

March 25, 1958

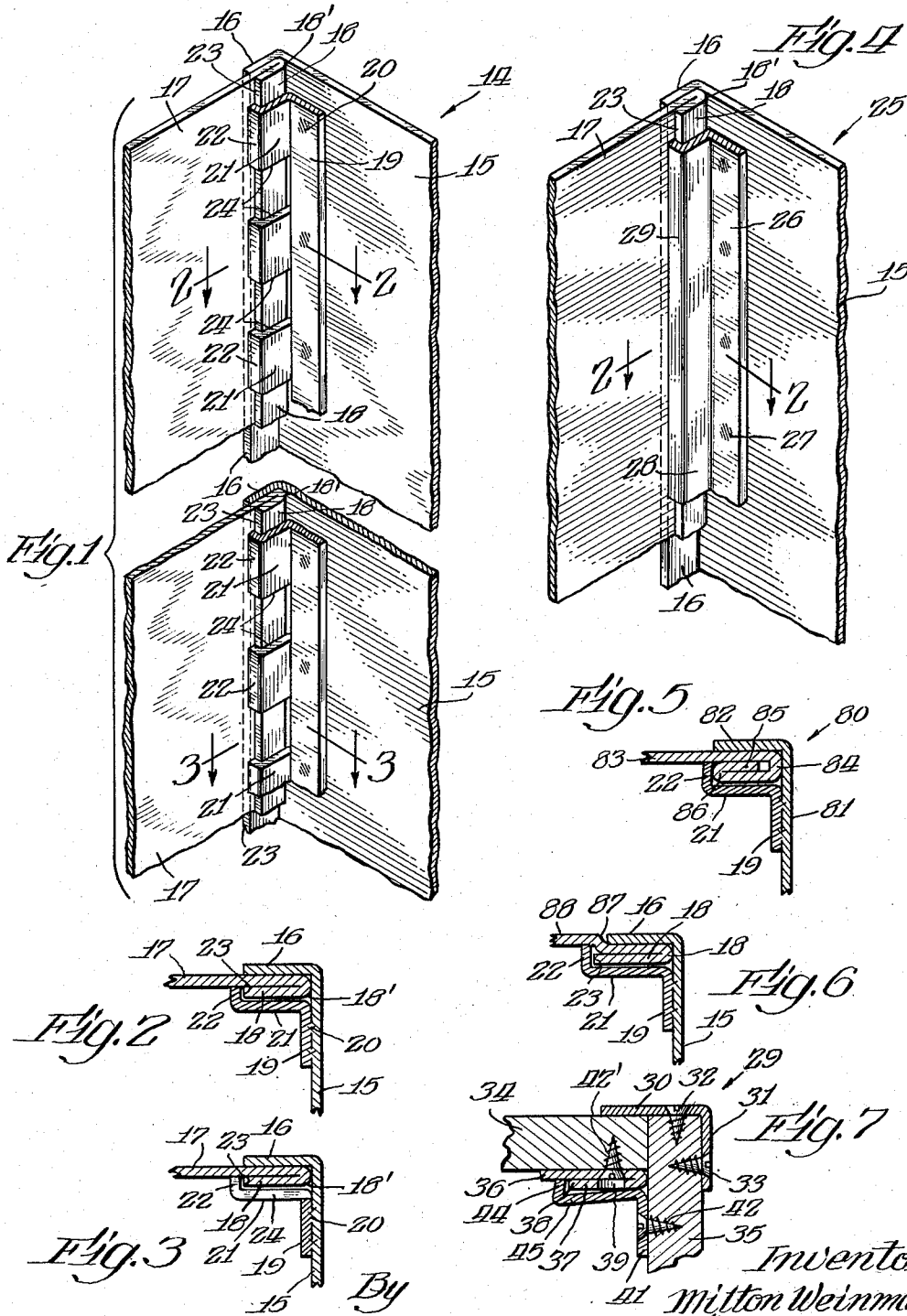
M. WEINMAN

2,828,046

DISMANTLEABLE SNAP LOCK FOR SHEETS OR PIPE

Filed Aug. 23, 1956

3 Sheets-Sheet 1



