

Nov. 10, 1959

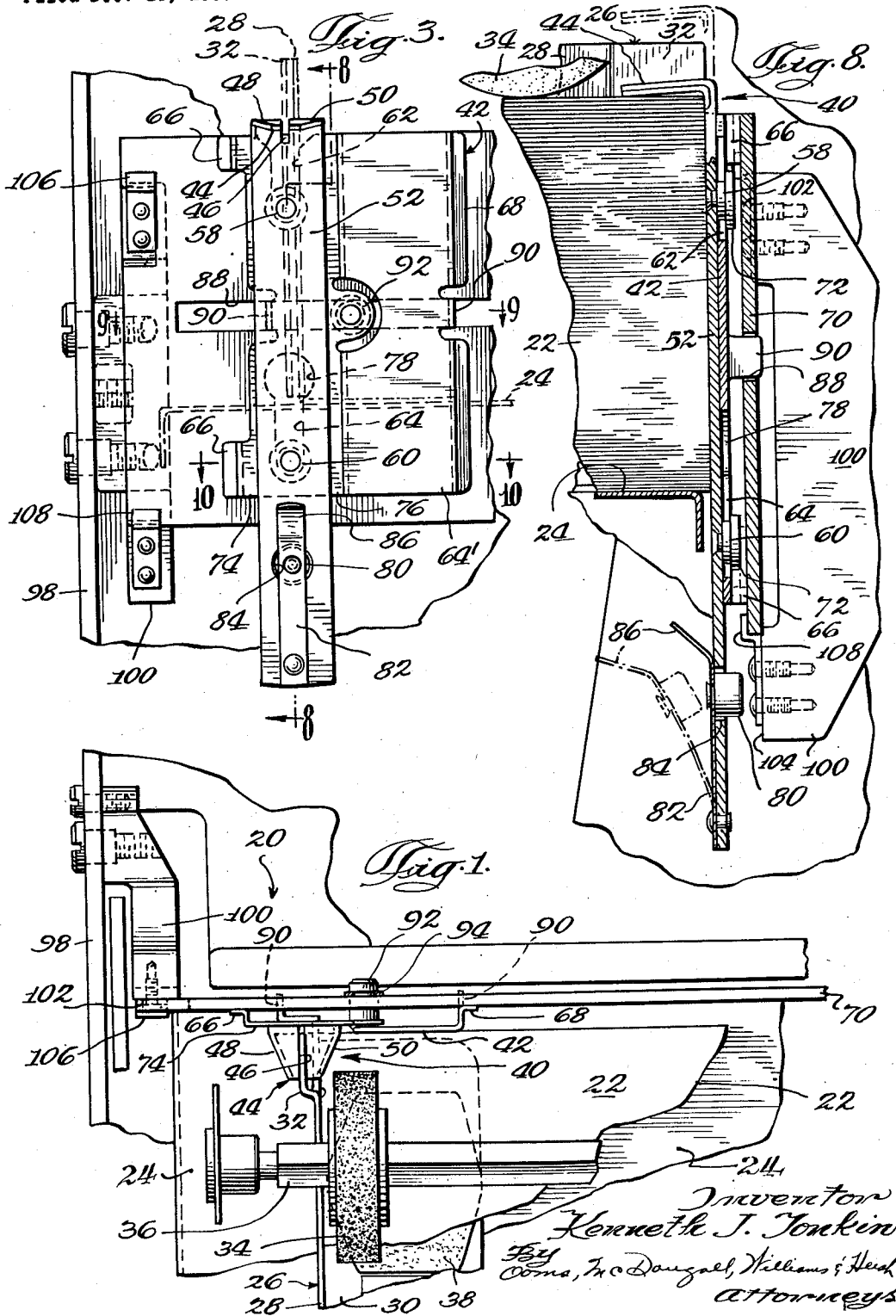
K. J. TONKIN

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CORNER SEPARATOR MECHANISM FOR DUPLICATORS

Filed Dec. 13, 1957

3 Sheets-Sheet 1



