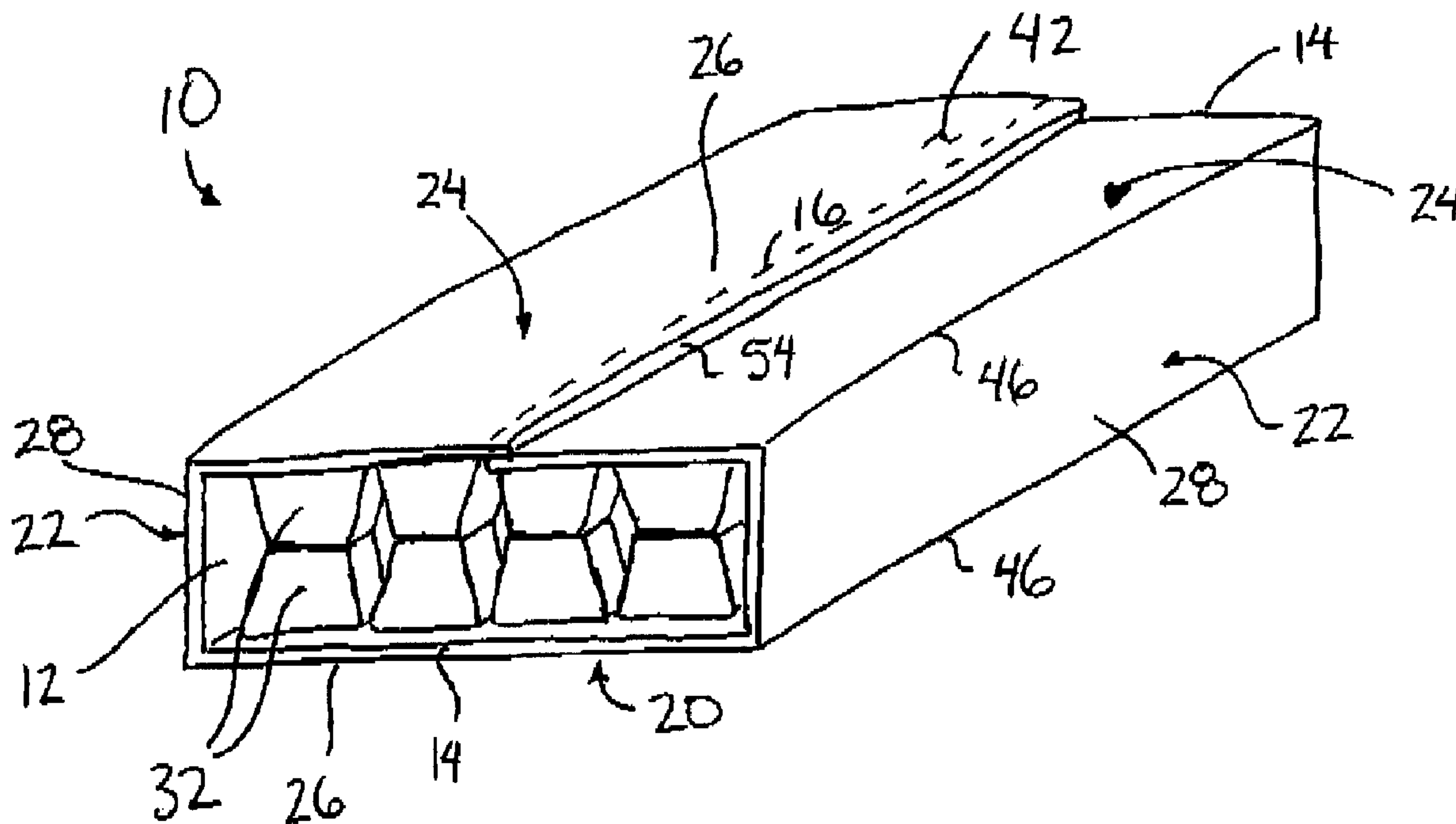




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(54) Titre : ENSEMBLE DE DISTRIBUTION DE MEDICAMENT  
(54) Title: MEDICATION DISPENSING PACKAGE



(57) Abrégé/Abstract:

A medication dispensing package comprises a plurality of capsules arranged for receiving respective medication tablets therein. A backing sheet is foldable into a rectangular housing of generally rectangular cross section in which a pair of main portions supporting the capsules thereon are joined by a spine portion to support the main portions parallel and spaced apart from one another by a height of two capsules. A rupturable sheeted material spans openings in the backing sheet to provide access to the medication tablets. The capsules on the opposed main portions of the backing sheet abut one another when the backing sheet is folded in a rectangular housing to provide additional support to maintain the opposed folded panels of the backing sheet in a parallel and spaced relationship and thus much larger doses of medication can be achieved in a single package.

**ABSTRACT**

A medication dispensing package comprises a plurality of capsules arranged for receiving respective medication tablets therein. A backing sheet is foldable into a rectangular housing of generally rectangular cross section in which a pair of main portions supporting the capsules thereon are joined by a spine portion to support the main portions parallel and spaced apart from one another by a height of two capsules. A rupturable sheeted material spans openings in the backing sheet to provide access to the medication tablets. The capsules on the opposed main portions of the backing sheet abut one another when the backing sheet is folded in a rectangular housing to provide additional support to maintain the opposed folded panels of the backing sheet in a parallel and spaced relationship and thus much larger doses of medication can be achieved in a single package.

## MEDICATION DISPENSING PACKAGE

### FIELD OF THE INVENTION

The present invention relates to a package for storing medicine in pill form within respective unit dose capsules for subsequent dispensing of the medicine  
5 from the capsules in individual doses.

### BACKGROUND

Persons with certain medical condition require large doses of medication which are commonly packaged in individual doses. The doses may comprise several pills or tablets which are required to be taken at intervals several times a day. In such  
10 large dosage requirements, it is common for pills to be packaged within individual capsules each representing a dose of plural pills or tablets to be taken in which a plurality of the capsules are common supported on a backing sheet and are each enclosed by a suitable sheet of rupturable material. Common designs of backing sheets supporting capsules thereon however have limited capacity and cannot  
15 support the volume of tablets required for persons for example who require multiple pills four times daily. When using a common design of supporting capsules on a single backing sheet, simply increasing the number of capsules would result in the sheet being too unstable and awkward to handle. It is common to strap two smaller backing sheets together when a larger capacity of capsules is required, however in  
20 this instance the two backing sheets held together are still lacking sufficient structure for ease of handling and storage. Furthermore the capsules in this instance are not protected.

Various attempts have been made to improve the structure of medication packaging as shown in the following patents: US 6,981,592 to Siegel; US  
25 6,371,297 to Cha; US 5,788,974 to D'Amico; US 5,542,236 to Miller; 5,323,908 to

Boettger; US 5,251,757 to Relyea et al.; US 5,109,987 to Romick; US 4,911,304 to Bunin; US 5,791,478 to Kalvelage et al.; US 5,050,739 to Hannan et al.; and US 4,340,141 to Fischer.

In general, the structure of prior art medication packages either limits the overall capacity or becomes unstable and inadequate to fully support all of the capsules when the capacity is increased.

