March 13, 1951 M. KISSELL 2,544,998

ATTACHMENT FOR TYPEWRITERS OR LIKE PRINTING MECHANISMS FOR PRODUCING OFFSETTING OF PRINTED IMPRESSIONS

Filed April 3, 1947 3 Sheets-Sheet 1

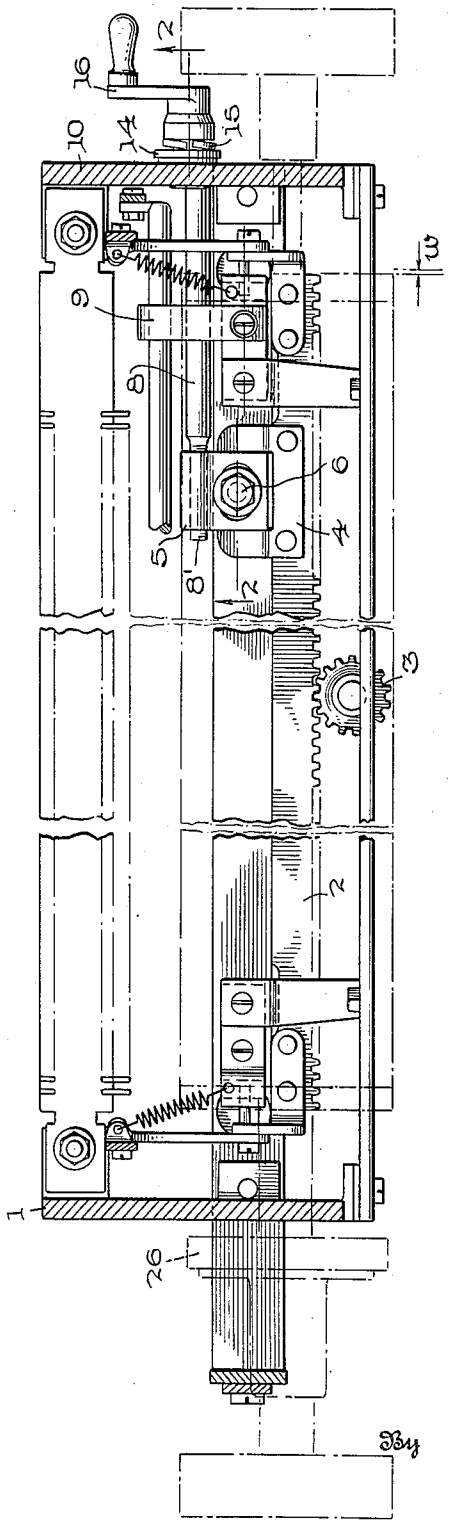


Fig. 1.

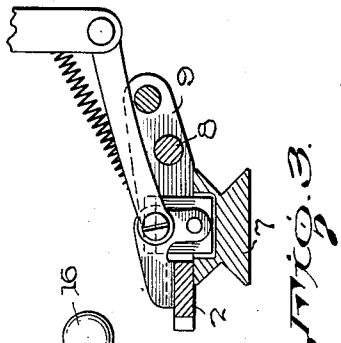


Fig. 3.

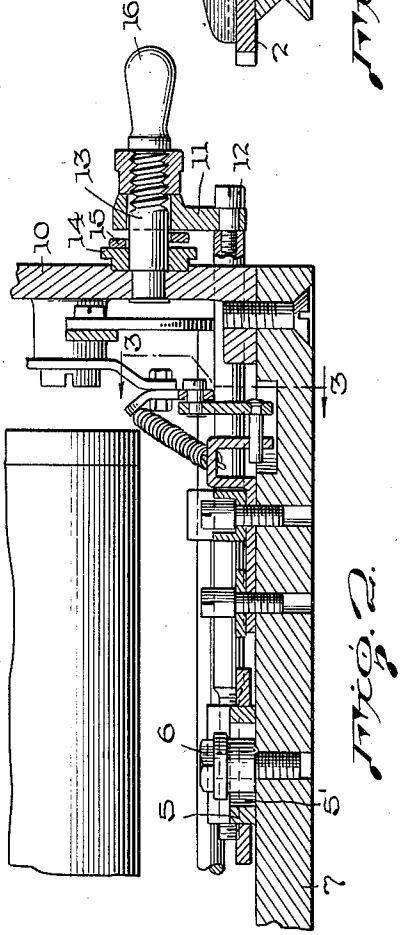


Fig. 2.

