No. 811,172. PATENTED JAN. 30, 1906.

C. C. POOLE.

PAPER MOVEMENT INDICATOR FOR TYPE WRITERS.

APPLICATION FILED FEB. 20, 1905.

Fig 1

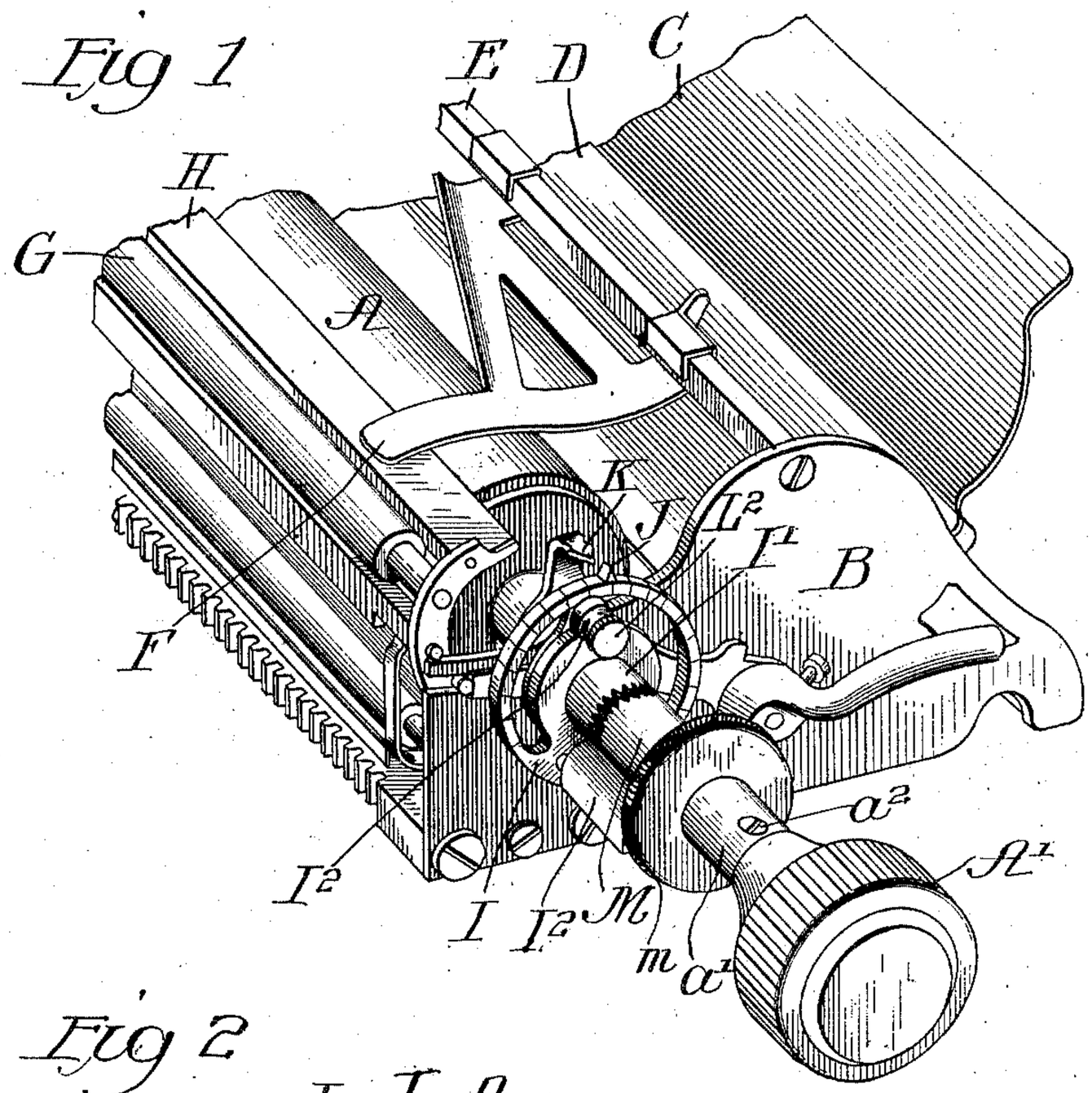



