July 11, 1967 E. H. THYEN 3,330,464

SELF-LOCKING PARTITION ASSEMBLY

Filed June 30, 1965 2 Sheets-Sheet 1

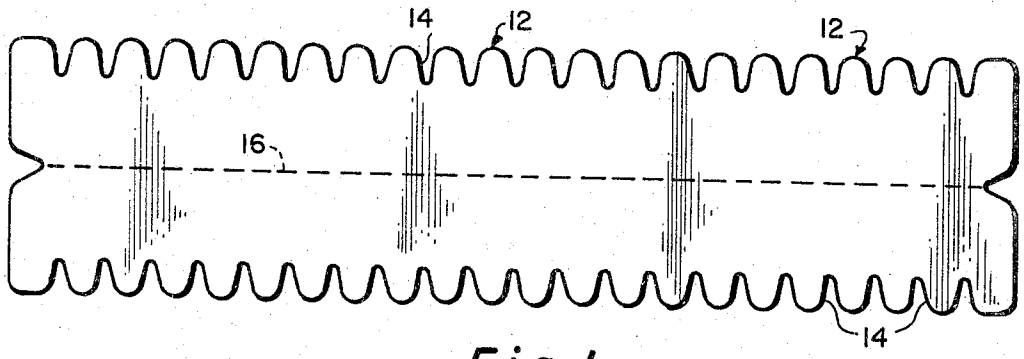


Fig. 1

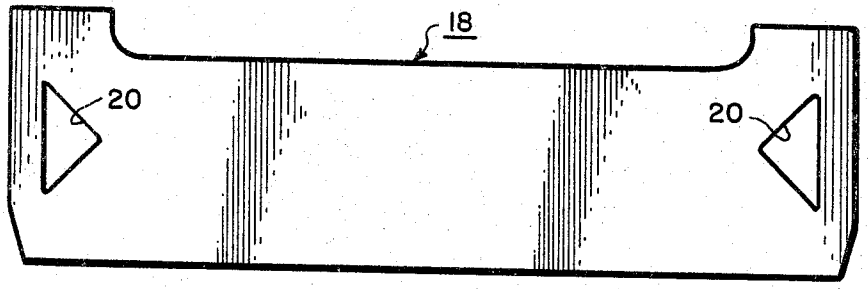


Fig. 2

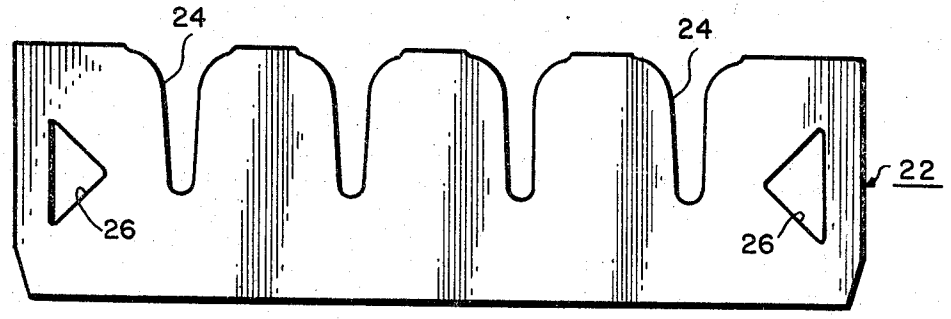


Fig. 3

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Filed June 30, 1965 2 Sheets-Sheet 2