US patents 5,050,739 belonging to Hannan and 4,340,141 to Fischer in particular disclose medication packages comprising a folded backing sheet supporting a plurality of capsules on separate panels of the sheet. The capsules are taught to be sufficiently spaced apart from one another and offset in relation to capsules on opposing panels so that the capsules are nested within one another when the sheet is folded. The nesting arrangement of the capsules improves the compactness of the resulting package however when requiring sufficient capsules to receive plural pills of tablets therein for plural doses throughout a day the resulting required structure would be far too large to be supported in a stable configuration.

### SUMMARY OF THE INVENTION

According to one aspect of the invention there is provided a medication dispensing package comprising:

a plurality of capsules arranged for receiving respective medication tablets therein, each capsule having an opening, an opposing enclosed end, and a peripheral rim flange extending about the opening in a plane of the opening, a height of the capsule being defined between the plane of the opening and the opposing enclosed end of the capsule;

a backing sheet having two opposed free edges extending in a longitudinal direction between opposed ends of the sheet;

a plurality of fold lines spanning across the backing sheet in the longitudinal direction between the opposed ends of the sheet and arranged such that the backing sheet is foldable into a housing of generally rectangular cross section in which the opposed free edges are adjacent one another and the housing defines a pair of rectangular main portions supported by at least one spine portion joined  
5 between the main portions along one side of the main portions to support the main portions parallel and spaced apart from one another by a spacing substantially corresponding to the height of two capsules;

a plurality of apertures formed in the backing sheet so as to be located  
10 in the main portions of the housing, each aperture being arranged to receive one of the capsules therein such that the peripheral rim flange of the capsule lies flush against the backing sheet about a periphery of the aperture and the capsule extends inwardly towards the opposing main portion of the housing;

at least some of the apertures in each main portion being aligned with  
15 respective apertures in the other main portion such that the enclosed ends of at least some of the capsules abut one another when the backing sheet is folded into the housing;

a rupturable sheeted material arranged to be secured to span the openings of the capsules;

20 an adhesive arranged to secure the capsules to the backing sheet; and  
a latch arranged to selectively secure the free edges of the backing sheet to one another when the backing sheet is folded into the housing.

By providing a spine portion which supports two opposing sheets receiving capsules therein at a spacing from one another which corresponds  
25 approximately to the height of two capsules, when the backing sheet is folded the

capsules engage or abut one another to provide some additional support to maintain the opposed folded panels of the backing sheet in a parallel and spaced relationship. Furthermore by latching the free edges of the panel together in combination with a spine having a dimension corresponding to the height of two capsules, the capsules  
5 are stored in the most compact and efficient manner of close spacing while being fully supported about the periphery thereof by the backing sheet. The rectangular cross section of the folded housing further increases the stability of the package when the free edges of the backing sheet are latched to one another.

As a result of the structure of the medication package described herein,  
10 much larger doses of medication can be achieved in a single package, thus overcoming some of the deficiencies in the prior art packages noted above. The medication package according to the present invention is thus well geared for patients requiring relatively high volumes of drug ingestion as the high volume of drugs can be supported in a common package rather than in separate packages as required when  
15 using medication packages having characteristics as described in the above noted prior art.

The opposed free edges of the backing sheet are preferably arranged to overlap one another along the full length thereof when the backing sheet is folded into the housing of generally rectangular cross section.

20 The latch may be arranged to secure the free edges of the backing sheet to one another substantially along a full length of the free edges in the longitudinal direction when the backing sheet is arranged to be folded into the housing of generally rectangular cross section.

The fold lines are preferably arranged such that said at least one spine  
25 portion comprises two spine portions joined between the pair of main portions at

opposing sides of the main portions.

There may be provided four fold lines separating the backing sheet into five panels, each panel spanning in the longitudinal direction between the opposed ends of the backing sheet in which two of the panels comprise spine panels forming a spine portion of the housing and in which the spine portions have a lateral dimension which is substantially equal to a height of two capsules.

Preferably one of the panels of the backing sheet comprises a main panel fully defining one of the main portions of the housing and two of the panels comprise auxiliary panels locating the free edges of the backing sheet along one edge thereof respectively such that the two auxiliary panels together define the other main portion of the housing of the rectangular cross section when the free edges are joined.

The two auxiliary panels may have substantially identical dimensions. In this instance, preferably each of the auxiliary panels have some of the apertures formed therein so as to be arranged to receive respective ones of the capsules therein. Each of the auxiliary panels may thus have approximately half the number of apertures formed therein as the main panel.

There may also be provided a cover sheet having fold lines therein arranged similarly to the backing sheet and which is integrally formed with the backing sheet along one of the opposing ends of the sheet. In this instance, apertures are preferably formed in the cover sheet which are substantially aligned with the apertures in the backing sheet when the cover sheet and the backing sheet are folded adjacent one another.

The latch may comprise mating hook and loop fasteners.

All of the apertures may be spaced apart from one end of the packing sheet to define an open area on the sheet so as to be arranged to receive label

information thereon.

Each of the capsules is preferably sized to be arranged to receive a plurality of medication tablets therein.

One embodiment of the invention will now be described in conjunction with the accompanying drawings in which:

**BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 is a perspective view of a schematic representation of the assembled medication package.

Figure 2 is a perspective view of the assembled backing sheet and cover sheet in an unfolded position.

Figure 3 is a plan view of a flat blank of material forming the backing sheet and cover sheet.

Figure 4 is a plan view of a plurality of sheets of capsules for insertion into the backing sheet.

Figure 5 is an end view along the line 5-5 of one of the sheets of capsules according to Figure 4.

Figure 6 is a plan view of a rupturable sheet with adhesive thereon for cold sealing the cover sheet and the backing sheet to one another.

Figure 7 is a sectional view of the various layers of the medication package shown separated from one another.

Figure 8 is an end view of the assembled backing sheet folded into the housing of rectangular cross section.

In the drawings like characters of reference indicate corresponding parts in the different figures.



### DETAILED DESCRIPTION

Referring to the accompanying Figures there is illustrated a medication dispensing package generally indicated by reference numeral 10. The package 10 is particularly suited for dispensing unit doses of medication in pill, tablet or capsule form. The packages are particularly suited for patients requiring multiple pills at each dose at multiple times a day. The packaging is arranged for ease of assembly by a pharmacy or vendor of medication who packages the medication according to the recipient's prescription in unit doses each comprised of a plurality of individual pills or tablets and the like.

The package generally comprises a backing sheet 12 formed of a cardboard like material which is generally rectangular in shape. The sheet extends in a longitudinal direction between two ends 14 of the sheet which are joined at opposing sides by two free edges 16 of the sheet which extend in the longitudinal direction. Four folds 18 are formed in the sheet to extend parallel to one another and the free edges 16 so as to similarly extend in the longitudinal direction between the two ends 14. The backing sheet 12 is thus divided into five separate panels each extending the full length of the backing sheet between the opposed ends 14 in the longitudinal direction. The panels include a main panel 20 which is rectangular and which has the largest width in a lateral direction oriented perpendicular to the longitudinal direction of the folds 18. The main panel 20 is generally centered between the opposing free edges 16.

The panels further include two spine panels 22 joined along opposing sides of the main panel 20. The two spine panels 22 each span the full height of the backing sheet between the opposed ends 14 and have a lateral dimension which is much smaller than the main panel 20 but which are identical to one another.