Fig 2

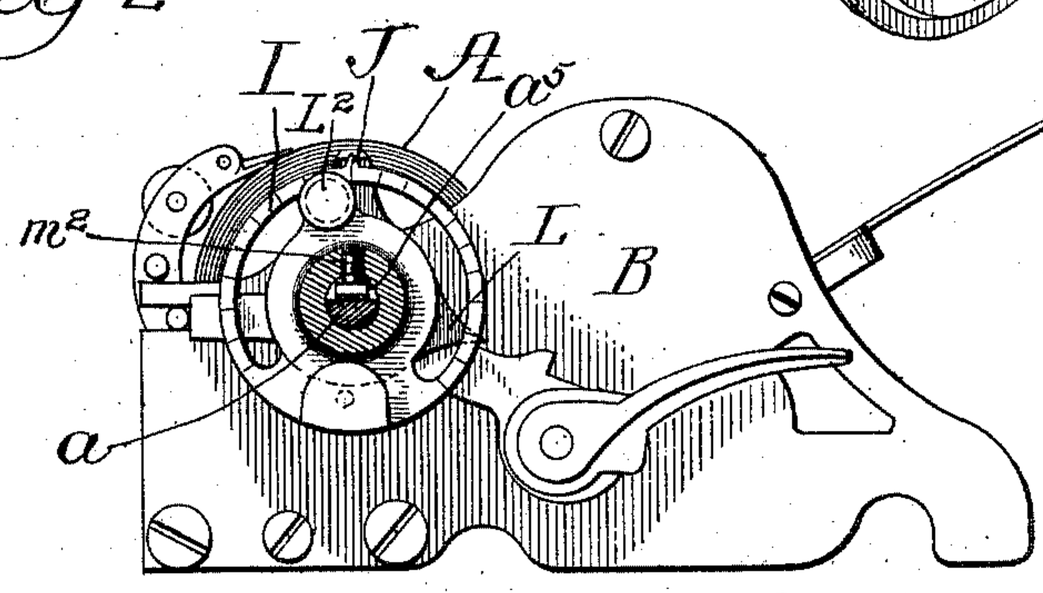



Fig. 4

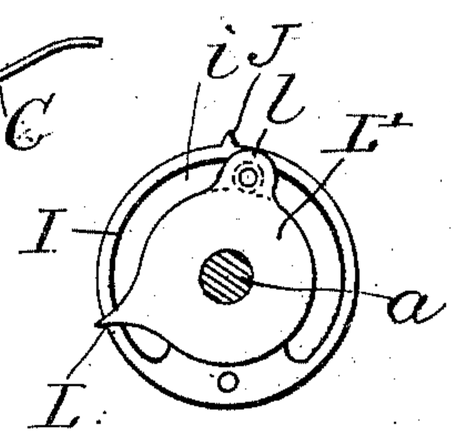
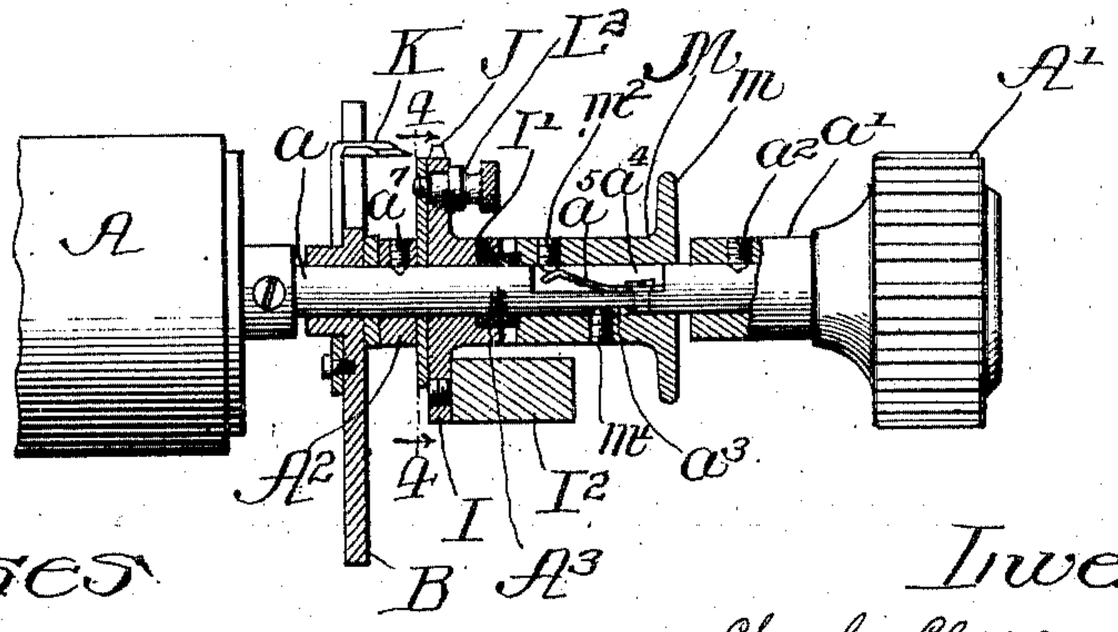