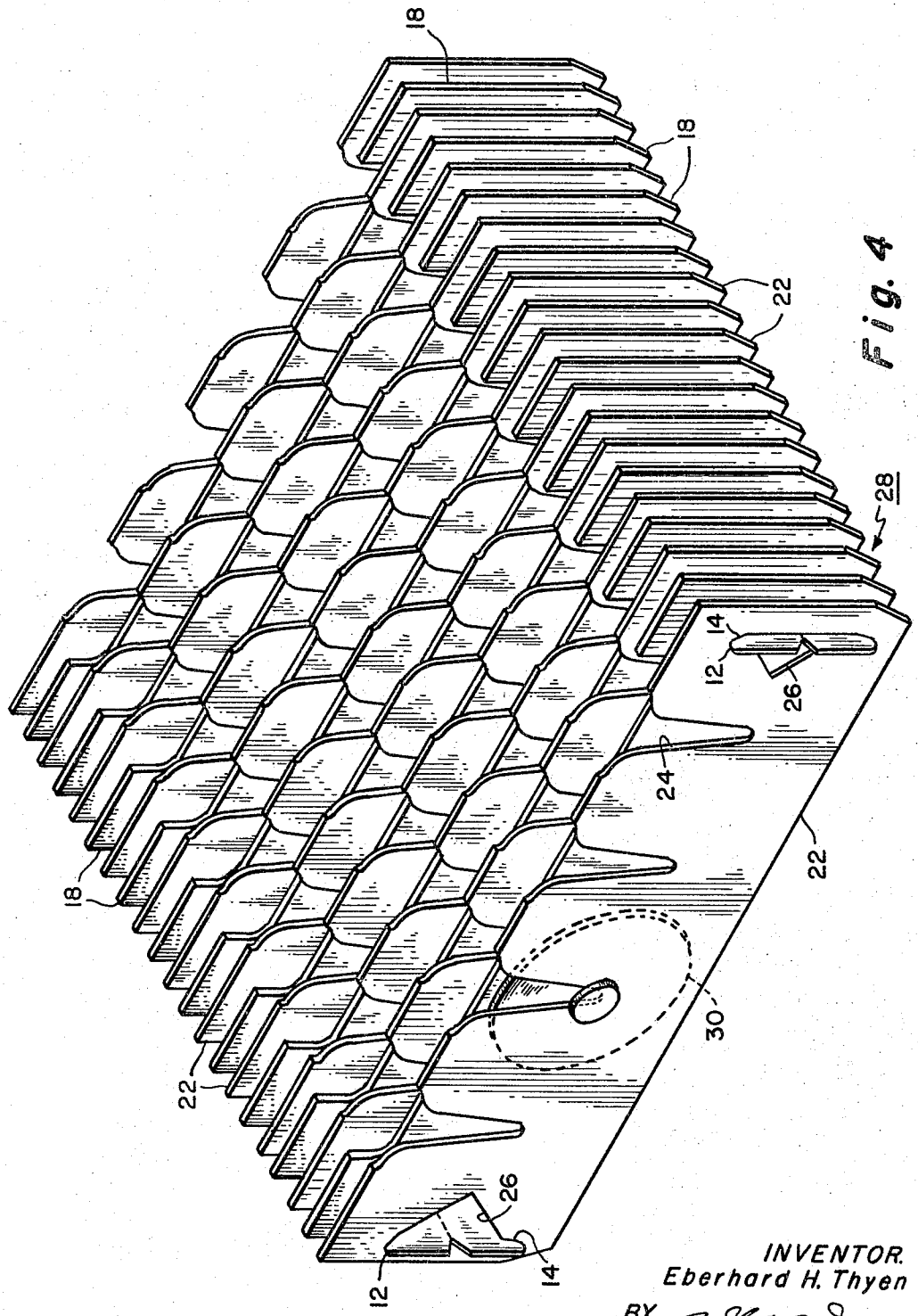


Fig. 4

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SELF-LOCKING PARTITION ASSEMBLY

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This invention relates to a reusable carton partition, and more particularly, relates to a self-locking partition assembly for bulk packing of frangible objects, such as glass covers or other ware articles which require protection from injury during handling and shipment.

Presently known partition inserts consist of members having slots cut partially through each member and the members are united by slots engaging one another in the well-known manner. Such partitions are difficult to handle as a unit and are subject to accidental disassembly. Many other reusable carton spacers in use today must be returned in an erect condition for refilling this making efficient space saving impossible. It is to overcome these disadvantages that the present invention is directed.

