July 20, 1954 H. E. PEYREBRUNE ET AL 2,684,241

SHEET STACKING DEVICE

Filed March 22, 1950 5 Sheets-Sheet 1

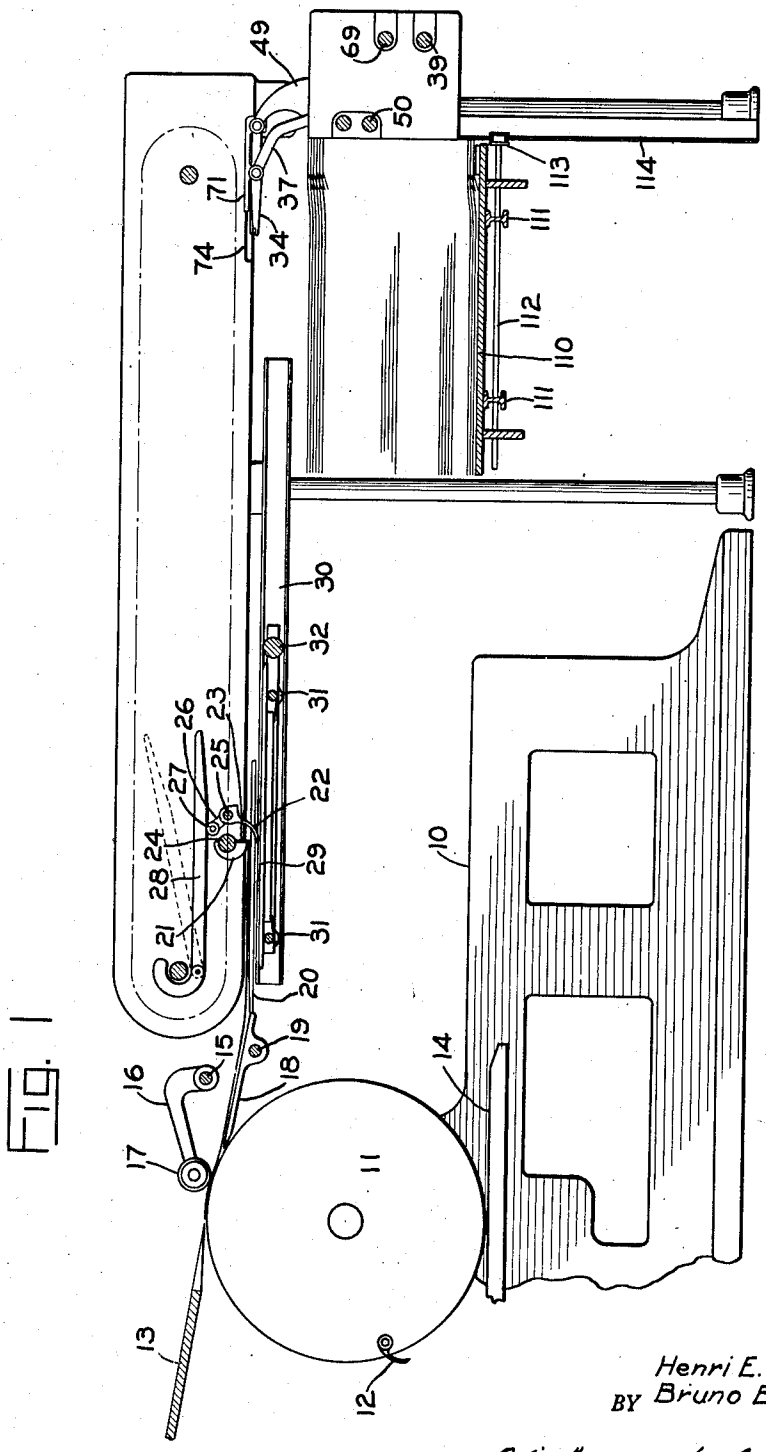


FIG. 1

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SHEET STACKING DEVICE

Filed March 22, 1950 5 Sheets-Sheet 2

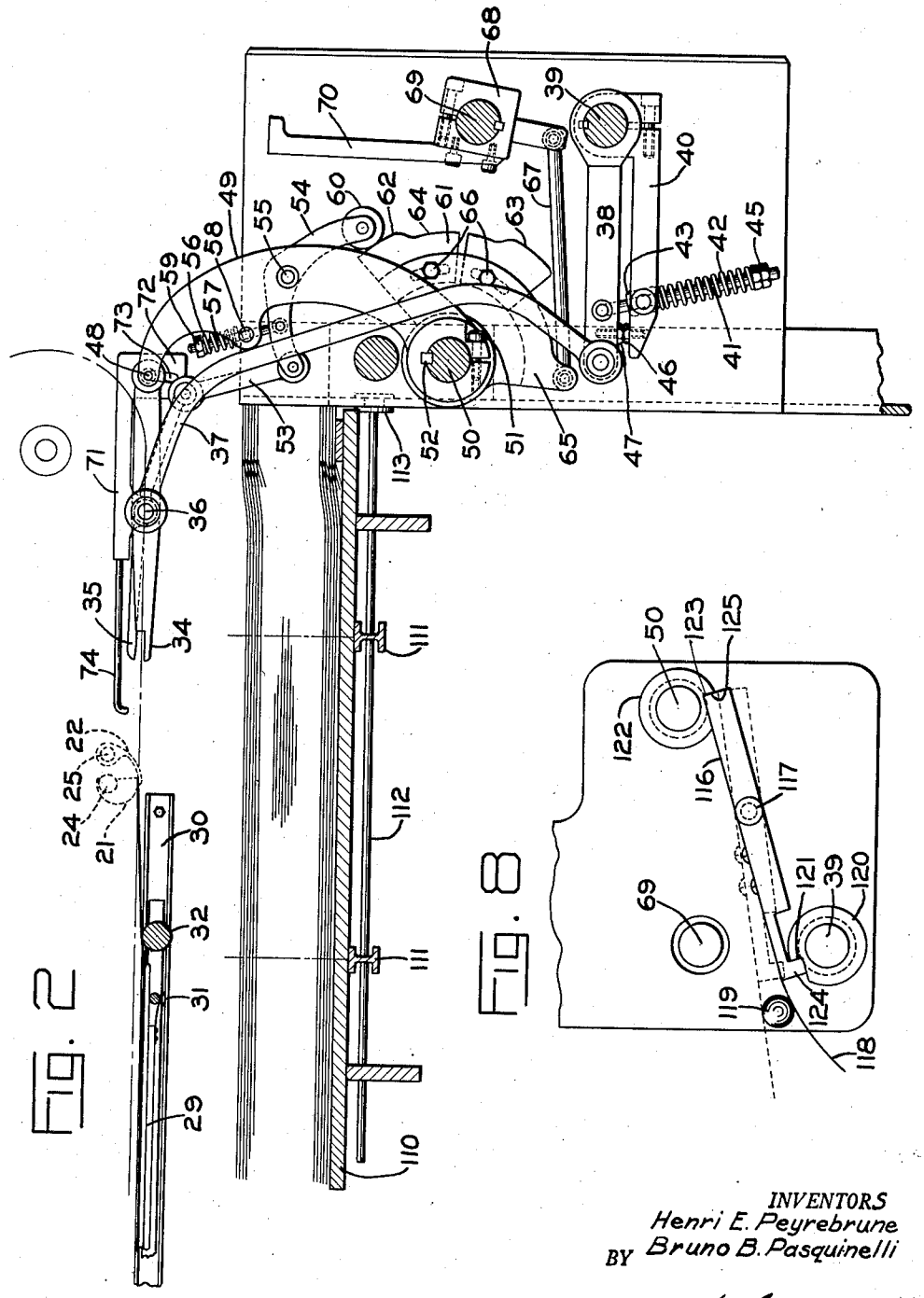


FIG. 2

FIG. 8

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SHEET STACKING DEVICE

Filed March 22, 1950 5 Sheets-Sheet 3

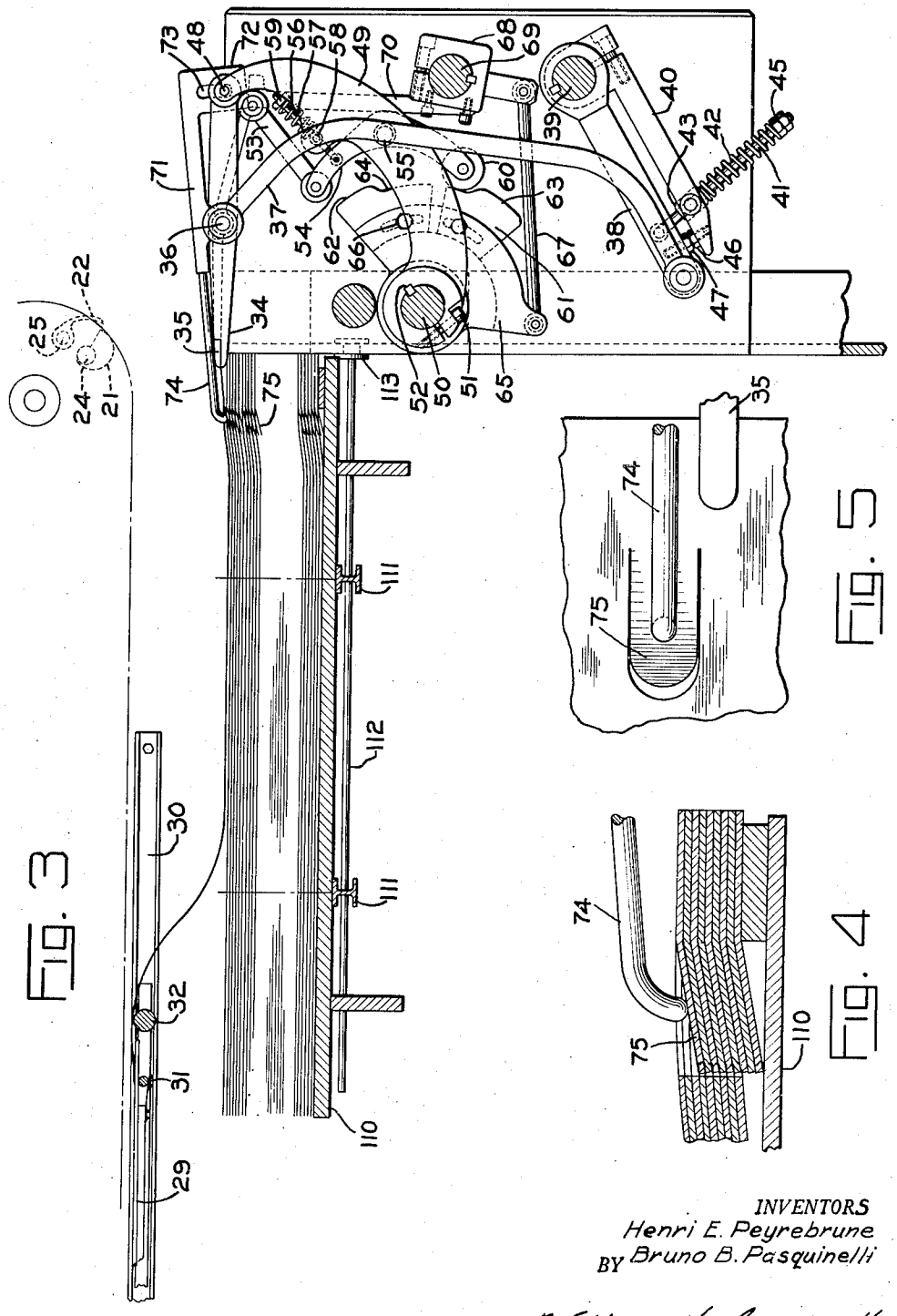


FIG. 3

FIG. 5

FIG. 4

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SHEET STACKING DEVICE

Filed March 22, 1950 5 Sheets-Sheet 4

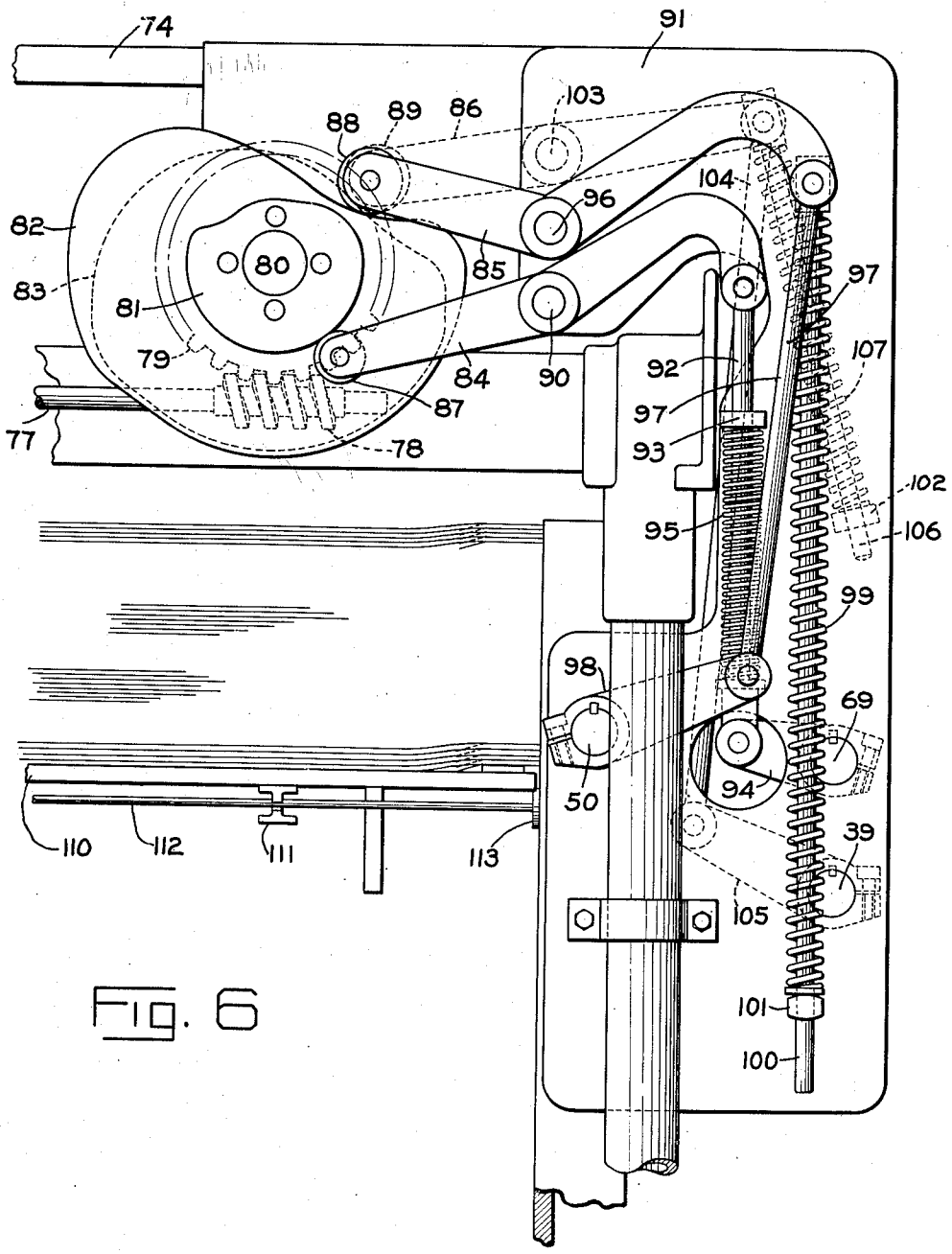


Fig. 6

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SHEET STACKING DEVICE

Filed March 22, 1950 5 Sheets-Sheet 5

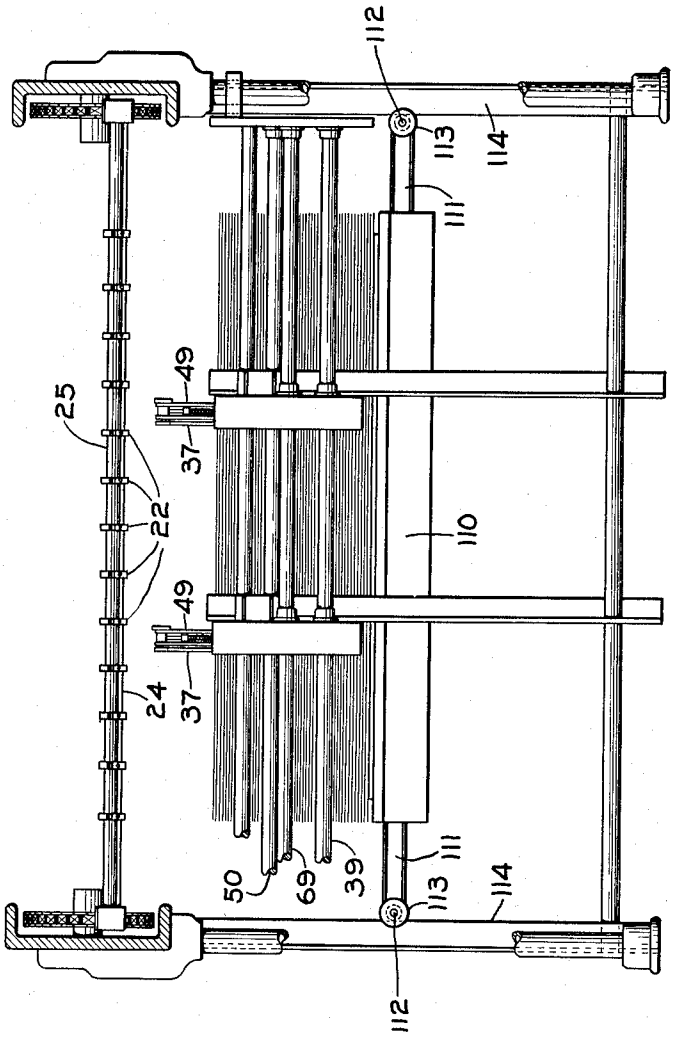


FIG. 7

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2,684,241

UNITED STATES PATENT OFFICE

2,684,241

SHEET STACKING DEVICE

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Application March 22, 1950, Serial No. 151,066

8 Claims. (Cl. 271—68)

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This invention relates to improvements in mechanism whereby sheets of cardboard, after having been processed in a cutting and creasing press to produce blanks for folding boxes or the like articles, are delivered one by one and stacked in superposed, aligned relation onto a supporting table.

The invention more specifically pertains to novel means whereby a smooth and evenly stacked pile of cut and creased blanks will be assured and whereby the stacked sheets will be held together against any accidental displacement with relation to each other.

In the process of manufacturing folding boxes and similar articles made of carton stock, the cut and creased sheets must be stripped of their waste portions, or scrap, retaining those parts only which constitute the blanks of the articles to be produced.