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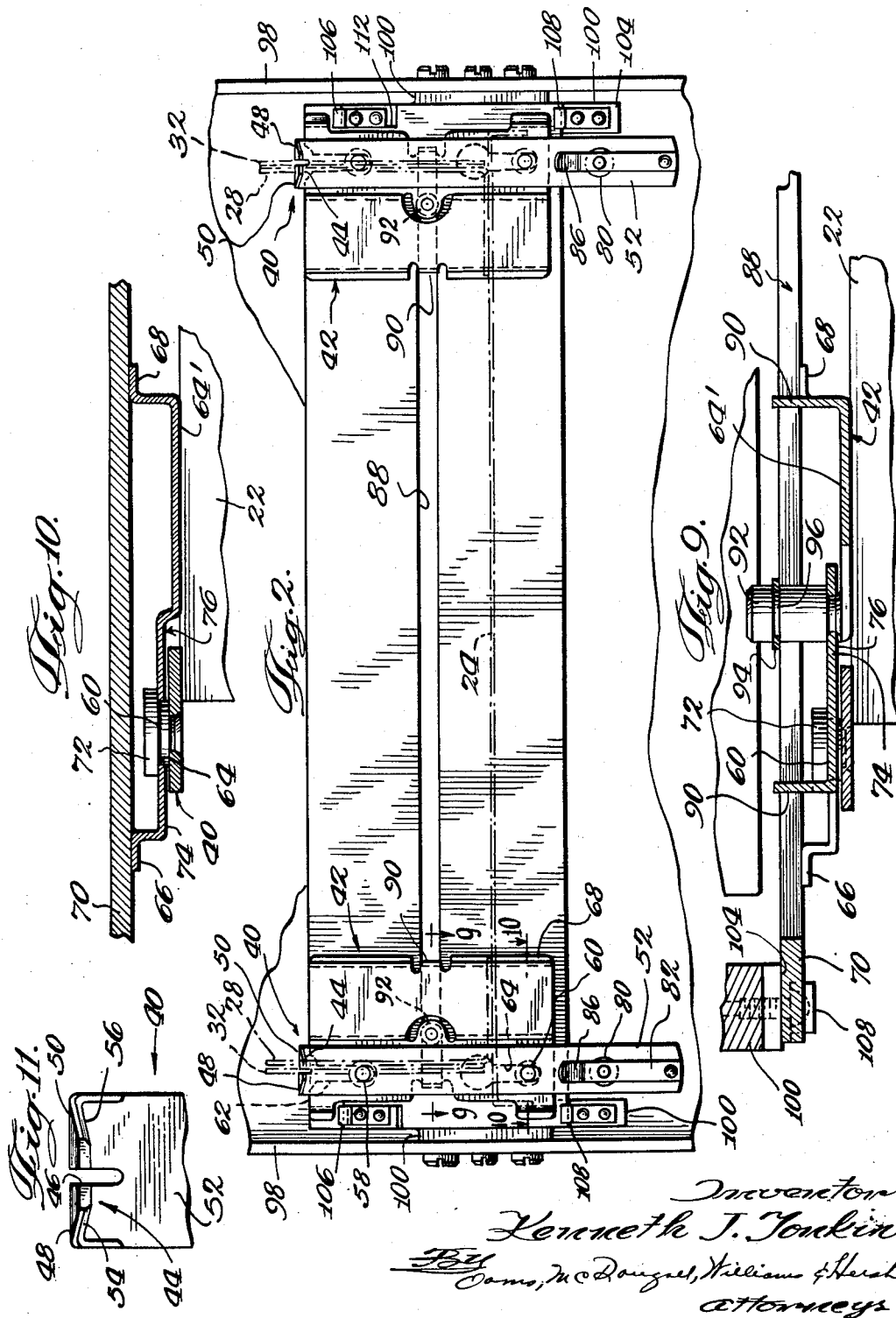
K. J. TONKIN

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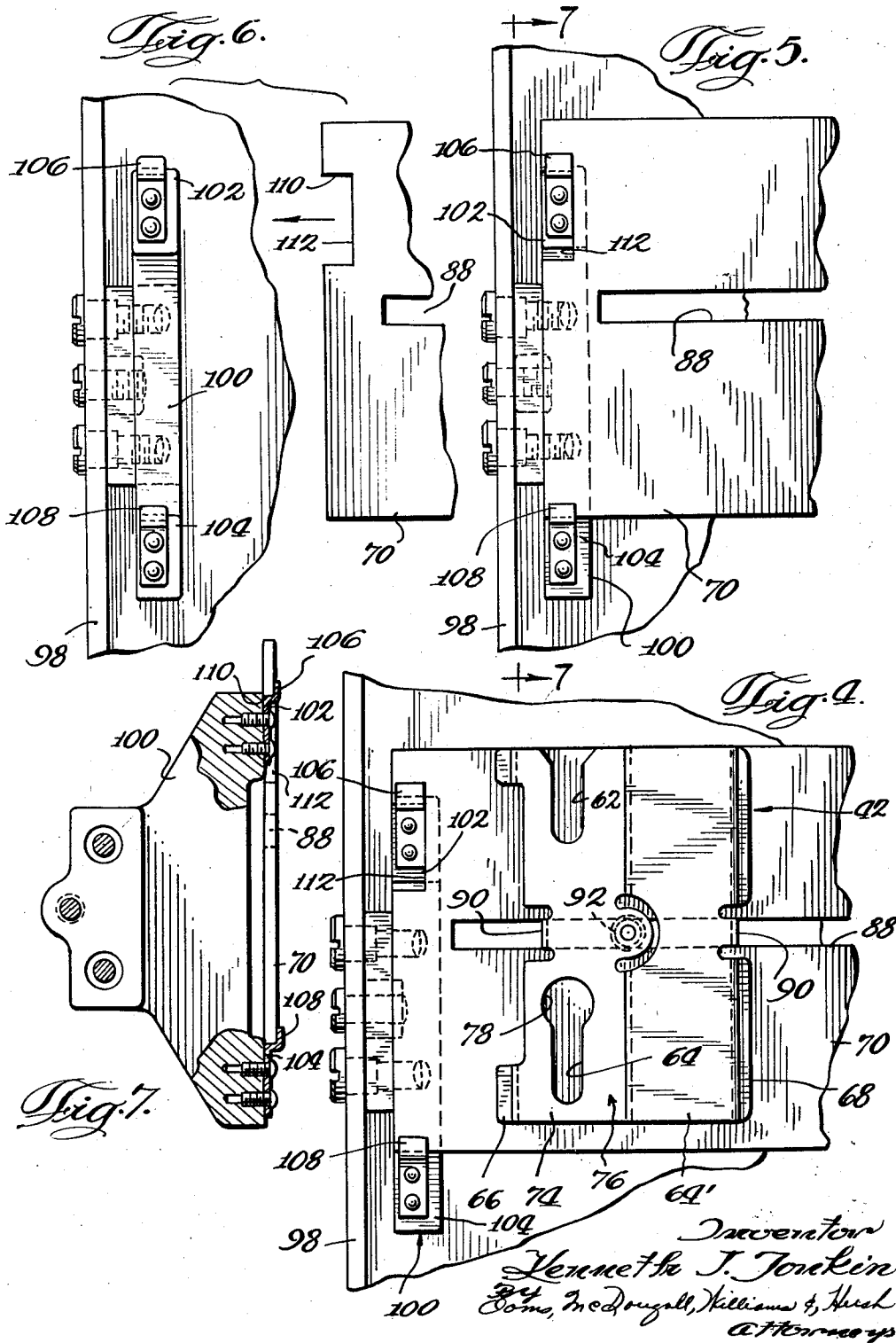
K. J. TONKIN

