A one-piece latch (1) of elastomeric material which is formed to include an elongated lip (6) projecting or depending from one edge. The lip (6) is constructed so that its inner surface forms a catch which just accommodates a striker bar (3) or plate upon closure of the latch. The adjacent outer surface of the lip (6) projects in angular relation to the catch portion so as to provide resilient cam action against the striker bar (3) or panel when the latch is opened or closed. Numerous different latch shapes are disclosed, including 'D' shape, (Fig. 3), 'C' shape, (Fig. 15), round, (Fig. 14), square, (Fig. 20), polygonal (Fig. 16), and line configurations, (Fig. 22); or a latch of one of the configurations shown can be readily molded as an integral part into a panel or container, or similar product.
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This relates in general to latching devices and more particularly to latches designed to releasably secure doors or panels in closed position against a stationary striker surface, subject to reopening upon the application of a controlled pull force.

**Background of the Invention**

Latches assume many different forms in the prior art. The most common types are of metal comprising several different elements, including a metal frame which is screwed adjacent to the edge of a movable door panel, and which supports a spring-biased metal tongue which engages either a slot or a projecting member on a striker surface. The prior art includes numerous variations of this basic type, most of which include a plurality of parts, usually formed of metal or some other rigid material, which are expensive to manufacture and install initially, and to replace. Moreover, it is difficult to find suitable prior art latches which are designed to close securely, but which are responsive to a uniform pull force to open.

**Short Description of the Invention**

It is therefore the object of the present invention to provide a simple one-piece resilient latch member, which is cheaply and easily molded in a pre-selected shape, and is easily installed and replaced without tools of any kind. Other objects of the invention are to provide a latch which requires a precisely-controlled pull force, and which is characterized by a long life causing a minimum amount of wear on its contact surfaces, and on the striker surface against which it operates.

These and other objects of the invention are realized in a one-piece latch in the form of a body of elastomeric material which has one or more lips forming catches precisely angled to provide cam action against the engaging surface. In preferred form the material may comprise a synthetic rubber characterized by a durometer
hardness of between 20 and 90 on the Shore A scale preferably having a modulus of elongation within the range 280 to 150 percent, a tensile strength within the range 550 to 1070 pounds per square inch, and tear strength of between 75 and 150 pounds per linear inch. In a preferred embodiment, the latch of the present invention may comprise a closed body configuration having the major surfaces of the body lying in parallel planes slightly spaced apart by the thickness, and means to secure the latch to a door or panel. In some embodiments, this open center is closed with a thin sheet adjacent to the base or inwardly-directed major surface of the latch. In other embodiments, a knob protrudes from one of the outer major surfaces of the latch. In still other embodiments, the latch takes the form of a strip having an elongated catch-forming lip which extends along its length.

A particular feature of the latch of our invention is its cross-sectional shape which may include a peripheral notch of uniform width and depth at least partially surrounding the edge of the body portion, which notch is just wide and deep enough to snap into and accommodate the edges of an opening cut into the door or of a panel in or on which it is installed. That portion of the latch which is constructed to contact the edge of a striker bar or plate takes the form of a downwardly and outwardly protruding lip forming a catch. This comprises an inside surface which depends or protrudes in a direction normal to the base surface of the latch body, terminating at its lower or outer end in a sharp edge or thin rectangular land in a plane parallel to the base, which edge is constructed to contact and rest momentarily against the striker surface as the latch is being closed. The outwardly-directed cam surface of the lip is designed to form an angle of between about 15° and 75° with a plane parallel to the base plane of the latch, terminating in a sharp or
or rounded projection forming on its inner surface a catch which is designed to seat against the edge of the striker bar or plate, when the latch is closed. The projecting edge may form an angle of from zero to 30° in a cross-sectional plane with the undercut edge of the catch. The function of the outwardly-angled lip forming the catch is to provide cam-action against the striker bar or panel. Thus, in response to a thrust against the latch, squeezing it inwardly, it is compressed in a direction parallel to the surface, so that the catch snaps into place against the striker bar or plate when the door is closed; and in response to an outward pull of the latch, the lip recedes in response to a pull directed against the cam surface, so that the striker bar or panel is pushed out of the catch. Whenever in the specification and claims hereinafter the words "striker bar" are used, it will be understood that this includes any plate or panel against which the catch of the latch of the present invention is designed to engage in closed relation. In some embodiments, this requires a bar or plate superposed over the door or panel surface in which the latch is installed; whereas in other embodiments the latch is designed to close against the door or panel surface without an additional striker bar or plate being interposed.

