Aug. 26, 1947. L. C. ANTRIM ET AL 2,426,333

PAPER FEEDING DEVICE FOR WRITING MACHINES

Filed April 24, 1941 2 Sheets-Sheet 1

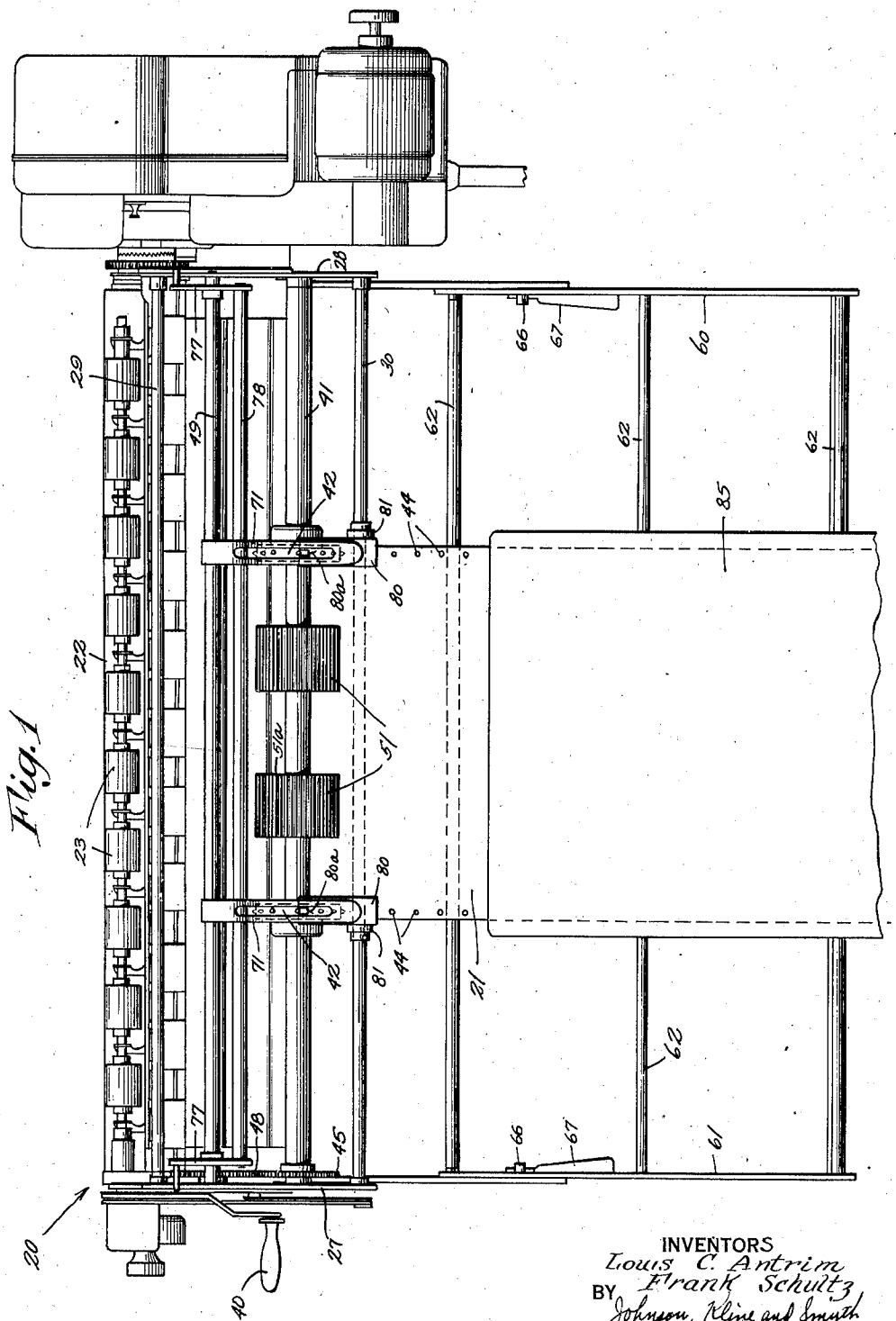


Fig. 1

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Filed April 24, 1941 2 Sheets-Sheet 2