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3 Sheets-Sheet 3



Inventor
Kenneth J. Tonkin
By *Don, McDougall, Williams & Hush*
Attorneys

1

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CORNER SEPARATOR MECHANISM FOR DUPLICATORS

Kenneth J. Tonkin, Glenview, Ill., assignor to
A. B. Dick Company

Application December 13, 1957, Serial No. 702,617

8 Claims. (Cl. 271—22)

This invention relates to duplicators or other printing machines, and pertains particularly to means for insuring the separation of the topmost sheet from the supply stack as the sheet is fed to the machine.

One object of the present invention is to provide a new and improved corner separator mechanism, having corner separators which are arranged to prevent the front of the stack from interfering with the free vertical movement of the separators, while also preventing any possibility that the upper sheets of the stack will be caught or otherwise retarded.

A further object is to provide a new and improved corner separator mechanism having dual corner separators, with left and right hand separating edges, whereby the left and right hand separators may be interchanged to accommodate various types of copy sheets.

Another object is to provide a new and improved corner separator mechanism in which the corner separators are easy to adjust and may readily be removed from and replaced on the machine, with the left and right hand separators fully interchangeable.

Still another object is to provide such a new and improved corner separator mechanism which is versatile and reliable, yet easy to manufacture and low in cost.

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 plan view showing a corner separator mechanism to be described as an illustrative embodiment of the present invention.

Fig. 2 is a front elevational view of the corner separator mechanism, with the feed table removed.

Fig. 3 is a fragmentary enlarged elevational view, similar to the left hand portion of Fig. 2 and showing the left hand corner separator and the carrier therefor.

Fig. 4 is a view similar to Fig. 3, but with the corner separator bar removed.

Fig. 5 is an elevational view similar to Fig. 4, but with the carrier for the corner separator removed.

Fig. 6 is an exploded view, similar to Fig. 5, but showing the manner in which supporting plate for the carriers is removed.

Fig. 7 is a left hand side elevational view of the structure shown in Fig. 5, the view being partly in section along a line 7—7 in Fig. 5.

Fig. 8 is a right hand elevational sectional view, taken generally along a line 8—8 in Fig. 3.

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

Fig. 10 is a fragmentary horizontal sectional view taken generally along a line 10—10 in Fig. 2.

Fig. 11 is a fragmentary greatly enlarged front elevational view showing the upper end of one of the corner separators.

As already indicated, the drawings illustrate a corner separator mechanism 20 for use with an office type duplicator or any other type of printing machine. The purpose of the separator mechanism 20 is to insure that

2

the topmost sheet will be separated from the underlying sheets as the topmost sheet is fed from a supply stack 22.

It will be seen from Figs. 1 and 8 that the paper stack 22 is supported on a substantially horizontal feed table or platform 24. A suitable mechanism (not shown) may be provided for progressively raising the feed table 24, as the stack is depleted, so as to maintain the top of the stack at a nearly constant level. Such mechanisms are well known and need not be described.