Inventor
Michael Kissell
By Robbs & Robbs
Attorneys

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Fig. 4.

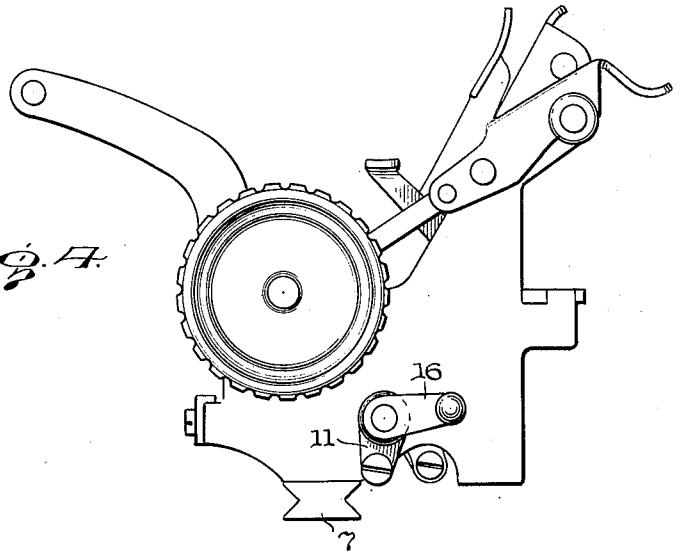
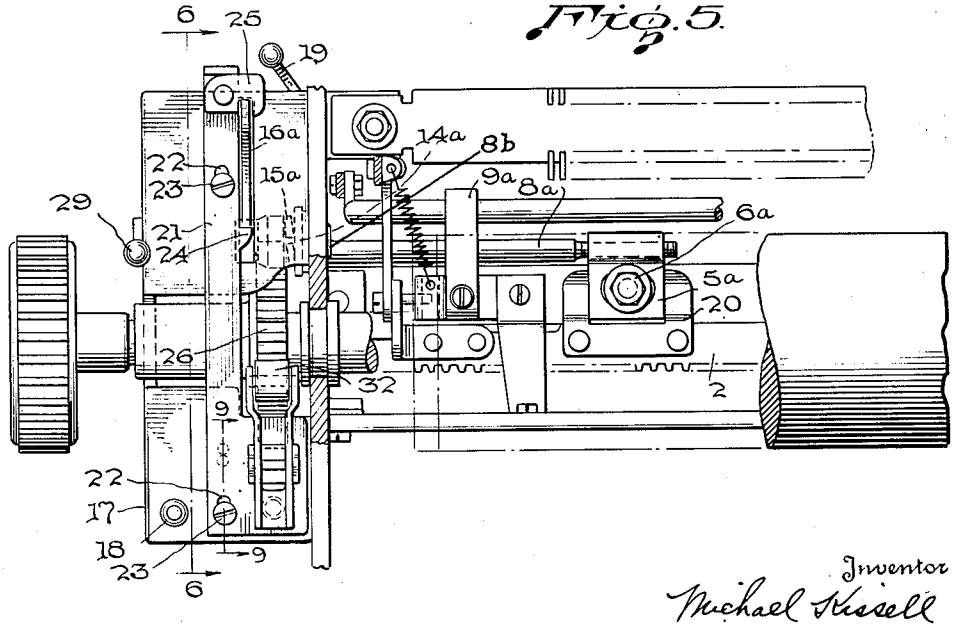


Fig. 5.



