Nov. 29, 1966 B. D. COOK 3,288,307

COUNTER FRAME LATCH JOINT

Filed April 19, 1965

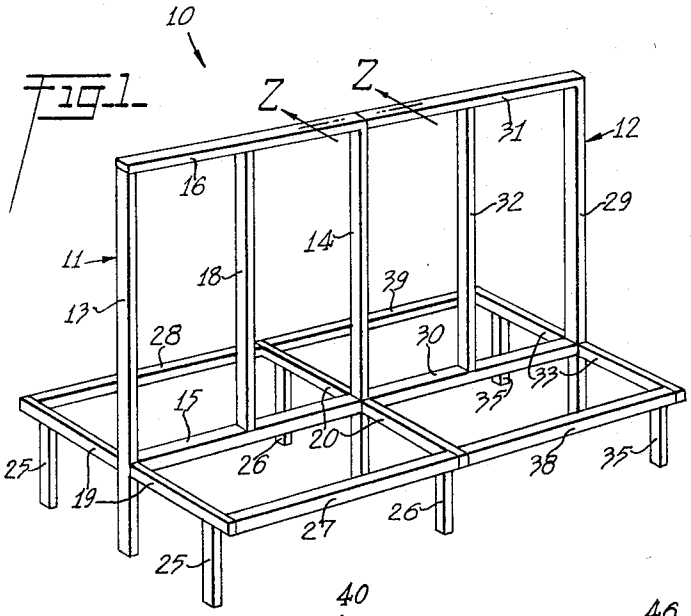


FIG. 1

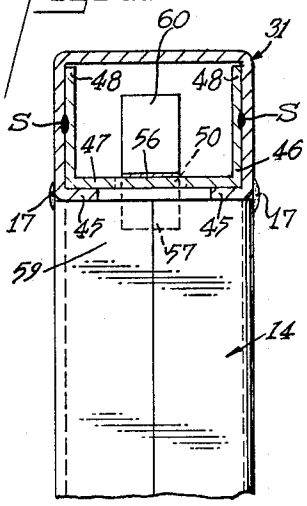
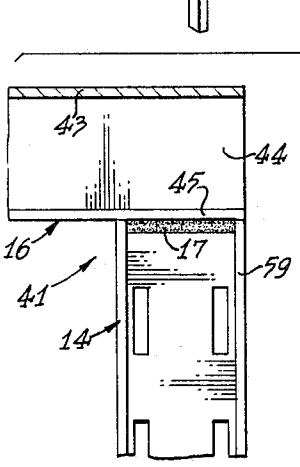


FIG. 4



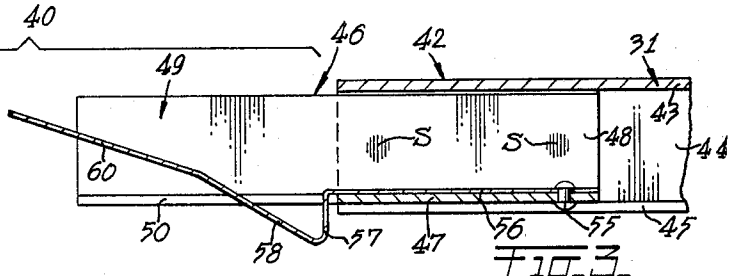


FIG. 3

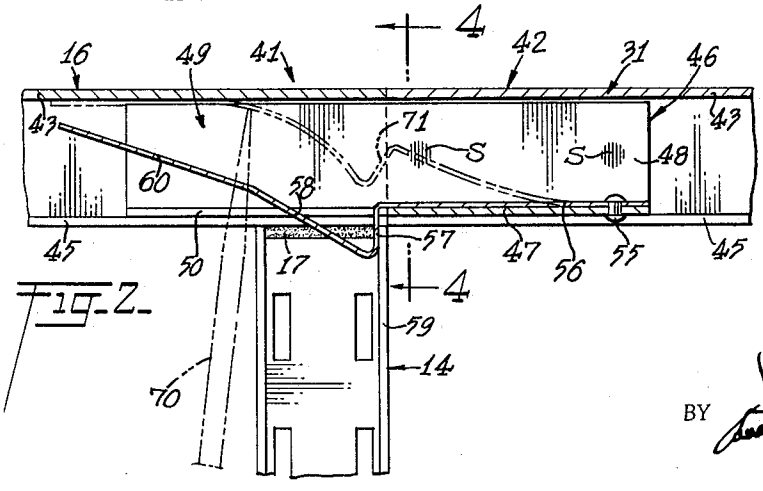


FIG. 2

BILLY D. COOK,
INVENTOR.

BY

ATTORNEY.

United States Patent Office 3,288,307 Patented Nov. 29, 1966

3,288,307

COUNTER FRAME LATCH JOINT

Billy D. Cook, Cambridge City, Ind., assignor to M & D Store Fixtures, Inc., a corporation of Indiana

Filed Apr. 19, 1965, Ser. No. 449,099
3 Claims. (Cl. 211—177)

This invention relates to sectional frames adapted to be rapidly assembled and disassembled and is particularly useful in frames for use in store counters and merchandise display gondolas.

