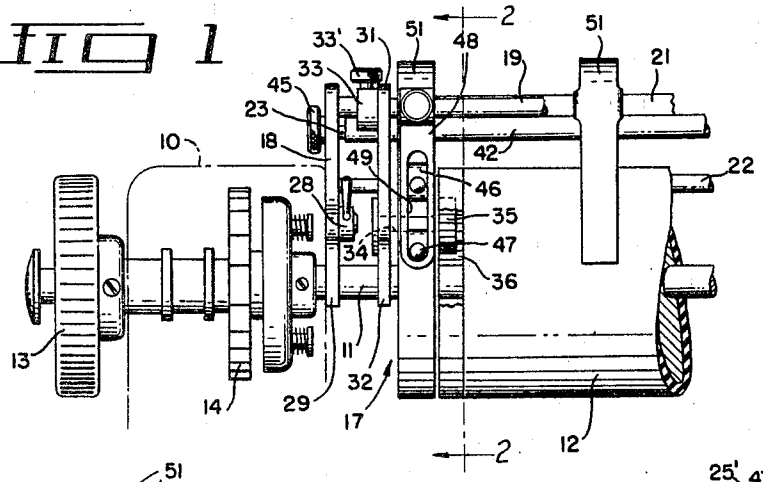
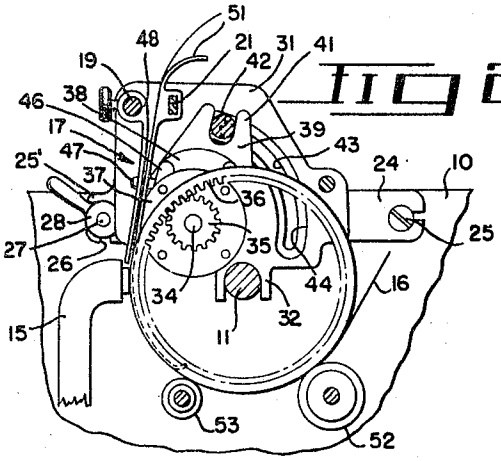
Dec. 16, 1958 A. W. METZNER 2,864,484

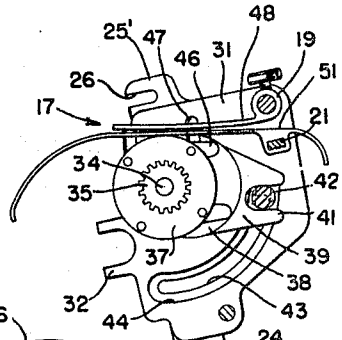
STRIP FEEDING MECHANISM

Filed March 1, 1955

FIG 1







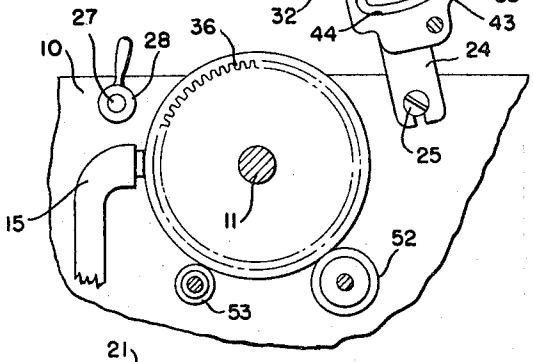


FIG 3

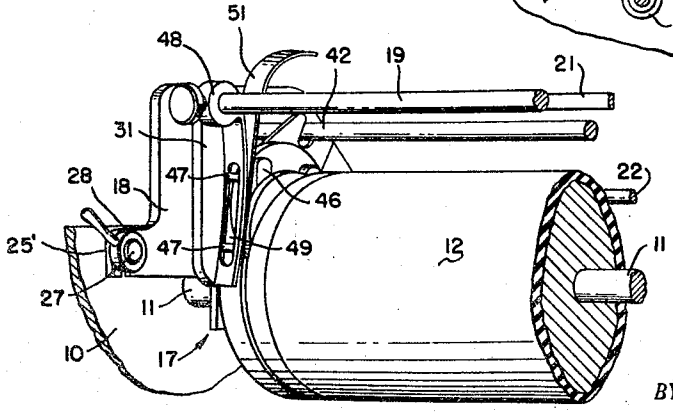


FIG 4

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STRIP FEEDING MECHANISM

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13 Claims. (Cl. 197—133)

This invention relates to strip feeding devices, and more particularly to pin feeding mechanism for the advancing of series connected manifold business forms and like strip material in a typewriting or like machine utilizing a round platen.