Fig. 2

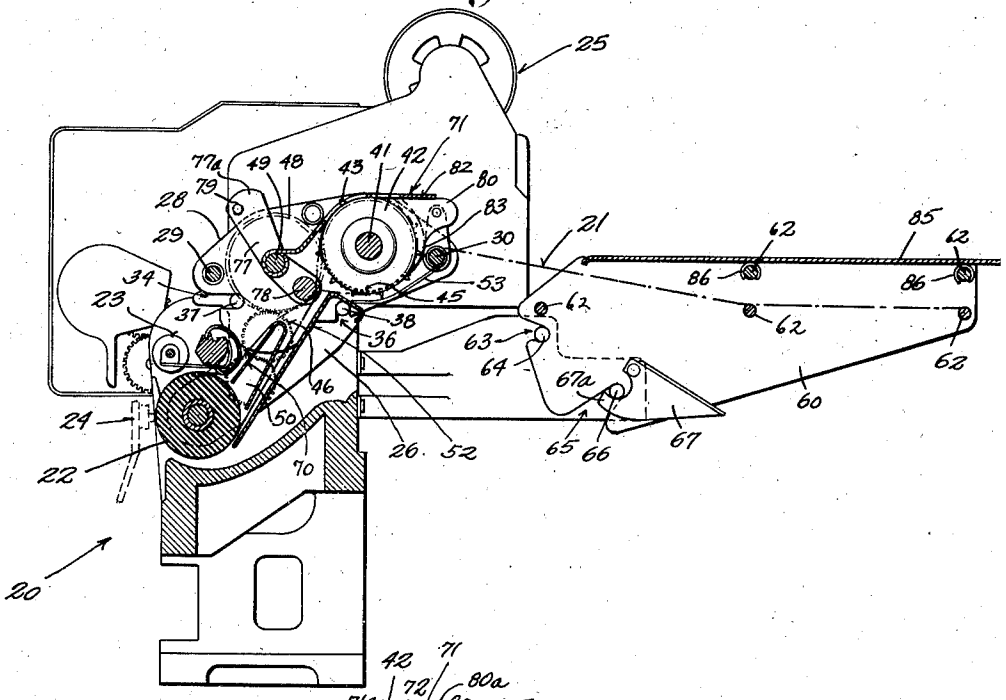


Fig. 3

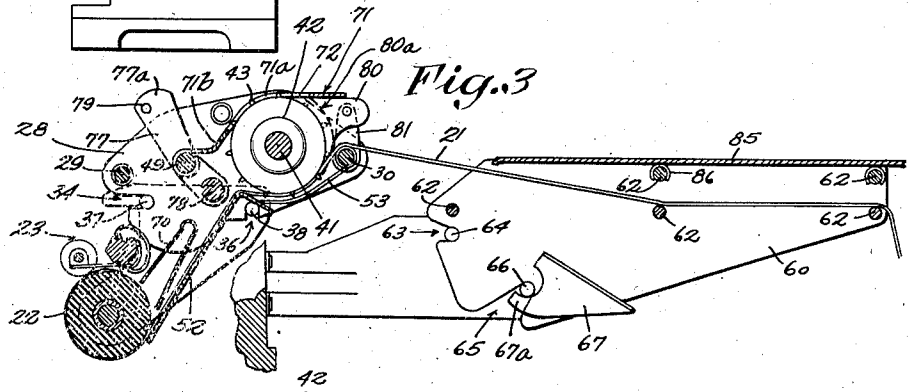
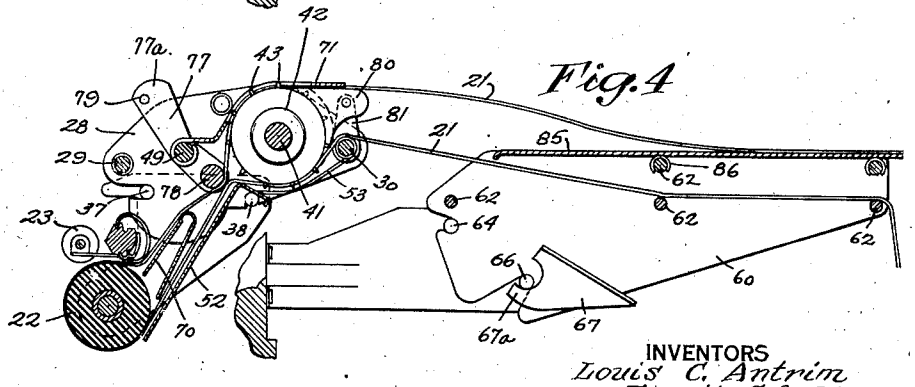


Fig. 4



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UNITED STATES PATENT OFFICE

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PAPER FEEDING DEVICE FOR WRITING MACHINES

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13 Claims. (Cl. 197—133)

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This invention relates to a feeding means for a typewriting or the like machine.

