

June 12, 1962

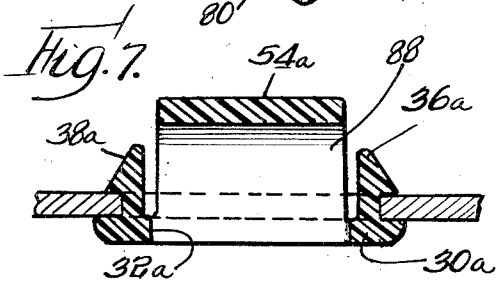
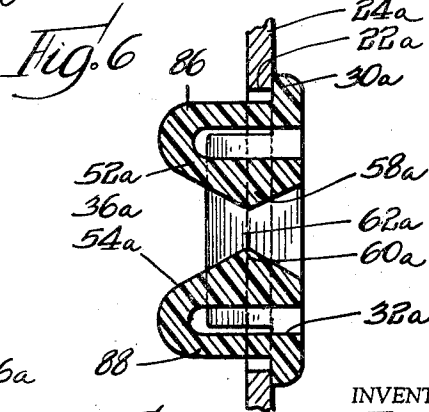
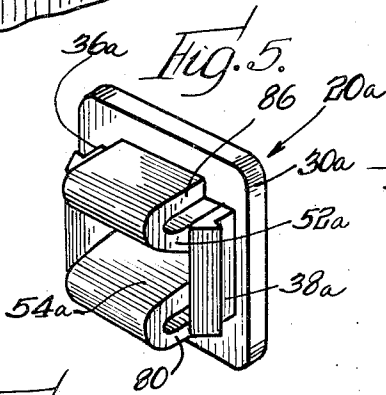
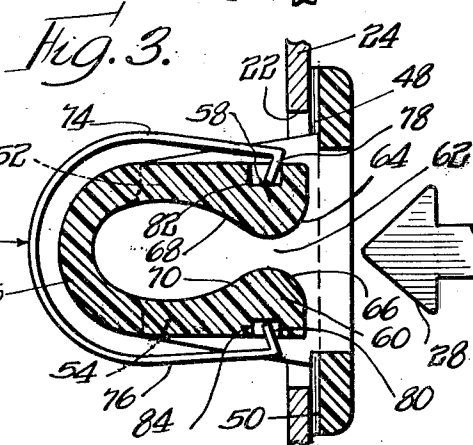
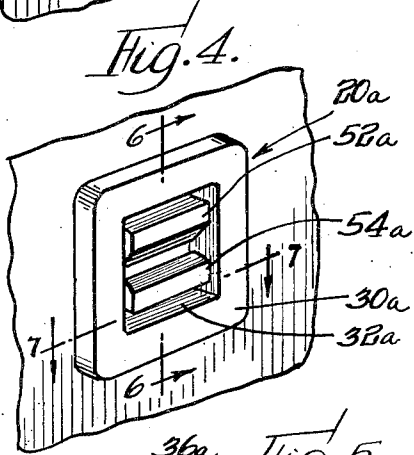
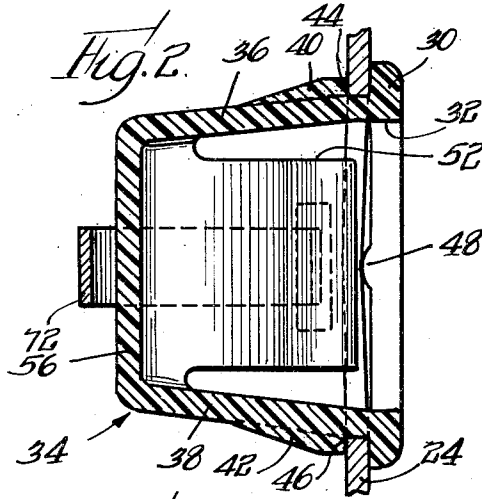
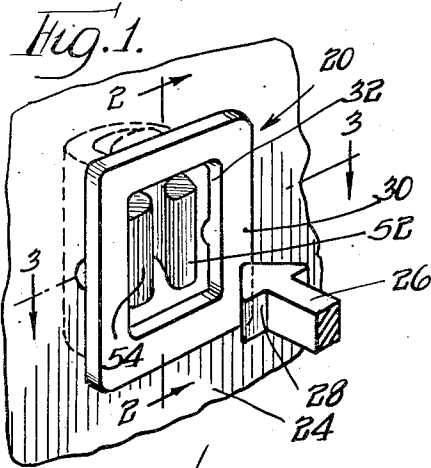
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3,038,747