It is contemplated that the latch of the present invention may be formed in numerous different shapes or sizes. For example, it may take the form of a "D", open at the center and having the lip forming a catch protruding along the straight edge. An opening is cut in the door or panel, the edges of which are shaped to accommodate the peripheral notch of the D-shaped latch in snap-in relation, preferably without the use of any bonding or securing means. The latch may alternatively be formed in the shape of a "C" with the catch at the back of the "C"; or it may be formed in the shape of
a complete flattened circle with the catch portion along one edge, or on diametrically opposite edges or completely around the periphery. The latch may take the form of a rectangle with the catch on one or opposite edges, or of a polygon having any number of sides with the catch along one or more, or all of the edges. All of these shapes may have the centers closed, or open, as desired, and may or may not be formed to include handles. A unique modification of the latch of the present invention may take the form of a strip which may be cut to any desired length and disposed to provide an extended catch along the edge of a door or panel.

A particular advantage of the latch of the present invention is its simplicity and cheapness of manufacture and installation. It comprises only a single part which may be molded to any desired shape and quickly snapped into place without the use of any screws, bolts, or bonding materials. The latch of the present invention is designed to release in response to a predetermined pull force. Wear and tear on the striker bar or plate against which the latch operates is minimized; and if wear occurs in the catch portion of the latch, the latch can be quickly and easily replaced. Moreover, the latch can be formed to include additional catch members on a plurality of sides, so that when the latch wears on one catch, it is merely necessary to rotate it and reseat it in the latch site with a fresh portion of the catch in place.

A further advantage of latches constructed in accordance with the present invention is that they can be designed to accommodate pull requirements of between as little as, say, one ounce, and many pounds.

These and other objects, features and advantages of the invention will be apparent to those skilled in the art from a detailed study of the description hereinafter with reference to the attached drawings.
Short Description of the Drawings

Fig. 1 shows a preferred embodiment of the latch of the present invention installed on a door panel, in closed condition against a striker bar.

Fig. 2 shows the latch of Fig. 1 in the process of being opened.

Fig. 3 shows the preferred embodiment of the latch of Fig. 1 removed from the door panel, and disposed with the catch directed upward as viewed from the front.

Fig. 4 shows the latch of Fig. 3 with the catch directed downward, as viewed from the front.

Fig. 5 shows the latch of Fig. 3 with the catch directed upward, viewed from the rear.

Fig. 6 is an enlarged cross-sectional showing of the latch of Fig. 2 taken along the plane indicated by the arrows 6-6.

Figs. 7, 8, 9, 10, 11 and 12 are enlarged cross-sectional diagrams indicating the various angular modifications of the catch member of the latch of the present invention.

Fig. 13 is an alternative form of the latch of the present invention of rectangular configuration, sectioned on one corner, and installed in a panel.

Fig. 14 is a circular latch of the present invention, partially sectioned, with the catch on one side.

Fig. 15 is a partial circular or "C" latch in accordance with the present invention installed in an opening.

Fig. 16 is a latch in accordance with the present invention in the shape of a polygon with the catch along one edge.

Fig. 17 is a view, looking down from above, of a modification of the embodiment of Fig. 3, partially sectioned along the diametric plane to show a closed base portion.

Fig. 18 shows in diametrical section, installed, a latch in accordance with the present invention of circular
configuration in its principal plane, having a circular handle.

Fig. 19 shows in cross-section, installed, a latch in accordance with the present invention of elliptical configuration in a principal plane, having an elongated handle.

Fig. 20 shows a modification of the rectangular latch of Fig. 13 which includes catches on opposite edges.

Fig. 21 is a showing, in section, of a modification of the latch of the present invention of square configuration, showing a closed base portion, and latches on opposite sides.

