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(54) Door and locker assembly comprising a door.

(57) A locker of the kind found in changing rooms of sporting facilities comprises a locker body (10) providing a door frame (14), carrying upper and lower hinge pins (16), and mounted on the hinges (16) a door (12). The door comprises a body member (18) formed from a single sheet of metal to provide peripheral frame members in the form of channels (20a, 20b, 20c 20d), and a central face panel (22). Provided along one side edge margin of the door is a hinge formation (24), being in the form of an elongate hollow cylindrical formation by a rolling operation of double thickness. The hinge formation is located on the upper and lower hinge pins (16) allowing for convenient pivotal mounting of the door on the door frame (14).

The door also comprises an infill member (30), formed to provide inwardly-extending lips (32a and 32b) extending along opposite side edge margins, and a generally central inwardly directed re-entrant formation (34). The infill member (30) thus provides a second face panel of the door, afforded by faces (36a and 36b) on either side of a central fold-line (38).

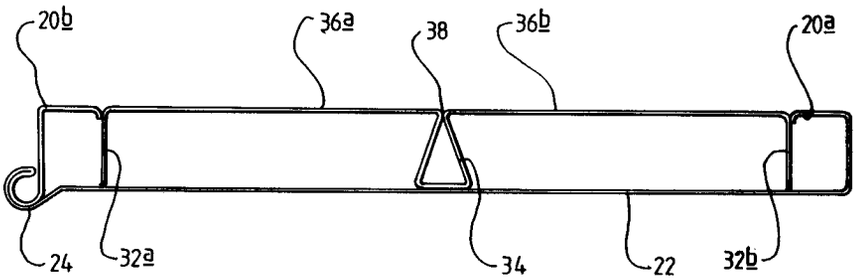

FIG 3

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This invention is concerned with improvements relating to doors, particularly but not exclusively to doors used in the provision of lockers as may be used to provide personally accessible storage, frequently found in changing rooms of sporting facilities, or in schools and colleges.

It is a requirement of lockers that they be adequately robust, yet of relatively inexpensive construction, whilst maintaining a pleasing appearance.

One difficulty is encountered in the provision of hinging means for the doors, which frequently necessitates the assembly together of a plurality of small parts. Not only is this time consuming and in consequence expensive in the assembly of the locker, but frequently results in the provision of a locker of a "messy" design.

According to a first aspect of this invention there is provided a door comprising a panel of sheet metal, one side edge margin of the panel having been formed to provide a hollow cylindrical formation to receive a hinge pin.

The door may be provided with two formations, spaced to enable them to be engaged by two spaced hinge pins, but preferably the formation is elongate to receive hinge pins at opposite ends in the mounting of the door on a door frame member. In this manner, a hinge formation may be provided conveniently, with a pleasing appearance.

Preferably the formation is afforded by a metal rolling operation, preferably involving the coiling of an edge margin of the door.

Preferably the door is produced by a method involving carrying out a forming operation on a double thickness of metal, e.g. on a portion spaced from the edges of the panel, said portion first being formed to afford a lip, the lip then being rolled to afford said hollow cylindrical formation.

In this manner a relatively robust hinge construction may readily be provided.

Another difficulty is encountered in the provision of a door of adequate rigidity, whilst maintaining a desirable aesthetic appearance.

According to a second aspect of this invention there is provided a door comprising a body member providing a body frame of the door and a first face panel, and an infill member adapted to be located within the body frame and providing a second face panel located in spaced relationship to the first face panel.

Preferably both the body member and the infill member are formed from single sheets of metal.

Preferably the infill member is formed to provided inwardly-turned lips extending alongside edge margins of the second face panel and at least one inwardly-directed re-entrant formation extending parallel to said edge margins and providing limited spring capability of the infill panel in a transverse direction, ensuring a tight fit of the lips against the body frame.

If desired, more than one such re-entrant formation may be provided.

Preferably the body member is formed to provide an unbroken face panel, the body frame being afforded as members of channel cross-section extending around said face panel.