The feed table 24 is provided with the usual left and right hand side rails 26 for engaging and positioning the side edges of the paper stack 22. Both side rails are of the same construction, so that only the left hand side rail has been illustrated in Fig. 1. It will be seen that the side rail 26 is made of sheet metal or the like and is angular in form. Thus it has vertical and horizontal flanges 28 and 30. The horizontal flange 30 is slidably adjustable along feed table 24, and is positioned under the edge portion of the paper stack 22. The vertical flange 28 projects upwardly and extends longitudinally along the feed table to engage and position the edge of the stack. As shown to best advantage in Fig. 1, the vertical flange 28 of the side rail 26 has a front portion 32 which is offset outwardly, away from the stack of copy sheets, for a purpose which will be described in detail shortly.

Various means may be provided to feed or advance the topmost sheet from the supply stack 22. In the illustrated embodiment, the topmost sheet is frictionally fed by means of left and right hand feed rollers or wheels 34, which may have surfaces made of rubber or the like to obtain a high degree of friction between the rollers and the topmost sheet. Inasmuch as the rollers are the same in construction, only the left hand roller is shown in Fig. 1. In this case, the rollers are preferably positioned adjacent the opposite side edges of the stack, near the side rail flanges 28. The feed rollers 34 are adapted to be rotated intermittently by a square or other non-circular shaft 36, on which the rollers are mounted. It is preferably to arrange the rollers 34 for sliding movement along the shaft 36 so that the lateral positions of the rollers may be changed as desired. In this way, the rollers may be adjusted to feed copy sheets of any width within the capacity of the machine. As already indicated, the side rails 26 are also adjustable on the feed table 24 to accommodate various sizes of copy sheets. Normally, the rollers 34 are adjusted to engage the edge portions of the copy sheets, adjacent the side rails 26.

As the topmost sheet is fed, the entire stack tends to move forwardly. To restrain the lower portion of the stack, it is preferred to provide friction pads 38, of a rubber compound or the like, on the horizontal side rail flanges 30, adjacent the front ends thereof. It will be seen that the friction pads 38 are opposed to the feed rollers 34, so that the pressure of the feed rollers is transmitted directly to the friction pads through the paper stack 22. The friction pads 38 are particularly helpful when only a few paper sheets remain on the feed table.

To provide stops for the front edge of the stack, the mechanism 20 utilizes left and right hand corner separators 40 mounted on carriers 42. Both separators 40 are the same, with certain elements reversed in position from left to right. In fact, the separators are freely interchangeable so as to accommodate various types of paper or card stock, as will be described in greater detail shortly. The carriers 42 are also the same, although having various components reversed from left to right.

The corner separators 40 are freely movable in a vertical direction on the carriers 42. Each corner separator 40 has its upper end bent rearwardly to form a flange or finger 44, which is adapted to rest on the topmost sheet adjacent one front corner thereof. The

3

weight of the corner separators 40 maintains the flanges 44 against the top of the stack.

As the topmost sheet is fed over the carriers 42 by the rollers 34, the front corners of the sheet engage the corner separators 40 and are caused to buckle in order that the corners may pass the separators. This buckling action insures that the topmost sheet will be separated from the underlying sheets in the stack. Thus, the sheets are individually fed, with virtually no difficulty with the sheet sticking together, even down to the last sheet in the stack.

As shown to best advantage in Figs. 1 and 3, the flange 44 on each corner separator 40 is formed with a slot 46 adapted to be received over the outwardly offset front portion 32 of the corresponding side rail 26. In this way, the flange 44 is guided for vertical movement and is maintained in a definite relation to the corresponding edge of the stack. The flange 44 may readily be disengaged from the side rail, simply by lifting the corner separator until the flange is above the side rail, as illustrated in broken lines in Fig. 8.

On the opposite sides of the slot 46, each corner separator 40 has left and right hand diagonal edges 48 and 50 which are adapted to extend diagonally across one front corner of the topmost sheet in the paper stack. The diagonal edges 48 and 50 are somewhat different in construction to accommodate different types of paper and card stock. It will be apparent from Fig. 2 that the diagonal edges 48 and 50 are reversed in position from left to right on the left and right hand separators. As shown in Figs. 1 and 2, the diagonal edges 50 are disposed inside the side rail flanges 32, and thus are in operative relation to the stack, while the diagonal edges 48 are unused. In a manner to be described shortly, the corner separators 40 may be interchanged so as to bring the diagonal edges 48 into operative relation to the stack. In either case the diagonal edges 48 or 50 extend diagonally across the front corners of the stack.

In general, the difference between the diagonal edges 48 and 50 resides in the fact that the diagonal edge 50 is farther from the slot 46 than the diagonal edge 48. Thus, the diagonal edge 50 overlaps the corner of the stack to a greater extent than the edge 48. Thus, the edges 50 tend to cause greater buckling on the corners than do the edges 48. In general, the edges 50 may be employed most advantageously for paper of ordinary weight, while the edges 48 are preferable for use with card stock and extremely heavy paper.