This stripping operation must be performed at a station remote from the cutting and creasing machine and preferably with the aid of an air-hammer or such like device. In transferring the stacked sheets to such station, utmost care must be exercised by the operator so that the alignment of the stacked carton blanks will not be disturbed, otherwise the task of stripping the waste portion from the blanks will become very difficult and result in considerable loss of time and material.

The basic principle and advantage which our invention offers, is the provision of means whereby each blank, as it is being deposited, will become locked in proper alignment with the previously deposited blanks in a manner that the pile of blanks will not become disarranged during its removal from the machine.

With this object in view, we propose to provide one or more cut out portions or flaps in each blank, preferably at the same time when the blanks are being cut and creased, which flaps are of such design that they can be depressed by means of suitable mechanism so that each flap, as a blank is being delivered, will align itself with the opening formed by the depressed corresponding flaps of previously deposited blanks. In many instances a suitable portion of the box blank may be used to serve as the interlocking flap, thereby obviating the necessity of providing a die to cut a special flap for this purpose.

Another object and important advantage of our invention resides in the provision of means which will function to positively control the carton blanks during their travel from the cutting and creasing members of the machine to the point

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where the blanks are being deposited onto the supporting table, i. e., delivery pile.

The mechanism involved preferably includes an endless chain conveyor provided with grippers by means of which the cut and creased carton blanks are engaged and carried under positive control to said table.

To cooperate with this conveyor, and in order to still further assure a positive control of the blanks while being delivered, we propose to arrange a reciproating carriage which has for its purpose to serve as a support for an entire sheet while it is being conveyed towards the delivery pile, and for its trailing portion during that period when the sheet is being deposited onto the pile.

A further object of the invention resides in the provision of reciprocating stacking grippers which are in cooperative association with the grippers of said chain delivery to engage the leading edge of each blank at a predetermined point in its travel and deposit it smoothly onto the previously delivered blanks.

Preferably, the novel means whereby said cut out portions or flaps are depressed in order to lock the blanks together in proper aligned relation, are associated with said reciprocating grippers in a manner that the cut out flaps are depressed as soon as a blank is deposited and while still in the bite of said grippers. This assures accurate stacking of the delivered carton blanks.

Other objects and advantages of our invention will become apparent from the following description and appended claims when read in conjunction with the accompanying drawings which depict a preferred embodiment of the novel mechanism involved.

In these drawings,

Figure 1 illustrates in side elevation the general arrangement of a sheet delivery mechanism as applied to a cylinder flatbed press;

Figure 2 depicts a side elevational view, partly in section, and featuring the stacking grippers and their associated mechanism in their position wherein the carton blanks are to be taken over from the chain delivery mechanism;