Preferably the door in accordance with the second aspect of this invention is also provided with a hinge formation in accordance with the first aspect of this invention.

According to this invention there is also provided a locker assembly comprising a locker body defining a door frame, and a door hingedly mounted on the door frame, the door being in accordance with the first aspect of this invention and/or the second aspect of this invention.

There will now be given a detailed description, to be read with reference to the accompanying drawings of a door assembly which is the preferred embodiment of this invention, having been selected for the purposes of illustrating the invention by way of example.

In the accompanying drawings:

FIGURE 1 is a perspective view of part of the door assembly which is the preferred embodiment of the invention;

FIGURE 2 is an exploded perspective view of components of a door of said assembly; and

FIGURE 3 is a cross-section view of the door, taken on the line 3-3 of Figure 1.

The locker which is the preferred embodiment of the invention is of the kind typically found in changing rooms of sporting facilities, comprising a locker body 10, providing an interior cavity in which the possessions of a user of the locker may be located, and a door 12 hingedly mounted on the locker body, and which may be secured such as by the use of a key to protect items located within the locker.

The locker body comprises a door frame 14, to which upper and lower hinge pins 16 are located, conveniently by a blind rivetting operation. Mounted on the hinges 16 is a door, particularly illustrative of the invention.

The door comprises a body member 18 formed from a single sheet of metal to provide for peripheral frame members in the form of channels, 20a 20b, 20c, 20d, and a central face panel 22.

Provided along one side edge margin of the door is a hinge formation 24, being in the form of an elongate cylindrical formation, formed by a rolling operation and being of double thickness (see Figure 3). The hinge formation 24 may be located on the upper and lower hinge pins 16, allowing for convenient pivotal mounting of the door between open and closed position within the door frame

members 14.

The door also comprises an infill member 30, similarly formed from a single sheet of metal, formed to provide inwardly-extending lips 32a, 32b extending along opposite side edge margins, and a generally central inwardly-directed re-entrant formation 34 extending centrally between the lips 32a and 32b The infill member 30 thus provides a second face panel of the door, afforded by faces 36a and 36b on either side of the central fold-line 38 provided in the provision of the re-entrant formation 34. In this manner the limited spring capability of the infill member in the transverse direction is provided, enabling the infill panel to be fitted tightly within the frame members 20a, 20b, 20c and 20d of the body member of the door, holding the infill member in position whilst it is permanently secured by (conveniently) a spot welding operation.

As will be seen from Figure 3, the formation 34 engages the face panel 22, providing for a relatively robust construction.

In the preferred embodiment the infill member 30 is provided on the interior side of the door, presenting to the exterior the continuous front face 22, although of course if desired this may be reversed.

The features disclosed in the foregoing description, or the following claims, or the accompanying drawings, expressed in their specific forms or in the terms or means for performing the desired function, or a method or process for attaining the disclosed result, may, separately or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

Claims

1. A door (12) comprising a panel (22) of sheet metal, one side edge margin (22b) of the panel having been formed to provide a hollow cylindrical formation (24) to receive a hinge pin.

2. A door according to Claim 1 provided with two such hollow cylindrical formations (24), spaced apart to enable them to be engaged by two spaced hinge pins.

3. A door according to Claim 1 wherein the formation is elongate to receive hinge pins at opposite ends in the mounting of the door on a door frame member.

4. A door according to any one of the preceding claims wherein the formation (24) is afforded by a metal rolling operation, preferably involving the coiling of an edge margin of the door.

5. A method of producing a door according to any one of the preceding claims, involving carrying out a forming operation on a double thickness of metal, said portion being formed to afford a lip, and the lip then being rolled to afford said hollow cylindrical formation (24).

6. A door comprising a body member (18) providing a body frame (20) of the door and a first face panel (22), and an infill member (30) adapted to be located within the body frame and providing a second face panel (36) located in spaced relationship to the first face panel (22).