It has already been noted that flange or finger 44 extends rearwardly from the corner separator 40. However, it is preferred to arrange the flange 44 so that it slants downwardly toward the rear at a small angle, as shown to best advantage in Fig. 8. With this arrangement, the contact between the paper and the flange 44 is localized at the tip or outer portion of the flange.

As shown in Figs. 3 and 8, the body of each corner separator 40 takes the form of a bar 52 which extends vertically in front of one front corner of the stack. Actually, only a portion of each separator overlaps the front corner of the stack, as indicated clearly in Fig. 1. Specifically, the corner of the stack is overlapped by the edge portion of the separator which extends inwardly beyond the upright side rail flange 28. Inasmuch as the slot 46 is off center, as already noted, the separators extend in front of the stack to a greater extent when they are positioned with the diagonal edges 50 against the stack, as shown in Figs. 1 and 2, than when the separators are interchanged to bring the diagonal edges 48 against the top of the stack. This factor also contributes to the reduced buckling of the corners of the sheets when the diagonal edges 48 are in use.

To facilitate the passage of the sheets around the corner separators, the lower corners of the diagonal edges 48 and 50 are formed with bevels or chamfers 54 and 56 which extend some distance down the corners of the

4

vertical bar portion 52. The corner separators 40 are polished smooth along the bevels 54 and 56, on the under-sides of the flanges 44, on the front of the bar portions 52, and at all other points engaged by the sheets as they are fed from the stack, so as to minimize friction and prevent even slight damage to the corners of the sheets.

It has already been indicated that the corner separators 40 are freely slidable in a vertical direction on the carriers 42. In this case disengageable pin and slot connections are employed between the corner separators 40 and the carriers 42. Thus, the bar portion 52 of each corner separator is provided with upper and lower pins 58 and 60, which are adapted to slide along upper and lower slots 62 and 64 formed in the corresponding carrier 42. In general, each carrier comprises a plate portion 64' having rearwardly projecting L-shaped flanges 66 and 68 which are adapted to ride along a vertical supporting plate or wall 70, so as to space the plate portion 64' forwardly from the supporting plate 70. The pins 58 and 60 on each separator 40 have heads 72 on their rear ends to retain them in the slots 62 and 64. From Figs. 9 and 10, it will be apparent that the heads 72 are positioned in the space between the supporting plate 70 and the plate portion 64' of the carrier 42.

In order to prevent the front edge of the stack from interfering with the vertical movement of the separators 40, the carriers 42 are arranged so that the separators are recessed rearwardly. Thus, each carrier 42 has a rearwardly offset portion 74 which defines a vertical channel formation 76 to receive the corresponding separator 40. The slots 62 and 64 are actually formed by the rearwardly offset portion 74 of the carrier. With this arrangement, the front surface of each corner separator bar 52 is flush with or slightly recessed with respect to the corresponding carrier 42. This arrangement greatly reduces the friction drag on the corner separators and insures that the separators will follow the top of the stack downwardly as the stack is depleted.

To provide for removal of the corner separators 40 from the carriers 42, each carrier 42 is arranged with the upper end of the upper slot 62 open at the upper edge of the carrier. The lower slot 64 is formed at its upper end with an enlarged portion 78 through which the head 72 will pass so that the lower pin 60 may be withdrawn. Thus, the separators 40 may be removed by lifting them until they are free of the slots 62 and 64.

To prevent accidental removal of the corner separators 40, each of them is provided with a disengageable catch, which takes the form of a pin 80. As shown to best advantage in Figs. 3 and 8, each pin is mounted near the upper end of a flat leaf spring 82 which is secured near its lower end to the lower end of the separator bar 52. The pin 80 projects rearwardly through a hole 84 in the bar 52, so as to strike the lower edge of the carrier when the corner separator is moved upwardly. In this way the pin 80 prevents the corner separator from being lifted to a sufficient extent to disengage the pins 58 and 60 from the slots 62 and 64. However, each spring 82 has its upper end bent outwardly to form a tab or operating portion 86 which may be pulled forwardly to flex the spring 82 and withdraw the pin 80 from the hole 84, as shown in broken lines in Fig. 8. This releases the corner separator so that it may be disengaged from the slots 62 and 64. As already indicated, the left and right hand corner separators may be freely interchanged in order to bring either of the diagonal edges 48 or edges 50 against the corners of the stack.

As already indicated, the corner separators 40 are adjustable laterally by sliding the carriers 42 along the supporting plate 70, which extends upwardly in front of the feed table 24. The carriers 42 are guided for horizontal movement by a horizontal slot 88 formed in the plate 70. It will be seen from Fig. 2 that the slot 88 extends for nearly the full length of the plate 70. Each carrier 42

5

is provided with guide elements in the form of two rearwardly projecting tabs or fingers 90 which are slidable along the slot 88. The tabs 90 are bent rearwardly from the plate 64 adjacent the flanges 66 and 68, and thus are spaced well apart to give the carriers stability. In addition, each carrier 42 is fitted with a pin 92 which also extends through the slot 88 and is disposed between the tabs 90. The carrier 42 is retained on the plate 70 by means of a clip 94 which is received in a groove 96 formed in the pin 92.