Fig. 22 is a perspective showing of a line latch in accordance with the present invention.

Figs. 23 and 24 are sectional showings of the line latch of the present invention, installed on a vertical plane, and a horizontal plane, respectively.

Fig. 25 shows in section, a modification of the line latch of Fig. 22; and

Fig. 26 shows in section a modification of the line latch of Fig. 25, installed, with the catch directed to the right, or, alternatively, reversed, as shown in phantom.

Detailed Description of the Invention

Fig. 1 shows a preferred embodiment of the latch of the present invention, which is shaped like a "D" having a body portion 5, at one side of which is a protruding lip 6 forming a catch.

For the purposes of illustration the body portion of the latch 1 is shown in Fig. 1 as installed in an opening adjacent one end of a door panel 4, the other end 4a of which is hinged and mounted to swing to-and-fro in a frame 2.

The slot or catch formed by the lip 6 is designed, in closed relation, to engage and seat against a striker bar 3 of uniform thickness, of, say, 1/16 inch, which is
mounted on the frame 3a so as to engage the lip 6.

Fig. 2 shows the underside of the latch being disengaged from the striker plate 3. The fully disengaged position of latch 1 is shown in Fig. 2 in the phantom rendition of the open door panel 4.

Figs. 3, 4 and 5 are enlarged showings of the D-shaped latch of Figs. 1 and 2 removed from installation. The "D"-shaped latch of a preferred embodiment of the present invention is preferably formed of natural or synthetic rubber. This should have a durometer hardness on the Shore A scale of between 20 and 90, and a tear strength of between 75 and 150 pounds per linear inch, and a tensile strength of between 550 and 1070 pounds per square inch.

Measured across the upper face of the embodiment under description, the "D" is 1-1/4 inches in overall width along its principal axis of symmetry, and 1-1/4 inches along the straight leg of the D. The inner D-shaped opening 8 is 0.060 inches across the axis of symmetry and 0.060 inches along the straight leg. The thickness of the curved body portion 5, from top to bottom is 1/2 inch. Substantially centered in the thickness and extending completely around the curved peripheral edge of the D-shaped body 5 is a substantially uniform slot 7, say, 1/16 inch wide and 1/16 inch deep, which is designed to just accommodate the thickness of the panel 4 in which it is installed. (See Figs. 1 and 2). The catch-forming lip 6 protrudes normally 1/8 inch from the inside surface on one side of the opening 8, to form a narrow land 6a about 1/8 inch wide and 5/8 inch long as shown in section in Fig. 6. In this embodiment, the outwardly protruding cam surface forms an angle of 45° with the land 6a, extending 1/8 inch to an edge 6c which extends normal to the plane of the section.

As shown in Fig. 6, this is cut back for a distance of 1/16 inch, forming an angle of, say, 30° with the
horizontal leg of plate 3. This forms a slot or catch which is 1/8 inch wide and 1/8 inch deep and is designed to just accommodate the thickness of the striker bar 3 and the horizontal plane of 4 of the door panel on which the latch rests. (See Figs. 1 and 2). In the present embodiment, as shown in section in Fig. 6, when the striker bar 3 and panel 4 are seated in latch 1, the upper surface 5 of the latch body extends vertically 1/8 inch above the surface of panel 4.

It will be apparent from a study of Figs. 7-12, which are diagramatic showings of various modifications of the lip 6 which forms the catch, that the angular relationships of the lip surfaces, as viewed in cross-section, are a salient feature of the invention, as this configuration controls the cam-action exerted by the lip 6 to dislodge the striker bar 3 mounted on its supporting surface 3a when the latch is opened, and functions to snap them into place in the catch when the latch is closed.

Referring to the enlarged diagram of Fig. 7, it is seen that in the modified lip 16 the inner wall depends in a direction normal to the principal base surface of the latch, terminating at its lower end in a sharp edge 16a. In this embodiment, the latter is connected to the outwardly-protruding sharp edge 16c by a surface which makes a positive 30° angle with the horizontal base plane; but which may be varied over the range 30° to 75°, as shown in phantom. In the embodiment of Fig. 7, the protruding edge 16c is connected to the undercut edge of 16d of the catch by a surface which makes a negative angle of approximately 65° with the base plane of the latch, as measured in cross-section.

