

[54] **MOVABLE PACK ADVANCER**

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[22] Filed: **Sept. 17, 1973**

[21] Appl. No.: **398,024**

[52] U.S. Cl. **271/122; 271/127; 271/157; 271/160; 271/164**

[51] Int. Cl. **B65h 3/52; B65h 1/12**

[58] Field of Search **271/164, 162, 160, 157, 271/127, 126, 117, 122, 125**

[56] **References Cited**

UNITED STATES PATENTS

3,531,105	9/1970	Frankle	271/162 X
3,563,535	2/1971	Vitu et al.	271/164 X
3,672,665	6/1972	Schnall et al.	271/164

Primary Examiner—Evon C. Blunk

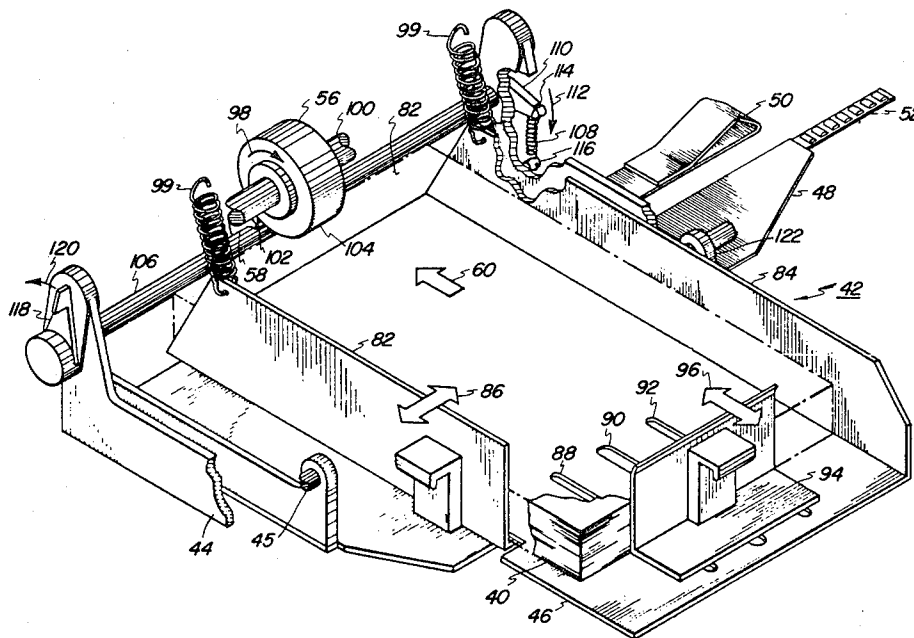
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[57] **ABSTRACT**

A sheet feeding apparatus in which successive sheets are separated and advanced, in seriatim, from a stack thereof. The stack of sheets is supported by a base plate mounted pivotably on a laterally movable supporting member. As the supporting member moves from a loading position to an operating position, the base plate is pivoted automatically from an inoperative position to an operative position, wherein successive uppermost sheets may be advanced from the stack disposed thereon. The supporting member is locked automatically in the operating position and the sheet feeding apparatus actuated automatically.

