Aug. 12, 1941. H. G. KNUTH 2,252,570

CABINET SHELF SUPPORTING MEANS

Filed June 22, 1940

Fig. 1

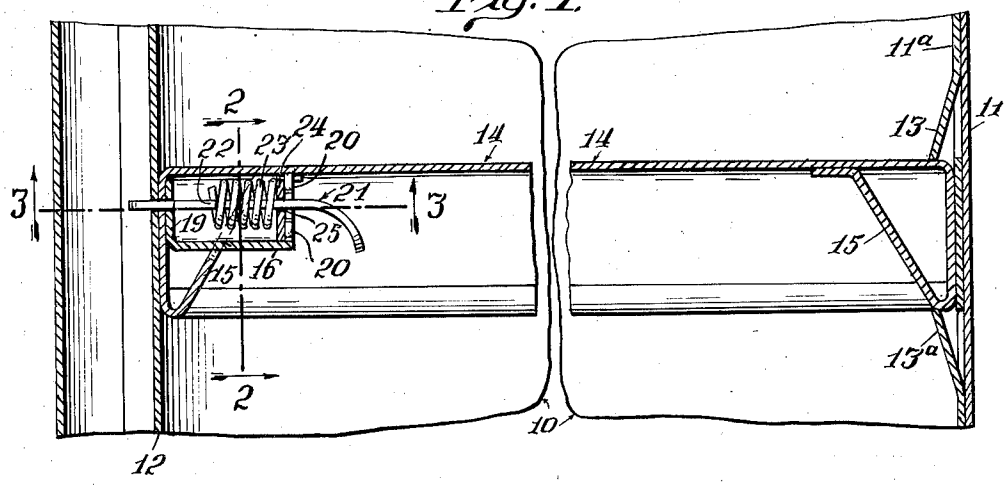


Fig. 2

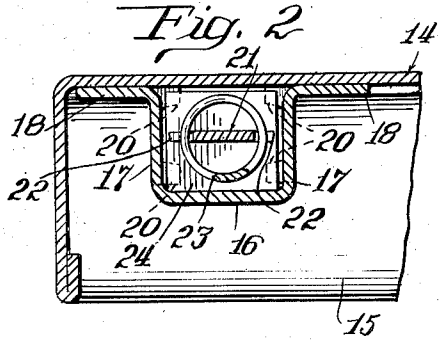


Fig. 3

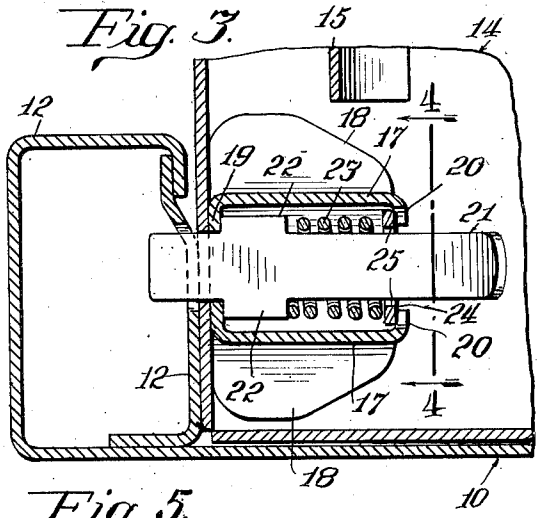


Fig. 4

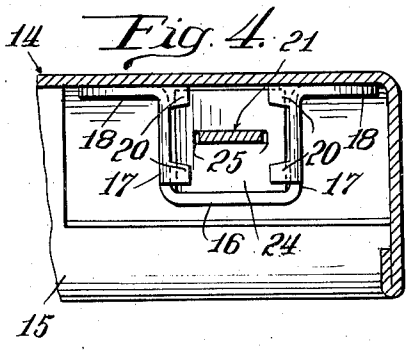
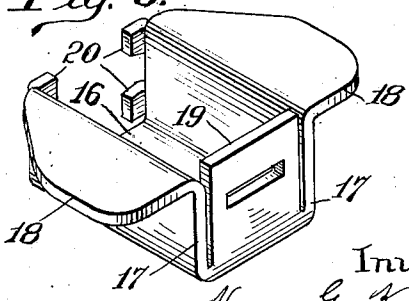


Fig. 5



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CABINET SHELF SUPPORTING MEANS

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Application June 22, 1940, Serial No. 341,888

2 Claims. (Cl. 211—183)

My invention relates more particularly to means for adjustably mounting the shelves in metal cabinets and especially in the type known as kitchen cabinets; and has for its object the provision of means whereby the shelves may be easily adjusted or arranged in spaced relation to meet the requirements and desires of the respective users without resort to special tools.

