March 4, 1969 G. J. PARRI 3,430,748

PAPER FEEDER COORDINATED WITH PLATEN

Filed Nov. 4, 1966 Sheet 1 of 3

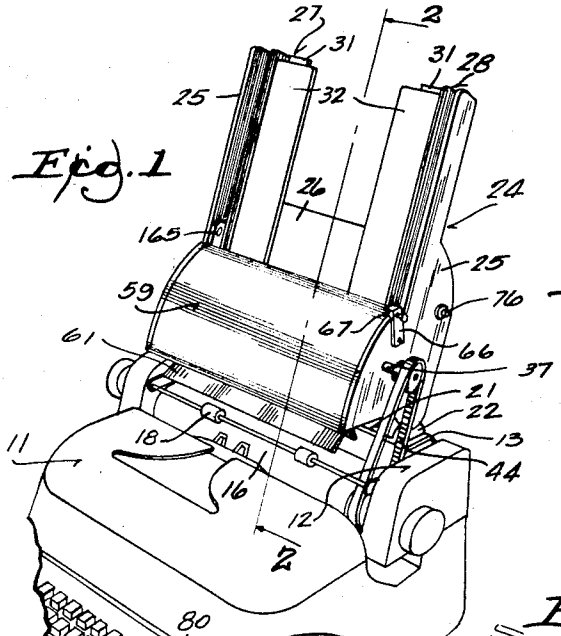

Fig. 1

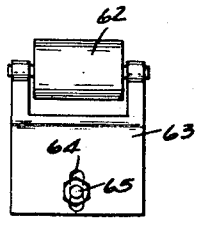

Fig. 4

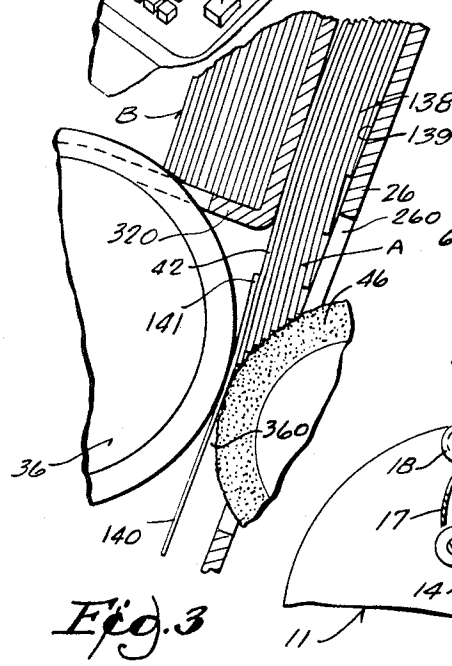

Fig. 3

Fig. 2

INVENTOR.
GWYNN J. PARRI
BY

Wheeler, Wheeler, House & Clemency
ATTORNEYS

March 4, 1969 G. J. PARRI 3,430,748

PAPER FEEDER COORDINATED WITH PLATEN

Filed Nov. 4, 1966 Sheet 2 of 3

Fig. 7

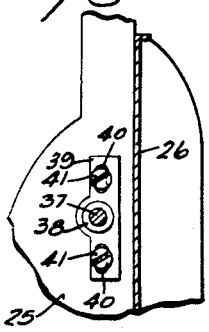

Fig. 5

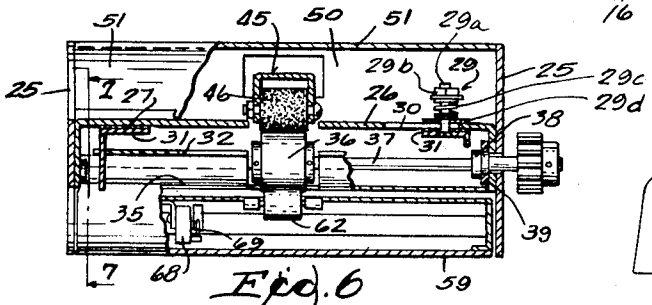

Fig. 6

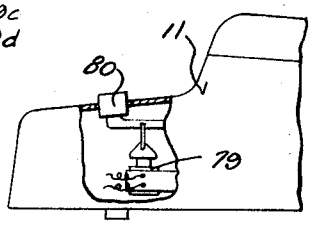

Fig. 9

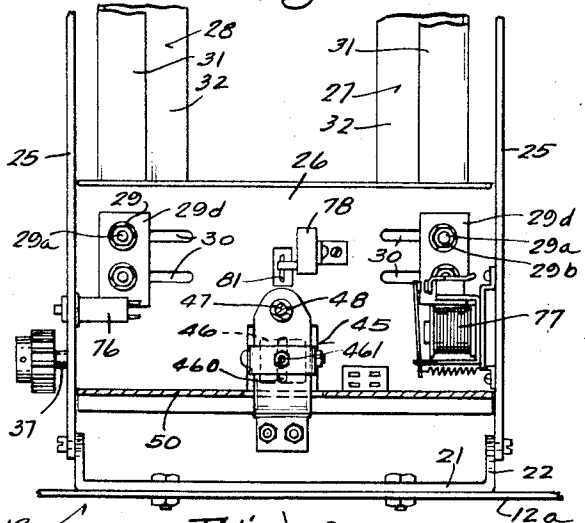

Fig. 8

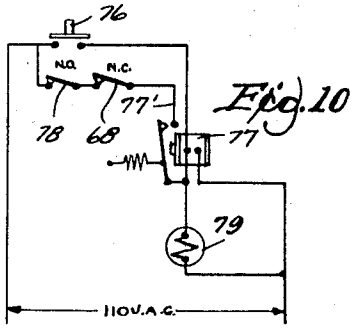

Fig. 10

INVENTOR.
GWYNN J. PARRI
BY
Wheeler, Wheeler, House & Clemency
ATTORNEYS

March 4, 1969 G. J. PARRI 3,430,748

PAPER FEEDER COORDINATED WITH PLATEN

Filed Nov. 4, 1966 Sheet 3 of 3

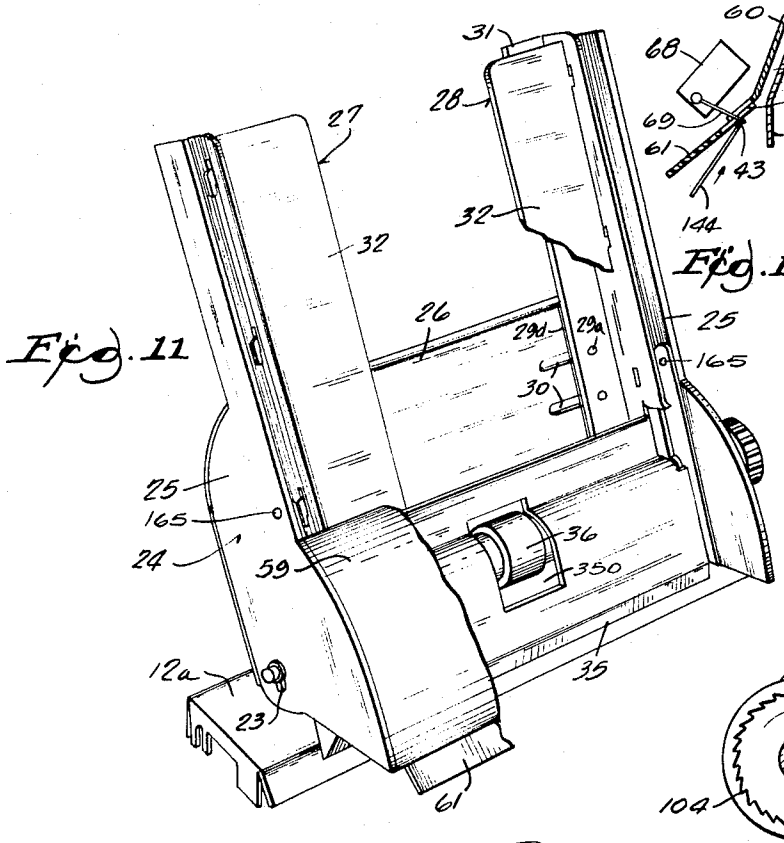

Fig. 11

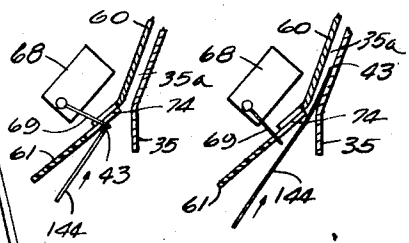

Fig. 13 Fig. 14

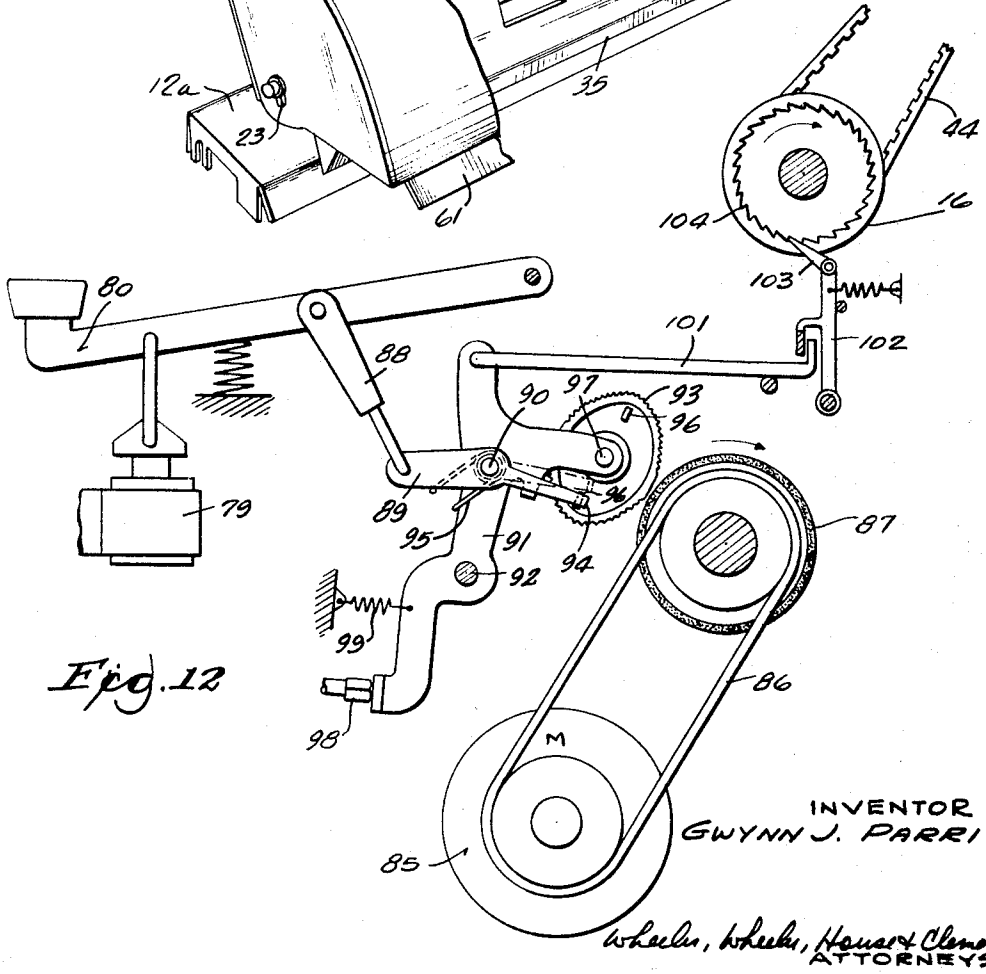

Fig. 12

INVENTOR
GWYNN J. PARRI

Wheeler, Wheeler, Housser & Clemency
ATTORNEYS

United States Patent Office 3,430,748
Patented Mar. 4, 1969

3,430,748

PAPER FEEDER COORDINATED WITH PLATEN

Gwynn J. Parri, 3149 S. Howell Ave.,
Milwaukee, Wis. 53207

