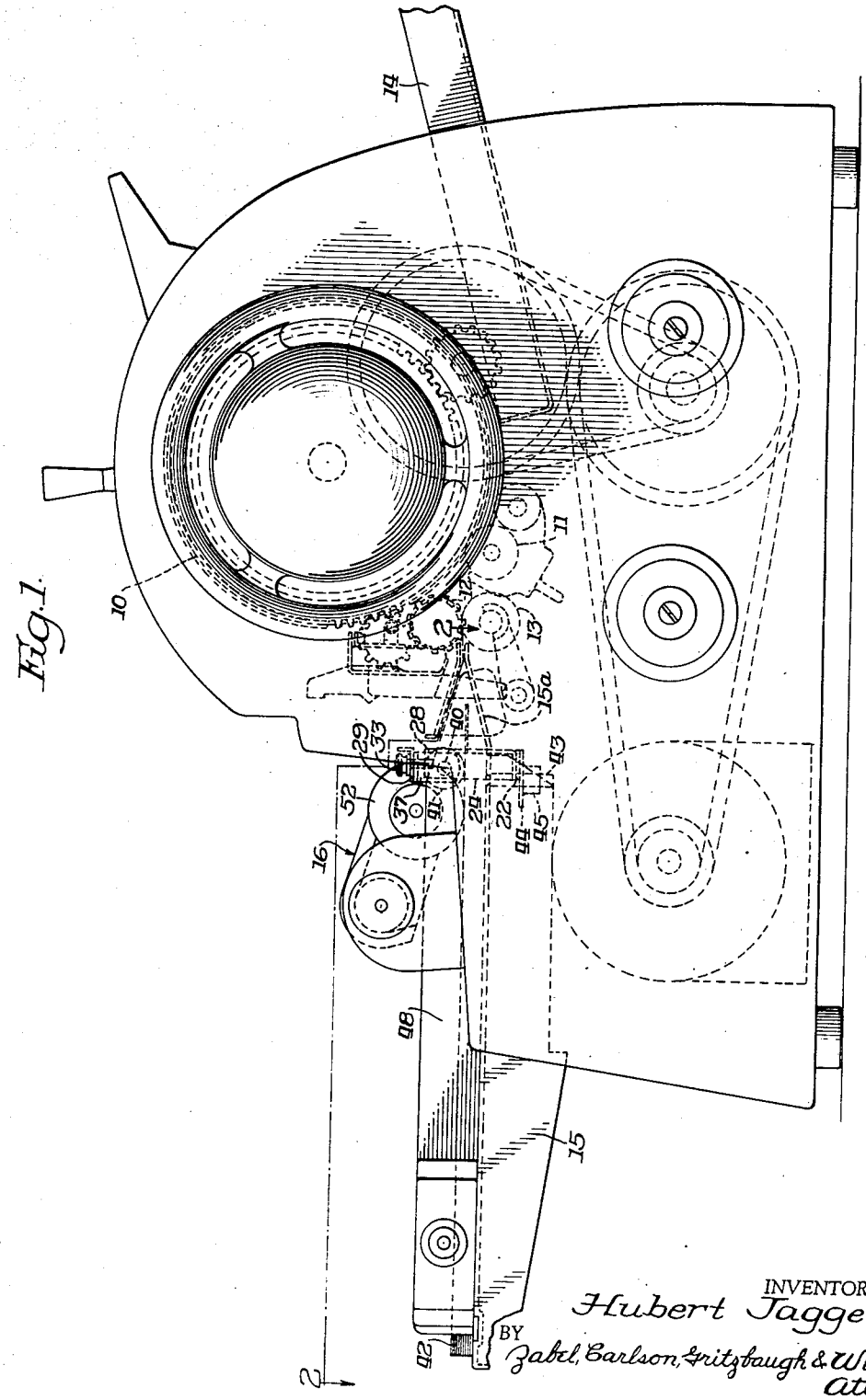
Feb. 29, 1944. H. JAGGER 2,343,187

FEEDING SHEETS TO DUPLICATING MACHINES

Filed May 23, 1942 4 Sheets-Sheet 1



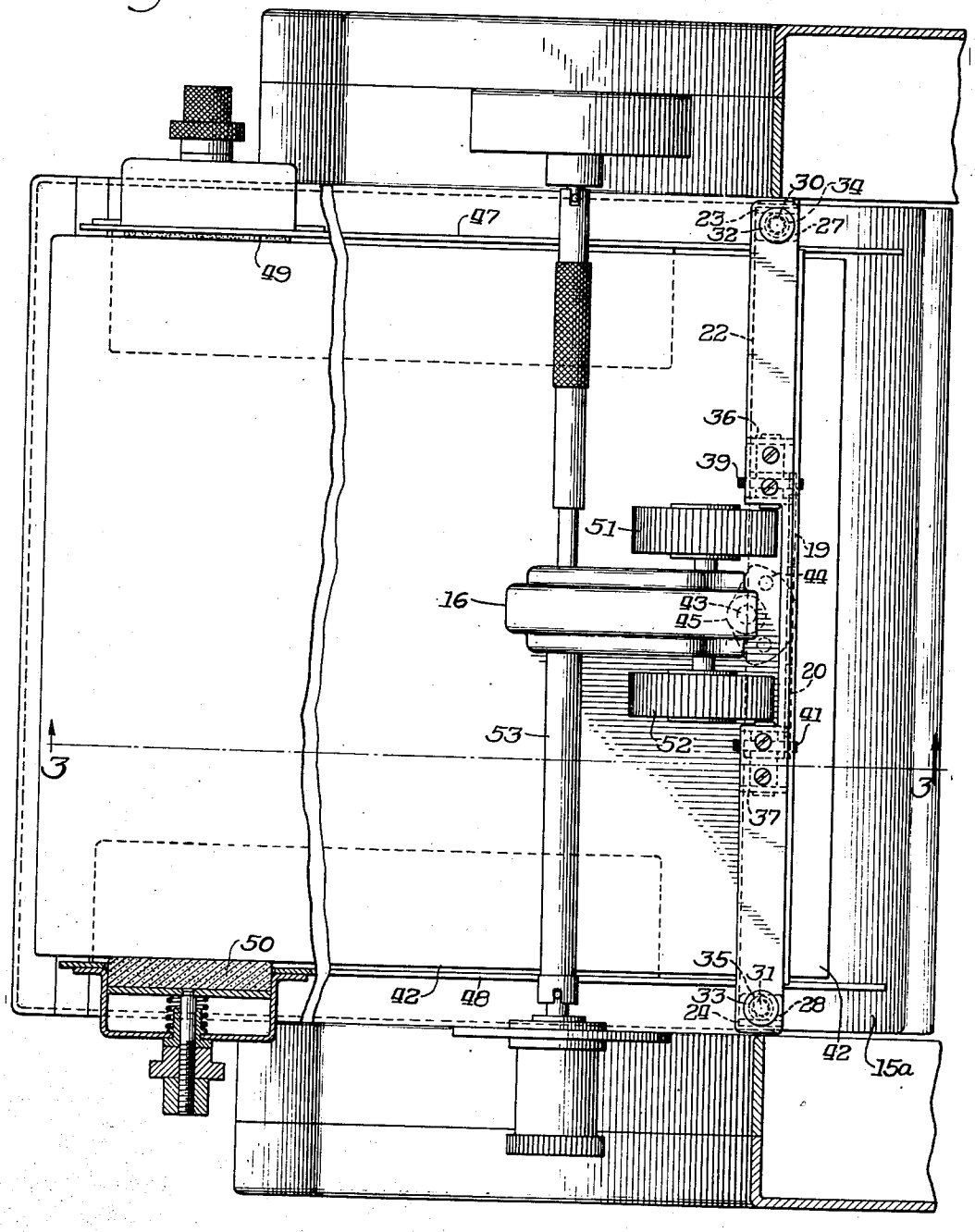
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FEEDING SHEETS TO DUPLICATING MACHINES

Filed May 23, 1942 4 Sheets-Sheet 2

Fig. 2.



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FEEDING SHEETS TO DUPLICATING MACHINES

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Fig. 3.