Heretofore, continuous strips of stationery in superposed relation have been fed through a machine by a positive feed means carried by the platen or disposed above the platen to cooperate with the apertures in the strips to draw the strips thereover. If the platen is provided with pinwheels for feeding the strips as they are passed therearound, difficulties have been encountered in the pins properly engaging the apertures in the strips because of the offsetting of the apertures due to the shifting of the strips in the pile as they are carried around the platen which has a short radius of curvature.

If the feeding means is positioned so as to draw the strips over the platen, a heavy pull is required to carry the strips through the machine and around the platen and this pull on the walls of the apertures in the strips may tear the paper of the strips and break out the apertures.

The present invention provides an improved means for positively feeding the strips into and out of writing position and comprises a single positive feeding mechanism driven from the machine which engages the continuous strips prior to their passage to the platen to feed them from a supply and position them in a writing position on the platen, and also engage the strips after they have left the platen to draw them away from writing position and out of the machine.

Preferably, the feeding mechanism or unit utilizes wheels or sprockets having uniformly spaced feeding pins thereon. The unit is separate from the platen and in spaced relation therewith so that the pins thereon are adapted to engage apertures in the strips of a pile as it is guided in its passage from the supply and act to propel the pile of strips toward and control the positioning of them in writing position on the platen. After the strips have passed over the platen, it is carried into engagement with the pinwheels and again fed thereby to advance the strip from writing position and out of the machine.

The pile of strips in its travel is guided by suitable means so that it moves through a path having but a slight radius of curvature while in position to be engaged by the pins on the pinwheels for both feeding operations. This slight curvature will not produce any appreciable offsetting of the strips in the pile so that the pins carried by the pinwheels may readily move into feeding relation with the apertures.

The pull on the strips necessary to move them from the supply and through the machine, according to the present invention, is, therefore, divided between the two points of engagement, and in neither case will be sufficient to cause the apertures to be torn or broken out due to excessive force applied thereto.

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If desired, means may be provided for picking up the leading ends of the strips, as they are fed from the platen, and conduct them to the feeding unit in order that the pins thereon can readily engage the apertures therein and automatically start the feed of the strips from the machine. This pickup may comprise one or more auxiliary rollers disposed on the shaft between the pinwheels and having a roughened or friction surface to engage and carry the ends of the strips into feeding relation with the pinwheels.

After the auxiliary rollers have picked up the leading ends of the strips and conducted them to the pinwheels, they will engage the undersurface of the lowermost strip and support the pile in its extended position between the pinwheels which are usually located adjacent the edges of the strips.

With the feed of the present invention, the stationery is engaged by the pins at two spaced points and simultaneously fed thereby. This forms a loop in the strips which extends around the platen. The length of this loop may vary because different thicknesses of the pile of strips passing over the platen will cause the apertures to shift with respect to the pins so that different apertures in a form length will be engaged by the pinwheels. The strips thus engaged by the pins may or may not lie firmly against the platen. If the pile is not held taut against the platen, poor impressions will be received by the strips from the type. Accordingly, the present invention provides a means engageable with the strips within said loop to take up any slack in the strips and maintain them taut over the platen.

For use with a predetermined number of strips of known and constant thickness, the position of the pin feed could be so selected that substantially no slack would exist in the loop extending around the platen. However, so that any number or thickness of strips within the capacity of the machine may be used, the pin feed is so located with respect to the platen that a slack stretch is normally provided between the platen and the delivery side of the pinwheel, and this slack is taken up by adjustable means so that the strips are held firmly enough against the platen to insure good impression being made but light enough to prevent the platen from frictionally feeding the strips.

This take-up means may comprise a bail engaging the strips, preferably as they leave the platen, with just enough pressure to take up the slack without applying undue tension on the strips to cause them to be pressed against the platen and fed thereby.

If desired, the feeding unit may be constructed as an attachment which can be applied to a standard machine, such, for instance, as a tabulating machine having a "Carroll" carriage, without modification or reconstruction of the machine. While the positive feed means is feeding the strips, the usual friction feed means of the machine is released or otherwise rendered inoperative.

In the broader aspects, the present invention provides a single feeding unit for engaging the strips at two points in their travel—one before they reach the platen for feeding the strips toward a writing station on the platen, and the other after they have left the platen to advance the strips from the writing station and out of the machine.

The feeding unit is so arranged that the strips are relieved of feeding relation with the platen and the entire control of the movement of the strips to and from writing position is controlled by the single feeding unit.

Other features and advantages will hereinafter appear.

In the accompanying drawings:

Figure 1 is a top plan view of the machine showing the attachment in place.

Fig. 2 is a longitudinal sectional view of the machine.

Fig. 3 is a view similar to Fig. 2 showing the paper in its position on the platen as it is being threaded into the machine.

