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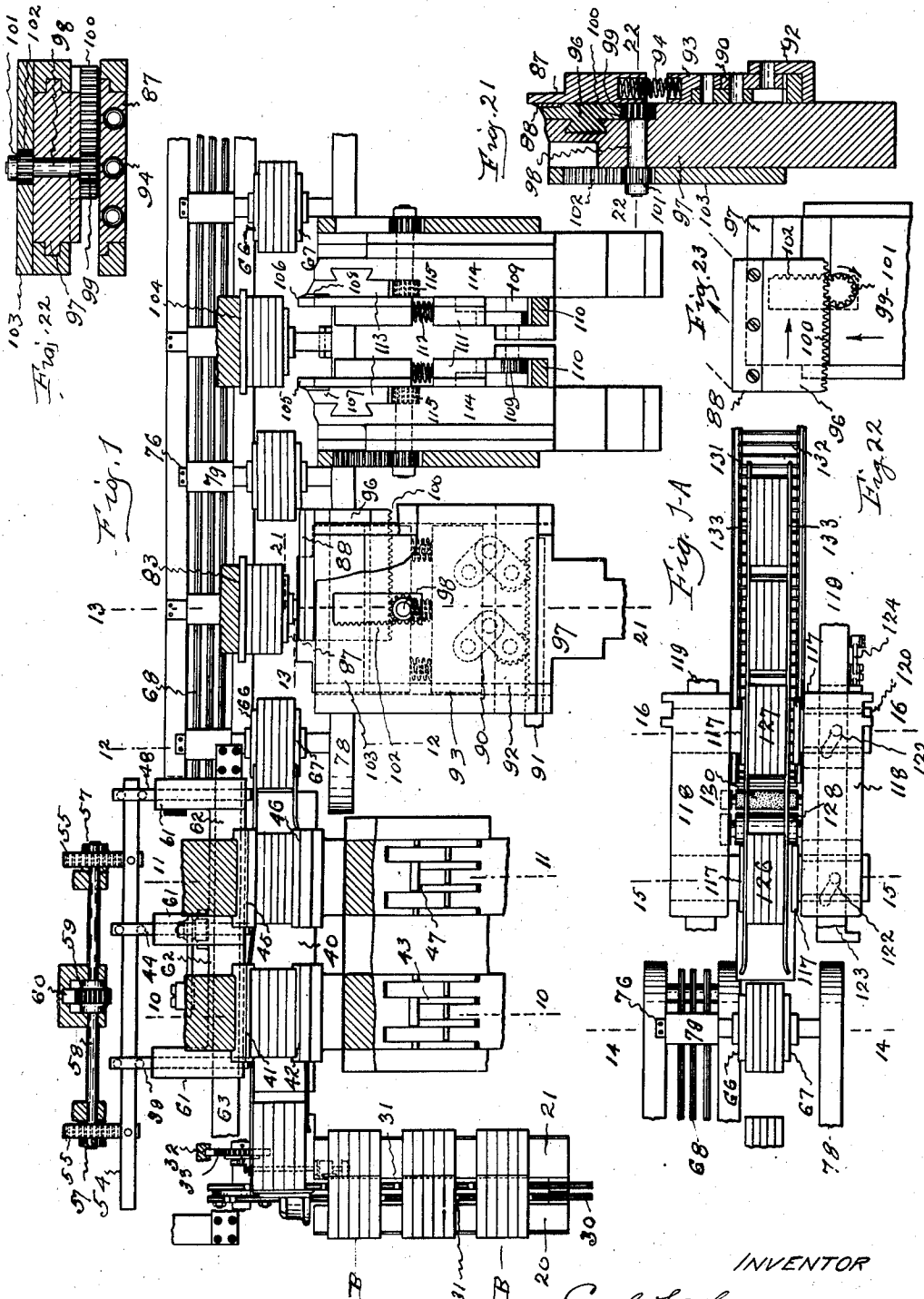
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METHOD AND MEANS FOR PREPARING BOOKS FOR BINDING