Fig. 3

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# UNITED STATES PATENT OFFICE.

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## PAPER-MOVEMENT INDICATOR FOR TYPE-WRITERS.

No. 811,172. Specification of Letters Patent. Patented Jan. 30, 1906.

Application filed February 20, 1905. Serial No. 246,601.

*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 letters of reference marked thereon, which form a part of this specification.

This invention relates to a novel indicator for use on type-writer carriages and designed more especially to indicate the extent to which the plate should be turned backward by hand for admitting new sheets when making carbon copies of a number of writings on a single record strip or sheet and with uniform or predetermined spaces between such carbon copies.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of the right-hand end of a paper-carriage, showing the platen therein and my improved indicator applied thereto. Fig. 2 is an end view of the carriage with the platen-shaft shown in section. Fig. 3 is an enlarged sectional view of the parts constituting my invention, taken axially of the platen-shaft. Fig. 4 is a cross-section taken on line 4 4 of Fig. 3.

As shown in said drawings, A indicates the platen or paper-roller; B, the right-hand end plate of the paper-carriage in which the shaft *a* of the platen has bearing; C and D, the paper-guides on the carriage; E, the upper longitudinal frame-bar of the carriage; F, one of the end paper-guides mounted on said frame-bar E; G, the upper guide-roller of the carriage, and H the scale-strip located above the platen adjacent to said guide-roller. The platen-shaft *a* has at its outer end a turning knob or disk A′, said knob A′ being fastened to the shaft by means of a sleeve *a*′, fixed to the shaft by a screw $a^2$.

The parts above described correspond with those used at present in the Oliver type-writing machine, in which the type-levers are located above the platen and the types strike downwardly upon the upper surface thereof.

I indicates a rotative member having the general form of a disk and carrying an index finger or pointer J. It is mounted on the platen-shaft in a manner to be locked to the shaft to turn therewith and also to be released therefrom to turn thereon. Said disk is provided, as herein shown, with circumferentially-spaced graduations or scale-marks, which are spaced at uniform angular distances apart to correspond with the line-spacing movement of the platen and are progressively numbered from the index-pointer J, which latter may be known as the "zero-point" on the scale.

K designates an index finger or pointer on the carriage-frame, which coacts with the index-finger J on the disk I.

L designates an index finger or pointer which is mounted on and turns with the disk I and is also adapted to be turned or rotated about the disk-axis toward and from the index-finger J, so as to be placed at varying angular distances from said finger J. Means are provided for locking said indicator L in any adjusted position.

The disk I is provided on its outer face with a hub I′, through which the platen-shaft extends and in which it has bearing, and said disk is held from endwise movement on the shaft between two fixed collars $A^2$ $A^3$ on the shaft, the latter being contained within a recess at the outer end of the hub. Said disk I is adapted to be locked to the platen-shaft in such manner as to rotate therewith when the shaft is rotated; but preferably and as herein shown the disk is normally free on the shaft and does not turn therewith. In the present instance the disk I is automatically returned to its starting position when released from the shaft *a* with the pointer J in line with the stationary pointer K. Such automatic return of the disk is conveniently effected by gravity. In other words, said disk is eccentrically weighted, so that when it is free to rotate on the shaft the gravity of such eccentric weight acts to bring the indicator to the upper part of the disk or in line with the indicator or pointer K. The pointer L may be connected with the disk I or shaft *a* by any suitable means adapted to retain the same in position in which it may be placed with respect to the pointer J on the disk, while enabling said pointer L to be readily

shifted when desired. In the present embodiment of my invention the pointer L is mounted directly on the disk I.

