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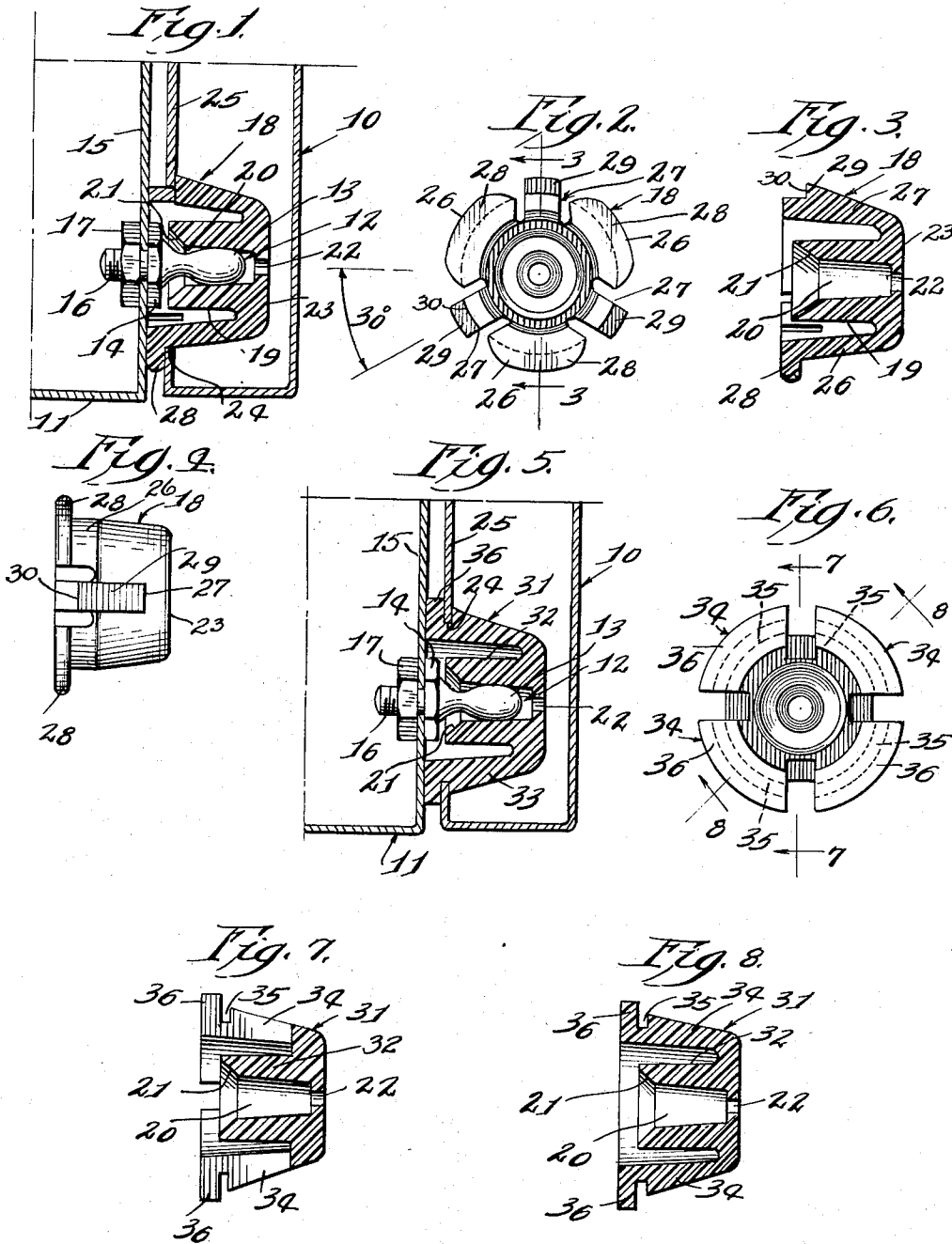
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2,847,240

