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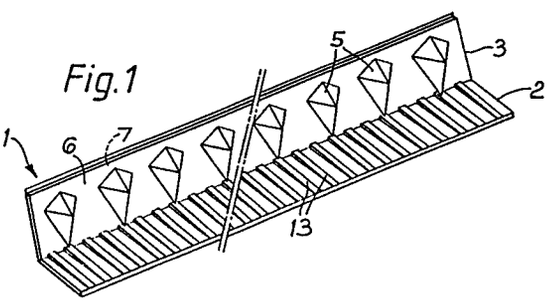
(54) **Cavity tray.**

(57) A cavity tray (1) for use in a wall structure having first and second spaced walls defining a cavity therebetween. The cavity tray (1) comprises a cavity member adapted to extend into the cavity and adapted to collect moisture falling in the cavity. Locating (5) means is provided which is adapted to locate the cavity tray (1) in an overlapping relationship with an adjacent cavity tray. The cavity tray (1) is intended to collect water falling in the cavity.

Fig.1



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Description

CAVITY TRAY

This invention relates to a cavity tray.

In cavity wall structures comprising first and second spaced walls it is common for moisture to run down the outer of the two walls. It is desirable to take steps to prevent the moisture running down this wall. It is known to provide a cavity tray to collect the moisture.

The cavity tray can be in the form of a lintel, in which case it may act as a structural support member, as well as a water collector.

In GB-A-2,142,359 there is described a cavity tray comprising a base which is disposed in the outer wall and a rear wall extending upwardly into engagement with the inner wall.

Various types of lintel are described in GB-A-2,103,680, GB-A-2,118,585, GB-A-2,025,789, US-A-2,245,965 and US-A-2,292,459.

When cavity trays are installed in a roof structure it is often desirable for them to be arranged in an overlapping relationship. If this overlapping relationship is not provided then unwanted moisture may run further down the outer wall.

However, in practise, the cavity trays may slip about during installation so that there is either no overlap, or so that the overlap is unnecessarily large.

According to a first aspect of the present invention there is provided a cavity tray for use in a wall structure having first and second spaced walls defining a cavity therebetween, said tray comprising a cavity member adapted to extend into the cavity and adapted to collect moisture falling in said cavity, and locating means adapted to locate the cavity tray in an overlapping relationship with an adjacent cavity tray.

Advantageously the locating means also serves as retaining means to retain the cavity tray in said overlapping relationship.

Advantageously also the locating means serves to restrict sliding movement in at least one direction between adjacent cavity trays.

Preferably the locating means is adapted to assist the positioning of a row of bricks on top of the cavity member.

Desirably the locating means comprises at least one locating formation provided on the cavity member of the cavity tray, and adapted to cooperate with a respective locating formation on the adjacent cavity tray. The locating formations may be adapted to interlock with one another. Preferably the locating means is adapted to permit the cavity tray to be located in a plurality of different overlapping positions on the adjacent tray. This may be achieved by providing a plurality of locating formations at different positions on the cavity member.

The cavity member may comprise a base portion and a rear wall portion secured to the base portion; the rear wall portion may be arranged at an obtuse angle to the base portion. The base portion may be adapted to be embedded in the first wall, and the rear wall portion may be adapted to extend into the cavity; the base portion may also extend partially into the cavity.

The cavity member may also include a side wall portion arranged at one end of the base portion; the side wall portion may be arranged at an angle of substantially 90° to the base portion. In addition, a further side wall portion may be provided at the other end of the base portion. The or each side wall portion is preferably secured to the rear wall portion.

Preferably the or each locating formation is provided on the rear wall portion, and more preferably the or each locating formation is provided on both the rear wall portion and the base portion.

Preferably the base portion is configured to restrict the flow of moisture over the ends thereof, particularly in the region where the cavity tray overlaps the adjacent tray. To this end the base portion may be provided with formations in the form of ribs or corrugations; the ribs or corrugations may run substantially transverse to the longitudinal axis of the base portion.

The locating formations may be configured so that they form a projection on one face of the cavity member, and form a recess on the opposite face of the cavity member. This arrangement enables the cavity tray to be disposed in an overlapping relationship with an adjacent tray. The cavity tray may be disposed in an overlapping relationship with two adjacent cavity trays, one on each side.

Preferably, when one or more locating formations are provided on the base portion, these comprise the aforementioned ribs or corrugations. Desirably the or each locating formation on the base portion is aligned with the or each locating formation on the rear wall portion so that the locating means on the adjacent cavity tray can interlock with the locating means on both the rear wall portion and the base portion of the cavity tray.

The cavity tray may be formed of a plastics material, and may be vacuum formed, or injection moulded.

The locating formations can also act as strengthening formations to prevent the material of the rear wall portion and/or the base portion from curling. This is especially important when the cavity tray comprises a vacuum formed plastics material.

The cavity trays according to the invention may be classed in at least four different types.

The first type is known as horizontal cavity trays; these are especially useful at the junction between vertical cavity walls and flat roof structures.

The second type is known as parapet cavity trays; these are especially useful in parapet wall structures.

The third type is known as lintel cavity trays; these are especially useful above window and door openings and above canopies.

The fourth type is known as abutment cavity trays, and these are especially useful at the junction between vertical cavity walls and pitched roof structures.

The locating means is particularly useful because it enables a desired amount of overlap to be

provided between adjacent cavity trays. The law of certain countries specifies a minimum overlap, so the locating means enables this overlap to be provided automatically.

According to a second aspect of the invention there is provided a cavity tray for use in a wall structure having first and second spaced walls defining a cavity therebetween, said tray comprising a cavity member adapted to extend into the cavity and adapted to collect moisture falling in said cavity, and locating means adapted to assist the positioning of a row of bricks on top of the cavity member.

The cavity tray according to the second aspect of the invention may be provided with one or more of the features of the cavity tray according to the first aspect of the invention.

According to a third aspect of the invention there is provided a cavity tray for use in a wall structure having first and second spaced walls defining a cavity therebetween, said tray comprising a cavity member adapted to extend into the cavity between the first and second walls and to collect moisture falling in the cavity, and drainage means adapted to drain moisture from the cavity member through the first wall.

The cavity tray according to the third aspect of the invention may include one or more features of the cavity tray according to the first or second aspects of the invention.

Advantageously the drainage means is integral with the cavity member.

Advantageously also the drainage means comprises at least one channel provided in the cavity member.

Preferably overflow means is provided to permit excess moisture to be drained onto an adjacent cavity tray. Excess moisture can arise, for example, when the level of moisture is too great to be accommodated by the drainage means alone.

Desirably the drainage channel is provided with a cover for covering at least part of the length of the channel. This helps to prevent the channel from becoming blocked. The cover may be pivotally mounted so that it can pivot between a position in which it covers the drainage channel and a position it does not cover the drainage channel.

If desired the cavity member may extend across the cavity between the first and second walls.

The cavity member may include a base portion which is adapted to be embedded in the first wall. The cavity member may also include a rear wall portion which is secured to the base portion; preferably the rear wall portion is secured to the base portion at an obtuse angle thereto. The rear wall portion may engage the second wall, so that the cavity member extends across the cavity.

Preferably the channel is provided in the base portion. The base portion may also be provided with at least one longitudinally extending elongate formation. The or each formation serves the purpose of helping to secure the base portion to the first wall, and of directing moisture to the drainage channel.

The drainage channel may include a first portion extending substantially transverse to the longitudinal axis of the base portion, and a second portion extending substantially parallel to the longitudinal axis of the base portion. The second portion preferably extends adjacent to where the rear wall portion is secured to the base portion. Preferably the second portion is disposed at an angle to the plane of the base portion; desirably this angle is between 1° and 3°.

The first portion of the drainage channel may be adapted to extend through the first wall, so that the moisture is carried from within the cavity to outside the first wall.

The cavity tray member may also include a side wall portion which is secured to the base portion and is also adapted to be embedded in the first wall. Preferably the side wall portion is disposed at an angle of substantially 90° to the base portion. The side wall portion may also be secured to the rear wall portion.

According to a further aspect of the invention there is provided a cavity tray for use in a wall structure having first and second spaced walls defining a cavity therebetween, said tray comprising a cavity member adapted to extend into the cavity and adapted to collect moisture falling in said cavity, and at least one strengthening formation provided on the cavity member to strengthen the cavity member.

Advantageously the strengthening formation comprises a locating formation as described above.

Reference is now made to the accompanying drawings, in which :-

Figures 1 to 8 are perspective views of embodiments of horizontal cavity trays according to the invention;

Figures 9 to 16 are perspective views of embodiments of parapet cavity trays according to the invention;

Figures 17 to 19 are perspective views of embodiments of lintel cavity trays according to the invention;

Figures 20 to 22 are perspective views of embodiments of abutment cavity trays according to the invention;

Figures 23 to 28 show various embodiments of horizontal cavity trays according to the invention in position in a wall structure;

Figures 29 to 35 show various embodiments of parapet cavity trays according to the invention in position in a wall structure;

Figure 36 shows an embodiment of lintel cavity tray according to the invention in position in a wall structure;

Figure 37 shows an embodiment of abutment cavity tray according to the invention in position in a wall structure;

Figure 38 shows two adjacent horizontal cavity trays in overlapping relationship;

Figure 39 shows a continuous stepped cavity tray according to the invention; and

Figure 40 shows a cavity tray according to the invention for use in refurbishment work.

In Figure 1 a straight horizontal cavity tray generally designated 1 comprises a cavity member which includes a base portion 2 and a rear wall portion 3.

The rear wall portion 3 is secured to the base portion 2 along a rearward edge thereof, and is disposed at an obtuse angle thereto.

Locating means in the form of a plurality of formations 5 are disposed upon the rear wall portion 3. The locating formations 5 serve to locate an adjacent cavity tray in overlapping relationship with the cavity tay 1.

The rear wall portion 3 comprises two opposing surfaces 6 and 7. The formation 5 projects out of the plane of the surface 6, and forms a recess in the surface 7.

A plurality of formations in the form of ribs 13 are provided on the base portion 2. The ribs 13 help to channel moisture to the front of the tray and help to prevent moisture from flowing over the ends of the tray. The ribs 13 may also form part of the locating means and may be arranged to engage corresponding recesses (not shown) provided in the bottom surface of the base portion 2. Also the ribs 13 help to key the cavity tray 1 into the mortar.

Many of the parts shown in Figures 2 to 8 are similar to the parts shown in Figure 1 and like parts have been designated with like reference numerals.

Figure 2 illustrates a horizontal cavity tray 14 for use at an exterior corner of a wall, whilst Figure 3 illustrates a horizontal cavity tray 15 for use at an interior corner of a wall.

