side of the lifting cams; Fig. 3 is a side view of same parts as in Fig. 1, showing their movement for upper case printing; Fig. 4 is a view of the platen or roller shifting mechanism; Fig. 5 is a front view of the ribbon and pointer; Fig. 6 is a bottom view of the machine. Fig. 7 is a front sectional view of the same, on the line 7-7 of Fig. 6; Fig. 8 is another detail view; and Fig. 9 is a side view of the pointer and guide.

In these drawings, "2" designates the platen or printing roller mounted upon the carriage of the machine in the usual or desired manner, and "3" the type bars carrying at their outer ends the lower case type 4 and the upper case type 5. The type bars 3 are mounted upon the frame of the machine in any desired or usual manner and are operated from the key levers 6 in any preferred way, as by the links 7. The key levers 6, or keys, as they are often termed, are provided at their outer ends with the ordinary buttons or tips 8, and marked with characters corresponding to the type carried by the cooperating type bar 3. At their inner ends such levers 6 are pivoted to the frame of the machine. The machine so far described and to which my invention is shown applied, is of the type known to the trade and put upon the market as the "Visible Sholes" and which is manufactured under Patents 464,902 and 464,903, dated December 8th, 1891, granted to C. Latham Sholes, though

it will be apparent that my improvements may be readily applied to visible writing machines of other types and in which the arrangement is either horizontal or vertical.

5 The ribbon 9 is carried upon the usual spools at each side of the machine and is supported and guided upon each side of the printing point by the guides or loops 10, which are carried at the upper ends of the rods 11, suitably guided in the frame of the machine. The lower ends of said rods are pivoted to the forward ends of the arms 12, which in turn are loosely mounted upon the shaft or rod 13, their rear ends being rigidly connected together by the integral member 14, whereby the said arms 12 and member 14 constitute a "U"-shaped member and the arms 12 move in unison. One of the arms 12 is provided with a roller 15 and immediately beneath the same is located an upright cam 16 fixedly secured to the shaft 17, that is rotatably mounted in the frame of the machine. This shaft is provided with wire members 18 which extend forwardly and upwardly with their horizontal portions resting beneath the key levers 6, as shown in Figs. 1, 6 and 7, so that whenever a key lever is depressed said shaft 17 and cam 16 are rocked. This cam is so shaped at its upper end that when 30 rocked forwardly its inclined upper end engages the roller 15 and lifts the arms 12, which in turn lift the rods 11 and guides 10, and by this means the ribbon 9, all as shown in dotted lines in Fig. 1, this occurring whenever a key is depressed to print a character, so that at that time the ribbon will be over the printing line but at other times is below the same to expose the matter written.

For printing capitals or other upper case characters, the cylinder or platen 2 is raised or shifted by the depression of the shift key 20 in the usual or desired manner, the specific mechanism for accomplishing this being omitted, except in Fig. 4, for the sake of clearness. This shift key, like the others, is preferably pivoted at its rear end to the frame of the machine and at its forward end bears a key or button suitably marked, as by the word "Shift". A link key 20^a, and a lever 20^b, (Fig. 4) between the shift key 20 and the support of the platen 2, serve to bodily lift the latter when the key is depressed. This shift key is provided with a depending lug or strip 21 rigidly secured thereto, the lower hooked end of which engages in the similarly formed upwardly extending end 22 (see Fig. 8) of the lever 23, which is pivoted at 24 to the brace or bar 25, the inner end 26 of which is turned inwardly to the shaft 17 for support, while as shown, the outer end may be suitably bent up and formed to receive the ends of shafts 17 and 13 and is secured by the screws 27 beneath the side bar of the machine frame. The inner end 28 of this lever engages within a slot 29 in the lower

end of a second cam plate 30 secured to the side of the cam 16 by means of the rivets or screws 31 passing through the slot 32 in the cam plate 30, this fastening means being sufficiently loose to permit the said cam 30 to be raised by the end 28 of the lever 23. This cam plate 30 therefore vibrates or rocks with cam 16 and the shaft 17 and is so formed at its upper end as normally not to lift the roller 15 of the ribbon lifting mechanism, but when the shift key 20 is depressed the said cam is raised to such an extent that when a printing key 6 is depressed and the upper end of said cam is rocked forwardly, it engages the roller 15, and the arms 12, rods 11 and ribbon 9 are raised to a sufficiently greater height so that the latter is then engaged by the upper case type 5. Thus, as indicated in dotted lines in Fig. 1, the ribbon is lifted a certain amount for each depression of the key when printing lower case, and by Fig. 2 it will be seen that it is lifted a greater amount for each depression of the keys for upper case work.

