

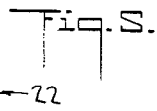
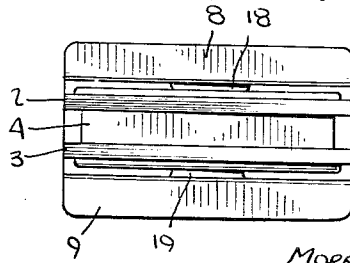
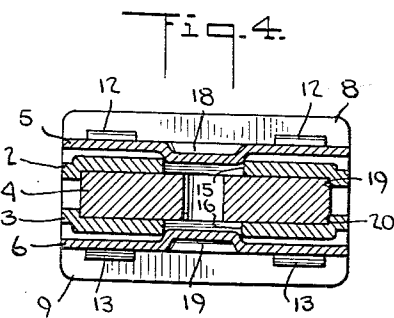
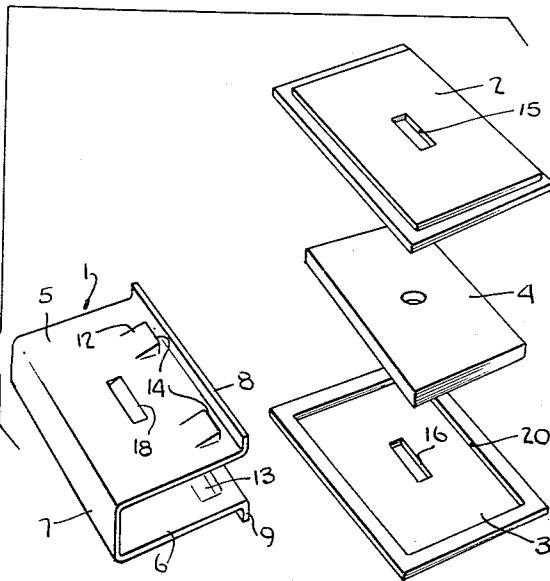
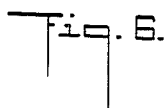
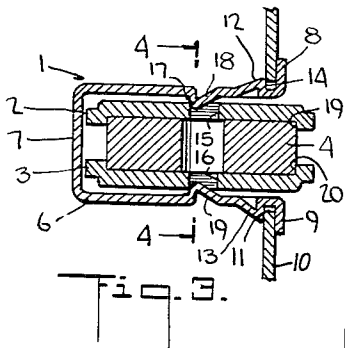
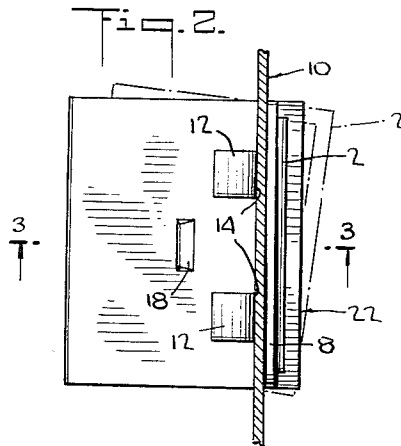
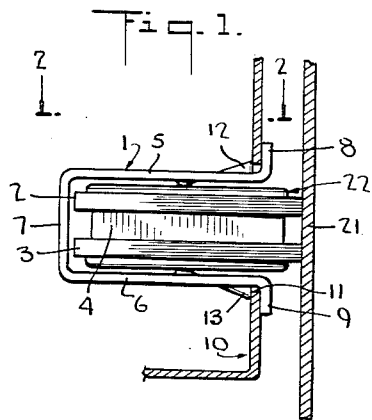
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2,935,353

MAGNETIC CATCH

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2,935,353

MAGNETIC CATCH

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5 Claims. (Cl. 292—251.5)

This invention relates to catches in general such as magnetic catches extensively used for kitchen cabinets and the like such as disclosed in my United States Patent No. 2,837,366 issued June 3, 1958 and in my United States Patent No. 2,861,831 issued November 25, 1958.