SNAP-IN CATCH

Filed Aug. 12, 1954

2 Sheets-Sheet 1



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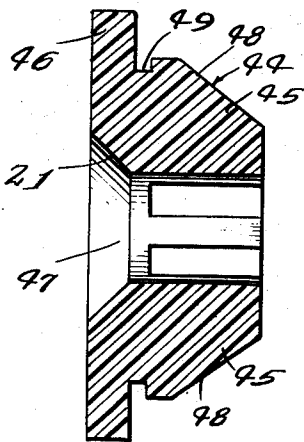
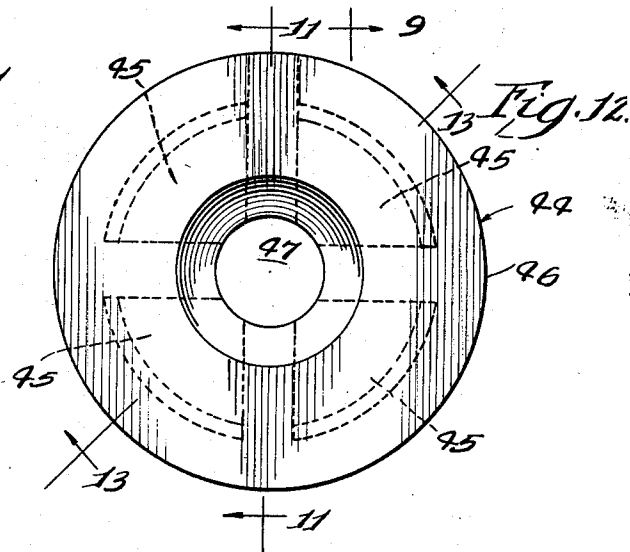
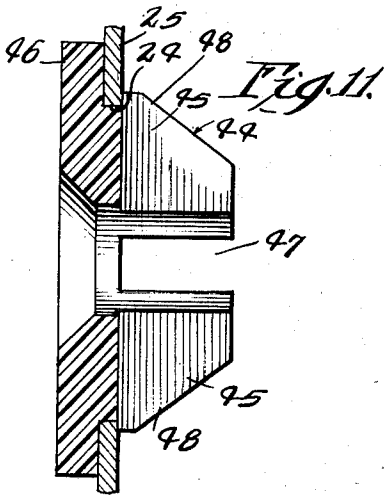
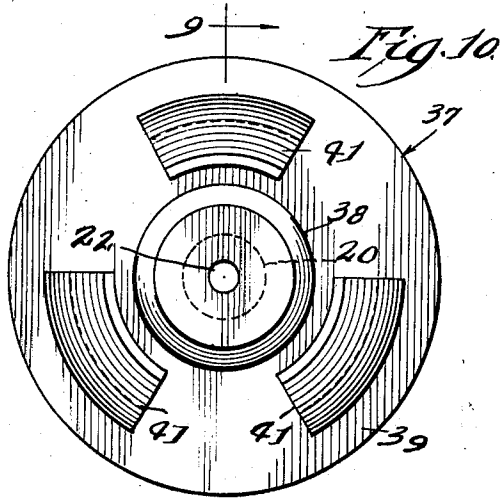
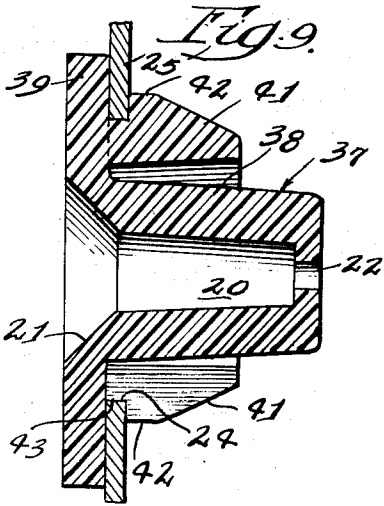


Fig. 13.

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2,847,240

SNAP-IN CATCH

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8 Claims. (Cl. 292—70)

The present invention relates to catches adapted for use in cabinets and the like for retaining a door in closed position, and is more particularly concerned with a novel snap-in catch formed of a plastic composition capable of continuous and repeated use over a long period of time and with a minimum of wear.

The novel catch of the present invention is particularly adapted for use on metal cabinets having a hollow sheet metal door where the catch is preferably mounted on the door and is adapted to receive a strike or latching means mounted on and projecting from the cabinet for retaining the door in closed position, although its use is not limited thereto, and in some installations the parts may be reversed.

One of the objections to metal cabinets having a metal door or closure of the type employed in the kitchen or for storage purposes is the resounding effect incident to their use, and it is an important object of the present invention to provide a novel catch construction in which the noises incident to the closing and opening of the door or closure are effectively eliminated.

