June 17, 1958 A. W. METZNER ET AL 2,839,176

ADJUSTABLE PLATEN ROLL

Filed Sept. 7, 1954 2 Sheets-Sheet 1

Fig 1

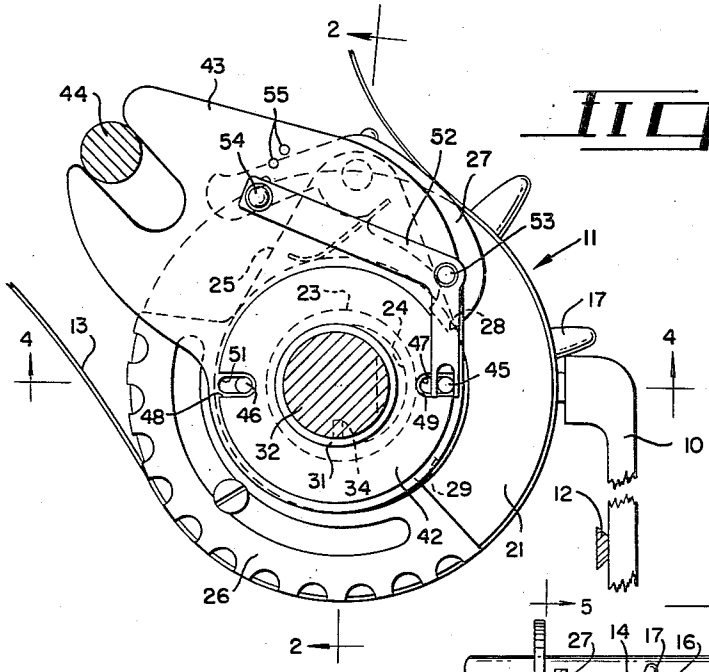


Fig 2

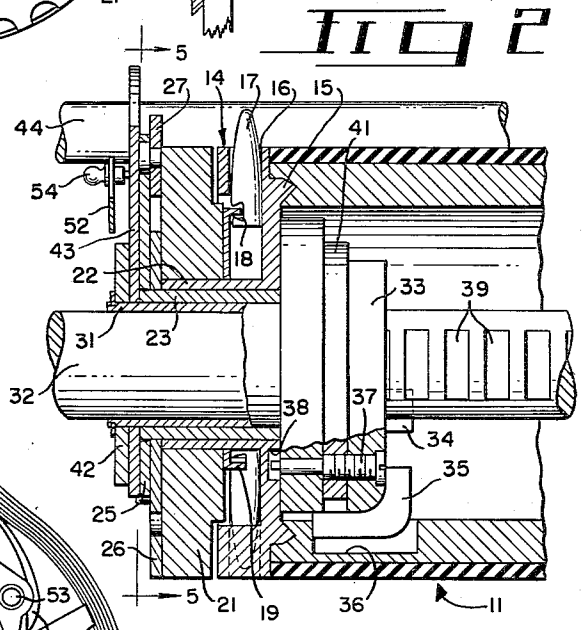
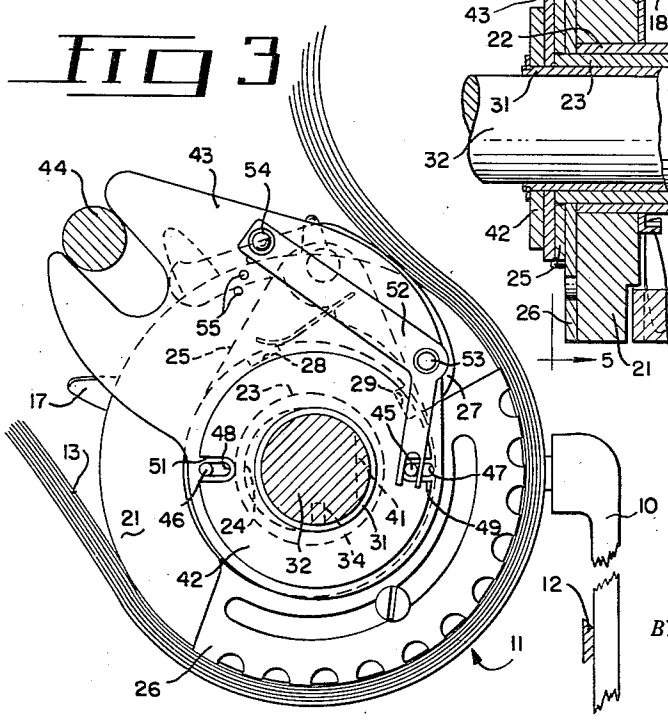