Figure 4 illustrates a stepped horizontal cavity tray 16 in which the steps rise to the left, whilst Figure 5 illustrates a stepped horizontal cavity tray 17 in which the steps rise to the right.

Figures 6 and 7 illustrate right and left end horizontal cavity trays 18 and 19 respectively. The end cavity trays 18 and 19 each include a side wall portion 4 secured to the base portion 2 and disposed at an angle of substantially 90° to the base portion. In addition the side wall portions 4 are secured to the rear wall portions 3.

Figure 8 illustrates a joining cavity tray 20 for joining two other horizontal cavity trays.

Figure 9 illustrates a straight parapet cavity tray 21. Many of the parts of the tray 21 are similar to those shown in Figures 1 to 8 and like parts have been designated with like reference numerals.

The tray 21 further includes a top portion 22 which extends along the upper edge of the rear wall portion 3. The top portion 22 is also provided with the ribs 13.

Figures 10 to 16 illustrate parapet cavity trays similar to Figure 9 and like parts have been designated with like reference numerals.

Figure 10 illustrates an interior parapet cavity tray 23, which can be inverted to produce an exterior parapet cavity tray, as shown in Figure 11. When the tray 23 is inverted the top portion 22 is transformed into the base portion 2 and vice versa.

Figure 12 illustrates a stepped parapet cavity tray 24 in which the steps rise to the right. This can be inverted to produce a stepped parapet cavity tray 24 in which the steps rise to the left, as shown in Figure 13. Again, when the tray 24 is inverted the top portion 22 is transformed into the base portion and vice versa.

Figures 14 and 15 illustrate right and left end parapet cavity trays 25 and 26 respectively.

Figure 16 illustrates a joining parapet cavity tray 40 for joining two other parapet cavity trays.

Figures 17 to 19 illustrate three embodiments of lintel cavity trays designated 27, 28 and 29 respectively. Each of the lintel cavity trays 27, 28 and 29 comprises a base portion 30 provided with ribs 31 which are similar to the ribs 13. A rear wall portion 32 is provided along the rear edge of the base portion 30. A side wall portion 33 is secured at one end of the tray 27, 28 or 29 to both the base portion 30 and the rear wall portion 32. A further side wall portion (not shown) may be provided at the other end of the tray 27, 28 or 29.

The rear wall portion 32 comprises a first part 34 which extends substantially at right angles from the base portion 30, and a second part 35 which is disposed at an angle to the first part 34.

Locating means in the form of formations 36 are provided in the second part 35. The formations 36 are similar to the formations 5.

The principal differences between the trays 27, 28 and 29 resides in the length of the first part 34.

Figure 20 shows one embodiment of abutment cavity tray 101. The tray 101 comprises a cavity member which includes a base portion 102, a rear wall portion 103 and a side wall portion 104.

The rear wall portion 103 is secured to the base portion 102 and is disposed at an obtuse angle thereto. The side wall portion 104 is secured to the base portion 102 and to the rear wall portion 103; the side wall portion 104 is disposed at substantially 90° to the base portion 102.

A plurality of elongate formations 105 are provided on the side wall portion 104 and the base portion 102, and extend substantially parallel to the longitudinal axis of the base portions 102. The formations 105 assist with securing the base portion 102 and the side wall portion 104 to a wall.

The front of the base portion 102 may be provided with a rebate (not shown) which serves for securing lead flashing to the cavity tray 101.

The cavity tray 101 also includes drainage means comprising a drainage channel 107 provided in the base portion 102. The drainage channel 107 includes a first portion 108 and a second portion 109 extending substantially transverse thereto. The first portion 108 of the drainage channel 107 extends substantially transverse to the longitudinal axis of the base portion 102, while the second portion 109 of the drainage channel 107 extends substantially parallel to the longitudinal axis of the base portion 102, and is disposed adjacent to the rear wall portion 103. The second portion 109 is arranged at a small acute angle to the plane of the base portion 102.

A cover 111 is provided for covering the first portion 108 of the drainage channel 107; the cover 111 prevents the first portion 108 of the channel 107 from becoming blocked up, for example, with mortar. The cover 111 is connected to the base portion 102 via a hinge 112 which enables the cover to pivot between a position in which it does not cover the first portion 108 (as shown in the drawings), and a position in which it does cover the first portion 108 (not shown). The cover 111 extends

slightly beyond the forward edge of the base portion 102. The cover 111 is slightly larger than the thickness of the first wall.

Overflow means in the form of an overflow 113 is provided adjacent the intersection of the first portion 108 and the second portion 109 of the drainage channel 107. The overflow 113 allows the drainage of excess moisture, when the drainage channel 107 can accommodate no further moisture. The overflow means also includes a drip channel 114 for collecting moisture falling over the overflow 113.

It will be appreciated that the side wall portion 104 can be provided at the opposite end of the base portion 102 to that shown in Figure 5.

The rear wall portion 103 is provided with a strengthening formation 115 disposed at the end remote from the side wall 104.

The base portion 102 is provided with depressions 116 which extend to the level of the first channel portion 108; the depressions 116 form feet for the cavity tray 101.

Further embodiments of abutment cavity tray are shown in Figure 21. There are two types of tray shown in this Figure: one type are intermediate tray 200, and the other type are end trays 201. Some of the trays 200 and 201 are shown only in outline.

The trays 200 are similar to the trays 101 and like parts have been designated with like reference numerals. The principal difference is the provision of locating means in the form of formations 202 provided on the rear wall portion 103. The formations 202 are similar to the formations 5.

The trays 201 are also similar to the trays 101 and like parts are designated with like reference numerals. The principal difference is the provision of formations 202 (as in the trays 201), and also the provision of another side wall portion 104. In addition, the drainage means is disposed substantially centrally of the base portion 102.

Another embodiment of abutment cavity tray is designated 210 in Figure 22. The abutment tray 210 comprises a base portion 211 from which a rear wall portion 212 extends at an obtuse angle.

Side wall 213 and 214 are provided at opposite ends of the tray 210. The height of the side walls 213 and 214 is less than the height of the rear wall portion 212.

Ribs 215 (similar to ribs 13) are provided on the base portions 211 and formations 216 (similar to formations 5) are provided on the rear wall portion 212.

The tray 210 can be used as an end abutment cavity tray. However it also has other uses. The tray 210 can be cut along dotted line B to provide a right and left hand short abutment cavity tray. The tray 210 can be cut along dotted line A to provide a medium length abutment cavity tray. The side wall 214 can be removed in order to provide a long abutment cavity tray. Thus, only one moulding is rquired to produce several different abutment cavity trays.

In Figures 12 to 36 various embodiments of the horizontal, parapet and lintel cavity trays are shown positioned in a wall structure comprising a first wall 50 and a second wall 51.

In Figure 23 the location formations 5 form an abutment against which the bricks of the wall 50 can be placed during the construction thereof. This helps with the correct positioning of the bricks in the wall 50. The locating formations of the other embodiments of cavity trays can also perform this function.

Figure 37 shows a plurality of abutment cavity trays 200 and 201 in a gable abutment of a pitched roof structure 52.

Figure 38 shows the interior horizontal cavity tray 15 in overlapping relationship with the straight horizontal cavity tray 1, and slightly separated from one another.

Figure 39 shows three continuous stepped cavity trays 300, 301 and 302, each positioned on a wall 306. Each tray 300, 301 and 302 comprises a base portion 303 having a rear wall portion 304 extending at an obtuse angle thereto.

Formations 305 (similar to formations 5) are provided on the rear wall portion 304. Ribs (not shown), which are similar to the ribs 13 can be provided on the base portion 303. The trays 300, 301 and 302 are arranged at angles of about 20°, 30° and 45° respectively to the horizontal.

Figure 40 shows a horizontal cavity tray 400 for use in refurbishment work. The tray comprises a base portion 401 and a rear wall portion 402 extending at an obtuse angle thereto. The base portion 401 is provided with ribs 403, similar to the ribs 13, and the rear wall portion is provided with formations 404, similar to the formations 5. the length of the tray 400 is typically two and one half bricks.

The tray 400 is fitted into a course of bricks in an existing wall in the following manner. Firstly, three adjacent bricks in the course are removed and the tray 400 is inserted in the course. Two bricks are then placed back in the course on the tray 400, and a further two bricks are removed. Another tray 400 is then placed in the course next to the first tray 400. This procedure can be repeated until the entire course has been fitted with the cavity trays 400.

Claims

1. A cavity tray for use in a wall structure having first and second spaced walls defining a cavity therebetween, said tray comprising a cavity member adapted to extend into the cavity and adapted to collect moisture falling in said cavity, and locating means adapted to locate the cavity tray in an overlapping relationship with an adjacent cavity tray.

2. A cavity tray according to Claim 1, wherein the locating means also serves as retaining means to retain the cavity trays in said overlapping relationship.

3. A cavity tray according to Claim 1 or 2, wherein the locating means is adapted to assist the positioning of a row of bricks on top of the cavity member.

4. A cavity tray according to any preceding claim, wherein the locating means comprises at

least one locating formation on the cavity tray adapted to cooperate with a respective locating formation on the adjacent cavity tray.

5. A cavity tray according to Claim 4, wherein the or each locating formation forms a projection on one face of the cavity tray and forms a recess on the opposite face of the cavity tray.

6. A cavity tray according to any preceding claim, wherein the cavity member comprises a base portion adapted to be embedded in the first wall, and a rear wall portion adapted to extend into the cavity, the rear wall portion being arranged at an obtuse angle to the base portion.

7. A cavity tray according to Claim 5, wherein the or each locating formation is provided on the rear wall portion, and/or on the base portion.

8. A cavity tray according to Claim 7, wherein the or each locating formation on the rear wall portion is in alignment with the or each locating formation on the base portion.

9. A cavity tray according to Claim 6, 7 or 8, wherein the base portion is configured to restrict the flow of moisture over the ends thereof by the provision of ribs or corrugations at the ends of the base portion.