Another important object of the present invention is the provision of a novel plastic catch for the hollow metal door of a cabinet provided with an outwardly projecting rigid strike adapted to be received in a longitudinal bore in the catch when the door is moved toward closed position and the strike is frictionally gripped by the encompassing catch, the catch being formed of a yieldable plastic composition and so contoured that the end of the strike is guided or directed into the bore of the catch even though the strike and the bore of the catch when the parts are assembled or after a period of use are not disposed or maintained in accurate alignment.

Another object of the present invention is the provision of a novel catch constructed of a plastic composition that is substantially rigid yet is sufficiently deformable and resilient whereby its hollow latch engaging part or sleeve-like member may flex and tightly and frictionally grip the strike or keeper within its bore or opening when the closure or door is moved to closed position. By forming the hollow part of the catch that receives the rigid strike of a yieldable composition, this part may be expanded by the entering strike and when fully inserted the latter is frictionally gripped and held thereby.

The present invention further comprehends a novel bumper catch so constructed and arranged as to provide a resilient bumper between the adjoining metal walls of the cabinet and the door when the door is moved to closed position and thereby eliminate metal-to-metal contact.

Another important object of the present invention is to provide a novel snap-in catch that may be quickly and easily inserted into an opening therefor in a door or closure and provided with novel anchoring means for retaining it in said opening upon insertion.

A further object of the present invention is to provide a novel snap-in catch for the door of a metal cabinet assembly in which the catch is composed of a plastic

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composition, such as polyethylene, neoprene or of a compounded synthetic rubber-like plastic having like properties, and is so constructed or formed as to provide a hollow body having an elongated recess or bore adapted to receive and frictionally grip and retain the projecting end of a strike and thereby retain the door in closed position but permitting it to be opened with relatively little effort.

In the drawings:

Figure 1 is a view in horizontal cross section taken through the present novel catch, through an edge of a hollow sheet metal door in which the catch is shown as mounted and through the adjacent edge of a metal cabinet having a strike projecting therefrom and adapted to be received and frictionally gripped and retained in the catch.

Fig. 2 is a view in front elevation of the disassembled catch.

Fig. 3 is a view in vertical cross section of the disassembled catch, the view being taken in a plane represented by the line 3—3 of Fig. 2 and viewed in the direction of the arrows.

Fig. 4 is a view in side elevation of the catch of Figs. 1, 2 and 3.

Fig. 5 is a view similar to Fig. 1 but showing another embodiment of the catch of the present invention.

Fig. 6 is a view in front elevation of the catch disclosed in Fig. 5.

Fig. 7 is a view in vertical cross section taken in a plane represented by the line 7—7 of Fig. 6 and viewed in the direction of the arrows.

Fig. 8 is a cross sectional view taken on the line 8—8 of Fig. 6 and viewed in the direction of the arrows.

Fig. 9 is an enlarged view in vertical cross section of a further embodiment of the novel plastic catch, the view being taken on the line 9—9 of Fig. 10 and viewed in the direction of the arrows.

Fig. 10 is a view in rear elevation of the catch of Fig. 9.

Fig. 11 is a view in vertical cross section through another embodiment of catch, the view being taken on the line 11—11 of Fig. 12 and viewed in the direction of the arrows.

Fig. 12 is a view in front elevation of the catch disclosed in Fig. 11.

Fig. 13 is a cross sectional view taken on the line 13—13 of Fig. 12 and viewed in the direction of the arrows.

Referring more particularly to the disclosure in the drawings and to the details of the novel embodiments selected to illustrate the present invention, each catch is adapted to be mounted in an opening in a hollow sheet metal door 10 providing a closure for a sheet metal cabinet 11, which may be a kitchen cabinet, wall cabinet or any form of storage cabinet. In each form of the disclosed catch, it is formed or composed of a resilient or flexible plastic composition, such as polyethylene, neoprene or other compounded synthetic rubber, plastic or rubber-like material capable of being formed in the manner disclosed and adapted to receive and frictionally grip and retain a strike in the manner intended.

In the embodiment shown in Figs. 1 to 4, inclusive, the strike 12 comprises a projection having a bulbous end or enlargement 13, a base 14 seated or mounted on a flange or wall 15 of the cabinet 11, a threaded shank 16 and a lock nut 17 for anchoring the strike 12 upon the cabinet.

The novel catch 18 comprises a hollow member formed of a flexible, plastic composition having an internal annular sleeve 19 provided with a bore or opening 20 for receiving and retaining the strike 12 by the contractive force of the flexible material of the sleeve 19. To facili-

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tate and direct entry of the end 13 of the strike 12 into the bore or opening 20, the inner end of the sleeve 19 is countersunk at 21. An opening 22 in the outer end or rear 23 of the catch 18 prevents the entrapment of air in the bore or opening 20 of the sleeve 19.