In the latch shown diagramatically in Fig. 8, the downwardly depending edge 26a of the lip 26 bounds a surface which makes a positive angle of 15° with the protruding edge 26c. As indicated, in phantom, this angle may be varied through the range 15°-75°. Protruding
edge 26c is connected to the undercut edge 26d of the catch by a surface which forms a negative cross-sectional angle of 30°.

In Fig. 9, undercut catch edge 36d of the lip 36 forms a zero angle with protruding edge 36c. The cross-sectional angle formed with the base plane by the surface connecting the land 36a with protruding edge 36c of the catch is shown as a positive 15° angle, but can be varied through a range of angles from 15° to 75°, as indicated in phantom.

In Fig. 10, although the cross-sectional angle formed with the base plane by the surface extending between the undercut edge 46d of the catch and the protruding edge 46c is shown as a negative 45° angle, it will be understood that this angle can be varied between 0° and 65°, as shown in phantom. The surface connecting edges 46a and 46c forms, in this embodiment, a 30° cross-sectional angle with the base plane, which can be varied between 15° and 75°, as indicated in phantom.

In Fig. 11, the lip 56 depends terminating in land 56a, which is connected with a rounded projection 56c by a surface forming a cross-sectional angle of 45° with the land 56a. The negative angle subtended by the arc of connecting projecting edge 56c and the undercut catch surface 56d can be varied from 0° to 75°. The radius of curvature of the arc identified by 56c is preferably of a value within the range of the thickness of the striker plate 3 and up to 50% greater.

In Fig. 12, the lip 66 depends vertically, terminating in land 66a, which is preferably connected to the slightly rounded protruding edge 66c by a surface forming with the base plane a 45° angle in cross-section, but which angle can be varied between 15° and 75°. The angle formed in the cross-sectional plane by the undercut catch edge 66d and the rounded protruding edge 66c is 30° in this embodiment, but can be varied from 0° through 65°.

It is contemplated that latches in accordance with
the present invention may assume numerous variations. For example, Fig. 13 shows a latch \textit{11} of open square configuration, 1 inch on a side, 1/2 inch thick, and having an inner opening 1/2 inch on a side. The body portion has been sectioned on one corner to show the elastomer material. Latch \textit{11} has a slot \textit{17} surrounding its periphery, which is similar in width and depth to slot \textit{7} of the embodiment of Figs. 3-6. Extending, say, 1/4 inch along one side of the square, is the outwardly protruding catch-forming lip \textit{76} which may have a cross-sectional shape taking any of the forms, or modifications thereof, disclosed in Figs. 7-12, described hereinbefore.

Fig. 14 shows a ring-shaped embodiment \textit{21} of the latch of the present embodiment, partially cut away to show the elastomer material. In embodiment \textit{21} shown, the ring is one inch in outer diameter, and 1/2 inch in inner diameter, and 1/2 inch thick, having a slot \textit{27} surrounding its periphery similar to in width and depth to slot \textit{7} of Figs. 3-6. Extending around, say, a 90° arc on one side of the ring-shaped latch \textit{21}, is a lip \textit{86} forming a catch, which may assume any of the cross-sectional shapes, or modifications thereof, shown and described with reference to Figs. 7-12.

Fig. 15 shows a modification \textit{31} of the latch \textit{21} of Fig. 14, in the form of a C-shaped body, installed in a door or panel. The overall diameter, and thickness and material of latch \textit{31} may be, for example, similar to that of latch \textit{21}, except that the former has an opening at one side which subtends an arc of, say, 45°, opposite which is interposed the lip \textit{96}, subtending an arc of, say 90°, forming a latch member, which is similar in form to those previously described.

A further modification of the latch of the present invention takes the form of the six-sided polygon \textit{41} shown in Fig. 16 of the drawings, although it will be understood that the polygon may have any number of sides
desired. In the embodiment of Fig. 16, the overall maximum width of the polygon 41 is 1-1/2 inches, and the thickness may be similar to embodiments previously described. The slot 47 completely surrounds the periphery, and is of the width and depth of slot 7 in the embodiments of Figs. 3-6. Extended 3/4 inch along one of the straight edges of the polygonal body of latch 41 is a catch-forming lip 106, which may assume the cross-sectional shape of any of the lips described with reference to Figs. 5-12.

