Feb. 10, 1970 SVEN-ERIK MALMSTRÖM 3,494,649

CATCH FOR DOORS TO CUPBOARDS

Filed Jan. 29, 1968

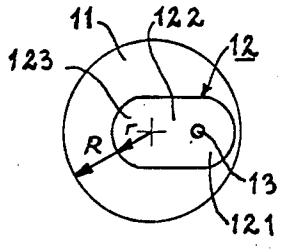


Fig. 1

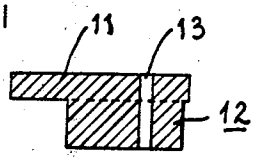


Fig. 2

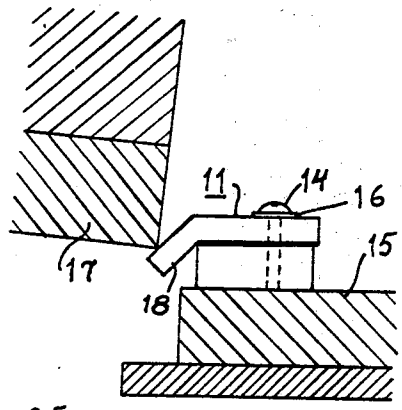


Fig. 3

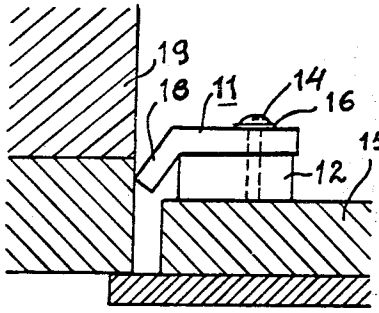


Fig. 4

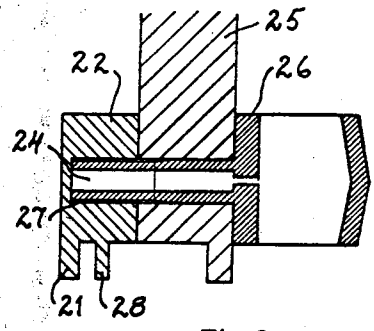


Fig. 6

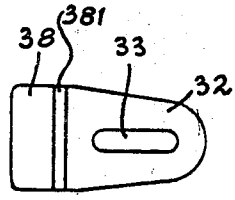


Fig. 7

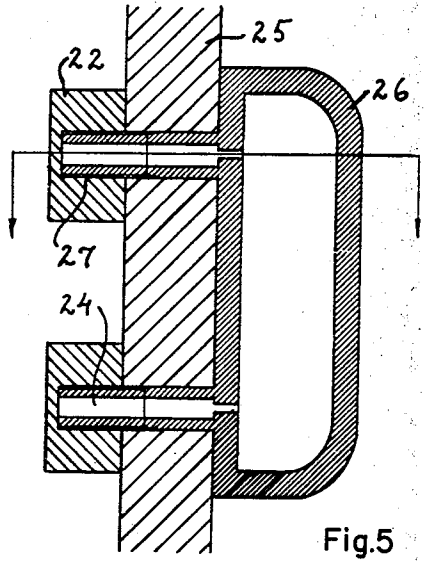


Fig. 5

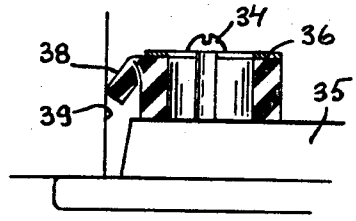


Fig. 9

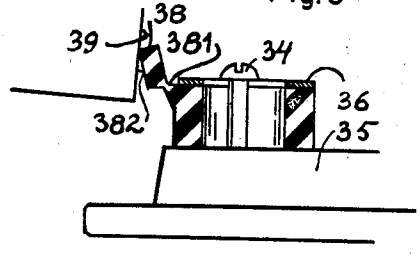


Fig. 10



Fig. 8

INVENTOR:
SVEN-ERIK MALMSTRÖM

BY Howson & Howson
ATTORNEY

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CATCH FOR DOORS TO CUPBOARDS

Sven-Erik Malmstrom, Agatau 11, Reftele, Sweden

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ABSTRACT OF THE DISCLOSURE

A catch for doors to cupboards, wardrobes and the like adapted to be mounted on the inside of a door which cooperates with a locking member such as the jamb or doorpost to provide a means for maintaining the door in a closed position. The catch includes a locking element consisting of at least one rubber lip which on closing of the door makes contact with the jamb and is thereby deflected in a backward direction relative to the closing direction of the door and in a closed position holds the door closed by friction and on opening is elastically deformed to offer a certain amount of resistance on opening of the door.