To anchor the catch 18 within an opening 24 in the inner flange or wall 25 of the door 10, the catch is provided with an encompassing part divided into alternate segments 26 and 27, the peripheral surface or exterior of each alternate segment 26 being adapted to be conformably received in the opening 24 and provided with an arcuate flange 28 seating against the inner face of the wall 25 of the door or closure 10 at the inner edge of the catch. These spaced outwardly projecting flanges 28 provide a bumper adapted to abut the exterior surface of the adjacent flange or wall 15 of the cabinet 11 when the door or closure 10 is moved to closed position. The segments 27 are each provided with an outwardly and downwardly tapered embossment 29 on its exterior surface with the inner or forward enlarged end of each embossment being cut away to provide a shoulder 30 spaced a greater distance from the adjacent or inner end of the catch than the outer or rear surface of each flange 28, thereby providing an annular space between the rear face of the flanges 28 and the shoulder 30 at the forward or enlarged end of each embossment 29 adapted to receive therebetween the metal of the inner flange or wall 25 defining or encompassing the opening 24, whereby to securely anchor the catch 18 in the opening 24 of the door 10.

By this construction and arrangement of the catch 18, when it is forced into the opening 24 until the external flanges 28 abut the inner face or surface of the inner flange or wall 25 of the door 10, each embossment 29 which has been forced radially inward with its flexible segment 27 toward the annular sleeve 19, extends outwardly to seat the shoulder 30 at the forward end of each embossment 29 to the rear of the inner flange or wall 25 of the door 10.

When the catch 18 is anchored in the position shown in Fig. 1, it will be apparent that the inner end of the sleeve 19 of this catch being spaced from the encompassing segments 26 and 27, is free to expand and to move laterally so that if the end 13 of the strike 12 is not accurately or precisely aligned with the bore or opening 20 in the sleeve 19, the sleeve being flexible is capable of expansion and lateral movement whereby to compensate to a substantial degree for such misalignment.

Figs. 5 to 8, inclusive, disclose another embodiment of catch 31 formed of a plastic, yieldable material as in Fig. 1 and having a sleeve 32 contoured in a manner similar to that disclosed in Figs. 1 to 4, inclusive, but its encompassing part 33 is formed into spaced, similar multiple segments or sections 34 each provided with an externally opening, arcuate channel or groove 35 and at its inner end adjacent the channel or groove 35 provided with an external arcuate flange 36 providing a bumper. The metal defining and encompassing the opening 24 in the inner wall or flange 25 is adapted to receive and anchor the catch 31 in the manner shown in Fig. 5, the segments or sections 34 being radially or inwardly compressed as the catch is inserted into the opening 24 and forced outwardly to anchoring position by the yieldable or flexible characteristics of the plastic material, whereupon the segments or sections flex outwardly into locking engagement with the metal of the inner flange or wall 25.

Figs. 9 and 10 disclose a further embodiment of the present novel hollow, snap-in plastic catch 37 provided with an internal sleeve or sleeve-like member 38, an annular or continuous and outwardly projecting flange 39 adapted to form a bumper, and multiple, spaced rearwardly projecting sectors or sections 41 spaced circumferentially and radially from the internal sleeve 38. Each sector, segment or section 41 is tapered or flared out-

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wardly and downwardly with the inner end 42 being of greatest thickness and spaced from the annular or continuous flange 39 by an arcuate channel or groove 43 for receiving therein the encompassing edge of the metal in the wall or flange 25 defining the opening 24 in the door 10.

This form of snap-in plastic catch 37 is readily and easily inserted and mounted or anchored in the opening 24 of the door. All that is required for such assembly is to press the catch 37 into this opening 24, whereupon the sectors or spaced sections which are flexible or yieldable and tapered in the manner shown, will be gradually compressed and directed into the opening 24 until the outwardly projecting, annular flange 39 which forms an abutment or stop, abuts the interior face or surface of the wall or flange 25 of the door 10. At such time, the edge of the metal defining the opening 24 will be located in alignment with the arcuate channel or groove 43 of each sector or section 41, and due to the flexibility of these sectors or sections the latter will expand or be resiliently biased toward their normal position with each groove or channel receiving an edge of the metal about the opening 24 in the door.