It will be understood that any of the embodiments shown and described hereinbefore can be further modified. For example, Fig. 17 shows a cross-sectional view of a modification of the "D"-shaped latch of Figs. 3-6 in which the opening 8 is closed on one side by a panel 8a of uniform thickness of, say, 1/32 inch. It will be understood that any of the other disclosed embodiments can be similarly modified.

Furthermore, instead of the opening 8 as shown in Figs. 3-6, a handle or knob can be attached to one of the major surfaces of the latch to facilitate grasping and opening the latch. Such a modification is shown in Figs. 18 and 19. For example, the "D"-shaped latch 61 of Fig. 17 has a body portion 65 of similar thickness and overall dimensions of that shown in Figs. 3-6, in that it includes a peripheral slot 67, and a catch-forming lip 126, which are as previously described. However, the knob or handle 65a, which may be circular or "D"-shaped, protrudes normally from one of the major surfaces, in a direction opposite to the catch-forming lip 126. Similarly, in latch 71, an elliptical knob or handle 75a is attached to protrude in a normal direction from the major surface of the body 75, in a direction opposite to the depending lip 136. The upper face of the elongated handle 75a can be molded or embossed to carry any desired trademark or insignia. An important feature of the embodiment shown in Fig. 19, is that no separate striker
bar is needed. This permits the latch to be installed on the door panel 74 without the addition of an auxiliary part.

A further modification of the latch of the present invention which may greatly increase its service life, is to interpose one or more additional catch-forming lips, which will enable the latch to be merely rotated to a new position if one of the lips becomes worn. Such an arrangement is illustrated in latch 51 of Fig. 20, which is substantially similar to square latch 11, as previously described, except for the fact that it has two catch-forming lips 116a and 116b disposed on diametrically opposite sides of the square, each substantially identical to 76. It will be apparent that corresponding additional lips can be added to the other two sides of latch 51, if desired; and that a similar modification can be applied to any of the latches previously described. Fig. 21 is a cross-sectional showing of a modification of the embodiment of square configuration shown in Fig. 20, having one side 8a closed, and having catch members 126a and 126b protruding from opposite sides. It is contemplated that a circular embodiment can be formed with a similar cross-section; and multi-faceted latches can be formed with similar cross-sections. In these embodiments, the holding area is independent of the latching area. Therefore, the catch can be formed to extend 360° in a circular embodiment, or can be on all sides of a multi-faceted latch.

Another modification of the invention shown in Figs. 22-26 is a longitudinal extension of the latch arrangement of the present invention which will be denoted "the line latch".

Referring to Fig. 22, there is shown a latch configuration 81 which may comprise, for example, a body portion 85a, which in the embodiment illustrated is 3/8 inch in overall width, and 1/8 inch thick, disposed along one edge of which, in normal relation to 85a, is a panel 85b of
substantially the same thickness, extending up vertically and terminating in a narrow, rectangular land 146a, say, 1/8 inch wide. Projecting downwardly and outwardly from land 146a at an angle which may, for example, be 45°, is the lip 146 which terminates in the projecting edge 146c, which is undercut at an angle of, say 30° to intersect the undercut catch member 146d. Although specific angles have been indicated by way of example, it will be understood that any of the other angular relationships discussed in Fig. 7-12 for the catch-forming lip may be applied to this embodiment. It is contemplated that this line latch, which will be of elastomer material of the same type previously described with reference to the other embodiments, may be sold in strips which are cut off to any desired length. For example, as shown in Fig. 23, a length of "line latch" 91 with the lip 156 oriented to protrude outwardly, may be secured lengthwise, horizontally in a direction normal to the plane of the drawing, along the face of a door 94, which is hinged to open and close against a horizontally-elongated striker bar 93 which, for example, is secured to the end of a shelf 93a.