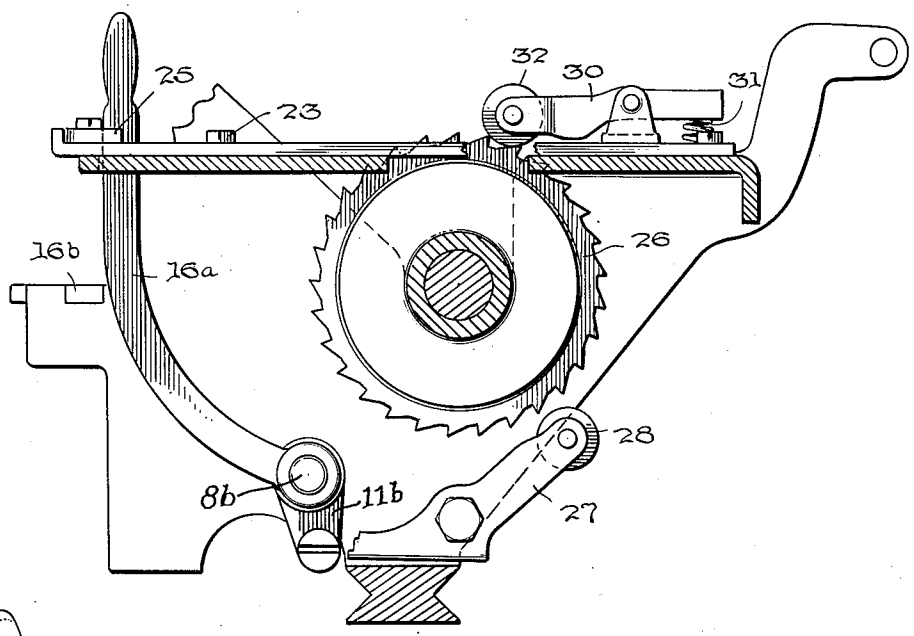
Inventor
Michael Kissell
By Robb & Robb
Attorneys

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Fig. 6.



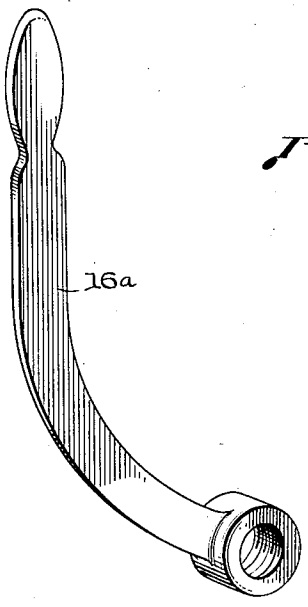


Fig. 7.

Fig. 8.

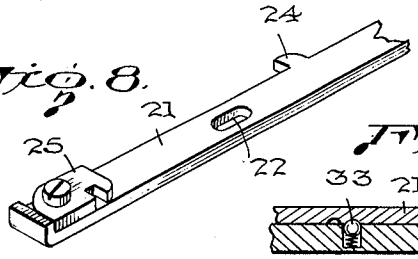


Fig. 9.

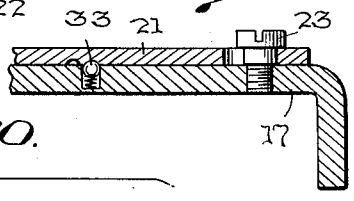


Fig. 10.



Inventor
Michael Kissell
By Robb & Robb
Attorneys

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UNITED STATES PATENT OFFICE

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ATTACHMENT FOR TYPEWRITERS OR LIKE PRINTING MECHANISMS FOR PRODUCING OFFSETTING OF PRINTED IMPRESSIONS

Michael Kissell, Washington, D. C.

Application April 3, 1947, Serial No. 739,040

12 Claims. (Cl. 197—84)

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The present invention relates to typewriting machines, and more particularly to means and methods of operating the printing instrumentalities thereof to produce what I term bold-facing effects or impressions of the printing characters or symbols of the type bars.

It is quite well known that the conventional typewriter in use at this time includes a shift key, the function of which is to displace the face of a type bar in an angular or vertical direction relative to the platen so as to print either capitals or lower case letters as the case may be. Also, the key board of these machines includes a back-spacing key, the operation of which will cause the typewriter carriage to step back an increment of movement equal to the space of a character or more than one, for purposes too well known to need explanation.