Filed March 15, 1939

3 Sheets-Sheet 1



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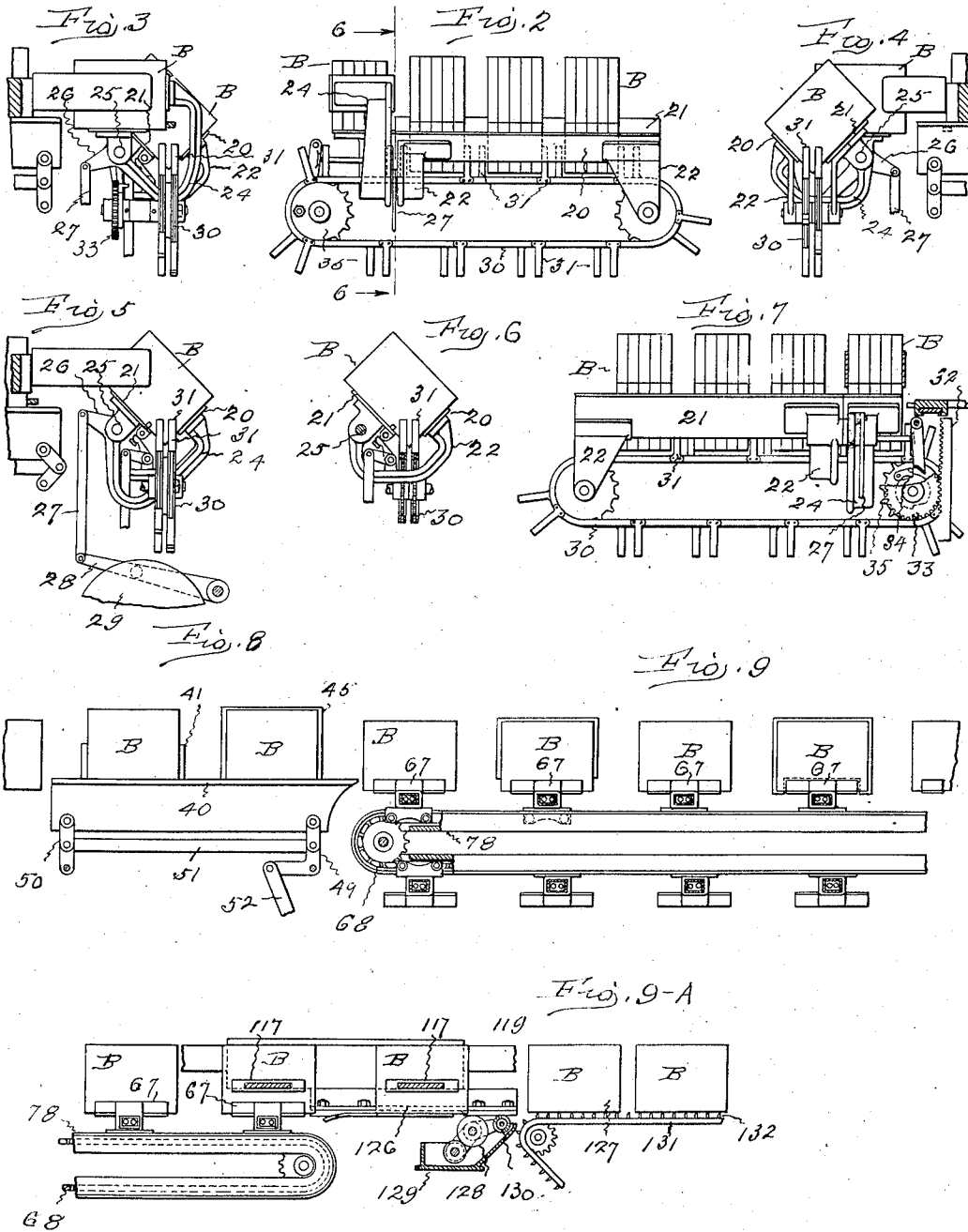
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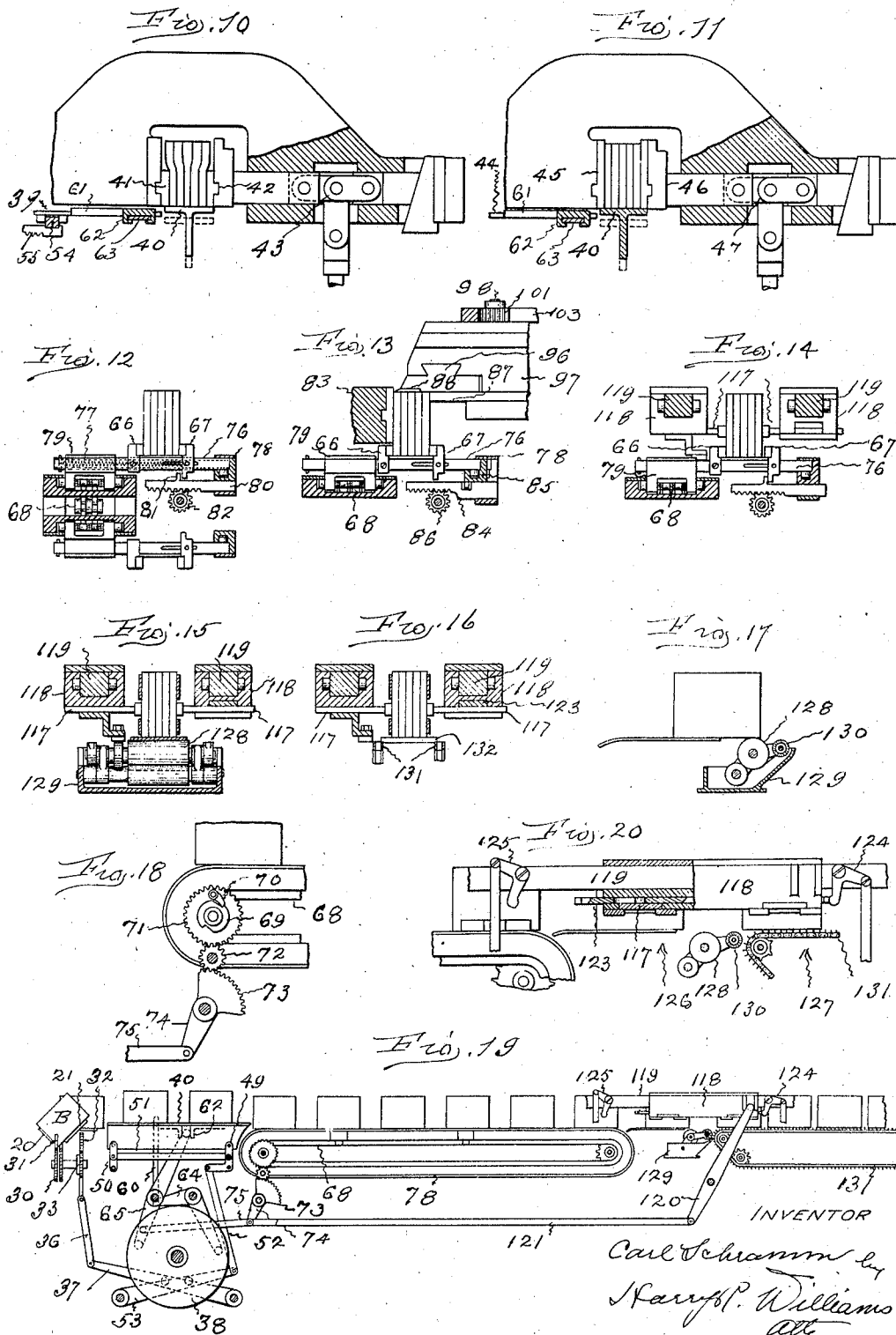
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UNITED STATES PATENT OFFICE