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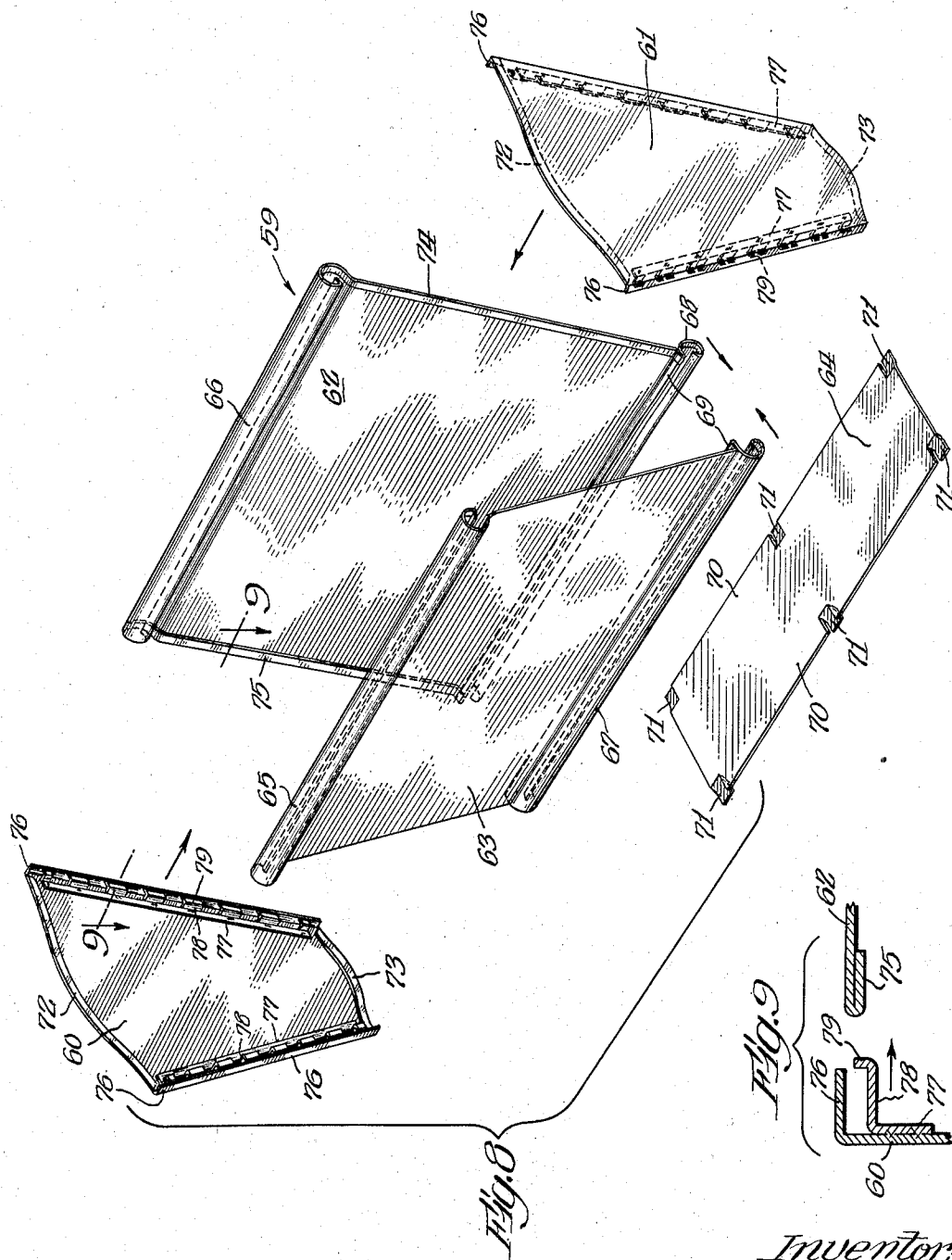
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DISMANTLEABLE SNAP LOCK FOR SHEETS OR PIPE