10. A cavity tray according to Claim 9, wherein said ribs or corrugations act as part of the locating means.

Fig.1

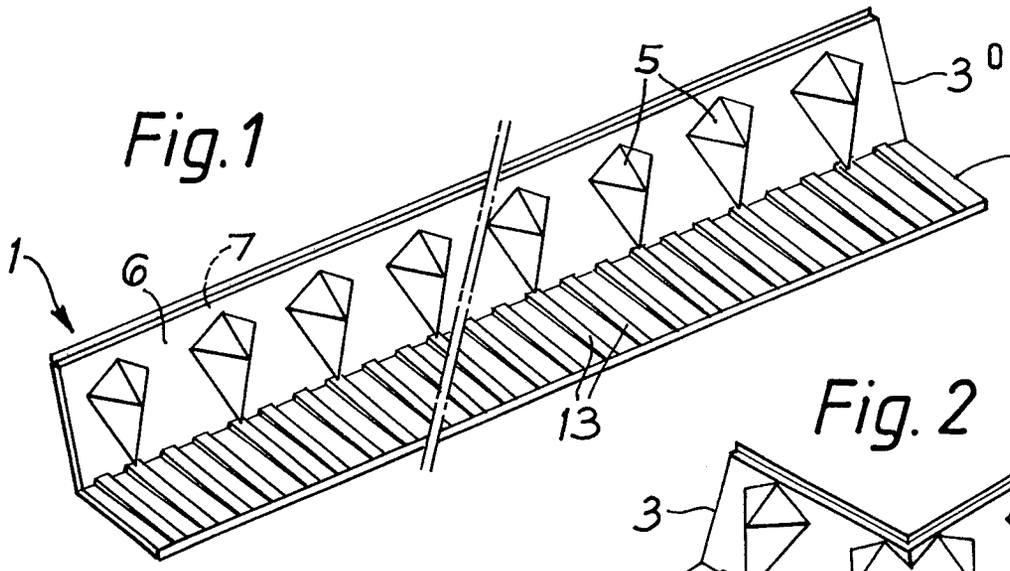
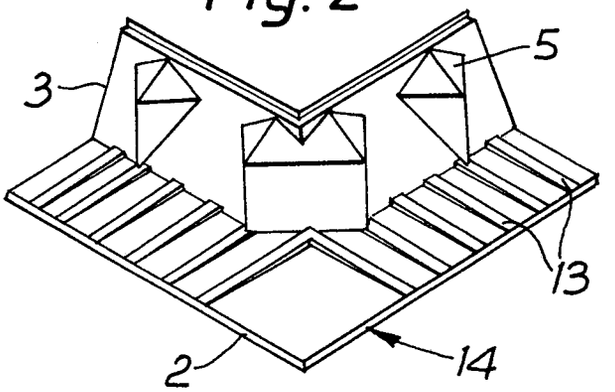