20 Claims, 5 Drawing Figures



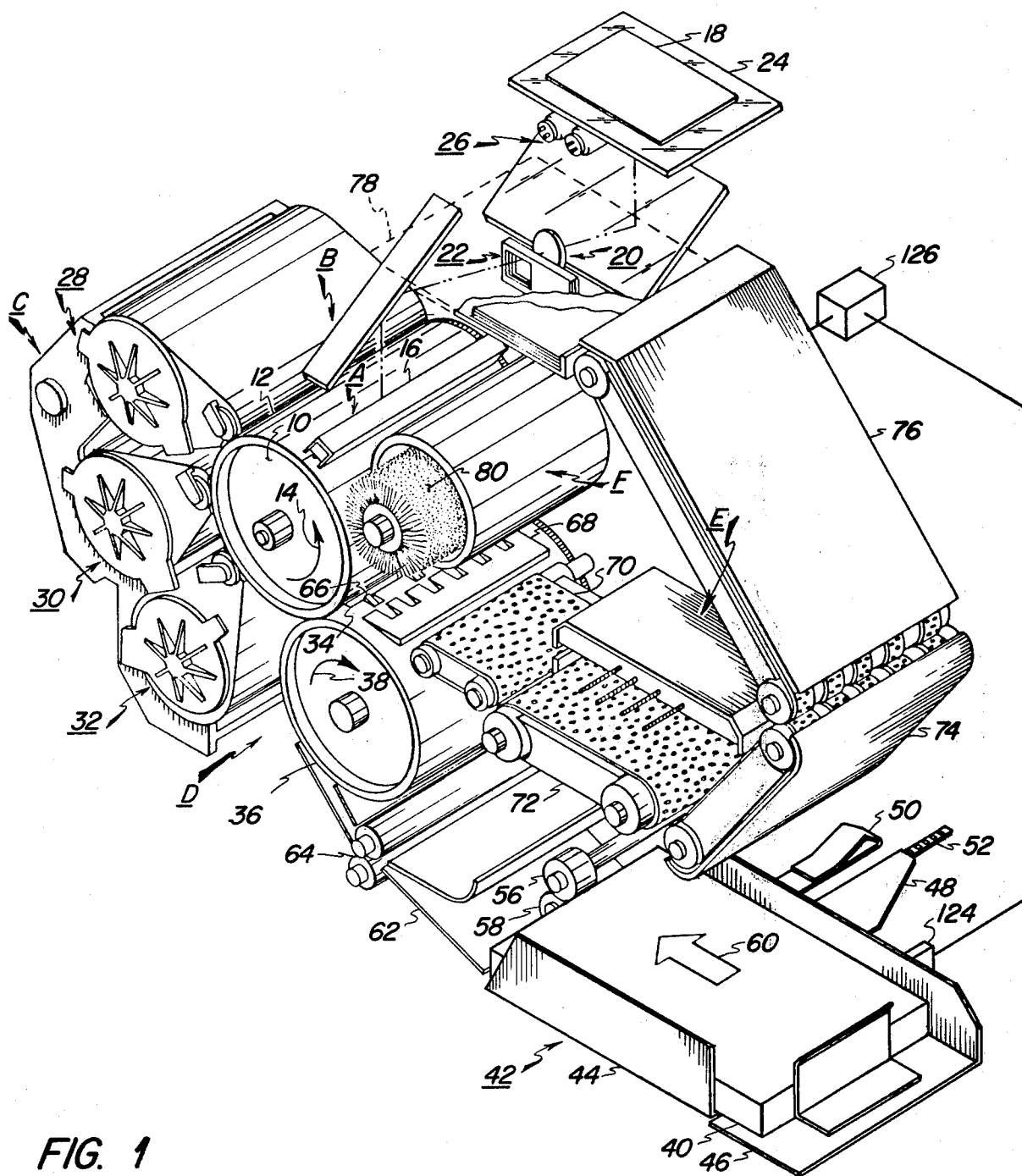


FIG. 1

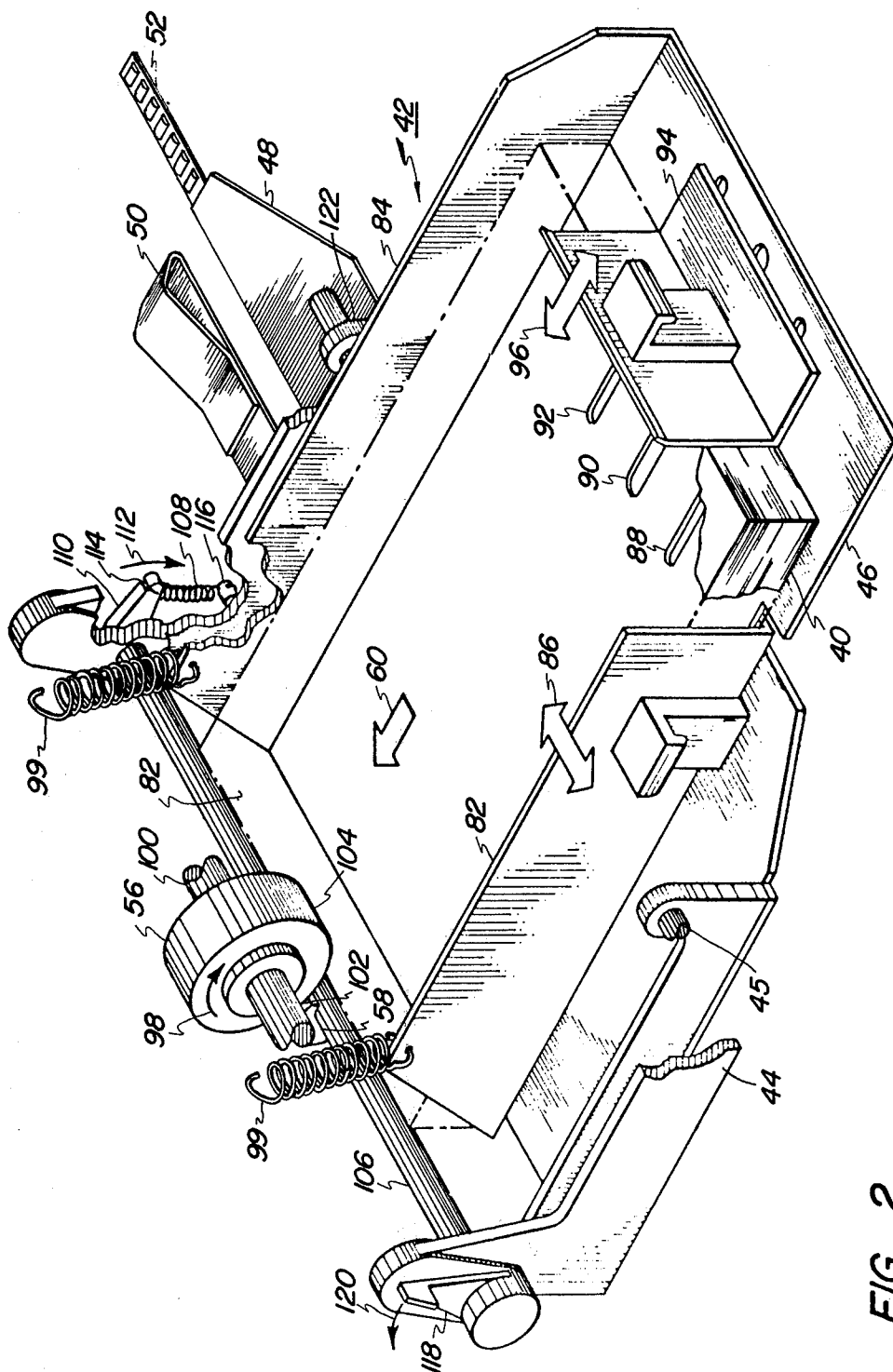


FIG. 2

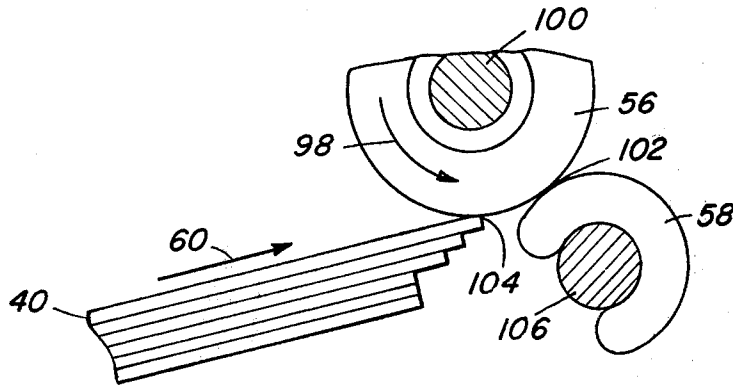


FIG. 5

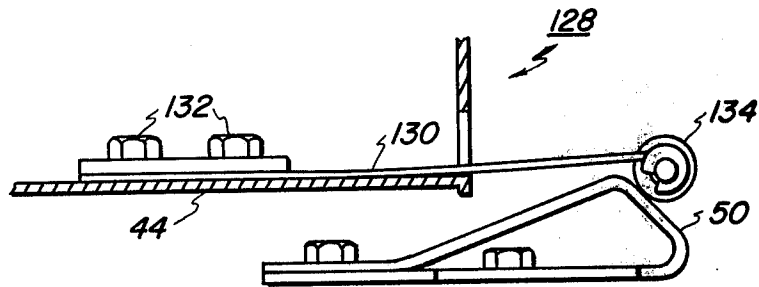


FIG. 3

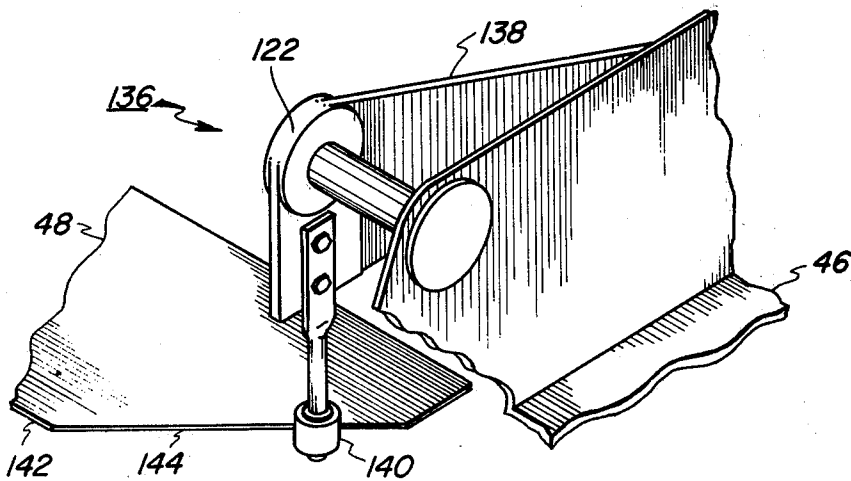


FIG. 4

MOVABLE PACK ADVANCER

The foregoing abstract is neither intended to define the invention disclosed in the specification, nor is it intended to be limiting as to the scope of the invention in any way.

BACKGROUND OF THE INVENTION

This invention relates generally to an electrophotographic printing machine, and more particularly concerns a sheet feeding apparatus employed therein.

Conventional electrophotographic printing machines have mechanisms therein for supporting a stack of sheets and for advancing single sheets, in seriatim, therefrom. It is well known that the separation and in seriatim feeding of sheets from a stack or pile of sheets presents many problems due to the differences in the size, weight, stiffness and surface characteristics of the sheet material. Moreover, the stack of sheets is usually located in the printing machine and frequently necessitates the replenishment thereof. Such a location is generally difficult to reach and requires dexterity on the part of the machine operator. Typically, the feed rolls and sheet separating means must be moved from the feeding position to a position spaced from the stack in order to enable a new stack of sheets to be inserted therein. However, the sheet feeding apparatus is often located in a relatively inaccessible position inside the printing machine and it is difficult for an operator to perform the manual operations required to load a new stack of sheet material therein.

Various types of sheet feeding systems have been utilized in electrophotographic printing machines which attempt to solve the foregoing problems. By way of example, U.S. Pat. No. 3,563,535 issued to Vitu in 1971 describes a paper feed drawer located in a compartment of a photocopying machine and arranged to support a stack of sheet material thereon. The paper feed drawer is held in the operative position by a latching arrangement. When the paper feed drawer is located in the operative position, closing of the photocopying machine door pivots the stack in an upwardly direction to engage the feed rolls.