Another configuration is illustrated in Fig. 24, in which the horizontally-elongated body of a line latch 101 is secured along the horizontal surface of a door 104, so that the latch-forming lip 166 protrudes so that when the door 104 is closed, it just accommodates the horizontally-elongated striker bar 103 which is secured to the surface of stop 103a. Either of the latches 91 or 101 shown in Figs. 23 and 24, can, in the alternative, have projecting lips 156 and 166 on both sides, so that they can be turned over if worn out on one side.

As another alternative the line latch 111 can assume the form shown in Fig. 25, in which the catch-forming lip 176 protrudes in a direction normal to the elongated body portion 115, which in the present embodiment is 1 inch wide and 1/4 inch thick, having elongated slots 117a and
117b on opposite sides which are dimensioned to securely accommodate the edges of the door or panel on which it is installed. The strip can be cut to any desired length in a direction normal to the plane of the drawing. Latch 111 can be double-sided so that catch 176 is formed to protrude in opposite directions simultaneously. Further, this design, as shown in section, lends itself to the possibility of a latch having a four-sided holding area.

Fig. 26 shows, in section, a further modification of the line latch disclosed in Figs. 22-25 installed along the edge of a door or panel, perpendicular to the plane of the drawing, so that the catch-forming lip 176a projects over and forms a catch for striker bar or panel 173. As an alternative, a second catch-forming lip 176b may be formed along the opposite lip, so that the latch strip may be reversed if lip 176a becomes worn, or engaged in a slot in which greater pull is required.

It is contemplated that each of the disclosed embodiments is preferably formed of elastomer material of the type described with reference to the embodiments of Figs. 3-6.

Although the invention has been described with reference to a number of specific embodiments, it will be understood that the inventions are not limited by the specific forms or dimensions disclosed by way of illustration, but only by the scope of the appended claims.
What is claimed is:

1. A latching device for installation in or on a panel for latching said panel to a striker bar, which device comprises in combination a unitary body of elastomeric material having a principal plane which, upon installation, is substantially parallel to the surface of said panel, said latch having at least one lip which protrudes outwardly from the edge of said body in a direction both parallel to and normal to said principal plane, said lip cut on an inwardly-directed surface to form a catch which just accommodates the thickness of said striker bar, the outwardly-directed surface of said lip comprising a cam at least a portion of the surface of which forms in a cross-sectional plane a positive angle within the range 15° to 75° with a plane parallel to said principal plane.

2. The combination in accordance with claim 1 wherein said elastomeric body consists essentially of natural or synthetic rubber having a durometer hardness on the Shore A scale within the range 20 to 90, a tensile strength within the range 550 to 1070 pounds per square inch, and a tear strength within the range 75 to 150 pounds per linear inch.

3. The combination in accordance with claim 1 wherein said means for securing said body adjacent the edge of said panel comprises an elongated slot in the peripheral edge of said unitary body which is constructed to just accommodate the thickness of said panel.

4. The combination in accordance with claim 3 wherein said body comprises a structure forming a "D" in said principal plane, wherein said elongated slot is interposed continuously around the peripheral edge of said "D", and wherein said lip cut on an inwardly-directed surface to form said catch depends and protrudes outwardly from the straight portion of said "D".

5. The combination in accordance with claim 4
wherein one major surface of said "D"-shaped latch is open, and the opposite major surface thereof is closed.

6. The combination in accordance with claim 3 wherein said unitary body is in the form of an "O" in said principal plane, and wherein said elongated slot is interposed continuously around the peripheral edge of said "O", and wherein said lip cut on an inwardly-directed surface to form said catch depends and protrudes outwardly from at least one edge of said "O".

7. The combination in accordance with claim 6 wherein one major surface of said "O" is open and the opposite major surface thereof is closed.

8. The combination in accordance with claim 6 wherein said "O" is closed, and wherein a handle is disposed in substantially central relation to said one major surface.

9. The combination in accordance with claim 3 wherein said body is in the form of a "C" in said principal plane, wherein said elongated slot is interposed around the peripheral edge of said "C", and wherein said lip cut on an inwardly-directed surface to form said catch depends and protrudes outwardly from the portion of the "C" opposite the opening thereof.