The object of the present invention is to provide means so associated with the typewriter carriage that either a slight longitudinal or a slight rotative displacement, or both such displacements, of the platen printing surface may be effected, whereby the type printing impressions will be offset relative to the normal positions for such impressions on the printing sheet. The result above referred to is comparable to what would take place if the shift key of the keyboard were slightly depressed and a type bar were then operated to imprint the character thereon on the sheet or when the back-spacing key is slightly depressed to move the carriage a fraction of its normal movement and then a type bar operated to imprint its character. In the first instance, the impression on the sheet would be shifted slightly from the normal in a direction at right angles to the longitudinal axis of the platen, while in the second, the displacement would be in the longitudinal direction. Each of these operations, or both simultaneously, would have to be so carefully carried out that it is not practical to use the two keys of the keyboard for the purpose of "bold-facing," as contemplated herein. As stated above, the object of this invention is to provide as an attachment to a typewriter machine supplemental means or mechanism for effecting the "partial" displacements above described, separately and simultaneously, so as to cause printing of a character in an offset position relative to the normal impression on rewriting the character and thereby obtain bold-facing of a selected part of the text, such as paragraph headings, titles, quotations, etc., typewritten on machines of existing types. The extent of the offset may be variable and depends more

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or less upon the aristic ideas or considerations of the operator.

Broadly stated, my method of carrying out the objective, results in a relative displacement between the type members and the impression receiving the sheet whether this displacement is lateral or angular, or a component of both, and whether or not the said displacement is produced by these shift or back-spacing keys or other means.

A typical method of producing the bold-facing referred to above, is to typewrite the paragraph heading, for example, in the normal manner of operating the typing machine, then to effect the relative displacement of these impressions subsequently by means of an attachment which may be associated with the conventional typewriter carriage to slightly rotate the platen and/or shift the carriage longitudinally, and finally to rewrite said heading a second time over the first printed impression or impressions. The characters of the second writing will be slightly offset from those of the first and will present a double outline form to each character, slightly darker in appearance as a whole. The characters may even be shaded when one writing is more heavily impressed than the other.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings:

Figure 1 is a top plan view of a typewriter carriage of well-known manufacture, partly shown in section and showing the platen unit in dot and dash lines for purposes of clarity;

Figure 2 is a fragmentary vertical sectional view on the line 2—2 of Figure 1, showing this invention as designed to effect longitudinal displacement of the carriage to produce one type of offset of the impressions of the type bar characters;

Figure 3 is an enlarged fragmentary transverse sectional view taken on the plane indicated by the line 3—3 of Figure 2;

Figure 4 is an elevation view of one end of the carriage showing more clearly the manual shifting means for the carriage;

Figure 5 is an enlarged fragmentary plan view of the preferred form of the invention for independently producing either longitudinal displacement of the carriage or rotative displacement of the platen, or both such displacements simultaneously;

Figure 6 is an enlarged transverse sectional view on the line 6—6 of Figure 5;

Figure 7 is a detail view of the shifting lever of the modification shown in Figure 6;

Figure 8 is a perspective view of the slide plate shiftable by the shifting lever;

Figure 9 is a fragmentary sectional view on the line 9—9 of Figure 5, showing clearly the detent for holding the slide plate in its different positions; and

Figure 10 shows a series of the different forms of type impressions obtainable by the use of my invention.

Like reference characters designate corresponding parts in the several figures of the drawings.

Referring to the drawings, and specifically describing that form of my invention shown in Figure 1, 1 designates the carriage of a well-known type of typewriter, 2 the escapement rack bar, and 3 the pinion engaged by said rack bar. For the purpose of adjusting this bar to the scale of the typewriter there is provided an eccentric plate and nut mounted between the arms of the keeper 4 rigidly secured to said bar. This permits relative movement between the rack bar and the carriage frame. I take advantage of this adjustability in adapting my invention to this machine; that is to say, I remove this eccentric adjusting means and substitute a plate 5 in its stead, secured by the holding or guide bolt 6 which passes through a slot 5' in the plate and into the roller guide bar 7 at the base of the carriage frame. A rod 8, threaded at one end at 8', is screwed into the connector plate and extends through an opening in the bearing arm 9 and through the end 10 of the carriage frame sufficiently far as to receive an end of the arm 11. This arm at one end is fixed to the rod 8 by the shouldered screw 12 and extends upwardly to coact with the stud 13 fastened in the end of the frame, as clearly shown in Figure 2. A shouldered collar 14 on the inner end of the stud is seated in the face of the frame end 10 and between the face of this collar and the inner face of the arm 11 is disposed a conventional spring washer 15 tending to press the arm 11 and its connecting rod 8 toward the right or away from the frame end.

