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(54) **STACKABLE CONSTRUCTION PANEL**

STAPELBARES BAUPANEEL

PANNEAU DE CONSTRUCTION SUPERPOSABLES

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Description

FIELD OF THE INVENTION

[0001] The present invention relates a stockable insulating foam panel and to a wall foam assembly comprising pairs of such opposed stackable insulating foam panels for receiving flowable materials such as concrete.

BACKGROUND OF THE INVENTION

[0002] A number of different systems and methods currently exist for making insulating forms for casting a concrete wall. Often, these systems comprise pairs of opposed foam panels generally made of rigid foam like polystyrene, which define concrete-receiving cavities therebetween. Those pairs of foam panels are placed one above the other so to form the wall form. Once the concrete is solidified, the form walls remain in place to insulate the wall. Those form walls are typically maintained in spaced and parallel relationship before the pouring of concrete by means of connectors comprising a pair of parallel lateral attachment flanges each embedded in one of the two opposed foam panels, and a connecting web interconnecting the flanges.

[0003] The piling up of such panels is performed on the site of construction. One object in this field is to obtain foam panels that would allow, on one hand, an easy and very rapid piling up without loosing time and, on the other hand, would allow construction of a stable and solid stacking that will not likely disassemble prior to the pouring of concrete. As can be easily understood, as soon as the concrete is poured, the chances that the stack collapses or disassembles is greatly reduced.

[0004] An example of a prior art attempt in this field is given in US 5,428,933 which discloses an insulating construction panel having a top and a bottom edge each alternating projections and recesses. The recesses of one row are adjacent to a projection of the other row, such as a checkerboard, whereby the insulation panel can be interconnected with a like member in a bi-directional or reversible manner. One drawback encountered with such panels is that the projections at the corners and along the edges tend to break easily. Furthermore, when such a panel is not very thick, it easily tips over once stacked over a like panel. Other examples of insulating construction panel are shown in US patents 3,895,469; 4,229,920; 4,884,382; 4,704,429; 4,885,888 and 4,894,969.

[0005] Another similar example of an insulating construction panel is shown in EP-A-0275938, which discloses the features of the preamble of claim 1 and of claim 5.

[0006] There is thus still presently a need for an improved insulating construction panel for building form walls.

SUMMARY OF THE INVENTION

[0007] An object of the present invention is to propose a stackable insulating foam panel that will satisfy the above-mentioned need, and more particularly to propose an improved stackable foam panel that allows the construction of a stable and solid stack.

[0008] In accordance with the present invention, that object is achieved with a stackable insulating foam panel having a top side and a bottom side each including a median row of alternating projections and recesses having a similar complementary shape, characterised in that the median row of the top side is disposed between two coplanar edge surfaces, above which the projections are projecting and below which the recesses are recessed, and the median row of the bottom side is disposed between co-planar edge surfaces below which the projections are projecting and above which recesses are recessed, each projection and each recess of the top side being opposed respectively to a recess and a projection of the bottom side, whereby the top side and the bottom side of the panel can be interconnected with respectively the bottom side and the top side of like panels.

[0009] The present invention also concerns a wall form assembly comprising opposed foam panels, as described above, disposed in parallel relationship to make a wall form for receiving a flowable material such as concrete and a plurality of connectors for tying the opposed foam panels together. The form wall assembly of the invention presents the features of claim 5. It comprises:

- a first and a second opposed foam panels of the invention in parallel relationship; and
- a plurality of connectors hingely tying together the first and second foam panels, whereby the tied foam panels are movable between an extended position where the foam panels are spaced-apart to make the form and a collapsed position where the foam panels are brought close to each other.

[0010] As can be appreciated, the two coplanar edge surfaces of the foam panel act as shoulders or abutments for the edge surfaces of an interconnected like panel, and thus help to solidify or stabilise a stack built with foam panels according to the present invention.

[0011] Other features and objects of the present invention will become more apparent from the description that follows of a preferred embodiment, having reference to the appended drawings and given as examples only as to how the invention may be put into practice.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012]

Figure 1 is a perspective fragmentary view of a form wall assembly according to a preferred embodiment

of the present invention;

Figure 2 is a top view of the form wall assembly of figure 1 showing the relief of the top side of the foam panels;

Figure 3 is a cross-sectional side elevation view of the left panel of the form wall assembly of figure 2 along line III-III showing also the top side of a lower panel;

Figure 4 is a cross-sectional side elevation view of the form wall assembly of figure 2 along line IV-IV showing an upper and a lower row of stacked foam panels;

Figure 5 is a perspective view of a connector according to a preferred embodiment of the invention, shown without its right anchor member and a portion of the web member; and

Figure 6 is a side view in partial transparency of a portion of the connector of figure 5.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0013] Referring to figure 1, a form wall assembly (10) according to the present invention is suitable to make a form for receiving flowable material such as concrete or the like. The form obtained is of the type comprising a plurality of stacked insulating horizontal rows of coplanar substantially rectangular foamed plastic panels (14) abutting one another along horizontal and vertical sides thereof. More particularly, the form wall assembly (10) comprises a first foam panel (14a) opposed to a second foam panel (14b) in spaced and parallel relationship, and tied together by means of a plurality of connectors (16), as best seen in figure 4. The foam panels (14) are movable between an extended position, as shown in figure 1, where the foam panels (14) are spaced-apart to make the form and a collapsed position, not illustrated, where the foam panels (14) are brought close to each other, mainly for shipping purposes.

[0014] The foam panels (14) each have a top side (15) opposite a bottom side (17) and, as illustrated in figures 1 and 2, each of the top side (15) and the bottom side (17) is provided with a median row (13) of alternating projections (18) and recesses (19) having a similar complementary shape. This median row (13) is disposed between two coplanar edge surfaces (50) bordering the edges of the panel (14). It has to be noted that the coplanar edge surfaces (50) are preferably provided with a width sufficiently large so as to offer an increased stability between interlocked panels (14).

[0015] As best seen in figure 3, each projection (18) and recess (19) of the top side (15) of one panel (14a) is opposed respectively to a recess (19) and a projection (18) of the bottom side (17) of the same panel (14a), and

is facing respectively a recess (19) and a projection (18) of the top side (15) of the other panel (14b), when the pair of panels (14a and 14b) are in the extended position as in figure 1 or 2, whereby the pair of panels (14a, 14b) can be interconnected with a like pair of panels.

[0016] Mainly because of the manufacturing process, the projections (18) and the recesses (19) are generally rectangular. However, projections and recesses of other shapes such as circular, oblong, square etc. could also be used

[0017] In order to prevent the deterioration of the projection (18), the present invention prefers using projections (18) with rounded-corners. Nevertheless, projections (18) with square-corners or other forms, would still be efficient.