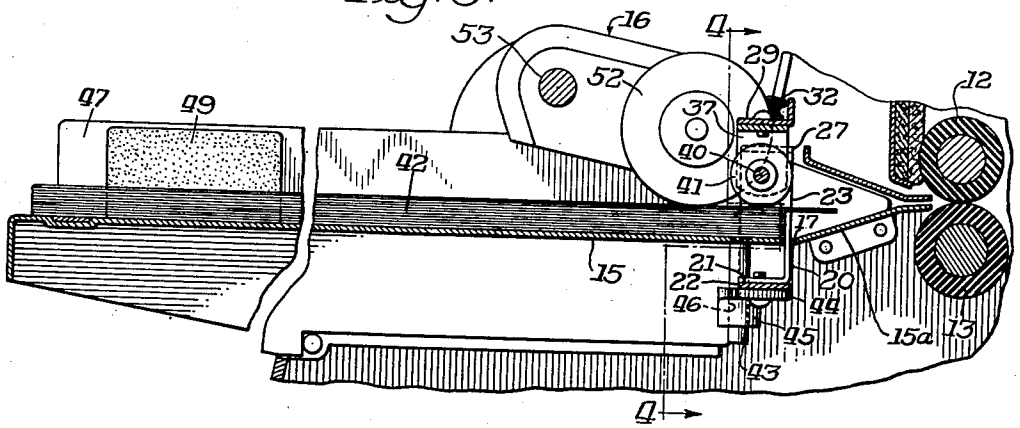


Fig. 4.

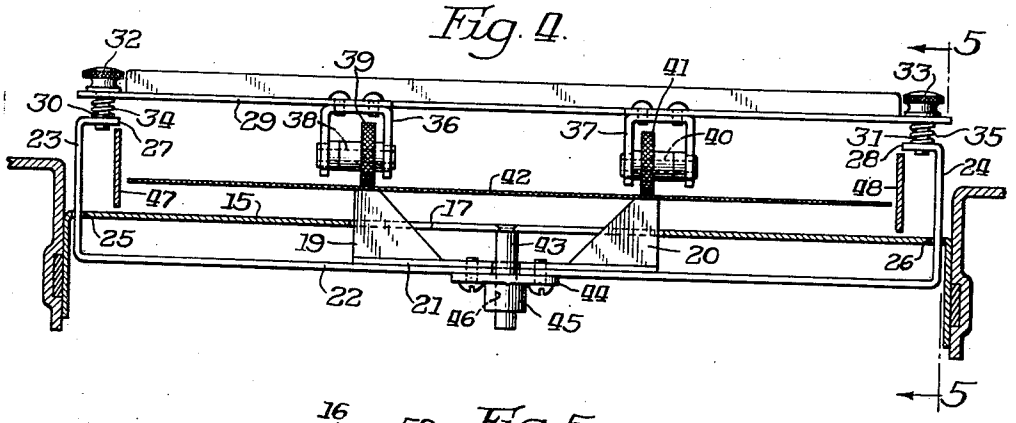
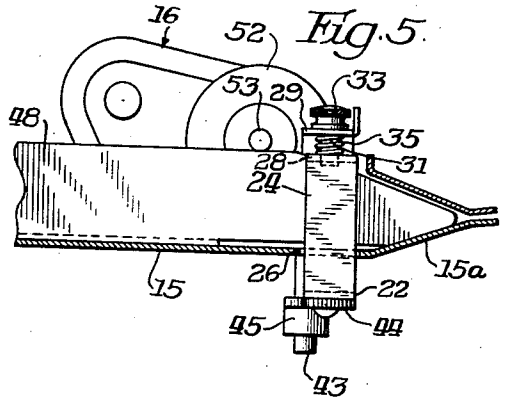


Fig. 5.