It is a common practice to make one of the sections of a multiple section gondola frame closed at both ends and thus relatively rigid so as to give rigidity to the entire frame, while the added sections are closed at one end but open at the other. The open end of the first added section is detachably united with one of the closed ends of the rigid frame section. Subsequent added sections are progressively added to the first added section by attaching the open end of each section being added to the closed end of a section just previously added.

It is an object of the present invention to provide a novel snap locking mechanism for locking a relatively loose frame section member at the open end of an added section to a closed rigid end of another frame section.

Another object is to provide such a snap locking mechanism which functions by virtue of a lengthwise axial movement of said relatively loose frame member relative to a corresponding rigidly fixed member in another section, whereby the entire added section is translated into juxtaposed relation with said other section.

A further object of the invention is to provide such a novel snap locking mechanism which is invisible from the outside after two frame sections have been united thereby but which is readily engageable manually to release the same whenever it is desired to separate said frame sections.

The manner of accomplishing the foregoing objects as well as further objects and advantages will be made manifest in the following description taken in connection with the accompanying drawings, in which:

FIG. 1 is a diagrammatic perspective view of a rigid frame section closed at both ends, and united with the open end of an added frame section by the novel snap locking mechanism of the invention.

FIG. 2 is an enlarged vertical sectional view taken on the line 2—2 of FIG. 1 and illustrating said snap locking mechanism, said view also showing, in broken lines, how said locking mechanism may be manually released for separating said frame sections when this is desired.

FIG. 3 is a view similar to FIG. 2 illustrating the portions of said two frame sections in which said latch mechanism is embodied, separated as they appear just before uniting the same or just after separating said sections.

FIG. 4 is a vertical cross-sectional view taken on the line 4—4 of FIG. 2.

Referring specifically to the drawings the invention is shown as embodied in a gondola frame **10** which includes a rigid section **11** which is closed at both ends and an added section **12** which is open at one end.

The rigid section **11**, which is referred to in the art as a "bridge assembly," includes tubular metallic posts **13** and **14** which are joined near their lower ends by an inverted metallic channel member **15**, the opposite ends of which are welded to said posts, and at their upper ends by an inverted metallic channel member **16** opposite end portions of which overlie and rest upon upper ends of posts **13** and **14** and are welded thereto as by welding material **17**.

The rigid frame section **11** is further reinforced by a vertical tubular metal frame member **18** disposed between the lower and upper horizontal channel members

15 and **16**, midway between posts **13** and **14**, with its upper and lower ends welded to horizontal members **15** and **16**. Rigid section **11** is supported in a vertical plane by two pairs of **19** and **20** transverse members which extend horizontally in opposite directions from posts **13** and **14** at their points of juncture with lower channel member **15**. The members **19** and **20** have legs **25** and **26** which terminate at their lower ends in the same horizontal plane with the posts **13** and **14** and give rigid support to the entire section **11**. Outer ends of transverse members **19** and **20** are connected by front and rear channels **27** and **28**.

Added section **12** is identical in construction with rigid section **11** just described with the exception that it is open at one end. That is, added section **12** has a single post **29**, lower and upper inverted metallic channel members **30** and **31** and an intermediate vertical tubular metal frame member **32** which are welded together in exactly the same manner as post **13**, lower and upper channel members **15** and **16** and intermediate vertical tubular member **18** of rigid section **11**. Added section **12** also is provided with a single pair of transverse members **33** having feet **35** which members are secured to and extend in opposite directions from post **29** as shown in FIG. 1. Added section **12** also has front and rear channels **38** and **39** which connect respectively with outer end portions of transverse members **33** so that said channels are disposed parallel with and in the same plane as lower inverted channel member **30** of added section **12**.

FIG. 1 shows the gondola frame **10** after its being made up by joining the open end of added section **12** to one of the closed ends of rigid section **11**. The present invention is provided to facilitate the uniting of sections **11** and **12** in this manner by a movement of translation of the added section **12** relative to the rigid section **11** with the horizontal members to be joined in alignment respectively with each other during said movement. The invention is here disclosed as performing the specific function of rigidly uniting the upper inverted metallic channel member **31** of added section **12** with the upper inverted metallic channel member **16** of rigid section **11** incidental to such a translatory movement which terminates in bringing the respective horizontally aligned members of the two sections into abutment at their juxtaposed ends.

The invention comprises a latch mechanism **40** which includes a corner portion **41** of rigid section **11** which lies at the left of FIG. 3 and in which upper metallic channel member **16** is united by welding material **17** to the top end of post **14**, and an adjacent portion **42** of upper inverted metallic channel member **31** of added section **12**.

At this point it is to be noted that the upper metallic channel member **16** and its counterpart upper channel member **31** are identical in structure and cross-sectional dimensions, each having a main wall **43** which is horizontally disposed upwardly and sidewalls **44** which extend downwardly from the side edges of said main wall, the lower edges of said sidewalls being bent inwardly to form horizontal co-planar flanges **45**.

