

Oct. 17, 1967

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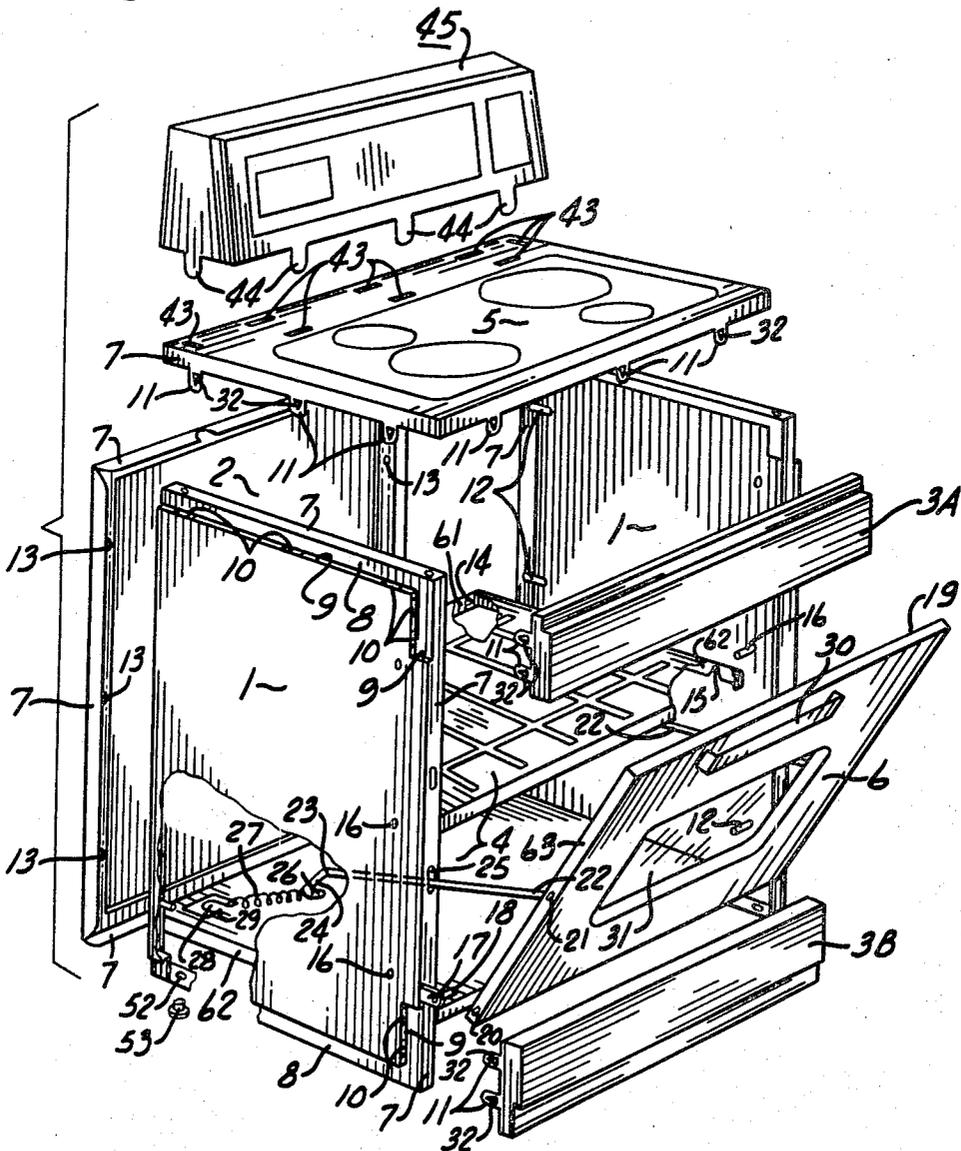
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CABINET STRUCTURE