The outer end of the stud 13 is threaded and receives the threaded end of the crank arm 16. The remaining detail structure shown in the drawing needs no explanation or description as it forms no part of this invention and is purely conventional as to this known typewriter.

It will be seen from the foregoing, that when the crank arm 16 is rotated on the threaded end of the stud 13 secured to the carriage frame, it will react against the outer face of the arm 11 attached to the rack bar 2 which is then held stationary by the pinion 3, and, by virtue of its threaded connection with the stud 13, draw the latter rightwardly to effect a rightward longitudinal shift of the carriage frame.

If now the paper in the machine around the platen has first had impressions of the type bar characters printed thereon, the shifting of the carriage by the crank arm 16, as above described, will cause said characters to be displaced in a horizontal direction with relation to the normal position when written. Upon the retyping of the same characters over the ones first imprinted, each second reprint will be offset from the first, thereby producing an open impression corresponding to that at X in Figure 10 of the drawings.

To make another style of impression, while the carriage is in this displaced position, it is only necessary to rotatively adjust the platen by the usual release knob at the end of the platen unit. This double adjustment will then in the reprinting operation produce an offset of the second impression, as shown at Y in Figure 10 of the drawings.

A third type of offset impression, as shown at Z, may be made by adjusting the platen roller as last described without the use of the longitudinal displacement attachment shown in Figures 1 and 2.

However, with the preferred form of my invention as illustrated in Figures 4 to 6, the adjustments of the carriage and the platen roller may be accomplished by a simple attachment disposed at the left end of the carriage and this will now be specifically described. At said end, the carriage 1 is provided with an extension support or frame 17 to accommodate certain lever instrumentalities for the carriage and platen roller. On the post 18 is pivotally mounted the usual carriage shifting lever (not shown) by means of which the carriage is returned to its initial writing position and the platen is given a rotative movement controlled by the line control setting lever 19. Some of these parts are omitted from the drawings in order to eliminate confusion in the illustration of my invention.

Referring to Figure 5, I attach the keeper member 20 to the rack bar 2 and between the side arms thereof I secure the slotted bearing plate 5*a* through which extends the shouldered screw bolt 6*a*. To the plate 5*a*, I connect the threaded rod 8*a* which extends through the end wall of the carriage frame and has connected to it the arm 11*b*, all exactly as described with reference to the form shown in Figure 1.

On the threaded outer end of stud 8*b* I mount the lever 16*a* as a modification of the crank arm 16 used in the first described form. This lever 16*a* effects longitudinal shifting of the carriage in the identical manner described hereinbefore. However, in Figure 5, it will be noted that said lever (shown specifically in Figure 7) cooperates with a slide plate 21 mounted on top of the frame extension 17. This plate has spaced guide slots 22 therein through which attaching and limiting screws 23 extend, said slots and screws permitting the plate to move back and forth under the control of the lever 16*a*.

At a suitable point on one edge of the plate is formed a laterally projecting lug 24, extending into the path of forward movement of the lever 16*a*. On the rear end of the slide plate 21 is pivotally mounted a pawl 25 which in the position shown in Figure 5, lies in the path of movement of the lever 16*a*, so that on rearward movement of said lever the plate is shifted rearwardly and on the forward movement of the lever the plate is shifted reversely.

It will be understood that at this left end of the carriage, the platen unit is provided with the customary toothed wheel 26 with which the roller friction arm 27 coacts to control the uniform spacing between the lines. The roller 28 normally lies between two teeth to hold the platen against accidental rotation, but when it is desired to spin or otherwise rotate the platen roller, this arm may be disengaged from the wheel by the customary release lever 29.