Fig. 4 is a view similar to Fig. 2 showing the strip in two-point feeding relation with the pinwheel.

The feeding unit of the present invention can be applied as the standard feed of a writing machine, or as an attachment to be connected to a standard machine. In the drawings, the present invention is illustrated as an attachment which is adapted to be readily applied to a standard tabulating machine 20 without disturbing or removing the mechanical or electrical parts of the machine. This machine is of the type having a "Carroll" carriage of the manufacture and sale of the International Business Machine Corporation.

As is well known in such machines, continuous strips of stationery 21, which usually comprise a plurality of superposed record strips having printed forms thereon, may be passed through the machine over a platen 22, which is driven by a suitable source of power and under a pressure roller 23 cooperating with the platen to be frictionally fed thereby. The printing mechanism of the machine, indicated as a type bar 24, is automatically controlled through mechanism not shown by a card having suitably arranged apertures for presenting predetermined data. The machine scans the data from the card and automatically controls the writing mechanism to translate this information into impressions on the continuous strips. During the writing operation, the platen is advanced line-by-line and the strip fed thereby until all of the required data is inserted on the form.

The machine of the type described is provided with ejecting means, generally indicated as at 25, for quickly rotating the platen and feeding

the form from the machine after the writing operation has been completed presenting the first line of writing on the next form in writing position.

It will be noted that the "Carroll" carriage frictionally feeds the strips through the machine, and in order to avoid creep and slippage and secure a more accurate control of the strips it is at times desired to positively feed them so that the succeeding forms will be in registration and in proper writing position as determined by the operation of the machine.

The feeding means of the present invention is mounted on an attachment for this machine and is actuated in accordance with the operation of the machine to positively feed the strips to the writing position and away from said position and out of said machine during the writing and ejecting periods.

As shown in the drawings, a front attachment is secured to the frame 26 of the machine and comprises a pair of side plates 27, 28 secured together by a plurality of rods 29, 30. The side plates are each provided with a notch 34 in the front edge thereof, and a notch 36 in the bottom edge which are so located as to fit over existing studs 37, 38 on the frame 26 of the machine to be supported thereby. The attachment is locked to the frame for movement therewith by suitable latches, not shown, and moves with the frame when the latter is shifted to open position by a handle 40 to permit the threading in of the strips.

According to the present invention, a shaft 41 is journaled in the side plates 27, 28 and has the feeding means secured thereon for rotation therewith. While the feeding means may take many forms capable of positively feeding the strips, in the illustrated embodiment this means comprises a pair of wheels or sprockets 42 each having a plurality of spaced pins 43 projecting from the periphery thereof to engage apertures 44 in the strips and positively advance the strips. The pinwheels are adjustably mounted on the shaft and can be positioned laterally of the strips to properly engage the apertures therein.

Preferably, the shaft is driven from the rotating platen through suitable gearing. As is shown in Fig. 2, shaft 41 has a gear 45 secured thereto. An idler gear 46 is mounted on the side plate and connected to a gear 48 which meshes with gear 45. Gear 48 is rotatably carried by a rod 49 extending between the side plates and located in front of the shaft 41 as is clearly shown in Figs. 2 to 4. Idler gear 46 is so positioned on the attachment that it meshes with a gear 50 carried by the machine, and driven with the platen shaft, when the attachment is put in position. Thus, as the platen is rotated by its power means during the operation of the machine, the shaft and the pinwheels carried thereby will be driven in timed relation thereto.

As the pinwheels engage the strips at laterally spaced points usually at the edges of the strips, the present invention provides elongate auxiliary rollers 51 which are mounted on the shaft 41 between the pinwheels and engage the undersurface of the lowermost strip in the pile extending between the pinwheels to support the pile against sagging between the pinwheels.

As will be noted in Figs. 2 to 4, when the attachment is in place, the bottoms of the pinwheels are disposed adjacent the top of the paper table 52 of the machine which guides the strip to the platen. A pair of guide fingers or deflectors 53 are mounted on the rod 30, which is

located in back of the pinwheel and above the lower edge thereof, and extend under the pinwheel and engage the upper surface of the paper table to provide a guiding surface for the strips in their movement during feeding relation with the pinwheel as will be explained.

In order to guide the strips from a supply to the feeding means, a back attachment is employed and comprises a pair of side plates **60, 61** secured together by a plurality of rods **62** extending transversely of the machine as shown in Fig. 1.

This back attachment is mounted on the machine by having each of the side walls provided with a notch **63** in its forward face adapted to be slipped endwise over an existing stud **64** on the side walls of the machine, and a notch **65** opening on the undersurface adapted to engage and be supported upon another stud **66** carried by the side walls of the machine. A latch plate **67** is pivoted to the side plates and is provided with a hooked portion **67***a* normally urged by gravity to extend under the second stud and hold the unit in place on the machine.