Basically this invention relates to a plurality of similar sheets in a spaced-apart parallel relationship having at least one locking slot formed therein. A locking key is inserted through a succession of coaxially aligned locking slots, and maintains the sheets in such spaced parallel relationship and maintains an array of sheets in a securely joined unified assembly. The carton partition assembly thus formed may be collapsed into a knock-down position, without disassembly for space-saving return shipment when empty.

It thus has been an object of this invention to provide a partition assembly which may be simply assembled and will remain securely joined with no danger of accidental disassembly.

Another object of this invention has been to provide a separator within which objects may be securely fastened and separated from one another to prevent injury to said objects during transportation and storage.

A further object of this invention has been to provide a self-locking partition which may be readily collapsed into a knocked-down position without disassembly for space-saving return shipment when empty.

An additional object of this invention has been to provide an economical separator for holding utensils and parts thereof.

A still further object of the present invention has been to provide a relatively simple and efficient arrangement of a carton partition assembly which can be formed of corrugated paper or other lightweight, inexpensive materials.

Other and further objects, features and advantages will be apparent from the following description of presently preferred embodiments of the invention, given for the purpose of disclosure, and taken in conjunction with the accompanying drawing, where like character references designate like parts throughout the several views and where—

FIG. 1 is a plan view of a locking key portion blank for use in a carton partition assembly of the invention.

FIG. 2 is a plan view of a partition sheet blank for use in the assembly of this invention.

FIG. 3 is a plan view of a positioner portion blank for use in the assembly of this invention, such portion having handle receiving slots formed therein.

FIG. 4 is a perspective view showing the key portions partition sheets, and positioner portions in an assembled condition and also showing a ware article cover inserted therein and having a handle secured in a handle receiving slot.

Referring now to the drawings, a locking key portion **12** may be fashioned from any sheet material, such as double-faced corrugated board, having two flat sheets and a transversely pleated or corrugated sheet relatively adhesively united. Any rigid or semi-rigid, such as single-faced corrugated board, foam film, or semi-rigid film, such as cellulose acetate, and polystyrene, and the like may be used. Each particular object, commodity and use will dictate the kind of material to be used.

Notches or slots **14** are cut inwardly from at least one lateral edge of key **12**. The slots **14** are laterally separated a suitable distance to engage and secure positioner members **22** and divider pads **18** and to maintain them in a desired spaced-apart, parallel relationship (FIG. 4). The slots may be so configured to give the lateral edges a semi-sinusoidal appearance as shown in FIG. 1. A longitudinal scoreline **16** is formed in a longitudinal central portion of the key **12**.

A divider pad, such as partition sheet **18** (FIG. 2), is formed of the same material as portion **12**. Key holes or sections **20** are formed in pad **18**, preferably adjacent each lateral end.

FIG. 3 illustrates a positioner member **22** having handle receiving passages, such as grooves **24**, formed inwardly from a lateral edge of the member **22**. Key holes or sections **26** are preferably formed adjacent each lateral end of the positioner **22**.

FIG. 4 illustrates a carton partition assembly **28** with a ware article cover **30** inserted therein. The partition **28** is assembled from locking key portions **12**, divider pads **18**, and positioner members **22**.

In the process of assembling the partition **28**, each locking key **12** is folded along the scoreline **16** to form a dihedral angle and thus allow a greater width of material to enter the key sections **20** and **26**. A plurality of any combination and order of sheets **18** and members **22** are positioned in a spaced-apart, parallel relationship. The sheets **18** and members **22** are positioned so that the key sections formed therein are aligned in coaxial registry with one another.