[0018] Also preferably, each of the projections (18) and the recesses (19) has two opposite substantially convex lateral sides (52, 54) which help the insertion of the projections (18) in the recesses (19).

[0019] Referring now to figures 4 and 5 and according to a preferred embodiment of the invention, each connector (16) comprises a pair of anchor members (20a, 20b), a first one (20a) embedded in the first foam panel (14a) and the second one (20b) embedded in the second foam panel (14b). Each anchor member (20) has an elongated flange plate (22) extending longitudinally and deep inside the foam panel (14) and an elongated link element (24) connected longitudinally to the flange plate (22) and having a projecting end (26) coming out of the foam panel (14). Preferably, the projecting end (26) of each anchor member (20) comprises a stabilising plate (28) as best shown in figure 5 parallel to the flange plate (22) and extending flush with the inner surface (30) of the foam panel (14).

[0020] In order to lighten the foam panel assembly, the link element (24) preferably comprises a plurality of holes (25) therealong. However, the link element (24) may also be plane solid.

[0021] It has to be noted that by saying that the anchor member (20) is embedded in the foam panel (14), a person in the art will understand that in the making of the foam panel (14) in the manufacturing plant, the plastic foam material forming the panel (14) is injected to surround the anchor member (20), thereby strengthening the joint between the panel (14) and the anchor member (20) which thus act as an anchor forming part of the foam panel (14). More specifically, the plastic foam material, which is preferably polystyrene or any other material known to a person skilled in the field of plastic foam, is injected to surround the anchor member (20).

[0022] Referring to figure 4, the connector (16) further comprises a web member (32) extending between the foam panels (14). The web member (32) that is preferably made of a relatively flexible plastic comprises a central portion (44) having a shape adapted to receive and hold metal rods used to reinforce the concrete. The web member (32) further has a first longitudinal side end (34a) hingedly connected to the projecting end (26) of the first

anchor member (20a) and a second longitudinal side end (34b) opposed to the first longitudinal side end (34a). The second longitudinal side end (34b) is hingedly connected to the projecting end (26) of the second anchor member (20b). The foam panels (14) are movable between an extended position, as shown in figure 1, where the foam panels (14) are spaced-apart to make the form and a collapsed position, not illustrated, where the foam panels (14) are brought close to each other, mainly for shipping purposes.

[0023] Referring to figures 5 and 6, a plurality of connecting elements (64) preferably disposed on the stabilising plate (28) of the projecting end (26) of each anchor member (20) in order to hingedly connect the web member (32) to the anchor members (20) is illustrated. Each of these connecting elements (64) is shaped to form two aligned ridges (66) projecting from the stabilising plate (28), and the space between them defined a longitudinal sleeve (68). A joining pin (70) can be mounted in the sleeve (68). Preferably, pin receiving holes (71) are provided in the ridges (66) for this purpose, each hole (71) facing inwardly of the sleeve (68). It will be understood that although the connecting elements are shaped to form two aligned ridges, the present invention contemplates employing other types of connecting elements that would be apparent to a person skilled in the art, such as open slotted tube-like knuckles.

[0024] To cooperate with the connecting elements (64), each longitudinal side end (34a, 34b) of the web member (32) defines a corresponding number of arms (72). Each arm (72) has an extremity (74) connectable to a corresponding joining pin (70) so as to be rotatable around an axis defined by the joining pin (70). It can be easily seen that this purpose may be achieved by either mounting the extremity (74) of the arm (72) rotatably around the joining pin (70), or mounting the joining pin (70) itself rotatably in the pin receiving holes (71). Preferably, the extremity (74) of each arm (72) is provided with a bore (76) for receiving one of the pins (70).

[0025] As would be readily understood by a person skilled in the art, the connecting elements (64) may be formed directly by molding during manufacturing of the anchor member (20). In the illustrated embodiment of figures 5 and 6, a protrusion (78) is generated by the molding process on each side of the ridges (66). In the case of corners of a wall where adjacent panels are mounted perpendicularly to each other and where obviously no web member is provided with the connectors, these protrusions, which are embedded in the concrete with the ridges, have the additional advantage of serving as anchor means for the flanges of the connector in which screws could be inserted to fix, for example, a plaster-board wall thereto.

[0026] Therefore, thanks to both the relief of the top and bottom sides of the panels (14) and the connectors (16), the wall form assemblies according to the illustrated preferred embodiment of the present invention can be easily stacked over each other and linked together.

[0027] Once a form for receiving flowable material is mounted using a plurality of stacked horizontal rows of form wall assemblies, the empty cavity existing between the form wall made of isolating and rigid panels (14) is filled with concrete or with cement based grout. After hardening of the filling material, a composite wall is obtained with the isolating panels firmly attached through the connectors to the concrete inside-wall.

[0028] Although a preferred embodiment of the invention has been described in detail herein and illustrated in the accompanying drawings, it is to be understood that the invention is not limited to this precise embodiment and that various changes and modifications may be effected therein without departing from the scope of the invention as defined in the appended claims.

Claims

1. A stackable insulating foam panel (14) having a top side (15) and a bottom side (17) each including a median row (13) of alternating projections (18) and recesses (19) having a similar complementary shape, **characterized in that** the median row (13) of the top side (15) is disposed between two coplanar edge surfaces (50), above which the projections (18) are projecting and below which the recesses (19) are recessed, and the median row (13) of the bottom side (17) is disposed between coplanar edge surfaces (50) below which the projections (18) are projecting and above which recesses (19) are recessed, each projection (18) and each recess (19) of the top side (15) being opposed respectively to a recess (19) and a projection (18) of the bottom side (17), whereby the top side (15) and the bottom side (17) of the panel (14) can be interconnected with respectively the bottom side (17) and the top side (15) of like panels (14a, 14b).
2. A foam panel (14) according to claim 1, wherein the similar complementary shape of the projections (18) and the recesses (19) is generally rectangular.
3. A foam panel (14) according to claim 2, wherein the projections (18) have rounded-corners.
4. A foam panel (14) according to claim 3, wherein each of the projections (18) and the recesses (19) has two opposite substantially convex lateral sides (52, 54).
5. A wall form assembly (10) for receiving a flowable material comprising a first (14a) and a second (14b) opposed foam panels in parallel relationship, wherein each of the first panel (14a) and the second panel (14b) has a top side (15) and a bottom side (17) each including a single median row (13) of alternating projections (18) and recesses (19) having a similar complementary shape, **characterized in that:**