The lower end of the cam 30 is notched to receive the shaft 17, the upper edge of the said notch serving, if desired, as a stop against the shaft 17 to limit the downward movement of the cam. The slot 29 permits the rocking of the cam without interference from the end 28 of lever 23. The full and dotted lines in Figs. 1, 2, 3 and 7 indicate respectively, the lower and upper case positions of the parts. The hooks 21 and 22 have considerable lost motion, as shown, since only a slight action of the cam 30 is necessary. By this arrangement the ribbon is not shifted simultaneously with the platen, but is raised from the same normal position, whether lower case or upper case type is printed, whereby the arrangement and construction of the parts are much simplified, and the writing for both lower and upper case printing is always entirely visible.

In Figs. 5 and 9 I show means for suitably guiding the ribbon in this raising and lowering, the pointer 35 being secured to the frame of the machine in the usual or desired manner, and having only one prong 36, upon the right hand side, thus not covering the last letter written and being provided with a light wire 37, secured at its upper end to the upper end of the prong or projection 36 and bent as shown in Fig. 9, to extend downwardly and stand out away from the pointer. The force of the type striking the outer side of the ribbon is sufficient to carry the same against the roller, while when released the wire 37 prevents the ribbon catching upon the point 35. This wire may be resilient and may be variously adjusted to secure the results sought.

While I have thus described my invention with specific reference to the details of construction shown in the drawings, I do not

wish to be so limited in all respects, as it is obvious that various changes and modifications may be made therein and still come within the scope and principle of the invention. But

Having thus described one practical method of carrying the invention into effect, what I claim and desire to secure by Letters Patent is:

1. In a typewriter, the combination with type bars having upper and lower case type, of printing keys for operating such bars, a platen, a key to shift said platen into position for upper case printing, a ribbon normally at one side of the printing point whereby the writing is rendered visible, a cam operated by the printing keys to shift said ribbon from normal position into printing position whenever a key is depressed, a second cam controlled by the shift key, whereby when the shift key is depressed the second cam, is brought into position so that the depression of any printing key shifts the ribbon from normal position to position for upper case printing, substantially as described.

2. In a typewriter, the combination with a platen, of a stationary pointer to indicate the printing point, a ribbon normally at one side of the printing position adapted to be raised into printing position for each depression of a printing key, and a guide associated with said pointer, to prevent the ribbon catching thereon when being lowered, substantially as described.

3. In a typewriter, the combination with a platen, of a pointer to indicate the printing point and having a projection extending above said point and to one side of the same, a ribbon normally beneath the printing point but adapted to be raised into printing position for each depression of a printing key, and a guide secured to said projection to normally hold the ribbon out away from the said pointer whereby the ribbon does not catch upon the pointer in lowering, substantially as described.

4. In a typewriter, the combination with front striking type bars having upper and lower case type, of a platen, a key to shift the platen into position for upper case type, a ribbon below the printing position, cam mechanism including a cam having an inclined working face, to shift the ribbon at each operation of a key, and mechanism controlled by the shift key for adjusting the cam

mechanism whereby when such key is depressed and a printing key is operated the said ribbon is shifted from the normal position to the printing position, substantially as described.

5. In a typewriter, the combination with front striking type bars having upper and lower case type, of a platen, a key to shift the platen into position for upper case type, a rock-shaft, a ribbon normally below the printing positions, cam mechanism including a cam mounted on the rock shaft, to shift the ribbon at each operation of a key, and means controlled by the shift key for adjusting the cam mechanism, whereby when said shift key is depressed and a printing key is operated the said ribbon is shifted from the normal position to the printing position, substantially as described.

6. In a typewriter having front striking type bars with upper and lower case type, the combination with printing keys for operating such bars, of a platen, cam mechanism controlled by the printing keys, an inking ribbon held normally below printing position, means actuated by said cam mechanism for shifting the ribbon to printing position, a key to shift the platen into position for upper case type, and means controlled by said shift key for adjusting said cam mechanism.

7. In a typewriter, having front striking type bars with upper and lower case type, the combination with printing keys for operating such bars, of a platen, cam mechanism controlled by the printing keys, an inking ribbon held normally below printing position, means loosely carried on said cam mechanism for shifting the ribbon to printing position, a key to shift the platen into position for upper case type, and means controlled by said shift key for adjusting said cam mechanism.

8. In a typewriter or the like, in combination a cam rigidly mounted on a shaft, a second cam slidably mounted on said first-mentioned cam, and means for actuating said second cam independently of the other, to cause relative longitudinal movement of the cams.

Signed by me at Chicago, county of Cook, State of Illinois, in the presence of two witnesses

FREDERICK SHOLES.

Witnesses:

AUGUST KELLER,
ROBERT LEWIS AMES.