Two auxiliary panels 24 are joined to the outer edges of the spine panels 22 respectively to span laterally each between a respective one of the spine panels and a respective one of the free edges 16 of the backing sheets. The auxiliary panels 24 also span in the longitudinal direction between the two ends 14 of the sheet. A lateral dimension of the auxiliary panels 24 is arranged to be approximately half of the lateral dimension of the main panel so that when the free edges 16 of the backing sheet are joined to one another the two auxiliary panels 24 are abutted side by side and together form approximately the same dimension as the main panel 20.

The four folds 18 permit the backing sheet to be folded into a housing of generally rectangular cross section along the full length of the sheet in the longitudinal direction between the two ends 14 of the sheet which form a rectangular perimeter about the open ends of the housing. With the free edges 16 of the backing sheet joined with one another the backing sheet forms an elongate tubular member with the four folds 18 defining four substantially perpendicular corners of the rectangular cross section of the housing.

When folded into the rectangular shape of the housing, the backing sheet defines two main portions 26 of similar rectangular dimensions which are spaced apart from one another along both sides of the housing by two spine portions 28. One of the main portions 26 comprises one of the main panels 20 of the backing sheet while the opposing main portion comprises the two auxiliary panels 24 joined together by a seam formed by the abutted free edges 16 of the backing sheet which is centered between the two spine portions 28 of the housing. Accordingly each of the spine portions comprises one of the spine panels 22 of the backing sheet to maintain the two main portions 26 of the housing parallel and spaced apart from one another by the lateral width of the spine panels 22.

A plurality of apertures 30 are formed in each of the two main portions of the housing. Each main portion includes an array of apertures which is four apertures wide in the lateral direction and seven apertures tall in the longitudinal direction. In the main portion formed by the main panel 20, all of the apertures are commonly located in the main panel. In the main portion of the housing formed by the two auxiliary panels 24 an array of two apertures wide in the lateral direction and seven apertures tall in the longitudinal direction are located within each of the auxiliary panels with the apertures in the two auxiliary panels being substantially symmetrical with respect to the seam joining the two auxiliary panels. The apertures in one of the main portions are arranged to be aligned both in the longitudinal direction and the lateral direction with regard to the apertures in the opposing main portion.

When the backing sheet is unfolded to lie flat, the apertures are thus arranged to form seven rows which extend laterally and which are separated from one another in a longitudinal direction. Each row in the lateral direction comprises eight apertures so that two apertures are associated with each of four respective dosage times including morning, noon, evening and overnight for example. The apertures in all of the panels are spaced apart in the longitudinal direction from one of the ends of the backing sheet to provide a blank space at one end of each panel for labelling information to be applied.

A capsule 32 is provided for mounting within each of the apertures in the backing sheet to locate pills or tablets and the like therein. The capsules 32 are mounted in integral sheets, each being associated with a respective one of the panels of the backing sheet. Accordingly one sheet comprises an array of capsules which are four across in the lateral direction and seven long in the longitudinal direction for mating with the apertures in the main panel while two additional sheets have similar

arrays to correspond with the auxiliary panels respectively.

Each capsule 32 comprises a pocket having an opening 34 and an opposing enclosed end 36. Walls 38 span between the closed end 36 and the rim of the opening 34 to define the height of the capsule. A rim flange 40 extends about the periphery of the opening 34 to lie in the plane of the opening. The rim flanges 40 of all of the capsules of a given sheet are integrally joined with one another to form the continuous sheet so that all of the capsule openings 34 lie in a common plane.

The capsule has suitable dimensions for being received within the apertures 30 respectively so that the capsules are inserted through the apertures until the rim flanges 40 abut flush against backing sheet at the outer side of the backing sheet when folded into a housing. In this arrangement each capsule extends through the aperture into the respective housing towards the opposing main portion of the housing when the backing sheet is folded. The lateral dimension of each of the spine panels 22 is approximately equal to the height two capsules 32. By arranging the apertures in the two main portions to be aligned with one another, when folded into the structure of the housing, the enclosed ends 36 of the capsules supported in one of the main portions abut or rest against the enclosed ends of the capsules in the other main portion. The abutment of the capsules provides some structural support, while the lateral dimension of the spines corresponding to the height of two capsules properly positions the capsules relative to one another. This configuration provides suitable structure to maintain the two main portions of the housing at a fixed spacing relative to one another, thereby protecting the capsules from being collapsed against one another.

The package also includes a cover sheet 42 which is arranged similarly to the backing sheet in that the cover sheet also extends in a longitudinal direction

between opposed ends 44. Four longitudinally extending folds 36 divide the cover sheet into a main panel 48 bounded along opposing sides by two spine panels 50 which in turn support two auxiliary panels 52 thereon. The dimensions and arrangement of the panels of the cover sheet are identical to the backing sheet so that  
5 the cover sheet and backing sheet can be integrally formed with one another of a continuous sheet of material in which the backing sheet and cover sheet are formed in end to end abutment.

A latch mechanism is provided by forming an additional lip 54 on the cover sheet to extend the full length of one of the free edges thereof in the longitudinal  
10 direction between opposed ends of the cover sheet. The lip 54 projects laterally outward from the sheet sufficiently to overlap the opposing free edge of the cover sheet when the sheets are folded into the housing. Mating fasteners 56 are provided along the lip 54 of the cover sheet and along the opposing free edge of the cover sheet for mating with one another when folded into the housing structure. By forming  
15 an additional lip 54 along one free edge of the cover sheet, the opposing free edges of the backing sheet and cover sheet assembled together are effectively overlapped with one another when joined along the full length of the housing. The mating fasteners 56 in the illustrated embodiment comprise mating hook and loop fasteners secured to the lip and opposing free edge of the cover sheet at spaced positions in  
20 the longitudinal direction for substantially securing the opposing free edges of the backing sheet and cover sheet together at the central seam of the housing along the full length of the housing in the longitudinal direction.

The material forming the cover sheet and the backing sheet preferably comprises a thick cardboard like material which is sufficiently stiff to maintain its  
25 shape when supporting a plurality of tablets within the capsules 32 on the backing

sheet. The cardboard material may be partially split or scored at one end of the backing sheet where the cover sheet is joined to separate the cover sheet and backing sheet sufficiently that they may be folded relative to one another during assembly. The folds 18 of the backing sheet or the folds 46 of the cover sheet may include partial cut-outs 58, or other suitable lines of weakness to allow the sheets to be more readily foldable at the fold lines.

The package 10 further includes a rupturable sheeted material 60 having dimensions near that of the backing sheet. The material 60 comprises a foil type material having adhesive thereon and which is arranged to rupture when pills or tablets are pushed through the sheet in a manner which is consistent with many prior art medication packages. The rupturable sheeted material 60 is arranged to span the openings of all of the capsules and has adhesive applied thereto in a pattern which matches the pattern of apertures as illustrated in Figure 6. Accordingly when applied across the openings of the capsules, the interior portions of the sheeted material 60 which enclose each opening does not have adhesive thereon. Adhesive is applied in a similar pattern to both sides of the rupturable sheeted material 60 and is arranged to be a cold seal type of adhesive of sufficient strength to bond the cover sheet to the backing sheet with the flanges of the capsules and the foil layer of the rupturable sheeted material being secured therebetween.