The plate 70 is arranged so that it may readily be removed from the duplicator to expose the components of the duplicator behind the plate. Such access to the duplicator is extremely convenient when the duplicator is to be cleaned or adjusted. In the illustrated construction, the duplicator is provided with main left and right hand side frames or plates 98. The ends of the plate 70 are supported by brackets 100 mounted on the plates 98. As shown to best advantage in Fig. 7, each bracket 100 has upper and lower front faces 102 and 104 against which the rear face of the plate 70 is mounted. Upper and lower Z-shaped clips 106 and 108 are secured against the faces 102 and 104 to retain the plate 70 against movement away from the faces 104. Each clip 106 and 108 is offset forwardly from the bracket 100 and is directed upwardly to support the plate 70. The lower clip 108 is adapted to support the lower edge of the plate 70, while the upper clip 106 is adapted to engage a downwardly facing edge 110 formed by a notch 112 in the end of the plate. It will be understood that each end of the plate is thus notched and that the notches 112 permit easy removal of the plate from the clips 106 and 108. The plate 70 is removed simply by sliding it upwardly until it is free from the clips 106 and 108. This will be apparent from Figs. 5, 6 and 7. The plate 70 may be removed with the carriers 42 and the corner separators 40 still mounted on the plate.

It may be helpful to review the operation of the corner separator mechanism 20 by recalling that the paper stack 22 is placed on the feed table 24 with its side edges between the upright side wall flanges 28. The side rails 26 are adjusted on the feed table 24 so that upright flanges 28 are in light engagement with the side edges of the stack. Then, the corner separators 40 are moved laterally until the slots 46 can be engaged with the flange portions 32 of the side rails. The corner separators 40 are adjustable laterally because of the lateral movability of the carriers 42 along the supporting plate 70. The flanges 44 of the corner separators may be lifted upwardly to clear the side rails and then dropped downwardly to engage the slots 46 with the side rail flange 32. Once the corner separators 40 are engaged with the side rails 26, the corner separators will be carried along during any subsequent lateral adjustment of the side rails.

The paper stack is positioned on the feed table 24 so that the front edge of the stack engages the vertical plate portions 64 of the carriers 42. The diagonal edges 48 or 50 of the corner supports 40 are then in proper relation to the corners of the stack. The feed rollers 34 are adjusted to positions just inside the side rails 26.

As shown in Fig. 1 the diagonal edges 50 extend diagonally across the front corners of the stack while the vertical bar portions 52 are positioned immediately in front of the front corners of the stack. When the topmost sheet is fed forwardly over the carriers 42, the corner separators 40 cause the front corners of the sheet to buckle. This insures separation of the topmost sheet from the underlying sheets.

For feeding card stock or heavy paper, it is preferred to interchange the left and right hand separators 40 so that the diagonal edges 48 will overly the corners of the stack. The edges 48 overlap the stack to a smaller extent than the diagonal edges 50 and thus cause less buckling on the corners of the sheets.

It is a simple matter to remove and interchange the

6

corner separators 40. This is done simply by releasing the catch pins 80 and lifting the separators until the pins 58 and 60 can be disengaged from the slots 62 and 64. The separators are re-installed by a reversal of these operations.

For inspection, cleaning or servicing of the machine, the plate 70 may readily be removed. This is done by lifting the plate 70 until it is free from the clips 106 and 108.

Inasmuch as the separators 40 are recessed rearwardly in the channels 76, the front edge of the stack is prevented from pressing against the front of the separators to any appreciable extent. In this way the separators are relieved of frictional drag which might otherwise prevent them from following the stack downwardly as it is depleted. With the present arrangement, the weight of the separator is quite adequate to maintain the flanges 44 against the top corners of the stack.

Thus, the illustrated corner separator mechanism is efficient and versatile. At the same time, it is reasonably simple, easy to manufacture and low in cost.

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 printing machine, the combination comprising a table for supporting a stack of sheets to be fed to the printing machine, a substantially vertical plate at the front end of said table, said plate having a substantially horizontal slot therein extending transversely with respect to said table, left and right hand carriers movable along said plate at the front of said table for engagement by the front edges of the sheets in the stack, each of said carriers having a pair of guide fingers extending rearwardly through said slot in said plate to guide said carrier for horizontal movement, means for feeding the topmost sheet from the stack over said plate and said carriers, corner separator bars mounted on said carriers for free vertical sliding movement, each of said separator bars having a rearwardly projecting flange at its upper end for resting by gravity on one front corner of the topmost sheet, pin and slot means connecting each of said separator bars to the corresponding carrier for free vertical sliding movement, each of said bars being removable from the corresponding carrier by lifting said separator bar to disengage said pin and slot means, each of said separator bars having a disengageable catch for restraining such lifting movement thereof and thereby preventing accidental removal of said separator bar, left and right hand side rails on said table for engaging and positioning the side edges of the sheets in the stack, each of said side rails having a front portion offset outwardly away from the stack adjacent said vertical plate, said rearwardly projecting flange on each of said separator bars having a slot therein receivable in sliding relation over said offset front portion of the corresponding side rail to position said separator bars with respect to the side edges of the stack, said flange on each of said separator bars having a pair of diagonal side edges on opposite sides of said slot therein to extend diagonally across one front corner of the topmost sheet, said diagonal edges being spaced at different distances from said slot in said flange to extend over the front corner of the topmost sheet to different extents, said separator bars being interchangeable between said left and right hand carriers to bring either of said diagonal edges into operative engagement with the front corners of the stack so as to provide for the feeding of various types of sheets, and vertical channel formations in said carriers for receiving said separator bars in recessed relation to the front edge of the stack to prevent the forward pressure of the stack from interfering with free vertical movement of said separator bars.