- a plurality of connectors (16) are hingedly tying together the first (14a) and second (14b) foam panels, whereby the tied foam panels (14a, 14b) are movable between an extended position where the foam panels are spaced-apart to make the form and a collapsed position where the foam panels (14a, 14b) are brought close to each other, the median row (13) of the top side (15) being disposed between two coplanar edge surfaces (50) from which the projections (18) are projecting and below which the recesses (19) are recessed, and the median row (13) of the bottom side (17) being disposed between coplanar edge surfaces (50) below which the projections (18) are projecting and above which recesses (19) are recessed each projection (18) and recess (19) of the top side (15) of one panel (14a) being opposed respectively to a recess (19) and a projection (19) of the bottom side (17) of the same panel (14a) and facing a recess (19) of the other panel (14b) when the panels (14a, 14b) are in the extended position, whereby the panels (14a, 14b) in the extended position can be interconnected with a like pair of panels (14a, 14b).
6. A wall form assembly (10) according to claim 5, wherein the similar complementary shape of the projections (18) and the recesses (19) of each panel (14a, 14b) is generally rectangular.
7. A wall form assembly (10) according to claim 6, wherein the projections (18) have rounded-corners.
8. A wall form assembly (10) according to claim 7, wherein each of the projections (18) and the recesses (19) has two opposite substantially convex lateral sides (52, 54).
9. A wall form assembly (10) according to claim 5, wherein the connector (16) comprises:
- a pair of anchor members (20a, 20b), one (20a) being devised to be embedded in the first foam panels (14a) and the other (20a) being devised to be embedded in the second foam panels (14b) each anchor member (20) having an elongated flange plate (22) extending longitudinally and deep inside the foam panel (14a, 14b); and
 - an elongated link element (24) connected longitudinally to the flange plate (22) and having a projecting end (26) coming out of the foam panel (14) and
 - a web member (32) extending between the first (14a) and the second (14b) foam panels, the web member (32) having opposite longitudinal side ends (34a, 34b), each of said ends being hingedly connectable to said projecting end (26) of either one of said anchor members (20a, 20b);
- whereby the foam panels (14a, 14b) are tied together by connecting one side (34a) end of the web member (32) to the projecting end (26) of one of said anchor members (20a) and the other side end (34b) of the web member (32) to the projecting end (26) of the other anchor member (20b), the tied foam panels being thereby movable between an extended position where the foam panels (14a, 14b) are spaced-apart to make the form and a collapsed position where the foam panels (14a, 14b) are brought close to each other.
10. A wall assembly (10) according to claim 9, wherein the projecting end (26) of each anchor member (20a, 20b) comprises a stabilising plate (28) parallel to the flange plate (22) extending flush with an inner surface (30) of the foam panel (14).
11. A wall assembly according to claim 10, wherein the projecting end (26) of each anchor member (20a, 20b) comprises a plurality of connecting elements (64) disposed on the stabilising plate (28), each connecting element (64) having two aligned ridges (66) projecting from the stabilising plate (28) and defining a longitudinal sleeve (68) therebetween and joining pin (70) longitudinally mountable in said sleeve (68); and each longitudinal side end (34a, 34b) of the web member (32) defines a plurality of arms (72) for cooperating with each of the connecting elements (64); each arm (72) having an extremity (74) connectable to the joining pin (70) of a corresponding connecting element (64) so as to be rotatable around an axis defined by said joining pin (70), thereby allowing the web member (32) and anchor member (20a, 20b) to pivot with respect to each other.
12. A wall assembly (10) according to claim 11, wherein the ridges (66) of each connecting element (64) each have a pin-receiving hole (71) therein facing inwardly of the sleeve (68) for receiving an end of the joining pin (70).
13. A wall assembly (10) according to claim 12, wherein the extremity (74) of each arm (72) of the longitudinal side end (34a, 34b) of the web member (32) has a bore (76) therein to receive the pin (70).

Patentansprüche

1. Stapelbare isolierende Schaumstoffplatte (14) mit einer Oberseite (15) und einer Unterseite (17), die jeweils eine mittlere Reihe (13) von sich abwech-

- selnden Vorsprüngen (18) und Aussparungen (19) mit ähnlicher komplementärer Form aufweisen, **dadurch gekennzeichnet, dass** die mittlere Reihe (13) der Oberseite (15) zwischen zwei koplanaren Kantenoberflächen (50) angeordnet ist, über welche die Vorsprünge (18) herausragen und unter denen die Aussparungen (19) ausgespart sind, und die mittlere Reihe (13) der Unterseite (17) zwischen koplanaren Kantenoberflächen (50) angeordnet ist, unter denen die Vorsprünge (18) herausragen und über denen die Aussparungen (19) ausgespart sind, wobei jeder Vorsprung (18) und jede Aussparung (19) der Oberseite (15) jeweils einer Aussparung (19) und einem Vorsprung (18) der Unterseite (17) gegenüberliegen, wodurch die Oberseite (15) und die Unterseite (17) der Platte (14) jeweils mit der Unterseite (17) und der Oberseite (15) von ähnlichen Platten (14a, 14b) verbunden werden können.
2. Schaumstoffplatte (14) nach Anspruch 1, wobei die ähnliche komplementäre Form der Vorsprünge (18) und der Aussparungen (19) im Allgemeinen rechteckig ist.
3. Schaumstoffplatte (14) nach Anspruch 2, wobei die Vorsprünge (18) abgerundete Ecken aufweisen.
4. Schaumstoffplatte (14) nach Anspruch 3, wobei jeder der Vorsprünge (18) und der Aussparungen (19) zwei gegenüberliegende im Wesentlichen konvexe laterale Seiten (52, 54) aufweist.
5. Wandformanordnung (10) zum Aufnehmen eines fließfähigen Materials, umfassend eine erste (14a) und eine zweite (14b) gegenüberliegende Schaumstoffplatte, die parallel zueinander sind, wobei jede der ersten Platte (14a) und der zweiten Platte (14b) eine Oberseite (15) und eine Unterseite (17) aufweist, die jeweils eine einzige mittlere Reihe (13) von sich abwechselnden Vorsprüngen (18) und Aussparungen (19) mit einer ähnlichen komplementären Form aufweisen, **dadurch gekennzeichnet, dass** mehrere Verbinder (16) die erste (14a) und die zweite (14b) Schaumstoffplatte gelenkig aneinander binden, wodurch die aneinander gebundenen Schaumstoffplatten (14a, 14b) zwischen einer ausgedehnten Position, in welcher die Schaumstoffplatten voneinander beabstandet sind, um die Form herzustellen, und einer flachen Position, in welcher die Schaumstoffplatten (14a, 14b) nah zueinander gebracht werden, bewegt werden können, dass die mittlere Reihe (13) der Oberseite (15) zwischen zwei koplanaren Kantenoberflächen (15) angeordnet ist, unter denen die Vorsprünge (18) herausragen und über denen die Aussparungen (19) ausgespart sind, dass jeder Vorsprung (18) und jede Aussparung (19) der Oberseite (15) einer Platte (14a) einer Aussparung (19) und einem Vorsprung (18) der Unterseite (17) der gleichen Platte (14a) gegenüberliegen sowie einer Aussparung (19) der anderen Platte (14b) gegenüberliegen, wenn die Platten (14a, 14b) sich in der gestreckten Position befinden, wodurch die Platte (14a, 14b) in der gestreckten Position mit gleichen Plattenpaaren (14a, 14b) verbunden werden können.
6. Wandformanordnung (10) nach Anspruch 5, wobei die ähnliche komplementäre Form der Vorsprünge (18) und der Aussparungen (19) jeder Platte (14a, 14b) im Allgemeinen rechteckig ist.
7. Wandformanordnung (10) nach Anspruch 6, wobei die Vorsprünge (18) abgerundete Ecken aufweisen.
8. Wandformanordnung (10) nach Anspruch 7, wobei jeder der Vorsprünge (18) und der Aussparungen (19) zwei gegenüberliegende im Wesentlichen konvexe laterale Seiten (52, 54) aufweist.
9. Wandformanordnung (10) nach Anspruch 5, wobei der Verbinder (16) Folgendes umfasst:
- ein Paar Ankerglieder (20a, 20b), wobei eines (20a) gestaltet ist, um in den ersten Schaumstoffplatten (14a) eingebettet zu werden, und das andere (20b) gestaltet ist, um in den zweiten Schaumstoffplatten (14b) eingebettet zu werden, wobei jedes Ankerglied (20) eine längliche Flanschplatte (22), die der Länge nach und tief ins Innere der Schaumstoffplatte (14a, 14b) verläuft; und ein längliches Verbindungselement (24) aufweist, das mit der Flanschplatte (22) der Länge nach verbunden ist und ein herausragendes Ende (26) aufweist, das aus der Schaumstoffplatte (14) kommt, und
 - ein Stegglied (32), das zwischen der ersten (14a) und der zweiten (14b) Schaumstoffplatte verläuft, wobei das Stegglied (32) gegenüberliegende längs verlaufende Seitenenden (34a, 34b) aufweist, wobei jedes der Enden mit dem herausragenden Ende (26) jedes der Ankerglieder (20a, 20b) gelenkig verbunden sein kann;
- wodurch die Schaumstoffplatten (14a, 14b) durch Verbinden eines Seitenendes (34a) des Stegglieds (32) mit dem herausragenden Ende (26) eines der Ankerglieder (20a) und des anderen Seitenendes (34b) des Stegglieds (32) mit dem herausragenden Ende (26) des anderen Ankerglieds (20b) aneinander gebunden sind, wobei die aneinander gebundenen Schaumstoffplatten **dadurch** zwischen einer ausgedehnten Position, in welcher die Schaumstoffplatten (14a, 14b) voneinander beabstandet sind, um die Form herzustellen, und einer flachen Position, in welcher die Schaumstoffplatten (14a, 14b) nahe zueinander gebracht werden, bewegbar sind.