Similarly, U.S. Pat. No. 3,672,665 issued to Schnall in 1972 discloses a sheet feeding device having a drawer which is movable into and out of the copying machine. The drawer includes a platform supporting a stack of sheets. The platform is resiliently urged in an upwardly direction so that the stack engages the feed rolls. A detent secures the platform in a depressed position. The platform is manually moved to the depressed position permitting loading of a stack of sheets therein. As the drawer moves into the machine, the detent releases the platform. The platform is resiliently urged in an upwardly direction so that the stack thereon engages feed rollers.

Another type of sheet feeding mechanism is disclosed in co-pending application Ser. No. 225,513, filed in 1972. As disclosed therein, a base plate supporting a stack of sheets thereon is resiliently biased so that the stack of sheets contact a separation belt. The separation belt cooperates with a retard pad to advance successive sheets from the stack disposed in the base plate.

None of the foregoing prior art devices actuate the sheet feeding apparatus or electrophotographic printing machine in response to the sheet feeding apparatus being moved to the operating position. Moreover, no prior art devices appear to automatically move the

stack of sheet material from engagement with the sheet separating and advancing apparatus as the sheet feeding apparatus is moved from the operating position to the loading position. This enables the sheet separating and advancing mechanism to remain substantially stationary permitting each successive sheet to be advanced along substantially the same path of travel. In addition, no apparatus appears to be disclosed in the prior art for automatically locking the sheet feeding apparatus in the operating position.

Accordingly, it is a primary object of the present invention to improve a sheet feeding apparatus utilized in an electrophotographic printing machine, whereby the sheet feeding apparatus is automatically conditioned to receive a new stack of sheet material by being moved from the operating position to the loading position.

SUMMARY OF THE INVENTION

Briefly stated, and in accordance with the present invention, there is provided a sheet feeding apparatus for separating and advancing, in seriatim, successive uppermost sheets from a stack thereof.

Pursuant to the present invention, there is provided means for separating and advancing successive sheets from the stack thereof. A base plate mounted pivotably on a laterally movable supporting member supports the stack of sheets. In response to the supporting member being locked in the operating position, means automatically actuate the sheet feeding apparatus to separate and advance successive sheets from the stack thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and advantages of the present invention will become apparent upon reading the following detailed description and upon reference to the drawings, in which:

FIG. 1 is a schematic perspective view depicting a multi-color electrophotographic printing machine employing the features of the present invention therein;

FIG. 2 is a schematic perspective view illustrating the sheet feeding apparatus of the FIG. 1 printing machine;

FIG. 3 is a fragmentary, elevational view of the locking apparatus for the FIG. 2 sheet feeding apparatus;

FIG. 4 is a fragmentary, perspective view of the pivoting mechanism for the FIG. 2 sheet feeding apparatus; and

FIG. 5 is an enlarged elevational view depicting the relationship between the feed roller, retard roller and stack of sheets in the Figure sheet feeding apparatus.

While the present invention will be described in connection with a preferred embodiment thereof, it will be understood that it is not intended to limit the invention to that embodiment. On the contrary, it is intended to cover all alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention.

DETAILED DESCRIPTION OF THE INVENTION

A general understanding of an electrophotographic machine, in which the present invention may be incorporated, is had by referring to FIG. 1. FIG. 1 schematically illustrates the various components of an electrophotographic printing machine adapted to produce color copies from a colored original document. Continued reference will hereinafter be made to the drawings wherein like reference numerals have been used throughout to designate like elements. Although the

sheet feeding apparatus of the present invention is particularly well adapted for use in an electrophotographic printing machine, it should become evident from the following discussion that it is equally well suited for use in a wide variety of machines and is not necessarily limited in its application to the particular embodiment shown herein.

The printing machine depicted in FIG. 1 utilizes a photoconductive member with a drum 10 having a photoconductive surface 12 entrained about and secured to the circumferential surface thereof. Basically, drum 10 is mounted rotatably within the printing machine frame (not shown) and is adapted to rotate in the direction of arrow 14. In this manner, drum 10 moves photoconductive surface 12 sequentially through a series of processing stations. These processing stations will be described hereinafter briefly.

Initially, a drum 10 rotates in the direction of arrow 14 to move photoconductive surface 12 through charging station A. A corona generating device, indicated generally at 16, is positioned at charging station A. Corona generally device 16 extends in a generally transverse direction across photoconductive surface 12. In operation, corona generating device 16 charges photoconductive surface 12 to a relatively high substantially uniform potential. For example, a corona generating device of this type is described in U.S. Pat. No. 2,778,946 issued to Mayo in 1957.