Metal cabinets of the type in question, as well as the metal shelves, after being formed are then finished with an enamel coating so that the subsequent addition of fastening elements, as for example shelf supporting latches forming an integral part of the shelf, is impracticable and would cause the finish to be greatly marred.

My invention contemplates a specific type of controllable latch which is intended to be integrally attached or welded to the shelf to cooperate with pre-arranged surfaces on the inner sides of the cabinet walls for holding the shelf at the desired elevation; the latch being so formed that the latch housing may be attached to the shelf, the shelf and latch housing provided with an enamel coating and the latch elements then easily inserted into the latch housing without its removal.

The objects and advantages of my invention will all be readily comprehended from the following detailed description of the accompanying drawing wherein—

Figure 1 is a vertical sectional view of a portion of a cabinet, portions being broken away and doors removed, with my improved shelf and supporting means also shown in section.

Figure 2 is a cross section taken on the line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a longitudinal sectional view taken on the line 3—3 of Figure 1 and illustrating in dotted lines the manner of inserting or removing one end wall of the latch housing.

Figure 4 is a sectional view taken on the line 4—4 of Figure 3, showing the end wall of the housing in normal position.

Figure 5 is a detail perspective view of the latch housing with the rear wall and latch mechanism removed.

My invention relates to cabinets made of sheet metal and provided with one or more shelves which are removably secured in place and adapted to be positioned by the user; the cabinets usually being provided with doors which are not shown in the drawing as they form no part of the invention.

In the particular exemplification merely a portion of one side wall is shown at 10 and a portion of the rear wall of the cabinet shown at 11; the rear wall being preferably double as shown in Figure 1 in order that the cabinet may be dust and vermin proof.

The side walls (of which only one is shown at 10) at the front side of the cabinet are bent into the rectangular box-like shape shown at 12 in Figure 3, to provide a side column for the door-opening; the respective sheets being generally welded together. It will be understood that the opposite side wall is likewise formed at the front side to provide a similar column at the other side of the door-opening.

The inner rear wall sheet 11^a is stamped to provide the correlated upset portions 13, 13^a, arranged at predetermined distances apart, preferably in vertical alinement, to present oppositely disposed abutments or shoulders as shown in Figure 1 spaced apart in keeping with the depth of the shelves of which one is shown at 14.

The shelf 14 is also formed of sheet metal with its longitudinal or front and rear edges flanged or bent downwardly and thence diagonally upwardly as shown at 15 and this upwardly disposed bracing portion preferably welded to the lower side of the shelf.

As shown in Figure 1, the rear flanged portion of the shelf is adapted to fit snugly between the abutments or shoulders 13, 13^a which firmly hold the rear edge of the shelf in place.

The bracing flange 15 at the forward edge of the shelf and adjacent the ends of the shelf is preferably cut away to receive my improved latch mechanism.

As the cabinets and the shelves after being formed are then enameled, it is essential to provide a shelf holding latch which may be integrally united with the shelves by welding before the shelf is enameled so as to provide a smooth unmarred surface. It is apparent that the ordinary type of latch after being welded to the shelf would become inoperative during the enameling operation. In order to overcome this difficulty I have devised my improved latch whose housing preferably consists of a single piece of sheet metal bent into somewhat U-shape as shown in Figure 2 to provide the bottom wall 16, upstanding side walls 17, 17, whose upper ends terminate in the flanges or wing portions 18, 18 which are adapted to extend flush with the bottom of the shelf 14 and are welded thereto. The lower wall 16 at what may be termed the forward end of the latch has an extension 19 which is bent upwardly between the side walls 17, 17

to form a closure or stop for the forward end of the latch housing, see Figures 1 and 3; while the side walls 17, 17 at the rear end of the housing are provided with small lugs 20, bent inwardly at right angles to the side walls 17, as shown in Figures 4 and 5.

The latch also comprises a plunger 21 having top and bottom flat surfaces and the rear end preferably bent or curved to provide a finger grasping portion which extends beyond the rear end of the housing. The forward end of the latch member 21 extends through a slot in the forward wall 19 of the housing and is adapted to engage in suitable slots arranged on the inside face of the column portion 12 of the cabinet front wall. The plunger member 21 at a suitable distance rearward of the forward latching end is laterally extended or enlarged at 22, 22 which extend beyond the ends of the slot in the front wall 19 of the housing and prevent further outward movement of the plunger as shown in Figure 3. These wings or extensions 22, 22 also provide abutments or shoulders for the forward end of the coil spring 23 which is disposed about the plunger 21, while the rear end of the spring 23 presses against the small rectangular plate 24 which has a rectangular slot 25 for passage of the rear end of plunger 27 therethrough; the slot 25 being slightly larger than the transverse dimensions of the rear end of the plunger to permit the plate 24 to be slightly canted on the plunger during introduction or withdrawal of the latch mechanism within the housing.