In use, the backing sheet and cover sheet are delivered to a user as a single blank of material with the sheets of capsules and the rupturable sheeted material 60 being separate therefrom. The capsules are filled with the appropriate medication and inserted through the respective apertures in the backing sheet. The rupturable sheeted material 60 with adhesive thereon is then applied across the openings of the capsules to span and enclose the openings. The cover sheet may

then be folded over towards the backing sheet to trap the flanges of capsules and the foil layer of the rupturable sheeted material between the cover sheet and the backing sheet. The cold seal adhesive secures the cover sheet and backing sheet together and maintains the rupturable sheeted material in position to enclose the openings of  
5 all of the capsules.

By subsequently rupturing a portion of the rupturable sheeted material  
60 across one of the openings of the capsules, the dosage within that respective capsule can be released while the other capsules remain enclosed. When assembling the package with the medication therein, labels associated with the medication are  
10 placed at the open space at one end of the housing at the interior side thereof. Once assembled, the backing sheet and associated layers adjoined thereto are folded into the rectangular cross sectional shape of the housing structure in which the free edges are joined together by the latch formed of the lip 54 and mating fasteners extending the full length of the housing in the longitudinal direction. The mating fasteners of the  
15 latch are arranged to be selectively releasable as desired for unfolding and refolding a sheet from and back to the housing structure as desired. Once assembled, the joined free edges of the backing sheet and cover sheet provide a stiff structural housing fully surrounding the capsules while the opposing panels of the housing structure are supported relative to one another by the spine portions which are uninterrupted by  
20 capsules or apertures and by the capsules themselves which abut one another within the interior of the housing.

Since various modifications can be made in my invention as herein above described, and many apparently widely different embodiments of same made within the spirit and scope of the claims without departure from such spirit and  
25 scope, it is intended that all matter contained in the accompanying specification shall

be interpreted as illustrative only and not in a limiting sense.



CLAIMS:

1. A medication dispensing package comprising:

5 a plurality of capsules arranged for receiving respective medication tablets therein, each capsule having an opening, an opposing enclosed end, and a peripheral rim flange extending about the opening in a plane of the opening, a height of the capsule being defined between the plane of the opening and the opposing enclosed end of the capsule;

a backing sheet having two opposed free edges extending in a longitudinal direction between opposed ends of the sheet;

10 a plurality of fold lines spanning across the backing sheet in the longitudinal direction between the opposed ends of the sheet and arranged such that the backing sheet is foldable into a housing of generally rectangular cross section in which the opposed free edges are adjacent one another and the housing defines a pair of rectangular main portions supported by at least one spine portion joined  
15 between the main portions along one side of the main portions to support the main portions parallel and spaced apart from one another by a spacing substantially corresponding to the height of two capsules;

a plurality of apertures formed in the backing sheet so as to be located in the main portions of the housing, each aperture being arranged to receive one of  
20 the capsules therein such that the peripheral rim flange of the capsule lies flush against the backing sheet about a periphery of the aperture and the capsule extends inwardly towards the opposing main portion of the housing;

at least some of the apertures in each main portion being aligned with respective apertures in the other main portion such that the enclosed ends of at least  
25 some of the capsules abut one another when the backing sheet is folded into the

housing;

a rupturable sheeted material arranged to be secured to span the openings of the capsules;

an adhesive arranged to secure the capsules to the backing sheet; and

5 a latch arranged to selectively secure the free edges of the backing sheet to one another when the backing sheet is folded into the housing.

2. The package according to Claim 1 wherein the opposed free edges of the backing sheet are arranged to overlap one another along the full length thereof when the backing sheet is folded into the housing of generally rectangular  
10 cross section.

3. The package according to either one of Claims 1 or 2 wherein the latch is arranged to secure the free edges of the backing sheet to one another substantially along a full length of the free edges in the longitudinal direction when the backing sheet is arranged to be folded into the housing of generally rectangular cross  
15 section.

4 The package according to any one of Claims 1 through 3 wherein the fold lines are arranged such that said at least one spine portion comprises two spine portions joined between the pair of main portions at opposing sides of the main portions.

20 5. The package according to any one of Claims 1 through 4 wherein there are provided four fold lines separating the backing sheet into five panels, each panel spanning in the longitudinal direction between the opposed ends of the backing sheet in which two of the panels comprise spine panels forming a spine portion of the housing, the spine portions having a lateral dimension which is substantially equal to  
25 a height of two capsules.

6. The package according to Claim 5 wherein one of the panels of the backing sheet comprises a main panel fully defining one of the main portions of the housing and two of the panels comprise auxiliary panels locating the free edges of the backing sheet along one edge thereof respectively such that the two auxiliary panels together define the other main portion of the housing of the rectangular cross section when the free edges are joined.

7. The package according to Claim 6 wherein the two auxiliary panels have substantially identical dimensions.

8. The package according to Claim 6 wherein each of the auxiliary panels have some of the apertures formed therein so as to be arranged to receive respective ones of the capsules therein.

9. The package according to Claim 8 wherein each of the auxiliary panels has approximately half the number of apertures formed therein as the main panel.