The strips, as they feed from the supply, not shown, pass over the lower rods **62** and are supported thereby. The frame **26** and attachment carried thereby is swung up and the strips are threaded therein by carrying them over the rod **30**. The guide fingers or deflectors **53** cause the strips to move under the pinwheel to a position in which the apertures in the strips are disposed in the path of movement of the pins as the pinwheels are rotated. The pins engage in the apertures in the strip and positively withdraw it from the supply and feed it toward the platen. This engagement of the pins with the strip at the same time controls the lateral position of the strip with respect to the machine.

It will be noted that the rod **30** and paper table support the strip in such a manner that it travels through a slightly curved path and is held in engagement with the lower periphery of the wheel for only a small part thereof when the pins engage the apertures of the strip. This is an advantage, for it enables a large number of superposed strips to be readily fed by the pins without the difficulties resulting from offsetting of the strips as occur when said strips are fed through a curved path of relatively short radius. The greater the number of strips in the pile, the greater is the offset for the same radius. Of course, if only one strip is used, it may be carried through a substantial curve and operate satisfactorily as the problem of offsetting would not be present.

The strips are separated from the pins as they are carried over the top of the paper table and are guided therealong. The strips are then fed around the platen, whereupon the frame may be closed.

During the feeding of the leading ends of the strips through the machine, the roller **23** is maintained in cooperative relation with the platen to frictionally feed the said ends. The ends of the strips thus frictionally fed engage a guide plate **70** and are deflected upwardly toward the pinwheels.

In order to insure that the strips will again be picked-up and fed by the pinwheel, means are provided for engaging and moving the ends of the strips to a position in which the apertures therein will be engaged by the pins. In the preferred form of the invention, the elongated auxiliary supporting rollers **54** are utilized to carry out this

function by providing them with a transversely corrugated or otherwise roughened surface, as at **51***a*, which will pick up the ends of the strips and carry them up into a position in which the pins on the upper surface of the pinwheels engage the apertures and positively advance the strips from the machine.

As soon as the pinwheels engage the apertures and the positive feeding of the ends of the strips is started, the roller **23** is manually moved to the released position shown in Fig. 4, or otherwise rendered inoperative, and the strips are no longer frictionally fed by the platen.

If desired, means may be provided for aiding in the pickup of the strips by directing the strips to the pinwheel and holding the strips in engagement with the pinwheels. This may take the form of fingers **71** pivotally mounted on the rod **49** to extend therefrom and are so curved at **71***a* as to overlie the periphery of the pinwheels. The fingers are biased into engagement with the surface of the wheel and are provided with apertures **72** which permit the pins to move in their closed path without interference. The portion of the fingers at **71***b* will engage and turn the ends of the strips toward the pinwheels while the portion **71***a* will press the strip against the periphery of the pinwheels and prevent unintentional disengagement of the apertures from the pins.

As shown in Fig. 4, the strips engage only a small part of the upper periphery of the pinwheel and are again moved in a slightly curved path, thus offsetting of the apertures is avoided and the pins can engage the apertures in all of the strips without difficulty. This engagement, however, is sufficient to propel the strip out of the machine.

It will be seen, therefore, that the present invention provides a single feeding unit which engages and feeds the strip to a writing position and reengages the strip after it leaves the writing position to advance the strip from the machine.

With this arrangement, the danger of tearing or breaking out of the apertures is avoided as the pull necessary to carry the strip through the machine is divided. The pull on the strips applied by the pins during their first engagement will be only that necessary to remove the strips from the supply thereof and advance them toward the platen. The pull applied by the pins during their second engagement is only that required to draw the strips, advanced to the platen, over the platen and out of the machine.

When the strips engage the feeding means at two points spaced along their length as they pass to and from the platen, they move in opposite directions and form a loop as is shown in Fig. 4. This loop may be just long enough when one thickness of a pile of strips is used to hold the strips against the platen with a proper tension to produce a satisfactory inscription by the writing means and without sufficient pressure to cause the platen to feed the strip. However, when other piles of strips of other thickness are disposed over the platen, the apertures may be in such a position when they are engaged by the pins that slack will be formed in the loop and the strips will not be held taut against the platen.

