Jan. 26, 1960 T. R. PERZENTKA 2,922,644

SHEET SEPARATING MECHANISM FOR DUPLICATORS

Filed April 25, 1957 4 Sheets-Sheet 1

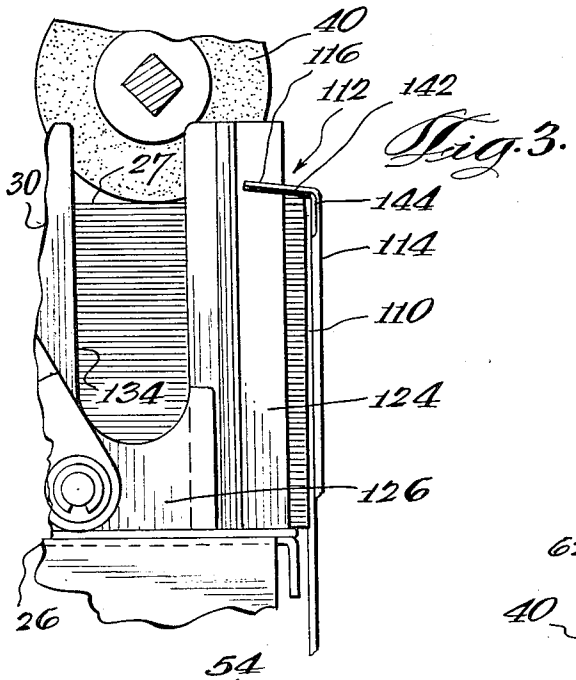


Fig. 3.

Fig. 1.

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SHEET SEPARATING MECHANISM FOR DUPLICATORS

Filed April 25, 1957 4 Sheets-Sheet 2

Fig. 2.

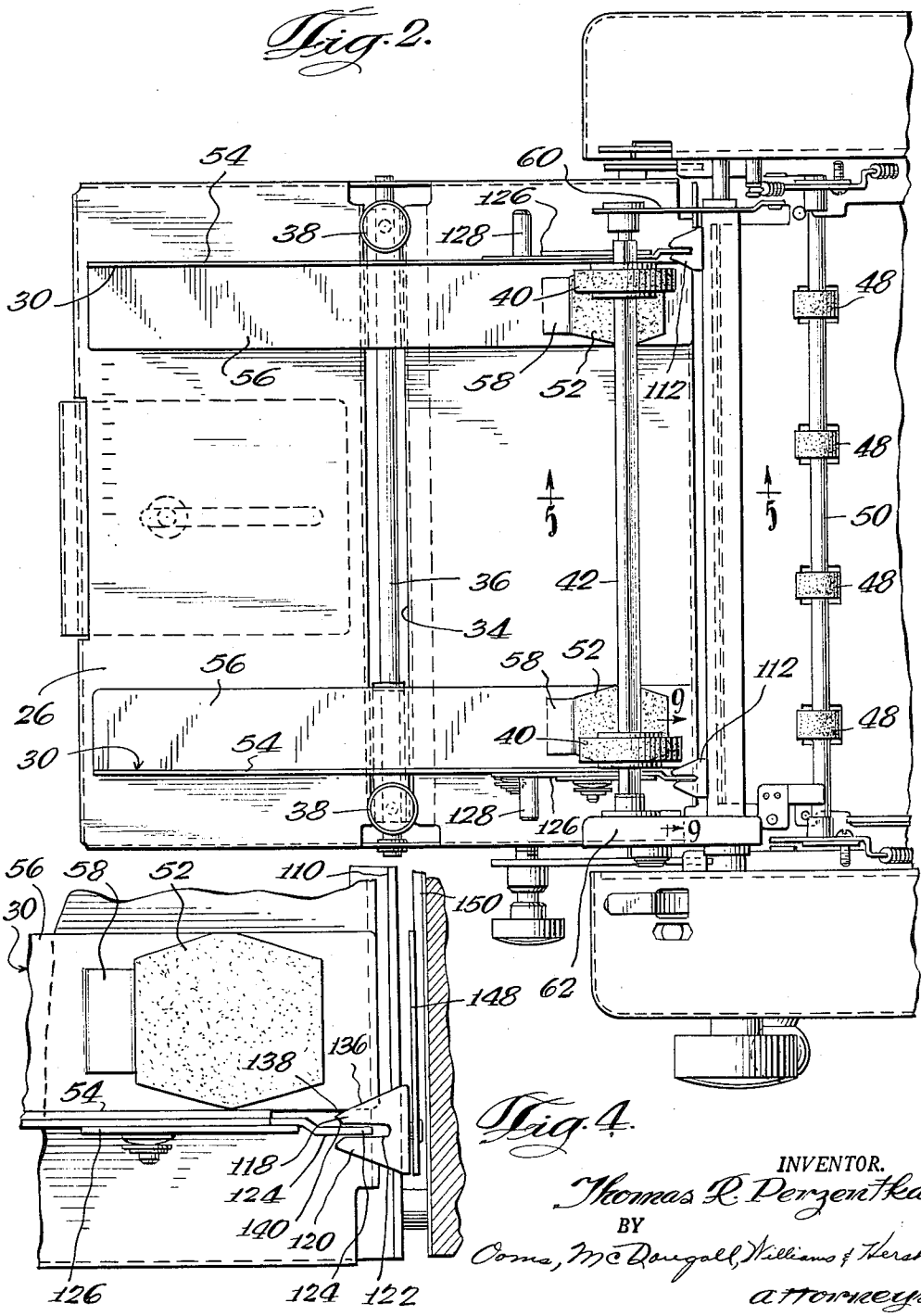


Fig. 4.