Among the objects of the present invention it is aimed to provide an improved magnetic catch, especially adapted for kitchen cabinets and the like, which can be produced at a minimum cost, can be readily and expeditiously assembled, can be readily and expeditiously secured in place, will remain in working operation indefinitely and consequently is free from any upkeep expense and is durable.

It is another object of the present invention to provide an improved catch adapted for use with structures composed of metal which catch is reduced to a minimum of parts, four in number, consisting in a housing composed of a substantially magnetically inert metal such as aluminum, two conductive metal plate portions and an intermediate magnet which interlockingly nest into one another thereby being secured to one another without external securing means and which catch in turn is also constructed to cooperate with the sheet metal walls of a metal structure to anchor the same to such metal structure without external securing means.

These and other features, capabilities and advantages of the invention will appear from the subjoined description of one specific embodiment thereof illustrated in the accompanying drawings in which—

Fig. 1 is an end elevation of the catch with a fragmental sectional view of the metal structure to which the catch is attached.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is a section on the line 3—3 of Fig. 2.

Fig. 4 is a section on the line 4—4 of Fig. 3.

Fig. 5 is a bottom plan view of the catch.

Fig. 6 is an exploded perspective of the four parts of the catch.

In Fig. 6, there are shown a housing 1, two conductive plate portions 2 and 3, and a magnet 4. The housing 1 is preferably composed of a metal such as aluminum which is substantially inert to magnetic forces. The plate portions 2 and 3 are preferably composed of a conductive metal such as steel and the magnet 4 is either composed of a synthetic magnetic substance or of the magnetic metal found in nature.

In form, the housing 1 is substantially U-shaped having two side walls 5 and 6, an intervening top wall 7, and two outwardly extending flanges 8 and 9 extending from the free ends of the side walls 5 and 6 respectively.

To anchor the housing 1 to the metal wall 10 as an instance, it is only necessary to form an opening 11 in the wall 10 conforming substantially to the cross section of the housing 1 along the line 4—4 shown in Fig. 3 and to provide pairs of indentations 12 and 13 in the side walls 5 and 6 respectively with the shoulders 14 thereof disposed adjacent to but spaced from the flanges 8 and 9 a distance equal substantially to the thickness of the

wall 10 of the metal structure as shown in Fig. 1 so that when the housing or casing 1 is thrust into a hole or opening 11, the walls 5 and 6 will yield sufficiently to enable the shoulders 14 to clear the edges of the opening 11. The walls 5 and 6 will also have sufficient elasticity to return into their normal positions and snap the shoulders 14 beyond the wall 10 as shown in Fig. 1 after the housing has been thrust into place where the shoulders 14 will engage the rear face of the wall 10 and the flanges 8 and 9 will engage the front face of the wall 10.

In order to capture the conductive metal plates 2 and 3 between the side walls 5 and 6 of the housing 1, the plates 2 and 3 are provided with rectangular openings 15 and 16 respectively to receive the shoulders 17 of the indentations 18 and 19 formed in the side walls 5 and 6 respectively. It will be noted that the shoulders 17 are formed at the inner ends of the indentations 18 and 19, that the shoulders 14 are formed at the outer ends of the indentations 12 and 13, that the inclined inner faces of the indentations 18 and 19 flare outwardly and that the inclined outer faces of the indentations 12 and 13 flare inwardly. These inclinations on the inner faces of the indentations 18 and 19 and on the outer faces of the indentations 12 and 13 are formed to serve as cams, the inclinations on the indentations 18 and 19 to cooperate with the outer faces of the conductive plates 2 and 3 temporarily to flex the side walls 5 and 6 outwardly until the indentations snap into the openings 15 and 16 and the shoulders 17 are positioned to cooperate with the inner edges of the openings 15 and 16 to anchor the conductive metal plates 2 and 3 within the casing 1 and the inclinations of the indentations 12 and 13 to cooperate with the edges of the wall 10 temporarily to flex the side walls 5 and 6 inwardly until the shoulders 14 snap into engagement with the inner faces of the wall 10. When the walls 5 and 6 are thus maintained intact without interruptions at the indentations 12, 13, 18 and 19, access of dust and foreign materials through the side walls 5 and 6 is prevented in the interest of extending the life of the catch, bearing in mind that after a catch made according to this invention is once installed, it may not again be removed during its life.