Referring now to the details of construction in the features above referred to and illustrated in the drawings, the same are made as follows: The disk I is mounted on the platen-shaft *a* outside of and adjacent to the end plate B of the carriage-frame. Said disk is normally free to rotate about the shaft *a*. The gravity-acting means for returning the disk to its starting position and for holding it in such position consists, as herein shown, of a weight $I^2$, that is fixed to and extends laterally from the outer side of the disk, the part $I^2$ being of such weight as to reliably bring the disk to rest with the weight always at the lowermost part of the disk. The disk is locked to the shaft *a* when it is desired to rotate the disk with the shaft by any suitable positively-acting locking means, as a clutch device one member of which rotates with said shaft. Said clutch device is made as follows: The outer end of the hub I′ of the disk I is provided with spur-teeth which engage like teeth formed on the adjacent end of the sleeve M, that is free to slide endwise on the shaft *a*, but is non-rotative thereon. Said sleeve M is provided at its outer end with a radial flange *m*, having preferably a knurled periphery, whereby the sleeve may be readily grasped by the fingers to operate the same The sleeve is held non-rotative on the shaft, while permitted to slide endwise thereon, by means of a screw *m′*, extending radially through the sleeve and into a short slot $a^3$ on the exterior of the shaft *a*, and the space between the hub of the disk I and the sleeve *a′* of the knob is such as to permit the required movement of the clutch-sleeve to free the teeth of the clutch device. Preferably locking means are employed for locking the sleeve at both limits of its movement, whereby the clutch member of the sleeve is held positively engaged with the clutch member of the hub or is positively held in its releasing position. A simple locking device for effecting this result is shown in the drawings and is made as follows: The shaft *a* is provided with a longitudinal recess $a^4$, in which is located a short leaf-spring $a^5$, that is affixed at one end thereof to one end of the bottom of said recess and is raised at its other end out of contact with the other end of the recess-bottom. The free or raised end of said spring $a^5$ is engaged by the inner end of a screw-stud $m^2$, which extends radially through the sleeve M. Said spring is provided just inside of the outer or free end with an angular or inverted-V-shaped projection, it inclining both ways from the high point thereof. When the stud engages one angular side of said projection, it holds the clutch-sleeve from movement in one direction, and when it engages the other side of said projection it holds the sleeve from movement in the opposite direction. When, therefore, the clutch-sleeve M is in its innermost position and the disk is therefore clutched to the shaft, the inner end of said screw-shaft $a^2$ engages the spring projection inside the highest part thereof, and therefore prevents the sleeve from sliding outwardly and the release of the clutch. This position of the parts is shown in Fig. 3. When the clutch-sleeve M is shifted outwardly and the clutch released, Fig. 1 the stud $m^2$ rides over the highest part of the projection and engages the outwardly-inclined part thereof, whereby the sleeve is positively held in its releasing position. Such form of clutch device is desirable when used with a disk or other indicator carrying device that is automatically returned to a predetermined position, inasmuch as the said disk or the like is normally free on the shaft and need not turn therewith.

The pointer L, which is mounted on and turns with the disk I and which is adapted to be angularly shifted or adjusted with respect to the indicator or pointer J of said disk, is formed, as herein shown, upon the periphery of a plate L′, that is provided with a central aperture and mounted on the shaft *a* and bears against the flat inner face of the disk I. The plate L′ is locked to the disk by means of a clamping-screw $L^2$, that extends loosely through an annular slot *i* in the disk I, concentric with the axis thereof, and has screw-threaded engagement at its inner end with an aperture in a peripheral lug *l* of the plate L′, as shown more clearly in Fig. 4. When said clamping-screw $L^2$ of the plate L′ is released, the plate is free to be rotated on the shaft for changing the angular distance between the pointer L, carried thereby, and the pointer J, before referred to. After such angular adjustment of the pointer L has been effected the clamping-screw is tightened to clamp the plate L′ against the disk, and thereby maintain the adjustment of the pointer L.