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SHEET SEPARATING MECHANISM FOR DUPLICATORS

Filed April 25, 1957 4 Sheets-Sheet 3

Fig. 5.

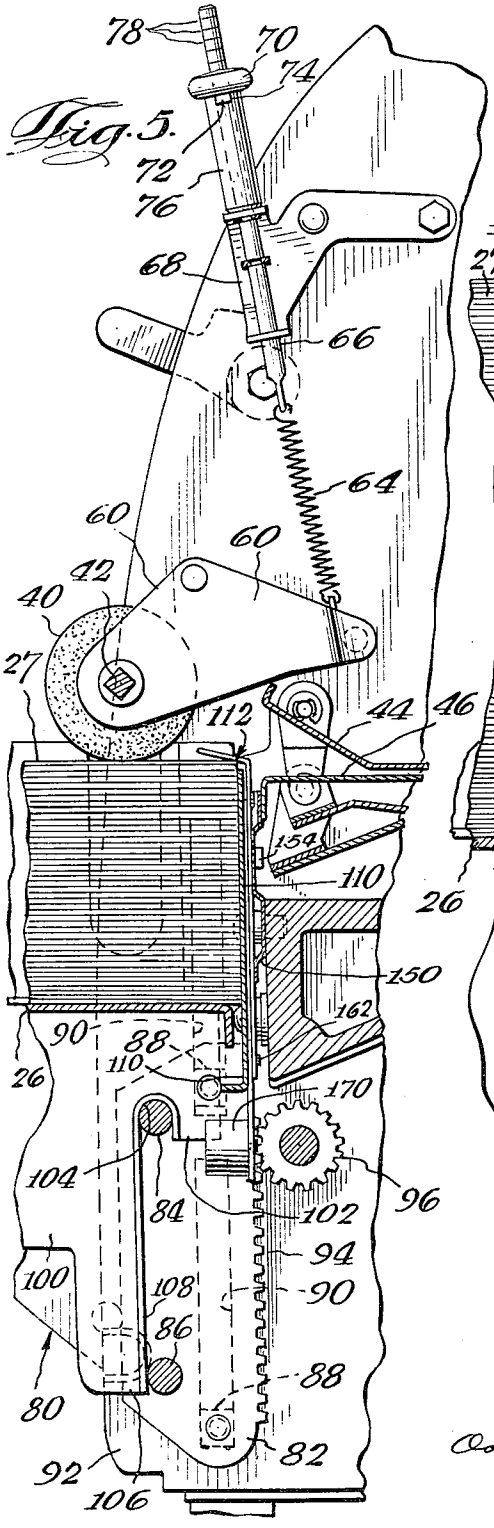
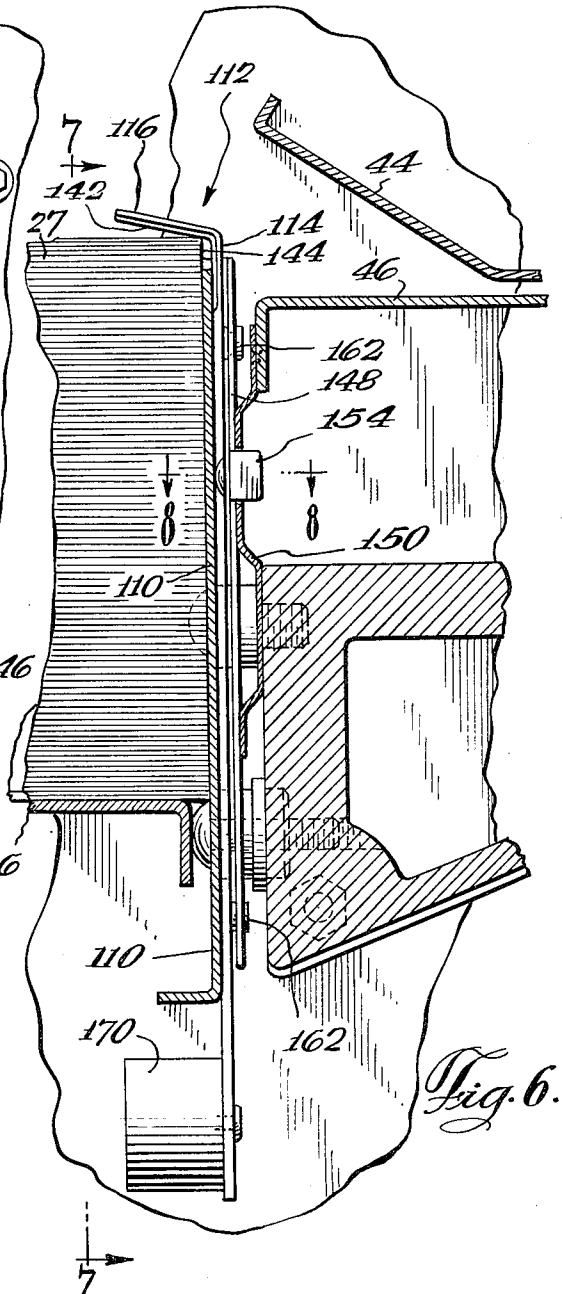


Fig. 6.



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SHEET SEPARATING MECHANISM FOR DUPLICATORS

Filed April 25, 1957 4 Sheets-Sheet 4

Fig. 7.