Figure 3 is a view similar to Figure 2, but showing the stacking grippers and their associated mechanism in their position assumed when depositing a sheet onto the pile of stacked sheets;

Figure 4 is an enlarged sectional view illustrating how the flaps are being depressed to lock the sheets together;

Figure 5 is a plan view of that part shown in Figure 4;

Figure 6 is a view in elevation showing the mechanism for actuating the various elements of the stacking device;

Figure 7 is a view in elevation illustrating the delivery end of the carton stacking device, and

Figure 8 is a view showing means for locking the stacking mechanism in its inoperative position.

Referring now to these drawings, Figure 1 discloses a preferred embodiment of the sheet stacking device in associated relation with a conventional cutting and creasing press having side frames 10 journalling a sheet carrying cylinder 11. Blanks of card board, or similar material, are fed to grippers 12 on said cylinder over the feed table 13, either by hand or by automatic feeding means, and are then cut and creased in the conventional manner by bringing the blanks into contact with a cutting and creasing form carried on a reciprocating bed 14.

Transversely disposed in parallel relation to the cylinder 11 is the shaft 15, which extends the full width of the press with its ends suitably journalled for oscillation in side frames or brackets, not shown, provided therefor. A series of arms 16, each carrying at its free end a rider roller 17, are fixed securely to said shaft. By means of any conventional mechanism, oscillating movement is imparted to shaft 15 to thereby swing the arms 16 and therewith the rollers 17 intermittently up and down for the purpose of controlling each sheet while on and during its removal from the cylinder 11.