Fig. 2



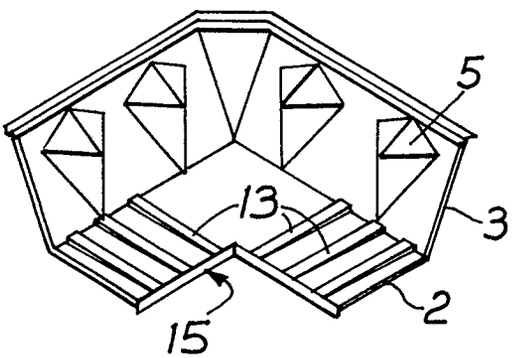


Fig. 3

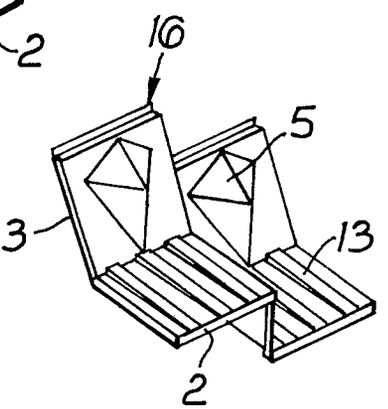


Fig. 4

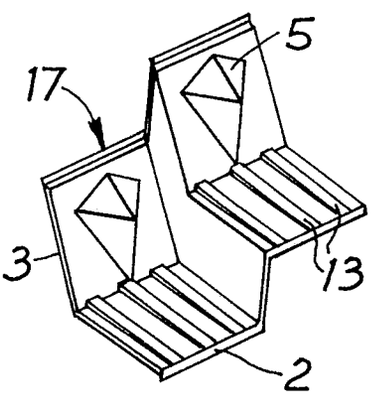


Fig. 5

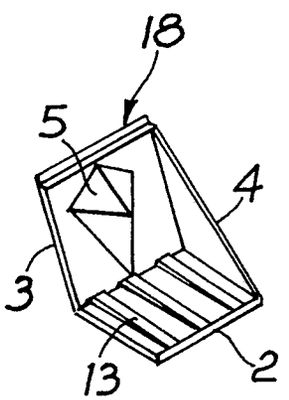


Fig. 6

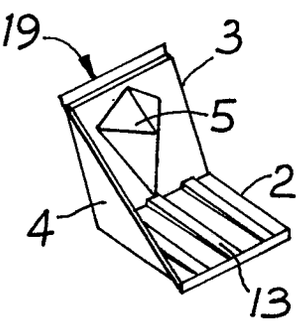


Fig. 7

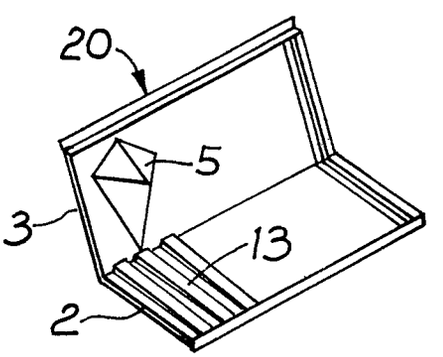


Fig. 8

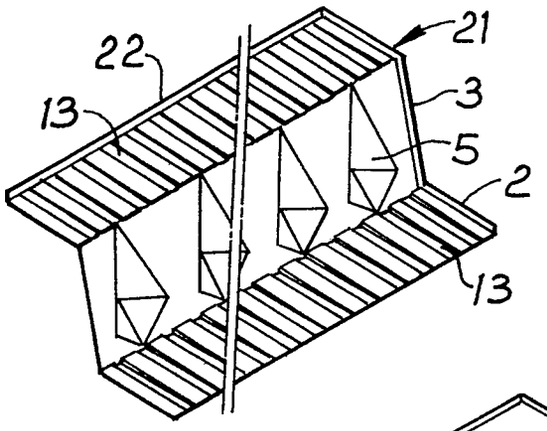


Fig. 9

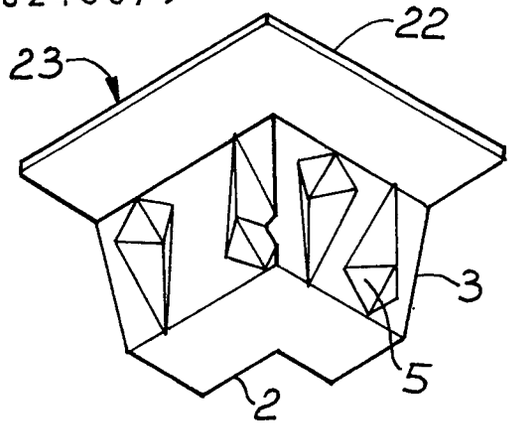


Fig. 10

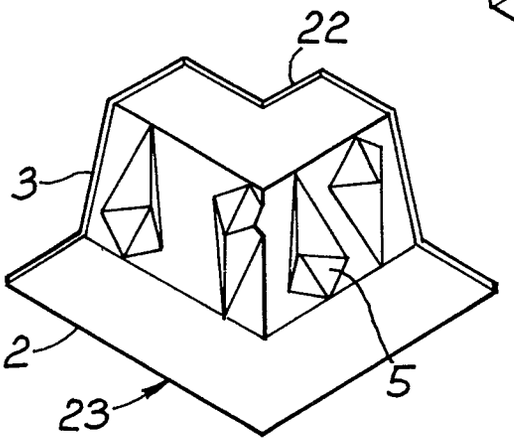


Fig. 11

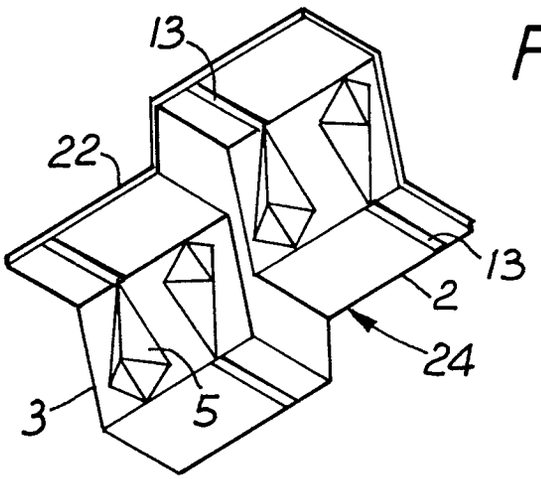


Fig. 12

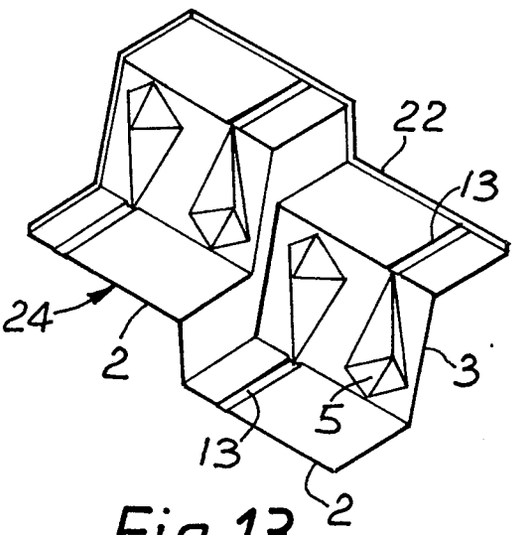


Fig. 13

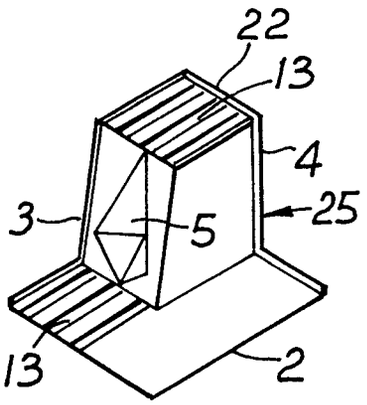


Fig. 14

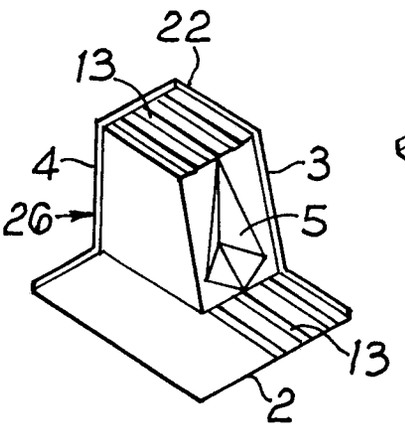


Fig. 15

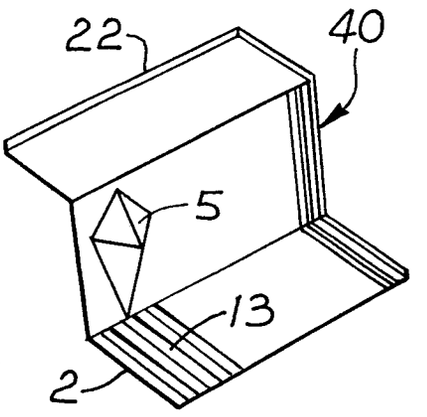


Fig. 16

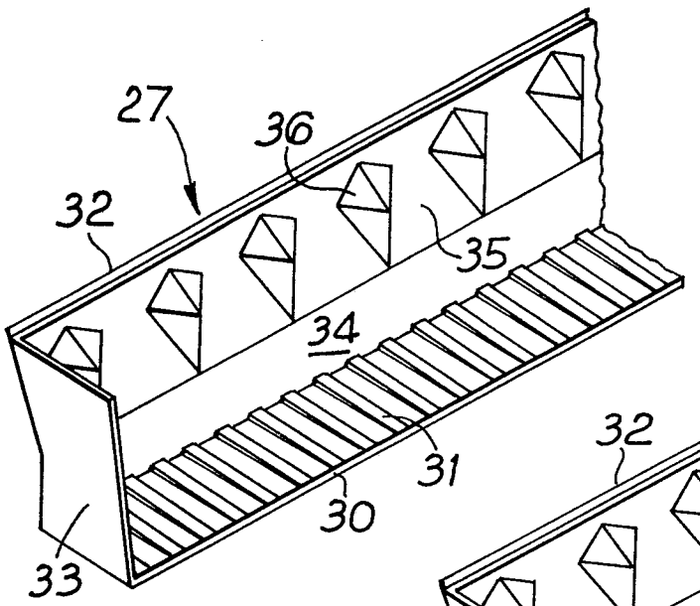


Fig. 17

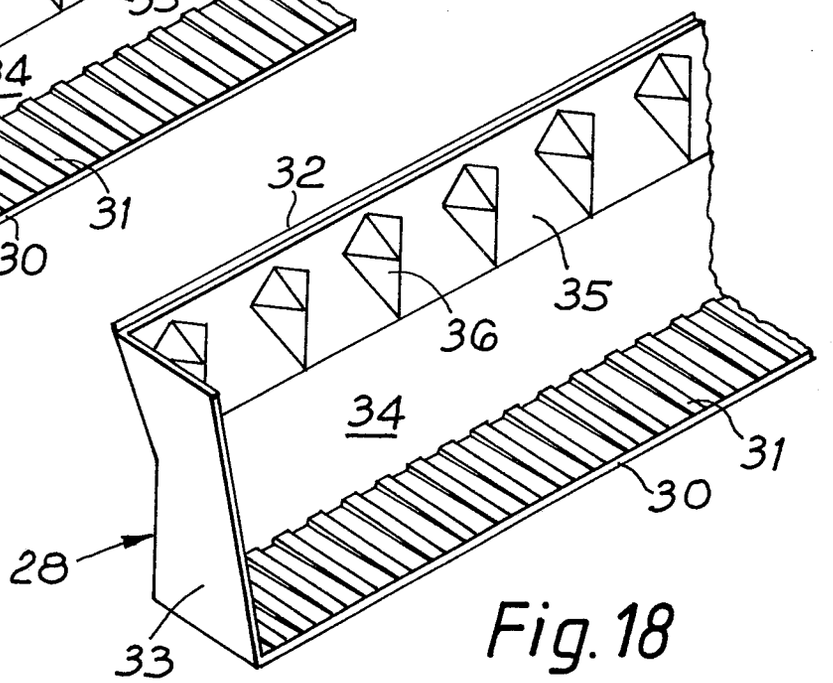
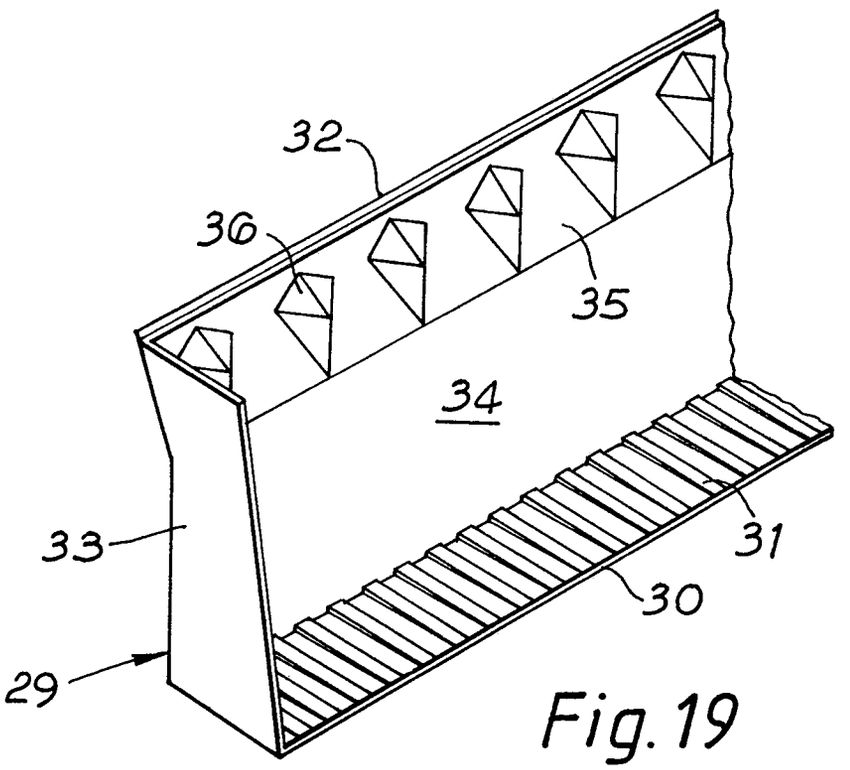


Fig. 18



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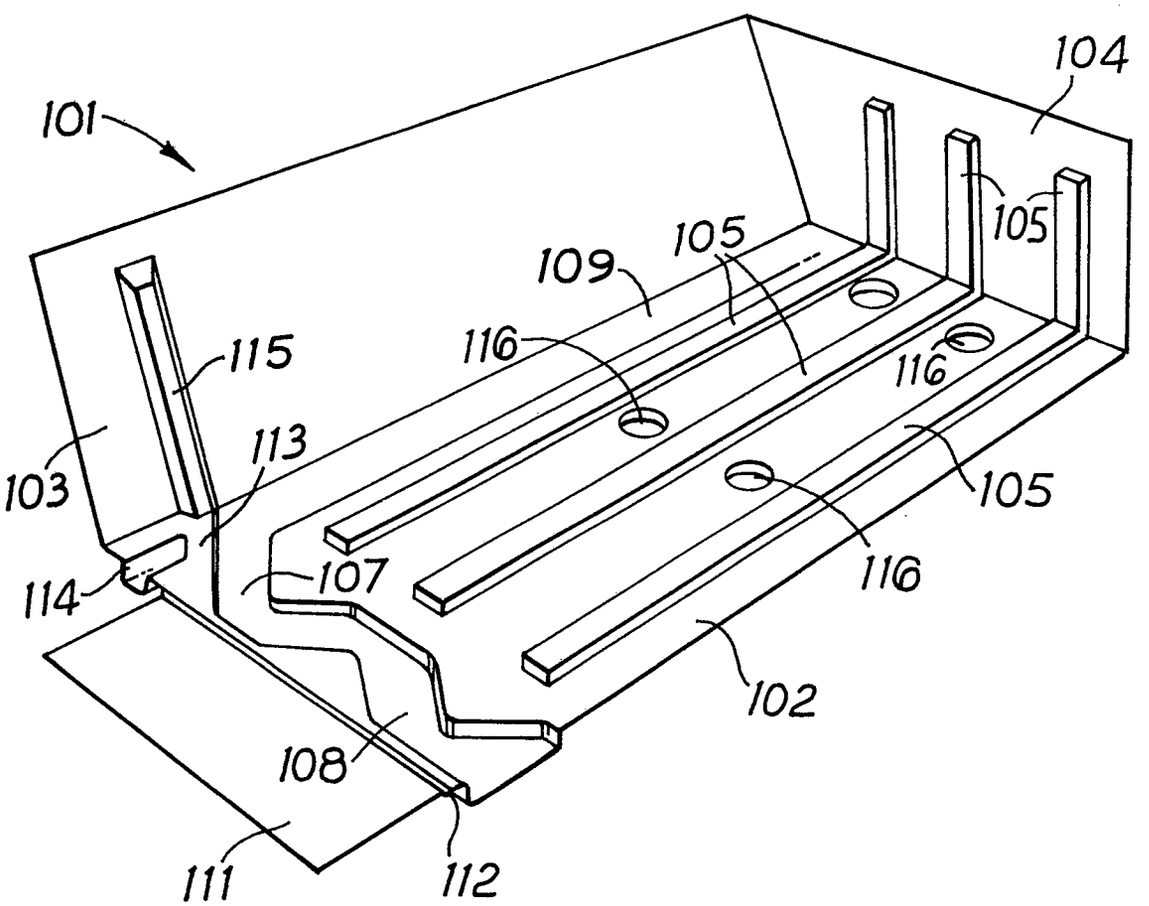
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Fig. 20