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Fig. 1



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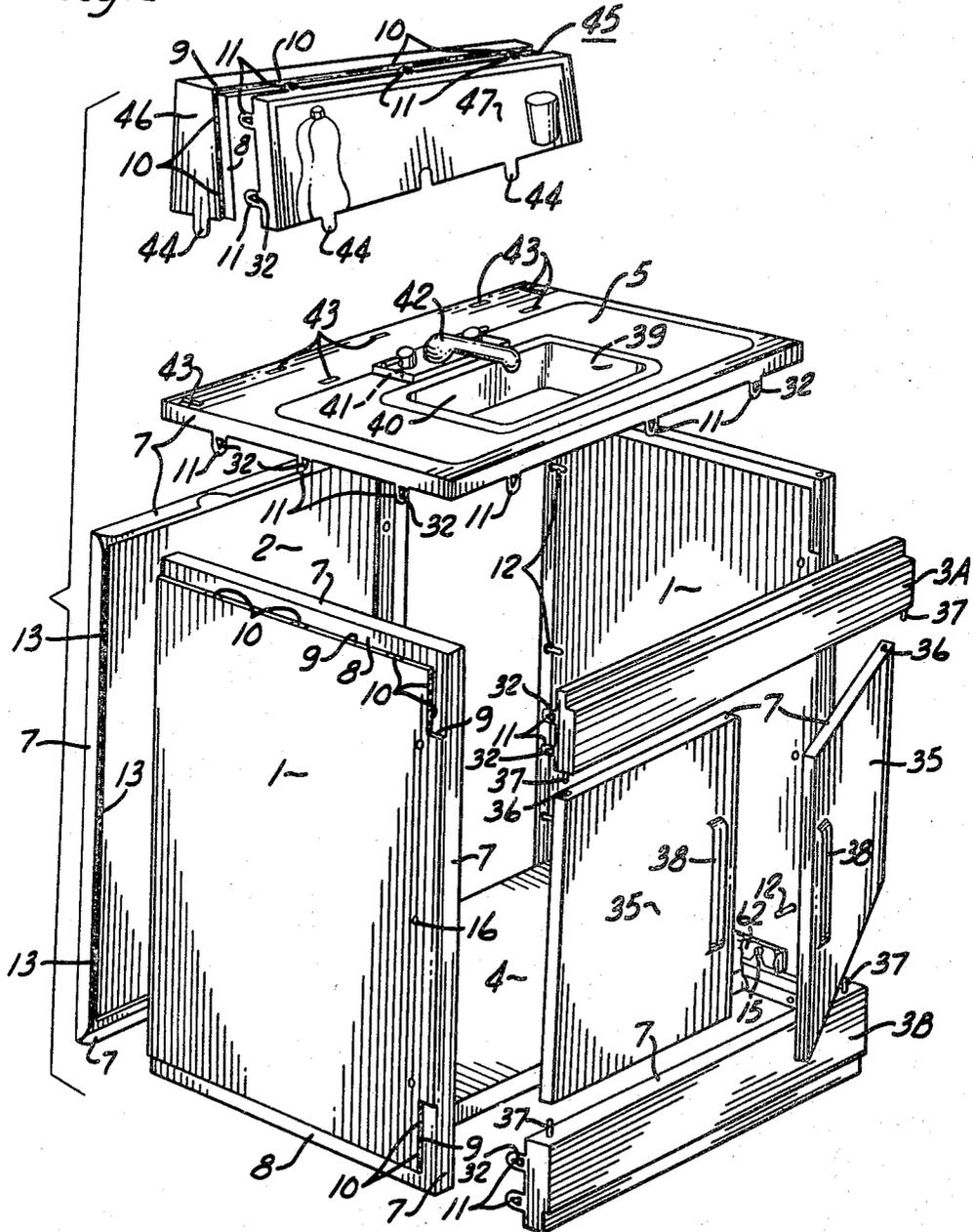
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Fig. 2