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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

Fig. 10

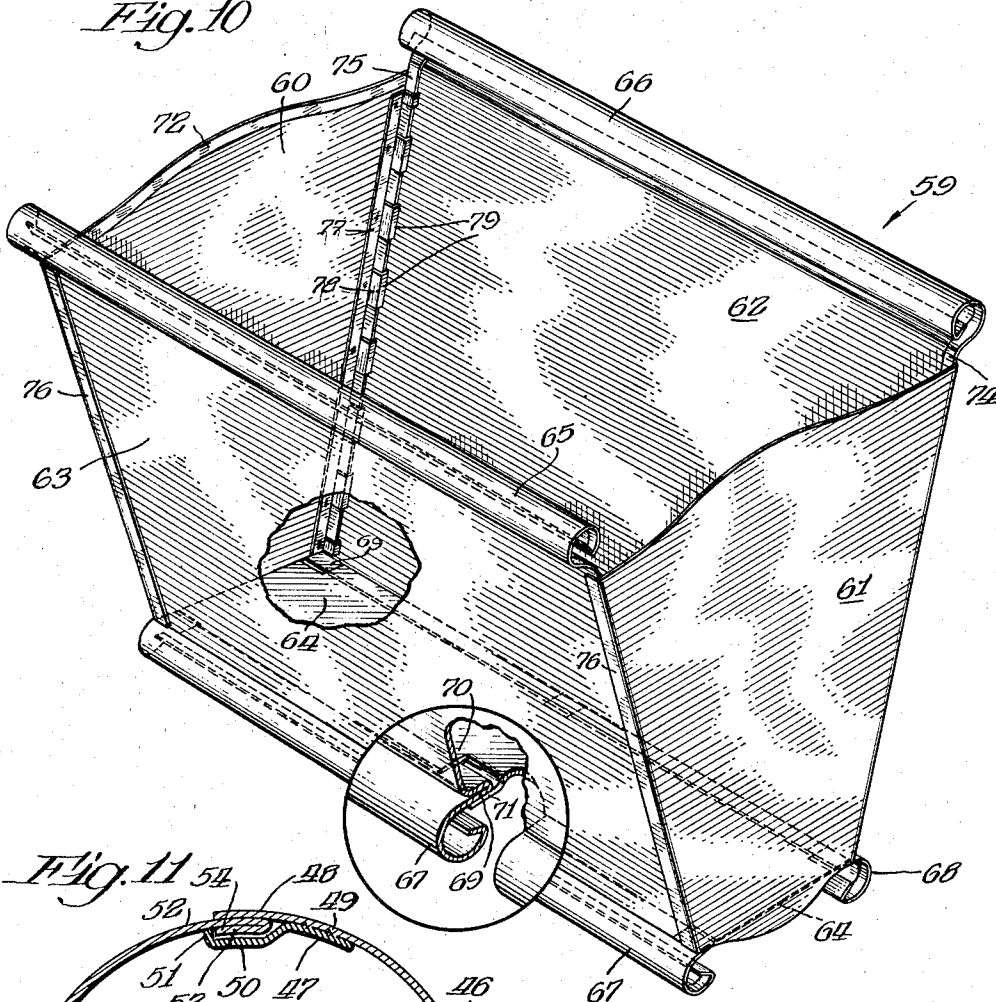


Fig. 11

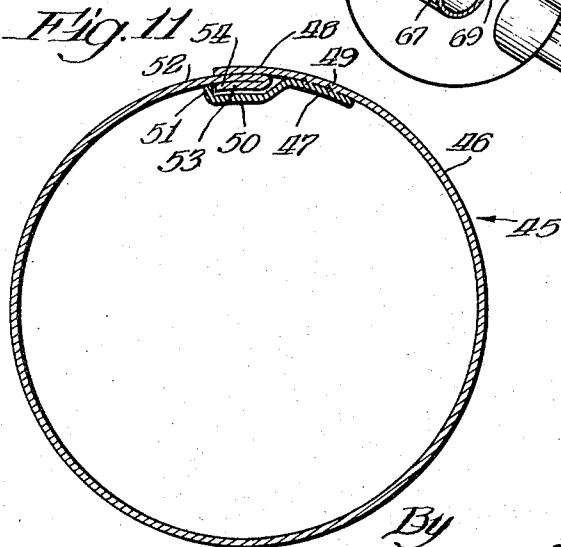


Fig. 12

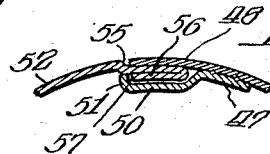
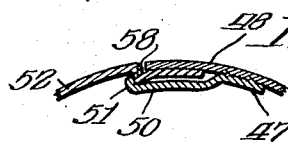


Fig. 13



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1

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DISMANTLEABLE SNAP LOCK FOR SHEETS OR PIPE

Milton Weinman, Chicago, Ill.

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7 Claims. (Cl. 220—76)

My invention relates to dismantleable snap locks for sheets or pipe.

An important object of my invention is to provide a lock of the aforementioned character which can be utilized for separably securing two sheets of metal or other like material in dihedral formation or arrangement.

A further object of my invention is to provide a lock of the aforementioned character which will facilitate the assembly, as well as dismantling, of articles which are usually bulky such as waste baskets, magazine racks, filing cabinets and other like objects so that the same may be sold, carried and transported in knocked down arrangement and readily assembled when brought home or to the location where the item is to be used.

A further object of my invention is to provide in locking means of the aforementioned character hemmed means on one of the elements to be secured, and snap locking lip means secured to the other of said elements adjacent one edge thereof, said edge terminating in an angular portion providing confines between said angular portion and said lip means for releasably retaining said hemmed means.

A further object of my invention is to provide in a device of the aforementioned character continuous locking lip means, or a multiplicity of locking lip means substantially regularly spaced from one another on the locking angle means.

A still further object of my invention is to provide double hemmed means on one of the engaging elements so that a better and more substantial locking beaded edge is provided to be releasably engaged by the locking lip means.

A still further object of my invention is to provide a lock of the aforementioned character which has the hem means in offset relationship so that a smooth outside contour will be provided.