Figs. 11, 12 and 13 disclose another or alternate embodiment of the present invention in which the plastic snap-in catch 44 omits the internal sleeve of the prior embodiments. In this form, the body of the catch is divided into multiple, spaced sectors or segments 45 merging into an annular, continuous peripheral flange 46 providing a bumper and a stop for limiting the depth of penetration of the body of the catch into the opening 24 of an inner wall or flange 25 of the door 10. These sectors or segments 45 are cored to provide an internal, longitudinally extending bore or opening 47 for receiving the bulbous end 13 of the strike 12 which is then tensionally and frictionally gripped and retained by the flexible sectors 45 of the catch, and each sector is outwardly and downwardly inclined or tapered on its exterior surface at 48 to direct or guide the body of the catch into the opening 24. The catch is provided with an arcuate channel or groove 49 immediately adjacent the annular flange 46 for receiving the metal of the wall or flange 25 defining or encompassing the opening 24.

As in the assembly of the other above mentioned forms of the plastic snap-in catch, this form is quickly and easily inserted and guided or directed in and to anchored position in the opening 24 in the wall or flange 25 of the door 10. In assembly, the sectors or segments are compressed radially inward to permit their entry into the opening 24, and when penetrated to their full depth where the annular peripheral flange 46 abuts the metal wall or flange 25 about the opening 24, these sectors or segments expand to force the channels or grooves 49 outwardly where they receive the edge of the metal defining the opening 24.

In each form of the invention disclosed, the catch is composed of a yieldable or flexible plastic composition that is so formed or contoured as to divide the body of the catch into spaced multiple segments, sections or sectors adapted to project through a preformed opening in a supporting metal wall or flange and when the catch is inserted to a depth where its inner flanged part or bumper abuts the inner face or front surface of the supporting wall or flange 25, the segments, sections or sectors which were contracted or depressed in their passage through the opening 24, expand and the embossments, lugs or raised portions on all or certain of these segments, sections or sectors abut or engage the outer face or rear surface of the wall or flange 25. When the catch is so located, it is retained in fixed position.

In each embodiment of the present invention, except that disclosed in Figs. 11, 12 and 13, the catch is provided with an elongated sleeve-like member for receiving the strike, keeper or latch member 12. In the embodiment of

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Figs. 11, 12 and 13, the sleeve has been omitted and the spaced sectors or segments have been cored to conformably receive the projecting end 13 of the member 12 hereinafter referred to as a strike, keeper or latch member.

By making the sectors, segments or sections of each form of the non-metallic catch of a resilient plastic composition (intended to include polyethylene, neoprene or other plastic or rubber-like material suitable for use), the body of the catch upon insertion into the opening 24 of the supporting wall or flange 25 and forced therethrough is readily compressed and when these sectors, segments or sections are fully inserted with the inner interrupted flanges (Figs. 1 to 8 inclusive) or the inner continuous flange (Figs. 9 to 13 inclusive) abutting the front or inner face of the supporting wall or flange 25 and the enlarged inner ends of the sectors, segments or sections are forced to the rear of this supporting wall or flange 25, these sectors, segments or sections automatically snap outwardly to anchor these catches in fixed position.

Although the catches are shown mounted on the door and the strike, keeper or latch member is shown mounted on the cabinet, it will be apparent that these parts may be reversed.

Having thus disclosed the invention, we claim:

1. A plastic catch adapted to project through and be mounted in an opening in a support and adapted to receive in said catch a projecting strike, said catch consisting of a body part of yieldable plastic material having a sleeve-like inner member joined at one end to an end of the encompassing portion of the body part and having its other end free and opening toward said strike for receiving therein and frictionally retaining the end of the strike, said encompassing portion of the body part being longitudinally divided into multiple, spaced sections with one or more of said sections having an embossment on its exterior surface and the inner end of said body part being spaced outwardly from the free end of the sleeve-like member and having an upstanding flange providing a stop with the catch anchored in the space between said embossment and the flange.

2. A catch for a metal cabinet and the like for retaining a pivotally mounted door on the cabinet in closed position, consisting of an integral catch member composed wholly of a resilient plastic composition adapted to be mounted in an opening in the door, said catch member having a body part adapted to be projected through the opening and provided with a centrally disposed sleeve having an inwardly opening bore, a peripheral flanged part adapted to provide a resilient bumper on the interior face to the door, and longitudinally extending anchoring embossments on the body part encompassing and spaced from the sleeve and when projected through the opening in the door engage the interior of the door about the opening, whereby the catch member is anchored in the door.

