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3,169,762

MAGAZINE MAKING APPARATUS

Filed March 7, 1963

2 Sheets-Sheet 1

FIG. 1

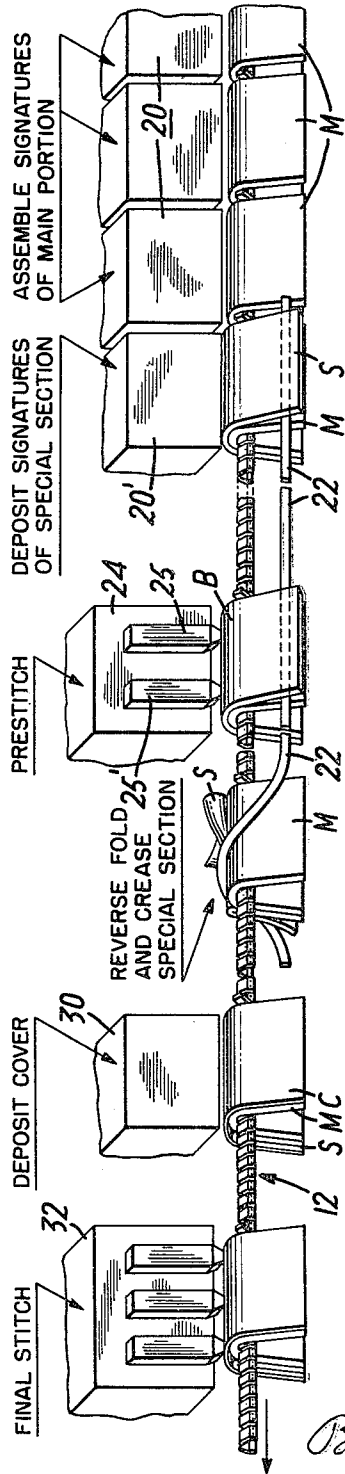
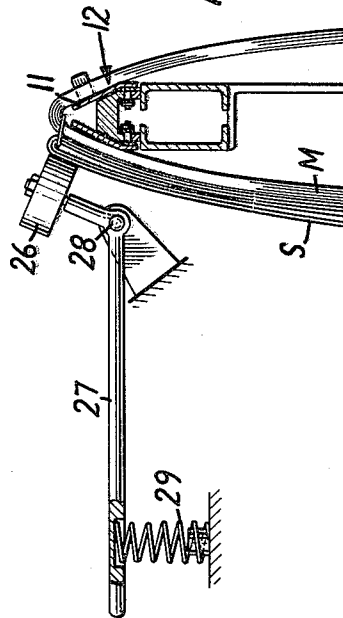


FIG. 2



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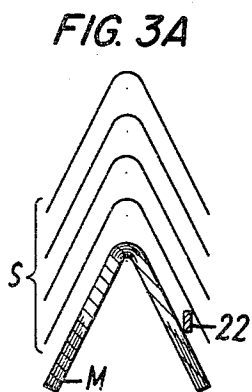
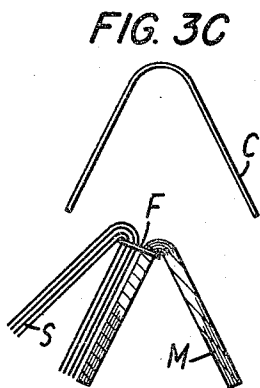
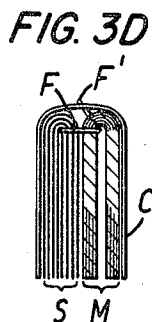
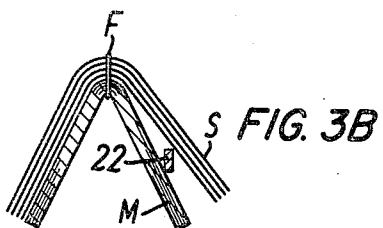
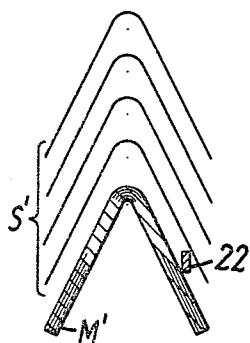
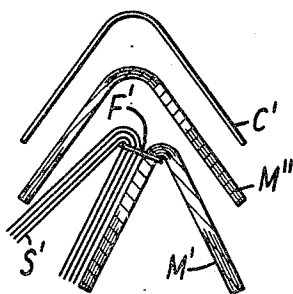
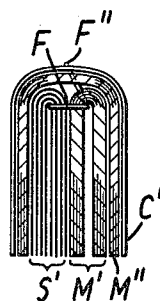
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## MAGAZINE MAKING APPARATUS