The plate 24 constitutes a removable rear wall for the housing and is held in place by the small lugs 20 after the plate has been canted as shown in dotted lines in Figure 3 and pressed into the housing inwardly of the lugs 20, as shown in Figure 4.

With my improved latch, the plunger 21, spring 23 and the rear wall plate 24 are removed, the latch housing properly positioned on the lower face of the shelf and the wings 18, 18 preferably spot welded to the shelf as shown in Figure 2. This permits the shelf and latch housing to be properly enameled while the latch mechanism is out of the housing, because the enamel coming into contact with the plunger and spring would prevent proper operation.

After the shelf with the latch housing has been properly enameled, the plunger 21 with encircling coiled spring 23 and rear plate 24 are then inserted through the rear open end of the housing by pressing and canting the plate 24 forwardly, as shown in Figure 3, sufficiently to enable the plate 24 to move past the lugs 20, both at top and bottom, and the plate then righted so as to rest against the inner faces of the lugs 20 where it is held by the action of spring 23 which also places the plunger 21 under pressure, forcing the forward end of the plunger outwardly into latching position. As is also apparent, my improved construction will readily permit the latch member or the spring to be readily removed and replaced should occasion require without need for removing the latch housing.

It will be understood that the latch receiving slots in the cabinet wall are vertically spaced in keeping with the shelf receiving spacing between the shoulders 13, 13a on the cabinet rear wall so as to hold the shelf in horizontal position; the shelf 14 being provided with a similar latch at opposite ends and hence at opposite sides of the door opening in the front wall of the cabinet; while the rear wall of the cabinet is preferably provided with two series of shoulders 13, 13a adjacent the side walls of the cabinet in order that the shelf may be firmly held against tilting when various commodities are superposed thereon.

As shown in the drawing, the distance between the shoulders on the latch plunger and the removable end wall is such that the coil spring will become "seated" when the plunger is pulled rearwardly and thus prevents the forward end of the plunger being withdrawn from the slot in the front wall of the housing.

I prefer to arrange the latches at the same longitudinal edge of the shelf to enable the user to conveniently manipulate both latches to release the latter while also holding the shelf in proper position; the latch plungers automatically entering the slots in the cabinet front wall when the shelf approaches proper horizontal position.

The exemplification as shown in the drawing is believed to be the simplest embodiment of the invention, described in terms of description and not as terms of limitation, as structural modifications may be possible without, however, departing from the spirit of my invention as defined in the appended claims.

What I claim is:

1. A cabinet shelf supporting latch comprising a single piece latch housing having a main, two sides and front end walls, the end wall having a slot while the side walls at the rear end of the housing are provided with opposingly disposed lugs; a transversely slotted plate of dimensions less than the inside dimensions of the housing adapted to be edgewisely insertible through the rear end of the housing and normally seatable against said lugs; a plunger adapted to extend through the slot in the front end wall and provided with lateral extensions adapted to limit its forward movement while the rear end of the plunger is of dimensions less than the length of the slot in said plate to permit the latter to be canted on the plunger; and a coil spring encircling the plunger intermediate of its lateral extensions and said plate whereby the forward end of the plunger is forced through the slot in the front end wall and said plate held against said lugs; the associated plunger, spring and plate being all insertible through the rear open end of the housing when said plate is canted on the plunger.

2. A cabinet shelf supporting latch comprising a housing having a main wall, two side walls and a front end wall, the latter being provided with an opening while the side walls at the rear open end of the housing have spaced apart opposingly disposed lugs; a plunger of length greater than the length of the housing adapted to normally extend through the opening in said end wall while its rear end is formed to provide a finger grasping portion, the plunger intermediate its ends being formed to limit its movement through the opening in said end wall; a plate adapted to be edgewisely inserted through the open end of the housing and to seat on said lugs, said plate having an aperture of length greater than the width of the rear end of the plunger to permit the plate to be tilted on the plunger; and a spring mounted on the plunger for normally pressing the plunger forward and to hold said plate against said lugs, the assembled plunger, spring and plate being insertible through the rear open end of the housing when said plate is tilted on the plunger to pass between said lugs after the housing has been secured in place.

HARVEY G. KNUTH.