C. B. YAW.

TYPE WRITING MACHINE.

APPLICATION FILED MAR. 5, 1913.

1,178,043.

Patented Apr. 4, 1916.

4 SHEETS—SHEET 1.

FIG. 1.

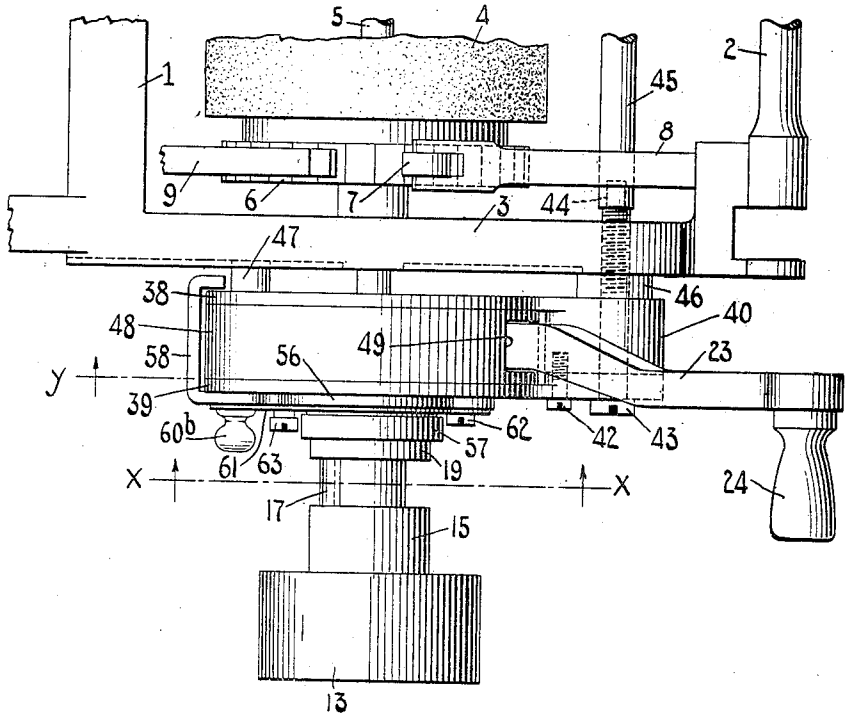
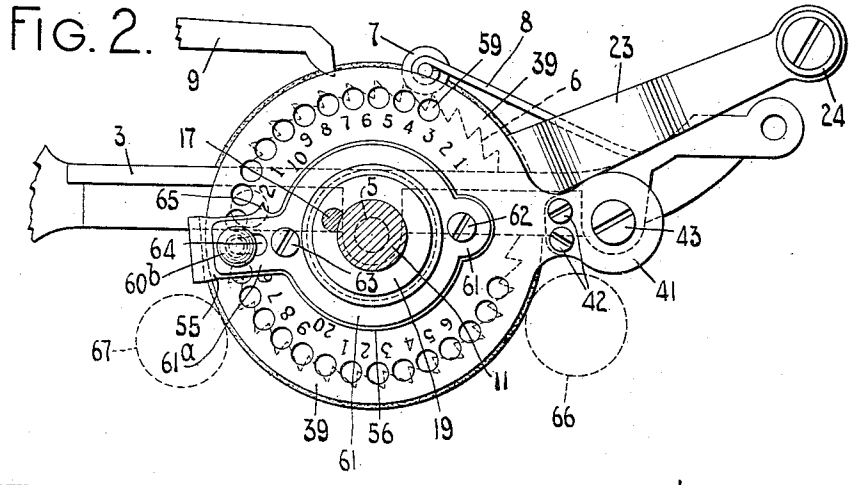


FIG. 2.



WITNESSES:

E. M. Wells.

M. W. Pool

INVENTOR:

Clio B. Yaw

By Jacob Fehl

HIS ATTORNEY

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4 SHEETS—SHEET 2.

FIG. 3.

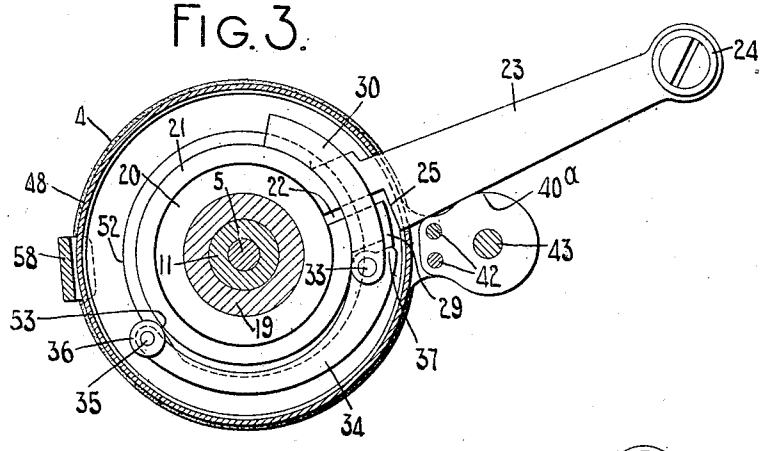


FIG. 4.