A still further object of my invention is to provide angle means providing an extension to receive a piece of wood, fiber, Bakelite and like material which is secured to one of the elements furnishing a projecting ledge or flange and locking lip means secured to the same element, and another element of like material such as wood, plastic, fiber, rubber, etc. to have secured thereto a sheet metal element provided with a hem portion to be engaged by the releasable locking lip means heretofore mentioned.

A further object of my invention is to provide locking means which will releasably retain opposite edges of a quadrilateral so as to permit formation of a pipe or tubular structure.

A still further object of my invention is to provide locking means which will be offset on one of the edges of a quadrilateral permitting the tubular structure to be formed to acquire a smooth perimetral or circumferential shape.

A still further object of my invention is to provide an offset toothed portion releasably engageable by resilient lip means for securing opposite edges of a quadrilateral to form a tubular structure of smooth circular cross-sectional configuration perimetally.

2

A still further object of my invention is to show a magazine retainer or holder which is made up of four walls and a bottom element and which may be readily assembled or knocked down for transportation purposes.

5 Other objects, and ancillary advantages inherent in my invention will become apparent from an examination of the accompanying drawings, bearing further elucidation in the ensuing description, wherein like symbols are used to designate like parts, and in which;

10 Fig. 1 is a perspective view showing locking means in accordance with the teachings and practices of my invention.

Fig. 2 is a cross-sectional view taken, substantially, on the lines 2—2 of Figs. 1 and 4.

15 Fig. 3 is a cross-sectional view taken substantially on the lines 3—3 of Fig. 1.

Fig. 4 shows a slightly modified form of my invention in which the locking lip portion is continuous as distinguished from the multiplicity of locking lip portions regularly spaced and indicated as disclosed in Figs. 1, 2 and 3.