Fig 3



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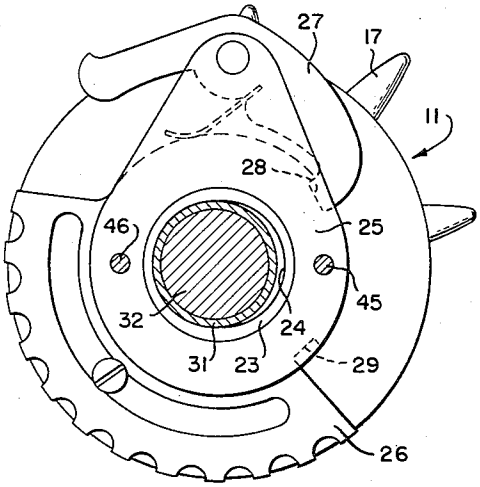
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FIG 5



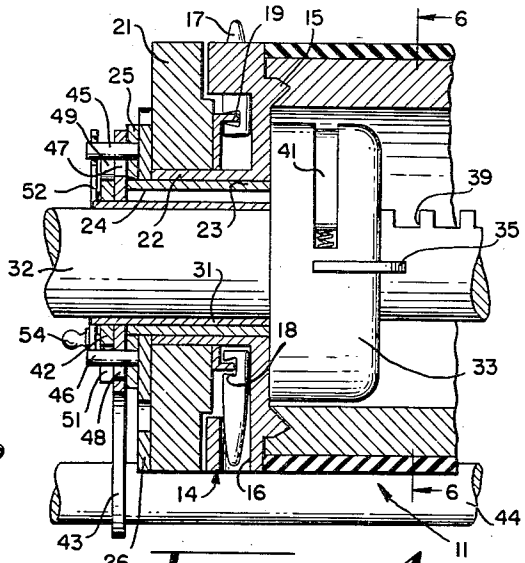


FIG 4

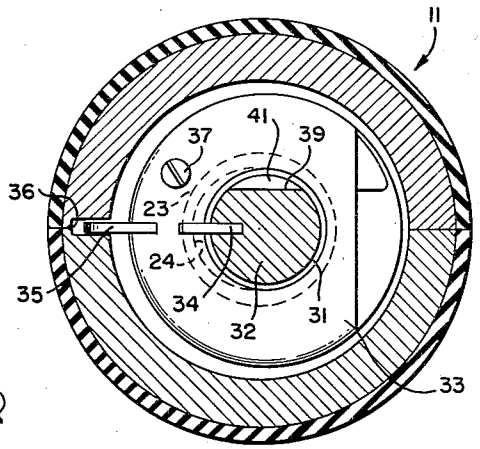
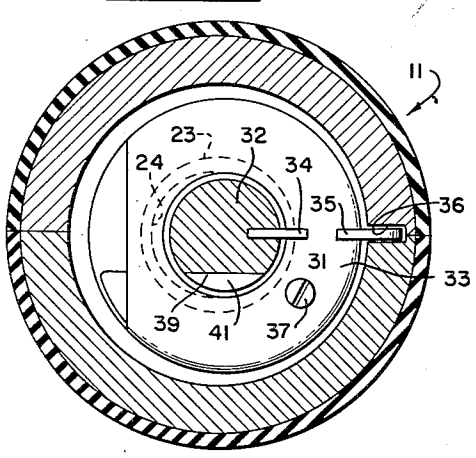


FIG 6

FIG 7



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ADJUSTABLE PLATEN ROLL

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Application September 7, 1954, Serial No. 454,467

12 Claims. (Cl. 197—133)

This invention relates to typewriting and like machines, and particularly to platen assemblies in such machines incorporating pin wheels for the positive feeding of marginally punched stationery.