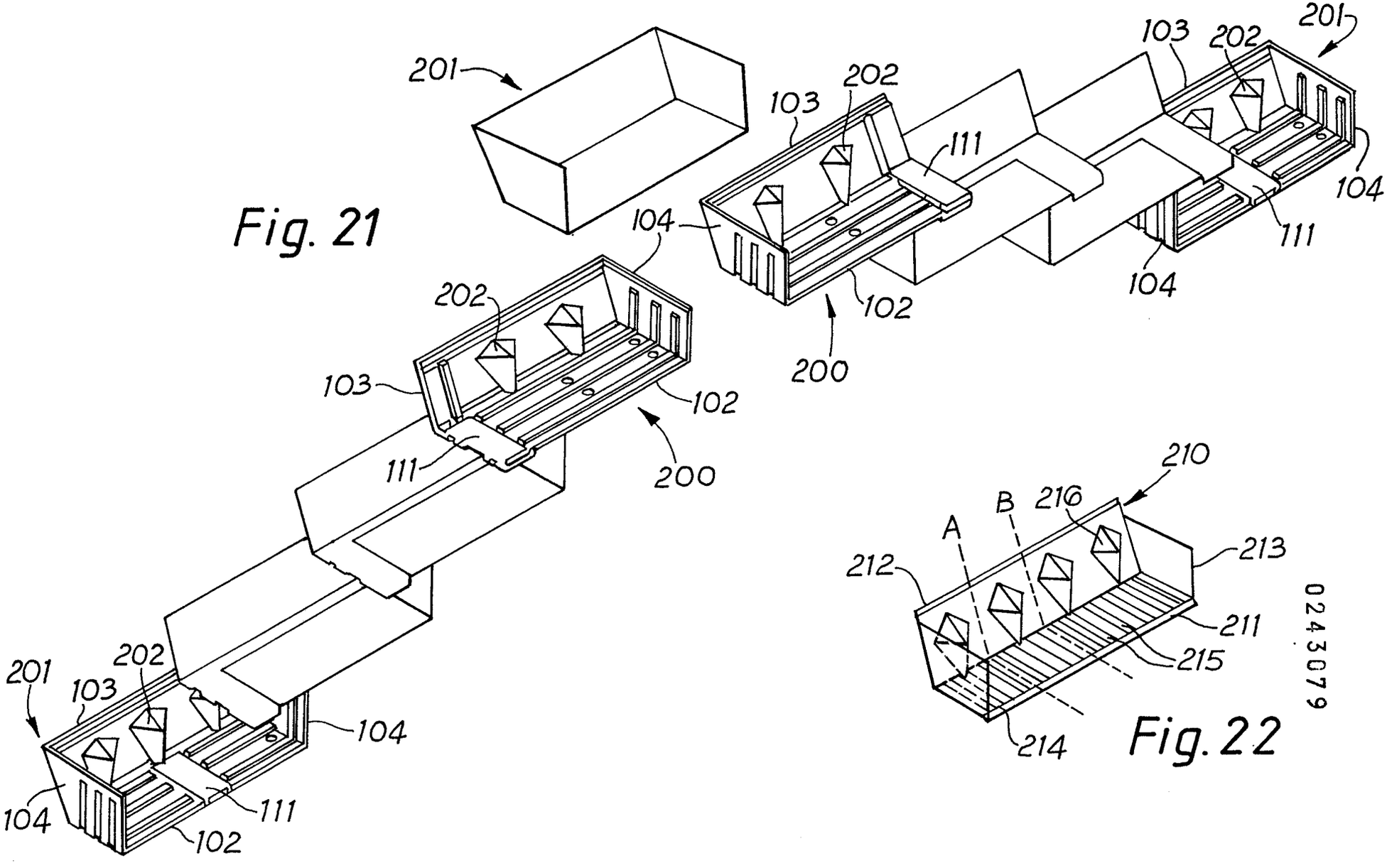

Fig. 21

Fig. 22

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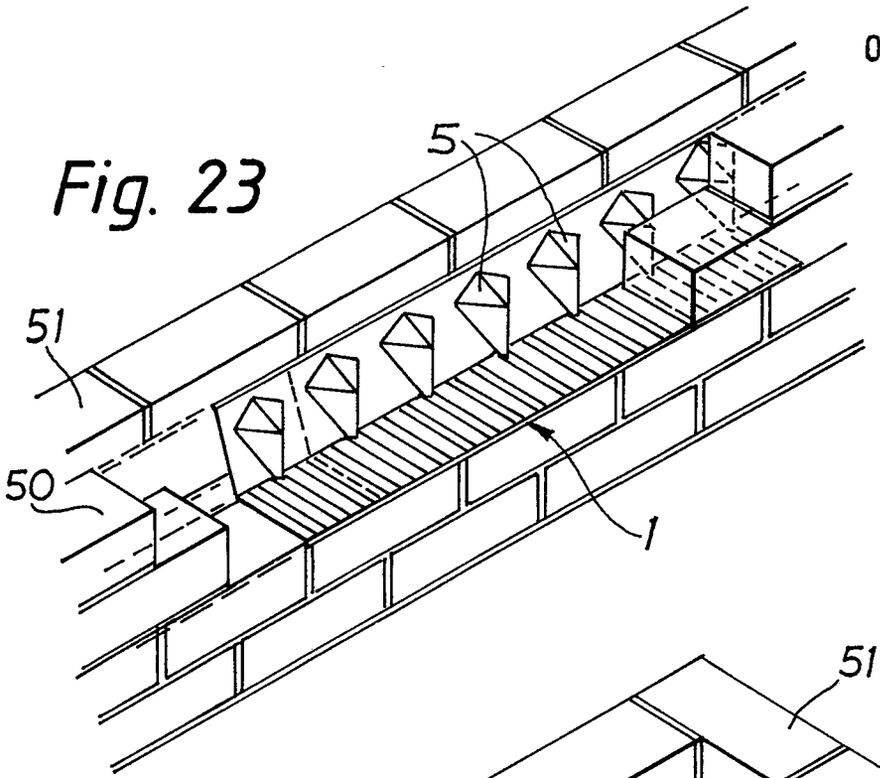
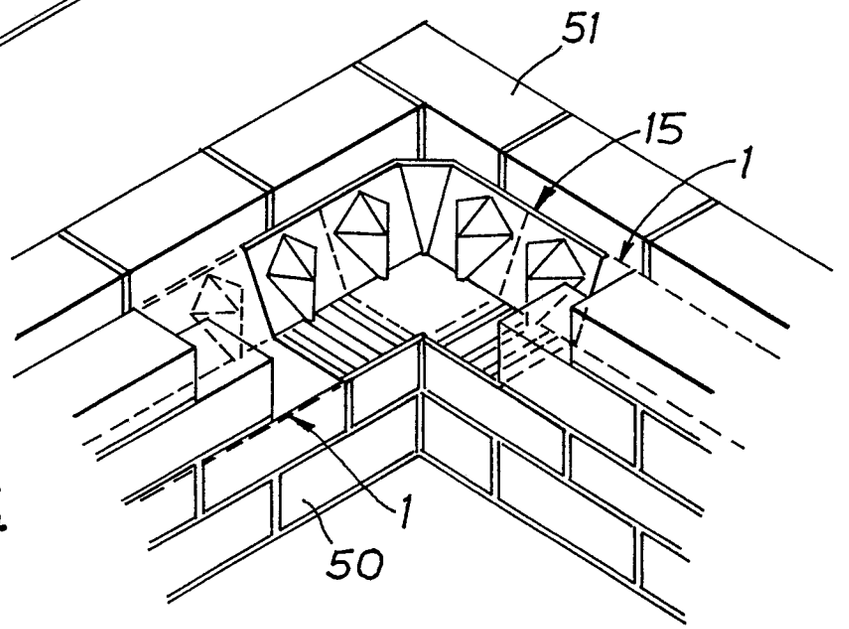
Fig. 23





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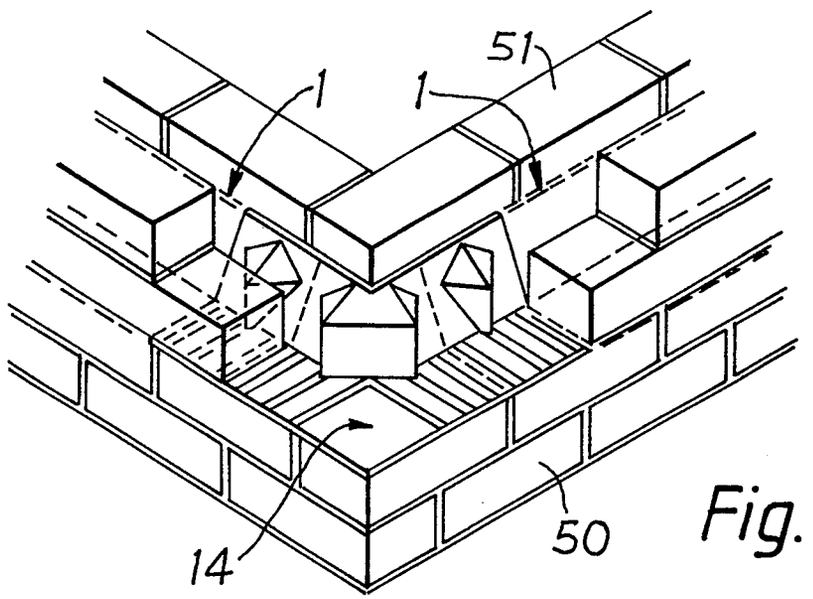
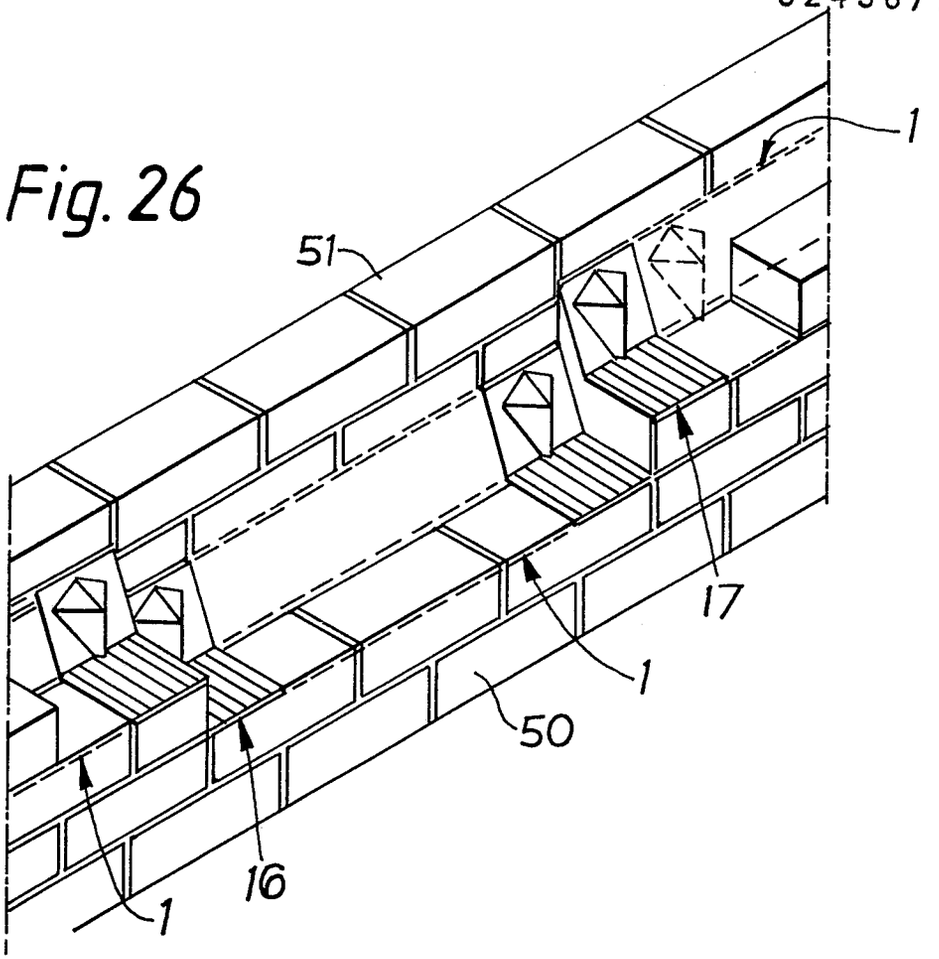