10. Wandanordnung (10) nach Anspruch 9, wobei das herausragende Ende (20) jedes Ankerglieds (20a, 20b) eine stabilisierende Platte (28) umfasst, die parallel zu der Flanschplatte (22) ist, die mit einer inneren Oberfläche (30) der Schaumstoffplatte (14) bündig verläuft. 5
11. Wandanordnung nach Anspruch 10, wobei das herausragende Ende (26) jedes Ankerglieds (20a, 20b) mehrere Verbindungselemente (64) umfasst, die auf der stabilisierenden Platte (28) angeordnet sind, wobei jedes Verbindungselement (64) zwei miteinander ausgerichtete Erhöhungen (66) aufweist, die aus der stabilisierenden Platte (28) herausragen und eine längs verlaufende Hülle (68) dazwischen und Verbindungsstifte (70) definieren, die in der Hülle (68) der Länge nach befestigbar sind; und jedes längs verlaufende Seitenende (34a, 34b) des Stegglieds (32) mehrere Arme (72) zum Zusammenwirken mit jedem der Verbindungselemente (64) definiert; wobei jeder Arm (72) ein äußerstes Ende (74) aufweist, das mit dem Verbindungsstift (70) eines entsprechenden Verbindungselements (64) verbunden werden kann, um so um eine Achse, die durch den Verbindungsstift (70) definiert ist, drehbar zu sein, wodurch ermöglicht wird, dass sich das Stegglied (32) und Ankerglied (20a, 20b) umeinander drehen. 10 15 20 25
12. Wandanordnung (10) nach Anspruch 11, wobei die Erhöhungen (66) jedes Verbindungselements (64) jeweils eine Stiftaufnahmeöffnung (71) darin aufweisen, die bezüglich der Hülle (68) nach innen zeigt, um ein Ende des Verbindungsstiftes (70) aufzunehmen. 30 35
13. Wandanordnung (10) nach Anspruch 12, wobei das äußere Ende (74) jedes Arms (72) des längs verlaufenden Seitenendes (34a, 34b) des Stegglieds (32) eine Bohrung (76) aufweist, um den Stift (70) aufzunehmen. 40

Revendications

1. Un panneau superposable (14) en mousse isolante ayant un côté supérieur (15) et un côté inférieur (17) chacun incluant une rangée médiane (13) de projections (18) et de dépressions (19) alternantes ayant une forme complémentaire similaire, **caractérisée en ce que** la rangée médiane (13) du côté supérieur (15) est disposée entre deux surfaces coplanaires de bordure (50), au-dessus desquelles les projections (18) projettent et en dessous desquelles les dépressions (19) sont en retrait, et la rangée médiane (13) du côté inférieur (17) est disposée entre les surfaces coplanaires de bordure (50) en dessous desquelles les projections (18) projettent et au-des- 45 50 55

sus desquelles les dépressions (19) sont en retrait, chaque projection (18) et chaque dépression (19) du côté supérieur (15) étant opposées respectivement à une dépression (19) et à une projection (18) du côté inférieur (17), par lequel le côté supérieur (15) et le côté inférieur (17) du panneau (14) peuvent être interconnecté respectivement avec le côté inférieur (17) et le côté supérieur (15) de panneaux semblables (14a, 14b).