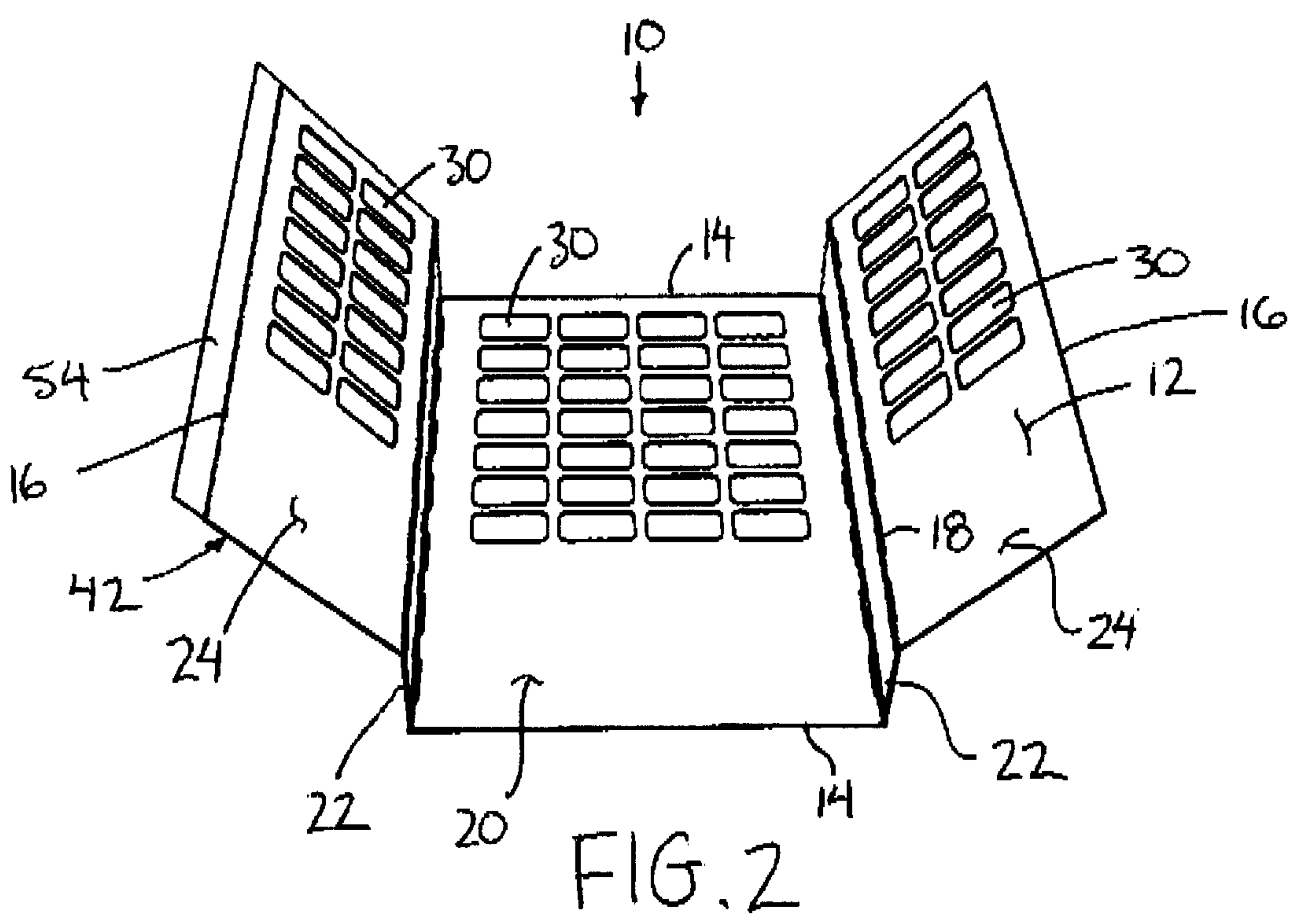
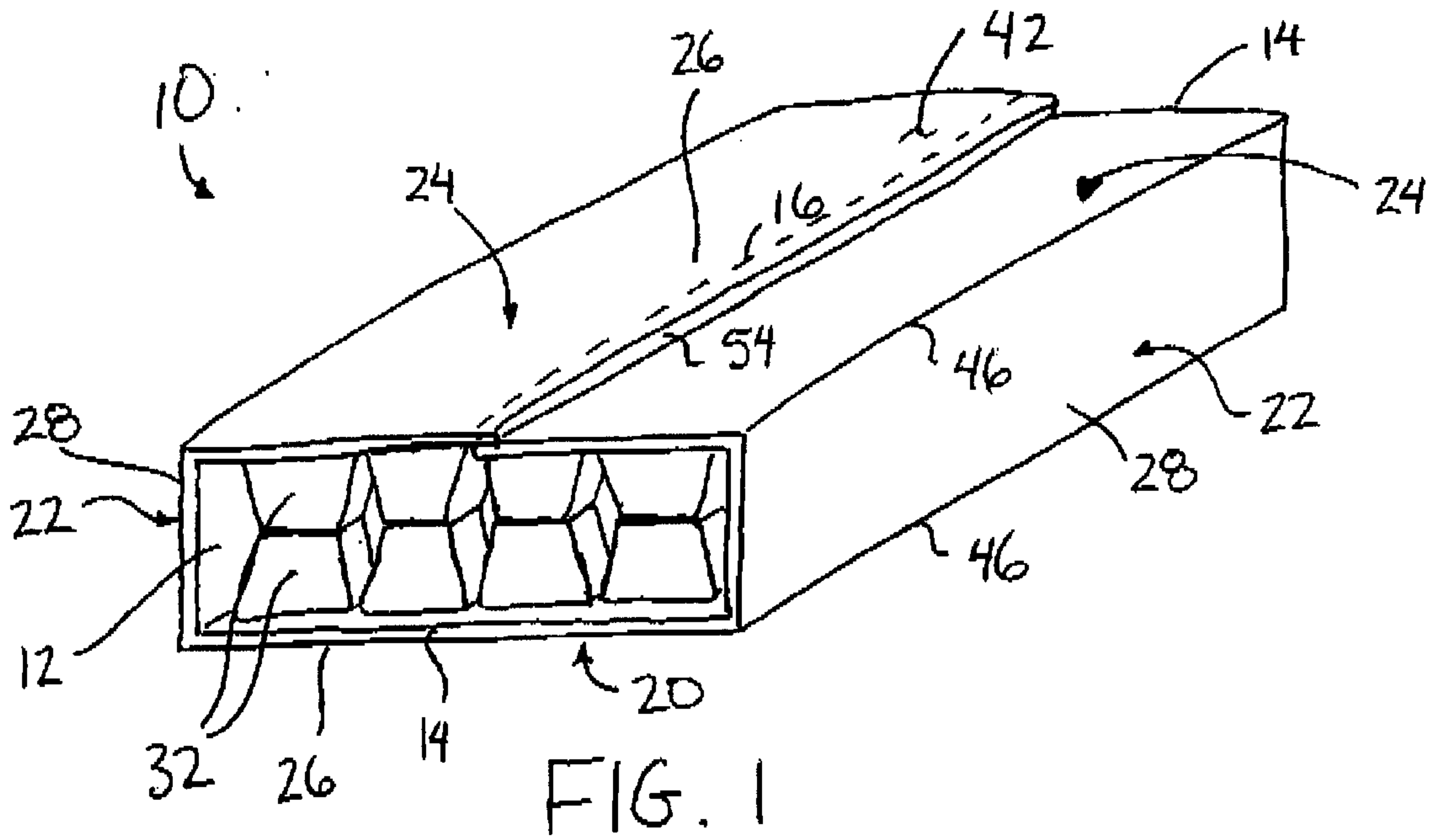
10. The package according to any one of Claims 1 through 9 wherein there is provided a cover sheet having fold lines therein arranged similarly to the backing sheet and which is integrally formed with the backing sheet along one of the opposing ends of the sheet, the apertures being formed in the cover sheet being substantially aligned with the apertures in the backing sheet when the cover sheet and the backing sheet are folded adjacent one another.

11. The package according to any one of Claims 1 through 10 wherein the latch comprises mating hook and loop fasteners.

12. The package according to any one of Claims 1 through 11 wherein all of the apertures are spaced apart from one end of the packing sheet to define an open area on the sheet so as to be arranged to receive label information

thereon.

13. The package according to any one of Claims 1 through 12 wherein each of the capsules is arranged to receive a plurality of medication tablets therein.