Fig. 25

Fig. 26



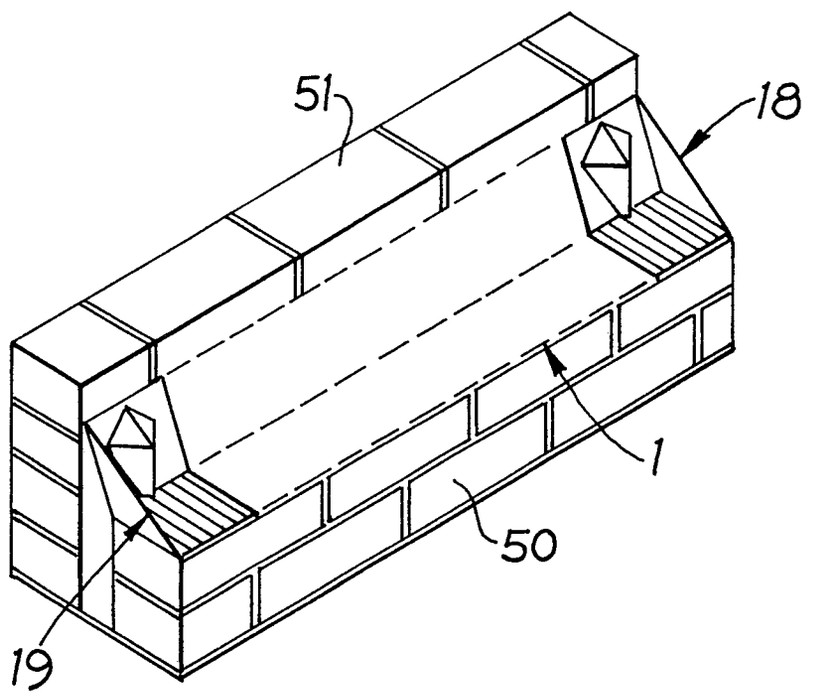


Fig. 27

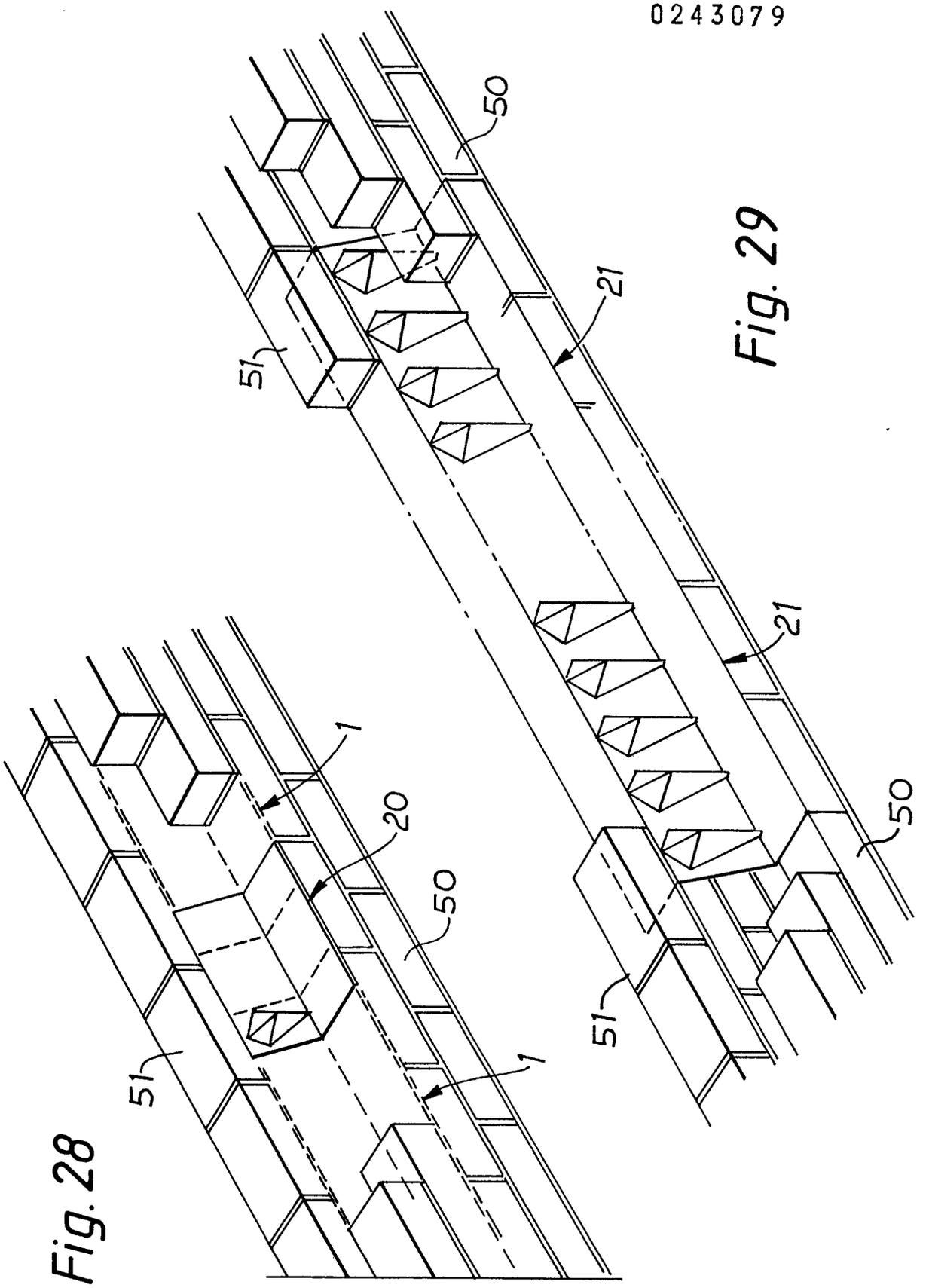


Fig. 28

Fig. 29

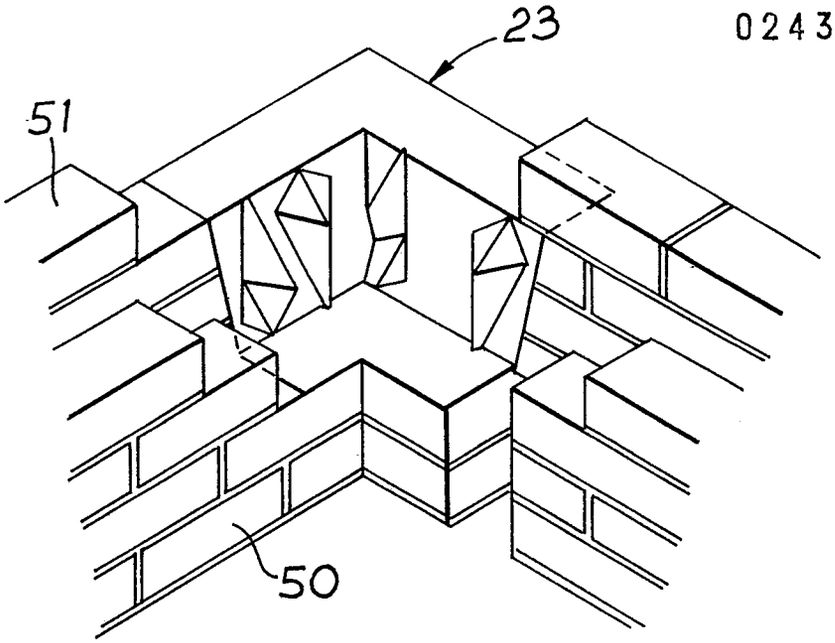
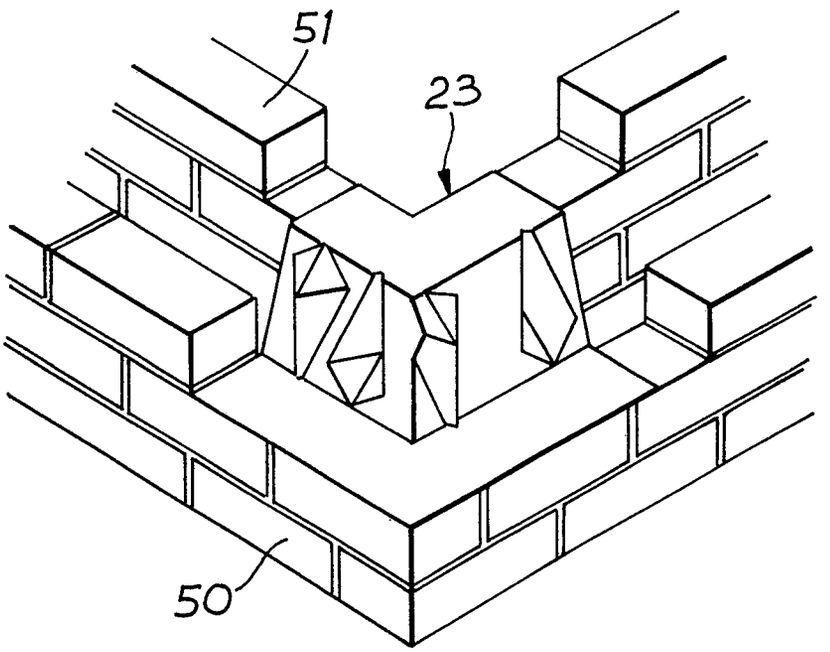