Typewriters having platen assemblies as above described now are used for billing work, and the number of superposed record copies which must be fed over the platen at one time may vary materially from one series of bills to another and the maximum number of copies may be substantial. Thus, at times the work may involve the making of two or three copies and at other times may involve the making of ten to twenty copies. The type bar in a typewriting machine is positively limited in its stroke. Thus, to obtain a uniform and even impression on the multiple record copies an adjustment in the relative position of the surface of the platen is necessary when the work requirements call for a substantial increase or decrease in the number of record copies. This has in the past been done by a substitution in the machine of platens having different diameters.

The object of the invention is to simplify the construction as well as the means and mode of operation of adjustable platen rolls, whereby such rolls may not only be economically manufactured, but will be more efficient and satisfactory in use, adaptable to a wide variety of applications, and be unlikely to get out of repair.

A further object of this invention is to obviate the need for storing and substituting in the machine platens of different diameter, it being proposed rather to make bodily adjustments of the platen in a lateral sense whenever such adjustments are necessary to insure a proper type impression.

Another object of the invention is to provide shiftable bearing means for the pin wheels and a novel mounting therefor facilitating manual adjustment of such bearing means in a lateral sense relatively to the platen shaft.

A further object of the invention is to present a generally new pin wheel assembly in which the means for adjusting the pin wheel body eccentrically and the means for controlling projection of the feeding pins mounted in such body are integrated in a single assembly adjustable as a unit to selected positions along the platen shaft.

Still another object of the invention is positively to define a plurality of lateral adjustment positions for the pin wheel body.

A further object of the invention is to provide an adjustable platen roll possessing the advantageous structural features, the inherent meritorious characteristics and the mode of operation herein described.

With the above primary and other incidental objects in view as will more fully appear in the specification, the invention intended to be protected by Letters Patent consists of the features of construction, the parts and combinations thereof, and the mode of operation, as hereinafter described or illustrated in the accompanying drawings, or their equivalents.

Referring to the accompanying drawings, wherein is

shown one but obviously not necessarily the only form of embodiment of the invention,

Fig. 1 is a detail view in side elevation of a platen assembly in accordance with the illustrated form of the invention, showing the type bar of a typewriting machine in conjunction therewith;

Fig. 2 is a fragmentary view in cross section, taken substantially along the line 2—2 of Fig. 1;

Fig. 3 is a view similar to Fig. 1, the platen having been moved to accommodate record material of increased thickness and the feeding pin control means having been adjusted to make the feeding pins non-operating with respect to the record material;

Fig. 4 is a view in longitudinal section, taken substantially along the line 4—4 of Fig. 1;

Fig. 5 is a view in cross section, taken substantially along the line 5—5 of Fig. 2;

Fig. 6 is a view in cross section, taken substantially along the line 6—6 of Fig. 4; and

Fig. 7 is a view like Fig. 6, in a different rotary position of the platen and platen shaft.

Like parts are indicated by similar characters of reference throughout the several views.

Referring to the drawings, a typewriting machine or the like embodying a platen assembly in accordance with the illustrated form of the invention, includes a plurality of type bars **10** (one shown) effecting imprinting by an arcuate stroke toward the surface of a platen **11**, the type bar being positively limited in such stroke by a relatively stationary anvil or stop member **12**. The record material, indicated at **13**, extends from the rear of the platen downward and beneath the platen and up over the front surface thereof. A paper pan (not shown) may perform its usual function in guiding and holding the record material in an intimate contacting relation to the surface of the platen. As may be seen in a comparison of Figs. 1 and 3, the thickness of the record material may vary from one or two sheets, as in Fig. 1, to a much larger number of sheets, for example twenty, as in Fig. 3. To compensate for such difference in thickness, and in the light of the limited stroke of the type bar **10**, the platen **11** is adjusted bodily, as from the position of Fig. 1 to the position of Fig. 3, so that the stroke of the type bar is not shortened and produces a uniform clear impression on the multiple record copies.

The platen **11** is made up of separable sector elements releasably held together in a cylindrical form in a manner which it is unnecessary here to consider. The platen is supported at each end by a pin wheel body **14** having an annular projection **15** received in a groove in the end of the platen **11**. The pin wheel body **14** has radial holes **16** opening through the periphery thereof and slidingly mounted therein are respective feeding pins **17**. Intermediate their ends the pins **17** have transverse cuts **18** receiving the eccentrically shaped turned over edge on a cam plate **19**. A disc **21** has the plate **19** fastened to one side thereof and is rotatably mounted on a projecting hub **22** of the pin wheel body **14**.