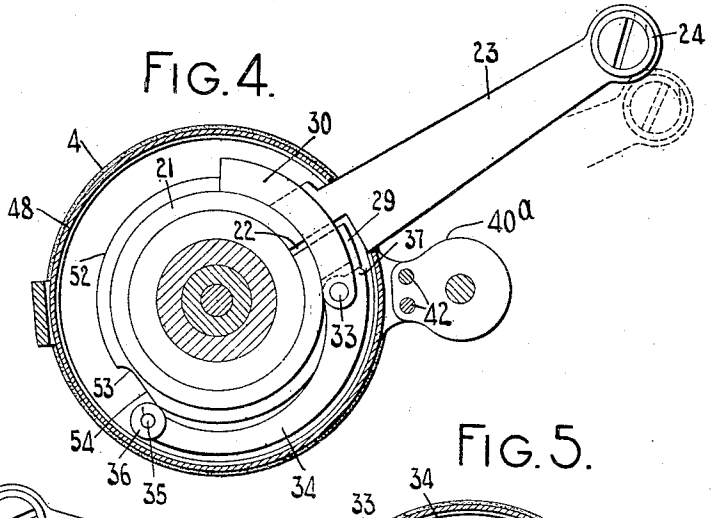
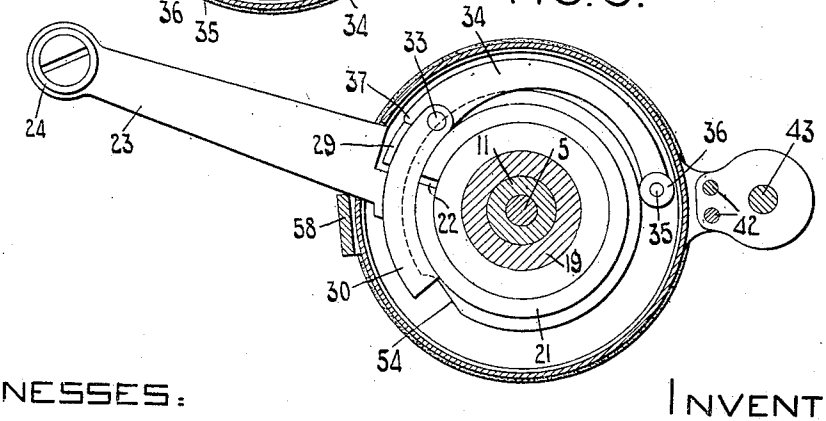


FIG. 5.



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4 SHEETS—SHEET 3.

FIG. 8.

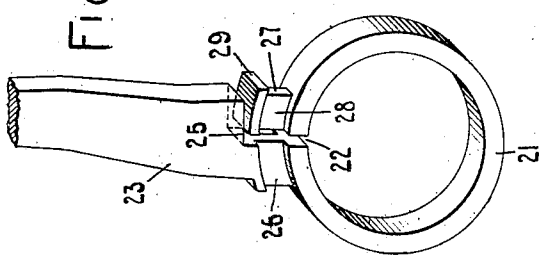


FIG. 9.

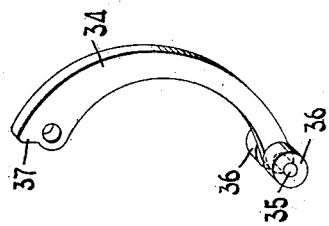


FIG. 10.

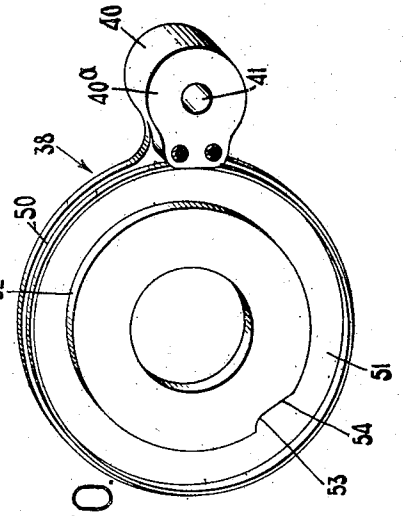


FIG. 7.