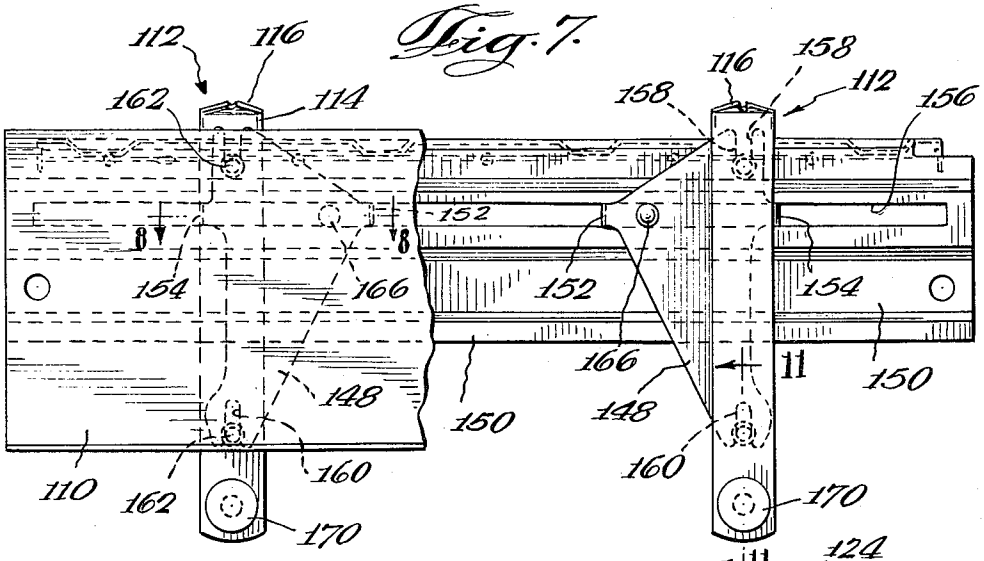


Fig. 8.

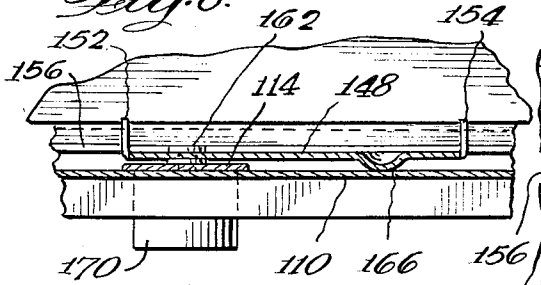


Fig. 9.

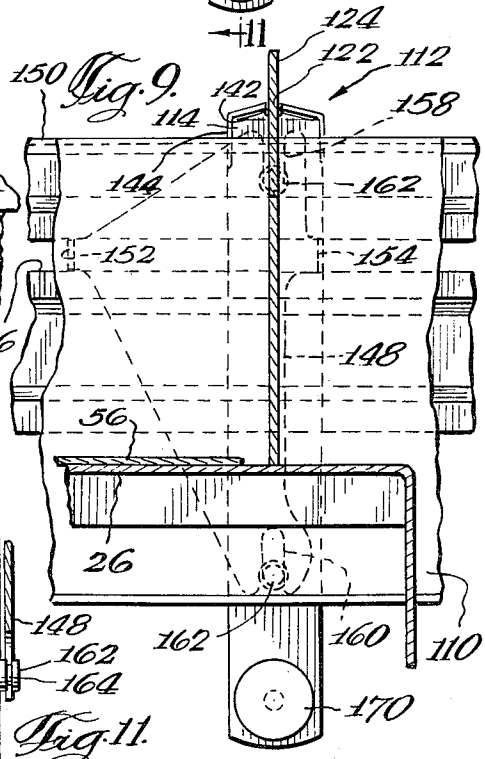


Fig. 10.

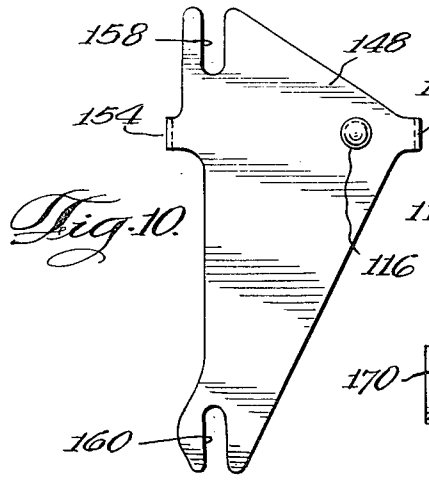


Fig. 11.

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Patented Jan. 26, 1960

2,922,644

SHEET SEPARATING MECHANISM FOR DUPLICATORS

Thomas R. Perzentka, Niles, Ill., assignor to A. B. Dick Company, a corporation of Illinois

Application April 25, 1957, Serial No. 655,037

8 Claims. (Cl. 271—39)

This invention relates to duplicators or other printing machines, and pertains particularly to sheet separating and feeding mechanisms for such duplicators.

One object of the present invention is to provide a new and improved mechanism that will separate single sheets of paper from the top of a pack, even down to the last sheet in the pack.

A further object is to provide a new and improved sheet separating mechanism that may readily be adjusted for utilizing paper sheets of various sizes, and which is not critical in adjustment.

It is another object to provide a new and improved sheet separating and feeding mechanism that is particularly well adapted for use in connection with a mechanism that raises or advances the pack of sheets so as to maintain the top of the pack at a substantially constant level.