Fig. 5 is a slightly modified form showing a doubled over hem engaging means on one of the elements which will provide firmer locking engagement with respect to the locking lip means.

Fig. 6 is a slightly modified form of my invention disclosed in Figs. 1, 2 and 3, showing an offset portion for the hem means so as to provide a smooth exterior joint.

Fig. 7 is a slightly modified form of my invention showing the use of the same principles expounded for the invention disclosed in Figs. 1 to 6 inclusive with the exception that instead of the use of comparatively thin sheet metal joining the walls, rubber, fiber, Bakelite or wood may be employed as shown in that view.

Fig. 8 is an exploded view of my invention showing the separate elements comprising the same and which can be sold in knocked down position to occupy a minimum of transportation space and involve a minimum of expense, and which may be readily set up by the purchaser when brought to the destination where the article is to be employed.

Fig. 9 is a cross-sectional view taken substantially on the lines 9—9 of Fig. 8.

Fig. 10 is a perspective view of a magazine rack manufactured in accordance with the practices expounded by my invention and has certain portions thereof broken away and enlarged in order to more clearly define the specific elemental structure thereof.

Fig. 11 is a transverse cross-sectional view showing how my invention may be employed for manufacturing tubular structures.

Fig. 12 is a fragmentary view showing how my invention may be employed for manufacturing tubular structures which have an outer smooth perimetral contour or configuration.

Fig. 13 is a slightly modified form of my invention showing how it may be employed for the production of tubular or pipe-like structures having an offset tooth engaging means cooperating with resilient lip means to releasably engage opposite edges of a quadrilateral resulting in the formation of a smooth outer perimetral configuration.

Referring to Figs 1, 2 and 3, the preferred form of my invention is, generally, designated 14, and consists of two sheet like elements 15 and 17, one of the elements, namely 15, being provided with an angular flange 16 which cooperates to form a locking space with the angle iron element 19, shown as having a multiplicity of right angularly related ledges 21 terminating in, substantially, right angular locking lips 22. The element 19 is spot welded to the element 15 at 20, as indicated, or it may be secured by rivets or other flush fastening means. The element

3

17 is provided with a hem-like portion 18 folded over on itself in order to provide the locking edge 23 which is engageable by the locking lips 22 and which are regularly spaced as indicated at 24. It is to be noted that the confines between the angular portion 16 and the locking ledges 21 is, substantially, of the same dimension as the thickness of the element 17 and the hem portion 18 combined.

Thus the elements 17 and 15 may be snapped out of engagement to be transported in knocked down position or may be readily snapped into engagement by forcing the rounded beaded edge 18' to assume a position between the locking lips 22 and the angular portion 16.

The modification indicated in Fig. 4 is, generally, designated 25, and it indicates how the element 17 is provided with its hem portion 18 whereas the element 15 is provided with the angular portion 16 and the locking means in this instance 26 is spot welded at 27 and consists of a continuous ledge 28 having a continuous locking lip 29 to engage the locking edge 23 on the hem portion 18. The unit will afford greater rigidity and may be utilized for heavy duty construction. Fig. 5 shows a slightly modified form of my invention designated 80 consisting of an element 81 having the angular portion 82 whereas the mating element 83 is provided with double hem portions 84 and 85 so as to provide the beaded engaging edge 86 to be releasably engageable by the locking lips 22 of the element 19 so that the locking lips 22 may be employed to releasably retain the beaded edge 861.

Fig. 6 is similar to the construction indicated in Figs. 1, 2 and 3 with the exception that the hem section 18 is offset as shown at 87 so as to provide a flush exterior between the angular portion 16 and the element 88.