Continuation-in-part of application Ser. No. 323,625, Nov. 14, 1963. This application Nov. 4, 1966, Ser. No. 592,219
U.S. Cl. 197—130 10 Claims
Int. Cl. B41j 13/14

ABSTRACT OF THE DISCLOSURE

The feeder is applicable to a conventional electric typewriter and includes unitarily associated feed and receiving magazines with a common feed roll connected to function in synchronism with the typewriter platen. Incoming sheets bear at their end margins upon a convex rough surface, the feeder being so adjustable as to angle that as each sheet leaves the feed roll another will move automatically into position. A solenoid energized manually to start the feed holds down the sheet advancing key of the typewriter to maintain the new sheet in continuous advance until its leading end trips a microswitch to open the holding circuit for the solenoid, leaving the sheet properly positioned for use.

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of my application Ser. No. 323,625 filed Nov. 14, 1963, now abandoned, and identified by the same title.

BACKGROUND OF THE INVENTION

The feeder comprises unitarily associated feed and receiving magazines having a common feed roll operatively connected with a platen roll to function in precise synchronism therewith for delivering single or composite sheets into a typewriter or the like and for storing finished sheets discharged from the platen roll.

The two magazines are unitary. They comprise laterally spaced side members extending upwardly and rearwardly from the feed roll and relatively laterally adjustable. Flanges on these members constitute the paper supporting means of the respective magazines.

Forming the bottom of the feed magazine and cooperating with the feed roll at the side thereof on which sheets pass by gravity from the feed magazine into the typewriter is a sheet supporting member which is desirably, but not necessarily, convex and which has a surface converging toward the feed roll at the diameter thereof which is normal to the magazine and to the plane on which the sheets are successively delivered. Preferably the surface is inclined toward said diameter at an angle such that the supported sheets tend to advance on the bottom of the magazine toward the roll, the most advanced sheet being held back by the trailing end of the sheet which is being acted on by the roll. Thus, each sheet will follow the preceding sheet automatically, no adjustment being required even if the sheets differ in length.

The supporting member preferably has a controlled roughness such as may be provided by surface grit to assist and make less critical the support for the sheets in the magazine pending delivery of successive sheets into the typewriter by the feed roll.