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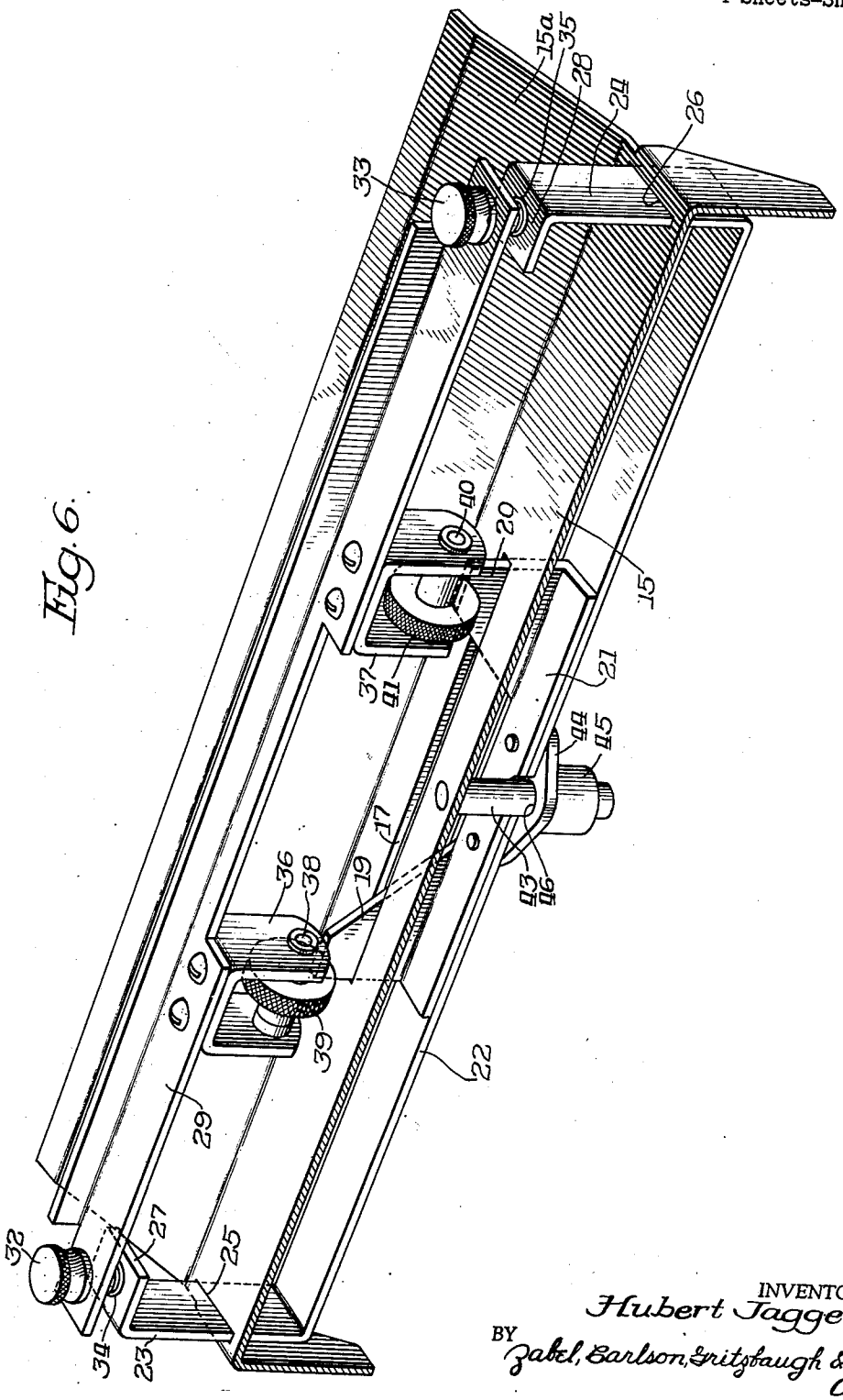
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FEEDING SHEETS TO DUPLICATING MACHINES

Filed May 23, 1942 4 Sheets-Sheet 4

Fig. 6.



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UNITED STATES PATENT OFFICE

2,343,187

FEEDING SHEETS TO DUPLICATING MACHINES

Hubert Jagger, Maywood, Ill., assignor to Ditto, Incorporated, Chicago, Ill., a corporation of West Virginia

Application May 23, 1942, Serial No. 444,214

4 Claims. (Cl. 271—36)

The present invention relates to the feeding of sheets to duplicating apparatus although it is not specifically limited thereto. The principal purpose of this invention is to provide a novel construction whereby sheets upon a feeding tray may be fed in such fashion as to prevent the advance of more than one sheet at a time. The device is applicable to constructions wherein the actual sheet forwarding is either manual or by power driven mechanism.

It is also a purpose of the invention to provide an improved control device for preventing the feeding of more than one sheet at a time, which control device is applicable to sheets of various sizes and thicknesses by a simple adjustment made after any individual stack of sheets has been placed in position.

One form of the invention is shown herein as embodied in a duplicating apparatus having a duplicating drum adapted to hold a master sheet and combined feeding and moistening rolls adapted to advance a copy sheet and moisten it, a platen roller being provided to press the copy sheets against the master sheet on the drum. In machines of this character a tray is provided upon which a stack of copy sheets may be placed. Individual sheets are fed from the top of the stack to the feeding and moistening rollers either by hand or by a suitable power feed mechanism.