LATCH DEVICE

Filed July 9, 1959

2 Sheets-Sheet 1



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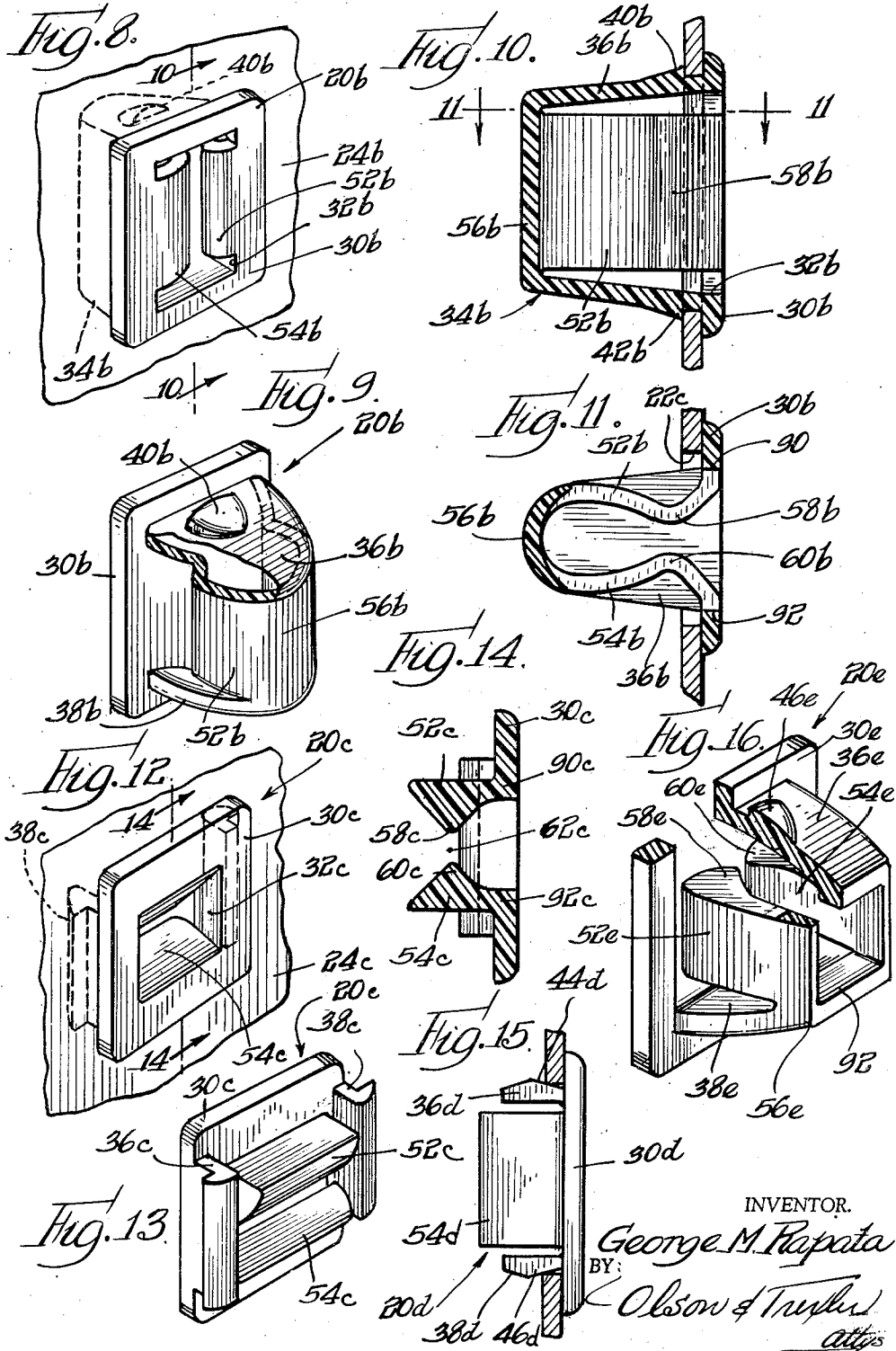
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2 Sheets-Sheet 2