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METHOD AND MEANS FOR PREPARING
BOOKS FOR BINDING

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24 Claims. (Cl. 11—1)

The invention relates to a method of and means for treating unbound books and delivering them in condition for subsequent binding operations.

5 The present conception contemplates in its preferred although not sole practice or embodiment, automatically feeding step by step in succession groups of books, each group comprising a plurality of unbound books usually but not necessarily stitched, arranged side by side, to means which will "nip" and "smash" (sidewise compress) the books, trim the "fore" (front) edges and the "head" (top) and "tail" (bottom) edges, then to means which will apply and spread adhesive, usually glue, on the backs, and finally discharge the books in condition to be stacked for future treatment, or to be immediately submitted to subsequent operations, such as rounding and jointing, back-lining and casing-in.

10 The object of the invention is the provision of method and means whereby unbound books in large numbers may be rapidly subjected to all or to as many of the above-mentioned operations as are required for the particular class of books at hand, without the necessity of manually handling the books between the operations so that the books will retain their desired shapes and will be discharged in identical uniform and undistorted condition.

15 In order to avoid unnecessary complication of the drawings the main supporting frame of the machine and the driving power and connections are not illustrated in detail as those features may be varied and are not essential to the present invention, the means and the immediate operating mechanisms for effecting the various results only being shown.

20 In the accompanying drawings Fig. 1 and Fig. 1-A a continuation of Fig. 1, taken together show a top plan view of the essential elements of an entire machine constructed to practice the invention. Fig. 2 is a front elevation of the rack for receiving and the means for feeding groups of books along the rack. Fig. 3 is a view looking toward the left hand end of Fig. 2. Fig. 4 is a view looking toward the right hand end of Fig. 2. In these views an oscillatory section of the left hand end of the rack is shown as turned over toward the rear.

25 Fig. 5 is a view looking toward the left hand end of the rack before the oscillatory section is turned over. Fig. 6 is a view of the rack looking from the dotted line 6—6 on Fig. 2. Fig. 7 is a rear elevation of the receiving rack and group feeding means. Fig. 8 is an elevation of two

groups of books on a vertically movable support, one group being in nipping position and the other being in smashing position. Fig. 9 shows a series of groups as advanced from smashing position to the positions in which the fore edges, and the head and tail edges are trimmed. Fig. 9-A is a continuation of Fig. 9 and shows groups of books that have been trimmed being carried past gluing means and delivered onto a discharge conveyor. Fig. 10 is a section, with parts broken away, on plane denoted by dotted line 10—10 on Fig. 1, showing a group of books being nipped. Fig. 11 is a similar view on dotted line 11—11 on Fig. 1 showing a group of books being smashed.