7. A door according to Claim 6 wherein both the body member and infill member (30) are formed from single sheets of metal.

8. A door according to one of Claims 6 and 7 wherein the infill member (30) is formed to provide inwardly turned lips (32a, 32b) extending along side edge margins of the second face panel (36) and at least one inwardly directed re-entrant formation (34) extending parallel to said edge margins and providing limited spring capability of the infill panel in a transverse direction, ensuring a tight-fit of the lips (32a, 32b) against the body frame.

9. A door according to any one of Claims 6 to 8 wherein more than one such re-entrant formation (34) is provided.

10. A door according to any one of Claims 6 to 9 wherein the body member (18) is formed to provide an unbroken face panel (22), the body frame (20) being afforded as members (20a, 20b, 20c, 20d) of channel cross-section extending around said face panel (22).

11. A locker assembly comprising a locker body (10) defining a door frame (14), and a door (12) hingedly mounted on the door frame, the door being in accordance with any one of the preceding claims.

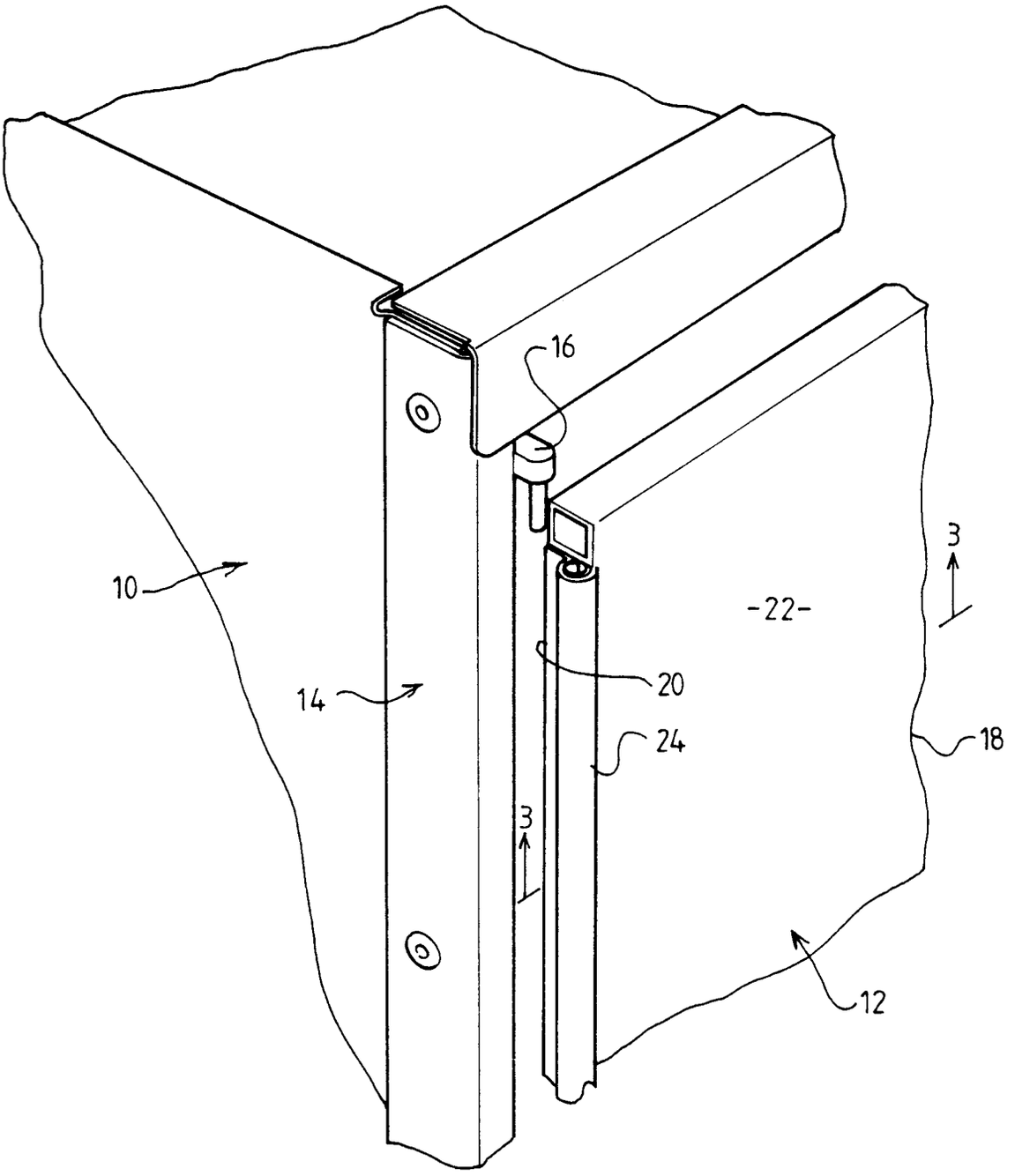

FIG 1

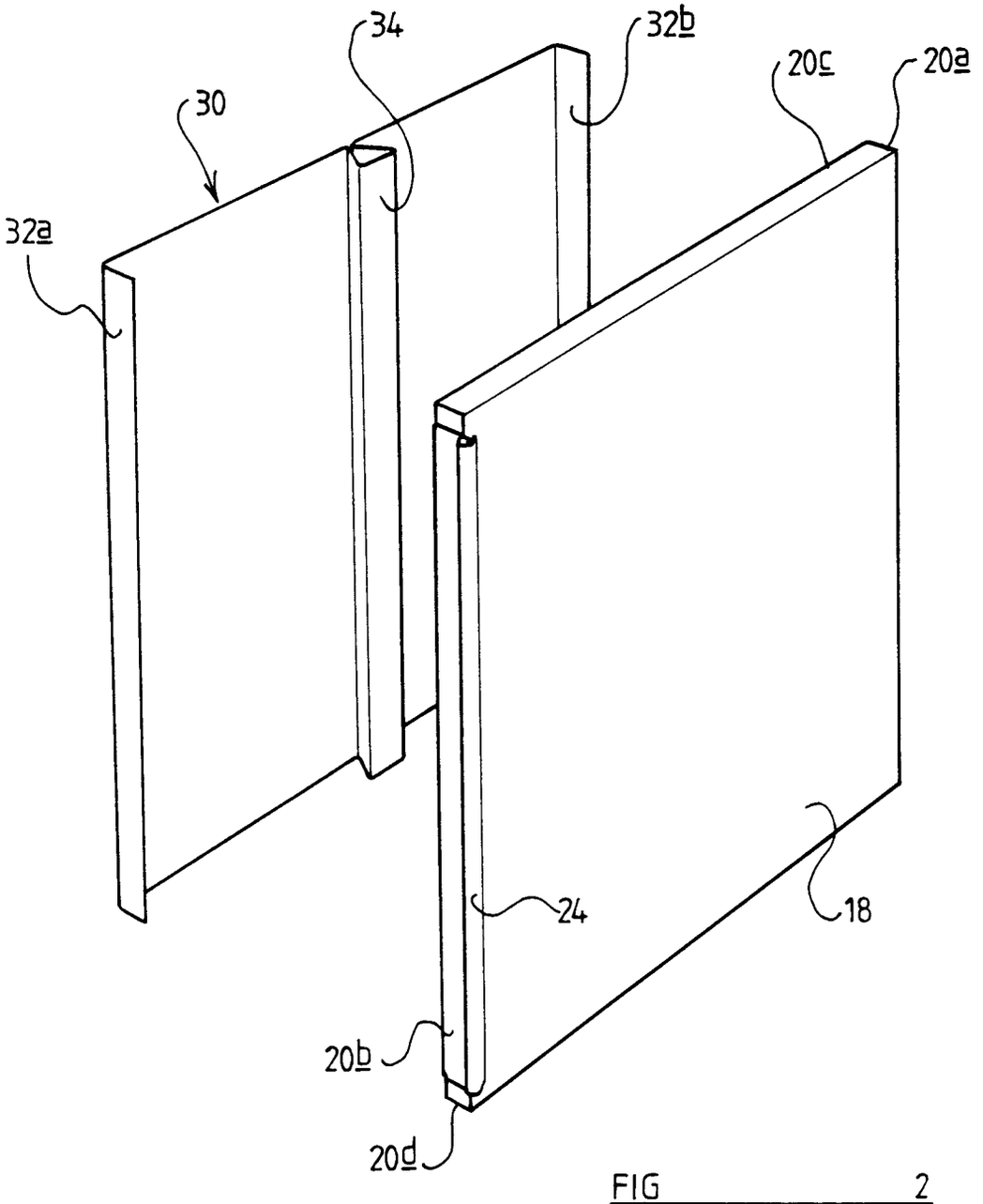

FIG 2

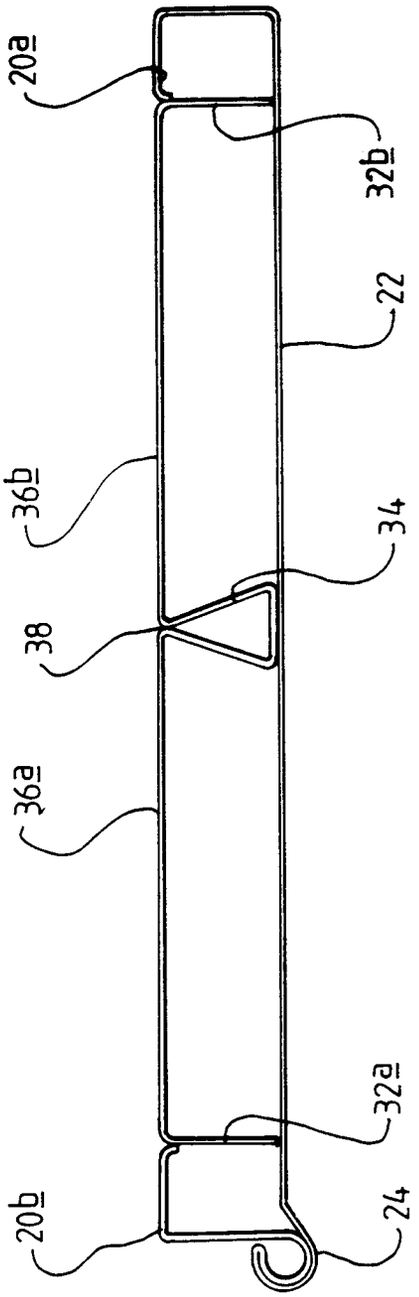

FIG 3

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EUROPEAN SEARCH REPORT

Application Number
EP 92 10 6869

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X Y	FR-A-822 713 (L'INVULNERABILE) * the whole document * ---	1,4 2,3	E06B3/82 E05D5/14
X	EP-A-0 392 700 (WALLACE MCDOWALL LTD.) * the whole document * ---	6,7,10, 11	
Y	FR-A-2 088 591 (MISCHLER FERMETURES) * page 2, line 35 - page 4, line 4; figures * ---	2	
Y	DE-B-2 913 914 (BAUS) * column 3, line 3 - line 24; figures 1,3 * ---	3	
A	FR-A-2 008 537 (FILUMA DOOR COMPANY PTY. LTD.) * page 2, line 31 - page 3, line 36; figures 1,3,4 * ---	1,2,4	
A	US-A-4 436 136 (DOWNEY, JR.) * column 3, line 8 - column 4, line 47; figures 1,2,4 * ---	5,6,8	TECHNICAL FIELDS SEARCHED (Int. Cl.5) E06B E05D
A	FR-A-2 415 189 (S.A. LE BIHAN & LE MOUEL ET S.A. FLIP) * page 3, line 13 - line 26; figures * -----	8,9	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	06 OCTOBER 1992	BLOMMAERT S.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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