Fig. 7 indicates wood or other thicker materials designated 34 and 35 the modification being, generally, designated 29' wherein an angle iron element having angular portions 30 and 31 is secured to the element 35 by means of screws 32 and 33 furnishing an extension between which is confined the element 34 and which has secured thereto a cooperative locking element 36 having a hem portion 37 and having the clearance hole 39 so as to permit a screw 42' to fasten the same to the element 34 by means of the countersunk opening in the element 36. Resilient locking means 41 is secured by screw 42 to element 35 in proper distance so as to permit the confines of the composite elements 34 and 36 to be releasably engaged by the locking lips 44 of the ledges 43 of the element 41. The hem portion 37 thus furnishes the locking edge 38 which is releasably engageable by the resilient locking lips 44.

Modifications for the manufacture or production of tubular or pipe-like structures is indicated in Figs. 11, 12 and 13. In Fig. 11 it will be noted that the tubular structure, generally, designated 45 has opposite ends 46 and 52 thereof secured in offset relationship by means of a locking edge 54 on the hem portion 53 whereas the element 47 which is spot welded at 49 near the end 48 is provided with an offset ledge portion 50 providing the locking lip 51 which releasably engages the locking edge 54 on the hem-like structure on end 52.

In order to provide a smooth perimetral or outer configuration to a tubular structure it may be made as indicated in Fig. 12 wherein the end 52 cooperating with the end 48 when brought about in meeting relationship releasably secures those two ends by means of an offset portion 55 which secures the hem-like portion 56 on the end 52, whereas the element 47 with the offset ledge 50 and the locking lips 51 resiliently and releasably retains the locking edge 57 on the hem 56 confined by the resilient locking lips 51. The modification indicated in Fig. 13 shows an offset tooth portion 58 on the end 52 forming a locking tube which is releasably engageable by the locking lips 51 of element 47.

4

An example of the practical utility of my invention is incorporated in a magazine rack illustrated in Figs. 8, 9 and 10. Referring to Fig. 8 which is an exploded view it will be noted that the ends 60 and 61 are provided with the element 77 secured so as to permit the ledges 78 to be suitably spaced from the angular portion 76 and further extending to form locking lips 79 which will engage the hem portion 75 on the side wall 62. The side walls 62 and 63 are provided with reinforced hems 74 and 75 which tend to reinforce the wall structure, generally, and are provided with continuously curled opposite edges 66 and 65 which form the handles of the magazine rack, whereas the rolled or curled portions 67 and 68 provide the legs or resting supports for the magazine rack.

It will also be noted that the walls 62 and 63 intermediately and closely adjacent to the foot or support portions 67 and 68 are provided with folded over beaded portions 69 which are engageable by the prongs 71 offset with respect to the ledge portions 70 on the bottom element 64. This modified form of my invention generally, designated 59 therefore can be sold in knocked down arrangement consuming very little space so that purchasers who customarily would buy these items in knocked down arrangement in crowded business localities may carry them home conveniently on a train without having to carry the bulk which would have to be carried if the item were not of knocked down construction and occupying the space volumetrically indicated in Fig. 10.

In assembling the unit the bent beaded formations 69 are assembled with the bottom 64 thus assembling the side walls 62 and 63 with the bottom 64. The end walls 61 and 60 are then snapped into assembly and as indicated are made of ornate configuration so as to provide also an attractive design to the magazine rack being reinforced at 72 and 73 for strengthening the product.

The arcuately extending edges at the top and bottom of the end walls 60 and 61 thus have the province of furnishing an abutment for the edges of the bottom element 64 and conceal the same from view providing a finished or artistic construction simultaneously providing additional rigidity thereto.

While the presumption throughout this description may be that the sheets and the lock joints are preferably to be constructed from sheet metal it is to be understood that the same may be formed from other resilient sheet material such as cellulose sheeting, plastic, fibrous board material of various types, wood, rubber, Bakelite as well as fiber of a heavier non-flexible construction may also be employed as indicated in one of the modified forms illustrated. Other modifications and changes in the materials and in the structural details may also be made provided they are within the scope of the appended claims and without departure from the spirit of the invention.