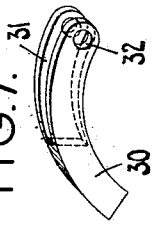
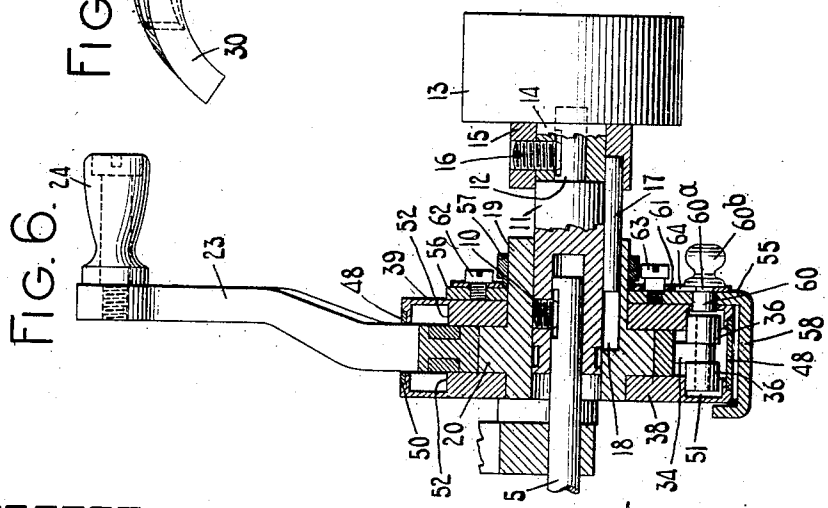


FIG. 6.



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APPLICATION FILED MAR. 5, 1913.

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4 SHEETS—SHEET 4.

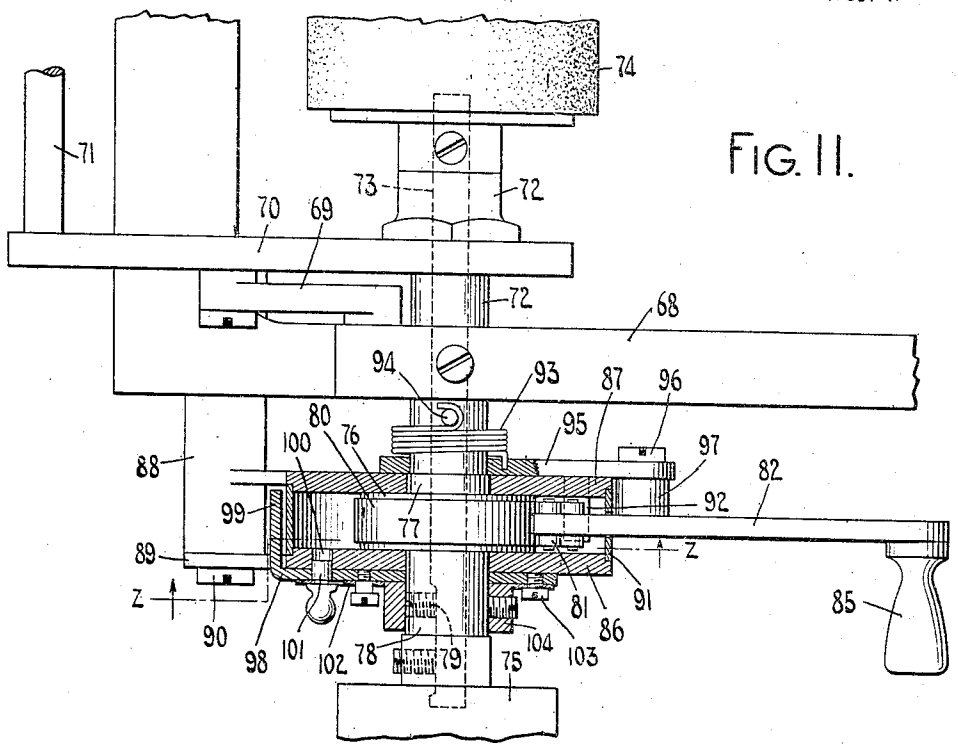

FIG. 11.