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3,038,747

LATCH DEVICE

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 Filed July 9, 1959, Ser. No. 826,013
 9 Claims. (Cl. 292-17)

This application relates to a novel anchor member for application to an apertured workpiece, and more particularly to a novel anchor member or receptacle especially suitable for receiving and releasably retaining a strike pin of a cabinet latch or the like.

As will be understood, cabinet latch devices frequently include a latch pin which is adapted to be mounted to and project from a cabinet door, and an anchor member or receptacle adapted to be mounted on the cabinet frame for receiving the pin. It frequently happens that a workman installing a latch device will not align the strike pin and the receptacle sufficiently accurately to enable the latch device to operate smoothly and properly.

An important object of the present invention is to provide a novel anchor member or receptacle for accommodating a strike element or the like, which anchor member is constructed for receiving and effectively releasably retaining a strike element regardless of whether or not the strike element is perfectly aligned with the anchor member.

A further object of the present invention is to provide a novel anchor member or receptacle of the above described type adapted to be applied to an apertured workpiece and constructed so that the length of a strike element required for proper engagement with the anchor member may be minimized whereby hazards resulting from strike elements projecting from cabinets and the like may be reduced.

Still another object of the present invention is to provide a novel anchor member or receptacle which is constructed so that it may be readily applied to an apertured workpiece without the aid of auxiliary fastening means and so that it may repeatedly receive and release the strike element or the like without adversely effecting its connection with the apertured workpiece.

A more specific object of the present invention is to provide a novel plastic anchor member or receptacle of the above described type which presents a finished and pleasing appearance when applied to an apertured work structure such as a cabinet or the like.

Other objects and advantages of the present invention will become apparent from the following descriptions and the accompanying drawings, wherein:

FIG. 1 is a fragmentary perspective view showing an anchor member incorporating the features of the present invention assembled with an apertured workpiece and further showing a strike element in position to be inserted into the anchor member;

FIG. 2 is an enlarged sectional view taken along line 2-2 in FIG. 1;

FIG. 3 is an enlarged sectional view taken along line 3-3 in FIG. 1;

FIG. 4 is a fragmentary perspective view showing a slightly modified form of the present invention;

FIG. 5 is a rear perspective view of the device shown in FIG. 4;

FIG. 6 is an enlarged sectional view taken along line 6-6 in FIG. 4;

FIG. 7 is an enlarged sectional view taken along line 7-7 in FIG. 4;

FIG. 8 is a fragmentary perspective view showing another modified form of the present invention;

FIG. 9 is an entering end perspective view of the anchor member shown in FIG. 8;

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FIG. 10 is an enlarged sectional view taken along line 10-10 in FIG. 8;

FIG. 11 is a sectional view taken along line 11-11 in FIG. 10;

FIG. 12 is a fragmentary perspective view showing another modified form of the present invention;

FIG. 13 is an entering end perspective view of the anchor member shown in FIG. 12;

FIG. 14 is a sectional view taken along line 14-14 in FIG. 12;

FIG. 15 is a partial sectional view showing a further slightly modified form of the present invention; and

FIG. 16 is a perspective view, partially broken away, showing another embodiment of the present invention.