A locking key, which has been folded to form a dihedral angle, is slipped through the succession of key sections which are so coaxially aligned and is then unfolded into a flattened position again. The dividers **18** and positioners **22** are so positioned that upon flattening key **12**, portions of the said dividers and positioners surrounding the sections **20** and **26** move into and are held securely by the notches **14**. A rigid assembly is thus provided with the dividers and positioners held in a spaced-apart, parallel relationship.

It is apparent that the opening of each key section is sufficiently large and of a suitable configuration to allow the passage therethrough of a locking key when it is folded in the form of a dihedral angle and also to allow the subsequent reflattening of the key into a locking position.

In an assembly using positioner members **22**, the groove passages **24** are adapted to receive a handle portion of a ware article cover portion or the like and thereby hold such cover in a fixed position, as shown in FIG. 4.

This invention thus provides a relatively simple and efficient arrangement of a carton partition assembly which can be formed from any suitable type of foldable sheet material of a lightweight and inexpensive nature. The assembly is such that it may be returned in flat form to be used with the sheets **18** and members **22** in parallel relation upon one another, by angularly positioning the key portions **12** relative to sheets **18** and members **22** to form a collapsed trapezoidal shape. When set up, by returning the device to a rectangular shape, the assembly

is solid and has a rigidity sufficient to withstand stresses applied during movement.

While the fundamental novel features of the invention as applied to the embodiment and modifications have been shown, described and pointed out, it will be understood that various omissions and substitutions and changes in the forms and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention, and it is not intended that such forms and details be limitations upon the scope of the invention except insofar as set forth in the following claims.

I claim:

1. A partition assembly comprising:
- a plurality of partition sheets having at least one key section formed in each sheet;
- a plurality of positioner members having passages formed therein and having at least one key section formed in each member;
- a locking key portion having slots formed inwardly from at least one lateral edge thereof and having a longitudinal scoreline to foldably form said locking key portion into a dihedral angle for insertion through a plurality of coaxially registered key sections; and
- said locking key portion being refolded flat and the slots therein securing an array of the partition sheets and the positioner members in a spaced-apart relationship.

2. A partition assembly as defined in claim 1 wherein a plurality of key sections are formed in each such partition sheet and each such positioner member;
- said partition sheets and positioner members being arranged with said key sections in a plurality of coaxial alignments, and
- a locking key portion extending through each such coaxially aligned key section to maintain the said sheets and members in spaced-apart relationship.

3. A reusable partition assembly for bulk packaging of ware article covers having handles which comprises:
- an array of divider pads having a plurality of key hole sections formed in each pad;
- an array of positioner members having handle receiving passages formed therein and having a plurality of key hole sections formed in each member;

- a plurality of key portions each having slots cut inwardly from at least one lateral edge;
- a longitudinal scoreline formed along said key portion for foldable insertion through a plurality of coaxially aligned key hole sections, and
- the slots of said key portion engage the array of pads and members and secure them in a spaced-apart parallel relationship.

4. In combination with a plurality of ware article cover portions having at least one handle portion, a partition assembly for maintaining the cover portions securely fastened and separated from one another, said partition assembly comprising:
- an array of positioner members having handle receiving grooves formed inwardly from a lateral edge thereof and having key sections formed adjacent each lateral end;
- an array of divider pads having key sections formed adjacent each lateral end thereof;
- a plurality of key portions each having notches formed inwardly from at least one lateral edge and having a longitudinal scoreline for folding key portion to form dihedral angle for insertion through a plurality of coaxially aligned key sections in alternately arranged members and pads, said notches operatively engaging said alternately arranged members and pads to maintain them in spaced-apart, parallel relationship.

References Cited

UNITED STATES PATENTS

1,498,785	6/1924	Coyle	217—33
1,754,541	4/1930	Benoit	217—33
1,978,719	10/1934	Parnin	217—32
2,489,528	11/1949	Goldstein	229—15
2,736,138	2/1956	Battery	229—15
2,925,209	2/1960	Wasyluka	229—15

FOREIGN PATENTS

802,468	10/1958	Great Britain.

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