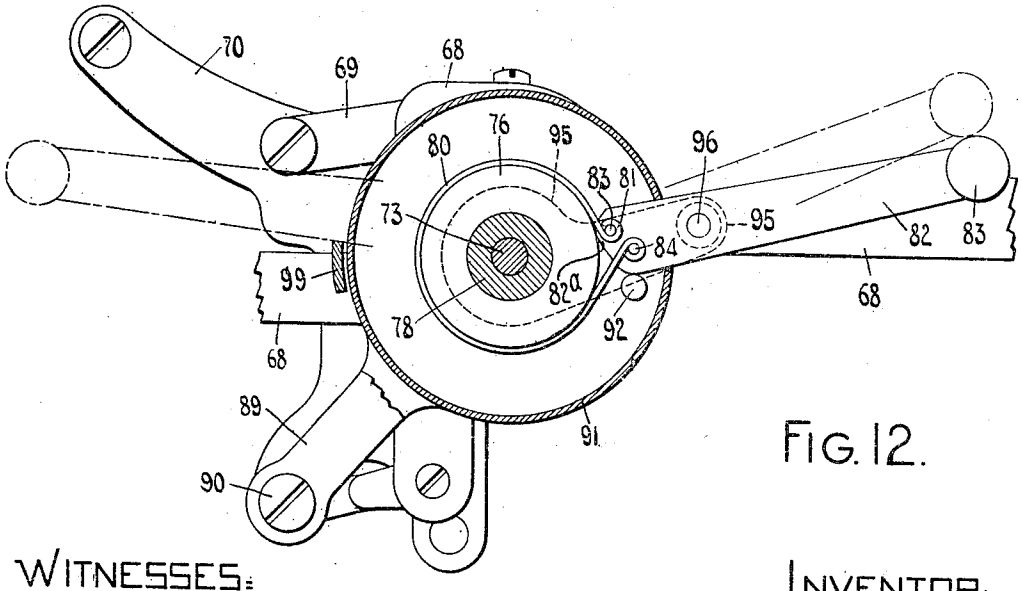

FIG. 12.

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INVENTOR:

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By Jacob Felbel

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UNITED STATES PATENT OFFICE.

CLIO B. YAW, OF ARLINGTON, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO REMINGTON TYPEWRITER COMPANY, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

1,178,043. Specification of Letters Patent. Patented Apr. 4, 1916.

Application filed March 5, 1913. Serial No. 752,120.

To all whom it may concern:

Be it known that I, CLIO B. YAW, citizen of the United States, and resident of Arlington, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My present invention relates to means for communicating continuous extents of rotary movement to the platen independently of the usual step-by-step line spacing mechanism or platen rotating devices and the object of the invention generally is to provide an improved platen rotating means of the character specified.

More specifically one object of the invention is to provide a platen rotating arm, handle or finger piece which is normally idle but which is adapted to be automatically connected to the platen through friction clutch mechanism and after such connection communicate continuous turning or sweeping movement to the platen to predetermined extents.

Another object of the invention is to provide devices of an improved character for facilitating condensed billing.

To the above and other ends my invention consists in the features of construction, combinations of devices and arrangements of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a fragmentary top plan view showing the right-hand end of a platen carrier embodying my invention. Fig. 2 is a sectional view taken on a plane indicated by the dotted line *x*—*x* in Fig. 1 and looking in the direction of the arrows at said line. Figs. 3, 4 and 5 are transverse sectional views taken on a plane indicated by the dotted line *y* in Fig. 1 and looking in the direction of the arrow at said line, the three views showing different parts in different relationships. Fig. 6 is a vertical longitudinal sectional view taken on a plane embracing the axis of the platen. Figs. 7 to 10 are detail views of parts of the novel mechanism. Fig. 11 is a fragmentary plan view of the carriage of a No. 11 Remington typewriting machine embodying a modification of my invention, the clutch mechanism being shown in transverse section. Fig. 12 is a vertical sectional view taken on a plane indicated by the dotted line *z*—*z* in Fig. 11 and looking in the direction of the arrows at said line.

As appears from Figs. 1 and 2 the platen frame or carrier comprises front and rear bars 1 and 2 and connecting end bars 3, the right-hand one whereof is shown. The end bars provide bearings for the platen shaft or axle in which is supported a platen 4, said axle comprising separate sections, the right-hand section or end portion of said shaft being shown herein and designated as 5. The shaft or portion 5 is slidable endwise in its bearing and in and out of the platen 4 in order to actuate releasing devices (not shown) but which are preferably of the kind found in the No. 6 Remington machine, said devices serving normally to connect or clutch the usual platen ratchet wheel 6 to the platen but being operative when the shaft 5 is pushed in to effect a disconnection between the platen and its ratchet wheel. Coöperative with the teeth of the ratchet wheel is a roller detent 7 supported on a spring arm 8 which is secured to the platen frame. Hand actuated line space devices comprising a pawl 9 coöperate with the ratchet wheel to turn it and through it turn the platen step-by-step through line space distances. These line spacing devices are of the usual style and preferably like those found in the No. 6 Remington machine.