In Figures 5 and 6, it will be observed that a similar friction arm 30 is mounted on the slide plate 21, tensioned by the spring 31, but in this instance the roller 32, when the slide plate is

shifted, rotatively shifts the wheel and platen a slight amount and holds the platen at such position. This angular displacement of the roller is utilized in conjunction with the lateral displacement of the carriage in producing the offset form of character shown at Y in Figure 10.

The operation of this preferred modification of my invention may now be described in detail as follows:

Let it be assumed that the operator is typing upon a printing sheet inserted normally in the typewriter equipped with this attachment and has reached a point where an expression is to be emphasized, or a heading is to be used, the words or letters are printed normally once on the sheet. The carriage is then returned to the first letter impression position, the release lever **29** operated to displace the arm **27** from the wheel **26** and the lever **16***a* is shifted rearwardly until it hits the pawl **25**. This movement first compresses the washer **15***a* and causes the frame of the carriage to shift a slight degree in a lateral or longitudinal direction (to the extent represented by the parallel lines W in Figure 1 for example) and then moves the slide plate **21** rearwardly with the roller **32** seated between two teeth on the wheel **26**, thereby angularly displacing the platen roller. Now the same letters are rewritten over the first or original ones, producing a double line lettering, which stands out from the rest of the text.

If, however, it is desired to produce the form of lettering as shown at X in Figure 10, then the pawl is turned into inoperative position as shown in Figure 8. The lever **16***a* will not shift the plate **21** and rotation will not be imparted to the platen. A stop **16***b* will in this instance limit the movement of the lever. In this operation just described, the lever only effects the longitudinal movement of the carriage.

It will, of course, be understood that when the offset imprinting is completed, it is only necessary to return the lever **16** to its normal forward position, in doing which it contacts with the lug **24** which restores the plate **21** to the original position, whereupon the release lever **19** is then normalized to reengage the roller **28** with the wheel **26**.

It may be added that I prefer to provide a detent **33**, as shown in Figure 9, to hold the plate **21** in its different positions above referred to.

While the specific details of construction have been herein shown and described, the invention is not confined thereto as changes and alterations may be made without departing from the spirit thereof as defined by the appended claims.

I claim:

1. In apparatus of the type described, the combination of a work sheet supporting unit for holding a work sheet in normal position for printing impressions thereon comprising a shiftable carriage frame, a platen mounted on said carriage frame and fixed against longitudinal movement relative to the carriage frame, whereby to permit printing of impressions uniformly spaced relative to each other on said work sheet while in said normal position, and a single means for bodily displacing said carriage frame and platen longitudinally and the platen angularly slightly from the normal printing position aforesaid to permit reprinting of certain of said impressions at correspondingly uniform spaced relations to the original printed impressions made in the normal position, but out of register therewith to thereby consistently offset the reprinted impressions for "bold-facing" the impressions.

2. The combination with a typewriter machine having a carriage and rack bar, a platen mounted on and fixed against longitudinal movement relative to the carriage, line spacing means coacting with said platen for rotating the platen a full line space distance, and type bars and keys for making type impressions on a work sheet spaced uniformly from each other, of a single displacement means operable for shifting the platen in two directions at one time after first impressions are made on the work sheet whereby on reimprinting said first impressions to slightly offset the second impressions in alignment with the first, to thereby form a distinct double outline type of impression.

3. The combination with a typewriter machine having a carriage and rack bar, a platen mounted on and fixed against longitudinal movement relative to the carriage, line spacing means coacting with said platen for rotating the platen a full line space distance, and type bars and keys for making type impressions on a work sheet spaced uniformly from each other, of a single displacement means operable for simultaneously shifting the carriage longitudinally and the platen rotatively after first impressions are made on the work sheet whereby on reimprinting said first impressions, each impression is offset both vertically and laterally to produce a distinct double outline type of impression.

4. Typewriter apparatus of the class described, comprising a carriage frame, a platen mounted thereon, means for controlling the longitudinal movement of said carriage frame including a rack bar, and a single operative means for effecting temporary relative displacement between the rack bar and frame and rotative movement of the platen for reprinting impressions in an offset relation to first printed impressions to thereby produce double outline impressions.