Referring now more specifically to the drawings wherein like parts are designated by the same numerals throughout the various figures, an anchor member 20 incorporating one embodiment of the present invention is shown in FIGS. 1, 2 and 3. The anchor member which will be described in detail below is adapted to be inserted into and retained within an aperture 22 in a workpiece 24 for receiving and releasably holding a strike element 26 or the like. The strike element 26 may be of any suitable construction and includes an enlargement or laterally extending shoulder means 28 at its free end for interengagement with the anchor member in the manner to be described.

The anchor member 20 is preferably molded in one-piece from a suitable tough resilient plastic material, such, for example, as nylon. The anchor member is provided with a generally radially extending head section 30 engageable with the outer surface of the workpiece 24 for preventing the anchor member from passing entirely through the aperture 22. An opening 32 is provided through the head section 30 for permitting the insertion of the strike 26 into the anchor member. The anchor member also includes a shank section 34 extending axially from the head section 30 for entry into the workpiece 22 in the manner shown.

As best shown in FIG. 2, the shank portion 34 is provided with a pair of relatively thin and resiliently flexible side portions 36 and 38 which extend from integral junctions with internal marginal portions of the head section 30. The shank side or leg portions 36 and 38 respectively include laterally projecting abutments 40 and 42 which present shoulder surfaces 44 and 46 facing toward the head section 30 for engagement behind the workpiece 24. The shoulder surfaces are spaced axially from the head section 30 a distance similar to the thickness of the workpiece 24. However, in order to provide for variations in thickness of the workpiece, ribs or protuberances 48 and 50 are formed on and project from the under surface of the head section 30 at opposite marginal portions of the head section between the shoulders. It will be noted that these ribs cause the head section to be flexed when the device is fully applied to the work structure so that the device will resiliently grip the workpiece between the head section and the shoulders.

The shank section 34 also comprises a pair of oppositely disposed resiliently flexible elements 52 and 54 which extend generally axially with respect to the head section 30 and are adapted to receive and releasably retain the strike 26 therebetween. In this embodiment the elements 52 and 54 are operatively interconnected with the head section through an entering end section 56 of the shank which has a generally U-shaped transverse cross section and which is in turn integrally and operatively interconnected to the head section through the leg portions 36 and 38. It will be noted that the elements 52 and 54 are relatively widely spaced apart at their integral junctions with the entering end section 56

so that they may accommodate the enlarged end 28 of the strike therebetween. It is further to be noted that the elements 52 and 54 include inwardly directed abutments or shoulder means 58 and 60 which define a restricted throat 62 therebetween. The width of the throat is substantially less than the transverse dimension of the enlarged end of the strike so that when the strike is inserted into the anchor member, the abutment or shoulder elements 58 and 60 are forced apart until the enlarged end 28 of the strike is passed whereupon the resilient elements 52 and 54 spring back toward their normal positions for causing the abutments 58 and 60 to engage behind and retain the enlarged end of the strike. As shown best in FIG. 3, the surfaces of the abutments 58 and 60 are curved and flared outwardly in both directions from midpoints of the abutments so as to provide cam surfaces 64-66 and 68-70 respectively for facilitating spreading of the abutments to permit entry of the strike therebetween and intentional withdrawal of the strike. It is to be noted that the free ends of the elements 52 and 54 and the strike engageable abutments thereon are located substantially at the head section 30 so that the strike element 26 need be of minimum length to accomplish proper engagement with the abutments. This arrangement also promotes an illusion that the opening through the head section is substantially covered so as to provide the device with a more pleasing and finished appearance. This feature is of particular importance when the device is to be used in connection with kitchen cabinets or installations in which appearance is a prime factor.