The relationship between the convex supporting surface and the feed roll and the magazine is such that the foremost sheet in the magazine is gravity delivered substantially precisely in a plane which is tangent to the feed roll as well as to the typewriter platen roll. Assuming that the supporting device has the preferred convex form, a given sheet receives progressively reduced support as the

sheet approaches the plane of delivery to the feed roll. Finally, the abrasive member no longer provides substantial support and only the trailing end of the preceding sheet holds the foremost sheet on the convex supporting member.

A cover plate is pivoted on the frame and resiliently supports a roller coacting with the feed roll in passing paper to the paper-receiving magazine for proper positioning therein. The cover plate and all parts mounted thereon are enclosed in a hood and the entire cover assembly swings upwardly for substantially full access to the typed paper.

For electric typewriters, a switch and a relay are mounted on the frame under a rear cover and another switch is mounted in the front cover assembly for operation by the paper coming from the platen to break the relay circuit and arrest further advance of the sheet. A solenoid is connected to the key controlling the traversing of the carriage and the rotating of the platen, this solenoid being controlled by coaction of the two switches acting through the relay.

Regardless of the use of single sheets or multiple sheet packs and whether the sheets are fed individually or from a pack, it is necessary that the sheets substantially invariably and automatically assume the correct position for feeding into the typewriter and that succeeding sheets of a pack follow one another immediately and in the proper position.

The sets of rollers forming a part of a typewriter structure for holding the paper to the typewriter platen are usually not precision made or precision mounted and pressure of the several rollers of a set may be unbalanced so that paper may not be invariably initially placed with its leading edge parallel to the axis of the platen and the paper requires adjustment. Hence, a paper feeding device should be adjustable to compensate for unbalances in typewriter platen-roller action on the paper. Guide plates and cylinders or rolls must be provided to receive the paper from the plate and place it properly in a receiving tray. Hence, receiving guide rolls should be adjustable relative to the paper being fed as well as the means for moving the paper after it leaves the platen.

It is very important that the magazine and the feed roll and the abrasively surfaced sheet-support which forms the bottom of the magazine shall be adjustable to function with precision.

Most previous feeders have entirely separate magazines for supplying paper and receiving paper. It is advantageous in the instant device to have the magazines mounted unitarily and in the desired superimposed relationship where the structure is compact and can be applied and removed as a unit.

However, the most desirable feature of the instant device is the gravity feed wherein the movement of each successive sheet in the supply magazine to a position for engagement with the feed roll is controlled by the trailing end of that sheet which is passing through the feed roll to the typewriter platen. By reason of this organization, the sheets follow each other in closely spaced proximity, this result being achieved automatically without any necessity for making mechanical adjustments such as would be required to handle sheets of different length if the feed were mechanical.

DESCRIPTION OF THE INVENTION

In the drawing:

FIG. 1 is a perspective view of the present sheet feeder in operating position on and in connection with one of the well-known makes of electric typewriters now in use.

FIG. 2 is a sectional view on line 2—2 of FIG. 1, on an enlarged scale, of the feeder mechanism and of

the carriage and platen structure through which the paper is passed.

FIG. 3 is an enlarged fragmentary diagrammatic view showing a roll and a relatively fixed cylinder for feeding sheets from the supply magazine to a typewriter platen.

FIG. 4 is an elevation of an adjustable spring mounting for a roller coacting with a roll for feeding paper from the platen into a receiving tray, the viewpoint being indicated by line 4—4 of FIG. 2.

FIG. 5 is a somewhat diagrammatic front elevation of the sheet feeder diagrammatically showing connection of its paper-feeding roll to a typewriter platen.

FIG. 6 is a view taken on the broken line 6—6 of FIG. 5.

FIG. 7 is a fragmentary view showing in the plane of line 7—7 of FIG. 6 the manner for adjustably mounting the rotatable shaft for the paper-feeding roll.

FIG. 8 is a rear elevation of the sheet feeder with the rear cover removed.

FIG. 9 shows the manner in which an electric solenoid is related to the carriage return key of an electric typewriter.

FIG. 10 is an electrical diagram showing the connections between said solenoid and portions of an electric circuit for controlling the solenoid.

FIG. 11 is an enlarged fragmentary detail view of the attachment per se as mounted on a cover plate which is conventional in one brand of electric typewriter.

FIG. 12 is an enlarged diagrammatic view showing how the solenoid-actuated key functions to control the operation of the typewriter platen and the platen-driven feeder belt.

FIG. 13 is a fragmentary diagrammatic view similar to a portion of FIG. 2 showing the sheet issuing from the typewriter in a position in which it has operated a control switch used in the circuit of FIG. 10.

FIG. 14 is a diagrammatic view showing the issuing sheet further advanced from the position shown in FIG. 13, the switch operating lever having been released.