Fig. 12 is a section on plane 12—12, Fig. 1, showing the means for feeding the groups of books from smashing position to the trimming positions. Fig. 13 is a section on plane 13—13, Fig. 1, showing a group of books at the first trimming station. Fig. 14 is a section on plane 14—14, Fig. 1-A, where the groups of books are released from the means which feed them past the trimming stations, and are grasped by the means which carries them over the glue applying means. Fig. 15 is a section on plane 15—15, Fig. 1-A, showing a group of books about to be glued. Fig. 16 is a section on plane 16—16, Fig. 1-A, showing a group of glued books about to be released onto the discharge conveyor. Fig. 17 is a section showing the glue applying and spreading means. Fig. 18 is a detail of the carrier chain drive. Fig. 19 is a diagrammatic view illustrating the passage of the groups of books through the machine. Fig. 20 is a side elevation with parts broken away of mechanism employed in opening and closing and advancing and returning the jaws which carry the books over the gluing means. Fig. 21 is a section through the trimming mechanism on plane indicated by dotted line 21—21 on Fig. 1. Fig. 22 is a transverse section of the trimming mechanism on plane indicated by dotted line 22—22 on Fig. 21. Fig. 23 is a diagram illustrating the path of movement of a trimming blade.

The desired number of books B are grouped side by side by an operative and placed in a sectional rack that has a front member 20 and a back member 21 arranged 90° in relation to each other with the apex at the bottom. The members of the main section of the rack are fastened to yokes 22 that are fixed in position. The members of an oscillatory section at one end of the rack are fastened to a yoke 24 that is pivotally mounted so that this section may be swung from alignment with the main section over toward the back. The yoke 24 is pivoted on a shaft 25, and it

has an arm 25 which is connected by a link 27 with a lever 28 that is actuated at the proper times by a cam on cam disk 29 to turn the oscillatory section 45° and carry a group of books 5 therein from the position shown in Fig. 5 to the position shown in Fig. 3.

Two endless chains 30 that are adjustable with relation to each other but travel together below the rack, have a plurality of arms 31 which project so as to pass in pairs, one arm of each pair being on one chain and the other arm of each pair on the adjacent chain, through an opening that extends longitudinally of the bottom of the rack. The chains are shown as driven 15 by a reciprocatory toothed rack 32 which engages a pinion 33 that through a ratchet and pawl means 34 intermittently turn the chain sprockets 35, Fig. 7. The toothed rack is indicated as connected by a link 36 to a lever 37 that is oscillated by a cam on the cam disk 38, Fig. 19. 20 The books are grouped in the feed rack between pairs of the arms with their backs resting against the back member and their heads resting against the front member of the rack, and with an arm 25 which extends from one chain in front of a corner of the group and an arm which extends from the other chain in back of a corner of the group, Fig. 2. The travel of the chain causes the arms to advance the books of a group en masse from station to station along the feed rack, during which time the books may be tapped 30 by the attendant so that their backs will rest uniformly against the back member and their heads will rest uniformly against the front member of the rack. If the forward group is of the required thickness and fills the space between 35 its supporting arms it is advanced until it reaches the oscillatory section of the feed rack which then is turned over backward until the backs of the books are down and in a horizontal plane. 40

From this turned back position the group is pushed by a finger 39 onto a support 40 which then is raised and lifts the group between jaws 41 and 42 which nip, that is, compress the books 45 near their back edges. The jaw 41 is preferably fixed in position while the jaw 42 is movable transversely of the books and opened and closed by powerful mechanism, such as the toggles 43, Figs. 1 and 10. After the group has been compressed between the nipping jaws the movable 50 jaw is opened and the support with the group is lowered to a position in which the group may be pushed by a finger 44 along the support to a station where the support is again raised and the group lifted between plates 45 and 46. The plate 45 is preferably fixed and the plate 46 is transversely movable, and is opened and closed 55 by powerful mechanism, such as the toggles 47. By these plates the books are smashed, that is, subjected to heavy pressure over their entire side surfaces, Figs. 1, 11. After the group of books has been smashed the movable plate is opened and the support with the compressed group is lowered to a position in which the group 65 may be pushed by a finger 48 from the support 40 to the next station. The support for the groups in the nipping and smashing positions preferably is formed in one piece, as illustrated in Fig. 8. One group is being nipped and one 70 group is being smashed at the same time, and the backs of the books are boxed in by the support and jaws while being nipped, and by the support and plates while being smashed so they will retain their shapes. The support may be 75 raised and lowered at the required times by the

toggles 49, 50, the joints of which are connected together by a bar 51 so they will act together, Fig. 8. One of the toggles is connected by a link 52 with a lever 53 that may be actuated at the proper times by a cam on the cam disk 38, Fig. 19. 5