Operating in conjunction with the rollers 17 and functioning to strip the cut and creased sheets from the cylinder 11 are the stripping fingers 18, a series of which are fixed to a second transversely disposed shaft 19. This shaft is also journalled for oscillation to thereby move the stripping fingers from an operative position in close proximity to the cylinder, to an inoperative position spaced therefrom and this movement is timed with direct relation to the movement of the rollers 17 as is well known in the art.

Each succeeding sheet, while on its way to the delivery pile, is supported on horizontally disposed bars 20 to which the sheets are transferred by the coaction of the rollers 17 and stripping fingers 18. A series of said bars are located in spaced relation adjacent the lineal path of the delivery gripper elements and function to guide the leading or gripper edge of the sheet into the bite of the delivery gripper pads 21 and the gripper fingers 22 and into contact with a plurality of sheet stops or guides 23. The gripper pads 21 and fingers 22 are mounted in series on their respective shafts 24 and 25, said shafts being carried in the customary manner by endless chains which are indicated by the broken line in Figure 1.

Opening and closing action of the fingers 22 is effected by means of the lever 26 fixed securely to one end of shaft 25 and carrying the roller 27 which engages an adjustable cam 28. By means of this cam, the closing of the gripper fingers 22 can be timed, depending on the size of the sheets that are to be handled on the machine. For maximum size sheets, the cam 28 is positioned as indicated by the solid lines in Figure 1. To facilitate the handling of smaller size sheets the cam would be moved a relative amount toward the extreme dotted line position, the extent of movement being determined by the size of the sheet being processed.

Due to the relatively heavy weight of the material used for making folding carton blanks and the like articles, and because of the fact that the carton blanks in a cut and creased sheet are held together merely by small "nicks" spaced along the cut lines, the trailing portion of the sheets cannot be floated to the delivery pile in the same manner as is common practice in delivering sheets from a printing press which sheets are of comparative light weight stock. Unless some means is provided to support each sheet as it is being conveyed to the delivery pile, the trailing portion would have a tendency to drop onto the press mechanism and would obviously be dragged over the preceding sheets already on the pile. Consequently, the aligned position of the previously delivered sheets would be disturbed regardless of the accuracy with which they were originally deposited onto the pile. Furthermore, any undue bending or dragging of a cut and creased sheet will break such "nicks," resulting in the separation of the cut portions thereby making it virtually impossible to deposit and align the sheets in a satisfactory manner.

To obviate these difficulties, a reciprocating carriage is operatively associated with the chain conveyor so as to provide a support for the trailing portion of each sheet as it is being conveyed to the pile support and until it is in position to be deposited in aligned relation to the previously delivered sheets on the pile.

This mechanism comprises a sheet support or platform 29 which is mounted for reciprocation in tracks 30 by means of the rollers 31. It will be understood that a similar track and rollers are provided at each side of the delivery mechanism. A shaft 32 is arranged to be rotated in a clockwise direction as the support returns to its sheet taking position, thereby gently rolling the sheet off the platform 29 and supporting the trailing portion of it while the sheet is being delivered and stacked. The conventional mechanism whereby reciprocating motion is imparted to the carriage and whereby the roller 32 is actuated, is not shown. Such mechanisms are well known in the art and do not form any essential part of the present invention.

Each succeeding sheet is deposited in perfect register on the accumulating pile by means of the stacking mechanism which is more clearly illustrated in Figures 2 and 3. The sheets are conveyed by the chain delivery grippers 21, 22 to a position immediately above the pile support in which position the leading or gripper edge of the sheets is projected between the lower jaw 34 and upper jaw 35 of the sheet stacking grippers. The lower jaw 34 is pivotally supported on a pin 36 which is carried by the connecting rod 37. The depending end of rod 37 is in turn pivotally connected to lever 38 which has a bifurcated end portion freely mounted on a transversely disposed shaft 39. A coacting lever 40 is rigidly secured to the shaft 39 between the forked ends of lever 38 and movement of the shaft 39 and thereby the lever 40 is transmitted to lever 38 through the rod 41 and spring 42. The rod 41 being pivoted to lever 38 with its free end slidably inserted through the pivoted boss 43 provided on the lever 40. The spring 42 exerts sufficient pressure between the bracket 43 and the adjustable nuts 45 to maintain adjustable stops 46 and 47 on the levers 40 and 38 respectively in intimate contact relation. Therefore, it is obvi-

ous that any movement of shaft 39 will be transmitted through the lever 40 to lever 38 and thereby to the rod 37 and gripper jaws 34 and 35.

The rearwardly extending arm of jaw 34 is pivoted on a pin 48 carried by the upper end of the arcuate lever 49 which, at its lower portion, is securely mounted on the shaft 50 by means of the bolt 51 and key 52. The upper jaw 35 is also pivoted on the pin 36 and has attached to its depending arm the connecting rod 53 which is in turn connected to one arm of the bell crank lever 54 pivoted on a pin 55 which is mounted on the lever 49.

The lever 54 is constantly urged in the clockwise direction by means of the spring 56 which embraces the rod 57 the lower end of which is pivoted to the lever 54, whereas the rod itself is free to slide within a bore provided in a pin 58 carried in lever 49. The compression spring 59 exerts pressure between pin 58 and the nut 59 thereby urging the rod 57 upwardly and consequently the bell crank 54 in a clockwise direction.

At its free end the lever 54 carries a roller 60 which rides over the cam 61 having high parts 62 and 63 and low part 64. This cam is composed of two sections, each one being adjustably fastened to the yoke 65 by means of bolts 66, the yoke in turn is freely mounted on the shaft 50 to rock about its axis. Motion independent of shaft 50 is imparted to the yoke 65 through the connecting rod 67 the free end of which is attached to the bracket 68 fixed on the shaft 69. A lever or stop 70 is also fixed to the bracket 68 the purpose of which will be explained later.