Referring more specifically to the drawing, reference numeral **11** generally designates a known make of electric typewriter having a carriage **12** (see FIG. 2) with a sheet metal pan **13** and a series of rollers **14** and **15** mounted to extend through the pan into contact with and along the length of a platen **16**. Paper is further guided around the platen by a sheet metal guide **17** and is pressed on the platen by rollers **18**. All of the above structure is well known and need not be further described. It may be explained that while the part **12** is designated in commercial practice as a carriage, it need not necessarily have movement in that style of typewriter in which the impression dies are mounted on a ball which moves across the paper.

The carriage **12** has a removable cover **12***a* and there is fixed to the rearward portion therof a bracket **21** with upstanding ears **22** at the ends thereof and having slots **23** therein, to receive bolts for adjustable mounting of the present sheet feeder **24** at an angle to function as herein described and for shifting it upwardly and downwardly if necessary to coact with parts of the typewriter.

The sheet feeder independently illustrated in FIG. 11 comprises a frame consisting of end plates **25** (see also FIGS. 5, 7 and 9) joined by a flanged cross plate **26** on which are mounted other frame parts. Cross plate **26** adjustably supports feed magazine or tray side section **27** and having fastening means **29** (including bolts **29***a* and nuts **29***b* holding springs **29***c*) acting through slots **30** in plate **26**. Preferably fiber elements **29***d* are inserted between the springs **29***c* and the plate **26** to assist in holding the parts in adjustment notwithstanding minor jars. The arrangement permits either side section to be adjusted laterally or pivoted as needed.

The tray sections **27** and **28** together with flanges **31** constitute a feed magazine for storing paper for delivery into the typewriter. For receiving paper which has been acted upon by the typewriter, the tray sections also comprise a receiving magazine made by providing each section with a flange **32** on which paper is received from the typewriter. Tray section **28** can be moved laterally toward, and from, and can be angularly adjusted relative to, tray section **27** as part of the adjustment assuring correct feeding and correct storage of the paper. The bottom of the feed magazine is provided by supporting means for the lower edges of the sheets, later described.

It will be noted that the feed magazine and the receiving magazine are, in effect, superimposed forming parts of tray sections common to both. They lie at an angle extending upwardly and rearwardly from the platen.

A paper guide plate **35** extends in spaced relation to the cross plate **26** and has an aperture **350** therethrough for receiving a portion of a feed roll **36** mounted on a shaft **37** rotatably journalled in the end plates **25**. Shaft **37** (see FIG. 7) is mounted in bearing **38** in adjustable mounting blocks **39** each having slots **40** therein to receive fastening means **41** of a size permitting shifting of the blocks in various directions in one plane for placing the shaft parallel to the platen axis. The platen **16** is connected with the shaft **37** of roll **36** by a toothed belt **44** so that rotation of the platen also rotates the roll **36** in precise synchronism with the platen to feed paper to the platen. The feed roll **36** is rubber or the like to engage the paper frictionally and is only soft enough to assure adequate roll surface contact on the paper for positive frictional feeding thereof.

It has been found that roll **36** should desirably have its peripheral surface exactly concentric with its shaft, and the roll is accordingly ground after mounting on its shaft. By reason of the concentricity obtained by the grinding and the adjustability of shaft **37**, the roll **36** can compensate for non-uniformity in size and eccentricity in mounting of the typewriter platen roller **16**, or its associated feed rollers **15, 14, 18**.

Paper feed

Cross plate **26** has an aperture **260** therethrough opposite feed roll **36** to receive a paper feed control member **46** which constitutes the bottom of the feed magazine and has a surface of controlled roughness and is adjustably mounted by bracket **45** from plate **26**. The preferably convex surface of this member converges toward the periphery of feed roll **36**. Preferably this member has its closest approach to feed roll **36** in a diametrical plane normal to the path of paper feed and, at its terminus, is so nearly parallel to such path as to offer little support to the lower margin of a paper sheet proximate the feed roll. In practice, the member may be cylindrical although it does not rotate in use. Carborundum of 100 mesh or less has been found suitable.

Member **46** constitutes means (see FIG. 3) for temporarily supporting or holding sheets of paper with the leading edges in downwardly spaced relation. The relationship between the feed roll and the support member and the feeding magazine is critical. As clearly shown in FIG. 3, the trailing margin **141** of the sheet **140** which is engaged by the feed roll **36** is responsible for holding on the support member **46** the lower margin of the next ensuing sheet **42**. However, the lower margin of sheet **42** has reached a position such that it is approaching tangency to the support member **46** and, despite the roughened surface of the latter, it readily slips by gravity bias from member **46** into the bite of feed roll **36** as soon as the trailing end **141** of sheet **140** passes through the bite.

The adjustment of member **46** with respect to feed roll **36** is very critical. Depending on the angle and the surface friction of member **46**, it may be necessary to move it slightly. Slots **460** are provided for bolts **461** to permit of this adjustment (FIGS. 2 and 8).