5. Typewriter apparatus as set forth in claim 4, wherein the operative means comprises a rod connected to said rack bar, and a lever member connected to said rod to produce rectilinear movement of the carriage frame.

6. Typewriter apparatus as set forth in claim 4, wherein the operative means comprises a rod connected to said rack bar, a lever member connected to said frame and rod to produce rectilinear movement of said carriage frame, and means operable by said lever member for temporarily shifting the platen rotatively to a position for the reprinting of the impressions in an offset relation to first impressions.

7. Typewriter apparatus of the class described, comprising a carriage frame, a platen mounted thereon, means for controlling the longitudinal movement of said carriage frame including a rack bar, and a single manually operative means for effecting temporary relative displacement both between the rack bar and frame and between the platen and said frame for reprinting impressions in an offset relation to first printed impressions to thereby produce double outline impressions.

8. Typewriter apparatus of the class described, comprising a carriage frame, a platen mounted thereon, means for controlling the longitudinal movement of said carriage frame, including a rack bar, and an attachment mounted on said frame having a single member shiftable in one direction and means operable thereby for simultaneously imparting rectilinear movement to the frame and rotative movement to the platen for reprinting impressions in an offset relation to first

printed impressions to thereby produce double outline impressions.

9. Typewriter apparatus of the class described, comprising a carriage frame, a platen mounted thereon, means for controlling the longitudinal movement of said carriage frame, including a rack bar, a connecting rod connected at one end to the rack bar, a lever having screw connection with the frame and cooperative with an arm connected with the other end of said rod, and a plate attached to the carriage frame and having means thereon cooperative with the platen for imparting rotative movement to said platen, said lever being shiftable to effect relative movement between the carriage frame and rack bar and being cooperative with said plate to effect rotative movement of the platen.

10. Typewriter apparatus of the class described, comprising a carriage frame, a platen unit mounted thereon, including a ratchet wheel, means for controlling the longitudinal movement of said carriage frame including a rack bar, and an attachment mounted on said frame for controlling reprinting of first impressions on a work sheet, said attachment comprising a slide plate having a tension arm mounted thereon for cooperation with the ratchet wheel when said plate is shifted, an arm connected to said rack bar, and a lever mounted on the carriage frame in juxtaposition to said plate and said last-mentioned arm, said lever being movable in one direction to shift the slide plate to partially rotate the ratchet wheel and movable in the reverse direction to retract the plate to its original position.

11. Typewriter apparatus of the class described, comprising a carriage frame, a platen unit mounted thereon including a ratchet wheel, means for controlling the longitudinal movement of said carriage frame including a rack bar, and an attachment mounted on said frame for controlling reprinting of first impressions on a work sheet, said attachment comprising a slide plate having a tension arm mounted thereon for cooperation with the ratchet wheel when said plate is shifted to actuate said arm and ratchet wheel, a lever mounted on the carriage frame in juxtaposition to said plate, said lever being movable in one direction to shift the tension arm to partially rotate the wheel and platen unit and movable in the reverse direction to retract the arm, and a rod on said carriage frame adjustably connected to the rack bar at one end and coacting with the lever at its other end, said coaction between the lever and rod effecting relative displacement between the carriage frame and rack bar as the platen unit is rotated as aforesaid.

12. Typewriter apparatus of the class described, comprising a carriage frame, a platen unit mounted thereon, including a ratchet wheel, means for controlling the longitudinal movement of the carriage frame including a rack bar, and an attachment mounted on said frame for controlling reprinting of first impressions on a work sheet, said attachment comprising a slide plate having a tension arm mounted thereon for cooperation with the ratchet wheel when said plate is actuated, a lever mounted on the carriage frame in juxtaposition to said plate, and means on said plate adjustable into the path of movement of said lever so that said lever, when shifted in one direction, will shift the tension arm and the ratchet wheel to partially rotate the platen unit, said means being shiftable in the opposite direction to adjust it into a position out of the path of movement of the lever to prevent rotative movement of the platen unit as aforesaid.

MICHAEL KISSELL.

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