2. Un panneau en mousse (14) selon la revendication 1, dans lequel la forme complémentaire similaire des projections (18) et des dépressions (19) est généralement rectangulaire.
3. Un panneau en mousse (14) selon la revendication 2, dans lequel les projections (18) ont des coins arrondis.
4. Un panneau en mousse (14) selon la revendication 3, dans lequel chacune des projections (18) et des dépressions (19) a deux côtés latéraux opposés substantiellement convexes (52, 54).
5. Un assemblage de banches (10) pour recevoir un matériau liquide comprenant un premier (14a) et un deuxième (14b) panneaux de construction en mousse opposés en relation parallèle, dans lequel chaque premier panneau (14a) et deuxième panneau (14b) a un côté supérieur (15) et un côté inférieur (17) chacun incluant une seule rangée médiane (13) de projections (18) et de dépressions (19) alternantes ayant une forme complémentaire similaire, **caractérisé en ce que :**

une pluralité de connecteurs (16) attachent ensemble de façon articulée le premier (14a) et deuxième (14b) panneau en mousse, par lesquels les panneaux en mousse attachés (14a, 14b) sont mobiles entre une position déployée dans laquelle les panneaux en mousse sont espacés pour établir la forme et une position repliée dans laquelle les panneaux en mousse (14a, 14b) sont rapprochés l'un de l'autre, la rangée médiane (13) du côté supérieur (15) étant disposée entre deux surfaces coplanaires de bordure (50) en dessous desquelles les projections (18) projettent et au-dessus desquelles les dépressions (19) sont en retrait, chaque projection (18) et dépression (19) du côté supérieur (15) du panneau (14a) étant opposée respectivement à une dépression (19) et une projection (18) du côté inférieur (17) du même panneau (14a) et faisant face à une dépression (19) de l'autre panneau (14b) lorsque les panneaux (14a, 14b) sont dans la position déployée, par lequel les panneaux (14a, 14b) dans la position déployée peuvent être interconnectés avec une

paire de panneaux semblables (14a, 14b).

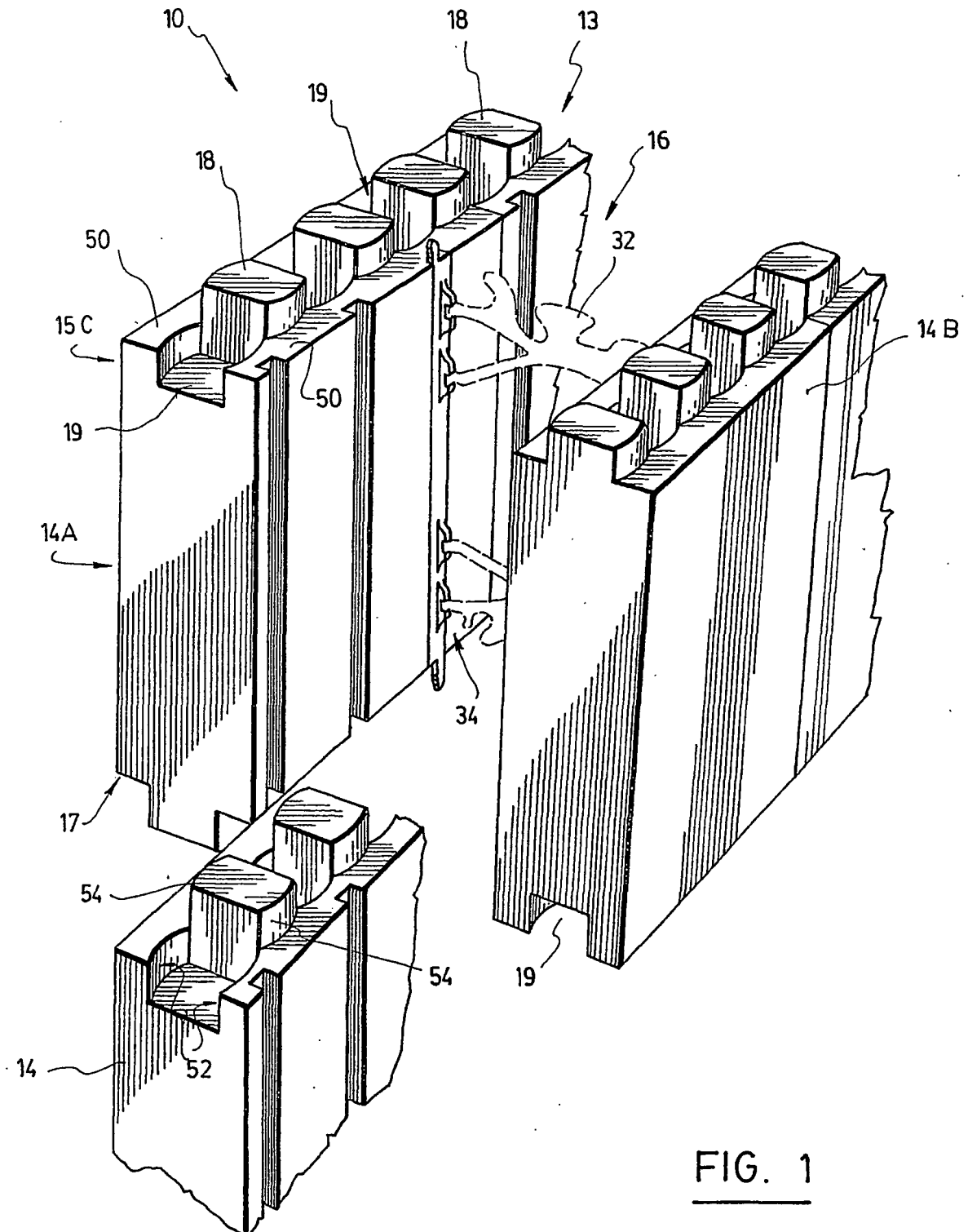
6. Un assemblage de banches (10) selon la revendication 5, dans lequel la forme complémentaire similaire des projections (18) et des dépressions (19) de chaque panneau (14a, 14b) est généralement rectangulaire. 5
7. Un assemblage de banches (10) selon la revendication 6, dans lequel les projections (18) ont des coins arrondis. 10
8. Un assemblage de banches (10) selon la revendication 7, dans lequel chacune des projections (18) et des dépressions (19) comprend deux côtés opposés latéraux substantiellement convexes (52, 54). 15
9. Un assemblage de banches (10) selon la revendication 5, dans lequel le connecteur (16) comprend : 20
 - une paire d'éléments d'ancrage (20a, 20b), le premier (20a) étant conçu pour être incorporé dans le premier panneau en mousse (14a) et l'autre (20b) étant conçu pour être incorporé dans le deuxième panneau en mousse (14b) chaque élément d'ancrage (20) ayant une plaque allongée (22) se prolongeant de façon longitudinale et profondément à l'intérieur du panneau en mousse (14a, 14b); et un élément de liaison allongé (24) connecté de façon longitudinale à la plaque (22) et comprenant une extrémité saillante (26) sortant du panneau en mousse (14) et 25
 - une armature (32) s'allongeant entre le premier (14a) et le deuxième (14b) panneaux en mousse, l'armature (32) ayant des extrémités latérales longitudinales opposées (34a, 34b), chacune de ces extrémités étant reliée de façon articulée à l'extrémité saillante (26) de l'un ou de l'autre des éléments d'ancrage (20a, 20b); 30 35 40

par lequel les panneaux en mousse (14a, 14b) sont attachés ensemble en reliant une extrémité latérale (34a) de l'armature (32) à l'extrémité saillante (26) de l'un des éléments d'ancrage (20a) et l'autre extrémité latérale (34b) de l'armature (32) à l'extrémité saillante (26) de l'autre élément d'ancrage (20b), les panneaux en mousse attachés étant alors mobiles entre une position déployée dans laquelle les panneaux en mousse (14a, 14b) sont espacés pour établir la forme et une position repliée dans laquelle les panneaux en mousse (14a, 14b) sont rapprochés l'un de l'autre. 45 50

10. Un assemblage de banches (10) selon la revendication 9, dans lequel l'extrémité saillante (26) de chaque élément d'ancrage (20a, 20b) comprend une plaque de stabilisation (28) parallèle à la plaque al- 55

longée (22) et s'élevant dans l'alignement d'une surface intérieure (30) du panneau en mousse (14).