Thereafter, drum 10 rotates to exposure station D where the charged photoconductive surface 12 is exposed to a color-filtered light image of original document 18. A moving lens system, generally designated by the reference numeral 20, and a color filter mechanism, shown generally at 22, are disposed at exposure station B. U.S. Pat. No. 3,062,108 issued to Mayo in 1962 is one type of moving lens system suitable for use in the foregoing electrophotographic printing machine. As illustrated in FIG. 1, original document 18 is supported stationarily face down upon transparent viewing platen 24. Successive incremental areas of original document 18 are scanned by lamp assembly 26 and lens system 20 moving in a timed relation with drum 10. This scanning process produces a flowing light image of original 18 on photoconductive surface 12. During exposure, filter mechanism 22 interposes selected color filters into the optical light path of lens 20. Each filter operates on the light rays passing through lens 20 to record an electrostatic latent image on photoconductive surface 12 corresponding to a pre-selected spectral region of the electromagnetic wave spectrum, hereinafter referred to as a single color electrostatic latent image.

After the single color electrostatic latent image is recorded on photoconductive surface 12, drum 10 rotates to development station C. At development station C, there are located three individual developer units, generally designated by the reference numerals 28, 30 and 32, respectively. Each of the foregoing developer units is of the type described in co-pending application Ser. No. 255,259 filed in 1972. As disclosed therein, developer units 28, 30 and 32 respectively, are all magnetic brush systems. A typical magnetic brush system employs a magnetizable developer mix having carrier granules and toner particles therein. The developer mix is continually brought through a directional flux field to from a brush thereof. Development is achieved by bringing the electrostatic latent image recorded on photoconductive surface 12 into contact with the brush

of developer mix. Each of the respective developer units, i.e. 28, 30 and 32, contain discretely colored toner particles corresponding to the complement of the spectral region of the wave length of light transmitted through filter 22. For example, a green filtered electrostatic latent image is rendered visible by depositing green absorbing magenta toner particles thereon. In a similar fashion, blue and red electrostatic latent images are developed with yellow and cyan toner particles, respectively.

Once the single color electrostatic latent image is developed, drum 10 rotates to transfer station D. At transfer station D, the single color toner powder image adhering electrostatically to photoconductive surface 12 is transferred to a sheet of final support material 34. A suitable final support material may be plain paper, or thermoplastic sheets amongst others. A transfer roll, shown generally at 36, recirculates support material 34 and is electrically biased to a potential of sufficient magnitude and polarity to electrostatically attract toner particles from photoconductive surface 12 to sheet 34. Transfer roll 36 rotates in synchronism with drum 10 in the direction of arrow 38 and secures sheet 34 releasably thereon. In this manner, sheet 34 receives successive single color toner powder images in registration with one another. U.S. Pat. No. 3,612,677 issued to Langdon et al. in 1971 describes a suitably electrically biased transfer roll. Sheet 34 is advanced from stack 40 housed in the sheet feeding apparatus, indicated generally by the reference number 42, of the present invention. Sheet feeding apparatus 42 will hereinafter be discussed in greater detail. Sheet feeding apparatus 42 includes a supporting member 44 mounted movably on the printing machine frame. Supporting member 44 is adapted to move from an operating position to a loading position. Base plate 46 is mounted pivotably in supporting member 44 and has stack 40 disposed thereon. A cam member 48 is adapted to cooperate with base plate 46 to pivot base plate 46 from an operative position to an inoperative position. The detailed structure of cam member 48 and its relationship with base plate 46 will be described hereinafter, in detail, with reference to FIG. 3. latching means 50 is adapted to secure supporting member 44 in the operating position. Cam member 48 is mounted movably on the machine frame on roller bearing 52.

Feed roller 56 cooperates with retard roller 58 to separate and advance successive uppermost sheets from stack 40. The advancing sheet moves in the direction of arrow 60 into chute 62 and is directed thereby into the nip of register rollers 64. Register rollers 64 align and forward sheet 34 to gripper fingers 66 of transfer roll 36. Gripper finger 66 secure releasably thereto sheet 34 for movement in a recirculating path with transfer roll 36.

After a plurality of toner powder images have been transferred to sheet 34, gripper fingers 66 space support material 34 from transfer roll 36 enabling stripper bar 68 to be interposed therebetween. Stripper bar 68 separates sheet 34 from transfer roll 36. Thereupon, sheet 34 is transported on endless belt conveyor 72 to fixing station E. At fixing station E, a fuser, indicated generally at 72, coalesces the transferred toner powder image to sheet 34. One type of suitable fuser is described in U.S. Pat. No. 3,498,592 issued to Moser et al. in 1970. After the fusing process, sheet 34 is advanced by endless belt conveyors 74 and 76 to catch

tray 78 for subsequent removal therefrom by the machine operator.

Although a preponderance of the toner particles are transferred to sheet 34, invariably some residual toner particles remain on photoconductive surface 12 after the transfer thereof to sheet 34. The residual toner particles are removed from drum 10 as it passes through cleaning station F. Here the residual toner particles are first brought under the influence of a corona generating device (not shown) adapted to neutralize the electrostatic charge remaining on photoconductive surface 12 and the residual toner particles. The neutralized toner particles are then mechanically removed from photoconductive surface 12 by rotatably mounted fibrous brush 80 in contact therewith. A suitable brush cleaning device is described in U.S. Pat. No. 3,590,412 issued to Gerbasi in 1971.

It is believed that the foregoing description is sufficient for purposes of the present application to illustrate the general operation of an electrophotographic printing machine embodying the teachings of the present invention therein.