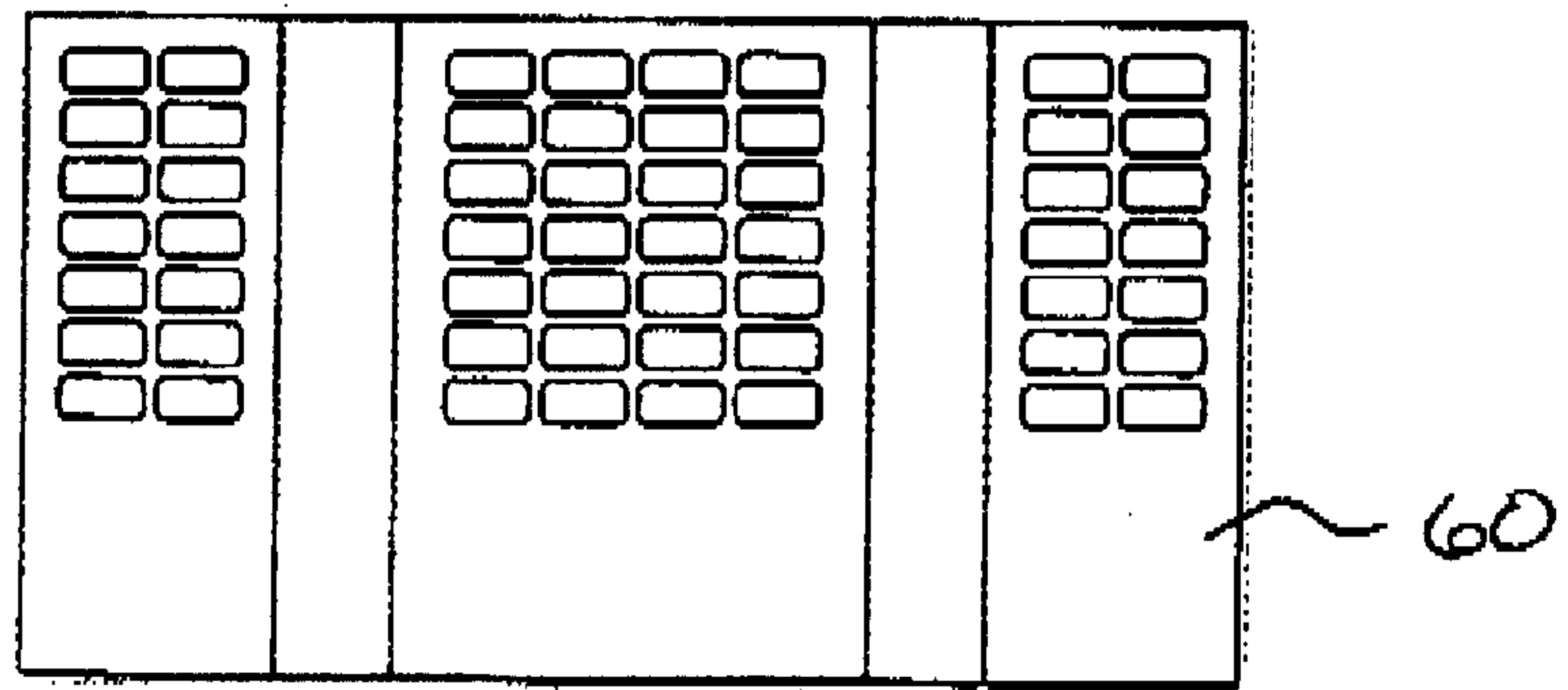
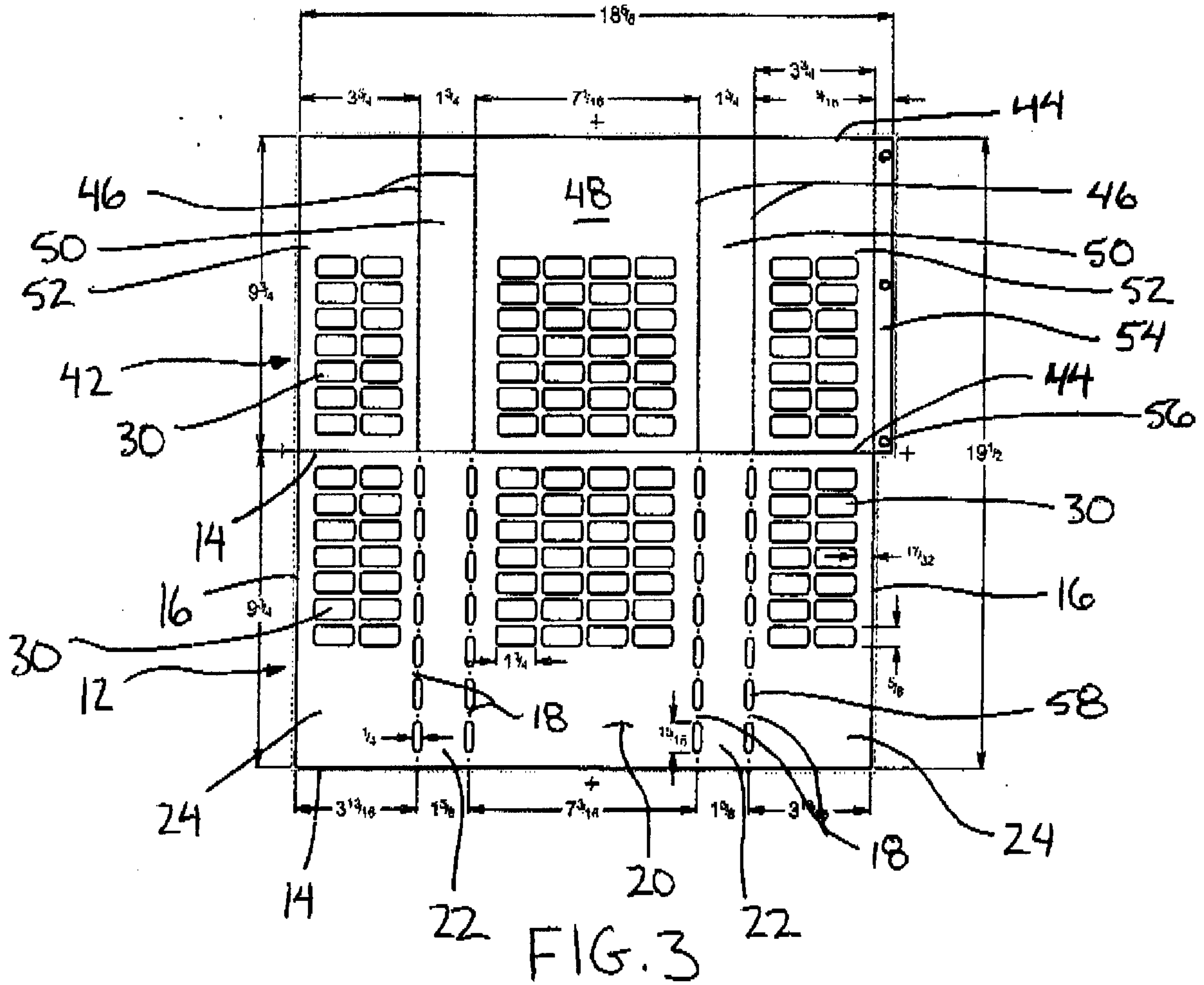


