United States Patent [19]

Michael

[11] **3,776,580**

[45] **Dec. 4, 1973**

[54] **CATCHES**

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[21] Appl. No.: **229,698**

[52] **U.S. Cl.** **292/17**

[51] **Int. Cl.**..... **E05c 7/00,** E05c 9/00, E05c 19/02, E05c 19/06

[58] **Field of Search** 49/414–418, 49/428–430; 292/3, 14, 17, 19

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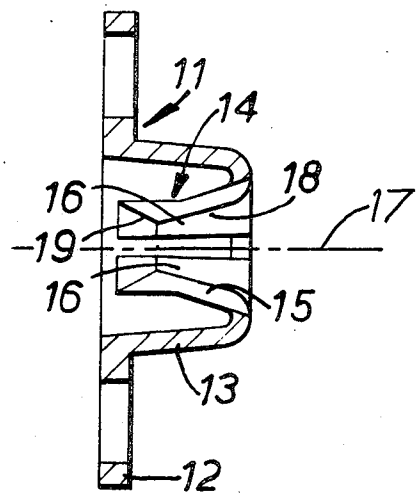
Primary Examiner—Geo. V. Larkin

Attorney—Irvin S. Thompson et al.

[57] **ABSTRACT**

A catch and a striker therefor are each in the form of a one-piece plastics moulding. The catch has a back fixing flange from which a re-entrant tubular formation projects, an inturned portion of such formation being longitudinally slotted whereby it is subdivided into resiliently flexible tongues. The tubular formation has a central bore providing a taper socket for reception of a tapering stem of the striker. The striker has a fixing flange and a catch-engaging stem is offset from and projects generally parallel to the striker flange. A headed formation of the stem results in the striker being gripped by the resilient catch tongues, and this grip and fitting of the tapering stem in the taper socket results in firm lateral location of the striker.

11 Claims, 5 Drawing Figures



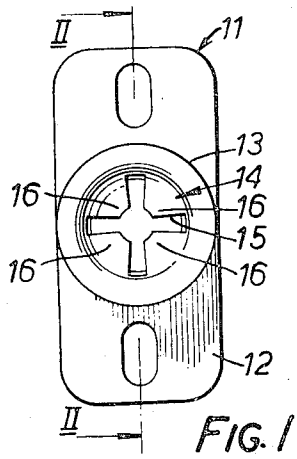


FIG. 1

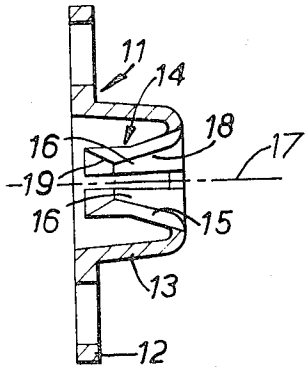


FIG. 2

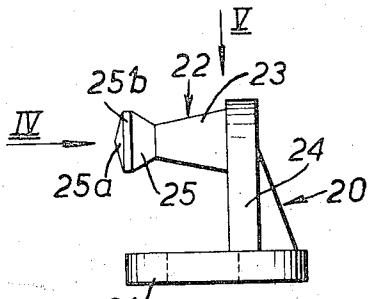


FIG. 3

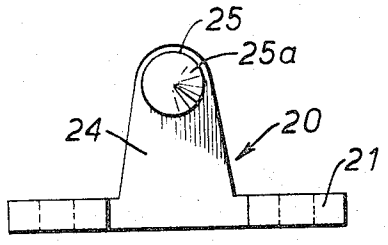


FIG. 4

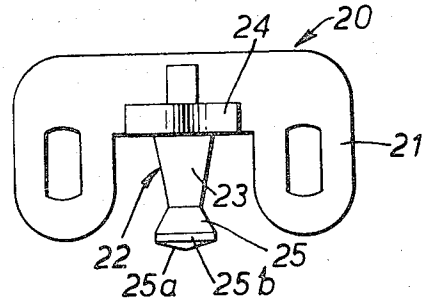


FIG. 5

CATCHES

BACKGROUND OF THE INVENTION

This invention relates to catches suitable, for example, for use with hinged cupboard doors and of the type comprising a body formed to receive and retain a striker projection of a keeper with a grip which can be freed by pulling the keeper and the catch body apart.