Referring now to FIG. 2, sheet feeding apparatus 42 is depicted therein in detail. Sheet feeding apparatus 42 includes a supporting member 44 mounted movably in the printing machine. Base plate 46 is mounted pivotably on supporting member 44 and pivots about shaft 45 in a clockwise direction so that the leading marginal edge portion of uppermost sheet 82 engages feed roller 56. A pair of springs 99 suitably attached to supporting member 44 resiliently urge base plate 46 to pivot in a clockwise direction. Base plate 46 includes a generally planar surface for supporting stack 40 thereon. Stack 40 is positioned both longitudinally and laterally on base plate 46 by means of margin guides 82 and 84. Margin guide 84 is mounted fixably to base plate 46, while margin guide 82 is mounted slidably thereon. Margin guide 82 is adapted to move in the direction of arrow 86 so as to be adjustable for accommodating various stack widths thereon. Base plate 46 includes a plurality of longitudinally extending slots 88, 90 and 92, respectively. Rear guide 94 is mounted slidably on base plate 46 in slots 88, 90 and 92, respectively. A suitable clamp or fastener (not shown) frictionally secures rear guide 94 in the desired position. In this manner, rear guide 94 is adapted to slide, in the direction of arrow 96, relative to base plate 46 so as to be adjustable lengthwise. Margin guide 82 is also secured in a slot (not shown) transverse to slots 88, 90 and 92, on base plate 46 by suitable means, e.g. a clamp or screw engaging base plate 46. This also permits margin guide 82 to move slidably relative to base plate 46. Margin guides 82 and 84 have a generally vertical planar surface for aligning the side edge portions of the stack of sheet material disposed on base plate 46. Similarly, rear guide 94 includes a generally vertical planar surface for aligning the trailing edge portion of the stack of sheet material disposed on base plate 46. In addition, rear guide 94 prevents the stack from sliding away from the feed roll when the sheets therein are substantially depleted, i.e. at low stack heights.

Feed roller 56 is driven by a suitable motor (not shown) in the direction of arrow 98 to advance the uppermost sheet 82 in the direction of arrow 60. Shaft 100 secures feed roller 56 fixedly to supporting member 44. Feed roller 56 is, preferably, arranged only to rotate in the direction of arrow 98 and does not articu-

late in any manner but remains stationary and the uppermost sheet of the stack is brought into engagement therewith. Feed roller 56 has a first portion 102 of the circumferential surface thereof engaging retard roller 58, and a second portion 104 of the circumferential surface thereof engaging sheet 34. As illustrated in FIG. 2, feed roller 56 has first portion 102 engaging retard roller 58 substantially simultaneously with second portion 104 engaging sheet 34. Retard roller 58 is mounted eccentrically on shaft 106. Shaft 106 is mounted rotatably on supporting member 44 and is adapted to pivot retard roller 58 from a position spaced from feed roller 56 to a position in engagement therewith. The cooperation between feed roller 56 and retard roller 58 is more discussed in co-pending application Ser. No. 304,032, filed in 1972, the disclosure of which is hereby incorporated into the present application.

With continued reference to FIG. 2, there is shown sheet 82 being advanced by feed roller 56 cooperating with retard roller 58. As shown therein, retard roller 58 is in engagement with feed roller 56. The foregoing is achieved by biasing means or spring 108 pivoting handle 110 in the direction of arrow 112. Handle 110 is secured to one end portion of shaft 106. In this way, retard roller 58 is pivoted into engagement with feed roller 56. Spring 108 is secured in notch 114 in handle 110 and attached fixedly to supporting member 44 via pin 116. Handle 118 is secured to the other end portion of shaft 106 and adapted to be moved manually in the direction of arrow 120 to disengage retard roller 58 from feed roller 56. Supporting member 44 is adapted to be moved into and out of the printing machine. When in the printing machine, it is disposed in the operating position and base plate 46 is pivoted in an upwardly direction so that the uppermost sheet 82 is in engagement with feed roller 56. When supporting member 44 is in the loading position, base plate 46 is pivoted in a downwardly direction so that there is sufficient room to dispose thereon a fresh stack of sheet material without engaging feed roller 56.

Latching means 50 is adapted to secure supporting member 44 in the operating position. The detailed structural configuration of latching means 50 will be described hereinafter in greater detail with reference to FIG. 3. Cam member 48 cooperating with cam follower 122 secured to base plate 46 moves base plate 46 from the loading position to the operating position and in turn to the loading position automatically. The pivoting of base plate 46 will hereinafter be described with reference to FIG. 4. The printing machine is automatically actuated as is the sheet feeding apparatus when supporting member 44 is in the operating position. Contrary, the printing machine and sheet feeding apparatus are automatically de-energized when supporting member 44 is in the loading position. Turning now to FIG. 1, there is shown switch 124 in the closed position with supporting member 44 in the operating position. At this time, voltage generating means or power supply 126 actuates the printing machine and, in turn, the sheet feeding apparatus.