The stacking finger holder 71 is pivotally mounted on the pin 36 and is formed with a depending portion 72 at its free end. An arcuate slot 73 is provided in said depending portion into which slot extends the pin 48 carried by the lever 49. The weight of the portion 72 tends to maintain the top of slot 73 in contact with the pin 48 during that period when the stacking finger 74 is inoperative, thereby causing the holder to remain in a horizontal position as shown in Figure 2. If desired, a spring could be applied in order to urge holder 71 in a clockwise direction so as to maintain its horizontal position.

In the preferred embodiment, and as shown in Figure 7, two stacking devices are provided.

Each holder 71 is equipped with a stacking finger 74 which may be adjusted longitudinally of the holder and which functions to depress a predetermined portion of a folding box blank such as a tab 75, see Figures 3, 4 and 5, into interlocking relation with previously delivered sheets on the pile.

As each subsequent sheet is grasped by the stacking device grippers 34 and 35, continued movement of shafts 39 and 50 causes the mechanism to assume a retracted position as illustrated in Figure 3, where the gripper fingers are shown depositing a sheet in precise, superposed relation on the pile and the stacking finger 74 is depressing the precut tab 75 into interlocking relation with the preceding sheets already on the pile. Figures 4 and 5 illustrate more clearly and to an enlarged scale the action which takes place as each succeeding sheet is deposited onto the pile. It will be understood of course that in these enlarged views the thickness of the sheets is somewhat exaggerated and it appears as though the tab, when depressed, only interlocks with a small number of the preceding sheets. However, in actual practice the sheets are only a few thousandths of an inch thick, consequently each tab interlocks with a considerable number of previously deposited sheets adding to the rigidity of the built-up pile.

Movement of the finger 74 to depress the interlocking tabs is effected by means of the lever 70 which intercepts the depending portion 72 of holder 71 as the stacking device moves to its retracted position, causing the holder 71 to rock about the pin 36 thereby imparting an anti-clockwise movement to finger 74 as it depresses the associated tab, see Figure 3.

Rocking motion of the shafts 39, 50 and 69, whereby the stacking device is actuated to deposit each succeeding sheet onto the pile, is accomplished in timed relation to the chain delivery grippers 21, 22 by means of the cam and lever arrangement shown in Figure 6. The main drive shaft 77 carries a worm 78 which meshes with an associated worm gear 79, said gear being fixed to a driven shaft 80. A series of cams 81, 82 and 83 are also fixed to shaft 80 and rotate therewith in a counter-clockwise direction.

By virtue of the contour of cams 81, 82 and 83 a relative rocking motion is imparted to the levers 84, 85 and 86 through their rollers 87, 88 and 89 respectively. Lever 84 is pivoted on the stud 90, fixed in the frame 91, and carries at its free end a connecting rod 92 which passes through a boss 93 provided on the frame 91 and the lower end of which is connected to a lever 94 which is rigidly keyed to the shaft 69. A spring 95 which embraces the rod 92 and the upper end of which bears against said boss urges lever 84 in a clockwise direction thereby maintaining roller 87 in constant contact with its associated cam 81.

The lever 85 is actuated in a similar manner, being pivoted on stud 96 and having attached to its free end the connecting rod 97. The lower end of this rod is in turn connected to lever 98 which is rigidly secured to shaft 50. Intimate contact of roller 88 with its respective cam 82 is maintained through the spring 99 mounted on rod 100 which in turn is connected at its upper end to lever 85 while its free end is slidably guided through the boss 101 on the frame 91. The spring 99 exerts pressure against boss 101 and lever 85 thereby constantly urging said lever in an anti-clockwise direction.

By a similar arrangement cam 83 transmits reciprocal motion to the shaft 39. Lever 86 is pivoted on stud 103 having a connecting rod 104 attached thereto, which in turn is secured to lever 105, said lever being fixed on shaft 39. A rod 106, which passes through a boss 102 is also attached to lever 86 and the spring 107 mounted thereon urges this lever in an anti-clockwise direction thereby maintaining the contact relation of roller 89 with cam 83.

It will be apparent therefore that any motion imparted to the levers 84, 85 and 86 by virtue of the rotating cams 81, 82 and 83 will be transmitted directly to the actuating shafts 69, 50 and 39 respectively.

As indicated herein, the preferred embodiment of this invention comprises a plurality of stacking gripper units in order to positively control the delivery of the blanks to be stacked and to thereby insure accurate register of the stacked blanks or sheets. Figure 7 illustrates the manner in which said units are disposed transversely of the pile and since they are adjustable longitudinally on the actuating shafts 39, 50 and 69, the units can be positioned so that any suitable portion of a precut folding box blank could be conveniently used to provide an interlocking tab.

In other words, in such event it would not be necessary to set up special dies to cut out tabs in predetermined positions in order to have them coincide with the stacking fingers.

To further insure positive register of the delivered sheets, accurate and positive positioning of the pile support itself is also required. Because the pile support 110 rests on beams 111 which in turn are suspended by chains in a conventional manner, it is not unusual in such arrangement for the pile support to swing or sway to a limited extent due to vibrations and movement of the various mechanisms involved. To prevent any other than vertical movement of the support, rods 112, see Figures 1 and 7, are removably secured to the beams 111 and carry flanged rollers 113 at one end which are fitted between L-shaped tracks 114 mounted on each side of the delivery frame. By this means the support 110 is free to be raised or lowered while the flanged rollers will prevent any lateral sway, i. e., horizontal movement thereof.