The indicating-disk is preferably provided with an annular peripheral surface, on which are formed the graduations or scale-marks referred to, so that such graduations and the numbers applied thereto may be readily observed by the operator, and the indicator J on said disk is located at and constitutes the zero-mark of such scale, which, as before stated, when the disk is free on the shaft is held by the weight I′ in line with the pointer or indicator K.

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 operator the extent of angular movement of the platen required when inserting a sheet of paper into the machine in order to bring the first line of printing a 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 print a number of separate bills or invoices and to make carbon copies of the same on a single strip or long sheet of paper. In cases of this kind it is desirable that the copies should be spaced as closely as possible on the record-strip, but at uniform distances apart or with equal spaces between the set of records or copies, and the line-indicating device is employed to enable the operator to readily insert a new sheet for each separate original bill or invoice in such 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, while at the same time the first line of the original bill or invoice will come with certainty in proper position with respect to the top margin of the sheet on which said original bill or invoice is printed. Assuming the record-strip and a sheet of paper for the original bill or invoice has been inserted into the machine with a carbon-paper between the same, the first bill or invoice may be printed, and the carbon copy will be made in the usual manner on the record-strip. The printing of the bill or invoice having been completed, the platen will then be turned to carry the original sheet out of the machine and the platen then turned backwardly to move or shift the record-strip backwardly to such a point that when the new sheet is inserted the part of the new sheet on which the first line is to be printed will be located at such distance from the last line of the carbon copy as to leave a desired space on the record-strip between the copies. In using the indicating device as described for the purpose of determining the angular distance which the platen is to be turned backwardly the operator sets the pointer L at a distance from the pointer J equal to the distance which it is necessary to turn the platen backwardly after printing the last line of one original bill or invoice in order to start a new or original sheet in the machine in such manner that the first line of the next bill or invoice when started at the proper place on the original sheet will on the carbon-sheet be printed at a desired distance of two or three or more line-spaces from the last line of the preceding carbon copy. The distance that the platen must be turned back in order to effect this result may be determined as follows: When the last line of the first bill or invoice has been completed, the operator locks the disk I to the shaft *a* by the clutch device described, thereby locking the pointer J to said shaft when said pointer is in line with the fixed indicator K. He then turns the platen backwardly (the disk now turning with the platen) until the platen reaches the proper position for the insertion of a new sheet, allowance being made for the desired space between the first and succeeding carbon copy. Such movement of the first original and carbon sheets is effected while the original sheet is in place in order to determine the extent of the backward movement required to enable the printing to be started on the next succeeding original bill with the proper space between the copies on the carbon sheet or strip. The platen is now allowed to remain in this position, while the pointer L is angularly adjusted on the disk in the manner described until it is brought opposite to the fixed pointer K. The angular distance between the pointers J and L will then correspond with and indicate the distance that the platen must be turned backwardly after the printing of each original sheet to bring the copy of the next blank original sheet at the desired distance from the copy of the preceding original sheet and at the same time affords the desired spacing between the copies of the carbon-sheet. The device has now been adjusted for invoice-sheets having heads of certain width, and in the use of the device for printing after the pointer L has been adjusted and locked in such adjusted position relatively to the pointer J the printing of each invoice is completed in the usual manner, and on the completion of the last line thereof or after the printed original has been removed the disk I is locked to the shaft with the pointer J opposite the fixed pointer K. The platen is then turned backwardly, carrying with it the disk I and pointers J and L, until the pointer L is opposite to the stationary pointer K. A new sheet of paper is now inserted into the machine in the usual manner, and the platen is thereafter turned forwardly to carry the record-sheet in position for printing, which position is determined on the 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 which the platen must be turned backwardly for starting a new sheet in every instance or when inserting each new original sheet for an original bill or invoice he invariably turns the platen backwardly the same distance, according to the angular distance between the pointers J and L, and will thus be able to invariably bring the first-printed line of the carbon copy the same distance from the last-printed line on the record-sheet, thereby leaving uniform spaces between the several copies of the record-sheet. Moreover, the operator is able to locate the carbon copies on the record-sheet as closely together as desirable without danger, on the one hand, of bringing the carbon copies together or in overlapping relation and without liability, on the other hand, of separating the carbon copies on the record-sheet so widely as to waste space on said record-sheet.