The fingers 39, 44 and 48 are slidably connected at their outer ends with a bar 54 that is attached to the ends of two racks 55 which are engaged by pinions 57 on a shaft 58 that has a pinion 59 adapted to be rotated back and forth by a 10 vertically movable rack 60, Fig. 1. The inner ends of the fingers are adapted to move freely into and out of the path of the groups of books, in ways in arms 61 that project from a slide 62 which is movable back and forth longitudinally 15 of the book path on a guide 63, Figs. 1, 10, 11. The vertical rack 60 is shown as adapted to be raised and lowered by an angle lever 64 controlled by a cam on the disk 38, and the slide 62 is shown as adapted to be reciprocated by a 20 lever 65 that is controlled by a cam on the disk 38, Fig. 19. By these mechanisms the fingers which push the books from the feed rack onto the support in nipping and smashing positions and from the latter position, are at the designed 25 times moved in transversely back of the groups, then moved longitudinally to push the groups from position to position, then withdrawn transversely and returned to starting position for advancing following groups of books. 30

At the station to which a group of books is pushed from the smashing station the group is grasped near the backs of the books by carrier jaws 66, 67 which are opened and closed and 35 advanced step by step. There are several pair of carrier jaws connected with an endless chain 68 that extends along one side of the machine from approximately the smashing station to the glue applying locality and is moved step by step in synchronism with the movements of the feed 40 fingers. For moving the chain the shaft of one of the chain sprocket wheels may have a ratchet wheel 69 engaged by a pawl 70 which is attached to a gear 71 that is driven by a pinion 72 which is engaged by a segmental rack 73, Fig. 18. This 45 segmental rack may be provided with an arm 74 that is connected by a link 75 with an end of the lever 65 which is actuated by a cam on the disk 38, Fig. 19.

The carrier jaw 66 is fixed to a transversely 50 movable slide 76 and the carrier jaw 67 is movably mounted on the slide and is drawn toward the jaw 66 for claspings the group of books by a spring 77, Fig. 12. One end of the slide is supported by a track 78 and the other end is movably supported by a block 79 that is fastened 55 to the carrier chain 68. For opening the jaw 67 to permit the entrance of a group of books between the carrier jaws, a sliding rack 80 with a tooth 81 may be arranged to contact the jaw 67. This 60 rack may be engaged by a pinion 82 that at the proper times is actuated by suitable mechanism to draw the jaw 67 open against the pull of the closing spring 77 and then release the jaw and allow the pull of the spring to close the jaw 67 65 against the entered group of books, Fig. 12. The carrier-jaw-opening mechanism above described is arranged adjacent to the receiving end of the carrier chain 68 and before the trimming stations. Similar mechanism, Fig. 14, is arranged 70 adjacent to the discharge end of the carrier chain 68 for releasing the groups of books after they have been trimmed.

The carrier jaws hold the groups of books while the carrier chain advances the groups step by 75

step to means which trims the fore edges of the books and then to means which trims the head and tail edges of the books.

the book are being trimmed are duplicates, as are the blades for effecting the trimming of the edges, and the mechanism for causing the movements of the clamp plates and trimming blades are alike.

The vertically arranged head and tail clamp plates are actuated by toggles 109 engaged by racks 110, and are connected with blocks 111, between which and the clamp plates are springs 112, Fig. 1. The trimming blades are attached to slides 113 which have transverse movements in plates 114 that carry pinions which engage with racks, so as to impart oblique movements to the trimming blades as they are carried in and out, as above described in connection with the horizontally movable blade employed to trim the fore edges of the books.

After the head and tail edges of the books have been trimmed and as the clamps and cutting blades are withdrawn the trimmed group is returned transversely to the normal path through the machine as previously described and carried to an idle position where the books are gripped by carrier arms 117 and released from the jaws 66 and 67 that are attached to the carrier chain 68, Fig. 14. The carrier arms 117 of which two pair are illustrated, are held by carriages 118 that are movable on fixed tracks 119 parallel with the book path, Fig. 1-A. The carriages 118 may be reciprocated by a lever 120 that is shown as connected by a link 121 with the lever 74 so that the movements of the carriages will synchronize with the movements of the groups to the nipping, smashing and trimming means, Fig. 19. The carrier arms 117 on one side of the book path are shown as opened and closed transversely of the book path by means of pin and slot connections 122 between the shanks of the arms and a bar 123 that is free to be reciprocated in the carriage 118 on that side, Figs. 1-A, 20. When the carriage reaches one end of its reciprocatory movement the bar 123 is engaged by a lever 124 and pushed in one direction and when the carriage reaches the other end of its travel the bar 123 is engaged by a lever 125 and pushed in the opposite direction, Fig. 20.