Locking means are also provided whereby the stacking mechanism may be locked in an inoperative, retracted position, see Figure 8. The lever 116 pivotally mounted on stud 117 is held in an inoperative position, as indicated by dotted lines by the leaf stpring 118 fixed to lever 116. This spring rests on the projecting knob 119. Rigidly fixed to shaft 39 is the collar 120 formed with a notch 121, while on shaft 50 is fixed a similar collar 122 having a notch 123. To lock the mechanism, the lever 116 is moved from its inoperative, dotted line position to its operative, full line position in which the lip 124 engages notch 121 in the collar 120 and the edge 125 engages notch 123 in collar 122, thereby holding shafts 39 and 50 in their retracted position against the pressure of the springs 99 and 107 respectively, see Figure 6.

In operating our novel stacking device, having reference to Figure 1, the blank sheets of paper or card board are fed over the feed board 13 to the sheet carrying impression cylinder 11, which together with the form or bed 14, performs the operation of cutting and creasing the blank sheets into a plurality of folding box blanks. After the box blanks have been formed, the cut and creased sheets are transferred by means of the drop rollers 17 and stripper fingers 18 to present them to the delivery mechanism.

Immediately after the leading edge of a processed sheet passes the point of tangency between the rollers 17 and the cylinder 11, these rollers move into their operative position in contact with the sheet on the cylinder. Simultaneously with the movement of the rollers 17, the leading edge of the sheet is released by the cylinder grippers 12 and the stripping fingers 18 move to their position in close proximity to the cylinder.

By pressing the sheet against the peripheral surface of the cylinder the rollers 17 create friction whereby the leading edge of the sheet is pushed through the intervening space between the cylinder 11 and the chain delivery with the fingers 18 guiding the sheet onto the supporting bars 20 as shown in Figure 1.

Because the peripheral speed of the cylinder 11 is slightly greater than the lineal speed of the chain conveyor, the gripper edge of a sheet is urged against the front guides or sheet aligning elements 23 and is maintained in contact with said guides until gripped by the delivery fingers 22. By means of the adjustable cam 26 the gripper fingers 22 are timed to close on the oncoming sheet immediately before its trailing edge passes beneath the rollers 17. Consequently, control of the sheet is maintained while it is being transferred from the cylinder to the chain conveyor.

The supporting bars 26 are located in a position wherein they guide the gripper edge of the sheet into the bite of the open delivery gripper pads and associated fingers.

As the sheet is being conveyed to the delivery pile table the trailing portion of it is supported on the carriage 29 which reciprocates in the tracks 30 from the position shown in Figure 1 to that illustrated in Figure 2, namely directly above the pile support 110. At this point the leading edge of the sheet is guided into the bite of the open stacking device gripper jaws 34 and 35 preparatory to its being deposited onto the pile. For the purpose of accurately aligning the stacking device grippers with the leading edge of the sheets to be delivered, the stops 46 and 47, see Figure 3, are provided, which stops can be adjusted to either raise or lower said grippers. This adjustment is made when the stacking device is being installed on a press and it provides a permanent setting.

As soon as the leading edge of a sheet enters into the bite of the gripper jaws 34 and 35, the grippers close and the stacking devices commences its delivery motion by virtue of the cams 81, 82 and 83 acting on levers 84, 85 and 86 respectively as hereinabove described.

The clockwise movement of shaft 50 causes the gripper jaws 34 and 35 to move a short distance in a direction relative to that of the sheet and at the same speed until the roller 60 drops to the low part 64 of cam 61 causing lever 54, urged by the spring 56, to move in a clockwise direction and thereby imparting a counter-clockwise motion to jaw 35 through the connecting rod 93 until it closes on the sheet. The chain delivery grippers 22 are timed to release the sheet at the moment when the stacking grippers close on it. The opening of the delivery grippers is preferably accomplished by conventional cam means, not shown, which may be similar to the cam 26 whereby these grippers are actuated to engage the sheets or blanks prior to being delivered.

The counter-clockwise movement of shaft 39 is transmitted through lever 40 and spring 42 to lever 38 and thereby to the connecting bar 37 which moves the grippers 34 and 35 and stacking finger 74 downwardly while maintaining their horizontal position as shown in Figure 3. Resilient spring means 42 are used to transmit the movement of lever 40 to lever 38 as a precautionary measure in the event some interference might prevent free movement of the grippers 34 and 35 to their sheet depositing position. In that case all movement of lever 40 would be absorbed by spring 42 and no damage would be done to the mechanism. This also permits the grippers to automatically adjust themselves to compensate for variations in the pile height. Furthermore, spring 42 functions to absorb any shock which might otherwise be transmitted through shaft 39 to the gripper jaws 34 and 35 at the start of their downward movement and which might cause the sheet to slip in the gripper jaws, thereby adversely affecting its position with respect to the accumulating pile.

The reciprocating carriage 29 then moves out from under the trailing portion of the delivered sheet. During the downward movement of the grippers 34 and 35 the depending portion 72 of

holder 71 contacts the lever 70 causing holder 71 and the stacking finger 74 to rock counter-clockwise on pin 36. This action, and while said grippers are still closed, causes the tip of finger 74 to engage and depress the tab 75, see Figure 4, into interlocking relation with the previously delivered sheets after the sheet has been deposited in aligned relation with the sheets already on the pile, thereby firmly locking the stacked sheets together to prevent any disturbance of the aligned blanks during their removal from the press for the stripping operation.

The stacking device remains in this retracted position until the trailing portion of the delivered sheet has dropped into position on the pile at which time, by virtue of the contour of cam 81, a counter-clockwise motion is imparted to shaft 69, causing the high part 63 of cam 61 to move under and raise the roller 60 thereby transmitting a clockwise movement to the gripper 35 through lever 54 and rod 53 which releases the leading edge of the delivered sheet.

This counter-clockwise movement of shaft 69 also moves lever 70 from its position beneath the depending portion 72 of holder 71 allowing the holder and finger 74 to drop to a horizontal position with the finger 74 raised free of the sheet. Immediately thereafter, by virtue of the contour of cams 82 and 83, shaft 50 is given a further clockwise movement while shaft 39 moves a relative amount in a counter-clockwise direction until gripper 34 is moved out from under the delivered sheet after which the action of the shafts is reversed and the stacking mechanism is returned to its sheet receiving position.