In order to remove any slack in this loop which might occur because of the differences in thickness of the pile, the present invention provides a take-up means. Preferably, this means engages the strips as they leave the platen in their passage to reengage the pinwheel and comprises a pair of arms **77** pivotally mounted intermediate their ends

on the rod 49 with their inner ends joined by a bail 78. The upper part 77a of the arms is so weighted that the bail is urged into the position shown in Fig. 3, wherein it is disposed in the path of movement of the strips and applies sufficient tension to the strips to take up any slack in the loop and hold them sufficiently taut over the platen to receive a satisfactory impression and yet without sufficient pressure to cause the platen to feed the strips. A stop pin 79 is carried by the arms to engage the side plates and prevents the bail from being dragged by the strips into engagement with the pinwheels.

In order to insure disengagement of the strips as they leave the pinwheels, the present invention provides stripper members 80 supported by links 81 mounted on rod 30 and disposed adjacent each of the pinwheels so as to overlie the back of the pinwheels. These stripper members have a groove 80a in the wheel-engaging face to permit the pins to pass without interference. Each of the members has a flat upper surface 82 for engaging under the strips and causing the strips to be lifted from the pins as the wheels rotate. The stripper members may also be provided with a curved guiding surface 83 which is interposed between the pins and strip and adapted to guide the strips as they pass over the rod 30 so as to prevent the pins from engaging the strips until the strips have been turned into a position substantially tangential with the wheel and the apertures are in position to be engaged by the pins.

To prevent the strips as they leave the upper surface of the stripper member from interfering with the portion of the strips moving from the supply to the feeding means, the present invention provides a strip-receiving table 85 which is secured to the top rods 62 of the back attachment by clips 86 or any other suitable securing means. The table 85 overlies the incoming strips and provides a supporting surface to conduct the outgoing strips beyond the end of the machine under the feed of the pinwheels.

In the broader aspects of the invention, the novel feeding means which employs but a single feeding unit for engaging a strip at spaced points for feeding the strip to and from a writing position may be a friction feed means or a positive feed means, other than the pinwheel type illustrated herein, wherein pins are moved in a predetermined path.

Variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

We claim:

1. In a writing machine, a platen for supporting for writing operations a plurality of superposed continuous strips having longitudinal rows of feeding apertures; strip-feeding mechanism including feeding pins, and supporting means therefor mounted for feeding movement at the introductory side of the platen between the portions of the writing strips leading in and leading out of the platen; means for guiding the leading-in portions of the strips into engagement with a plurality of pins on the pin-supporting means whereby the strips are fed to the platen by the positive engagement of these pins with the strips through the feeding apertures therein; means for guiding the leading-out portion of the strips into engagement with a plurality of pins on the pin-supporting means whereby the strips are fed away from the platen by the positive engagement of these pins with the strips through the feeding apertures therein, said pin-supporting means being so located with relation to the platen that the strips are fed to and delivered from the platen in a slack loop and are free of feeding or braking pressure against the platen; and adjustable means acting on the portion of the strips between the first and second engagements of the strips with the pins for taking up excess slack in the loop and holding the strips against the platen with firmness sufficient to insure good writing impressions but not sufficient to apply feeding or braking pressure on the strips against the platen.

2. In a writing machine, a platen for supporting for writing operations a plurality of superposed continuous strips having longitudinal rows of feeding apertures; strip-feeding mechanism including feeding pins and a supporting wheel therefor mounted for rotary feeding movement at the introductory side of the platen between the lower and upper portions of the writing strips leading in and leading out of the platen respectively; means for guiding the leading-in portions of the strips into engagement with a plurality of pins on the lower side of the pin-supporting wheel whereby the strips are fed to the platen by the positive engagement of these pins with the strips through the feeding apertures therein; means for guiding the leading-out portion of the strips into engagement with a plurality of pins on the upper side of the pin-supporting wheel whereby the strips are fed away from the platen by the positive engagement of these pins with the strips through the feeding apertures therein, said pin-supporting wheel being so located with relation to the platen that the strips fed to and delivered from the platen are slack and free of feeding or braking pressure against the platen; and means acting on the portion of the strips between the upper and lower parts of the pin-supporting wheel for taking up the slack and holding the strips against the platen with firmness sufficient to insure good writing impressions but not sufficient to apply feeding or braking pressure on the strips against the platen.

3. In a writing machine, a platen for supporting for writing operations a plurality of superposed continuous strips having longitudinal rows of feeding apertures; strip-feeding mechanism including feeding pins and a supporting wheel therefor mounted for rotary feeding movement at the introductory side of the platen between the portions of the writing strips leading in and leading out of the platen; means for guiding the leading-in and the leading-out portions of the strips into engagement with the pins on opposite sides of the pin-supporting wheel whereby the strips are fed toward and away from the platen by the positive engagement of the pins seriatim with the leading-in and leading-out portions of the strips through the feeding apertures therein, said pin-supporting wheel being so located with relation to the platen that the strips fed to and delivered from the platen are slack and free of feeding or braking pressure against the platen; and means acting on the portion of the strips between the first and second engagements of the pins with the strips for taking up the slack and holding the strips against the platen with firmness sufficient to insure good writing impressions but not sufficient to apply feeding or braking pressure on the strips against the platen.