As clearly shown in Fig. 6 the shaft or portion 5 has secured to it by a set screw 10 a hub 11 having a reduced outer end 12 which supports a platen finger wheel 13. This finger wheel is provided with a hub portion 14 over which is fitted a sleeve 15. A set screw 16 passing through the sleeve 15 and hub 14 secures the finger wheel and the sleeve 15 to the end portion 12. The sleeve 15 has fixed to it an inwardly extending pin 17 which slidably engages in a hole 18 in a sleeve 19 which loosely surrounds the hub 11, said sleeve being provided with an enlargement or flange 20. The construction is such that the shaft 5 may be pushed in by pressure exerted on the finger wheel 13 without disturbing the sleeve 19. Said sleeve is, however, constantly connected to turn with the platen through the pin and hole connections 17, 18 so that rotary motion communicated to the sleeve will always be transmitted to the platen. The sleeve

19 constitutes one member or device of a friction clutch mechanism, the flange 20 constituting a friction disk with the periphery whereof coöperates the other member or device of the clutch mechanism or connection, the latter device in the present instance consisting of a split collar or friction band 21 shown detached in Fig. 8. The collar is provided with a split or kerf 22 and normally fits over and loosely embraces the flange or disk 20, the inner face of the collar being adapted for frictional engagement with the periphery of the disk, although normally the inherent spring in the collar itself tends to maintain it disengaged. The collar is provided with an integral projection or arm 23 which extends radially outward and is provided with a handle 24 by which it may be conveniently manipulated. Of course, the radial arm 23 may itself serve as a single piece, constituting means as will hereinafter appear for operating the clutch, or in other words causing the collar or band 21 to grip or engage the disk 20, said arm further constituting means to thereafter effect a continuous turning movement of the platen.

The devices operated by means of the arm 23 to close the collar 21 and cause it to grip the disk 20, are in part supported on the collar itself. To this end the arm 23 is undercut as indicated at 25 (Fig. 8) and below the undercut its sides are oppositely grooved at 26. At the opposite side of the kerf 22 the collar is provided with a lug 27, the sides of which are grooved at 28 to correspond with the grooves 26, the effect being to provide the lug 27 with a head 29 which is just beneath the undercut 25. Supported on the collar 21 is a carrier 30 (Fig. 7) curved to conform to the surface of the collar and provided with a slot 31 which enables the carrier to loosely fit into the grooves 26 and 28. The construction is such that the carrier is held against lateral displacement while freedom of relative motion is accorded between said carrier and the collar circumferentially of the latter. The carrier is formed with holes 32 which receive a cross pin or rivet 33 that bridges the slot 31 and provides a pivotal support or fulcrum for a lever member or arm 34 (Fig. 9), said member being arranged at its upper end in the slot 31 and curving rearward and downward around the collar 21, carrying at its lower end a cross pin 35 which receives small rolls 36, the latter being arranged at opposite sides of the lever member 34 and being adapted for coöperation with the cam devices hereinafter described. These cam devices coöperate with the rollers 36 to swing the lever member 34 on its fulcrum and cause a nose portion 37 formed at the upper end of said lever to engage and press against the head 29 and narrow the slot 22, the result being that the collar 21 is contracted and caused to operatively engage with the disk 20.

The cam devices above referred to are formed on or connected to the parts of a two-part shell or housing between which the engageable devices or clutch members 21 and 20 are embraced. Each of said parts consists essentially of a disk or circular plate, on, numbered 38, being arranged at the left of the flange 20, while the other designated as 39 is arranged outside of or to the right of said flange. The part or plate 38 is shown detached in Fig. 10. It is provided with a rearward extension or lug 40 which is off-set toward the right as indicated at 40^a and coöperates with a lug 41 on the plate 39. Headed screws 42 secure the lugs together, the off-set portion 40^a of the lug 40 spacing the plates 38 and 39 apart so that the members 20 and 21 are properly received between them. The two plates 38 and 39 are each provided with a central bearing opening in which the sleeve 19 engages at opposite sides of the flange 20. The two-part housing 38, 39 is secured in place on the platen carrier by a headed screw 43 which passes through holes in the lugs 40 and 41 and screws into the end bar 3. The inner end of said screw is reduced as indicated at 44 and provides a pintle or bearing for the right-hand end of the usual release rock shaft 45. A boss 46 projecting from the left-hand face of the lug 40 and a boss or lug 47 projecting leftward from the plate 38 near its front coöperate with the outer or right-hand face of the end bar 3 to maintain the two-part housing properly spaced from said end bar. The screw 43 exerts a clamping effect on the housing and maintains the boss 46 and lug 47 frictionally engaged with the face of the end bar 3. Prior to assembling the clutch devices within the two-part housing an endless band or ring 48 of sheet metal is fitted over them, said ring being provided with a square opening 49 through which the part 23 projects. This band is received in depressions or grooves 50 formed in the peripheries of the plates 38 and 39 and rotates freely in said grooves when the handle 24 is operated. The construction is such that the clutch devices are completely covered by the two-part housing and the band 48. The inner faces of the plates 38 and 39 are formed with circular grooves or track-ways 51 which receives the rollers 36 during the operation of the mechanism, these rollers running on the inner sides or faces 52 of said grooves. Normally it is intended that the arm 23 shall rest against the upper face of the off-set portion 40^a as shown in Figs. 2 and 3, this portion serving as a stop for the extension. At this time the rollers rest in depressions 53 cut in the faces 52, the result being that while the nose 37 is contiguous to the head