To lock the device in its inoperative position, the spring 118 is depressed past the projecting knob 119 causing the edge 125 and lip 124 to ride on the peripheral surfaces of the collars 122 and 120 until the stacking mechanism moves to its retracted position. Then urged by the pressure of spring 118, lip 124 drops into notch 121 as edge 125 moves into notch 123. In this position the lever 116 holds the shafts 39 against any movement in clockwise direction and the shaft 50 against any movement in the counter-clockwise direction against the tension exerted by the springs 107 and 99 respectively, see Figure 6, thereby preventing the return of the stacking device to its sheet receiving position.

To release the device from its locked relation, the spring 118 is returned to its position above the knob 119 and when the actuating mechanism again reaches the retracted position in which the pressure of springs 99 and 107 is removed from the lip 124 and edge 125, spring 118 will urge lever 116 in a clockwise direction away from the collars 120 and 122 thereby releasing the stacking mechanism for continued operation.

While we have disclosed herein a preferred embodiment of our invention, it shall be understood that many modifications in design and function may be introduced without departing from the basic principles involved, therefore it is our aim to cover any such features that will come within the scope and meaning of the appended claims.

We claim:

1. In combination with a cutting and creasing press for producing carton blanks and similar articles, a stacking device including, a chain delivery having gripper elements thereon, means for conveying sheets of processed blanks from the press to said elements in aligned relation thereto, a reciprocating carriage for supporting the sheets while being conveyed by said chain delivery, stacking grippers operative to receive the sheets from said gripper elements, a support, means to operate said stacking grippers to deposit the sheets in superposed relation onto said support, and means mounted to move with the stacking grippers to engage the deposited sheets and interlock them in aligned, stacked relation.

2. A stacking device as set forth in claim 1, in which the means for interlocking a sheet with previously deposited sheets is actuated while the sheet is still in the bite of the stacking grippers.

3. In a device for stacking die cut sheets of carton blanks in superposed, interlaced relation on a pile support, the combination comprising, a plurality of stacking grippers, mechanism for actuating said grippers to engage each succeeding die cut sheet and deposit it in aligned relation on the support, said grippers maintaining their bite on the sheet until the leading edge is firmly in position on the support, a stacking finger mounted on each gripper for movement therewith, and means incorporated in said mechanism for actuating said fingers to thereby depress selected portions of said sheet into interlocking relation with previously deposited sheets on the support before said grippers release their bite on the sheet.

4. In a device for stocking die cut sheets of carton blanks on a pile support, the combination comprising, conveying means for transferring individual die cut sheets to a position adjacent the pile support, a plurality of stacking grippers having a sheet engaging position wherein they engage sheets carried by said conveying means and a sheet depositing position wherein they place the sheets onto the support in aligned relation, mechanism for actuating said stacking grippers in timed relation to said conveying means, a stacking finger pivotally mounted on and movable with each stacking gripper for depressing portions of each sheet into interlocking relation with the previously delivered sheets, and means associated with said mechanism for actuating said fingers each time the grippers are in their sheet depositing position.

5. A device as set forth in claim 4, wherein said stacking fingers are actuated to thereby interlock the last deposited sheet with the previously delivered sheets before said last sheet is released by said grippers.

6. In a device for stacking die cut sheets of carton blanks in superposed, interlocked relation on a pile support, the combination comprising an endless conveyor for conveying sheets to the pile support, a reciprocating carriage having operation to support the trailing portion of each sheet as it is conveyed to and deposited onto said pile support, a series of stacking grippers, mechanism for actuating said grippers to take sheets from said conveyor and stack them in aligned relation on said support, and means pivotally mounted adjacent each of said grippers and movable therewith, for depressing tabs formed in said sheets whereby each succeeding sheet is interlocked with previously delivered sheets on the pile support while still in the bite of said grippers.

7. In a device for stacking die cut sheets of carton blanks in superposed, interlocked relation on a pile support, the combination comprising a series of stacking grippers for engaging successive sheets and depositing them in aligned relation on the support, mechanism for actuating said grippers including cam means for moving them from their sheet engaging position to their sheet depositing position and thence to a withdrawn

position wherein they are removed from contact with the deposited sheet, and resilient spring means for returning them to their sheet engaging position, a stacking finger pivotally mounted on and movable with each stacking gripper for depressing tabs formed in said sheets to thereby interlock the successive sheets in aligned relation on the support, means associated with said mechanism for actuating said fingers while the grippers are in their sheet depositing position, and manually operable locking means associated with said mechanism for locking the stacking grippers and therewith the fingers in their withdrawn position against the pressure of said resilient spring means.

8. In combination with a cutting and creasing press for producing carton blanks and similar articles, a sheet stacking device including, a chain delivery having gripper elements thereon, means for conveying sheets of processed blanks from the press to said elements in aligned relation thereto, a plurality of guides mounted on said gripper elements for registering the sheets before they are gripped by said elements, a reciprocating carriage having coaction with said chain delivery to support the trailing portion of the sheets while they are being conveyed by said chain delivery, stacking grippers operative to receive the sheets from said gripper elements, a pile support onto which said sheets are deposited, drive means for actuating said stacking grippers to deposit each succeeding sheet in superposed relation onto said support, a stacking finger pivotally mounted for movement with each stacking gripper, mechanism for actuating said fingers to engage each successive sheet as it is deposited onto said support whereby to interlock it in aligned relation with the preceding sheets, and while said sheet is still in the bite of the stacking grippers, and manually operable means associated with said drive means and operative when actuated to lock the stacking grippers and therewith the stacking fingers in an inoperative position while the press and sheet conveyor continue operation.

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