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Fig. 3

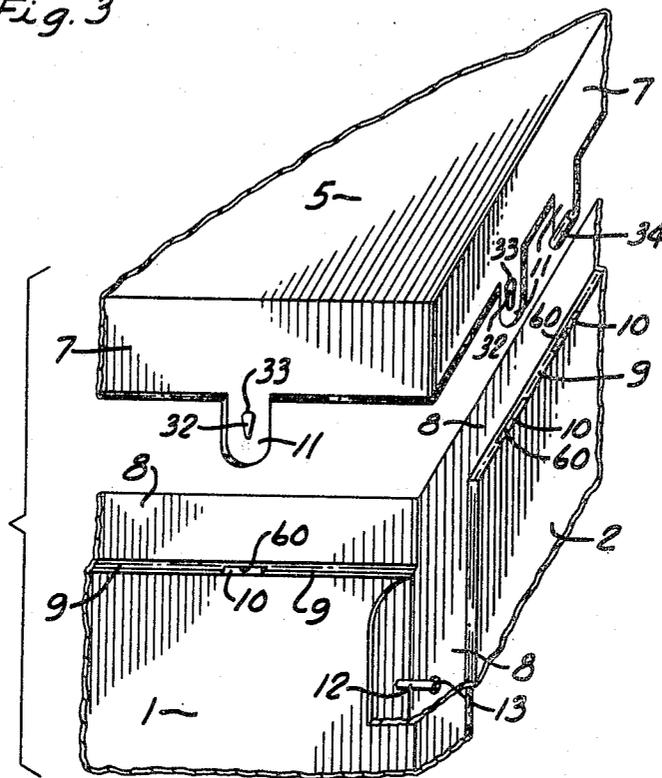
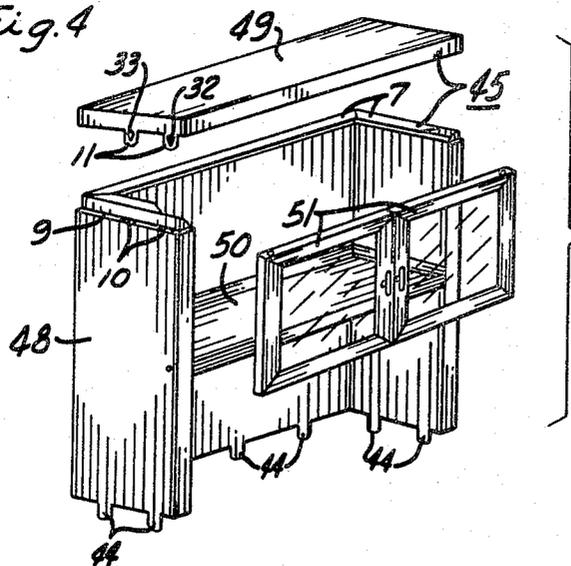


Fig. 4



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CABINET STRUCTURE

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ABSTRACT OF THE DISCLOSURE

A cabinet structure of connected panels wherein a selected number of the panel seams between adjacent panels are provided with a marginal offset extending along one panel edge and a cooperative marginal flange on the mating marginal edge of an adjacent panel. The mating marginal flange seats in the offset to provide a smooth cabinet surface at the base of the flange and a plurality of openings is provided in the offset to receive projections pending from the marginal flange. A selection of the projections are provided with protruding lips to lock the projections in their respective slots.

This invention relates generally to cabinet structures for children and more particularly to the manner of constructing the cabinet structure.

Cabinet structures in the form of kitchen stoves, sinks, refrigerators and the like for children are well known in the art. Such structures are generally formed of sheet metal panels fastened together either by nuts and bolts, fold over tabs, or sliding-interlocking connections. However, these structures are undesirable in that they are difficult and time consuming to assemble and they leave sharp metal edges and corners exposed upon which children can easily be injured.

The principal object of this invention is the provision of an improved structure of engaging the sheet metal panels together leaving no sharp edges or corners exposed and a completed assembly which can be done quickly and simply with a resultant structure which is extremely rigid.

Another object is the provision of marginal offsets on certain selected edges of each panel so that the overlapping edge or flange of an adjacent panel section is flushed with the surface beneath it thereby covering up the sharp edges.