The magnet 4 in the present instance is captured or anchored in place by the conductive metal plates 2 and 3 which are provided with border shoulders defining rectangular recesses 19 and 20 conforming to the rectangular perimeter of the magnet 4. The space between the inner faces of the side walls 5 and 6 is sufficient to enable the conductive plates 2 and 3 with the intermediate magnet 4 to be anchored in place against accidental removal but wide enough to afford rotation of the plates 2 and 3 and the magnet 4 relative to the casing 1 to adjust or accommodate themselves to the many imperfections in structures which may be encountered. Preferably, the openings 15 and 16 are disposed substantially in the centers of the plates 2 and 3 respectively to afford the maximum extent of rotation.

In operation the wall 10 will constitute the fixed frame of the cabinet and the wall 21 the door or movable frame. If the wall 21 is composed of a conductive metal, then when it is moved toward the magnetic unit 22, it will be attracted toward it and the magnetic unit 22 will function to anchor the door 21 in closed position.

It is obvious that various changes and modifications may be made to the details of construction without departing from the general spirit of the invention as set forth in the appended claims.

I claim:

1. A magnetic catch for two relatively movable metal frames comprising a housing containing a magnetic unit, said housing being composed of a substantially magnetically inert one-piece metal and U-shaped in form

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having two side walls and outwardly extending flanges at the free ends of said side walls, said magnetic unit having parallel conductive metal plates, a rectangular magnet disposed between said metal plates, said plates having opposing rectangular recesses conforming to and receiving said magnet, inwardly extending indentations in said side walls, there being centrally disposed rectangular recesses in said plates to receive said inwardly extending indentations, outwardly extending indentations in said side walls spaced from said flanges, and the first of said frames having an opening therein conforming to the cross section of said housing and the thickness of which first frame conforming to the distance between said outwardly extended indentations and said flanges to enable positioning the edges of said first frame at said opening between said outwardly extending indentations and said flanges, the first frame thus cooperating with said outwardly extending indentations to anchor said housing in place and to anchor said inwardly extending indentations in the recesses in said plates, said magnetic unit extending beyond said flanges for engagement with the second of said frames.

2. The magnetic catch as set forth in claim 1 in which the outwardly extending indentations flare outwardly toward said flanges to enable the outer faces of said indentations to serve as cams to flex said side walls toward one another when inserting said magnetic unit into the opening in said first frame.

3. The magnetic catch as set forth in claim 1 in which the inwardly extending indentations flare inwardly away from said flanges to enable the inner faces of said indentations to serve as cams to flex said side walls away from one another when inserting said magnetic unit into said housing.

4. The magnetic catch as set forth in claim 1 in which the outwardly extending indentations flare outwardly toward said flanges to enable the outer faces of said indentations to serve as cams to flex said side walls toward

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one another when inserting said magnetic unit into the opening in said first frame and in which the inwardly extending indentations flare inwardly away from said flanges to enable the inner faces of said indentations to serve as cams to flex said side walls away from one another when inserting said magnetic unit into said housing.

5. A magnetic catch for two relatively movable metal frames comprising a housing containing a magnetic unit, said housing being composed of a substantially magnetically inert one-piece metal and U-shaped in form having two side walls and outwardly extending flanges at the free ends of said side walls, said magnetic unit having parallel conductive metal plates, a rectangular magnet disposed between said metal plates, said plates having border shoulders defining recesses receiving said magnet, inwardly extending indentations in said walls, there being centrally disposed rectangular recesses in said plates to receive said inwardly extending indentations, outwardly extending indentations in said side walls spaced from said flanges, and the first of said frames having an opening therein conforming to the cross section of said housing and the thickness of which first frame conforming to the distance between said outwardly extended indentations and said flanges to enable positioning the edges of said first frame at said opening between said outwardly extending indentations and said flanges, the first frame thus cooperating with said outwardly extending indentations to anchor said housing in place and to anchor said inwardly extending indentations in the recesses in said plates, said magnetic unit extending beyond said flanges for engagement with the second of said frames.

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