10. The combination in accordance with claim 3 wherein said unitary body is in the form of a rectangle, wherein said elongated slot is interposed around the peripheral edge of said rectangle, and wherein said lip cut on an inwardly-directed surface to form a catch depends and protrudes outwardly from at least one edge of said rectangle.

11. The combination in accordance with claim 10 wherein said rectangle comprises a square, and a plurality of lips, each cut on an inwardly-directed surface to form a catch, depend and protrude outwardly from a plurality of edges of said square.

12. The combination in accordance with claim 3
-17-
wherein said unitary body comprises a polygon having a plurality of sides, and wherein said elongated slot is interposed around the peripheral edge of said polygon, and wherein said lip cut on an inwardly-directed surface to form a catch depends and protrudes outwardly from at least one edge of said polygon.

13. The combination in accordance with claim 10 wherein the unitary body of said rectangle is open at the center.

14. The combination in accordance with claim 12 wherein the unitary body of said polygon is open at the center.

15. The combination in accordance with claim 12 wherein the unitary body of said polygon is closed on at least one major surface.

16. The combination in accordance with claim 15 wherein an outwardly-protruding handle is disposed in substantially central relation on one major surface of said polygon.

17. The combination in accordance with claim 1 wherein said body portion is a longitudinally extending strip, wherein said lip cut on an inwardly-directed surface to form a catch protrudes outwardly from one edge of said strip.

18. The combination in accordance with claim 17 wherein an elongated slot constructed to accommodate the thickness of said panel extends along at least one edge of said strip for substantially the length of said strip.

19. A combination including a unitary latching device for latching against a striker bar comprising a body of elastomeric material having a durometer hardness on the Shore A scale of between 20 and 90, a tensile strength between 550 and 1070 pounds per linear inch, having along one edge thereof an outwardly-projecting lip forming a catch on an undercut surface of said lip, an outwardly-directed surface of said lip comprising a
cam, at least a portion of which is constructed in closed relation of said latch to form a positive cross-sectional angle of between 15° and 70° with a plane parallel to a striker bar of a panel wherein said latching device is installed.

20. The combination in accordance with claim 19 wherein said cam comprises a pair of surfaces which intersect for forming a protruding edge elongated in a plane normal to the plane of said cross-sectional angle, wherein the outer of said surfaces is constructed in closed relation of said latch to form a positive angle of between 15° and 70° with a plane parallel to said striker bar, and wherein the inner of said surfaces is constructed in closed relation of said latch to form an angle of between 0° and 65° with a plane parallel to said striker bar.

21. The combination in accordance with claim 20 wherein said protruding edge is rounded.

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SUBSTITUTE SHEET
ISA/US
# INTERNATIONAL SEARCH REPORT

**International Application No.** PCT/US 85/01125

## I. CLASSIFICATION OF SUBJECT MATTER

According to International Patent Classification (IPC) or to both National Classification and IPC:

<table>
<thead>
<tr>
<th>INT. CL.</th>
<th>E05C 19/02</th>
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<tbody>
<tr>
<td>U.S. CL.</td>
<td>292/76; 292/87; 292/dig. 38</td>
</tr>
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</table>

## II. FIELDS SEARCHED

Minimum Documentation Searched: 292/17, 19, 76, 80, 87-89, dig. 38, dig. 63

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched

## III. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of Document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to Claim No.</th>
</tr>
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<tbody>
<tr>
<td>Y</td>
<td>US, A, 3,954,201 (Ostrowsky et al) 4 May 1976</td>
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  - "A" document defining the general state of the art which is not considered to be of particular relevance.
  - "E" earlier document but published on or after the international filing date.
  - "L" later document published after the international filing date but not in conflict with the application but cited to understand the principle or theory underlying the invention.
  - "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step.
  - "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
  - "A" document member of the same patent family.

## IV. CERTIFICATION

**Date of the Actual Completion of the International Search**

28 September 1984

**Date of Mailing of this International Search Report**

13 SEP 1985

**International Searching Authority**

ISA/US

**Signature of Authorized Officer**

Lloyd A. Gall
**III. DOCUMENTS CONSIDERED TO BE RELEVANT**  
(CONTINUED FROM THE SECOND SHEET)

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Form PCT/ISA/210 (extra sheet) (October 1981)