The carrier arms 117 grip a group of books and carry it first to an idle station 126 and then to another idle station 127. In traveling from one to the other of these stations the group passes over the adhesive applying means, Fig. 1-A. This means is illustrated as comprising a rotatable roll 128 that gathers glue from a tank 129 and applies it to the backs of the books of the group as they pass, and a brush 130 that will spread the glue over the backs, Figs. 9-A, 17, 19, 20. After passing the adhesive applying means the group is deposited upon conveyor chains 131 which have transverse ridges 132, Fig. 9-A, that will hold the glued backs of the books above the main surface of the conveyor and carry the group between guide rails 133, Fig. 1-A, until the glue has hardened to the desired condition.

The books grouped side by side as placed in the feed rack are advanced in succession step by step through the machine. The number of books grouped will vary according to their thickness and the adjustment of the mechanisms, but of course the groups must be the same thickness for each adjustment. As many books are continuously passing through the machine and are being subjected to the respective operations at the same time the output is large. And as the

As a group of books reaches the first trimming station the slide 76 with the carrier jaws 66 and 67 holding the group are moved as a unit sideways out of the normal path through the machine and the books set against a backing plate 63, Figs. 1, 13. This is effected by means of the engagement of a rack 84 with a movable section 85 of the guide-way 78 that is temporarily connected with the end of the slide 76; the rack 84 being reciprocated at the proper times by the rotatory movements of a pinion 86, Fig. 13. With the group backed on one side by the plate 63 a clamping plate 87 is moved horizontally against the other side near the fore edges of the books, and following this a cutter blade 88 is forced transversely across the fore edges with an oblique movement so as to shear those edges.

The clamping plate 87 is forced horizontally toward the book path by toggles 90 which may be opened and closed by a rack 91 reciprocated by suitable mechanism. The toggles are connected between a fixed block 92 and a movable block 93, and springs 94 are arranged between the block 93 and the inner edge of the clamping plate 87 for cushioning the pressure of the clamping plate against the books, Figs. 1, 21. The cutter blade 88 is fastened to a slide 96 which is dove-tailed into a carrying plate 97 so that the cutter blade may move transversely of this plate and parallel with the path of the books through the machine. The plate 97 is supported in the frame of the machine so that it may be moved in and out transversely of the book path by convenient mechanism. The plate 97 carries a shaft 98 on one end of which is a pinion 99 that engages a rack 100 in the rear edge of the cutter slide 96, and on the other end of this shaft is a pinion 101 that engages with a rack 102 in a plate 103 that is fixed to the top of the frame, Fig. 21. By this means when the plate 97 is moved inward the fixed rack 102 causes the rotation of the pinions 99, 101 and the rotation of the pinion 101 coincidentally causes the cutter slide to move transversely of the carrying plate, and thereby as the cutter blade is carried toward the book path it is also carried longitudinally of the book path, the resultant movement causing an oblique shearing action across the fore edges of the books that are clamped in this position, Figs. 1, 21. This movement of the fore edge trimming blade is diagrammatically indicated in Fig. 23.

As the fore edge trimming blade and clamp plate are withdrawn the carrier jaws 66 and 67 holding the group of trimmed books are returned transversely to the normal path by the means previously described, and then are advanced two steps to carry the books to the second trimming station where the head and tail edges may be trimmed. At this station the books are again moved sideways out of the normal path by such means as previously described and set against a backing plate 104. Here there are two spaced clamp plates 105 and 106 and two spaced trimming blades 107 and 108, arranged vertically so they may be used, as desired, to hold and trim either or both the head and tail edges of the books, Fig. 1. The fore edge clamp plate and trimming blade, as above described, are moved in horizontal planes, while the head and tail clamp plates and trimming blades are moved in vertical planes. The clamp plates for holding the books while the fore, head and tail edges of

mechanisms treat all the books in exactly the same manner the result is uniformity of product.

If the books passed through the machine are to have the heads only trimmed the fore and tail trimming blades may be rendered ineffective, and if the books are to be finished with deckle edges all of the trimming blades may be rendered idle. In case nipping only is desired the smashing plates may be rendered ineffective, or if smashing is sufficient nipping may be omitted.

The invention claimed is:

1. The method of preparing books for binding which comprises grouping side by side a plurality of books, feeding said books en masse step by step to means which compresses the books flatwise, carrying said compressed group of books to means which trims edges of the books, passing said trimmed books en masse to means which applies glue to their back edges, and discharging the glued books for subsequent treatment.

2. The method of preparing books for binding which comprises grouping side by side a plurality of books, feeding said books en masse step by step to means which compresses the books flatwise and which at the same time holds their backs from distortion, carrying said compressed group of books to means which trims edges of the books, passing said trimmed books en masse to means which applies glue to their back edges, and discharging the glued books for subsequent treatment.