The several sheets **138** of paper remaining in the feed magazine **139** will be so held by the most advanced sheet **42** that the lower ends of sheets **138** will be supported by the rough surface of member **46**.

Obviously, the holding means need not be a cylinder nor made of carborundum so long as it is capable of holding the lower ends of a number of sheets for release as a sheet comes to uppermost position. Member **46** is mounted in bracket **45** for rotational adjustment but does not rotate in its mounting. The free end of the bracket **45** is held to a given position of adjustment by a screw **47** attached to frame plate **26** and provided with a nut **48** acting against the compression of a spring **49**. Turning the nut down on the screw swings the bracket to bring the member **46** closer to the roll **36** and compresses the spring **49** to achieve a given spacing of the member **46** from the cylinder according to requirement of the paper being used.

The bracket **45** extends through a hole in a plate **50** which braces frame plate **26** against bending as force is applied on the bracket by its adjusting screw and the cylinder. A rear cover **51** encloses the bracket and much of its adjusting means and other parts to be described.

Paper discharge

A front cover hood **59** is pivotally mounted on the frame end plate **25** and carries a plate **60** with a transparent lip portion **61**, the plate **60** coacting with guide plate **35** in forming a throat through which paper moves from the platen. The throat plate **60** has an aperture **600** therethrough opposite the roll **36** for movement through such aperture of a roller **62** having its axle on resilient support **63** so that the roller presses the paper against roll **36** and turns the paper toward the receiving tray or magazine **32**. Roller support **63** is a spring leaf (see FIG. 4) with a slot **64** for bolt **65** by which the roller is adjustably attached to plate **60**. Thus, the location of roller **62** on feed roll **36** is varied to assure that paper B slides in proper alignment into receiving tray **32**, where it is supported on bottom flange **320** and on the top surface of feed roll **36**. Clockwise rotation of the roll as viewed in FIG. 2 keeps urging the sheets to the back of the receiving magazine.

A slot **74** is cut into the throat plate **60** at a location only slightly spaced longitudinally of the cover from the roller **62** so that paper of even small size will pass over the slot in movement from the platen. A microswitch **68** is mounted on the throat plate **60** with a resilient finger **69** extending through the slot **74**, the switch forming part of control circuits to be described.

The switch **68** is marked N.C. in FIG. 10, meaning that it is a switch which is normally closed. In the instant device, it is opened by each successive sheet of paper issuing from the platen toward the receiving tray or magazine. This breaks the relay circuit. FIGS. 13 and 14 show how the advancing margin **43** of the discharging sheet **144** has engaged lever **69** to open the switch **68**. FIG. 14 shows how the lever **69** of normally closed switch **68** swings back to its closed position after the leading margin of the sheet **144** enters the throat **35***a*.

The front cover assembly **58–63** is pivoted at **165** so that it can be raised to give full access to approximately one-half the length of a letter size sheet as it comes from the platen. A spring detent **66** is mounted on the end plate **25** of the frame and the detent has a nose **67** to slip between the edge of the frame plate and the underside of the throat plate **60** to hold the cover assembly in its highest raised position. The cover is, of course, held up until the operator pulls the detent back to release the nose thereof from beneath the cover. Because of the above pivoting of the cover assembly, the paper is nearly as fully exposed as if the the feeder were not in use.

A push button electric switch **76** (see FIG. 8) is mounted on the frame end plate **25** at the left in FIG. 8 and a relay **77** is mounted on the frame end plate at the right in FIG. 8, the relay armature being under spring action to open the relay contacts when its windings are not energized. A microswitch **78** is mounted on frame cross plate **26** and has as an actuator a finger **81** extending through an aperture in the plate to bear on the pack of paper in the feed magazine and to keep the switch closed so long as there is paper to be fed. The switch **78** is marked N.O. in FIG. 10, meaning that it is normally open. It is closed only when paper in the supply magazine bears on its arm. All the above parts adjacent to or carried on the rear of the frame plate **26** are covered by a rear cover **51** which is readily removable.

Referring now to FIG. 9, a solenoid **79** is connected to the carriage platen-rotating and "return" key **80** for continuing feeding of the paper into the carriage by holding the key down to turn the typewriter platen by increments of one line, as is usual in electric typewriters.

Referring now to FIG. 10, the microswitch **78** is closed as soon as paper is in position for typing thereon and presses against the switch finger **81**. When the paper is to be advanced by one line or more, closure of the push button switch **76** closes the circuit to the winding of relay **77** and to the solenoid **79**. Platen **16** will continue its stepped rotative advance during the period of depression of the key **80** as is well known (provided there is paper in the feeder so that switch **78** is closed). All of the circuit parts are designed for available voltage so that the armature of relay **77** holds the holding circuit **77'** to the solenoid **79** closed so long as the microswitch **68** is closed.