29 it is not in effective coöperation therewith and as a consequence the split collar 21 is loose on the disk 20. With the parts in this relationship the platen may be turned back and forth by operating the finger wheel or may be advanced progressively step-by-step by actuating the usual line spacing devices comprising the pawl 9 and ratchet wheel 6. During such turning movements of the platen the clutch devices will be inoperative, the disk 20 turning loosely within the collar 21 and the arm 23 remaining against the stop 40ª. The rear sides of the depressions 53 in which the rollers 36 normally rest are inclined gradually as indicated at 54, providing cams which when the extension 23 is pulled forward to the Fig. 4 position will cooperate with the rollers to force them on to the circular faces 52 as shown in said figure, the result being that the lever member 34 will be swung slightly on its fulcrum 33, causing the nose 37 to engage the head 29 and forcing the collar 21 to operatively engage with the disk 20. Consequently if the forward pull on the arm 23 be continued from this point the platen will be forced to turn with it and will thus receive a continuous rearward turning movement corresponding with the extent of movement communicated to the arm 23.

The movement of the platen under the control of the arm 23 and the engageable clutch devices may be limited to predetermined extents by adjustable devices which in the present instance comprise, as appears from Figs. 1, 2 and 6, an arm 55 provided with an eye 56 which fits over the sleeve 19 outside the plate 39, the member comprising the arm 55 and eye 56 being prevented from rightward displacement on the sleeve by a collar 57 which is suitably secured to said sleeve. As clearly shown in Figs. 1 and 6 the arm 55 is bent or off-set toward the left around the clutch casing comprising the plates 38 and 39 and the band 48, the off-set portion 58 being interposed in the path of the extension 23 and serving as a stop therefor. To hold the stop in desired positions and to afford adjustment thereof, means are provided comprising a circular series of holes 59 formed at line space intervals in the plate 39. With these holes coöperates a spring mounted pin 60 which slidably engages in an opening in the arm 55 and is constantly pressed inward by a plate spring 61 on which it is supported. Said spring conforms in shape generally to the member 55, 56 to the outer face of which it is secured by a screw 62. A second and shouldered screw 63 coöperates with a hole in the plate spring oppositely from the screw 62 to guide said spring and limit the extent to which it may be pulled outward away from the face of the arm 55. The finger portion 61ª of said spring extending along the arm 55 is provided with a key hole slot 64 which at its widest part admits the pin 60 but at its lower narrow end cooperates with the neck portion 60ª of said pin to prevent its disengagement. The outer portion of the pin is formed into a finger piece 60ᵇ which may be pulled outward to flex the spring and disengage the pin 60 from one of the holes 59. With the pin held out the member 55, 56 may be turned freely about the axis of the platen as a center until the desired position for locating the off-set portion or stop 58 is reached, whereupon the finger piece 60ᵇ is released, allowing the pin 60 to engage with the hole 59 with which it registers, thus adjustably securing the stop in position. To facilitate the location of the stop suitable indicating marks may be made on the outer face of the plate 39, a short pointer 65 integral with the arm 55 cooperating with these indicating marks. With the stop located as desired, for example in the position illustrated in the different figures of the drawings, the arm 23 may be pulled forward and downward until arrested by said stop as in Fig. 5. Assuming that a work sheet is in place in the machine and controlled by the platen and the usual pressure rollers 66 and 67 (Fig. 2) it will be understood that said work sheet may be continuously retracted to a predetermined extent by this operation of the arm 23 and that if said arm be pushed back from the Fig. 5 to the Fig. 3 position the work sheet will be advanced a corresponding extent, restoring it to the position from which it started.

The invention as embodied in the construction illustrated in Figs. 1 to 10 and heretofore described is particularly adapted for condensed billing work in which it is frequently desired to retract a record sheet continuously to a predetermined extent prior to the insertion of a new bill sheet which is then, together with the record sheet, continuously advanced to the same extent to which the record sheet had been previously retracted. However, the invention is not limited to this specific use and in order to make this perfectly clear I have in Figs. 11 and 12 illustrated a modification which is especially adapted to advance a work sheet continuously independent of the usual line spacing devices and without a prior continuous retraction of said sheet.