The present invention embodies an attachment to the tray, which attachment is adapted to prevent the feeding of more than one sheet at a time from the tray to the combined feeding and moistening rollers.

The features and advantages of the invention will appear more fully as the description proceeds, reference being had to the accompanying drawings wherein a preferred form of the invention is shown.

In the drawings:

Fig. 1 is a view in side elevation of a duplicating machine embodying the present invention;

Fig. 2 is a plan view partly in section taken on the line 2—2 of Fig. 1;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3;

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4; and

Fig. 6 is a perspective view with the tray broken away showing the construction of the mechanism embodying the present invention as it appears from above the tray.

Referring now in detail to the drawings, the present invention is shown in connection with a duplicating machine of the character hereinbefore referred to wherein a duplicating drum 10 is driven by any suitable mechanism, the drum having a platen roller 11 cooperating therewith and combined feeding and moistening rollers 12 and 13 for advancing copy sheets to a master sheet mounted on the drum 10. A receiving tray 14 receives the copy sheets from the drum and a feed tray 15 is adapted to hold a stack of sheets which are fed to the feeding and moistening rollers by a power driven feeding device 16. This power driven feeding device is connected with the driving mechanism for the drum in any suitable fashion so as to advance sheets in timed relation to the rotation of the drum to the feeding and moistening rollers which in turn advance the sheet so as to cause it to properly register with a master sheet on the drum.

The present invention concerns itself entirely with an attachment that is mounted upon the tray 15. Therefore, the mechanical construction of the duplicating apparatus will not be further described.

Referring now more particularly to Figs. 3 to 6, inclusive, the tray 15 is shown as provided with a transversely running slot 17 adjacent the forward edge of the tray where a portion 15a of the tray tapers upwardly toward the feeding and moistening rollers 12 and 13. This slot is adapted to receive and guide two upstanding flanges 19 and 20 that are formed upon a bar 21. The bar 21 is in turn secured to a mounting frame 22 that extends horizontally beneath the tray 15. The frame 22 has two end portions 23 and 24 extending upwardly through the slots 25 and 26 in the tray 15. The upper ends of the portions 23 and 24 are bent inward to form mounting lugs 27 and 28 upon which a cross bar 29 may be mounted. The means for mounting the cross bar 29 comprise two screws 30 and 31. A knurled head 32 is provided on the screw 30 and a knurled head 33 is provided on the screw 31 so as to make the screws readily adjustable vertically in the lugs 27 and 28. Two springs 34 and 35 are interposed between the ends of the bar 29 and the mounting lugs 27 and 28.

The cross bar 29 has two inverted U-shaped brackets 36 and 37 mounted thereon so as to extend downwardly directly over the flanges 19 and 20. The bracket 36 has mounted therein a shaft 38 upon which a small knurled roller 39 is journaled for rotation. The bracket 37 carries a similar shaft 40 on which a small knurled roller 41 is journaled for rotation. It will be noted from an examination of Fig. 3 that the brackets 36 and 37 are so positioned that the centers of the shafts 38 and 40 are offset with respect to the flanges 19 and 20 toward the left in Fig. 3 so that the rollers 39 and 41 may rest upon a stack of sheets 42 on the tray 15.

The frame 22 is of course free to move vertically to the extent permitted by the rollers 39 and 41, since these rollers support the bar 29 and the bar 29 in turn carries the end portions

23 and 24 of the frame 22. The front margin stop plates or flanges 19 and 20 are thus supported from the pile of sheets 42. In order to further insure proper guidance of the frame 22 I mount on the tray 15 a depending guide rod 43 and I mount on the frame 22 a small bracket 44 having a depending boss 45, the bracket and the boss being provided with an aperture 46 in which the rod 43 is vertically movable.

The tray 15 may of course be provided with the usual side guides 47 and 48, which side guides carry pads 49 and 50 of a known construction, the pads 49 and 50 being adapted to grip the side edges of the stack 42 of sheets resting on the tray.

In the machine shown herein the sheets are advanced by power driven sheet feeding rollers 51 and 52 forming a part of the mechanism 16 hereinbefore referred to. These rollers are driven by suitable mechanism (not shown) from a shaft 53 which in turn is driven from the drum or drum driving mechanism in a well known manner. For an example of the construction of the sheet feeding mechanism 16 and the driving thereof see the United States Letters Patent No. 2,204,715 to Wimmer dated June 18, 1940.