3. The method of preparing books for binding which comprises grouping side by side a plurality of books, feeding said books en masse step by step to means which compresses the books flatwise and which at the same time holds their backs from distortion, carrying said compressed group of books to means which trims the fore edges of the books, passing said trimmed books en masse to means which applies glue to their back edges, and discharging the glued books for subsequent treatment.

4. The method of preparing books for binding which comprises grouping side by side a plurality of books, feeding said books en masse step by step to means which compresses the books flatwise and which at the same time holds their backs from distortion, carrying said compressed group of books to means which trims the head edges of the books, passing said trimmed books en masse to means which applies glue to their back edges, and discharging the glued books for subsequent treatment.

5. The method of preparing stitched books for binding which comprises grouping side by side a plurality of books, feeding said books en masse step by step to means which compresses the books flatwise and which at the same time holds their backs from distortion, carrying said compressed group of books to means which trims the tail edges of the books, passing said trimmed books en masse to means which applies glue to their back edges, and discharging the glued books for subsequent treatment.

6. The method of preparing books for binding which comprises grouping side by side a plurality of books, feeding said books en masse to means which holds their backs from distortion and which compresses the books flatwise first near their backs and then over their entire sides, carrying said compressed group of books to means which trims edges of the books, passing said trimmed books en masse to means which applies glue to their back edges, and discharging the glued books for subsequent treatment.

7. The method of preparing books for binding which comprises grouping side by side a plurality of books, feeding said books en masse step by step to means which compresses the books flatwise first near their backs and then over their entire sides and which holds their backs from distortion, carrying said compressed group of books to co-operating means which clamp and trim their fore edges, transferring said mass of books to co-operating means which clamp and trim their head and tail edges, passing said trimmed books en masse to means which applies glue to their back edges, and stacking the glued books for subsequent treatment.

8. The method of preparing books for binding which comprises assembling the books side by side into a plurality of groups, feeding said groups in succession with step by step movements and sequentially applying pressure to the sides of the groups and compressing the books flatwise, trimming edges of the books in the groups, applying glue to the backs of the books in the groups, and stacking the groups for further treatment of the books.

9. The method of preparing books for binding which comprises assembling the books side by side into a plurality of groups, feeding said groups in succession with step by step movements and during dwell between movements applying pressure to the sides of the groups and compressing the books flatwise and next trimming edges of the books in the groups, and then during following movements applying glue to the backs of the books in the groups and depositing the groups for further treatment of the books.

10. The method of preparing books for binding which comprises assembling the books side by side into a plurality of groups, feeding said groups in succession with step by step movements and during dwell between movements applying pressure to the sides of the groups and compressing the books flatwise, trimming the fore, head and tail edges of the books in the groups, and during following movements applying glue to the back edges of the books in the groups and depositing the groups for further treatment of the books.

11. A machine for preparing groups of books for binding which comprises cooperating means for receiving and compressing the groups flatwise, co-operating means including a plurality of cutter blades for trimming edges of the books, means for applying glue to the backs of the books, a conveyor arranged to receive the groups of glued books, and feeding mechanism for advancing groups of books in succession step by step sequentially to the above recited means.

12. A machine for preparing groups of books for binding which comprises a conveyor co-operating means for receiving from the conveyor and compressing the groups of books flatwise, means engaging the backs of the books for supporting the groups of books and holding the book backs flat when groups are being compressed, co-operating means for trimming edges other than the backs of the books, means for applying glue to the backs of the books, a conveyor arranged to receive the groups of glued books, and feeding mechanism for advancing groups of books in succession step by step sequentially to the above recited means.

13. A machine for preparing groups of books for binding which comprises co-operating means for receiving and compressing flatwise the groups near the backs of the books, co-operating means

for receiving and compressing flatwise the groups over their entire side faces, means for supporting the groups and holding the book backs flat when groups are being compressed, co-operating shearing means for trimming edges of the books, and means for applying glue to the backs of the books, a conveyor arranged to receive the groups of glued books, and feeding mechanism for advancing groups of books in succession step by step sequentially to the above recited means.

14. A machine for preparing groups of books for binding which comprises co-operating means for receiving and compressing the groups of books flatwise, means for supporting the groups and holding the book backs flat when groups are being compressed, co-operating means for trimming the fore edges of the books, co-operating means for trimming the head and tail edges of the books, means for applying glue to the backs of the books, a conveyor arranged to receive the groups of glued books, and feeding mechanism for advancing groups of books in succession step by step sequentially to the above recited means.