In the modified construction the carriage, which is that of the No. 11 Remington typewriting machine, comprises a truck 68 to which is shiftably connected by pivoted arms 69 a platen frame composed of end bars and connecting transverse rods or bars, the left-hand end bar 70 and the rear transverse rod 71 being shown. A sleeve or bearing device 72 is secured to the end bar 70 and provides a bearing for the left-hand

spindle or axle 73 of the platen 74, said axle extending leftward through a vertically elongated opening in the left-hand end of the truck 68 and being provided with a finger wheel 75 by which the platen may be turned. Coöperative with the right-hand end of the platen are the usual step-by-step line spacing devices of the Remington No. 11 machine (not shown). The spindle 73 is somewhat longer than the usual spindle and arranged outside the carriage truck between the finger wheel 75 and the sleeve 72 are devices comprised in the clutch or platen sweeping mechanism, said devices comprising a friction disk or member 76 provided with hub portions 77 and 78 which fit on the spindle 73, the hub 78 receiving a set screw 79 by which the friction disk 76 is secured in fixed relationship with the platen axle and platen. Surrounding the friction disk is a friction band or collar 80 which is preferably of flexible material, the ends thereof being bifurcated as indicated at 81 to receive between them an arm or lever member 82, the portions 81 of the band being coiled around pins 83 and 84 which each project from opposite sides of the lever 82, the construction being such that the lever is thereby pivotally connected at two points with the friction band. The lever projects radially outward and is provided with a handle 85. The engageable devices or friction clutch members 76 and 80 are housed within a casing comprising parallel disks or cheek plates 86 and 87 having extensions 88 and 89 at the rear which receive a clamping screw 90, said screw securing the plates together and also securing them to the truck 68 so that they bear a stationary relationship therewith. The hub portions 77 and 78 engage in openings in the plates 86 and 87. The housing or casing is completed by an endless band or cover 91 which slidably engages grooves or depressions in the peripheries of the plates 86 and 87. The lever 82 passes outward through an opening in said band and when the lever is operated the band turns with it. Projecting outward from the plate 87 is a stop pin 92 with which the underside of the lever 82 normally coöperates as shown in full lines in Fig. 12, said lever extending at this time forward and inclining slightly upward. The lever is maintained in this normal position by spring means or devices comprising a wire spring 93 coiled around the sleeve 72 and hooked or anchored at one end to a pin 94 on said sleeve. The other end of the spring engages in a hole in an arm 95 which bears loosely on said sleeve and is secured by a screw 96 in fixed relationship with the lever 82. The arm 95 is arranged at the opposite side of the plate 87 from the lever 82 and a spacing sleeve 97 arranged on the screw 96 maintains the two parts properly spaced apart. The arm 95 it will be seen serves to connect the lever 82 with its restoring spring 93. The stop 92 serves normally as a fulcrum for the lever 82 and as a result of the combined effect of the weight of the lever and force of the spring 93 the pin 83 is forced away slightly from the face of the friction disk 76, said pin carrying with it the connected end of the friction band 80, thus positively insuring that the band should normally be loose or operatively disengaged from the disk 76 so that the platen may be freely turned back and forth ordinarily without affecting the clutch devices and the lever or arm 82. When the arm or lever 82 is pushed upward and rearward, however, to the first dotted line position in Fig. 12 the rounded inner end or nose 82ª of said lever engaging with the face of the friction disk 76 will turn thereon and force the pin 83 inward toward the face of said disk, causing the friction band or collar 80 to operatively engage with or grip said disk, thus connecting the lever 82 with the platen so that if rearward and upward movement of said lever be continued it will result in a corresponding continuous turning movement of the platen, this movement being a forward one such as would advance continuously the paper or work sheet which may be coöperative with the platen at the time. For limiting the movement of the lever 82 and the consequent continuous turning movement of the platen, stop devices similar to those of the first described construction are provided comprising an arm or member 98 loosely mounted on the hub 78 outside the plate 86 and having a portion 99 off-set inward into the path of the lever 82. The member 98 is adjustable circumferentially through devices comprising a circular series of holes 100 formed at letter space intervals in the plate 86 and with which coöperates a pin 101 mounted on a spring support 102 which is secured to the member 98 by a screw 103. A collar 104 fixed to the left end of the hub 78 prevents displacement of the member 98 which may be adjusted by pulling out the pin 101 from one of the holes 100 and turning the member 98 until the desired position is reached. After the platen has been arrested by the engagement of the lever 82 with the stop device 99 as shown by dotted lines at the rear in Fig. 12, said lever may be released and will be restored to normal position by the spring 93, gravity assisting the spring as soon as the lever passes forward from the vertical position. The tendency of the ends of the friction band 80 is to swing apart or separate and this will be sufficient to open the band and release the disk 76 as soon as the lever 82 is released by the operator. Consequently the return movement of the lever 82 and of the friction

band 80 will not affect the disk 76 or the platen. The tendency of the band to open is assisted after the lever 82 passes forward beyond the vertical position by the weight of said lever, and the stop pin 92 by reason of its engagement with the lever insures positively that at all times except when in use said lever shall maintain the friction band in inoperative relationship with or loose on the friction disk 76.