The latch mechanism **40** also includes a channel shaped tongue member **46** having a central main wall **47** from which side walls **48** extend upwardly, said tongue member extending a substantial distance into and making a close sliding fit with the end portion **42** of upper channel member **31** shown in FIG. 3, and being rigidly united therewith by spot welding S between the sidewalls **48** and the sidewalls **44** of channel member **31**. A substantial portion of the tongue member **46** thus extends from the end of channel member **31** to form a tongue **49**. A slot **50** is formed centrally in main wall **47** of tongue member **46** so as to be approximately co-extensive with said tongue.

Lying flat against main wall **47** of tongue member **46** and secured thereto close to the inner end of the latter, as by a rivet **55**, is a flat leaf spring **56** which is bent to extend downwardly at a right angle into the near end of slot **50** to form a snap latch **57**, the lower end of which is bent obliquely upwardly and forwardly through slot **50** to form a cam **58** which is adapted to engage the upper end of post **14** when the tongue **49** is inserted into the open end of upper channel member **16** as shown in FIG. 3 so that said latch will not impede said tongue being entirely inserted into channel member **16** to bring this channel member and channel member **31** into abuting relation. As this movement is completed, the snap latch **57** moves inwardly over the wall **59** of post **14** and is snapped downwardly by leaf spring **56** behind said wall as shown in FIG. 2.

The leaf spring **56** extends inwardly beyond the cam **58** to form a handle **60** which engages the main wall **43** of channel member **16** as the tongue **49** is being inserted into said channel, said engagement supporting the forward end of cam section **58** of said leaf spring so as to prevent it being deformed by said action and assuring that such action results merely in a camming effect which lifts the snap latch **57** upwardly pending the full insertion of the tongue **49** into channel member **16**.

The handle **60** also is manually engageable by extending a screw driver **70** upwardly between the flanges **45** and through the slot **50** of the tongue **49** to lift the snap latch **57** upwardly away from in front of the post wall **59**, as shown by broken lines **71** in FIG. 2, whereby the tongue **49** may be readily withdrawn from the channel member **16**.

Any of various conventional slot and lug devices may be provided for joining the free end of lower channel member **30** with tubular post **14** and this may be accomplished simultaneously with the translatory movement of the added section **12** toward the rigid section **11** incidental to the engaging of the latch mechanism **42** for uniting the free end of upper channel **31** of added section **12** to the rigidly positioned right end of upper channel member **16** of rigid section **11**. In a like manner the free ends of front and rear channel members **38** and **39** of added section **12** may be united co-incidentally with the outer ends of adjacent transverse member **20**.

An improved means for accomplishing the contemporary connection of the members **30**, **38** and **39** of the added section **12** to rigid section **11** is illustrated in the co-pending application of Gerald H. Sedo, Serial No. 431,399, filed February 9, 1965.

The claims are:

1. In a demountable sectional frame structure for store counters, merchandise display gondolas and the like, the combination of: a frame corner including a vertical, sheet-metal, tubular post, and a horizontal sheet metal channel member having a horizontal upwardly disposed main wall and downwardly extending side walls which terminate at their lower edges with inturned, coplanar

horizontal flanges inner edges of which are spaced to form a longitudinal downwardly disposed central opening in said channel member, an endwise-open end portion of said channel member resting on and being welded to the top end of said post to form a right angle with said post; a second and separate sheet metal channel member, like the first such member above recited, and having an open end; an inverted channel shaped sheet metal tongue member fitting closely within and welded in place in said open end of said second channel member and extending a substantial distance outwardly beyond said open end to form a tongue, said tongue member including a horizontal downwardly disposed solid wall and side walls extending upwardly therefrom there being a longitudinal slot centrally located in said wall of said tongue said slot extending close to said open end of said second channel member, said tongue being received with a close sliding fit within the open end portion of said first channel member to relatively rigidly orient said first and second channel members in alignment and with their ends in abutment; and leaf spring means secured to said solid horizontal wall of said tongue member a substantial distance within said open end of said second channel member said spring means being narrower than said slot and being formed downwardly through said slot to provide a snap latch means engaging within the upper end of said post to prevent accidental withdrawal of said tongue from said first channel member, said spring means being formed obliquely upwardly and forwardly from said snap latch means to extend upwardly through said slot and form a cam means engaging the upper end of said post when said tongue is inserted in said first channel member and thus camming said snap latch means upwardly during said insertion of said tongue.

2. A combination as recited in claim **1** wherein said cam means extends forwardly beyond the upper end of said post whereby it is engageable manually through said longitudinal central opening in said first channel member to lift said snap latch means and release said tongue permitting it to be withdrawn from said first channel member.

3. A combination as recited in claim **2** wherein the forward end of said cam means engages the horizontal wall of said first channel member when said cam means is lifted by engaging with said post, thus supporting said leaf spring means against undue distortion by said cam action.

References Cited by the Examiner

UNITED STATES PATENTS

2,687,912	8/1954	Beauchamp	293—64
3,021,961	2/1962	Ruhnke	211—177
3,123,221	3/1964	Haag	211—177
3,217,449	11/1965	Levere	52—143

CLAUDE A. LE ROY, *Primary Examiner.*

W. D. LOULAN, *Assistant Examiner.*