7

2. In a printing machine, the combination comprising a table for supporting a stack of sheets to be fed to the machine, vertical wall means at the front of said table for engagement by the front of said stack to limit forward movement thereof, left and right hand corner separator bars extending substantially vertically in front of said wall means, each of said separator bars having a rearwardly projecting flange at its upper end means for aligning said flanges with the front corners of the topmost sheet in the stack so that said flanges will rest on said corners, means mounting the separator bars on said wall means for free vertical sliding movement with respect to said wall means so that the flanges will be maintained against the top of the stack by gravity, means for feeding the topmost sheet forwardly from the stack over said wall means but under said flanges and past said separator bars, said separator bars being effective to buckle the front corners of the topmost sheet to insure separation of the topmost sheet from the underlying sheets, said wall means having vertical channel formations thereon facing rearwardly toward the front of said table and receiving said separator bars in forwardly recessed relation to the rear side of said wall means so that the front edge of the stack will not interfere with free vertical movement of said separator bars.

3. In a printing machine, the combination comprising a table for supporting a stack of sheets to be fed to the printing machine, a substantially vertical wall extending upwardly above said table at the front end thereof, left and right hand side rails on said table for engaging and positioning the side edges of the stack, left and right hand carrier plates mounted on said wall for horizontal sliding movement therealong across the front end of said table, said carrier plates being adapted to be engaged by the front edge of the stack to limit forward movement thereof, left and right hand separator bars mounted on said carrier plates for free vertical sliding movement, each of said bars being adapted to be positioned immediately in front of one front corner of the stack, each separator bar having a rearwardly projecting flange at its upper end for resting upon the front corner of the topmost sheet by gravity, means for feeding the topmost sheet from said stack over said wall and said carrier plates and past said separator bars, said separator bars being effective to buckle the front corners of the sheet to insure separation of the topmost sheet from the underlying sheets, each of said side rails having a front portion offset outwardly from the stack, said flange on each of said separator bars having a slot therein slidably receivable over the outwardly offset portion of the corresponding side rail to position the separator bar with respect to the edge of the stack, said flange on each of said separator bars having left and right hand diagonal side edges on opposite sides of said slot and spaced at different distances therefrom for extending across the front corner of the topmost sheet to different extents, said separator bars being disengageable from and interchangeable between said carriers to bring either of said diagonal edges into operative relation to the stack, and channel formations in said carrier plates receiving said separator bars in recessed relation to the front of said carrier plates so as to prevent the front edge of the stack from interfering with the vertical movement of said separator bars.

4. In a printing machine, the combination comprising a table for supporting a stack of sheets to be fed to the printing machine, left and right hand side rails on said table for engaging and positioning the side edges of the stack, left and right hand carriers disposed in front of said table, means supporting said carriers for horizontal sliding movement across the front end of said table, said carriers being adapted to be engaged by the front edge of the stack to limit forward movement thereof, left and right hand separator bars mounted on said carriers for free vertical sliding movement, each of said bars being adapted to be positioned immediately in

8

front of one front corner of the stack, each separator bar having a rearwardly projecting flange at its upper end for resting upon the front corner of the topmost sheet by gravity, means for feeding the topmost sheet from said stack over said carriers and past said separator bars, said separator bars being effective to buckle the front corners of the sheet to insure separation of the topmost sheet from the underlying sheets, each of said side rails having a front generally vertical guide portion, said flange on each of said separator bars having guide means thereon slidably engageable with said guide portion of the corresponding side rail to position the separator bar with respect to the edge of the stack, said flange on each of said separator bars having left and right hand diagonal side edges on opposite sides of said guide means and spaced at different distances therefrom for extending across the front corner of the topmost sheet to different extents, said separator bars being disengageable from and interchangeable between said carriers to bring either of said diagonal edges into operative relation to the stack.