15. A machine for preparing groups of books for binding which comprises co-operating means for receiving and compressing flatwise the groups near the backs of the books, co-operating means for receiving and compressing the groups of books flatwise near the backs of the books, co-operating means for receiving and compressing flatwise the groups over their entire side faces, means for supporting the groups and holding the book backs flat when groups are being compressed, co-operating means for trimming the fore edges of the books, co-operating means for trimming the head and tail edges of the books, means for applying glue to the backs of the books, and feeding mechanism for advancing groups of books in succession step by step sequentially to the above recited means.

16. A machine for preparing groups of books for binding which comprises co-operating plates for compressing the groups over their side faces, means for supporting the books and holding the book backs flat when groups are being compressed, co-operating shearing means for trimming edges of the books, means for applying glue to the backs of the books, a conveyor arranged to receive the groups of glued books, and feeding mechanism for advancing groups of books in succession step by step sequentially to the above recited means.

17. A machine for preparing groups of books for binding which comprises co-operating jaws for compressing the groups near the backs of the books, co-operating plates for compressing the groups over their entire side faces, means for supporting the groups and holding the book backs flat when groups are being compressed, co-operating means for trimming edges of the books, means for applying glue to the backs of the books, a conveyor arranged to receive the groups of glued books, and feeding mechanism for advancing groups of books in succession step by step sequentially to the above recited means.

18. A machine for preparing groups of books for binding which comprises co-operating jaws for compressing the groups near the backs of the books, co-operating plates for compressing the groups over their entire side faces, means for supporting the groups and holding the book backs flat when groups are being compressed, co-operating shearing dies for trimming the fore edges of the books, co-operating shearing dies for trimming the head and tail edges of the

books, means for applying glue to the backs of the books, a conveyor arranged to receive the groups of glued books, and feeding mechanism for advancing groups of books in succession step by step sequentially to the above recited means.

19. A machine for preparing groups of books for binding which comprises a stationary backing plate and a co-operating movable plate for receiving and compressing the groups over their side faces, a plate engaging the backs of the books for supporting the groups and holding the book backs flat when the groups are being compressed, a fixed shearing die and a co-operating movable shearing blade for trimming edges other than the backs of the books, means for applying glue to the backs of the books, a conveyor arranged to receive the groups of glued books, and feeding mechanism for advancing the groups of books in succession step by step sequentially to the above recited means.

20. A machine for preparing groups of books for binding which comprises a stationary backing jaw and a co-operating movable jaw for receiving and compressing the groups near the backs of the books, a stationary backing plate and co-operating movable plate for receiving and compressing the groups over their entire side faces, a plate for supporting the groups and holding the book backs flat when groups are being compressed, a fixed shearing die and a co-operating movable shearing blade for trimming the fore edges of the books, means for applying glue to the backs of the books, a conveyor arranged to receive the groups of glued books, and feeding mechanism for advancing the groups of books in succession step by step sequentially to the above recited means.

21. A machine for preparing groups of books for binding which comprises a stationary backing jaw and a co-operating movable jaw for receiving and compressing the groups near the backs of the books, a stationary backing plate and co-operating movable plate for receiving and compressing the groups over their entire side faces, a plate for supporting the groups and holding the book backs flat when the groups are being compressed, a fixed shearing die and a co-operating movable shearing blade for trimming the fore edges of the books, a fixed shearing die and co-operating movable shearing blades for trimming the head and tail edges of the books, means for applying glue to the backs of the books, a conveyor arranged to receive the groups of glued books, and feeding mechanism for advancing the groups of books in succession step by step sequentially to the above recited means.

22. A machine for preparing books for binding which comprises mechanism for advancing groups of books arranged side by side successively step by step through the machine, mechanism at one locality for applying, when the groups are stationary, pressure to the side surfaces of the groups, mechanism at two localities for trimming edges other than the backs of the books when the groups are stationary, and mechanism at one locality for applying glue to the backs of the books when the groups are in motion.

23. A machine for preparing books for binding which comprises mechanism for advancing groups of books arranged side by side successively step by step through the machine, mechanism at one locality for applying, when the groups are stationary, pressure to the side surfaces of the groups, mechanism at one locality for trimming

the fore edges of the books when the groups are stationary, mechanism at one locality for trimming the head edges and tail edges of the books when the groups are stationary, and mechanism for applying glue to the backs of the books when the groups are in motion.

24. A machine for preparing books for binding which comprises mechanism for advancing groups of books arranged side by side successively step by step through the machine, mechanism at one locality for applying, when the groups are stationary, pressure to the sides of the groups

near the backs of the books, mechanism at one locality for applying when the groups are stationary pressure to the entire surfaces of the sides of the groups, mechanism at one locality for trimming the fore edges of the books when the groups are stationary, mechanism at one locality for trimming the head edges and tail edges of the books when the groups are stationary, and mechanism for applying glue to the backs of the books when the groups are in motion.

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