Another object is the provision of slots in the shoulders of these offsets to receive tabs or projections which are a part of the overlapping edge of an adjacent panel. Where it is necessary these tabs are provided with lug locks which can be nothing more than a small lip made in each tab by an indentation or impression cut into the tab near its end. The lug lock may also be formed by turning under the end of the tabs.

These projections with lug locks are self-securing and therefore make assembly easy and quick.

Another object of this invention is the provision of positioning pins secured along the opposed overlapping marginal edges of the side panels where they contact the back panel. The marginal offset of the back panel has corresponding holes to receive these positioning pins. The shelf is supported on its back edge by these pins. Thus, when the shelf is put into place it will force the back panel to stay in position and aid in the rigidity of the structure.

Another object of this invention is that the side panels are completely interchangeable as so also are the top and bottom front panels. This allows for smaller manufacturing cost as only one stamp or form is needed for the opposite sides and the two front panels.

Other objects and advantages appear hereinafter in the following description and claims.

The accompanying drawings show for the purpose of exemplification without limiting the invention and claims

thereto certain practical embodiments illustrating the principles of this invention wherein:

FIG. 1 is an unassembled perspective view of a cabinet structure illustrating the embodiments of this invention.

FIG. 2 is another unassembled perspective view of a cabinet structure illustrating the embodiments of this invention and showing a variation of cabinet design with the same structural elements.

FIG. 3 is a perspective view of parts for joining together a portion of a cabinet structure with parts broken away.

FIG. 4 is another unassembled perspective view of a portion of a cabinet structure illustrating the embodiments of this invention.

Referring to FIGS. 1 and 2, the cabinet structure illustrating this invention comprises generally an enclosed metal cabinet having side panels 1, back panel 2, front panels 3, shelf panel 4, top panel 5, a pivoted door 6 and perimetral flanges 7, selected of which have the projections or tabs 11.

The side panels 1 are provided with marginal offsets 8 along their complete top margins and front margins in correspondence with the heights of front panels 3A and 3B. The marginal offsets 8 form a shoulder 9 along which are positioned slots 10 to receive projections 11 of the top panel 5 and the front panels 3A and 3B.

The perimetral right angle flanges 7 of the sides 1, which are in contact with the marginal offsets 8 of the back panel 2 and have riveted along their surface positioning pins 12 which project inwardly toward the front of the cabinet structure as shown in FIG. 3. The back 2 has along its side and top margins marginal offsets 8. The marginal offsets 8 along the side margins of the back panel 2 have openings 13 along its surface to respectively receive the positioning pins 12 when the back panel 2 is engaged with the side panels 1. The top margin of the back panel 2 and front panels 3 are also provided with a shoulder 9 with slots 10 to receive the projections 11 of the top panel 5.

The shelf panels 4 are provided with openings 14 in their back flange edges 61 in order to receive pins 12 to hold in position the back of shelf panel 4. The side flanges 62 of shelf panels 4 are provided with lock notches 15 near the front of the side flanges 62 of the panel to receive the supporting pins 16 secured to the side panels 1. These pins can be the same as positioning pins 12. The shelf panels 4 are inserted by placing openings 14 over their respective positioning pins 12 after the side panels 1 and back panel 2 have been engaged by the positioning pins 12 through the openings 13. This forces back panel 2 back into engagement with the flanges 7 of side panels 1. The front of shelf panel 4 is then lowered so that the support lock notches 15 settle and thus are supported on the support pins 16.