As shown best in FIG. 3, the transverse width of the leg sections 36 and 38 is substantially less than the corresponding dimension of the aperture 22 through the workpiece 24. In addition the spacing between the outer surfaces of the elements 52 and 54 is such that the elements avoid any material engagement with the workpiece. Thus, the device may float or may be adjusted back and forth within the aperture 22 to allow for misalignment between the strike and the central axis of the shank 34. Furthermore, since the elements 52 and 54 avoid all contact with the workpiece, it is clear that the shoulder surfaces 44 and 46 which are on the leg sections 36 and 38 and entirely independent of the elements 52 and 54, provide the sole means for retaining the anchor member within workpiece aperture. As a result, the flexing action of the elements 52 and 54 for the purpose of receiving or releasing the strike in no way adversely affects the connection between the anchor member and the workpiece.

In certain installations it may be desirable to reinforce the spring action of the elements 52 and 54 for more securely retaining the strike therebetween. This may be accomplished by providing a generally U-shaped spring 72 preferably made from spring steel. The spring 72 which is shown in FIGS. 2 and 3 is disposed so that opposite portions 74 and 76 thereof embrace the elements 52 and 54 in a manner such that free ends 78 and 80 of the spring aggressively engage the elements 52 and 54. In the embodiment shown the free ends 78 and 80 of the spring are turned inwardly to provide flanges engageable in recesses 82 and 84 formed in the side of the elements 52 and 54 respectively for retaining the spring 72 in assembled relationship with the plastic anchor member. It is to be understood that in many installations the spring 72 may be omitted.

FIGS. 4-7 show an anchor member 20a incorporating a modified form of the present invention as indicated by the application of identical reference numerals with the suffix "a" added to corresponding elements. This embodiment differs primarily that the strike retaining elements 52a and 54a are entirely independent of the anchor securing leg sections 36a and 38a. More specifically, the elements 52a and 54a are provided with reversely bent extensions 86 and 88 respectively which are integrally connected with head section 30a rather than with an entering end section which in turn is supported by the anchor

securing leg sections. It will be noted that the strike retaining elements of this embodiment like the corresponding elements of the other embodiments disclosed herein are relatively wide so that the restricted throat therebetween is elongated in a direction extending transversely of the direction in which the anchor member may be adjusted within the workpiece aperture. In other words the restricted throat is elongated in a direction extending transversely of the anchor retaining shank sections 36a and 38a. This feature allows for misalignment of the strike element in a direction extending along the length of the throat while the above described adjustment of the anchor member within the workpiece aperture accommodates misalignment of the strike in a direction extending transversely of the throat.

FIGS. 8-11 show another embodiment of the present invention which is similar to the structures described above as indicated by the application of identical reference numerals with the suffix "b" added to corresponding elements. This embodiment differs primarily in that the strike retaining elements 52b and 54b are not only connected integrally to the entering end portions 56b of the shank but they are also integrally connected at their outer ends to the head section as indicated at 90 and 92. This enables the resilient elements 52b and 54b to be stiffened for increasing the holding power thereof.

In FIGS. 12, 13 and 14 there is shown a further modified form of the present invention which is similar to the devices described above as indicated by the application of identical reference numerals with the suffix "c" added to corresponding elements. In this embodiment the strike retaining elements 52c and 54c are relatively short and extend directly from integral junctions 90c and 92c with opposite inner margins of head section 30c. The entering ends of the elements 52c and 54c are free so that these elements function entirely independently of the anchor retaining sections 36c and 38c.

FIG. 15 shows a device 20d which is identical to the anchor member 20c except that the anchor securing sections 36d and 38d are slightly modified for accommodating workpieces of different widths. More specifically, the shoulder surfaces 44d and 46d are flared outwardly so that they may be wedged against the workpiece regardless of minor variations of the thickness of the workpiece.

FIG. 16 shows an anchor member 20e which is similar to the device shown in FIGS. 1-4 as indicated by the application of identical reference numerals with the suffix "e" added to corresponding elements. This embodiment differs in that the entering end sections 56e is provided with an opening 92 therethrough, which feature, in certain instances facilitates the molding operation.

While the preferred embodiments of the present invention have been shown and described herein, it is obvious that many structural details may be changed without departing from the spirit and scope of the appended claims.