Having thus described and revealed my invention, what I claim as new and desire to secure by Letters Patent is:

1. Dismantleable snap lock means of the character described, comprising a pair of interlockable edges, one of said interlockable edges being provided with hem means defining a locking edge portion, the other of said interlockable edges being provided with an angularly related locking flange portion, and angle iron locking means secured to said other of said interlockable edges and in parallel relationship to said locking flange portion so as to form locking confines for said hem means, said angle iron locking means being provided with substantially right angularly formed locking lip means releasably engaging said locking edge portion.

2. Dismantleable snap lock means of the character described, comprising a pair of interlockable edges, one of said interlockable edges being provided with hem means defining a locking edge portion, the other of said inter-

5

lockable edges being provided with an angularly related locking flange portion, and angle iron locking means secured to said other of said interlockable edges and in parallel relationship to said locking flange portion so as to form locking confines for said hem means, said angle iron locking means being provided with a multiple number of substantially right angularly formed locking lip means releaseably engaging said locking edge portion.

3. Dismantleable snap lock means of the character described to form a flush exterior, comprising a pair of interlockable edges, one of said interlockable edges being provided with offset hem means defining a locking edge portion, the other of said interlockable edges being provided with an angularly related locking flange portion, and angle iron locking means secured to said other of said interlockable edges and in parallel relationship to said locking flange portion so as to form locking confines for said hem means, said angle iron locking means being provided with locking lip means releaseably engaging said locking edge portion.

4. Dismantleable snap lock means of the character described to form a flush exterior, comprising a pair of interlockable edges, one of said interlockable edges being provided with offset hem means defining a locking edge portion, the other of said interlockable edges being provided with an angularly related locking flange portion, and angle iron locking means secured to said other of said interlockable edges and in parallel relationship to said locking flange portion so as to form locking confines for said hem means, said angle iron locking means being provided with multiple locking lip means releaseably engaging said locking edge portion.

5. Dismantleable snap lock means of the character described, comprising a pair of interlockable edges, one of said interlockable edges being provided with double hem means defining a locking edge portion having rounded edge portions adapted to lock and release readily, the other of said interlockable edges being provided with an angularly related locking flange portion, and angle iron locking means secured to said other of said interlockable edges and in parallel relationship to said locking flange portion so as to form locking confines for said hem means, said angle iron locking means being provided with locking

6

lip means releaseably engaging said locking edge portion.

6. Dismantleable snap lock means of the character described, comprising a pair of interlockable edges, one of said interlockable edges being provided with double hem means defining a locking edge portion having rounded edge portions adapted to lock and release readily, the other of said interlockable edges being provided with an angularly related locking flange portion, and angle iron locking means secured to said other of said interlockable edges and in parallel relationship to said locking flange portion so as to form locking confines for said hem means, said angle iron locking means being provided with multiple locking lip means releaseably engaging said locking edge portion.

7. A knock down enclosure of the character described, comprising two side walls, and two end walls, said side walls being provided on a pair of oppositely disposed edges with hem means defining a locking edge portion, said end walls being provided on a pair of oppositely disposed edges with dismantleable snap lock means, including an angularly related locking flange portion, and angle iron locking means secured in parallel relationship to said locking flange portion so as to form locking confines for said hem means, said angle iron locking means being provided with substantially right angularly formed locking lip means releaseably engaging said locking edge portion.

References Cited in the file of this patent

UNITED STATES PATENTS

Re. 18,444	Krantz	Apr. 26, 1932
2,155,871	Piker	Apr. 25, 1939
2,189,159	Anschicks	Feb. 6, 1940
2,332,299	Cohn	Oct. 19, 1943
2,483,787	Sheraski	Oct. 4, 1949
2,522,097	Cookson	Sept. 12, 1950
2,661,118	Bennighof	Dec. 1, 1953
2,662,660	Frykdahl	Dec. 15, 1953

FOREIGN PATENTS

812,130	Germany	Dec. 10, 1951
701,713	Great Britain	Dec. 30, 1953