SUMMARY OF THE INVENTION

The invention provides a catch comprising an integral one-piece body having a fixing flange and a tubular formation which projects forwardly from the flange to provide a central taper socket in which a tapering striker projection of a keeper can be received and retained with a grip which can be freed by pulling the keeper and the catch body apart, said tubular formation being re-entrant to provide a continuous outer wall surrounding and spaced from an inwardly directed portion which is slotted to provide a plurality of resiliently flexible tongues for engagement with the striker projection so that the latter is restrained in all lateral directions.

Four longitudinal slots may be used to provide four tongues for the tubular catch portion, and the body and keeper are desirably each in the form of a plastics moulding with an integral screw-fixing flange. Suitable moulding materials are an acetyl resin for the catch body, which provides the necessary flexibility, and a nylon for the keeper. These compatible materials in particular provide a non-squeak combination. The spacing of the continuous wall from the inwardly directed tongues, between which the striker projection of the keeper is received, can be chosen to limit the outward flexing of the tongues and thereby prevent any possible overstressing thereof.

The body and keeper are preferably moulded so that the bore of the tubular formation is of waisted shape generally complementary to the shape of the striker projection, and in a preferred embodiment this shape has two frusto-conical portions disposed coaxially with their smaller diameter ends adjoining. The outer cone angle of the bore, which provides the taper socket, is preferably slightly greater than that of the corresponding tapering portion of the striker projection of the keeper in order to provide the desired resilient grip — these cone angles may for example be 30° and 22°. The relative dimensions of the two portions may provide a "headed" appearance for the striker projection, one portion substantially providing the head and the other a stem section of the projection.

BRIEF DESCRIPTION OF THE DRAWINGS

A door catch in accordance with the invention will now be described by way of example and is illustrated in the accompanying drawings, in which:

FIG. 1 is an outer end view of a body of the catch,

FIG. 2 is a sectional view on the line II — II of FIG. 1,

FIG. 3 is a side view of a keeper of the catch, and

FIGS. 4 and 5 are respectively views of the keeper in the direction of the arrows IV and V in FIG. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The catch body **11** is an acetyl resin moulding and has a back plate-like screw-fixing flange **12** from which

a re-entrant tubular formation projects forwardly to provide a continuous wall **13** which encircles and is spaced from an inwardly directed portion **14**. Throughout substantially its whole length the portion **14** is longitudinally split, as at **15**, to provide four equiangularly and symmetrically arranged tongues **16**. The spacing of the two walls **13** and **14** is such that outward flexing of the tongues **16** is limited before they are overstressed and the axis **17** of a central through bore of the tubular formation is disposed at right angles to the flange **12**. The through bore defines a taper socket which is surrounded by the tongues **16**. The recess is of waisted shape with two frusto-conical sections **18** and **19**, the outer section **18** providing the taper socket and presenting an inlet cone angle of 30° and the inner section **19** having a cone angle of 60°.

The keeper **20**, which is a nylon moulding, has a plate-like screw-fixing flange **21** which is disposed parallel to and offset from a headed projection **22** the stem **23** of which is connected to the flange **21** through an upstanding support web **24**. The stem **23** acts as a striker and is of tapering frusto-conical shape with a cone angle of 22°, and this adjoins a frusto-conical portion which provides most of the head **25** of the projection **22** and which has a cone angle of 60°. The leading end of the head **25** presents a short tapering nose **25***a* with a cone angle of 150° which adjoins the main section through a short cylindrical section **25***b*. Thus the projection **22** mainly comprises two frusto-conical portions with their smaller diameter ends adjoining, and of a shape generally complementary to the shape of the body bore except that the latter has said inlet cone angle of 30°. As the outer portion of the wall having this cone angle opens out to accommodate the stem **23** of the keeper projection the latter is resiliently gripped and retained until released by a sharp pull on the body **11** away from the keeper **20**.

The keeper flange **21** is generally U-shaped, with the striker stem **23** projecting centrally between the side limbs of the U in plan view. These side limbs have slots for the fixing screws, which slots are elongated parallel to the stem **23** to allow final adjustment, in the direction of the stem, before the screws are tightened. The web **24** from which the stem **23** projects joins the flange **21** at the inner edge of the intermediate limb of the U shape of the flange.

It will be appreciated that both the described parts of the catch, namely the body **11** and the keeper **20**, are intended for surface mounting on the door and surrounding fixed structure respectively. The catch is particularly suitable for use with a cupboard door, and the described form of the keeper **20** enables the flange **21** thereof to be screwed directly to the side surface of a door jamb. The keeper then acts as a door stop so that a separate stop is not required, nor does a mounting block or bracket have to be fixed to the jamb. With catches in general use a door stop and/or a keeper mounting block or bracket is normally required. Engagement of the keeper projection in the taper socket of the catch also provides relative vertical location of the parts and rigidifies the structure in a horizontal plane. With prior catches it is commonly necessary to provide a separate pin and socket for this purpose.

I claim:

1. A catch comprising an intergral one-piece body having a fixing flange and a tubular formation which is open at both ends and projects forwardly from the

flange to provide a central taper socket, and a keeper having a tapering striker projection which can be received in the taper socket and retained therein with a grip which can be freed by pulling the keeper and the catch body apart, said tubular formation being re-entrant to provide a continuous outer wall surrounding and spaced from an inwardly directed portion which is slotted to provide a plurality of resiliently flexible tongues for engagement with the striker projection so that the latter is restrained in all lateral directions.

2. A catch according to claim **1** and said keeper, wherein the keeper is of one-piece moulded form with a fixing flange spaced from and generally parallel to the striker projection which has a headed taper stem for engagement in the taper socket of the catch body.

3. A catch and striker according to claim **2,** wherein an upstanding support web of the keeper is joined at one edge to the keeper flange and the taper stem projects from one side face of the support web.

4. A catch according to claim **2,** wherein the catch body is moulded from an acetyl resin and the keeper is a nylon moulding.

5. A catch according to claim **1** and said striker, wherein the bore of the tubular formation of the catch body is of waisted shape generally complementary to the shape of the striker projection.

6. A catch according to claim **5,** wherein said waisted shape comprises two frusto-conical portions disposed coaxially with their smaller diameter ends adjoining and the outer of such portions providing said taper socket.

7. A catch according to claim **6,** wherein the taper socket portion of said bore has a slightly greater cone angle than that of the corresponding tapering portion of the striker projection in order to provide the desired resilient grip.

8. A catch according to claim **7,** wherein said cone angle of the bore is of the order of 30° and that of the corresponding portion of the striker projection is of the order of 22°.

9. A catch and striker combination wherein the catch is a one-piece plastics moulding comprising a fixing flange and an open-ended re-entrant tubular formation with an inturned portion which is longitudinally slotted to provide resiliently flexible tongues to grip the striker and which has a central bore providing a taper socket, and said striker is also a one-piece moulding comprising a fixing flange and a catch-engaging stem offset from and projecting generally parallel to the striker flange, said stem having a headed form so that it is gripped by said resilient tongues and a tapering stem which fits said taper socket.

10. A catch and striker combination according to claim **9,** wherein said inturned portion of the catch has four equiangularly arranged longitudinal slots providing four symmetrically arranged resiliently flexible tongues.

11. A catch and striker according to claim **9,** wherein the flange of the keeper is cut away on the side towards which the stem thereof projects to provide, in plan view, a generally U-shaped flange with the stem mounted on the intermediate limb of the U and projecting centrally between the side limbs of the U, which side limbs are provided with screw fixing holes.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,776,580 Dated December 4, 1973

Inventor(s) Michael Joseph James

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the cover sheet item [75] "Joseph James Michael" should read -- Michael Joseph James --.

Signed and sealed this 30th day of April 1974.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents

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