The operation of the device is believed to be generally clear from the foregoing description. Briefly, the manner of use of the device is as follows: assuming that the operator wishes to feed a stack of sheets 42 to the duplicating machine he first places the stack of sheets on the tray 15 so that they abut against the upstanding flanges 19 and 20. In order to do this it is necessary to lift the frame 22 by taking hold of the bar 29; then the apparatus is allowed to settle down until the wheels 39 and 41 rest directly on the stack of sheets. By adjusting the screws 32 and 33 the operator then can so space the bottom edges of the rollers 39 and 41 as to permit a single sheet to pass beneath the rollers and over the top edges of the flanges 19 and 20. For thick card stock it will be necessary of course to elevate the rollers more with respect to the flanges than for thin sheet material. Once the adjustment is made sheets may then be fed by the feeding device 16 and only the top sheet will be advanced since the sheets below the top sheet will be stopped by the flanges 19 and 20. As each sheet is removed the rollers 39 and 41 are permitted to drop the amount of the thickness of a sheet and the frame 22 drops the same amount, thus lowering the flanges 19 and 20 so that the next sheet can be fed. This feeding continues until the entire stack of sheets is exhausted.

From the foregoing description it is believed that the features and advantages of the present invention will be readily apparent to those skilled in this art. It is also believed to be apparent that various modifications may be made without departing from the scope of the invention as defined in the appended claims wherein it is my intention to claim all novelty inherent in this application as broadly as possible in view of the prior art.

I claim:

1. In a sheet feeding mechanism, the combination of a table adapted to support a pile of sheets thereon, a bar extending across underneath the table so as to be movable freely toward and from the table, front margin stop plates mounted on said bar and extending upwardly in position for controlling the position of the pile of sheets on the table, a second bar extending across above the table, rollers mounted on said second bar in position to engage the top face of the pile of sheets adjacent to said stop plates, and means for adjustably connecting said two bars together so as to support said stop plates from said rollers for causing the stop plates to move downwardly upon the removal of each sheet in turn from the top of said pile of sheets and arranged for permitting the height of the stop plates to be adjusted for causing the top sheet in moving forwardly edgewise from the top of the pile to move in close proximity to the upper edges of said stop plates.

2. In a sheet feeding mechanism, the combination of a table adapted to support a pile of sheets thereon, a bar extending across underneath the table and having arms rising therefrom and slidably mounted in openings in the table for permitting the bar to move freely toward and from the table, a rod depending from the table near its front edge and having a sliding fit in a bearing carried by said bar, a front margin stop plate mounted on said bar and extending upwardly in position for controlling the position of the pile of sheets on the table, a second bar extending across above the table, rollers mounted on said second bar in position to engage the top face of the pile of sheets adjacent to said stop plate, and connections between said two bars so as to support said stop plate from said rollers for causing the stop plate to move downwardly upon the removal of each sheet in turn from the top of said pile of sheets.

3. In a sheet feeding mechanism, the combination of a table adapted to support a pile of sheets, a front margin stop member mounted on said table so as to be movable vertically thereon at the forward edge portion of the table for controlling the position of a pile of sheets on the table, a feeding member engaging the top sheet of a pile on said table and operable to advance the top sheet, a free roller riding on the pile of sheets between the forward edge of the pile and said feeding member, a bar supported by the roller and extending transversely of the table, a second bar beneath the first bar and the table and carrying said front margin stop member, and means connecting the ends of said bars whereby to cause them to move vertically in unison as the roller is lowered by the feeding of sheets from said pile by the feeding means.

4. In a sheet feeding mechanism, the combination of a table adapted to support a pile of sheets, a front margin stop member mounted on said table so as to be movable vertically thereon at the forward edge portion of the table for controlling the position of a pile of sheets on the table, a feeding member engaging the top sheet of a pile on said table and operable to advance the top sheet, a free roller riding on the pile of sheets between the forward edge of the pile and said feeding member, a bar supported by the roller and extending transversely of the table, a second bar beneath the first bar and the table and carrying said front margin stop member, and means connecting the ends of said bars whereby to cause them to move vertically in unison as the roller is lowered by the feeding of sheets from said pile by the feeding means, said table having a guide member depending therefrom and a cooperating guide affixed to the lower bar to guide the bars in their vertical movement.

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