11. Un assemblage de banches (10) selon la revendication 10, dans lequel l'extrémité saillante (26) de chaque élément d'ancrage (20a, 20b) comprend une pluralité d'éléments connecteurs (64) disposés sur la plaque de stabilisation (28), chaque élément connecteur (64) ayant deux crêtes alignées (66) projetant de la plaque de stabilisation (28) et définissant une douille longitudinale (68) entre elles et une goupille (70) pouvant être installée de façon longitudinale dans la douille (68); et chaque extrémité latérale longitudinale (34a, 34b) de l'armature (32) définit une pluralité de bras (72) pour coopérer avec chacun des éléments connecteurs (64); chaque bras (72) comprenant une extrémité (74) pouvant être relié à la goupille (70) d'un élément connecteur (64) correspondant afin d'être pivotable autour d'un axe défini par la goupille (70), permettant ainsi à l'armature (32) et à l'élément d'ancrage (20a, 20b) de pivoter l'un par rapport à l'autre. 5 10 15 20 25 30 35 40
12. Un assemblage de banches (10) selon la revendication 11, dans lequel chacune des crêtes (66) de chaque élément connecteur (64) comprend un trou pour recevoir une goupille (71) faisant face à l'intérieur de la douille (68) pour recevoir une extrémité de la goupille (70). 45
13. Un assemblage de banches (10) selon la revendication 12, dans lequel l'extrémité (74) de chaque bras (72) de l'extrémité latérale longitudinale (34a, 34b) de l'armature (32) a un trou (76) à l'intérieur pour recevoir la goupille (70). 50 55