Secured to the side panels 1 are door brackets 17 having at their ends hinge pins 18 which can be the same type pin as positioning pins 12. The door 19 has an opening 20 therein at the base of its side edges 63 to receive hinge pins 18. The side edges 63 of the door openings 19 are also provided with rivets 21 which secure the wire door supports 22 which have a bend position 23 at their opposite ends to provide a stop means 24 which will engage the inner edge of slots 25 through which the door supports 22 are initially inserted. This stop means 24 prevents the door 19 from being opened beyond its horizontal level. The door supports 22 are also provided with a hook 26 to receive one end of the door springs 27. The opposite ends of door springs 27 are hooked over the tabs 28 formed by the horseshoe slots 29. The door springs 27 are provided as a mechanical advantage in closing the door 19, as a means to maintain the stop

3

means 24 from riding over and out through the edges of slots 25. Also the door springs 27 provide a means of holding door 19 in a closed position when desired. The door 19 is also provided with a handle 30 to open and close the same and a window 31 to view the inside when the door 19 is in a closed position.

FIG. 3 is presented to illustrate the fastening of the top panel 5 to a side panel 1 and the back panel 2. The marginal flanges 7 of the panel 5 are provided with the projections or tabs 11 some of which are provided with the lug lock means 32. The lug lock means 32 consists of an integral indentation providing a lip 33 to engage the inside edges 60 of the slots 10 when the projections 11 are snapped into position through their corresponding slots.

Lug lock means 34 illustrates a modification of the lug lock means 32 and for securing the projections 11 in their respective slots 10. The lug lock means 34 is formed as an integral part of the projections 11 by inwardly rolling a portion of its outer extremity.

FIG. 2 is an unassembled perspective view of the cabinet structure illustrating the embodiments of this invention and is structurally identical to FIG. 1 except the doors 19 are replaced by the two doors 35. At the outer edges of their top and bottom flanges 7 they are provided with holes 36 to receive hinge pins 37 which are secured to the inward flanges 7 of the front panels 3A and 3B. The doors 35 are also provided with handles 38 to open and close them. The cabinet structure of FIG. 2 is also provided with a rectangular hole 39 to receive the sink basin 40 and with hole 41 to receive the faucet arrangement 42.

Referring again to FIGS. 1 and 2, the tops 5 are provided with slots 43 to receive projections 44 of the control or display enclosure 45. In FIG. 2, this display enclosure 45 consists of the back enclosure 46 and the front enclosure panel 47. The back enclosure 46 is provided with marginal offsets 8 having shoulders 9 with slots 10 to receive projections 11 having lug lock means 32 which are an integral part of the front enclosure panel 47. The enclosure 45 is secured to the top 5 by binding over projections 44 after they have been inserted into their respective slots 43 in the top panel 5. The enclosure 45 may take on many different forms or shapes depending upon whether it must resemble a kitchen stove, cabinet or sink.

FIG. 4 illustrates the enclosure 45 in the form of eye-level cabinets. Here the back enclosure 48 is open at the top to receive the top enclosure panel 49. The enclosure is also provided with a shelf 50 and translucent plastic doors 51. The top enclosure 49 is fastened to the back enclosure 48 in the same manner that the back front enclosures 46 and 47 of FIG. 2 are connected.

FIGS. 1, 2 and 3 illustrate that the panels of this cabinet structure may have different designs printed or painted on their surfaces in order to make the structure appear more like the desired miniature kitchen cabinet structure.

The bottom of the cabinet structures illustrated in FIGS. 1 and 2 are provided with holes 52 to receive four mushroom shaped resistant feet 53 to assure mar free use.

It should be noted in all of the foregoing figures, illustrating the cabinet structure that the side panels 1 are completely interchangeable with each other. So also the front panels 3A and 3B are completely interchangeable. The shelf panels 4 are also identical and the back side panels and back panel 2 may each be turned end for end as their opposite ends are symmetrical in regard to the marginal offsets 8, slots 10, shoulder 9 and the pins 12. This all provides for low cost manufacturing and construction since the least amount of form stamps are needed.