Fig. 30



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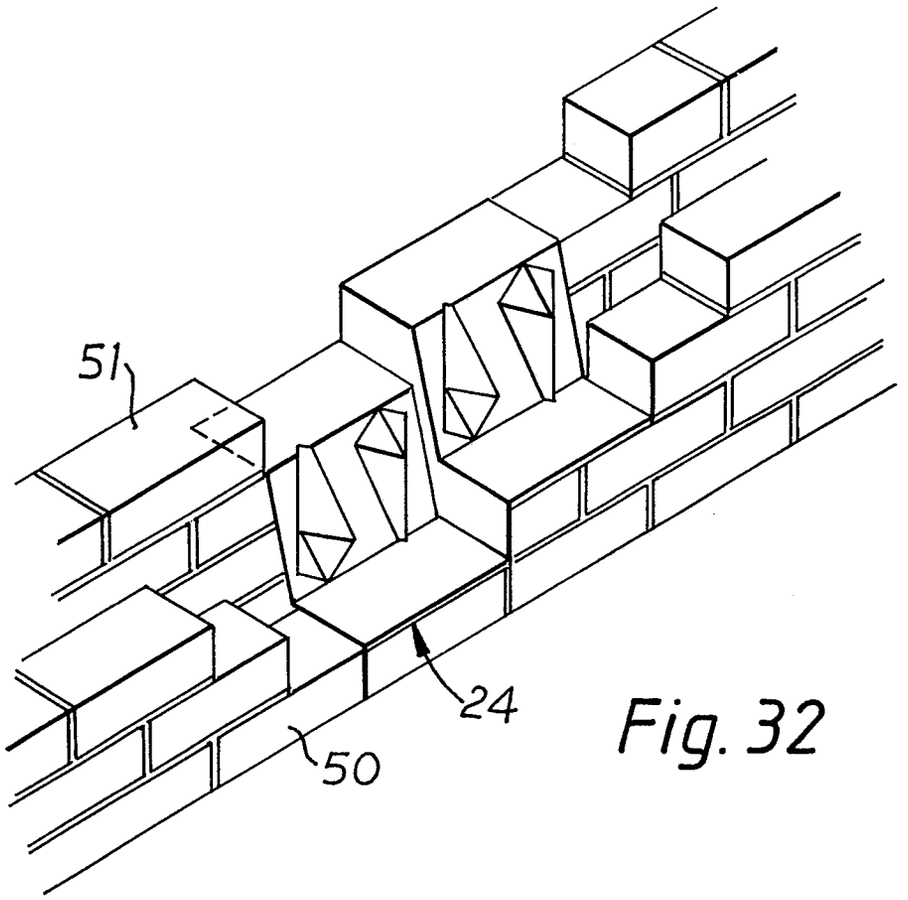


Fig. 32

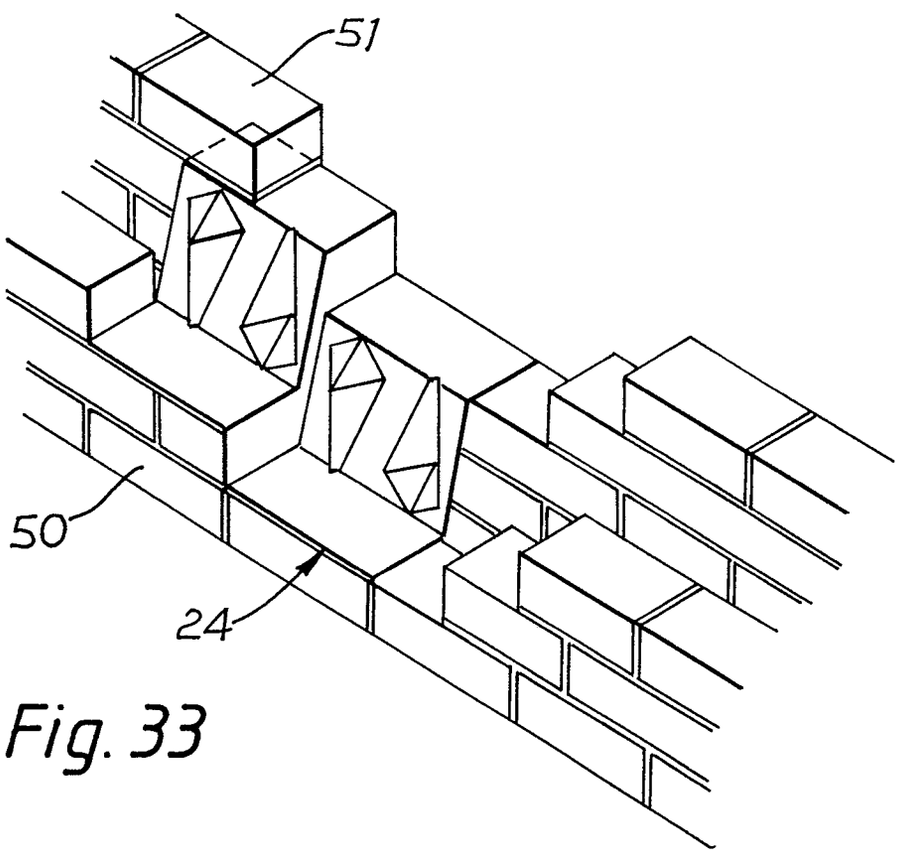
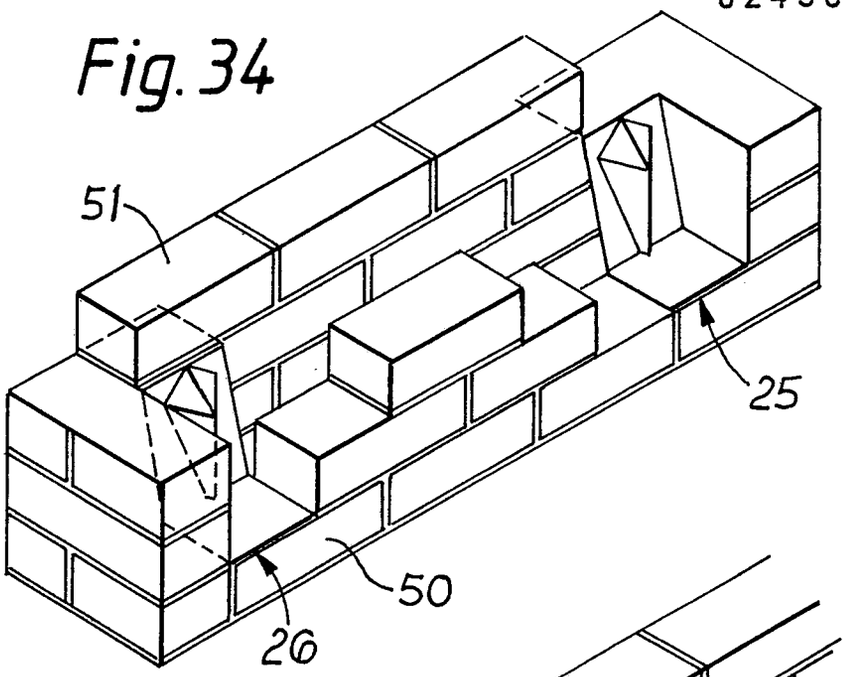