A further object is to provide a sheet separating mechanism that will separate individual sheets in a positive manner, despite variations in the weight of the sheets, and despite slight dimensional variations from sheet to sheet.

Further objects and advantages of the present invention will appear from the following description, taken with the accompanying drawings, in which:

Fig. 1 is a fragmentary side elevational view of a duplicator equipped with a sheet separating mechanism that will be described as an illustrative embodiment of the present invention.

Fig. 2 is a plan view showing the sheet separating mechanism of Fig. 1.

Fig. 3 is a fragmentary side elevational view of the sheet separating mechanism showing particular details of corner separators embodied in the mechanism.

Fig. 4 is a fragmentary plan view showing specific details of one of the corner separators.

Fig. 5 is an elevational sectional view of the sheet separating mechanism, taken generally along a line 5—5 in Fig. 2.

Fig. 6 is an enlarged elevational sectional view, somewhat similar to Fig. 5, but showing particular details of the corner separators and the mounting arrangement therefor.

Fig. 7 is a fragmentary elevational view, taken generally as indicated by a line 7—7 in Fig. 6, with various parts broken away for clarity of illustration.

Fig. 8 is a horizontal sectional view, taken generally along a line 8—8 in Fig. 7.

Fig. 9 is a fragmentary elevational sectional view, taken generally along a line 9—9 in Fig. 2.

Fig. 10 is an elevational view showing the carrier for one of the corner separators.

Fig. 11 is a fragmentary enlarged elevational sectional view, taken generally along a line 11—11 in Fig. 7.

As already indicated, the drawings, particularly Figs. 1 and 2, illustrate a duplicator or printing machine 20, which may be of any desired type, but is illustrated as a stencil type duplicator. Thus, the illustrated duplicator 20 has a stencil carrying drum or cylinder 22 which is

engageable by an impression roller 24. Sheets are printed by feeding them one by one between the cylinder 22 and the impression roller 24.

The duplicator 20 is provided with a removable feed table 26 which is adapted to hold a thick pack 27 of sheets, the illustrated machine being a ream feed machine, adapted ot feed an entire ream of paper in one loading.

It will be seen that the feed table 26 comprises a platform 28 for supporting the pack of sheets. Left and right hand side rails 30 are mounted on the feed table for positioning and guiding the lateral sides or edges of the pack 27. The side rails 30 are slidable laterally across the feed table in order that the spacing between the side rails may be adjusted to accommodate sheets of various widths. Thus, each of the side rails 30 has depending lugs 32 which are slidably guided in a slot 34 extending across the feed table 26. The lugs 32 are slidable on a guide rod 36 mounted on the feed table below the platform 28. Each of the side rails 30 may be clamped in adjusted position by means of a thumb screw 38 which is mounted on the rail and is adapted to be screwed down against the rod 36.

Various reciprocating or rotating members may be employed for advancing the topmost sheet from the feed table 26 and feeding the sheet forwardly so that it will be carried between the stencil cylinder 22 and the impression roller 24. In this case, the duplicator 20 is equipped with two laterally spaced frictional feed rollers 40, of rubber or the like, which are mounted on and adapted to be driven by a shaft 42 of non-circular cross section, illustrated as being square. By means of a known type of mechanism, not shown, the shaft 42, and hence the rollers 40, are rotated in an oscillatory manner, first counterclockwise and then clockwise in timed relation to the rotation of the printing cylinder 22. During the counterclockwise movement of the rollers 40, the rollers engage the top of the paper stack so as to advance the topmost sheet toward the cylinder 22. The sheet is fed between upper and lower guide plates 44 and 46 (Fig. 6) and is taken up by upper and lower forwarding rollers, which advance the sheet between the cylinder 22 and the impression roller 24. The forwarding rollers may be of a known type, and only the upper roller 48 is shown, this roller actually comprising a series of narrow rollers mounted on a shaft 50.

The feed rollers 40 may be made of rubber or other soft friction material. The rollers 40 are slidable along the non-circular drive shaft 42 so that the positions of the rollers may be adjusted for use in feeding sheets of various widths. Ordinarily, the rollers 40 are positioned just within the side rails 30, as illustrated in Fig. 2. In this way, the rollers 40 engage the sheets along their margins, beyond the area where they are normally printed. Thus, the slight amount of lint stirred up by the action of the rollers 40 is not transferred to the printing area of the stencil carried by the cylinder 22.

In order to hold the bottom of the paper stack against forward sliding movement, each of the side rails 30 is provided with a friction pad or sheet 52, of rubber or the like, positioned near the forward end of the feed table 26, beneath the positions normally occupied by the feed rollers 40. In this regard, it should be noted that each side rail 30 comprises an upstanding flange or wall 54, adapted to position and guide the edge of the pack, and a horizontal flange 56 which is supported on the feed table platform 28. The friction pads 52 are mounted on the horizontal flanges 56 of the side rails 30. In order to prevent the front edges of the bottom sheets from catching or snagging on the rear edges of the friction pads 52, each rail 30 is formed with a ramp 58 which slopes upwardly from the top surface of the horizontal

flange 56 and merges smoothly with the top surface of the friction pad 52.

It may be noted that the shaft 42, and hence the rollers 40, are mounted for upward and downward swinging movement on left and righthand arms 60 and 62. In this way, the rollers 40 can be lifted off the paper stack, in a known manner, when the rollers are being returned in a clockwise direction. Actually, the exact manner in which the feed rollers 40 are operated is of no particular concern to the present invention. Various operative arrangements for rollers of this type are known.