The present invention relates to a catch for doors to cupboards, wardrobes and the like, designed for fastening on the inside of a door and provided with a locking element which in cooperation with a locking member on the doorpost provides a means of locking.

The inconvenience with the conventional type of catch described above in the relatively complicated adjustment work which is required so that the locking element and the locking member obtain a mutual position such that the closing and opening forces are correctly adapted. It is also necessary that the location of the door in a closed position is such that disturbing vibrations are not caused due to variations in air pressure, for instance when airing.

Another disadvantage with conventional catches is that the door cannot be closed without giving rise to disturbing sound.

The disadvantages associated with common types of catch designs are eliminated by the present invention thereby that the locking element comprises at least one rubber lip, which on locking makes contact with the doorpost or the locking member. The lip is thereby deflected in a backward direction relative to the closing direction of the door and holds in a closed position, the door shut by means of friction. On opening, the lip becomes elastically deformed thereby giving rise to a certain opening resistance.

According to a development of the basic idea of the present invention, the complete catch can be made of an elastomer and thus consist of one single detail which is, of course, a big advantage, particularly from an assembly standpoint.

Other properties pertaining to catches according to the present invention are accounted for in connection with the following description of three representative designs which are illustrated on the attached drawings.

FIG. 1 shows a plan view of a catch according to the present invention;

FIG. 2 shows a side elevation of the catch shown in FIG. 1;

FIG. 3 shows the catch mounted on a door of a cupboard, and in such a position that the rubber lip of the catch has made contact with a doorpost and is thus deflected in a somewhat backward direction;

FIG. 4 illustrates the catch in a closed position;

FIGS. 5 and 6 show a design deviated somewhat from the preceding form in which the catch has a double function, namely to simultaneously serve as a fixing device for an existing door handle located on the outside of the door;

FIG. 7 shows a third design seen from below; and

FIG. 8 shows a section of the catch shown in FIG. 7; and

FIGS 9 and 10 show a catch according to FIGS. 7 and 8 in a closed position, and also in a position when the door is about to be opened.

In FIGS. 1 and 2, the numeral **11** denotes a disc with radius R made of rubber or similar material. The disc **11** is attached to a foot **12** which is also made of rubber and consisting of two semicylindrical portions **121** and **123** with radius *r* and one essentially cubical portion **122** combining these two. The height of the foot **12** is approximately $(R-r)$. The center of the semicylindrical portion **123** also constitutes the center of the disc **11** and a hole **13** is located at the center of the semicylindrical portion **121** which penetrates both the foot **12** and the disc **11**. The catch, i.e. the disc with the integral foot, is fixed by means of a screw **14** through a hole **13** to the inside of a cupboard door **15** in a manner illustrated in FIG. 3. A washer **16** is placed between the head of the screw **14** and the disc **11**, so that the pressure of the screw head is distributed over a larger area.

As mentioned previously, FIG. 3 shows the commencement of a closing movement. The portion of the rubber disc **11** which is in contact with the structure forming the jamb or doorpost **17** functions as a flexible lip **18**. In the present instance the jamb or doorpost **17** engageable by the lip **18** provides a stationary locking member. This portion of the disc **11** will be denoted as lip **18** in the following description. On a continued closing movement, the lip **18** will be deflected more and more until it attains the form in a closed position as illustrated in FIG. 4.

On opening the door, the lip **18** undergoes an elastic deformation due to friction between the lip and the doorpost and thus exerted resistance. Since the catch can be turned about the screw **14**, the position of the lip can be varied relative to the doorpost and the desired closing and opening resistance can be achieved. This procedure can be carried out without any tool, as the catch can be turned manually. Once the catch has been adjusted it retains its position, due to the fact that the rubber is elastically compressed by means of the screw **14** and the friction between the foot **12** and the door **15** is so great that the catch cannot be twisted due to the influence of those forces arising when the door is opened or closed. If the doorpost **17** is very thin, the lip of the catch will glide over the doorpost when the door is closed and will come in contact with the wall of the cupboard **19** adjacent to the doorpost. This circumstance, however, does not impair the function of the catch.