In describing the cabinet structure comprising this invention, it should become apparent that upon assembling the side panels 1 with the back panel 2 and front panels 3A and 3B, the structure as assembled as such is substantially weak. However, in securing and positioning the

4

perimetral flanges 7 of the top panel 5 in the corresponding mating marginal offsets 8 on the upper ends of the side panels 1, back panel 2 and front panel 3A, the structure as assembled with top panel 5 becomes a highly rigid structure due to the marginal offsets 8 of each of the panels being held in rigid engagement with adjacent panels upon placement of the panel 5 in position. Thus, the use of the marginal offsets 8 in cooperation with the overlapping marginal flanges 7 not only gives the cabinet structure an extreme rigidity but also permits the use of a lighter gaging of metal reducing the cost of manufacture and also permits the construction of a cabinet structure which provides a smooth conductive contour among the panels as assembled since each of the marginal offsets 8 have a depth of at least equal to the thickness of the marginal flange 7 which may place the latter in a plane substantially parallel with the adjacent panel having a corresponding cooperative marginal offset.

The positioning pins 12, the hinge pins 18 and 37 as well as the support pins 16 may be in the form of rivets having a head portion and a stem portion and may be secured to their respective panels by riveting the same thereto.

With respect to the lug lock means, it should be noted from FIG. 3 that the protruding lip portion 33 or the lug lock means 34 are formed inwardly relative to the inwardly formed marginal offsets 8 of each of the panels 1, 2 and 3A and 3B. Thus, the lip portion 33 or lug lock means 34 may engage the offset or shoulder 9 of each of the marginal offsets after each of the lug lock means on each of the projections or tabs 11 are inserted through their respective slots 10 in the shoulders 9.

In connection with the projection or tabs 11, it should be noted that only a selected number of the same need be provided with the self-securing lug lock means in order to rigidly hold the assembled cabinet structure together. Those projections or tabs possess lug lock means merely to aid in guiding, positioning and holding the respective panels together in proper assembled relationship.

I claim:

1. A cabinet structure including connected side panels and a back panel and a top panel and at least one front panel defining at least one portion of an opening for interior access to the cabinet, characterized by a marginal offset along one of the two connected marginal edges of each adjacent pair of said panel and defining a shoulder therealong each offset having spaced openings therein, cooperative marginal flanges on each mating marginal edge to fit on said marginal offsets, and spaced projections on selected of said marginal flanges received in said openings to retain said flanges flush with the panel sides and positioned to provide a smooth cabinet edge at the base of said flanges.

2. A cabinet structure including connected side panels and a back panel and a top panel and at least one front panel defining at least one portion of an opening for interior access to the cabinet, characterized by a marginal offset along one of the two connected marginal edges of at least one adjacent pair of said panels, said marginal offset having an inwardly formed step defining a shoulder at the bottom thereof, a cooperative marginal flange on the other of said two connected marginal edges of each selected adjacent pair of said panels and on said offset in cooperative engagement therewith to provide a smooth cabinet surface at the base of said flange, a plurality of slots in said shoulder cooperatively receiving a plurality of projections pending from said cooperative marginal flange to position and connect said panels together to form a cabinet structure.

3. The cabinet structure of claim 2 characterized in that a selected number of said projections are provided with self-securing lug lock means to maintain the same in said slots to rigidly hold the cabinet structure together.

4. A cabinet structure including connected side panels and a back panel and a top panel and at least one front panel defining at least one portion of an opening for in-

5

terior access to the cabinet, characterized by a marginal offset along one of the two connected marginal edges of each adjacent pair of said panels and each offset having spaced openings therein, cooperative marginal flanges on each mating marginal edge and positioned on said marginal offsets, spaced projections on selected of said marginal flanges received and locked in said openings to retain said flanges flush with the panel sides and positioned to provide a smooth cabinet edge at the base of said flanges, said marginal flanges being provided on said side panels adjacent said back panel and having positioning pins aligned inwardly therealong and secured thereto, and said cooperative marginal offsets being provided along the sides of said back panel and having openings in their surfaces receiving said positioning pins to lock said panels together.