A conventional arrangement for enabling the key **80** to rotate the platen **16** and the feed roll **36** is shown diagrammatically in FIG. 12. The typewriter is presumed to be operated by a motor (M) **85** which is connected by belt **86** with a driving friction roll **87**. Depression of the key **80** either manually or by means of solenoid **79** transmits motion through link **88** to a lever **89**. The pintle **90** supports lever **89** from a lever **91** which is pivoted at **92** and carries an elliptical cam **93** in a position which is normally spaced slightly from the motor operated drive roll **87**, the latter being in continuous operation.

A finger **94** on lever **89** is normally held by the bias of spring **95** against one of two stops **96** on the elliptical cam **93**. Depression of the plunger not only withdraws the finger **94** momentarily from the stop **96** on the cam but it also pivots lever **91** and thereby urges the entire cam bodily on lever **91** into contact with the motor driven roll **87**. The latter rotates the cam 180°. The eccentricity of the cam about its mounting pin **97** oscillates lever **91** away from stop **98** against the bias of spring **99**, thereby transmitting motion through link **101** to a pawl-carrying lever **102**. This lever is caused to oscillate counter clockwise as viewed in FIG. 12 to cause the pawl **103** to engage a ratchet tooth **104** on the platen **16** to advance the platen rotatively through a predetermined angle or increment usually representing the space between consecutive lines of typewriting.

Continued depression of the key **80** will continue to hold the finger **94** retracted and the cam **93** in engagement with the motor driven roll **87** to continue the stepped advance of platen **16**. Whatever the advance of platen **16**, its motion is communicated through the toothed belt **44** with the driving roll of my paper feeding attachment.

Operation

In use, a supply of paper A (which may be a single sheet or carbon copy sets) is placed in the feed magazine or tray parts **31** forming the paper positioning and supplying means. The lower ends of the sheets A bear on the holding member **46** in slightly spaced relation. The most advanced sheet **42** has its leading end resting on a portion of member **46** which is convergent to feed roll **36** at such an angle that the sheet **42** would be discharged by contact with feed roll **36** but for the tendency of sheet **140** to exclude sheet **42** from contact with roll **36** and

from passage through the throat **360** between roll **36** and member **46**.

Sheet **42** will immediately follow sheet **140** as it leaves the nip of the feed roll **36** and the cylinder **46**. It is very important that the successive sheets leaving the magazine are fed through throat **360** between the supporting member **46** and the feed roll **36** in substantially precise tangency to the feed roll.

It is also important that each sheet is followed by the next without delay. It will be seen that when the trailing end **141** of the sheet of paper **140** passes throat **360**, the lower end of the next sheet **42** is left virtually unsupported by reason of the convexity of member **46**, whereby said ensuing sheet **42** slides forwardly and downwardly relative to member **46** and is engaged by the feed roll **36**.

Since the sheet **42** immediately follows the trailing end **141** of the sheet **140**, and since it is desirable that the ensuing sheet **42** continue its advance far enough so that the typing thereon will be initiated at a proper spacing below its leading margin, I have provided the above described arrangement whereby manual closing of the switch **76** energizes the solenoid switch **77** and its holding through conductor **77'**. This locks the solenoid switch closed until the advancing end **43** of the sheet **144** engages the actuating lever **69** of switch **68** to open this normally closed switch, thereby interrupting the holding circuit, permitting the solenoid switch **77** to open, thus terminating the sheet-advancing feed. As shown in FIG. **14**, the leading end **43** of sheet **144** immediately clears the switch operating lever **69** to permit switch **68** to reclose as soon as it has performed this function.

By reference to FIG. 2, it will be seen that a sheet of paper on the platen is held thereto by the rolls **14**, **15** and **18** so that the roll **36** and cylinder **46** are only required to keep the sheet taut for a time but are not necessary to movement of the sheet around the platen.

The adjustments possible in the present feeder are particularly important in securing the action which makes the present sheet feeder successful. Adjustment of one side of the feeding-receiving tray relative to the other side positions the sheets for proper engagement between the feed roll **36** and holding member **46**, and the proper discharge of the sheet from the feed roll to the platen **16**. Adjustment of the feed roll shaft **37** to parallelism with the platen **16** further assures that the leading edge of each sheet will be presented properly to the platen. Adjustment of the mounting bracket to a different angle and/or different level compensates for any unbalanced pull on sheets in the typewriter. Fine adjustment of the member **46** not only controls spacing for paper thickness but also controls the spacing between the trailing edge of one sheet and the leading edge of another sheet. Adjustment of the receiving guide roller **62** relative to the feed roller **36** assures that paper will be properly placed in the receiving magazine. Hinging of the front cover assembly gives full access to the typed sheets for any purpose desired and the front cover may be held up when manual use of the typewriter is required. Other advantages of the present feeder will be apparent upon consideration of the disclosure.