4. In a writing machine, a platen for supporting for writing operations a plurality of superposed continuous strips having longitudinal rows

of feeding apertures; strip-feeding mechanism including feeding pins and a supporting wheel therefor mounted for rotary feeding movement at the introductory side of the platen between the lower and upper portions of the writing strips leading in and leading out of the platen respectively; means for guiding and leading-in portions of the strips into engagement with a plurality of pins on the lower side of the pin-supporting wheel whereby the strips are fed to the platen by the positive engagement of these pins with the strips through the feeding apertures therein; means for guiding the leading-out portion of the strips into engagement with a plurality of pins on the upper side of the pin-supporting wheel whereby the strips are fed away from the platen by the positive engagement of these pins with the strips through the feeding apertures therein, said pin-supporting wheel being so located with relation to the platen that the strips are fed to and delivered from the platen in a slack loop and are free of feeding or braking pressure against the platen; and means acting on the portion of the strips between the platen and the upper side of the pin-supporting wheel for taking up the slack and holding the strips against the platen with firmness sufficient to insure good writing impressions but not sufficient to apply feeding or braking pressure on the strips against the platen.

5. In a writing machine, a platen for supporting for writing operations a plurality of superposed continuous strips having longitudinal rows of feeding apertures; strip-feeding mechanism including feeding pins and a supporting wheel therefor mounted for rotary feeding movement at the introductory side of the platen between the portions of the writing strips leading in and leading out of the platen; means for guiding the leading-in and the leading-out portions of the strips into engagement with the pins on opposite sides of the pin-supporting wheel whereby the strips are fed toward and away from the platen by the positive engagement of the pins seriatim with the leading-in and leading-out portions of the strips through the feeding apertures therein, said pin-supporting wheel being so located with relation to the platen that the strips fed to and delivered from the platen lie in a loose loop free of feeding or braking pressure against the platen; and a bail acting on the leading-out portion of the strips between the platen and the pin-supporting wheel for taking up excessive looseness and holding the strips against the platen with firmness sufficient to insure good writing impressions but not sufficient to apply feeding or braking pressure on the strips against the platen.

6. In a writing machine, a platen for supporting for writing operations a plurality of superposed continuous strips having longitudinal rows of feeding apertures along both lateral margins of the strips; strip-feeding mechanism including feeding pins and supporting wheels therefor mounted for rotary feeding movement at the introductory side of the platen between the portions of the writing strips leading in and leading out of the platen; means for guiding the leading-in and leading-out portions of the strips into engagement with a plurality of pins on each of the pinwheels whereby the strips are fed toward and away from the platen by the positive seriatim engagement of the pins with the leading-in and leading-out portions of the strips through the feeding apertures therein; said pin-supporting wheels being so located with relation to the platen that the strips fed to and delivered from the

platen are in a slack loop free of feeding or braking pressure against the platen; and adjustable means acting on the portion of the strips between the first and second engagements of the pins with the strips for taking up the excess slack in the loop and holding the strips against the platen with firmness sufficient to insure good writing impressions but not sufficient to apply feeding or braking pressure on the strips against the platen.

7. In a writing machine, a platen for supporting for writing operations a plurality of superposed continuous strips having longitudinal rows of feeding apertures; strip-feeding mechanism including feeding pins and a supporting wheel therefor mounted for rotary feeding movement at the introductory side of the platen between the portions of the writing strips leading in and leading out of the platen; means for guiding the leading-in portions of the strips into engagement in an approximately tangential path with a plurality of pins on the lower side of the pinwheel whereby the strips are fed to the platen by the positive engagement of the pins with the strips through the feeding apertures therein; means for guiding the leading-out portion of the strips into engagement in an approximately tangential path with a plurality of pins on the upper side of the pinwheel whereby the strips are fed away from the platen by the positive engagement of the pins with the strips through the feeding apertures therein, said pinwheel being so located with relation to the platen that the strips are fed to and delivered from the platen in a slack loop free of feeding or braking pressure against the platen; and an adjustable means acting on the portion of the strips between the first and second engagements of the strips with the pins for taking up the slack loop and holding the strips against the platen with firmness sufficient to insure good writing impressions but not sufficient to apply feeding or braking pressure on the strips against the platen.