5. The cabinet structure of claim 4 characterized by a shelf panel in the cabinet structure supported at one end by said positioning pins, and support pins projecting inwardly from said side panels and secured thereto supporting the other end of said shelf panel, said shelf panel when supported on said pins maintaining the cooperative marginal offsets of said back panel in locked engagement with said marginal flanges on said side panel to give additional rigidity to the cabinet structure.

6. The cabinet structure of claim 5 characterized in that each of said marginal offsets defining an inwardly stepped shoulder along their full length to provide strength, slots in said shoulders, projections on said cooperative marginal flanges to be cooperatively received by said slots to position and maintain said panels together to form a cabinet structure.

7. The cabinet structure of claim 6 characterized in that a selected number of said projections are provided with self-securing lug lock means to maintain the same in said slots to rigidly hold the cabinet structure together.

8. The cabinet structure of claim 7 characterized in that each of said lug lock means have a protruding lip with a locking edge formed as an integral part of said projection, said locking edge positioned to engage the inner bottom edge of said shoulders after the same are passed through said slot.

9. The cabinet structure of claim 3 characterized in that the marginal edges of each opposed pair of marginal edges on each of said panels are identical to permit said side panels to be secured together from either of their respective ends, said top panel having a continuous cooperative marginal flange around its full perimeter to be cooperatively received by marginal offsets on the top of said side and back and front panel to rigidly secure the top of said assembled cabinet structure.

10. The cabinet structure of claim 3 characterized in that the opposed marginal edges of said back panel are identical, the marginal edges of said side panels are identical and said side panels are interchangeable, and top and bottom front panels the marginal edges of said front panels are identical and said panels are interchangeable.

11. A cabinet structure including connected side panels and a back panel and a top panel and at least one front panel defining at least one portion of an opening for interior access to the cabinet, characterized by a marginal

6

offset along the top marginal edges of said back and side panels, said offset defining a shoulder therealong and having spaced slots therein, downwardly extending marginal flanges around the circumference of said top panel having spaced projections extending from said flanges and received in corresponding slots in said side and back and front panels to retain the depending flanges on said top flush with the panel surfaces and positioned to provide a smooth cabinet edge around said top, lug lock means on said projections to lock the same in their corresponding slots and retain said flanges and secure said top to said panels.

12. The cabinet structure of claim 5 characterized by an aligned opposed pair of hinged members on said side panels, a door pivoted on said hinges to open and close said opening in said cabinet, a rod pivotally secured to one side of said door intermediate the hinge and outer end thereof, a spring having looped ends with one looped end connected to the outer end of said rod, and a tongue in said shelf panel to receive the other looped end of said spring.

13. The cabinet structure of claim 12 which also includes opposed flange members on said side panels to seat said door in its closed position, said rod passing through an opening in one of said flange members, hook means on the end of said rod to receive said one looped end of said spring, said hook means striking the flange of the adjacent side panel to form a stop for limiting the opening of said door.

14. A seam for connection of adjacent panels in a cabinet structure comprising a marginal offset extending along a panel edge, said offset defining a shoulder therealong, a cooperative marginal flange on the mating marginal edge of an adjacent panel, said flange fitting in said offset to provide a smooth cabinet surface at the base of said flange, at least one slot in said shoulder cooperatively receiving a projection pending from said cooperative marginal flange to position and connect said panels together to form a cabinet seam.

15. The seam of claim 14, characterized by a self-securing lug lock means on said projection to maintain the same locked in said slots.

References Cited

UNITED STATES PATENTS

1,384,880	7/1921	Asher	312—257
1,688,019	10/1928	Pickup	126—191
1,802,955	4/1931	Pickup	126—191
2,021,464	11/1935	Rickard et al.	211—135 X
2,024,596	12/1935	Pfeiffer et al.	211—135 X
2,443,515	6/1948	Rockwell	312—257 X
2,606,806	8/1952	Giffard	211—135 X
2,749,199	6/1956	O'Connor	312—257
2,828,062	3/1958	Fellowes	312—259 X
3,096,900	7/1963	Breneman	220—4
3,250,267	5/1966	Fry	126—191

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