It will be observed that the lever or manually operated arm or hand piece 82 like the arm 23 of the first described construction turns in a single plane which is transverse of the platen, the platen axle being perpendicular to such plane and the result of such turning being to cause an operative engagement between two engageable devices, thus connecting the arm with the platen and sweeping the latter continuously through a desired arc of movement.

My invention provides simplified and improved devices for turning the platen continuously independently of the usual platen turning devices; and the employment of my novel friction clutch devices for this purpose is a great improvement as they are more reliable and serviceable and considerably cheaper than the pawl and ratchet and gear mechanism heretofore employed.

Various changes besides those specified may be made without departing from my invention.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting machine, the combination of a rotary platen, a disk constantly connected to turn therewith, a friction band normally loosely embracing said disk, and a single finger piece positively connected to said band and operative thereon to cause it to frictionally engage said disk, said finger piece being thereafter effective to sweep the platen continuously through desired extents of movement.

2. In a typewriting machine, the combination of a rotary platen, a disk constantly connected to turn therewith, a friction band normally loosely embracing said disk, and a single arm radial of said platen and constantly connected to said band, said arm being movable in a plane transverse of said platen to connect said band to said disk and to sweep the platen continuously through desired extents of movement.

3. In a typewriting machine, the combination of a rotary platen, clutch devices comprising a swinging arm, said clutch devices being adapted to connect said platen with said arm, and a housing or casing for said clutch devices comprising side plates and also an endless band adapted to turn on said side plates and through which said arm projects.

4. In a typewriting machine, the combination of a rotary platen, a friction disk connected to turn therewith, a friction band cooperative with said disk but normally inoperative thereon, and a single hand lever pivotally connected with said band and operative thereon to cause it to frictionally engage said disk.

5. In a typewriting machine, the combination of a rotary platen, a friction disk connected to turn therewith, a friction band cooperative with said disk, a hand lever pivotally connected to said band at two points and effective to cause said band to engage operatively with said disk, and an abutment with which said lever engages, said abutment insuring that the lever shall normally spread said band so that it is ineffective on said disk.

6. In a typewriting machine, the combination of a rotary platen, a friction disk connected to turn therewith, a friction band cooperative with said disk, a hand lever pivotally connected to said band at two points and operating when actuated to cause said band to engage operatively with said disk, said lever tending during return movements to automatically spread said band and render it ineffective on said disk.

7. In a typewriting machine, the combination of a rotary platen, a friction disk connected therewith, a friction band coöperative with said disk but normally inoperative thereon, a single hand lever having a positive pivotal connection with said band and operative thereon to cause it to frictionally engage said disk to turn the same, and spring means for restoring said hand lever to normal starting position after turning movements, said hand lever during its return to starting position tending to disengage said band and disk.

8. In a typewriting machine, the combination of a platen, a hand piece, engageable devices one constantly connected with said hand piece and one with said platen, said devices when engaged connecting said hand piece with said platen, said devices being normally disengaged, said hand piece being movable to sweep the platen continuously through desired extents of movement, a stop coöperative with said hand piece to limit the continuous movement of said platen, and a second stop to limit the return movement of said hand piece, said second stop operating through said hand piece to insure the disengagement of said engageable devices.

9. In a typewriting machine, the combination of a platen, friction clutch devices, a single finger piece constantly connected thereto, one of said clutch devices constantly surrounding another of said devices but said devices being normally ineffective and said single finger piece being operative to render said devices effective and thereafter to continuously turn the platen forward to a pre-

determined extent, the platen remaining quiescent during the return movement of said finger piece to normal position, a coiled restoring spring surrounding the axis of said platen, and an arm separate from said clutch devices and connected to said finger piece, said arm being engaged by one end of said spring and the other end of said spring having a stationary anchorage

10. In a typewriting machine, the combination of a rotary platen, a friction disk constantly connected to turn therewith, a split collar normally loosely embracing said disk, a single finger piece movable only in a single plane, and devices operative by said single finger piece to cause said collar to frictionally engage said disk, said finger piece being thereafter effective to sweep the platen continuously through desired extents of movement.

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 3rd day of March, A. D. 1913.

CLIO B. YAW.

Witnesses:
CHARLES E. SMITH,
E. M. WELLS.