However, it is a matter of some importance that provision is made for adjusting the pressure exerted by the feed rollers 40 on the top of the paper stack 27. This may be done in various ways, but in the arrangement shown particularly in Fig. 5, a coil spring 64 is connected between the feed roller arm 60 and an anchor in the form of a rod 66 which is non-rotatably slidable in a bracket 68. A nut 70 is threaded onto the upper end of the rod 66 and is adapted to be rotated manually so as to change the position of the rod 66 and thereby adjust the tension on the spring 64. The adjustment of the nut 70 is maintained by a key 72 thereon, engageable with a slot or groove 74 formed in the end of a sleeve 76 extending upwardly from the bracket 68. Index marks 78 may be provided on the upper end of the rod 66 so that the nut 70 may be reset accurately to any desired position.

In this case, the pull of the spring 64 tends to swing the rollers 40 against the top of the paper stack 27. Thus, the pressure exerted by the rollers 40 will be increased by stretching the spring 64. Generally, the pressure exerted by the rollers is great when relatively heavy paper sheets are to be fed. Conversely, the pressure of the rollers 40 is made small when lightweight sheets are to be fed.

The duplicator 20 may be arranged to raise the feed table 26 automatically, as the stack 27 is depleted, so as to maintain the top of the stack at a substantially constant level. The stack raising mechanism may be of a known type and need not be illustrated or described in any detail. Inasmuch as the rollers 40 move downwardly against the stack during each feeding cycle, the rollers may be employed as feelers to sense the height of the stack and operate the table raising mechanism when the stack has been depleted below a certain level.

In order to provide for the raising and lowering of the stack 27, the feed table 26 is adapted to be mounted on a vertically movable carriage 80 on the duplicator 20. In general, the illustrated carriage 80 comprises a pair of side plates 82 with upper and lower rods 84 and 86 extending therebetween. Upper and lower slide blocks 88 are mounted on each of the plates 82 and are slidable in upper and lower vertical slots 90 formed in frame plates 92 on the duplicator 20. A vertical rack 94 is formed along one edge of each plate 82 and is engaged by a pinion or gear 96 adapted to be rotated by the table raising mechanism. Thus, as the stack is depleted the table raising mechanism rotates the gears 96 clockwise, at intervals, so as to raise the carriage 80.

The feed table 26 may be mounted on the carriage 80 in various ways, but in the illustrated arrangement, the feed table 26 has side plates 100 formed with front portions 102 which hook over the upper rod 84. Thus, a downwardly open slot 104 is defined by each of the hook portions 102 and is adapted to be received over the rod 84. A depending leg 106 is formed on each side plate 100 and is adapted to abut against the lower rod 86 on the carriage 80. Specifically, the leg 106 has a front edge 108 which is aligned with the rear edge of the slot 104 and is adapted to engage the rod 106. The feed table 26 may be removed simply by lifting the table so as to disengage the hooks 102 from the upper rod 104.

When the feed table 26 is mounted on the duplicator 20, the front of the paper stack 27 is adapted to be positioned by a vertical front stop plate 110 which, in this instance, is mounted on the duplicator 20, immediately in front of the feed table 26. In loading the feed table 26, the table is lowered as far as possible, and the paper stack 27 is positioned with its front edge engaging the stop plate 110.

Provision is made for separating the topmost sheet from the paper stack 27 by the frictional feeding action of the feed rollers 40, while securely retaining the underlying sheets against feeding movement. This is accomplished by means of left and righthand corner separators 112 which rest upon the extreme front corners of the topmost sheet in the pack 27 and extend downwardly in front of the front corners of the stack. The feeding action of the rollers 40 buckles the topmost sheet at the corners, so that the corners will snap over the separators 112. In this way, the topmost sheet is separated for feeding movement toward the cylinder 22. The friction between the first and second sheets in the pack is insufficient to buckle the second sheet around the corner separators 112, with the result that the second sheet, as well as the underlying sheets, is positively retained on the paper stack 27.

As shown to best advantage in Figs. 7 and 9, each corner separator 112 comprises a bar 114 which extends vertically and is adapted to be positioned with one lateral edge portion immediately in front of the front corner of the paper stack 27. Thus, the topmost sheet cannot be advanced without buckling the corners of the sheet around the bar or front stop portion 114 of the corner separator 112. At the top of the bar 114, each corner separator 112 has a lip or flange 116 which extends rearwardly and is adapted to rest on the extreme corner of the topmost sheet in the stack 27. The lip 116 is generally horizontal, or perpendicular to the vertical bar 114, but actually slopes upwardly in a rearward direction at a small angle. In the illustrated construction, the upward slope to the lip 116 is about 7½ degrees. In other words, the angle between the lip 116 and the bar 114 is about 97½ degrees.

It will be seen from Fig. 4 that the lip 116 on each separator 112 is generally triangular in shape and is formed with a working inner portion 118 which actually engages the stack 27, and a similar nonworking outer portion 120, which is made similar in construction to the inner portion 118, for convenience in manufacturing the left and righthand separators 112 from the same parts. A central slot 122 is formed in the lip 116, between the inner and outer portions 118 and 120, for receiving a vertical guide plate 124, mounted on the front of one of the side rails 30. In this way, proper alignment between each side rail 30 and the corresponding separator 112 is assured. In order to facilitate removal of the feed table 26 from the duplicator 20, each of the guide plates 124 is retractably mounted on the corresponding side rail 30. Thus, as shown to best advantage in Figs. 1 and 3, the guide plate 124 has its lower end connected to an arm 126 which is swingably mounted on the upright flange 54 of the side rail 30. A laterally projecting handle 128 is mounted on the arm 126 so that the arm may readily be swung rearwardly and forwardly to retract and advance the guide plate 124, into and out of the slot or notch 122 in the corresponding corner separator 112. The range of movement of the arm 126 is limited by a stud 130 which extends through an arcuate slot 132 in the arm. It may be noted that the guide plate 124, the arm 126, and the upright flange 54 define a vertical notch or slot 134, at the front of each side rail 30 adapted to afford passage for the feed roller shaft 42, as the feed table 26 is raised.