Turning now to FIG. 3, there is shown the detailed structural configuration for locking supporting member 44 in the operating position. As shown in FIG. 3, locking means 128 includes resilient means or leaf spring 130 secured by a suitable fastener 132 to support member 44. Leaf spring 130 extends in an outwardly direc-

tion from supporting member 44 and has in the region of the outwardly extending end portion thereof roller member 134 secured rotatably thereto. As supporting member 44 is moved to the operating position, roller member 134 moves on a ramp in an upwardly direction over latching means 50 so as to be secured therebehind in the operating position. In this manner, leaf spring 130 biases roller member 134 in a downwardly direction so as to resiliently lock supporting member 44 in the operating position. It should be noted that latching means 50 includes sheet metal bent in an arcuate form so as to define a ramp and form a recess into which roller member 134 moves when supporting member 44 is in the operating position to thereby lock supporting member 44 in the foregoing position. The ram slows the movement of supporting member 44 and reduces the bounce of the stack which would tend to produce mis-registration of the stack on the base plate.

Turning now to FIG. 4, there is shown a perspective view of the pivoting means 136 arranged to pivot base plate 46 when supporting member 44 is moved from the operating position to the loading position and back to the operating position. As shown in FIG. 4, an L-shaped arm 138 is secured in the marginal region of base plate 46. Arm 138 has a roller secured rotatably to the downwardly depending leg in the region of one end portion thereof. Roller 140 moves along cam member 48 to pivot base plate 46 in response to the profile thereof. As shown in FIG. 4, when roller 140 is on straight portion 142 of cam member 48, base plate 46 is pivoted to a downwardly position such that the stack of sheet support material is spaced from feed roller 56. As supporting member 44 moves in an inwardly direction to the operating position, roller member 140 moves on to tapered portion 144 of cam member 48. As roller member 140 moves onto tapered portion 144, springs 99 secured to base plate 46 pivot base plate 46 in an upwardly direction. The foregoing motion continues until supporting member 44 is in the operating position, at which time base plate 46 has pivoted to its operative position with the uppermost sheets of the stack disposed thereon in engagement with feed roller 56.

From the foregoing it is apparent that the sheet feeding apparatus of the present invention facilitates the separation and advancement of successive uppermost sheets from a stack disposed thereon. Moreover, the apparatus automatically moves the stack of sheet material into operative communication with the feed roller when the supporting member therefor is disposed in the operating position. Contrawise, as the supporting member is moved to the loading position the base plate pivots in a downwardly direction permitting a new stack of sheets to be disposed thereon without engagement or hindrance by the feed rollers. Finally, the apparatus is adapted to be locked into the operating position automatically and to be substantially simultaneously therewith actuate automatically the printing machine and sheet feeding apparatus. It should be noted that when the supporting member is in the loading position, the sheet feeding apparatus and printing machine are automatically deenergized.

Thus, it is apparent that there has been provided, in accordance with this invention, a sheet feeding apparatus that fully satisfies the objects, aims and advantages set forth above. While this invention has been described in conjunction with specific embodiments thereof, it is evident that many alternatives, modifica-

tions, and variations will be apparent to those skilled in the art in light of the foregoing description. Accordingly, it is intended to embrace all such alternatives, modifications and variations as fall within the spirit and broad scope of the appended claims.

What is claimed is:

1. A sheet feeding apparatus including:

means for separating and advancing successive sheets from a stack of sheets disposed in the sheet feeding apparatus;

a supporting member laterally movable from an operating position to loading position remotely spaced from the operating position;

a base plate mounted pivotably on said supporting member, said base plate being adapted to support the stack of sheets;

biasing means for resiliently urging said base plate to pivot so as to move the stack of sheets disposed thereon into communication with said separating and advancing means;

a cam follower secured to said base plate; and

a cam member secured to the sheet feeding apparatus, said supporting member being laterally movable across said cam member with a portion of said cam follower in engagement therewith, said cam member having a profile such that as said cam follower moves therealong said biasing means pivots said base plate from a position wherein the uppermost sheet of the stack of sheets of support material is spaced from said separating and advancing means to a position in communication therewith; means for automatically locking said supporting member in the operating position; and means for automatically actuating the sheet feeding apparatus in response to said supporting member being located in the operating position.

2. An apparatus as recited in claim 1, wherein said locking means includes:

resilient means secured to and extending in a substantially outwardly direction from said supporting member;

a roller member secured to the outwardly extending portion of said resilient means; and

latching means secured to the sheet feeding apparatus, said resilient means being adapted to urge said roller member into locking engagement with said latching means when said supporting member moves to the operating position.

3. An apparatus as recited in claim 2, wherein said actuating means includes:

voltage generating means adapted to energize the sheet feeding apparatus; and

switch means associated with said voltage generating means and the sheet feeding apparatus, said switch means being secured to the sheet feeding apparatus and arranged to be in the closed position when said supporting member is in the operating position.

4. An apparatus as recited in claim 3, wherein said separating and advancing means includes:

a retard roller mounted on said supporting members; biasing means for resiliently urging said retard roller to pivot from an inoperative position spaced from one surface of the advancing sheet to an operative position in contact therewith; and

a rotary driven feed roller having a first portion of the circumferential surface thereof engaging the other surface of the advancing sheet and a second por-

tion of the circumferential surface engaging the circumferential surface of said retard roller disposed in the operative position thereof prior to the advancing sheet being interposed therebetween, said feed roller being adapted to advance the sheet into the nip defined by said feed roller and said retard roller to prevent multiple sheet feeding.