I claim:

1. A device for feeding sheets of paper to a typewriter platen and an associated pressure roll and comprising:

(a) a feed roll,

(b) means mounting said feed roll for rotation,

(c) means for rotating said feed roll,

(d) a sheet supply magazine having first sheet guiding means extending downwardly toward said feed roll for gravity delivery of successive sheets to said feed roll,

(e) the magazine having at its bottom a sheet supporting member with a fixed convex rough surface

I. in the path of said sheets and converging downwardly toward said feed roll in a position in which it is engaged concurrently by the ends of a plurality of sheets and nearly tangentially by the end margin of the first sheet, the sheets advancing successively toward the feed roll having progressively decreasing support from said surface as they approach tangency to said surface,

II. the said member being spaced from the feed roll to provide a throat for accommodating a single sheet and

III. having its said rough surface so steeply pitched at said throat as to be incapable of supporting the most advanced sheet in said first guiding means except as said advanced sheet is held to said member by a preceding sheet already traversing said throat,

(f) discharge of said preceding sheet from said throat permitting gravity delivery of said advanced sheet into said throat for engagement with said feed roll to be propelled thereby toward said platen,

(g) whereby said sheets automatically follow each other without substantial spacing and without requiring mechanical adjustment to compensate for changes in length of sheets.

2. A device according to claim **1** in which the throat has its minimum cross section substantially at a plane diametrical with respect to the feed roll and normal to the said first sheet guiding means and to the path of paper through the throat.

3. A device according to claim **1** in further combination with

(h) a mounting bracket, and

(i) means for the pivotal adjustment of the magazine on the bracket.

4. A device according to claim **1** in which the means for rotating said feed roll includes means comprising a toothed belt for driving said feed roll directly from the typewriter platen and in synchronism therewith.

5. A device according to claim **1** in which the sheet supply magazine has a sheet receiving magazine unitarily connected therewith, second sheet guiding means for guiding toward said receiving magazine sheets issuing from said platen, said second sheet guiding means being positioned to define a sheet path tangential to the feed roll at the side thereof opposite the sheet supporting member at the bottom of the feed magazine, the sheet receiving magazine including sheet supporting means offset rearwardly from said path and rearwardly inclined in an upward direction and having a support for the bottom margins of sheets in the receiving magazine, which support extends rearwardly from the top of the feed roll whereby sheets acted on by the feed roll are delivered rearwardly against said last mentioned sheet support.

6. A device according to claim **5** in which laterally spaced magazine members have flanges constituting portions of the aforesaid supply magazine and receiving magazine, and means mounting said laterally spaced members including means whereby one of said laterally spaced magazine members is laterally and pivotally adjustable with respect to the other.

7. A device according to claim **5** in which the second sheet guiding means for guiding the sheets delivered from the platen includes an angularly adjustable roll which holds such sheets to the feed roll and directs them into the receiving magazine.

8. A device according to claim **5** in further combination with electrical means for controlling the operation of said feed roll and including a circuit having a switch which is normally open and which when closed conditions said electrical means for feed roll operation and having an actuator which is in the path of paper in the feed magazine and is displaced thereby in a direction to close the switch only when paper is present in the feed magazine.

9. A device according to claim **5** in further combination with means for electrically controlling the operation of

the feed roll and comprising a holding circuit including a normally closed switch, said switch having an operating lever in the path of a sheet traversing said second sheet guiding means from the feed roll to the receiving magazine for opening said switch and thereby opening said holding circuit.

10. A device according to claim **9** in which said lever is biased to reclose said last mentioned switch as the leading end of the sheet which actuated the switch disengages the lever as soon as the sheet has advanced sufficiently to locate said sheet on the platen in a position to receive typing.

References Cited

UNITED STATES PATENTS

2,366,206	1/1945	Metzner	197—130
2,584,817	2/1952	Sill	197—114
2,951,572	9/1960	Neidhardt et al.	197—17
3,001,625	9/1961	Cetran et al.	197—17
3,181,680	5/1965	Cappotto et al.	197—17

339,497	4/1886	Thomas	197—143
689,423	12/1901	Schmitt	197—130
881,126	3/1908	Hutches	197—130
941,889	11/1909	Mansfield	197—130
1,003,087	9/1911	Brady.	
1,104,504	7/1914	Holliday	197—130
1,182,052	5/1916	Stocking et al.	197—130
1,203,657	11/1916	Sheckler	197—130
1,659,225	2/1928	Waldheim	197—186
1,718,467	6/1929	Labarre	197—130
2,237,874	4/1941	Braun.	
2,914,160	11/1959	Pohl et al.	197—114

ROBERT E. PULFREY, *Primary Examiner.*

E. T. WRIGHT, JR., *Assistant Examiner.*

U.S. Cl. X.R.

197—114