The object of the invention is to improve the construction as well as the means and mode of operation of pin type strip feeding devices, whereby they may not only be economically manufactured, but will be more efficient in use, uniform in action and be unlikely to get out of repair.

A further object of the invention is to make possible the use of an escalator type pin movement, effecting a substantially straight line movement of the strip, in conjunction with a round platen.

Another object of the invention is to change the normal path of movement of the strip material about the platen, it being proposed in this connection to feed the strip around the bottom of the platen and then approximately straight up to any degree of angle desired.

A further object of the invention is to provide for feeding or advance of record strip material about a round platen in a manner permitting the use of a carbon ribbon attachment by which carbon ribbon material is fed transversely of the movement of the strip and in interleaved relation to the mutliple copies thereof along the writing line.

Still another object of the invention is to provide for strip feeding in conjunction with and as a result of the movement of the platen but by means substantially independent of the platen and adjustable for replacement of the platen independently of the feeding devices.

A still further object of the invention is to provide strip feeding means as described having the form of an attachment easily installed on and removable from a typewriting or like machine having a round platen.

A further object of the invention is to provide a strip feeding device embodying the advantageous structural features, the inherent meritorious characteristics and the mode of operation herein set forth, or their equivalents.

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, hereinafter described or illustrated in the accompanying drawings, or their equivalents.

In the accompanying drawings wherein is shown one but obviously not necessary the only form of embodiment of the invention,

Fig. 1 is a fragmentary view in front elevation of a typewriting or like machine having a strip feeding attachment in accordance with the illustrated form of the invention installed therein;

Fig. 2 is a view in cross section taken substantially along the line 2—2 of Fig. 1, with some parts of the machine added for illustrative purposes;

Fig. 3 is a view similar to Fig. 2 showing the strip feeding attachment adjusted to a non-operating position for removal of the platen; and

Fig. 4 is a view in perspective of one end of the strip feeding attachment and platen associated therewith.

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

Referring to the drawings, the carriage of a typewriting or like machine is indicated at **10**. A platen shaft **11** is removably installed in the carriage **10** and mounts a round platen **12**. On the shaft **11** is a knob **13** for hand rotation thereof and a ratchet **14** engageable by the line space mechanism or other intermittently operable machine instrumentality to rotate the platen shaft in step by step fashion during and in response to machine operation. The writing line of the machine is represented by the medial horizontal plane of the shaft **11**, a type bar **15** reaching the top of its stroke in such plane for impact engagement with the front surface of the platen **12**. Record strip material, indicated at **16**, reaches the platen **12** from the rear thereof, passes under and around the platen through the writing line and is discharged upwardly therefrom in a path divergent to the surface of the platen in a manner and by means to be described.

The strip feed attachment is made up of a pin feeding device **17** at each end of the platen **12** supported in a supplemental frame means including end frame elements **18**. Only one end of the platen assembly is here shown so that only one feed device **17** and frame element **18** appear. The separate frame elements **18** are interconnected by transverse shafts **19, 21, 22** and **23** and are movable as a unit along with the described shafts and with the respective feeding devices **17**.

Each frame element **18** has a rearwardly extending end portion **24** pivotally connected, as by a screw stud **25**, to the relatively stationary carriage frame. A forwardly projecting portion **25'** on the frame element **18** has a slot **26** opening through the bottom edge thereof and interengageable with a screw stud **27** fixed in the carriage frame **10**. A nut **28** is installed on the stud **27** and is adjustable frictionally to clamp and to release the frame element **18** relatively to the carriage frame. Intermediate its end portions, the frame element **18** has a forked portion **29** interfitting with the platen shaft **11** which thus provides the principal support for the overlying frame element.