5. An electrophotographic printing machine of the type having a sheet forwarding mechanism for separating and feeding successive sheets from a stack thereof, wherein the improvement includes:

- means for separating and advancing successive sheets from the stack thereof;
- a supporting member laterally movable from an operating position to a loading position remotely spaced from the operating position;
- a base plate mounted pivotably on said supporting member, said base plate being adapted to support the stack of sheets;
- biasing means for resiliently urging said base plate to pivot so as to move the stack of sheets disposed thereon into communication with said separating and advancing means;
- a cam follower secured to said base plate; and
- a cam member secured to the printing machine, said supporting member being laterally movable across said cam member with a portion of said cam follower in engagement therewith, said cam member having a profile such that as said cam follower moves therealong said biasing means pivots said base plate from a position wherein the uppermost sheet of the stack is spaced from said separating and advancing means to a position wherein the uppermost sheet of the stack is in communication therewith;
- means for automatically locking said supporting member in the operating position; and
- means for automatically actuating the printing machines in response to said supporting member being located in the operating position.

6. A printing machine as recited in claim 5, wherein said locking means includes:

- resilient means extending in a substantially outwardly direction from said supporting member;
- a roller member secured to the outwardly extending portion of said resilient means; and
- latching means secured to the printing machine, said resilient means being adapted to urge said roller member into locking engagement with said latching means when said supporting member moves to the operating position.

7. A printing machine as recited in claim 6, wherein said actuating means includes:

- voltage generating means adapted to energize the printing machine; and
- switch means associated with said voltage generating means and the printing machine, said switch means being secured to the printing machine and arranged to be in the closed position when said supporting member is in the operating position.

8. A printing machine as recited in claim 7, wherein said separating and advancing means includes:

- a retard roller mounted on said supporting member;
- biasing means for resilient urging of said retard roller to pivot from an inoperative position spaced from one surface of the advancing sheet to an operative position in contact therewith; and

a rotary driven feed roller having a first portion of the circumferential surface thereof engaging the other surface of the sheet and a second portion of the circumferential surface engaging the circumferential surface of said retard roller disposed in the operative position thereof prior to the advancing sheet being interposed therebetween, said feed roller being adapted to advance the sheet into the nip defined by said feed roller and said retard roller to prevent multiple sheet feeding.

9. A sheet feeding apparatus, including:

a supporting member movable laterally from an operating position to a loading position remotely spaced from the operating position;

means for holding a stack of sheets disposed in the sheet feeding apparatus, said holding means being mounted on said supporting member;

means for separating and advancing successive sheets from the stack disposed on said holding means, said separating and advancing means being mounted on said supporting member; and

means for controlling automatically the relative movement between said holding means and said separating and advancing means such that said separating and advancing means is spaced from the sheets of the stack when said supporting member is in the loading position and said separating and advancing means is in operative communication with successive sheets of the stack when said supporting member is in the operating position.

10. A sheet feeding apparatus as recited in claim 9, further including means for automatically locking said supporting member in the operating position.

11. A sheet feeding apparatus as recited in claim 9, further including means for actuating automatically the sheet feeding apparatus in response to said supporting member being located in the operating position.

12. A sheet feeding apparatus as recited in claim 9, wherein said separating and advancing means includes a rotary driven feed roller.

13. A sheet feeding apparatus as recited in claim 12, wherein said holding means includes a base plate having a generally planar surface holding the stack of sheets thereon and being mounted pivotably on said supporting member.

14. A sheet feeding apparatus as recited in claim 13, wherein said controlling means includes means, responsive to said supporting member being moved from the loading position to the operating position, for pivoting said base plates from a position wherein the stack of sheets is spaced from the said feed roller to a position wherein successive sheets thereof engage said feed roller.

15. An electrophotographic printing machine of the type having a stack of sheets therein for reproducing copies of an original document thereon, wherein the improvement includes:

a supporting member movable laterally from an operating position to a loading position remotely spaced from the operating position;

means for holding a stack of sheets disposed in the sheet feeding apparatus, said holding means being mounted on said supporting member;

means for separating and advancing successive sheets from the stack disposed on said holding means, said separating and advancing means being mounted on said supporting member; and

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means for controlling automatically the relative movement between said holding means and said separating and advancing means such that said separating and advancing means is spaced from the sheets of the stack when said supporting member is in the loading position and said separating and advancing means is in operative communication with successive sheets of the stack when said supporting member is in the operating position.

16. A printing machine as recited in claim 15, further including means for automatically locking said supporting member in the operating position.

17. A printing machine as recited in claim 15, further including means for actuating automatically the printing machine in response to said supporting member being located in the operating position.

18. A printing machine as recited in claim 15,

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wherein said separating and advancing means includes a rotary driven feed roller.

19. A printing machine as recited in claim 18, wherein said holding means includes a base plate having a generally planar surface holding the stack of sheets thereon and being mounted pivotably on said supporting member.

20. A printing machine as recited in claim 19, wherein said controlling means includes means, responsive to said supporting member being moved from the loading position to the operating position, for pivoting said base plate from a position wherein the stack of sheets is spaced from said feed roller to a position wherein successive sheets thereof engage said feed roller.

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