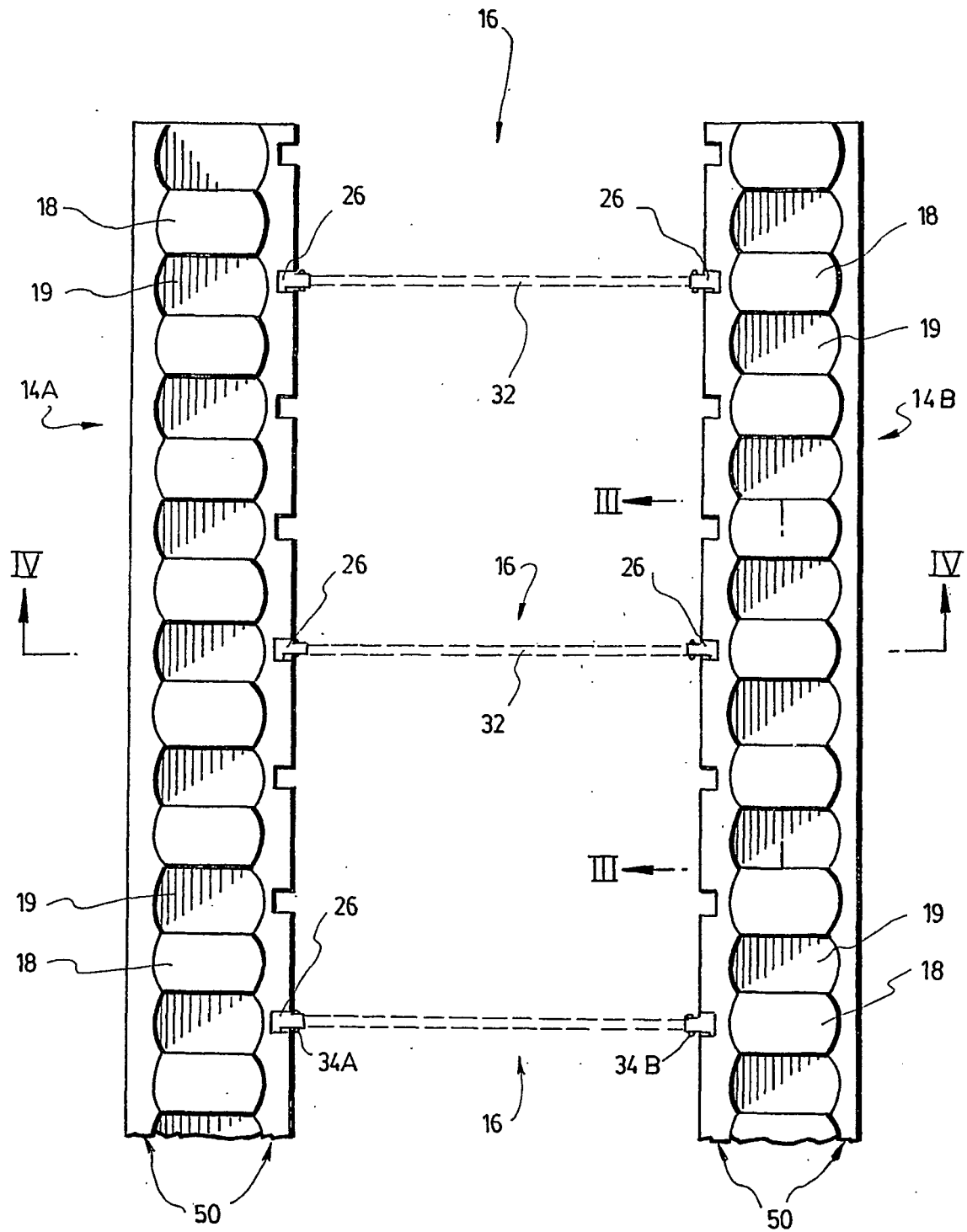


FIG. 2

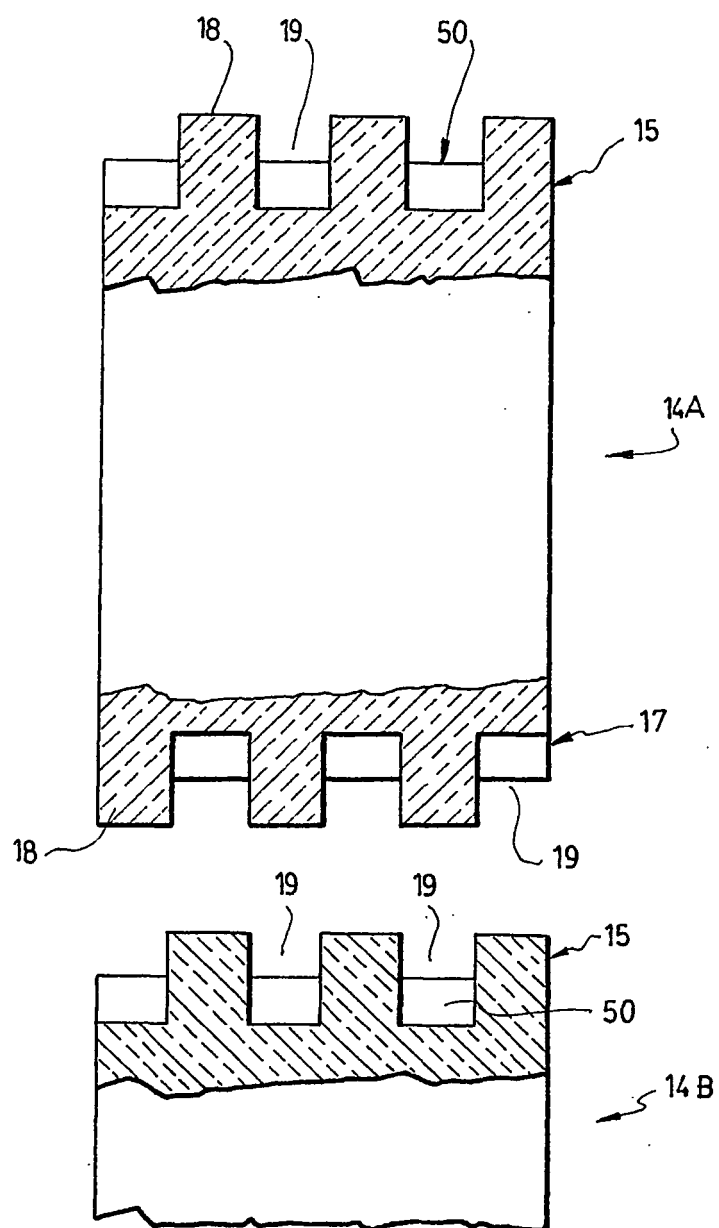


FIG. 3

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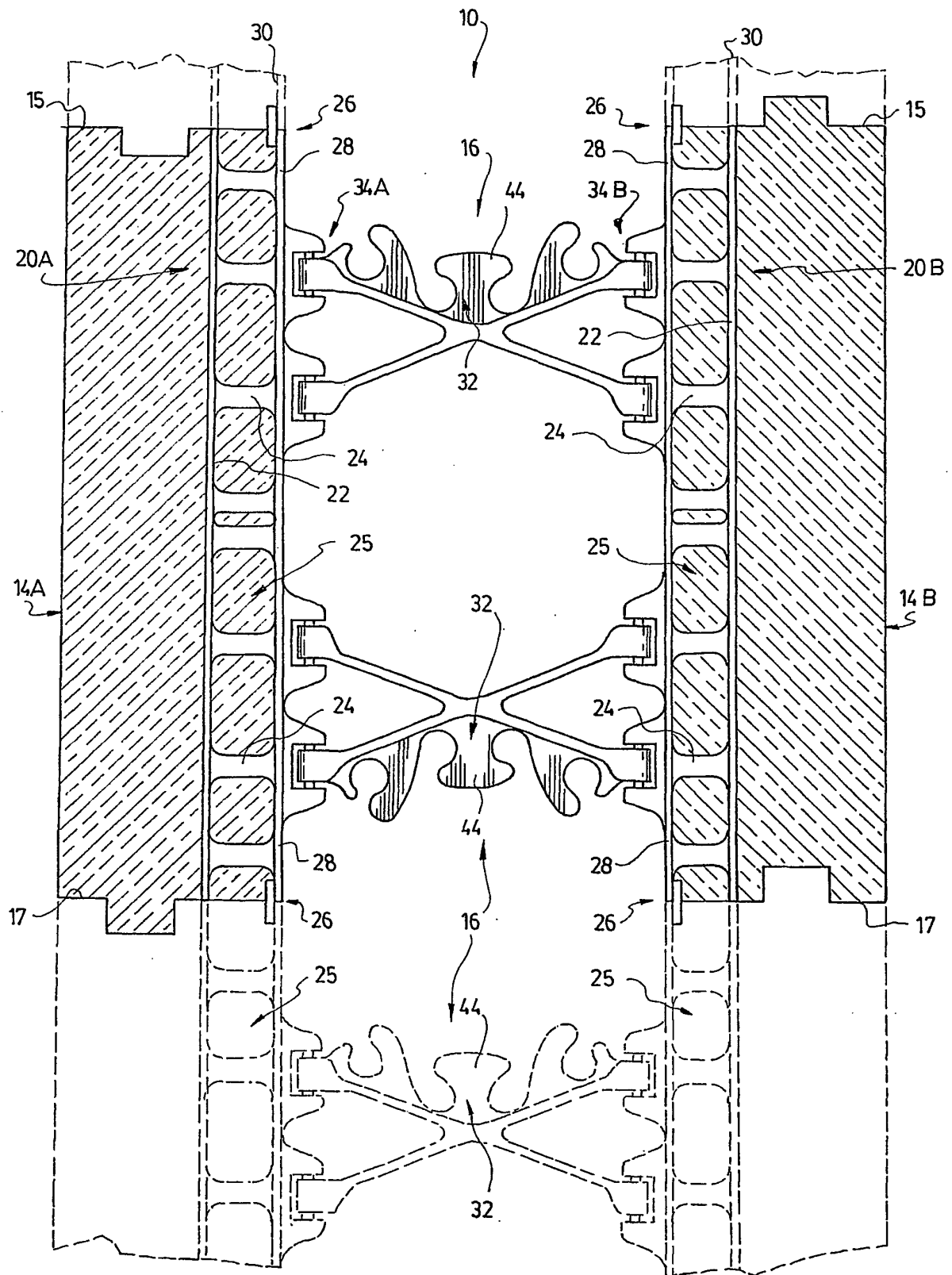