Alongside each of the frame elements **18** and slidably mounted on the several shafts **19, 21** and **22** is a plate **31** also having a forked portion **32** interfitting with and resting on the platen shaft **11**. The plate **31** is formed with a hub **33** through which the shaft **19** passes and mounting a set screw **33'** adjustable selectively to lock the plate **31** against motion along the shafts **19, 22** and **21**. The plate **31** extends in adjacent parallel relation to the pin feeding device **17** which thus lies between the plate **31** and the adjacent end of the platen **12**. The plate **31** provides a mounting for one end of a rotatable stub shaft **34**. Such shaft extends transversely through the device **17** and on its other end has secured thereto a pinion **35** meshing with an internal ring gear **36** on the end of the platen **12**. Rotation of the platen **12** thus rotates the shaft **34**.

The feeding device **17** comprises discs **37, 38** and **39** in side by side relation on the shaft **34**. The disc **37** is secured to the shaft **34** and rotates therewith. The control plate **39** is rotatably mounted on the shaft **34** and in eccentric relation thereto. The disc **38** is in effect a ring having a relatively large center opening through which the shaft **34** passes and is mounted on a boss formation (not shown) on the control plate **39**. The latter extends radially outward from the shaft **34** and has a forked formation **41** engaging a cam **42** on the shaft **23**. The shaft

23 extends through and beyond the respective end frame elements 18. The frame elements 18 have arcuate slots 43 through which the shaft 23 passes and the frame plates 31 have similar aligned slots 44. On at least one end of the shaft 23 is a knob 45 for hand manipulation thereof.

Between the discs 37 and 38 are feeding pins, each comprising a base portion 46 pivotally connected at spaced apart points to both discs 37 and 38, and each further comprising a relatively projecting pin portion 47 substantially at right angles to the base portion 46. The feeding pins are arranged in circumferential series about the shaft 34 and it will be understood that the construction and arrangement of parts is that of an escalator type pin feeding movement wherein the pin portions 47 remain in parallel relationship to one another and have a substantially straight line motion into and out of perforations in the strip and define an approximately planar path of movement for the strip in the area of engagement.

A feed or guide finger 48 is mounted on the shaft 19 to extend downwardly toward the front surface of the platen 12, such finger serving to hold the record strip material with the perforations therein in position to be engaged by the feeding pins. The pins project through an opening 49 in the feed finger. Feeding or supporting tables 51 are secured to the shaft 21 and extend in backing relation to the fingers 48 to support and guide the ends of the record strip material. The arrangement of the feeding devices, it will be observed, is such as to cause the strip material to turn away from the surface of the platen after it passes the writing line, such material rising in a substantially straight line to a point above the platen where it is deflected by the support members 51 toward to the rear of the machine. Such movement of the strip, in which a close frictional contact of the manifold strip copies with one another and with the surface of the platen is avoided, facilitates, as will be understood, the use of a carbon ribbon attachment serving to advance interleaved carbon ribbon through the writing line.

The feeding pins may be tilted for purposes of compensation or in order better to feed multiple strip copies by turning the shaft 23 on its axis whereby to rock the control plate 39 through the cam surface 42. Similarly, a bodily shifting motion of the shaft 23 from one end of the slot 43 to the opposite end thereof serves to rock the feeding pins through a substantially 90° motion, rendering such pins ineffective to engage the strip in the construction and arrangement of parts illustrated.

When it is desired to replace a platen 12 the rotary driving connection between the platen and the strip feeding devices may be disabled by loosening the set screws 33' and moving the plates 31 outward until the pinions 35 clear the internal ring gears 36. Then, the nuts 28 are loosened on the studs 27 enabling the frame elements 18 and the entire supplemental frame assembly of which these are the principal supporting parts to be moved pivotally about the studs 25 to the elevated position shown in Fig. 3. A reverse series of operations will of course condition the platen assembly for a new series of feeding operations.

A conventional friction feed for the record strip material is diagrammatically illustrated by rollers 52 and 53. When the shaft 23 has been moved to the bottom of slot 43, to disable the feeding pin mechanism, the rolls 52 and 53, conventionally forming a part of the paper pan of the typewriting machine, may be adjusted toward frictional engagement with the undersurface of the platen, and the intervening strip material thereby fed or advanced frictionally in response to rotation of the platen.