The pin wheel body **14** is rotatably mounted on a bearing in the form of a bushing **23** having a cylindrical outer surface and an eccentric bore **24**. The bushing **23** extends through and beyond the hub **22** of the pin wheel body. Made fast to its projecting end is a flange-like member **25** extending in parallel adjacent relation to a latch plate **26** fixed to and in effect forming an integral part of the disc **21**. A latch member **27** is pivotally mounted on the flange-like member **25** and is spring urged to engage the hub of the latch plate **26**. In such hub are circumferentially spaced apart recesses **28** and **29**. The recesses **28** and **29** define alternate positions of adjustment for the plate **26** and disc **21** to which it is secured. Ad-

justment of the disc assembly from one position to the other alters the circumferential area of projection of the feeding pins 17.

In accordance with conventional practice when the latch 27 engages recess 28 the circumferential area of projection of the feeding pins is in the area of the writing line. This is accordingly an operating position of the feeding pins since the record material is in this area held to an intimate contacting relation to the surface of the pin wheel and the perforations in such material accordingly are engaged by the feeding pins. When the cam disc assembly is turned to bring the recess 29 into registry with the latch member 27 the circumferential area of the projection of the feeding pins is moved rearwardly out of the writing line, substantially to the position indicated in Fig. 3. This is a non-operating position of the feeding pins since the pins are not in position to engage and feed the record material.

The bushing 23 surrounds a cylindrical sleeve 31 on a shaft 32 which extends longitudinally through the platen 11 and pin wheel body assembly and is mounted in the machine at its ends for a rotary step by step motion in the operation of the machine. The shaft 32 may be termed the platen shaft. At its one end the sleeve 31 is connected to or may form an integral part of a coupling member 33 mounted on the shaft 32 for relative longitudinal motion and for unison rotary motion, as through a key 34. A driving relationship is established between the coupling member 33 and the platen 11 by a key 35 on the coupling member received in a slot 36 in the body of the platen. A rotary driving relationship is established between the coupling member and the pin wheel body 14 by a pin 37 screwed into the coupling member and extending into a slot 38 in the face of the body 14. The slot 36 is elongated relatively to the key 35 and the slot 38 is similarly formed relatively to the pin 37. Thus, lateral adjustment of the pin wheel body and platen relatively to the shaft 32, within the limits defined by the bore 24 of bushing 23 will not interfere with continuance of the driving connection extending from the coupling member 33 to the platen and to the pin wheel body.

The shaft 32 has a longitudinal series of transverse notches 39 which may be engaged by a lever 41 carried by the coupling member 33. It will be understood that this described construction and arrangement of parts provides for selective longitudinal positioning of the coupling member 33 along the shaft 32, the lever 41 being lifted out of engagement with a notch 39 to release the coupling member 33 for sliding motion and being allowed to drop into a new notch 39 when the selected location has been reached.

The pin wheel body 14 and associated parts are movable with the coupling member 33, in a longitudinal sense, there being mounted on the opposite projecting end of the sleeve 31 a retaining ring 42. Between the retaining ring 42 and the flange-like member 25 is an anchor plate 43 rotatably mounted on the sleeve 31 at its one end and extending at its opposite end toward a shaft 44 stationarily mounted in the machine parallel to the platen shaft 32. The said opposite end of the plate 43 is bifurcated and engages the shaft 44 with freedom of relative sliding motion but in a manner to inhibit any bodily rocking or turning movements of the plate.

At diametrically opposed points on one side thereof the flange-like member 25 on the bushing 23 mounts studs 45 and 46 projecting through transversely elongated slots 47 and 48 in the anchor plate 43 and into similarly shaped notches 49 and 51 in the retainer 42. A bell crank lever 52 is pivoted at 53 to the outwardly facing side of the anchor plate 43. One arm of the lever 52 is bifurcated and engages the stud 45. The other end carries a spring urged detent pin 54 selectively engageable, by moving the lever 52, with one or another of a series of detent depressions 55 in the anchor plate 43. Motion of the lever 52, it will be apparent, moves the bushing 23 and thereby the pin wheel body 14 and platen 11 in a lateral sense relatively to the platen shaft 32. The detent positions 55 are selected and predetermined for accurate locating of the assembly and in conjunction with the pin 54 positively hold the assembly in its selected adjusted position. The lever 52, it will be understood, is arranged for convenient manipulation by the hand of the operator.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific features shown, but that the means and construction herein disclosed comprise but one of several modes of putting the invention into effect, and the invention is therefore claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