The invention is claimed as follows:

1. An anchor device for a latch strike and the like comprising a plastic head section for overlying one side of an apertured work structure and having an opening therein through which a latch strike and the like may be inserted, a pair of resilient plastic shank sections respectively integral with and extending generally axially from a first pair of opposite inner marginal portions of said head section for entry into the workpiece aperture, laterally outwardly projecting shoulder means on said shank sections for engaging behind the work structure when the shank sections are inserted into the aperture for preventing removal of the anchor device from the work structure, and a pair of opposed resilient plastic elements integrally operably interconnected with said head section and generally axially disposed with respect to said head section and located between and operable independently of said pair of shank sections, said opposed resilient plastic elements being located so as to be substantially bisected

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by and resiliently shiftable in a direction parallel to a plane containing a central longitudinal axis of said device and intersecting a second pair of opposite inner marginal portions of said head section, said opposed plastic elements including opposed shoulder means projecting toward each other substantially adjacent said head section and defining a throat therebetween substantially bisected by a second plane perpendicular to said first mentioned plane for cooperatively engaging, passing and releasably retaining the enlarged end portion of a latch strike inserted through the opening in the head section.

2. An anchor device, as defined in claim 1, wherein said strike retaining shoulder means on said elements respectively present flaring surfaces at opposite sides of said throat for facilitating passage of a strike into the anchor device and intentional removal of the strike therefrom.

3. An anchor device, as defined in claim 1, which includes spring means embracing and aggressively gripping said opposed plastic elements for resisting spreading of said elements and increasing the holding power of the device.

4. An anchor device, as defined in claim 1, which includes a generally U-shaped plastic section extending between and integrally joined to entering ends of said shank sections, said opposed strike retaining elements respectively being integrally connected with opposite margins of said U-shaped section and thereby being operatively interconnected with said head section.

5. An anchor device, as defined in claim 1, wherein said shank sections have free entering ends and are operable independently of each other and said opposed elements.

6. An anchor device, as defined in claim 5, wherein said opposed elements include reversely bent portions connected directly with said head section.

7. An anchor device, as defined in claim 1, wherein said opposed elements have entering ends which are free and separated from said shank sections and trailing ends integrally connected directly to said head section.

8. An anchor device, as defined in claim 1, which includes a transverse section extending between and integrally joining entering ends of said shank sections, said opposed strike retaining elements have entering ends integrally joined to said transverse section and trailing ends integrally joined directly to opposite inner margins of said head sections.

9. An installation of the type described comprising a

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workpiece having a generally rectangular aperture there-through with a first predetermined width in one direction and a second predetermined width in a transverse direction, said workpiece having a predetermined thickness, an anchor device assembled with the workpiece and including a plastic head section overlying an outer surface of the workpiece around said aperture, a pair of resilient plastic shank sections respectively integral with and extending generally axially from said head section through said aperture and having axially extending margins which are opposite from each other in said first mentioned direction, said shank sections including laterally outwardly projecting shoulder means having outer ends spaced farther apart than said first predetermined width and engaging behind said workpiece for preventing removal of the anchor device from the workpiece, a pair of opposed resilient plastic elements integrally operatively interconnected with said head section and generally axially disposed with respect to said head section and located between and operative independently of said pair of shank sections, said elements being disposed so as to be intersected by a plane generally parallel to said transverse direction, said opposed plastic elements including means projecting toward each other and defining a restricted throat, the width of said shank sections and the maximum spacing of laterally outwardly facing surfaces of said opposed elements in said transverse direction being substantially less than said second predetermined width of the workpiece aperture for enabling the anchor device to float within the aperture transversely of said throat, and a strike element generally aligned with said anchor device and having an enlarged end insertable through said throat for being releasably retained within the anchor device, said throat having a length in said first mentioned direction substantially greater than a thickness of said strike in said first mentioned direction for enabling the strike to be assembled with the anchor device even though the strike is not accurately aligned with the anchor device.

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