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7 Claims. (Cl. 270—55)

This invention relates to a novel method and apparatus for making a magazine having a special section attached to a main section, and to the novel magazine made by such novel method and apparatus. The term "magazine" is used herein in its broader connotation to include books, pamphlets and the like.

In one conventional method in widespread use of making magazines, printed signatures are delivered to a moving conveyor, one on top of another in straddling fashion on a saddle of the conveyor, until a complete collated magazine is assembled thereon. The magazines are then carried by the conveyor one after another to a stitching mechanism where the signatures are stapled or otherwise fastened together at their centerfolds.

More recently at least one nationally and internationally distributed magazine has begun incorporating a special regional section containing news and advertising of local interest in the magazine. The method of incorporating this special section within the cover of the magazine presents certain difficulties. If the signatures comprising the special section are the first to be collated on the moving conveyor, the special section will be located at the center of the magazine. On the other hand, if the signatures comprising the special section are the last to be collated on the moving conveyor, the special section will be located in part at the front and in part at the back of the magazine. In either case, the location of the special section in the magazine leaves something to be desired, in one case because it interrupts the continuity of the main section and in the other case because the continuity of the special section is interrupted by the main section. An orderly and logical arrangement of the magazine dictates that the special section be within the same cover as the main section and located either at the front or the back of the main section. Yet presently proposed methods of collating, assembling and stitching magazines are not adapted to the solution of this problem.

There is provided, in accordance with the invention, a method and apparatus for assembling a magazine in which a signature or group of signatures making up a special section are deposited on the conveyor in straddling fashion over the signatures making up at least part of the main portion of the magazine, are pre-stitched to those signatures, and the leaves of the special section are then folded over from one side of the stitching to the other so that all of the leaves of the special section lie on one side or the other of the main section. The cover of the magazine is then deposited on the conveyor and stitched to the pre-stitched assembly. In the completed magazine the regional or special section is located as a unit with the pages in sequence in any place in the magazine desired, preferably inside the cover at the front or back of the main section. This method and apparatus are readily adapted to conventional methods and apparatus for assembling signatures and making up magazines.

For a better understanding of the invention, reference may be made to the following detailed description of exemplary embodiments, taken in conjunction with the figures of the accompanying drawings in which:

FIG. 1 is a schematic perspective view of the apparatus of the present invention for assembling a magazine and having a special section;

FIG. 2 is a cross-sectional view taken generally along the line 2—2 of FIGURE 1 showing the conveyor on which the magazines are assembled and the means for creasing the centerfolds of the signatures comprising the special section after the leaves have been folded over from one side of the conveyor to the opposite side thereof;

FIGS. 3A, 3B, 3C and 3D are end views of the magazine at three stages of its assembly; and

FIGS. 4A, 4B and 4C are end views of the magazine, during three stages of its assembly, in which the special section is placed at a different location in the magazine according to the present invention.