Having thus described our invention, we claim:

1. In a typewriting or like machine, a platen shaft, a bushing in surrounding eccentrically disposed relation to said shaft, means for mounting said bushing on said shaft for relative lateral bodily shifting motion, a pin wheel body rotatably mounted on said bushing, a platen having one end interengaged with and supported by said body, relatively stationary anchor means, and manipulative means on said anchor means and connected to said bushing for lateral bodily shifting of said bushing.

2. In a typewriting or like machine, a rotatable platen shaft, relatively stationary means in parallel spaced relation to said shaft, an anchor plate interengaged at its opposite ends with said shaft and said means, a flange-like member in surrounding spaced relation to said shaft and mounted on said anchor plate for lateral bodily shifting motion, a bushing extending from said member, a pin wheel body on said bushing, and a platen having one end interengaged with and supported by said body.

3. A typewriting or like machine according to claim 2 wherein said pin wheel body is part of an assembly comprising radially movable feeding pins and a relatively stationary cam disc for controlling the area of projection of said pins, characterized by a latch supported by said anchor plate and interengageable with said cam disc to hold said disc in selected positions of rotation relatively to said pin wheel body.

4. In a typewriting or like machine, a platen shaft, a platen in surrounding relation to said shaft, a pin wheel body in surrounding relation to said shaft and supporting one end of said platen, means supporting said pin wheel body on said shaft for relative lateral shifting motion, a coupling member keyed to said shaft for rotation therewith, and separate rotary driving connections from said coupling member to said platen and said pin wheel body, said connections comprising pin in slot means maintaining a driving relationship in any lateral positions of adjustment of said pin wheel body and said platen.

5. In a typewriting or like machine, a platen shaft, a bushing on said shaft having an eccentric opening through which said shaft extends, a relatively stationary anchor means to which said bushing is connected for relative lateral shifting motion, a pin wheel body mounted on said bushing, and a platen supported at one end on said pin wheel body.

6. A typewriting or like machine according to claim 5, characterized by manipulative means on said anchor means for shifting said bushing.

7. In a typewriting or ilke machine, a platen shaft, a pin wheel body in surrounding relation to said shaft, a rotary driving connection from said shaft to said body, a bearing member for said body movable eccentrically

relatively to said shaft, an anchor plate connected at one end to said shaft, said bearing member being connected to said plate for relative shifting motion, and a hand operated lever on said plate connected to said bearing member for movement thereof.

8. A typewriting or like machine according to claim 7, characterized by interengaging means on said lever and on said plate defining detent positions for said lever.

9. In a typewriting or like machine, a platen shaft, a pin wheel body in surrounding relation to said shaft, a rotary driving connection from said shaft to said body, a bearing for said body having an ecentrically shaped opening receiving said shaft, a flange-like member on one end of said bearing, an anchor plate in side by side relation to said flange-like member and relatively rotatably mounted on said shaft, means engaging the other end of said anchor plate preventing rotary motion of said plate while permitting relative sliding motion thereof in a direction parallel to said shaft, interengaging means on said flange-like member and on said anchor plate providing for relative lateral shifting of said member and bearing, and a lever pivotally mounted on said plate and connected to one of said last named means for shifting said member and bearing.

10. A typewriting or like machine according to claim 9, characterized by interengaging means on said lever and said anchor plate defining detent positions for said lever.

11. A typewriting or like machine according to claim 9, characterized by means for holding said rotary driving connection, said body, said bearing and said anchor plate in an assembled relation for adjustment as a unit along said shaft.

12. A typewriting or like machine according to claim 9, wherein said pin wheel body has radially movable feeding pins, characterized by means for projecting said feeding pins in a variable selected circumferential area of said body, said means including a cam disc relatively rotatably carried by said body and interengaged with said feeding pins, and a latch mounted on said flange-like member interengageable with said cam disc.

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