Another form of the invention is shown in FIGS. 5 and 6. A door handle **26** is attached to a cupboard door **25** and is provided with pins **24** which fit in two holes drilled in the door. Catches **22** have been pressed onto the pins **24**. The hole in the catch is that much less than the diameter of the pins **24** that the clamping force obtained is sufficient to hold the handle in fixed position. To improve the clamping effect the pins **24** are provided with grooves **27**. The catch **22** is provided with two lips **21** and **28** which have identically the same function as the single lip **18** in the preceeding form. Of course, the two catches **22** can be replaced by one single catch provided with two holes, which fit on both the pins **24**. In such a case, individual adjustment of the catch can hardly be obtained.

FIGS. 7, 8, 9 and 10 show a third form of the invention. Here, **38** denotes an essentially even rectangular lip which along one longside is attached to a foot **32** by means of a thin portion which serves as a hinge **381**. The foot **32** is provided with an oblong hole **33**. The function

of the hinge **381** and the hole **33** is indicated in the following. The catch is fastened on the inside of a cupboard door **35** by means of a screw **34** which penetrates a hole **33**. See FIGS. 9 and 10. A washer **36** is assembled between the head of the screw **34** and the foot **32**. FIG. 9 shows a catch in a closed position. The lip **38** contacts the doorpost **39** with certain pressure and holds the door in a closed position. Should the pressure of the lip against the doorpost be too large or too small, the pressure may be simply adjusted by loosening the screw and moving the catch forwards or backwards a desired amount.

The function of the hinge can be best understood from considering the position of the catch just as the door is being opened. In all of the embodiments described above, the flexible lip functions as a double pivoting action hinge upon opening and closing movements of the door on which the locking element of the present invention is mounted. For example, with reference to FIGS. 9 and 10 of the drawings, the lip upon pivoting movement of the door to a closed position makes contact with the locking member or doorpost **39** and is deflected about the hinge **381** in a backward direction relative to the closing direction of the door, and in the closed position secures the door closed by means of friction. This prevents slamming the door when closing it. Upon opening of the door, the lip elastically deforms and pivots in an opposite direction thereby providing a greater initial resistance to opening of the door. It, is of course, desirable that after the opening resistance due to the elastic deformation of the lip has been overcome, the pressure of the lip against the doorpost is as little as possible. A hard lip pressure in this position can give rise to disturbing sound when the lip releases its contact with the doorpost and at the same time the inside **382** of the rubber lip **38** is also subjected to unnecessary wear. By making the hinge **381** very thin, disturbing sound and risk for unnecessary wear on the lip is eliminated.

In the figures and the preceding text, catches with one or two lips have been described. However, the invention is not limited to those forms. Catches may also be provided with a number of lips on the assumption that they fulfill the conditions set forth in the claims.

The material which is most commonly used for a catch according to the invention is rubber or similar material. By rubber is meant elastomers which can be vulcanized and similar materials constitute essentially plastics with elastomeric properties, e.g. soft polyvinyl chloride and copolymers of polyethylene and polyvinylacetate.

While particular embodiments of the present invention have been illustrated and described herein, it is not intended to limit the invention to such disclosure and

changes and modifications may be made herein within the scope of the following claims.

I claim:

1. Catch for doors to cupboards, wardrobes and the like, designed for fastening on the inside of a door and including a locking element adapted to cooperate with a locking member to provide a means for maintaining the door in a closed position, characterized thereby that the locking element comprises a body portion mounted on the inside of a door and at least one flexible resilient lip extending from said body portion, the juncture of the lip and body portion defining a double pivoting action hinge, said lip of said locking element upon pivotal movement of said door to a closed position making contact with said locking member whereby the lip is deflected about said hinge in a backward direction relative to the closing direction of the door and in a closed position secures the door closed by means of friction, said lip elastically deforming and pivoting in an opposite direction upon movement of the door in a direction to open it thereby providing a greater initial resistance to opening of the door.

2. Catch according to claim **1** in which the locking member is constituted by a doorpost defining part of the door opening.

3. Catch according to claim **1** in which the whole catch consists of flexible resilient material.

4. Catch according to claim **3** in which the catch embraces a pin through the door with a certain tension and thereby positively fixes a member connected to the pin.

5. Catch according to claim **1** in which the lip has an essentially circular form, the location of which is eccentric relative to the fixing point.

6. Catch according to claim **1** wherein the hinge is of reduced cross section.

References Cited

UNITED STATES PATENTS

1,160,505	11/1915	Giles	292—87
1,581,208	4/1926	Hayes	292—80
3,048,900	8/1962	Slade	49—402 X
3,055,043	9/1962	Luttner	292—87 X

FOREIGN PATENTS

12,647	5/1909	Great Britain.

J. KARL BELL, Primary Examiner

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49—402