5. In a printing machine, the combination comprising a table for supporting a stack of sheets to be fed to the printing machine, left and right hand side rails on said table for engaging and positioning the side edges of the stack, left and right hand carriers disposed in front of said table, means supporting said carriers for horizontal sliding movement across the front end of said table, said carriers being adapted to be engaged by the front edge of the stack to limit forward movement thereof, left and right hand separator bars mounted on said carriers for free vertical sliding movement, each of said bars being adapted to be positioned immediately in front of one front corner of the stack, each separator bar having a rearwardly projecting flange at its upper end for resting upon the front corner of the topmost sheet by gravity, means for feeding the topmost sheet from said stack over said carriers and past said separator bars, said separator bars being effective to buckle the front corners of the sheet to insure separation of the topmost sheet from the underlying sheets, each of said side rails having a front guide portion, said flange on each of said separator bars having a slot therein slidably receivable over the front guide portion of the corresponding side rail to position the separator bar with respect to the edge of the stack, said flange on each of said separator bars having left and right hand diagonal side edges on opposite sides of said slot and spaced at different distances therefrom for extending across the front corner of the topmost sheet to different extents, said separator bars being disengageable from and interchangeable between said carriers to bring either of said diagonal edges into operative relation to the stack.

6. In a printing machine, the combination comprising a table for supporting a stack of sheets to be fed to the printing machine, left and right hand side rails on said table for engaging and positioning the side edges of the stack, left and right hand carriers disposed in front of said table, means supporting said carriers for horizontal sliding movement across the front end of said table, said carriers being adapted to be engaged by the front edge of the stack to limit forward movement thereof, left and right hand vertical separator bars mounted on said carriers for free vertical sliding movement, means for positioning said bars immediately in front of the left and right hand front corners of the stack, each separator bar having a rearwardly projecting flange at its upper end for resting upon the corresponding front corner of the topmost sheet by gravity, means for feeding the topmost sheet forwardly from said stack over said carriers but under said flanges and past said separator bars, said separator bars being effective to buckle the front corners of the sheet to insure separation of the topmost sheet from the underlying sheets, and rearwardly facing vertical channel formations in said carriers receiving said separator

bars in forwardly recessed relation to the rear of said carriers so as to prevent the front edge of the stack from interfering with the vertical movement of said separator bars.

7. In a printing machine, the combination comprising a table for supporting a stack of sheets to be fed to the printing machine, a substantially vertical plate at the front end of said table, said plate having a substantially horizontal slot therein extending transversely with respect to said table, left and right hand carriers movable along said plate at the front of said table for engagement by the front edges of the sheets in the stack, each of said carriers having a pair of guide fingers extending rearwardly through said slot in said plate to guide said carrier for horizontal movement, means for feeding the topmost sheet from the stack over said plate and said carriers, corner separator bars mounted on said carriers for free vertical sliding movement, each of said separator bars having a rearwardly projecting flange at its upper end for resting by gravity on one front corner of the topmost sheet, pin and slot means connecting each of said separator bars to the corresponding carrier for free vertical sliding movement, each of said bars being removable from the corresponding carrier by lifting said separator bar to disengage said pin and slot means, each of said separator bars having a disengageable catch for restraining such lifting movement thereof and thereby preventing accidental removal of said separator bar, left and right hand side rails on said table for engaging and positioning the side edges of the sheets in the stack, each of said side rails having a front guide portion, said rearwardly projecting flange on each of said separator bars having a slot therein receivable in sliding relation over said front guide portion of the corresponding side rail to position said separator bars with respect to the side edges of the stack, said flange on each of said separator bars having a pair of diagonal side edges on opposite sides of said slot therein to extend diagonally across one front corner of the topmost sheet, said diagonal edges being spaced at different distances from said slot in said flange to extend over the front corner of the topmost sheet to different extents, said separator bars being interchangeable between said left and right

hand carriers to bring either of said diagonal edges into operative engagement with the front corners of the stack so as to provide for the feeding of various types of sheets.

8. In a printing machine, the combination comprising a table for supporting a stack of sheets to be fed to the printing machine, a substantially vertical plate at the front end of said table, said plate having a substantially horizontal slot therein extending transversely with respect to said table, left and right hand carriers movable along said plate at the front of said table for engagement by the front edges of the sheets in the stack, each of said carriers having a pair of guide fingers extending rearwardly through said slot in said plate to guide said carrier for horizontal movement, corner separator bars mounted on said carriers for free vertical sliding movement, each of said separator bars having a rearwardly projecting flange at its upper end for resting by gravity on one front corner of the topmost sheet, means for positioning said separator bars in alignment with the left and right hand front corners of the stack, means for feeding the topmost sheet forwardly from the stack over said plate and said carriers but under said flanges and past said separator bars, pin and slot means connecting each of said separator bars to the corresponding carrier for free vertical sliding movement, each of said bars being removable from the corresponding carrier by lifting said separator bar to disengage said pin and slot means, each of said separator bars having a disengageable catch for restraining such lifting movement thereof and thereby preventing accidental removal of said separator bar, and rearwardly facing vertical channel formations in the front of said carriers for receiving said separator bars in forwardly recessed relation to the front edge of the stack to prevent the forward pressure of the stack from interfering with free vertical movement of said separator bars.

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