FIG. 6

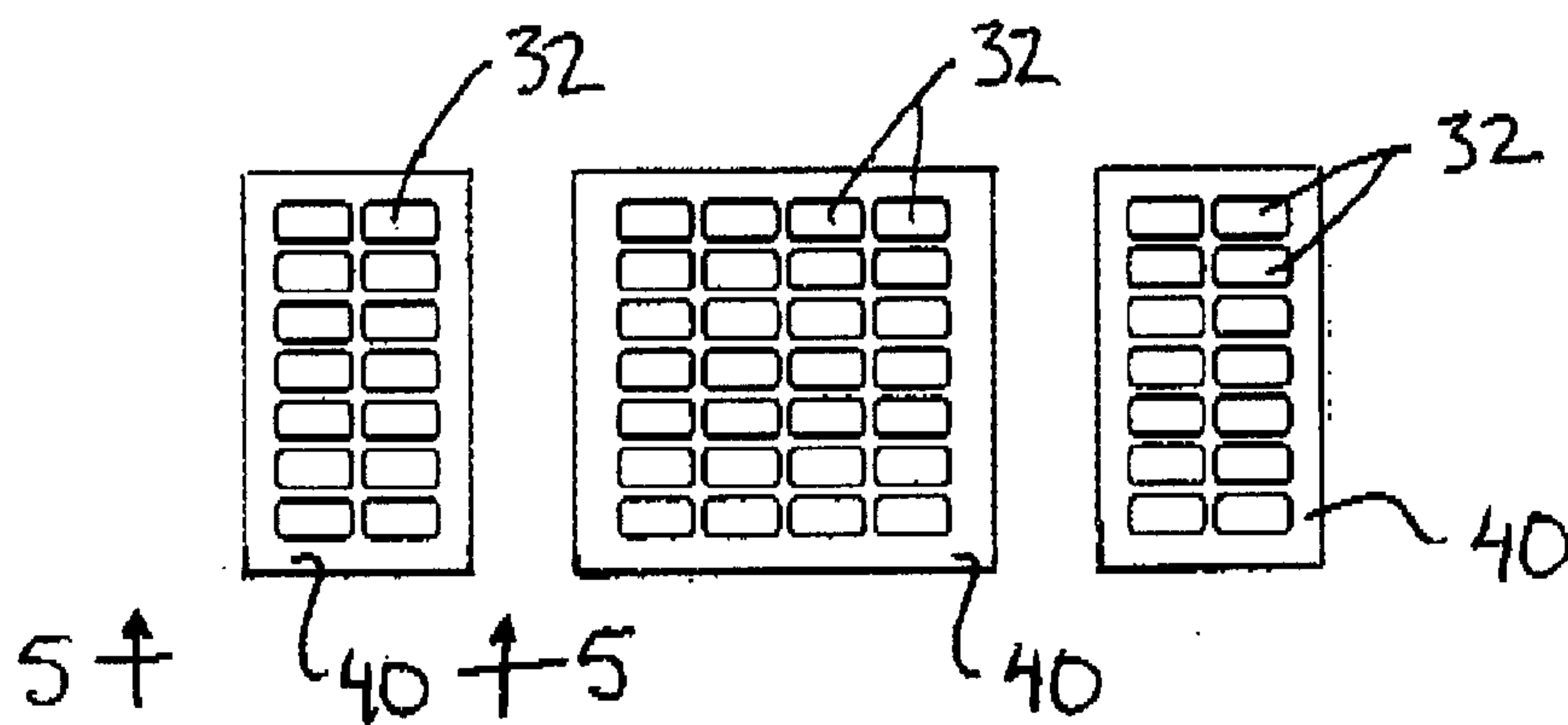


FIG. 4

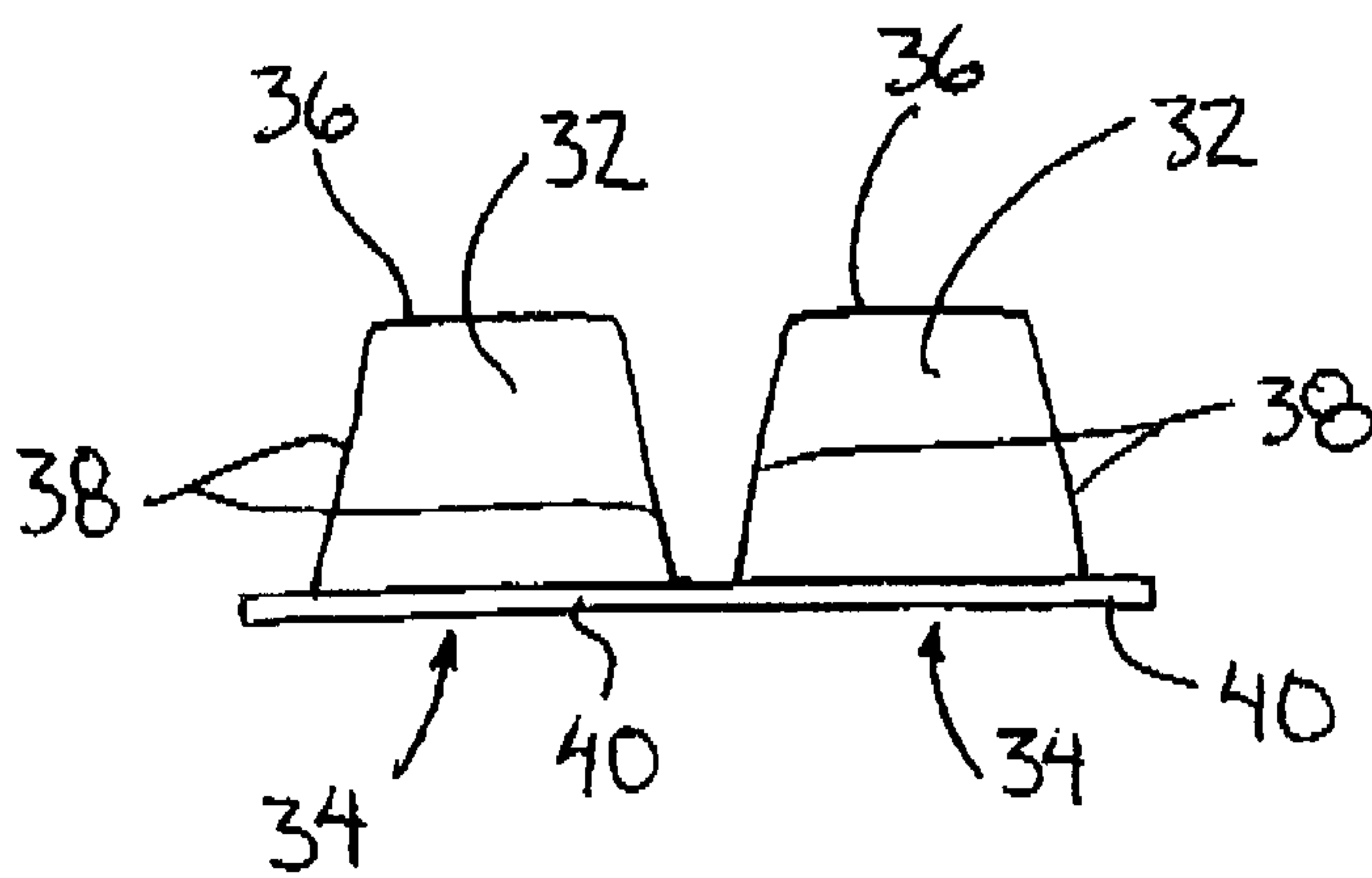


FIG. 5