Fig. 33

Fig. 34



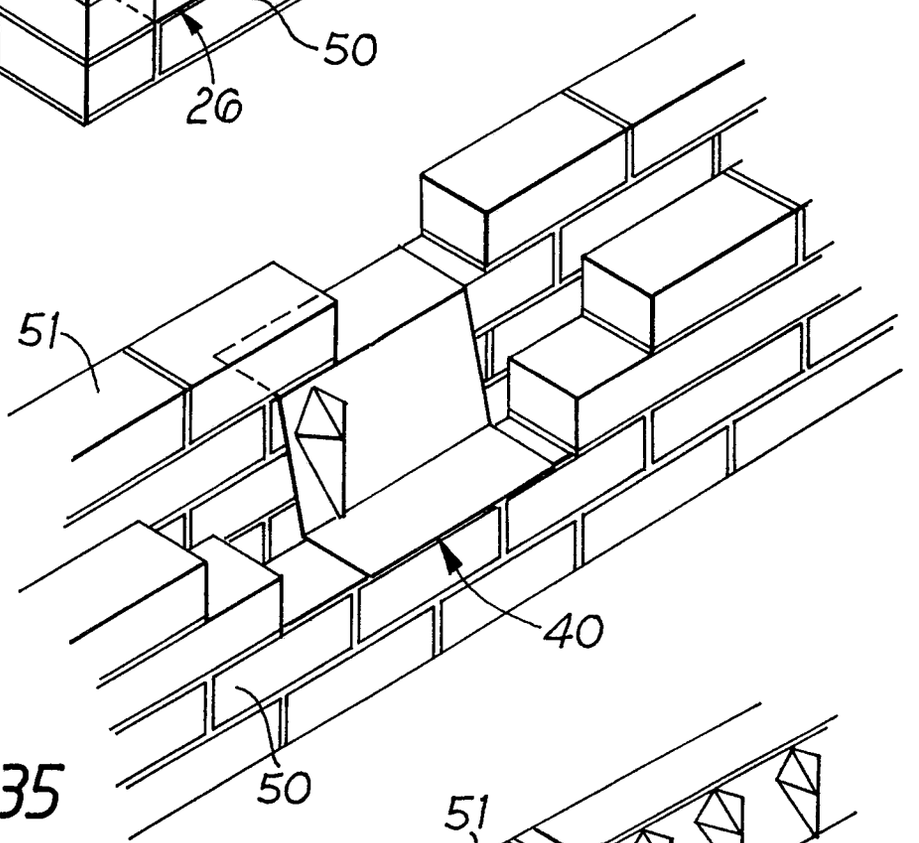


Fig. 35

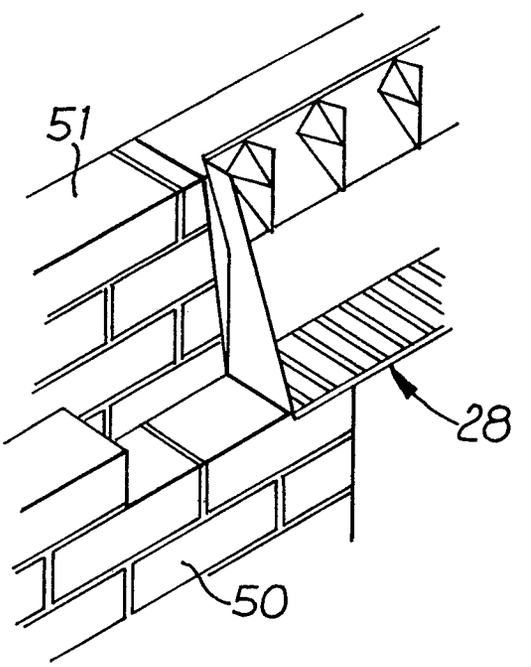


Fig. 36

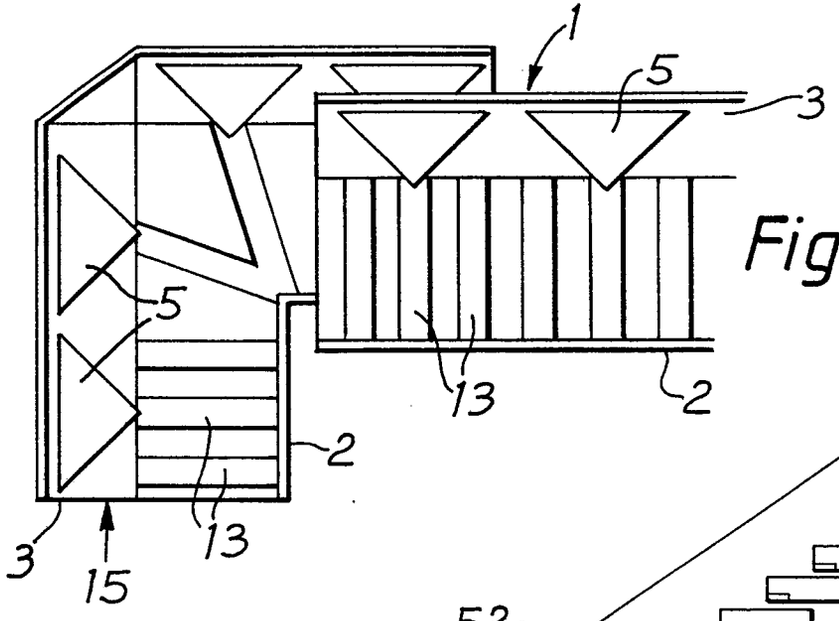


Fig. 38

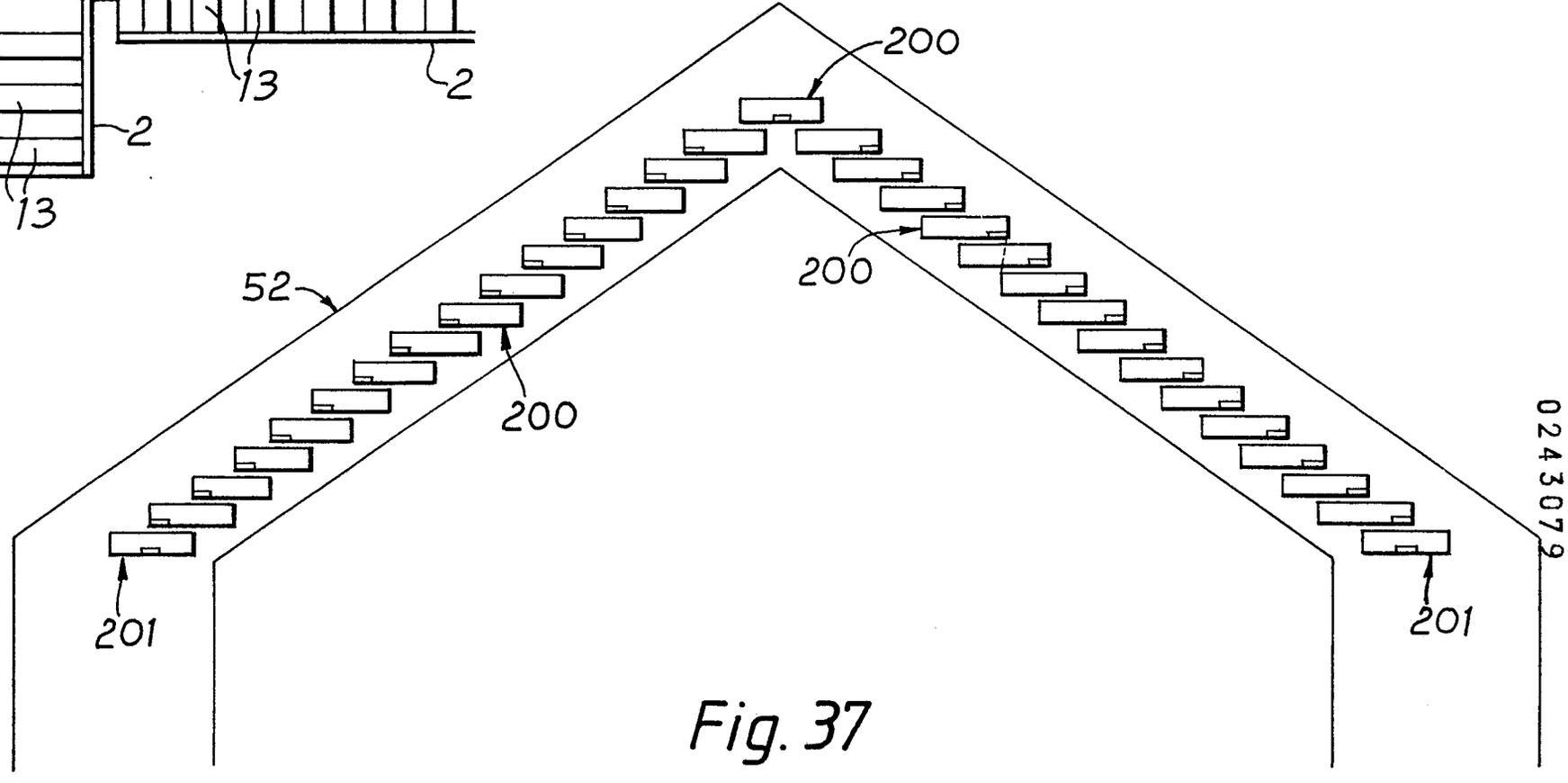


Fig. 37

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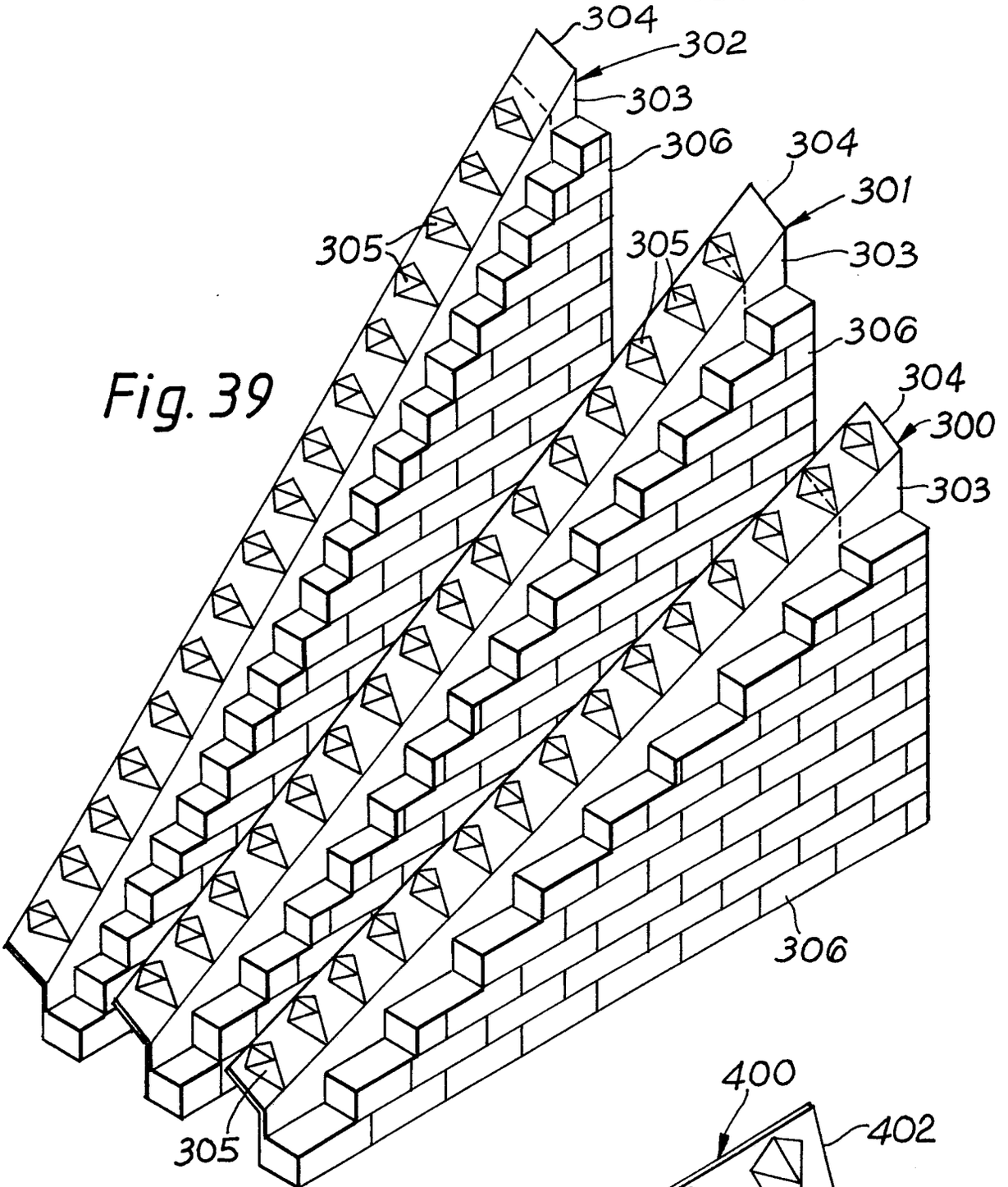
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Fig. 39

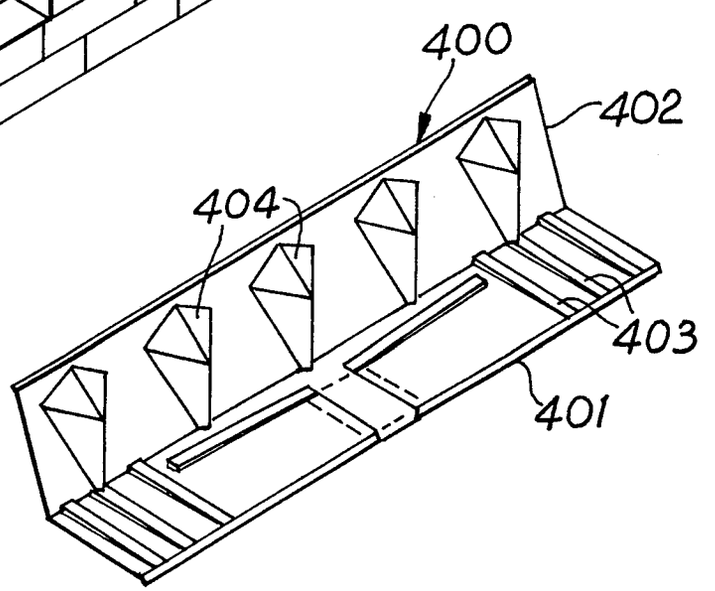
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Fig. 40

European Patent Office

EUROPEAN SEARCH REPORT

Application number

EP 87 30 3310

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.4)
A,D	GB-A-2 103 680 (PRESS BAT HOLDING) * Page 1, line 64 - page 2, line 7; figures *	1,6	E 04 C 3/02
A,D	US-A-2 245 965 (CUNIN) * Page 1, right-hand column, line 38 - page 2, left-hand column, line 9; page 2, left-hand column, line 34 - right-hand column, line 17 *	1,3,9	
A,D	GB-A-2 025 798 (CLARK) * Page 2, lines 22-63; figures *	5	
A,D	GB-A-2 118 585 (JONES)		
A,D	US-A-2 292 459 (MARTIN)		TECHNICAL FIELDS SEARCHED (Int. Cl.4) E 04 B E 04 C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	24-07-1987	LAUE F.M.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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