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 my invention, I claim:

1. In a typewriting or like machine, a rotary platen, a pin feeding device at one end of said platen, a rotary driving connection between said platen and said pin feeding device, and an independent support for said device adjustable in an axial sense, said driving connection being enabled and disabled by adjustment of said support in said axial sense.

2. In a typewriting or like machine having a relatively stationary frame, a rotary platen removably supported in said frame, a pin feeding device, means affording a rotary driving connection between said platen and said pin feeding device, and a support for said device in said frame independent of the support for said platen having means for adjustment of said device in an axial sense for disengagement of said driving connection for removal and replacement of said platen.

3. In a typewriting or like machine having a relatively stationary frame, supplemental frame means pivotally mounted on said frame, a pin feeding device carried by said frame means, a platen removably supported in said frame independently of said supplemental frame means and in adjacent end to end relation to said pin feeding device, and a detachable rotary driving connection between said platen and said pin feeding device.

4. In a typewriting or like machine having a relatively stationary frame, a platen shaft supported in said frame, a platen on said shaft, supplemental frame means pivotally connected to said frame and resting on said platen shaft, a pin feeding device on said supplemental frame means, and a detachable rotary driving connection between said platen and said pin feeding device.

5. In a typewriting or like machine having a relatively stationary frame, a platen shaft supported in said frame, a platen on said shaft, supplemental frame means pivotally connected to said frame and resting on said platen shaft, a pin feeding device on said supplemental frame means supported in side by side adjacent relation to one end of said platen, said device being supported for relative lateral adjustment, and a rotary driving connection between said platen and said pin feeding device enabled and disabled by lateral adjustment of said pin feeding device.

6. A typewriting or like machine according to claim 5, characterized in that said driving connection comprises interengageable pinion and internal ring gear elements movable out of cooperative relation with one another in one position of lateral adjustment of said device to free said supplemental frame means for pivotal adjustment relative to said frame.

7. A typewriting or like machine according to claim 5, characterized by releasable means for holding said supplemental frame means in a position of rest on said platen shaft, said last named means being released and said rotary driving connection being disabled to condition said supplemental frame means for pivotal adjustment freeing said platen and said platen shaft for replacement.

8. In a typewriting or like machine having a rotary platen, pin feeding devices at opposite ends of said platen operable to advance record strip material over said platen, a frame, a mounting for said platen in said frame, supplemental frame means providing a common mounting for said pin feeding devices and supported in said frame independently of said platen, said devices being mounted in said supplemental frame means for endwise motion

relatively to said platen, and gears on said devices and said platen meshed and unmeshed by said relative motion of said devices.

9. A typewriting or like machine according to claim 8, characterized in that said supplemental frame means is supported in said frame for relative pivotal motion to free said platen for replacement, said gears being unmeshed preparatory to such pivotal motion.

10. In a typewriting or like machine, a frame, a platen shaft in said frame, a platen on said shaft, strip feeding devices independently mounted in said frame in side by side relation to the ends of said platen, each of said devices comprising rotatable disc means, a relatively stationary cam plate and feeding pins having a circumferential area of projection relatively to the surface of said platen, rotary driving connections between said platen and the disc means of said pin feeding devices, and a common connection between the cam plates of said devices movable simultaneously to vary the circumferential area of projection of said feeding pins.

11. A typewriting or like machine according to claim 10, characterized by a supplemental frame means detachably installed in said frame supporting said pin feeding devices and said common connection as a unit.

12. In a typewriting or like machine, a rotary platen, means including a pin feeding device at one end of said platen, means providing a rotary driving connection between said platen and said pin feeding device and adjustable in an axial sense for disconnection of said driving connection and means mounting said pin feeding device and said means providing a rotary driving connection for radial displacement thereof relative said platen.

13. In a typewriting or like machine, having a relatively stationary frame, a platen shaft supported in said frame, a platen on said shaft, means pivotally connected to said frame and resting on said platen shaft, said means including pin feeding means and a detachable rotary driving connection between said platen and said pin feeding means.

References Cited in the file of this patent

UNITED STATES PATENTS

1,413,407	Johnson	Apr. 18, 1922
2,293,769	Sherman	Aug. 25, 1942
2,724,480	Turner	Nov. 22, 1955