Referring to the drawings, and particularly FIGURES 1 and 3A to 3D, a plurality of signatures making up a main portion M of a magazine are successively deposited, either one by one or in groups, in straddling fashion over saddles 11 (see FIG. 2) of a continuous conveyor or saddle chain 12 in accordance with known methods and using conventional apparatus. Typical inserters are shown and described in United States Letters Patent Nos. 2,845,264 and 2,903,260, and a typical conveyor is shown and described in United States Letters Patent No. 2,810,468. In a similar manner, signatures making up a special section S of the magazine are deposited one at a time or in a group on top of the main portion M. The signatures of the main and special sections are then stitched together, preferably by staples F (see FIGURE 3B) inserted through the backbones or centerfolds B of the signatures comprising both the main section and the special section. A typical stitching mechanism is shown and described in United States Letters Patent No. 2,827,632. After pre-stitching, the leaves of the special section S lying on one side of the saddle 11 are transferred from one side of the conveyor to the opposite side thereof to invert the folds B so that the special section S lies entirely to one side of the conveyor and the main section M, the staples F serving to hold the main and special sections together. The reversely folded signatures of the special section are then creased along their centerfolds to eliminate bulging and make the pages of the special section lie flat. The cover C is then deposited over the pre-stitched magazine and fastened by staples F' to the centerfolds B of the main portion M.

A method of assembling a modified form of magazine in which a special section S' is located between the back pages of a centrally located part M' of the main section and a series of pages of an outer main section M'' is illustrated in FIGURES 4A through 4C of the drawings. As shown in FIG. 4A, the signatures M' of the main section and the signatures S' of the special section are assembled in the manner described above in connection with FIGURES 3A through 3C. The special signatures S' are pre-stitched by staples F' and then the leaves of the special section are transferred from one side to the other, as shown in FIGURE 4B. The outer section M'' of the main magazine and the cover C' are then applied and fastened by staples F'' to part M', as illustrated in FIG. 4C, illustrating that according to the present invention the special section may be inserted into the magazine in any desired location, the placement depending upon the number of signatures deposited before and after the special section S'.

In the apparatus shown in FIGURE 1, a series of inserters 20 receive folded signatures, open them, place them over successive saddles of the conveyor in straddling fashion and pull the leaves down on opposite sides of the saddle, thereby assembling a collated main section M of the magazine. An inserter 20' or series thereof located downstream of the inserters 20 deposits the signatures of the special section S on the conveyor in similar fashion to the inserters 20, except that the leaves of the special sec-

tion on one side of the conveyor lie outside of a leaf turnover rail 22.

The upstream end of the rail 22 is located adjacent the conveyor at the inserter or inserters 20'. The upstream end of the rail 22 is spaced apart from one side of the conveyor and extends parallel to the conveyor, so that the leaves of the main section on that side of the conveyor pass between the conveyor and the upstream end of the rail. As the signatures of the special section S are deposited on the conveyor, the leaves on the one side of the conveyor lie outside the rail 22, so that the rail separates the leaves of the special section from the leaves of the main section on that side of the conveyor.

The rail extends past a pre-stitcher 24 where two conventional stitching heads 25 and 25' drive the staples F through the centerfolds of the signatures. It may be desirable to drive the staples through the signatures on a slight diagonal and adjacent the centerfolds to facilitate transferring the leaves of the special section from one side to the other and to leave the centerfolds of the main section free to receive the staples which fix the cover to the main section.

Downstream of the pre-stitcher 24, the rail 22 makes a helical-like twist, sloping upwardly and then curving over the top of the conveyor, so as to lift the leaves of the special section and transfer them to the opposite side of the conveyor, thereby reversely folding the signatures of the special section. In this connection, the staples are shown in FIGURE 3C after the turnover step as oriented approximately 90° from the position of the staples in FIGURE 3B before the turnover operation, but this is greatly exaggerated. The staples, however, undergo some angular orientation during this turnover operation.

The reversed centerfolds of the special section are then engaged by a creasing device. In the embodiment illustrated in FIGURE 2, this creasing device is shown schematically as a rotatable wheel journaled on a shaft 27. The shaft 27 is pivotally mounted at 28 and acted on by a spring 29 to urge the wheel in pressure engagement with the centerfolds of the special section. Obviously a spring urged presser foot or other suitable means can be employed to crease the reversely folded signatures of the special section.