From Fig. 4, it will be seen that the working portion 118 of the lip 116 on each corner separator 112 is generally triangular in shape. Thus, the working portion 118 has a diagonal edge 136 which extends rearwardly and outwardly from the inner edge of the front stop portion or bar 114. When the paper stack 27 is in place on the

feed table 26, the edge 136 extends diagonally across the extreme front corner of the topmost sheet. The working portion 136 has a rearwardly directed point 138 which extends outwardly beyond the face of the upright flange 54 on the side rail 30, and thus is beyond the outer edge of thte stack. Between the diagonal edge 136 and the slot 122, the point 138 has a short diagonal edge 140 which extends forwardly and outwardly, so as to assist the entry of the guide plate 124 into the slot 122. In the illustrated construction, the diagonal edge 136 extends at a small angle to the face of the side rail flange 54, the illustrated angle being about 25 degrees.

Certain additional details of the corner separators 112 are worthy of note. Thus, as sharp a corner as possible is formed between the lip 116 and the bar 114. Moreover, the diagonal edge 136 is formed with a rounded and polished lower corner 142, in order to facilitate the buckling of the topmost sheet around the corner separator 112. At the inner edge of the front stop or bar portion 114, there is also a rounded and polished front corner 144, which merges with the rounded corner 142.

The corner separators 112 are mounted so that they are freely slidable in a vertical direction, and are adjustable horizontally along with the side rails 30, for use with sheets of various widths. The lips 116 of the separators are supported by the front corners of the stack 27, with the result that the corner separators 112 follow the top of the stack downwardly as it is depleted.

In the illustrated arrangement, each corner separator 112 is vertically slidable on a carrier 148, which is horizontally slidable along a supporting plate 150. As the stack is depleted, the separators 112 descend vertically along carriers 148. When the side rails 30 are adjusted, the corner separators 112 are carried along laterally, with the carriers 148 sliding horizontally along the guide plate 150. As already noted, the corner separators 112 follow any lateral adjustment of the side rails 30, by virtue of thte engagement between the guide plates 124 and the slots 122 in the corner separators.

As shown in Fig. 6, the guide plate 150 is positioned to the rear of the stop plate 110, with the corner separator bars 114 and the carriers 148 slidably received there between. Each of the illustrated carriers 148 is in the form of a plate having horizontally spaced, rearwardly directed ears or lugs 152 and 154 which are slidably received in a horirzontal slot 156 formed in the guide plate 150. The same horizontal slot 156 is employed to receive the lugs 152 and 154 on each of the carriers 148.

The corner separators 112 are guided for vertical movement by means of upper and lower vertical slots 158 and 160 formed in the carriers 148. As shown to best advantage in Figs. 7 and 11, each of the separators 112 is fitted with a pair of vertically spaced, rearwardly projecting studs 162 which have annular grooves 164 for reception in the slots 158 and 160 to retain the separators 112 on the carriers 148. The range of vertical movement of thte separators 112 may be fairly small, because the table raising mechanism permits only a slight variation of the level of the stack as the stack is depleted. A forwardly projecting boss 166 is formed on each carrier to prevent the carrier from rocking excessively in the space between the plates 110 and 150.

It will be apparent that the corner separators 112 descend by gravity as the stack is depleted, so that the lips 116 will remain in engagement with the top of the stack. To insure that the separators will move downwardly, the action of gravity may be enhanced by providing a weight 170 on the lower end of each separator.

In the operation of the duplicator 20, the feed table 26 is lowered as far as possible when a new pack of paper is to be loaded on the feed table. With the lowering of the table, the corner separators 112 descend until the upper stud 162 on each separator engages the bottom of the upper slot 158 on the corresponding carrier. The paper stack 27 is placed on the feed table platform 28 and is slid forwardly under the lips 116 of the separators and against the front stop plate 110. If necessary, the side rails 30 are adjusted laterally so that the upright rail flanges 54 will abut lightly against the sides of the paper stack. As either of the rails 30 is moved laterally, the corresponding corner separator 112 is carried along automatically, by virtue of the engagement between the guide plate 124 and the slot 122 in the lip 116 of the separator. The lateral movement of the separator 112 moves the corresponding carrier 148 along the slot 156 in the plate 150.

The feed table 26 is then raised sufficiently to bring the top of the stack 27 against the under sides of the separator lips 116, and to raise the separators to their normal positions with the separators supported by the top of the stack. The inner edges of the vertical front stop portions 114 of the separators 112 will then be positioned in front of the front corners of the stack, and the triangular working portions 118 of the lips 116 will extend across the extreme front corners of the topmost sheet.

Thus, the corner separators 112 will obstruct the forward passage of the topmost sheet from the paper stack 27. However, as the topmost sheet is pushed forwardly by the frictional feed rollers 40, the corners of the sheets will buckle rearwardly and upwardly until the corners snap over the lips 116. The topmost sheet is thereby separated from the stack and is released for feeding movement toward the cylinder 22. The friction between the first or topmost sheet and the second sheet is insufficient to buckle the corners of the second sheet, with the result that the second sheet remains on the stack until the first sheet has been fed.