3. A catch for retaining a door of a cabinet in closed position and when the door is closed said catch is adapted to receive a keeper, consisting of an integral member composed of a plastic composition having resilient characteristics and provided with a longitudinal bore adapted to yieldingly receive and frictionally and tensionally grip and retain the end of the keeper, a flanged part at the inner end of said member providing a stop when said member is mounted in position and a yieldable bumper between adjacent surfaces on the door and cabinet, and outwardly and downwardly inclined and longitudinally extending anchoring projections on and circumferentially spaced about said member and spaced from said flanged part for retaining said member in anchored position.

4. A snap-in bumper catch for retaining the metal door of a cabinet in closed position, comprising an integral support and member composed of a resilient plastic composition having sufficient flexibility to yield when pressure is applied thereto, said member having a body part and

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an internal sleeve-like member provided with an elongated bore for receiving therein a latch member, the portion of the body part encompassing the sleeve-like member being longitudinally divided to form multiple, longitudinally extending segments spaced about the periphery of said body part, an external and outwardly and downwardly tapered embossment on one or more of said segments, and a flanged part at the inner end of the body part and spaced longitudinally of said embossment to provide an annular channel therebetween for mounting the catch in an opening of said support.

5. A catch assembly for receiving a keeper and thereby retaining the door of a cabinet in closed position, comprising a one-piece catch and a support for said catch having an opening for receiving and in which the catch is mounted, said catch being composed of a non-metallic resilient composition having a centrally arranged sleeve provided with a longitudinally extending bore for receiving and frictionally and tensionally retaining the keeper, a body part on said catch integral with and encompassing said sleeve and adapted to be forced through said opening, a flanged part at the inner end of said body part providing a stop limiting the depth to which the body part is inserted in said opening and a yieldable bumper for the door, and outwardly and downwardly inclined projections on and spaced about said body part and spaced from said flanged part to receive therebetween the edge of said support defining the opening whereby to anchor the catch to said support.

6. A plastic one-piece catch adapted to project through and be mounted in an opening in a support and adapted to receive in said catch the projecting end of a strike, said catch consisting of an annular body part of resilient material of plastic composition having a longitudinally extending sleeve provided with an internal bore having a countersunk opening for receiving and directing into the bore of the catch the projecting end of the strike, the portion of the body part encompassing the sleeve being spaced therefrom and yieldable to frictionally grip and retain the strike and thereby hold a door in closed position, said body part being longitudinally split to provide plural yieldable sections adapted to be compressed to facilitate entry into the opening of the support, one or more of said sections having an embossment and the inner end of said body part having an upstanding flange spaced from said embossment with the catch anchored in the opening in the support between said embossment and the flange.

7. A catch adapted to be mounted in an opening of a supporting wall for retaining a door of a cabinet in closed position and when the door is closed said catch is adapted to receive a keeper, consisting of an integral member composed of a plastic, resilient composition having yielding characteristics and provided with a longitudinal sleeve having an internal bore adapted to receive and yieldably grip and frictionally retain the end of the keeper, a part encompassing and spaced from said sleeve with said part being longitudinally split to provide plural flexible sections adapted to be compressed to permit entry into the opening of the support, a flanged part at the inner end of said member providing a stop when said member is mounted in position and a yieldable bumper between adjacent surfaces on the door and cabinet, and anchoring projections on said part encompassing said sleeve for retaining said member in anchored position.

8. A catch adapted to be mounted in an opening of a supporting wall for retaining a door of a cabinet in closed position and when the door is closed said catch is adapted to receive a keeper, consisting of an integral member composed of a resilient plastic composition having yielding characteristics and provided with a longitudinal sleeve having a bore adapted to receive and yieldably grip and frictionally retain the end of the keeper, a part encompassing and spaced from said sleeve with said part being longitudinally split to provide plural

flexible sections adapted to be compressed to permit entry into the opening of the support, and outwardly and downwardly tapered projections on said encompassing part with said projections circumferentially spaced apart for anchoring the catch in the opening of the supporting wall. 5

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 2,847,240

August 12, 1958

Roy A. Stone et al.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 3, line 36, for "extends" read -- expands --; column 5, line 51, for "face to the door," read -- face of the door, --.

Signed and sealed this 18th day of November 1958.

(SEAL)

Attest:

KARL H. AXLINE

Attesting Officer

ROBERT C. WATSON
Commissioner of Patents