8. In a writing machine, a platen for supporting for writing operations a plurality of superposed continuous strips having longitudinal rows of feeding apertures; strip-feeding mechanism including feeding pins, and supporting means therefor mounted for feeding movement at the introductory side of the platen between the portions of the writing strips leading in and leading out of the platen; means for guiding the leading-in portions of the strips into engagement with a plurality of pins on the pin-supporting means whereby the strips are fed to the platen by the positive engagement of these pins with the strips through the feeding apertures therein; means for guiding the leading-out portion of the strips into engagement with a plurality of pins on the pin-supporting means whereby the strips are fed away from the platen by the positive engagement of these pins with the strips through the feeding apertures therein, said pin-supporting means being so located with relation to the platen that the strips are fed to and delivered from the platen in a slack loop free of feeding or braking pressure against the platen; means acting on the portion of the strips between the first and second engagements of the strips with the pins for removing excess slack and holding the strips against the platen with firmness sufficient to insure good writing impressions but not sufficient to apply feeding or braking pressure on the strips against the platen; and means bearing on the platen for frictionally feeding the leading end of a pile of superposed strips around

the platen to position to be engaged by the upper portion of the pinwheel.

9. In a writing machine, a platen for supporting for writing operations a plurality of superposed continuous strips having longitudinal rows of feeding apertures; strip-feeding mechanism including feeding pins, and supporting means therefor mounted for feeding movement at the introductory side of the platen between the portions of the writing strips leading in and leading out of the platen; means for guiding the leading-in portions of the strips into engagement with a plurality of pins on the pin-supporting means whereby the strips are fed to the platen by the positive engagement of these pins with the strips through the feeding apertures therein; means for guiding the leading-out portion of the strips into engagement with a plurality of pins on the pin-supporting means whereby the strips are fed away from the platen by the positive engagement of these pins with the strips through the feeding apertures therein, said pin-supporting means being so located with relation to the platen that the strips are fed to and delivered from the platen in a slack loop free of feeding or braking pressure against the platen; means acting on the portion of the strips between the first and second engagements of the strips with the pins for removing excess slack and holding the strips against the platen with firmness sufficient to insure good writing impressions but not sufficient to apply feeding or braking pressure on the strips against the platen; means bearing on the platen for frictionally feeding the leading end of a pile of superposed strips around the platen to position to be engaged by the upper portion of the pinwheel; and means to automatically lift the leading end up and onto the pins on the upper side of the pinwheels when inserting the strips into the machine.

10. In a writing machine, a rotatable platen for supporting for writing operations a plurality of superposed continuous strips having longitudinal rows of feeding apertures; means for rotating said platen; positive strip-feeding mechanism including feeding pins for engaging the feeding apertures and a supporting wheel therefor mounted for rotary feeding movement at the introductory side of the platen between the lower and upper portions of the writing strips leading in and leading out of the platen respectively; a driving connection between said platen and said strip-feeding mechanism whereby said strip-feeding mechanism is driven in timed relation to the rotation of the platen; means for guiding the leading-out portion of the strips into engagement with a plurality of pins on the pin-supporting means whereby the strips are fed away from the platen by the positive engagement of these pins with the strips through the feeding apertures therein, said pin-supporting means being so located with relation to the platen that the strips are fed to and delivered from the platen in a slack loop and are free of feeding or braking pressure against the platen; and adjustable means acting on the portion of the strips between the first and second engagements of the strips with the pins for taking up excess slack in the loop and holding the strips against the platen with firmness sufficient to insure good writing impressions but not sufficient to apply feeding or braking pressure on the strips against the platen.

11. The invention as defined in claim 2 wherein the means for guiding the lead-out portion of the strips into engagement with the pins includes at least one corrugated rotatable member driven with the pin-supporting means for picking up the leading edge of the strips.

12. In a writing machine, a platen for supporting for writing operations a plurality of superposed continuous strips having longitudinal rows of feed apertures; strip feed mechanism disposed above and to the rear of said platen and including feeding pins and a supporting wheel therefor mounted for rotary feeding movement; guide means for guiding the leading-in end toward the strip feeding mechanism and means for picking up the leading-in end of the strips and carrying them up to the feeding mechanism.

13. In a writing machine, a platen for supporting for writing operations a plurality of superposed continuous strips having longitudinal rows of feed apertures; strip feeding mechanism including feeding pins, a supporting wheel therefor and a shaft for said wheel mounted for rotary movement for moving the strips over the platen; guide means for guiding the leading-in end toward the strip feeding mechanism and a corrugated roller mounted on said shaft for rotation therewith for picking up the leading-in end of the strips and carrying them up to the feeding mechanism.

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