The ease with which the topmost sheet will buckle at the corners and pass around the corner separators 112 depends upon the thickness or weight and type of paper being fed. Thus, lightweight paper will buckle at the corners more readily than heavy paper. Accordingly, less feed roller pressure is necessary and desirable with light paper than with heavy paper. The roller pressure may be adjusted to suit the type of paper by rotating the nut 70 and thus changing the tension on the spring 64. The roller pressure will be increased by increasing the tension on the spring, and will be decreased by reducing the spring tension.

As successive sheets are fed, the top of the stack will will drop in level. However, the corner separators 112 will drop under their own weight so that the lips 116 will remain in engagement with the top front corners of the stack. Due to the table raising mechanism, the stack will be raised whenever the top of the stack drops below a predetermined level. Thus, there will be only slight variations of the level of the top of the stack, but the corner separators 112 will follow any such variations and will remain against the top of the stack.

With the present sheet separating mechanism, the entire stack of sheets may be fed, down to the very last sheet, without the feeding of two or more sheets simultaneously. This is a distinct advantage over many prior mechanisms, which usually require that the feeding be stopped with several sheets remaining on the feed table, in order to avoid multiple feeding of the sheets. With the stack nearly depleted, the friction pads 52 on the horizontal side rail flanges 56 are of considerable assistance in retaining the bottom sheets on the feed table 26.

When the feed table 26 is to be removed from the duplicator 20, the side rails 30 are disconnected from the corner separators 112 by swinging the arms 126 rearwardly and thereby retracting the guide plates 124 from the slots 122 in the separator lips 116. The feed table 26 may then be lifted off the feed table carriage 80 and moved outwardly away from the duplicator 20. The feed table may be replaced by a reversal of these operations. The separators 112 are reconnected to the side rails 30 by aligning the separators 112 with the guide plates 124

and swinging the plates 124 into the slots 122 in the separators.

The adjustment of the side rails 30 to suit various sheet widths is easily made and is not critical, inasmuch as the separating action does not depend upon the friction between the upright rail flanges 54 and the pack. As long as the lips 116 of the separators rest on the extreme front corners of the stack, the topmost sheet will be separated efficiently from the stack, by the feeding action of the feed rollers 40.

The upward and rearward slope of the lips 116 improves the efficiency of the separating action by making it easier for the topmost sheet to buckle around the separators. The rounded and polished corners 142 and 144 on the under sides of the lips and on the inner edges of the vertical stop bars 114 also facilitate the separating action and prevent any slight damage to the sheets at their front corners.

Various modifications, alternative constructions and equivalents may be employed without departing from the true spirit and scope of the invention, as exemplified in the foregoing description and defined in the following claims.

I claim:

1. In a sheet feeding mechanism, the combination comprising a feed table for holding a stack of sheets, a generally vertical front plate at the front end of said feed table for engagement by the front of the stack, a pair of spaced side rails movable laterally on said feed table for engaging the sides of the stack, said rails having inwardly extending horizontal flanges with friction pads thereon adjacent the front ends thereof for engaging the underside of the stack, movable feeding means for engaging the top of the stack and propelling the topmost sheet forwardly, a pair of corner separators for engaging the front corners of the stack, each of said corner separators having a generally vertical bar extending inwardly of the corresponding side rail and in a position to extend in front of one front corner of the stack, each of said separators having a lip extending rearwardly from the upper end of said vertical bar and sloping upwardly at a small angle, said lip having a diagonal edge extending rearwardly and outwardly for extending across one extreme front corner of the topmost sheet in the stack, a pair of carriers mounted for horizontal sliding movement behind and parallel to said front stop plate, means mounting said corner separators for free vertical sliding movement on the respective carriers, said separators being biased downwardly by their own weight so as to rest against the top front corners of the stack, said lip on each of said separators having a rearwardly opening slot therein, and a generally vertical guide plate swingably mounted on each of said side rails for movement into and out of said slot in the corresponding separator for disengageably connecting said separator to said side rail so that said separator will be carried along laterally during the adjustment of said side rail.

2. In a sheet feeding mechanism, the combination comprising a feed table for holding a stack of sheets, a pair of side rails mounted on said feed table for lateral adjustment to engage the sides of the stack, a pair of corner separators for engaging the front corners of the stack, each of said separators comprising a generally vertical bar projecting inwardly beyond the plane of one side rail and in a position to extend in front of one corner of the stack, each of said corner separators having a lip projecting rearwardly from the upper end of said bar for resting upon the one front corner of the topmost sheet in the stack, a pair of carriers, means mounting each of said corner separators on one of said carriers for vertical sliding movement relative thereto, means mounting said carriers for lateral sliding movement, each of said lips having a rearwardly open slot therein, and a guide element on each of said side rails receivable in the slot in the corresponding separator for maintaining alignment between said rail and said separator and for carrying said separator laterally with any adjustment of said rail.

