C. C. POOLE.

PAPER MOVEMENT INDICATOR FOR TYPE WRITERS.

APPLICATION FILED AUG. 29, 1908.

929,243. **Patented July 27, 1909.**

Fig. 1.

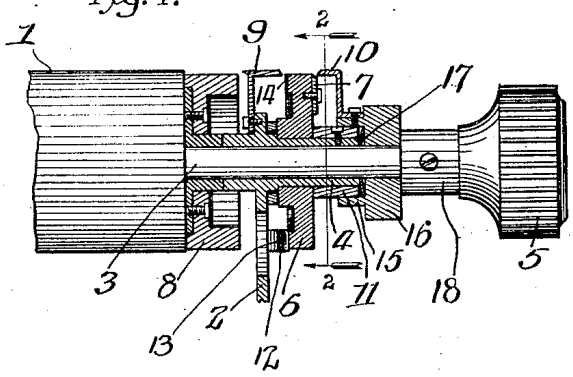


Fig. 2.

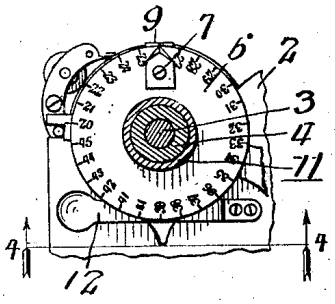


Fig. 3

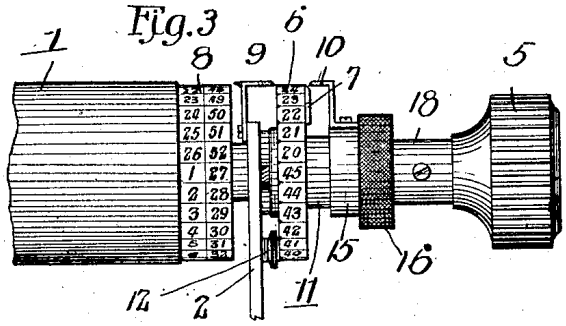
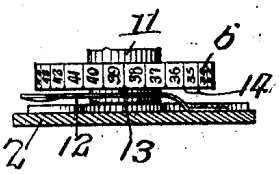


Fig. 4.



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UNITED STATES PATENT OFFICE.

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PAPER-MOVEMENT INDICATOR FOR TYPE-WRITERS.

No. 929,243. Specification of Letters Patent. Patented July 27, 1909.

Application filed August 29, 1908. Serial No. 450,816.

To all whom it may concern:

Be it known that I, CHARLES CLARENCE POOLE, a citizen of the United States, and a resident of Evanston, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Paper-Movement Indicators for Type-Writers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to novel features of construction in the paper-feeding devices of typewriting machines and more especially to paper-movement indicating mechanism, adapted to indicate the extent to which the platen must be turned backward by hand at the time of inserting new or original sheets when making carbon copies of a number of writings on a single record strip or sheet with uniform predetermined spaces between said carbon copies.

The invention consists in the matters hereinafter described and more particularly pointed out in the appended claims.

In the accompanying drawings illustrating my invention: Figure 1 is a sectional view taken on a vertical plane passing through the central axis of the platen-shaft, showing in side elevation the right-hand end of the platen and platen-shaft and the turning knob on said platen-shaft and illustrating, in vertical section, the bearing for the platen-shaft and parts constituting my invention. Fig. 2 is a sectional elevation, taken on line 2—2 of Fig. 1. Fig. 3 is a plan view of the parts shown in Fig. 1. Fig. 4 is a detail view, from beneath, of the disk on the carriage end-plate, showing the locking device for said disk, the said end-plate being shown in section.

As shown in the said drawings, 1 indicates the platen or paper supporting roller of a type-writing machine, and 2 the right-hand end-plate or frame-piece of the paper-carriage or frame in which the platen is mounted. The platen is provided with a platen-shaft 3 which is mounted to turn in a bearing-sleeve 4 (Fig. 1) rigidly attached to the end-plate 2 and extending from the outer face of the same. To the outer end of the platen-shaft 3 is secured the platen turning knob 5 by which the platen may be turned by the hand of the operator.

The parts above described, as illustrated, correspond with those now used in type-writing machines of the kind known as the "Oliver".

6 indicates an annular member or disk which is mounted on the bearing-sleeve 4, concentrically with the platen and platen-shaft, and has rotative adjustment relatively to the carriage-frame. Said disk 6 is provided with circumferential graduations or scale-marks spaced at uniform angular distances apart to correspond with the line-space movements of the platen. For convenience of illustration, the disk 6 is shown as provided with like or corresponding, and corresponding numbered, scale-marks on its edge and side faces, but usually such a scale will be marked on its edge or peripheral surface only. Said disk 6 is provided on its outer face with an affixed pointer 7 coinciding with one of said scale-marks. The platen-shaft 3 is provided with a second disk 8 which is attached to and turns with the same. Preferably said disk 8 is secured to the platen-shaft at the right-hand end of the platen 1, between the same and the end-plate 2. Said disk 8 has on its cylindric surface graduations or scale-marks spaced at uniform angular distances apart to correspond with the line-space movements of the platen. The said disk 8 bears two sets of such scale-marks, arranged side by side, and said graduations or scale-marks of the two sets are progressively numbered so that the numbers run twice around the disk. As illustrated, the left hand set bears the numbers 1 to 26 and the right-hand set 27 to 52, the number 27 being placed laterally opposite the number 1, so that the scale can be read continuously. Said numbers run reversely of the direction in which the platen is turned in its usual feeding or line-spacing movement.

9 indicates a fixed index finger or pointer which is rigidly attached to the end-plate 2 or other part of the carriage. Said pointer has its indicating end adjacent to the periphery of the rotatively adjustable disk 6 and acts in connection with the scale-marks or graduations thereon.

10 indicates an index finger or pointer which is mounted upon and turns with the platen-shaft and is adapted to be turned or rotated relatively to the platen and to remain at any point to which it may be moved

or adjusted. So far as the general ends to be attained are concerned, the pointer 10 may be engaged with the platen-shaft by any form of device adapted to hold said pointer from freely turning on the platen-shaft while adapting it to be turned or rotatively shifted on the shaft by the hand of the operator as desired. Likewise, the disk 6 may be connected with the frame of the machine by means adapted to retain the pointer 7 thereon in any position in which it may be placed or to which it may be adjusted with respect to the fixed pointer 9, by the turning of said disk 6, while enabling said disk 6 to be turned for shifting or adjusting the position of the pointer when desired. In the embodiment of my invention illustrated in the drawings, the pointer 10 is frictionally engaged with the shaft so that it turns with the shaft but may be readily turned thereon to effect its adjustment while the disk 6 is held in adjusted position relatively to the carriage-frame by an interlocking connection between said disk and the end-plate 2.

Now referring to the details of construction in the features above referred to, illustrated in the drawings, the disk 6 has a central bearing aperture to receive the sleeve 4 and is held in place on the sleeve by means of a retaining collar 11 which surrounds the sleeve outside of the disk and is secured thereto by a screw or other attaching means. For adjustably holding the disk 6 from rotation, a spring detent 12 is attached to the outer face of the end-plate 2 and is provided with a holding prong 13 adapted for engagement with either one of an annularly arranged series of radial notches 14, 14 formed on the inner face of the disk. The spring detent is shown as having the form of a leaf-spring, one end of which is attached to the end-plate, with its free end extending outside of the disk, in position to be easily pressed by the finger. The holding prong 13 is formed on said spring-arm between the ends of the same, and is held normally in position to engage the notches of the disk 6 by the resiliency of the spring-arm; which latter is pressed toward the end-plate to release the holding prong from the disk.

The pointer 10 is attached to a sleeve 15 which is mounted to turn on the platen-shaft outside of the disk 6. Said sleeve is provided with a knurled flange 16 by which said sleeve 15 and the pointer 10 may be easily rotated on the shaft by the fingers. Frictional connection between the sleeve 15 and the shaft is afforded by means of a concave, sheet-metal, elastic spring-ring or washer 17 located within a concentric recess formed in the inner face of the sleeve 15, said washer being interposed between the adjacent or outer ends of the sleeve 4 and the collar 11 thereon and the bottom of the recess in the sleeve 15. Said sleeve 15 is pressed toward the bearing-sleeve 4 and the spring-washer 17 maintained in bearing contact with said parts by the collar 18 of the turning-knob 5, the inner end of which collar forms a shoulder against which bears the outer end of the sleeve 15.

The operation of the indicating device described will be understood from the following: The general purpose of the paper-movement indicating device is to indicate to the opera or the extent to which the platen must be turned backward when inserting a sheet of paper into the machine in order to bring the first line of printing the desired distance from the top margin of the paper, according to the space occupied by the heading on the sheet. More particularly, the indicating device is designed for use in cases where it is desired to make out a number of bills or invoices and to make carbon copies of the same on a single record sheet. In a case of this kind, it is desirable that the copies should be spaced as closely as possible on the record sheet but at uniform distances apart, or with equal spaces between several records or copies, and the indicating device is employed to enable the operator to readily insert a new sheet for each separate original bill or invoice in such a manner that the first printed line of the carbon copy shall be located at a desired distance from the last printed line of the preceding carbon copy.

In using the indicating device described, the operator sets the disk 6 with the pointer 7 thereon at an angular distance from the fixed pointer 9, equal to the distance which it is necessary to turn the platen backward after printing the last line of one bill or invoice in order to start a new original sheet into the machine in such manner that the first line of the next bill or invoice when started at its proper place on the sheet will, on the carbon copy sheet, come at a distance desired, as two, three or four line spaces from the last line of the preceding carbon copy. The setting of the disk 6 is effected as follows: In the case of an "Oliver" typewriter, one of the original sheets or blanks for a bill or invoice, which usually has a printed heading, is inserted in the machine with its advance margin against the lower guide roller or gripping roller by which the sheet is fed forward, and in position to be gripped and fed forward when the platen is turned in its usual feeding direction. The platen is, at this time, turned to bring the zero mark of the scale on the disk 8 (marked 26 in the drawing) in line with a fixed part of the paper-carriage, such as the fixed pointer 9 or the edge of the scale-bar of the machine. The platen is then turned to feed the paper forward until brought into position for printing the first line, which is usually the date line. The platen is then turned forward a space of

two or three additional lines according to the distance desired between the carbon copies on the record sheet. The operator then notes the mark on the scale on the disk 8 which is then in line with the fixed pointer. This may be 32, indicating that the platen must be turned back thirty-two line spaces to bring the same in position for the insertion of a new sheet. He then releases the disk 6 from the paper-carriage and turns said disk until the scale-mark 32 thereon comes in line with the fixed pointer 9, thereby bringing the pointer 7 at a distance from said fixed pointer equal to the distance the platen was turned in advancing the paper. That is to say, the pointer 7 is placed at an angular distance backward from the fixed pointer equal to the angular distance the platen was turned forward from the zero point in advancing the paper; this distance having been noted at that time, as above stated. The angular distance between the fixed pointer 9 and the adjustable pointer 7 will then be equal to the distance which it is necessary to turn back the platen for inserting a new sheet, this distance being represented by the length of the heading on the blank bill or invoice, plus the distance around the platen from the gripping roller to the striking point of the type, plus the space to be left between the carbon copies on the record sheet. The parts will now be adjusted for use in connection with the same bill or invoice heads or sheets, so long as it may be desired to use the same.

In the use of the device in printing, the bill or invoice sheet and the record sheet are inserted into the machine, with the carbon paper between them, in the usual manner. After the printing of the first invoice is finished, on completion of the last line thereof the sleeve 15 will be turned on the platen-shaft to bring the pointer 10 thereon opposite the fixed pointer 9 and the said pointer 10 will be allowed to remain in this position. The platen will then be turned forward far enough to remove the original sheet and then turned backward until the pointer 10 is carried past the fixed pointer 9 and around the disk until it reaches the adjustable pointer 7, when it is stopped. The platen will then be in position for the insertion of the next original sheet, which will be inserted by thrusting it into the machine until its top edge comes in contact with the first guide-roller by which the sheet is gripped to the platen, and the platen will then be turned forwardly to carry the record sheet and the new original sheet into position for printing the first line on said new original sheet.

It follows that by the use of the device described, the operator having once determined the angular distance or number of line spaces through which the platen must be turned backwardly before starting a new sheet into the machine, in every instance, or when inserting each new original sheet for an original bill or invoice, is enabled to invariably turn the platen backward the same distance, according to the angular distance between the fixed pointer 9 and the adjustable pointer 7 carried by the disk 6. The operator will thus be able to invariably bring the first printed line of each carbon copy on the record sheet at the same distance from the last printed line of the previously made copy on said record sheet, thereby leaving uniform spaces between the several carbon copies on the record sheet.

Inasmuch as the platen must always be turned backward to the extent of nearly or somewhat more than a complete rotation, whether the bill-heading be wide or narrow, it is unnecessary that the disk 6 should have its scale-marks numbered with the lower numbers of the scale, and it is also unnecessary that the pointer 7 should be placed at the zero-mark of said disk 6. In order that said pointer 7 may be located, for bill-heads of the more commonly used widths, at the forward and upper part of the periphery of the disk 6, where it may be more easily seen, the said disk is numbered to correspond with the line-space distances which will cover or include the usual range of angular adjustment required in the pointer 7 with respect to the fixed pointer 9, and the said pointer 7 is placed at a point on the disk which may be arbitrarily selected but which must correspond with the location of the fixed pointer on the frame. In the instance illustrated, in which the platen has twenty-six line space movements for a complete rotation and a fixed pointer 9 is located above and in vertical alinement with the axis of the platen, the marks on the disk 6 are numbered from 20 to 45 and the pointer 7 is placed at the mark 26. In this arrangement, if the platen is to be turned backward less than a complete rotation, then one of the marks 20 to 25 will be placed opposite the fixed pointer 9 and the pointer 7 will stand rearwardly from said fixed pointer. It follows that, when the pointer 10 is placed opposite the fixed pointer 9 and the platen turned backward, the said pointer 10 will be moved from the fixed pointer backwardly to the pointer 7 and will make, with the platen, less than a complete rotation. If, however, as is more usually the case, it be necessary to turn the platen backward more than a complete rotation, say from 27 to 45 line-space distances, the disk 6 is turned to bring the desired scale-mark thereon, say 33, opposite the fixed pointer and the pointer 7 will then stand forward of the fixed pointer. When the parts are thus adjusted, in turning the platen backward after the pointer 10 has been placed opposite the fixed pointer, the platen will be turned a complete rotation to carry the said pointer 10 around to the fixed pointer, and then fur-

ther turned to carry said pointer 10 beyond or forward of said fixed pointer until it reaches the pointer 7 in its second rotation. The arrangement described is a convenient one, because, within its usual range of adjustment, the pointer 7 will stand either a short distance to the rear of the fixed pointer, or at some point forward of said fixed pointer on the forward half of the periphery of the disk 6, so that it can be easily observed by the operator at the time the backward turning of the platen brings said pointer 10 adjacent to or opposite said pointer 7.

I claim as my invention:—

1. The combination with a rotative platen and a frame in which said platen is mounted, of a fixed pointer on the frame, a disk mounted to turn on the frame concentrically with the platen and provided with scale-marks or graduations, means for locking said disk to the frame in various adjusted positions, a second pointer which is on said disk, and a third pointer which turns with and is capable of rotative adjustment upon the platen-shaft.

2. The combination with a rotative platen and its shaft, and a frame in which said shaft is mounted, of a fixed pointer on the frame, a disk mounted to turn on the frame concentrically with the platen-shaft and provided with scale-marks or graduations, means for locking said disk to the frame in various adjusted positions, a second pointer affixed to said disk, a sleeve mounted to turn on the platen-shaft and provided with an annular, knurled surface, a third pointer affixed to said sleeve, and means affording frictional engagement between said sleeve and the shaft, whereby said sleeve may turn with and be turned upon said shaft.

3. The combination with a rotative platen and its shaft, and a frame in which said shaft is mounted, said frame being provided with an end-plate having an outwardly extending bearing sleeve, of a fixed pointer on the frame, a disk mounted on said bearing sleeve and having rotative adjustment thereon, said disk being provided with scale-marks or graduations, a second pointer affixed to said disk, a sleeve mounted to turn on said shaft outside of said disk and provided with a knurled annular surface, a third pointer affixed to said sleeve, and means affording frictional engagement between said sleeve and shaft, whereby said sleeve turns with and may be turned upon said shaft.

4. The combination with a rotative platen, a platen-shaft, a frame in which said shaft is mounted provided with an end-plate having an outwardly extending bearing sleeve, a fixed pointer on said frame, a disk mounted on said sleeve and adapted for rotation thereon, said disk being provided with circumferential scale-marks or graduations and with a plurality of annularly arranged notches, a detent on the said end-plate adapted for engagement with the said notches to hold the said disk from turning, a second pointer affixed to said disk, a sleeve mounted to turn on the said platen-shaft outside of said disk, said sleeve being provided with a knurled surface, and a third pointer affixed to said sleeve and means affording frictional engagement between said sleeve and shaft.

5. The combination with a rotative platen, a platen-shaft, a frame in which said shaft is mounted, an annular scale on the platen-shaft provided with annularly arranged scale-marks numbered consecutively with a single series of numbers, indicating line-spaces, running reversely to the normal direction of rotation of the platen, a fixed pointer on the frame, a disk mounted to turn on said frame concentrically with the platen shaft, said disk being provided with scale-marks and with numbers running in the normal direction of rotation of the platen, means for holding said disk in various adjusted positions on said frame, a second pointer affixed to said disk, and a third pointer mounted and having rotative adjustment upon the platen-shaft.

6. The combination with a rotative platen, a platen-shaft, a frame having an end-plate provided with an outwardly projecting fixed bearing sleeve through which the shaft extends, an annular scale on one end of the platen, provided with two annularly arranged sets of scale-marks, indicating line-spaces, numbered consecutively with a single series of numbers running reversely to the normal direction of rotation of the platen, a fixed pointer on the frame, a disk mounted on said bearing sleeve and having rotative adjustment thereon, said disk having a series of scale-marks or graduations, a second pointer affixed to said disk, means for locking said disk to the frame in various adjusted positions, a sleeve mounted to turn on said shaft, a third pointer affixed to said sleeve, and means affording frictional engagement between said sleeve and shaft.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 26th day of August A. D. 1908.

CHARLES CLARENCE POOLE.

Witnesses:
W. L. HALL,
G. J. BRYCE.