The graduations or scale-marks on the disk I are mainly useful to enable the pointer L to

be set in a desired position for original sheets having headings of different widths without any test to determine such position when the operator has previously ascertained and knows from recollection the spaces on the scale at which the pointer must be located for the different original sheets. Moreover, as the graduations correspond with line-spaces if the operator desires to make the spaces between carbon copies greater or less this can be done by merely shifting the pointer L backwardly or forwardly one or more spaces desired. It will be observed, therefore, that the graduations on the disk I have no function to perform in the usual operation of the disk or wheel, the only parts coming into use at such time being the pointer K on the frame and the fixed and adjustable pointers J and L, respectively, on the disk, the angular distance of which latter from each other determine the distance through which the platen is to be turned backwardly in inserting each new sheet.

While the disk I is shown as having a projecting part forming the pointer J, yet the same results will be obtained by providing said disk with a score-line or zero-mark for the scale. Moreover, the stationary pointer K may be replaced by a mark or score-line on the end plate of the carriage-frame.

From what has been heretofore stated it is understood that the term "indicator or pointer" as used in the appended claims is intended to be as well a disk provided with an indicating-mark or score-line or a part of or upon the carriage-frame having such mark or score-line, as a projecting part, arm, or index-finger, the parts referred to equally performing the functions of an indicating means to determine the line-space position of the platen or the extent to which it is turned.

I claim as my invention—

1. The combination with a rotative platen, of two pointers which have angular adjustment relatively to each other, means for locking said pointers to rotate with the platen, and automatic means for restoring the pointers to predetermined positions when released from the platen.

2. The combination with a carriage-frame and a rotative platen, of a pointer on said frame and two pointers which have angular adjustment relatively to each other, means for locking said pointers to rotate with the platen, and automatic means for restoring said pointers to predetermined positions when released from the platen.

3. The combination with the rotative platen, of two pointers which are angularly adjustable relatively to each other, means for locking said pointers to rotate with the platen, and gravity-acting means for restoring the pointers to predetermined positions when released from the platen.

4. The combination with the rotative platen and its shaft, of a part rotative on said platen, two pointers, one of which is fixed to said part and the other of which is angularly adjustable relatively to the first pointer, means for locking said part to rotate with the shaft, and automatic means for restoring said part to a predetermined position when released from the shaft.

5. The combination with the rotative platen and its shaft, of a part rotative on said platen, two pointers, one of which is fixed to said part and the other of which is angularly adjustable relatively to the first pointer, means for locking said part to rotate with the shaft, and gravity-acting means for restoring said part to a predetermined position when released from the shaft.

6. The combination with a rotative platen and its shaft, of a disk having rotative engagement with the shaft, two pointers, one of which is fixed to the disk and the other of which is angularly adjustable on the disk, a clutch device for locking said disk to rotate with the platen, and gravity-acting means for restoring the disk to its starting position when released from the shaft.

7. The combination with a rotative platen and its shaft, of a disk rotative on the shaft, two pointers, one fixed to the disk and the other angularly adjustable relatively to the disk, and means for locking said disk to the shaft comprising a sleeve having endwise-movable but non-rotative engagement with the shaft, and coacting clutch elements carried by said sleeve and the disk.

8. The combination with a rotative platen and its shaft, of a disk rotative on the shaft, two pointers, one fixed to the disk and the other angularly adjustable relatively to the disk, means for locking said disk to the shaft comprising a sleeve having endwise-movable but non-rotative engagement with the shaft, and coacting clutch elements carried by said sleeve and the disk, and automatic means for restoring the disk to its starting position when released from the shaft.

9. The combination with a rotative platen and its shaft, of a disk rotative on the shaft, two pointers, one fixed to the disk and the other angularly adjustable relatively to the disk, a clutch for locking said disk to the shaft, and means for yieldingly holding said clutch in its clutching position and also for yieldingly holding it in its releasing position.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 18th day of February, A. D. 1905.

CHARLES CLARENCE POOLE.

Witnesses:
W. L. HALL,
G. R. WILKINS.