A cover inserter 30, located downstream of the creasing device, deposits the cover over the pre-stitched special section S and the main section M after the turnover operation. As explained above, if desired, additional inserters (not shown) can be provided for depositing additional signatures of the main portion (for example signatures containing a title page, index page, and special advertising and feature pages) on the conveyor before the cover is applied. The cover and any additional signatures deposited before the application of the cover are then fastened to the centerfolds of the main section by a conventional three-head stitcher 32 completing the magazine.

As indicated previously, the special section S may be located at any predetermined place in the magazine. In this regard, the rail 22 may be located on either side of the conveyor, depending upon whether it is desired to place the special section in the front or in the back of the magazine. Additionally, more than one special section may be incorporated into a single magazine by duplicating the apparatus for depositing, pre-stitching and turning over the pages of special signatures. Where it is desired to include the special sections only in a selected number of the magazines being assembled, the inserters for the special pages and pre-stitcher can be shut down, and the main section assembled, the cover applied and the final stitching made using the same equipment.

It will be understood by those skilled in the art that the above-described examples of the invention are susceptible of variation and modification without departing from the scope and spirit of the invention. Therefore, the invention is not deemed to be limited other than by the appended claims.

#### I claim:

1. An apparatus for making up a magazine having a special section attached to the main section comprising a conveyor for carrying a main magazine section in straddling fashion thereon, a rail having a first portion spaced closely to and extending along the path of the conveyor on one side thereof and a second portion extending longitudinally and upwardly over the top of the conveyor to the opposite side, said rail spaced from said conveyor so that the leaves of the main section pass between said first portion of said rail and said conveyor, means along the path of said conveyor at which the said first portion of the rail extends for delivering the special section in straddling fashion on the conveyor on top of the main section with the leaves on one side of the conveyor separated from the leaves of the main section by the said first portion of the rail and means along the path of said conveyor intermediate the said delivering means and the second portion of the rail for fastening the special section to the main section along a line intermediate the leaves on opposite sides of the conveyor, whereby as the conveyor carries the main and special sections relative to the rail, the rail changes the leaves of the special section from one side of the conveyor to the opposite side thereof.

2. An apparatus as set forth in claim 1 including means for creasing the special section along a line adjacent the line along which the special section is fastened to the main section.

3. An apparatus as set forth in claim 1 including means for delivering a cover to the conveyor in straddling fashion on the main and special sections after the leaves of the special section are folded over the conveyor from one side to the other and means for fastening the cover to the main section intermediate the leaves on opposite sides of the conveyor.

4. An apparatus for making up a magazine having a special section attached to a main section comprising a conveyor for carrying the main section thereon in straddling fashion, fastening means for fastening the main section to the special section along a line intermediate the leaves on opposite sides of the conveyor, and a rail extending along and spaced apart from the conveyor for separating the leaves of the main section on one side of the conveyor from the leaves of the special section on the same side of the conveyor, said rail being characterized in that it extends from one side of the conveyor to the opposite side thereof downstream of the fastening means to guide the leaves of the special section from one side of the conveyor to the opposite side thereof.

5. An apparatus as set forth in claim 4 including means for creasing the special section adjacent the line along which the main and special sections are fastened.

6. An apparatus for assembling magazines and the like comprising means for conveying folded signatures in straddling fashion thereon, means depositing at least one signature making up a special section of said magazine over at least one other signature making up at least a part of a main body portion of said magazine, means along the path of travel of said conveying means for stitching said one signature to said other signature through the folds thereof, means for turning over the leaf of said one signature disposed on one side of said conveying means to the other side of said conveying means after passing said stitching means so that the leaves thereof lie on the same side of said conveying means, means for creasing the center-fold of said one signature after it has been stitched and turned over, and means depositing at least one additional signature onto said conveying means over said creased signature and said other signature.

7. Apparatus for making up a magazine having a special section attached to a main section, comprising conveyor means for carrying the main section in straddling fashion, means for delivering the special section in straddling fashion on the conveyor over the main section, means for fastening the special section to the main section

intermediate opposite edges thereof, and means for folding over the leaves of the special section from one side of the conveyor means to the opposite side thereof.

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