3. In a sheet feeding mechanism, the combination comprising a feed table for supporting a stack of sheets, a pair of side rails on said table for engaging and positioning the sides of the stack, a pair of corner separators for engaging the front corners of the stack adjacent the front ends of said rails, means mounting each of said separators for free vertical sliding movement, each of said separators comprising a vertical bar having one edge portion extending inwardly beyond the plane of one side rail, each of said corner separators having a lip extending rearwardly from the upper end of said bar and sloping upwardly at a small angle, said lip having a diagonal inner edge extending rearwardly and outwardly for extending across one front corner of the topmost sheet in the stack, said inner portion of said bar having a rounded and polished rear corner and said diagonal inner edge of said lip having a rounded and polished lower corner to facilitate buckling of the topmost sheet around said separator.

4. In a sheet feeding mechanism, the combination comprising a feed table for supporting a stack of sheets, a pair of laterally adjustable side rails mounted on said feed table for engaging the sides of the stack, a pair of corner separators for engaging the front corners of the stack, each of said corner separators comprising a generally vertical member with a lip projecting rearwardly from its upper end for resting upon one front corner of the topmost sheet in the stack, said vertical members being disposed adjacent the front of said feed table and inwardly of but adjacent the planes of said side rails, mans supporting each of said corner separators for free vertical and horizontal sliding movement while maintaining said separator in an upright position, and means slidably interconnecting each of said lips with one of said side rails for maintaining alignment therebetween and carrying said separator laterally with any lateral adjustments of said side rail.

5. In a sheet feeding mechanism, the combination comprising a feed table for holding a stack of sheets, a pair of side rails mounted on said feed table for lateral adjustment to engage the sides of the stack, a pair of corner separators for engaging the front corners of the stack, each of said separators comprising a generally vertical bar disposed inwardly of the plane of one side rail and in a position to extend in front of one front corner of the stack, each of said corner separators having a lip projecting rearwardly from the upper end of said bar for resting upon the one front corner of the topmost sheet in the stack, a pair of carriers, means mounting each of said corner separators on one of said carriers for vertical sliding movement relative thereto, means mounting said carriers for lateral sliding movement, each of said lips having rearwardly disposed guide means thereon, and guide means on each of said side rails and engageable with said guide means on the corresponding separator for maintaining alignment between said rail and said separator and for carrying said separator laterally with any adjustment of said rail.

6. In a sheet feeding mechanism, the combination comprising a feed table for supporting a stack of sheets, a pair of side rails on said table for engaging and positioning the sides of the stack, a pair of corner separators for engaging the front corners of the stack adjacent the front ends of said rails, means mounting each of said separators for free vertical sliding movement, each of said separators comprising a vertical bar having one edge portion disposed inwardly of the plane of one side rail, each of said corner separators having a lip extending rearwardly from the upper end of said bar for resting upon one front corner of the topmost sheet in the stack, frictional feed means for engaging

the top of the stack and propelling the topmost sheet forwardly, and upwardly facing friction pad means on said feed table for engaging the underside of the stack generally beneath the position of said frictional feed means.

7. In a sheet feeding mechanism, the combination comprising a feed table for holding a stack of sheets, a generally vertical front plate at the front end of said feed table for engagement by the front of the stack, a pair of spaced side rails movable laterally on said feed table for engaging the sides of the stack, said rails having inwardly extending horizontal flanges with friction pads thereon adjacent the front ends thereof for engaging the under side of the stack, a pair of frictional feed rollers engageable with the top of the stack adjacent said rails and over said friction pads for propelling the topmost sheet forwardly, a pair of corner separators for engaging the front corners of the stack, each of said corner separators having a generally vertical bar extending inwardly of the corresponding side rail and in a position to extend in front of one front corner of the stack, each of said separators having a lip extending rearwardly for resting upon one extreme front corner of the topmost sheet in the stack, a pair of carriers mounted for horizontal sliding movement behind and parallel to said front stop plate, means mounting said corner separators for free vertical sliding movement on the respective carriers, said separators being biased downwardly by their own weight for resting against the top front corners of the stacks, said lip on each of said separators having a rearwardly opening slot thereon, and a generally vertical guide plate swingably mounted on each of said side rails for movement into and out of said slot in the corresponding separator for disengageably connecting said separator to said side rail so that said separator will be carried along laterally during the adjustment of said side rail.

8. In a sheet feeding mechanism, the combination comprising a feed table for holding a stack of sheets, a generally vertical front plate at the front end of said feed

table for engagement by the front of the stack, a pair of spaced side rails movable laterally on said feed table for engaging the sides of the stack, said rails having inwardly extending horizontal flanges with friction pads thereon adjacent the front ends thereof for engaging the under side of the stack, a pair of frictional feed rollers engageable with the top of the stack adjacent said rails and over said friction pads for propelling the topmost sheet forwardly, a pair of corner separators for engaging the front corners of the stack, each of said corner separators having a generally vertical bar extending inwardly of the corresponding side rail and in a position to extend in front of one front corner of the stack, each of said separators having a lip extending rearwardly and for resting upon one extreme front corner of the topmost sheet in the stack, a pair of carriers mounted for horizontal sliding movement behind and parallel to said front stop plate, means mounting said corner separators for free vertical sliding movement on the respective carriers, said separators being biased downwardly by their own weight for resting against the top front corners of the stack, said lip on each of said separators having rearwardly disposed guide means thereon, and generally vertical guide means retractably mounted on each of said side rails for movement into and out of engagement with said guide means on the corresponding separator for disengageably connecting said separator to said side rail so that said separator will be carried along laterally during the adjustment of said side rail.

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CERTIFICATE OF CORRECTION

Patent No. 2,922,644 January 26, 1960

Thomas R. Perzentka

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 5, line 20, for "front corner" read -- rear corner --.

Signed and sealed this 12th day of January 1965.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents