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(56) Documents Cited:
GB 2343475 A
WO 1990/012187 A
US 4787184 A
GB 2341410 A
CA 001118642 A

(58) Field of Search:
UK CL (Edition X) **E1J**
INT CL[7] **E06B**
Other: **EPODOC, WPI**

(54) Abstract Title: **Mounting windows**

(57) A pre-glazed window unit is mounted in an aperture in a wall W using a window frame and securing means. The frame comprises a base having a pair of arms 17 forming a channel 18 between them. In use the frame is located around the edge of the aperture to be glazed with the arms 17 engaging opposite sides of the wall W adjacent the aperture. The window unit is placed into the frame from a first side of the wall until it abuts the frame and is secured to the frame. Preferably the securing means 21 engages the window unit as the unit is placed into the frame. The securing means 21 may be provided on stop means 19 extending from the frame base in an opposite direction to the arms 17. The securing means 21 may irreversibly engage a co-operating socket 41 in the window unit as the unit is placed in the frame. The frame may be provided in mitred lengths corresponding to sides of the aperture, one of the lengths being split to facilitate fitting of the frame to the aperture.

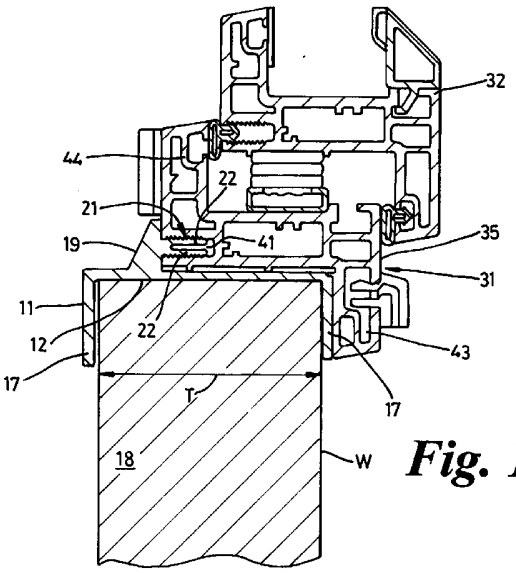

Fig. 1

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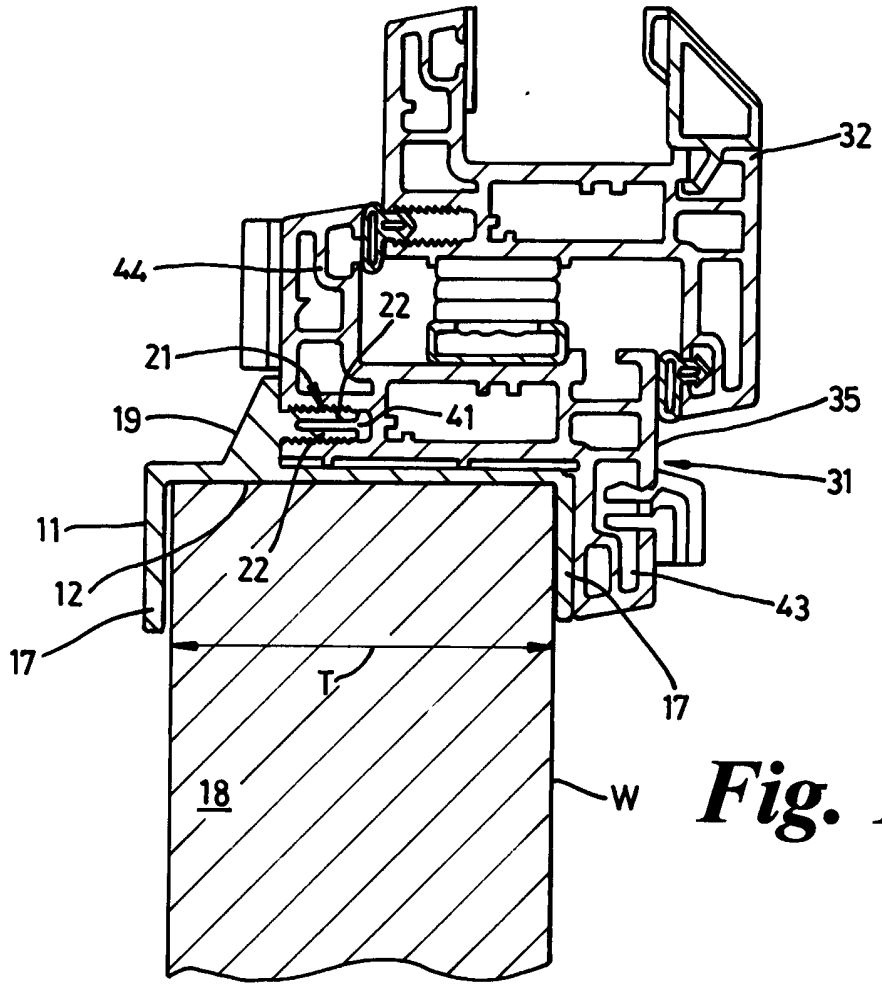
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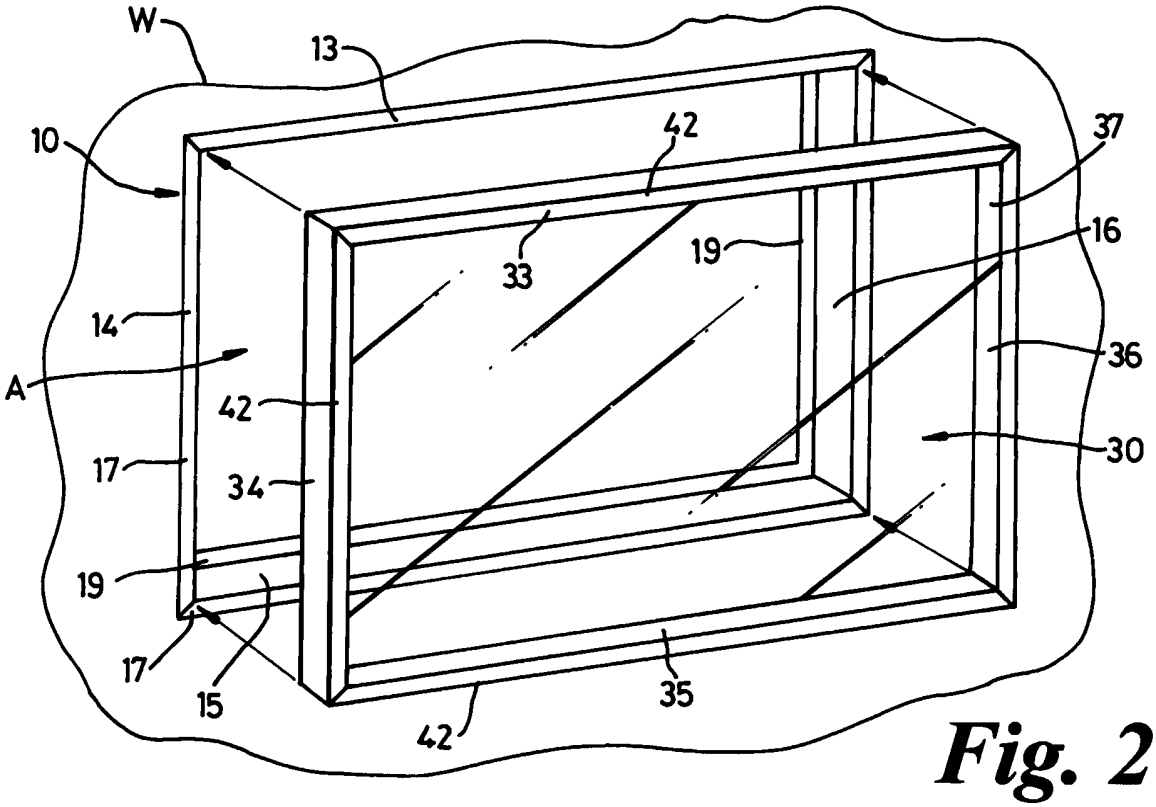
W

Fig. 1


W
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A
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Fig. 2

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A Method of Mounting Windows

Field

This invention relates to a method of mounting windows in an aperture formed in a thin walled structure and to a window frame for mounting in the aperture.

Background of the Invention

During the manufacture of caravans, mobile homes, and portable buildings, the windows are typically installed in apertures in the thin walls in the form of pre-glazed units The installation of a window is a relatively slow operation, typically requiring two men, one person being outside the caravan, building etc. and holding the window in place in the aperture with a second person inside the caravan fixing the window frame to the margins of the respective aperture by means of clamps , fasteners or the like.

One known method is disclosed in GB-A-2341410 in which the frame has a base with an outwardly projecting flange which in use abuts the outside of the wall adjacent the aperture, and a locking member is provided which engages the inner side of the frame and abuts against the inside of the wall adjacent the aperture. The locking member has a projection which locks into a co-operating socket formed in the inner side of the frame. This method has the disadvantage that it is necessary to hold the window in the aperture from the outside when the locking member is pushed into position from the inside. A further disadvantage is that if the locking member is not fully engaged the socket, the wall surrounding the aperture may not be securely clamped between locking member and flange .

The present invention provides an improved method of installation of a pre-glazed window unit.

Statements of Invention

According to a first aspect of the invention there is provided a method of mounting a window in a window aperture in a thin wall said method using a window frame comprising a base having a pair of arms extending from one side thereof forming a channel therebetween, and securing means for fixing the window unit to the frame, the method comprising locating the frame around edge of the aperture with the arms in use engaging opposite sides of said wall adjacent the aperture, placing the window unit into the surrounding frame from a first side of the wall until the unit abuts the frame and securing the window to the frame.

Preferably the window unit is fully glazed when inserted into the frame.

Preferably the securing means engages the window unit when the unit is placed into the surrounding frame from said first side.

The securing means is preferably a projection on the stop means which irreversibly engages in a co-operating socket in the window unit as the unit is pushed into the frame .

The frame may be cut into lengths corresponding to the sides of the aperture, preferably with the ends of the lengths being mitred, in which case at least one of said lengths may be split along its length to facilitate fitting of lengths frame around the edge of the aperture with said split length being fitted last.

The method may be applied to thin wall structures, say about 50mm thick but the invention is not limited to this wall thickness. Such a wall may be part of a mobile or

static home or like structure

According to a second aspect of the present invention there is provided a window frame for mounting in an aperture in a wall and comprising a base having a pair of arms extending from one side thereof forming a channel therebetween, the arms in use engaging opposite sides of said wall adjacent the aperture and securing means for fixing the window unit to the frame

Preferably stop means extend from the other side of the base in an opposite direction to the arms. The stop means may be provided by an upstanding flange located transversely between the two arms, and preferably in use is located nearer to the arm adjacent the inner wall surface, that is the inner surface of a building or caravan of which the wall forms a part.

Preferably the securing member is a projection formed on the flange and in use is received in a socket formed in the window unit, preferably as an interference fit. Said securing member may be irreversible with the projection having teeth or serrations engaging similar in the socket

The base, arms, stop means and securing member may be formed as a one piece article, typically an extrusion formed from any suitable material e.g. UPVC and aluminium.

Yet another aspect of the present invention the provides a building, caravan or mobile home having a window aperture with a window being mounted in the aperture, the window having a frame according to the second aspect of the invention

Description of the drawings

The invention will now be described by way of example only and with reference to the accompanying drawings in which

Figure 1 is a vertical section through the lower length of one embodiment of the invention , and

Figure 2 is a schematic diagram showing how the window unit is received in the frame.

Detailed Description of the Invention

With reference to Fig 1 and Fig2, there is shown an exterior wall W of a caravan, mobile home or portable building, and which is typically is made of wood, aluminium, or composite thereof and typically has a thickness T about 50 mm thick. The wall thickness is by way of example only and the invention is applicable to walls of various thicknesses. An aperture A is formed in the wall W and is provided with a fully glazed window unit 30. The window glass may in be a single or multiple pane of glass and the unit 30 may be a double glazed unit.

The window unit 30 is mounted in the aperture A using a window frame 10 fitted over the edge margins of the aperture A In the present example the aperture A is rectangular, but need not be so, and the frame 10 comprise four length lengths 13-16 of extruded profile 11 formed from a suitable material, such as UPVC, aluminium, and other plastics materials. The profile 11 is substantially "U"-shaped and comprises a base 12 having a pair of arms 17 extending from one side thereof forming a channel 18 therebetween which is dimensioned to receive in use a portion of the wall W The arms 17 taper slightly inwardly, in this example to a gap of about 48mm, and are sufficiently resilient to

be spread apart, up to 54mm in this example, to receive the wall W in the channel 18. The inherent resilience in the arms 17 causes them to grip the edge margins of the wall.

Stop means 19 extend from the other side of the base 12 in an opposite direction to the arms, and in use can provide a location for a window unit The stop means 19 is located transversely between the two arms 17 nearer to the inside of the wall. By "inside" is meant inside the caravan, building etc. The stop means is preferably provided by a continuous flange 19 which extends along the length of the extruded profile 11. Securing means 21, for fixing the window unit 30 to the frame 10, project from the flange 19 towards the exterior of the wall, substantially parallel to the base 12 and in use is received in a socket 41 formed in the window unit 30 as will be described later

The securing means 21 is a flange-like projection which may comprise two spaces apart legs 22 having exterior teeth or serrations . It is noted that the securing means 22 is wider than the socket 41 so that it will be an irreversible interference fit between the securing means 21 and the window unit 30.

The window unit 30 is first assembled to form a fully glazed window unit 30 ready for mounting in the aperture A. The window unit 30, as shown, is a known window unit available from Selecta Window Systems Ltd and is described in detail in GB-A-2341410 and will be described here sufficient to enable an understanding of the present Invention. The unit 30 has a fixed outer frame 37 having mounted therein a frame 32 forming part of a opening light. The fixed outer frame 37 has four sides 33,34,35,36 made of an extruded profile 31, preferably formed from a suitable plastics material for example UPVC The profile 31 comprises a base 42 having a flange 43 at one end dimensioned to overlap the edge margin of the aperture A. The base 42 is dimensioned to match the

thickness T of the wall W, and has an upstand 44 which in use is dimensioned to abut the stop means 19 as the flange 43 abuts the exterior arm 17 on the frame 10 The socket 41 extends inwardly, parallel to the base 42 in the lower part of the upstand 44 and is provided with inner toothed or serrated walls. The frame 37 may be formed around a glazed unit or the frame may support opening lights 32 as shown.

The window frame 10 comprising the four lengths 13-16 of profile is fitted over the edge margins of the aperture. It is not necessary for all the sides 13-16 to grip both sides of the wall and if the ends of the lengths are mitred one to another then it may be necessary for at least one length, for example side 16, to be split lengthwise down the middle to assist assembly within the aperture A.

Sealant is applied to the aperture perimeter, as required. The window frame 10 is assembled within the aperture A from the outside the wall W with arms 17 of the sides contacting the edge margins of the aperture.

More sealant may be applied to the inner periphery of the frame 10 as is requires and the assembled window unit 30 is presented to the frame. The lengths of the elongate securing means 21 are received in the socket 41 and the window unit is driven home, using say a rubber mallet until the flanges 43 abut the arms 17 of the frame on the outer side of the wall as shown. It may be necessary to separately drive home the inner portion of the side 16 of the frame The assembly has been made quickly and efficiently and can be accomplished by a single person, and the interlock between the frame and window unit is strong.

The invention is not limited to the embodiment shown. The stop means need not be a continuous flange and the securing means need not be formed on the locating means. Other forms of securing means, for example fasteners , may be used. The window aperture may be any desired shape.

Claims

1 A method of mounting a window unit in a window aperture in a thin wall wherein said method utilises a window frame comprising a base having a pair of arms extending from one side thereof forming a channel therebetween and securing means for fixing the window unit to the frame, the method comprising locating the frame around edge of the aperture with the arms in use engaging opposite sides of said wall adjacent the aperture, placing the window unit into the surrounding frame from a first side of the wall until the unit abuts the frame and securing the window to the location means.

2. A method as claimed in Claim 1 wherein the window unit is fully glazed when presented to the frame

3. A method as claimed in Claim 1 or Claim 2 , wherein the securing means engages the window unit as the unit is placed into the surrounding frame from said first side.

4 A method as claimed in Claim 3 wherein, stop means extend from the other side of the base in an opposite direction to said arms and the securing means is formed as a projection on the stop means and irreversibly engages in a co-operating socket in the window unit as the unit is pushed into the frame.

5 A method as claimed in any one of Claims 1 to 4, wherein the frame is cut into lengths corresponding to the sides of the aperture with the ends of the lengths being mitred, and at least one of said lengths is split along its length to facilitate fitting of the frame around the edge of the aperture with said split length being fitted last.

6 A window frame for mounting in an aperture in a wall and comprising a base having a pair of arms extending from one side thereof forming a channel therebetween, the arms in use engaging opposite sides of said wall adjacent the aperture, and securing means for fixing the window unit to the frame

7. A frame as claimed in Claim 6 , wherein stop means extend from the other side of the base in an opposite direction to the arms

8. A frame as claimed in Claim 7 wherein the stop means is provided by a flange which is located transversely between the two arms,

9. A frame as Claimed in Claim 8, wherein the flange in use is located nearer to the arm adjacent the inner wall surface, that is the inner surface of a building or caravan of which the wall forms a part.

10. A frame as claimed in Claim 8 or Claim 9 , wherein the securing means is a projection formed on the flange and in use is received in a socket formed in the window unit.

11. A frame as claimed in Claim 10 wherein the projection comprises a pair of spaced apart legs forming a resiliently deformable projection having an interference fit with the socket

12. A frame as claimed in Claim 10or Claim 11, wherein said securing means has teeth or serrations engagable in the socket to form an irreversible connection..

13 A frame as Claimed in any one of Claims 6 to 12 wherein the base, arms, stop means and securing means are formed as a one piece extruded profile.

14 A building, caravan or mobile home having a window aperture with a window being mounted in the aperture, the window having a frame according any one of Claims 6 to 12, and the window is mounted in the aperture by a method as claimed in any one of Claims 1 to 5.

Application No: GB0508747.3 **Examiner:** Eleanor Wade

Claims searched: 1-14 **Date of search:** 12 September 2005

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
A	-	WO90/12187 A Thermoform
A	-	GB2343475 A Bates
A	-	US4787184 A Boidron
A	-	CA1118642 A Huelsekopf
A	-	GB2341410 A Selecta Window Systems

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC[X] :

E1J

Worldwide search of patent documents classified in the following areas of the IPC[07]

E06B

The following online and other databases have been used in the preparation of this search report

EPODOC, WPI