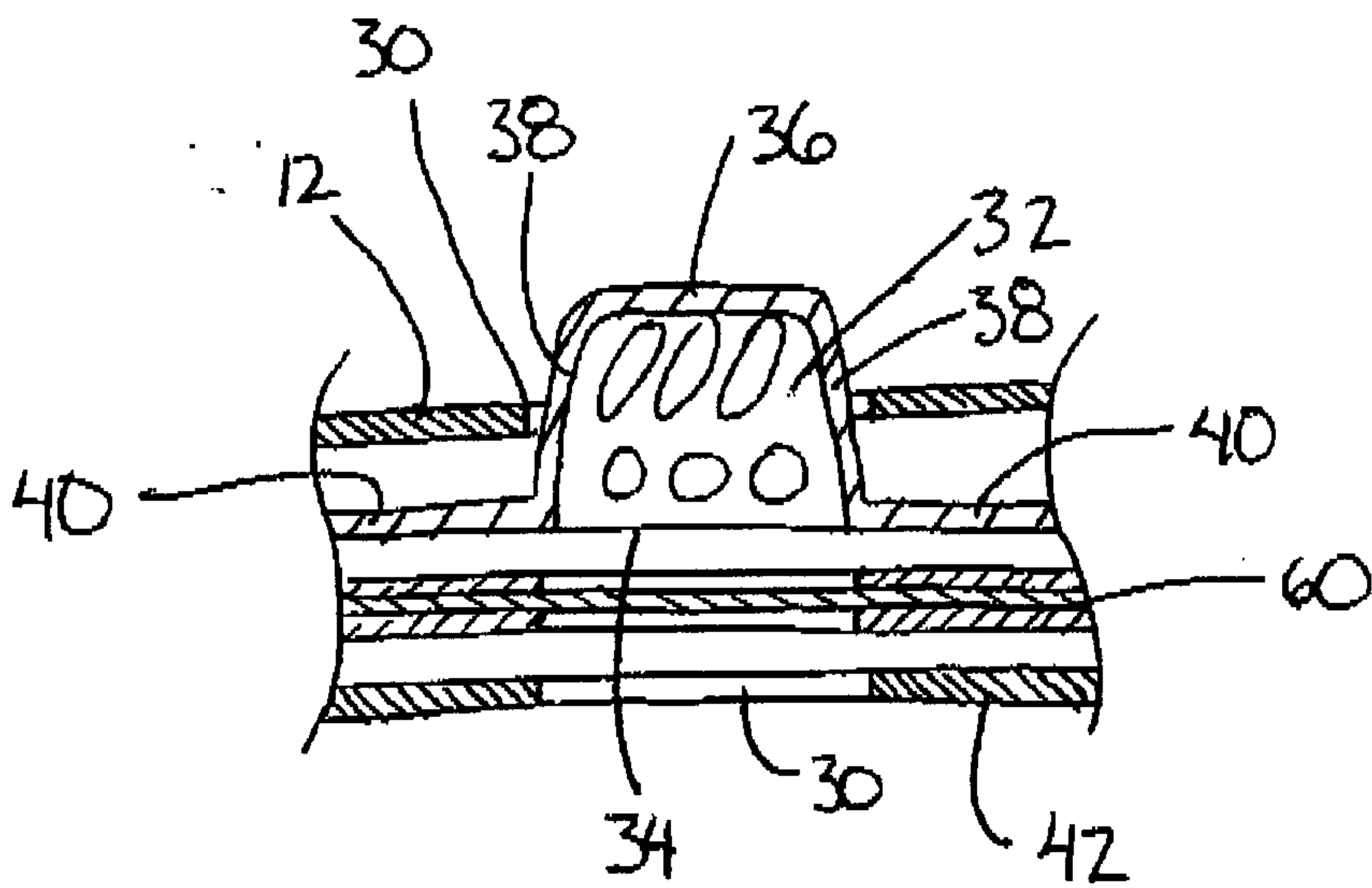
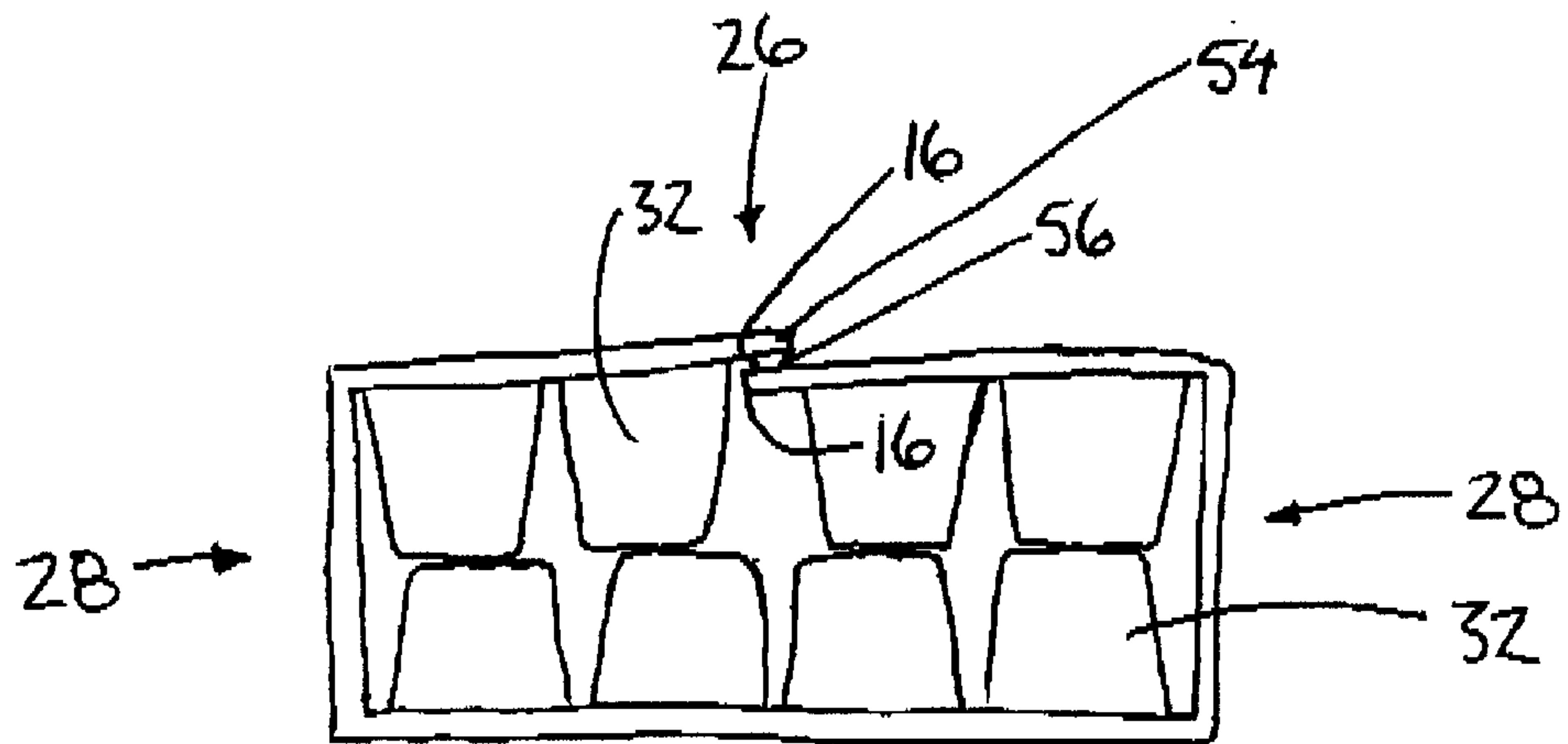


FIG. 7



26 FIG. 8