FIG. 4

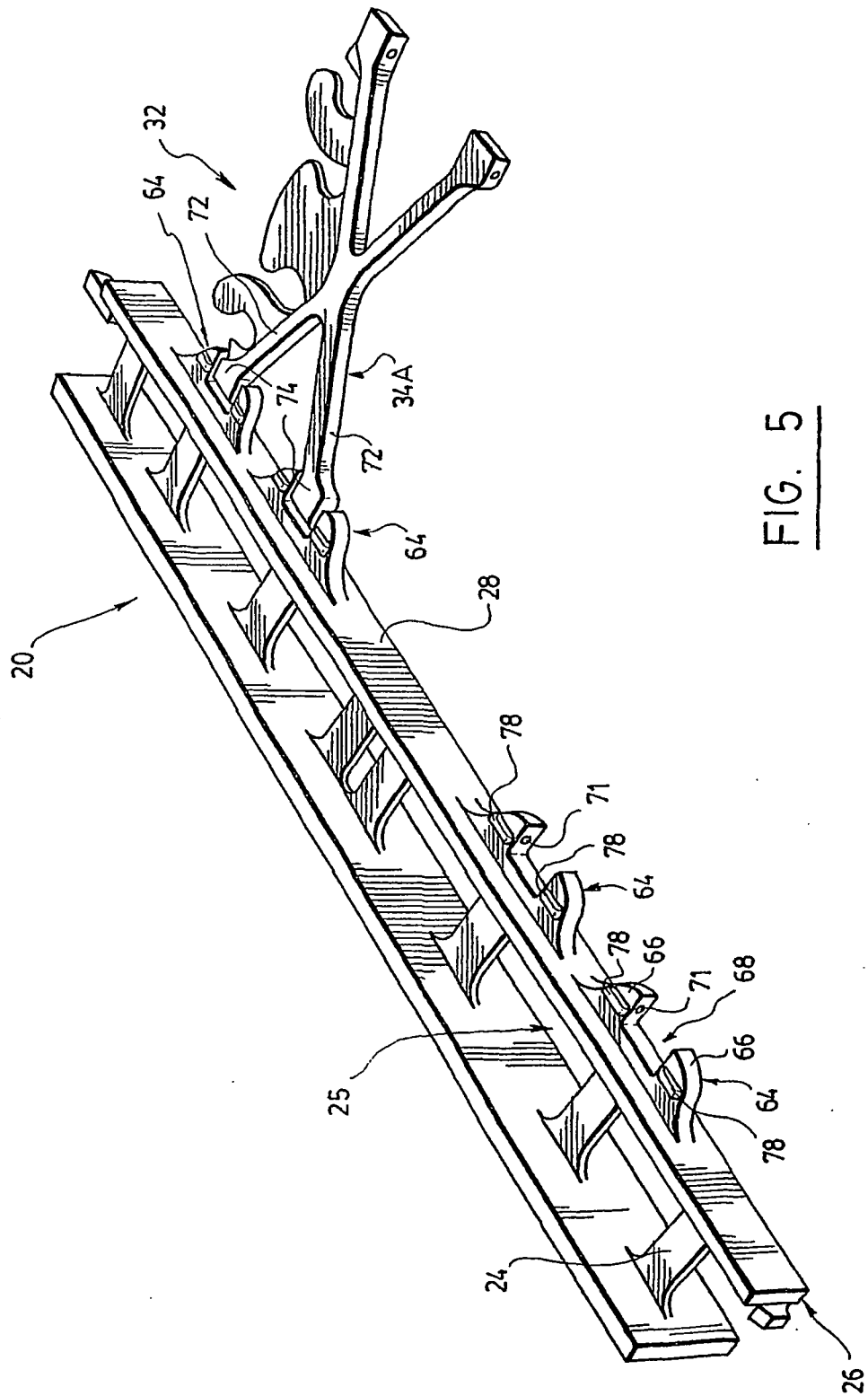


FIG. 5

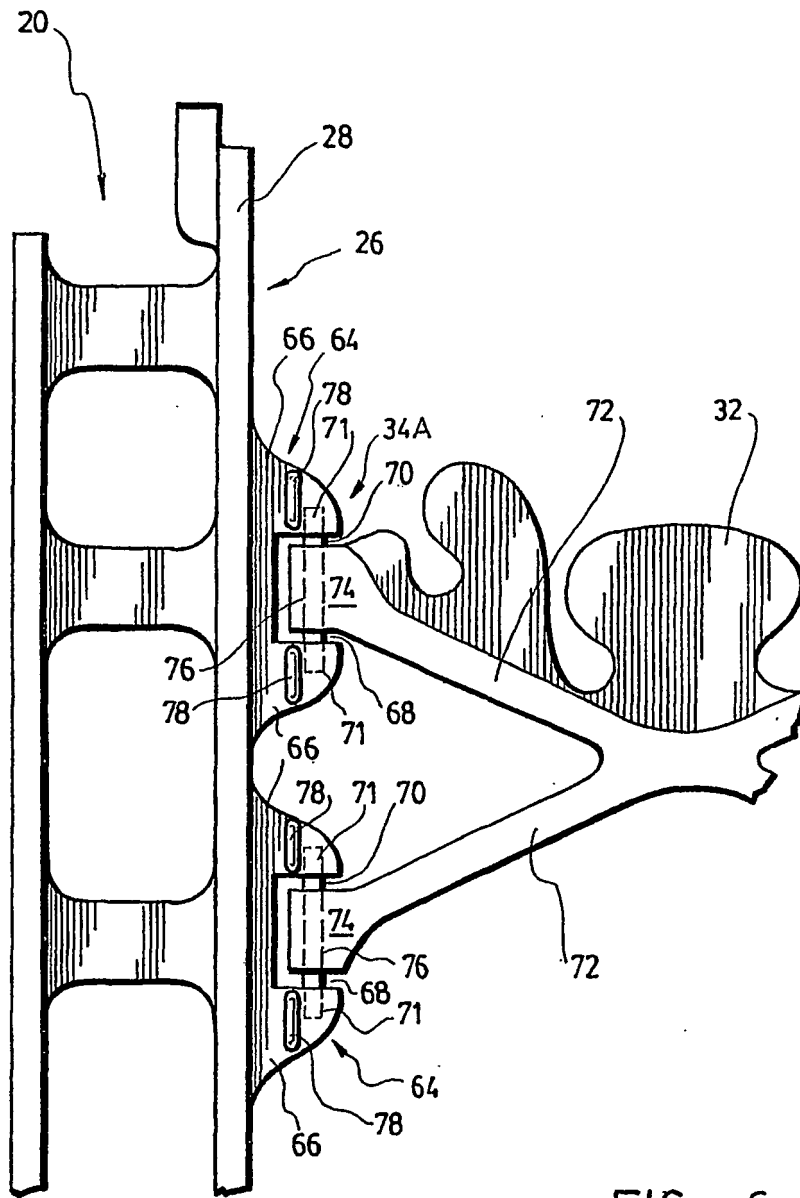


FIG. 6

REFERENCES CITED IN THE DESCRIPTION

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