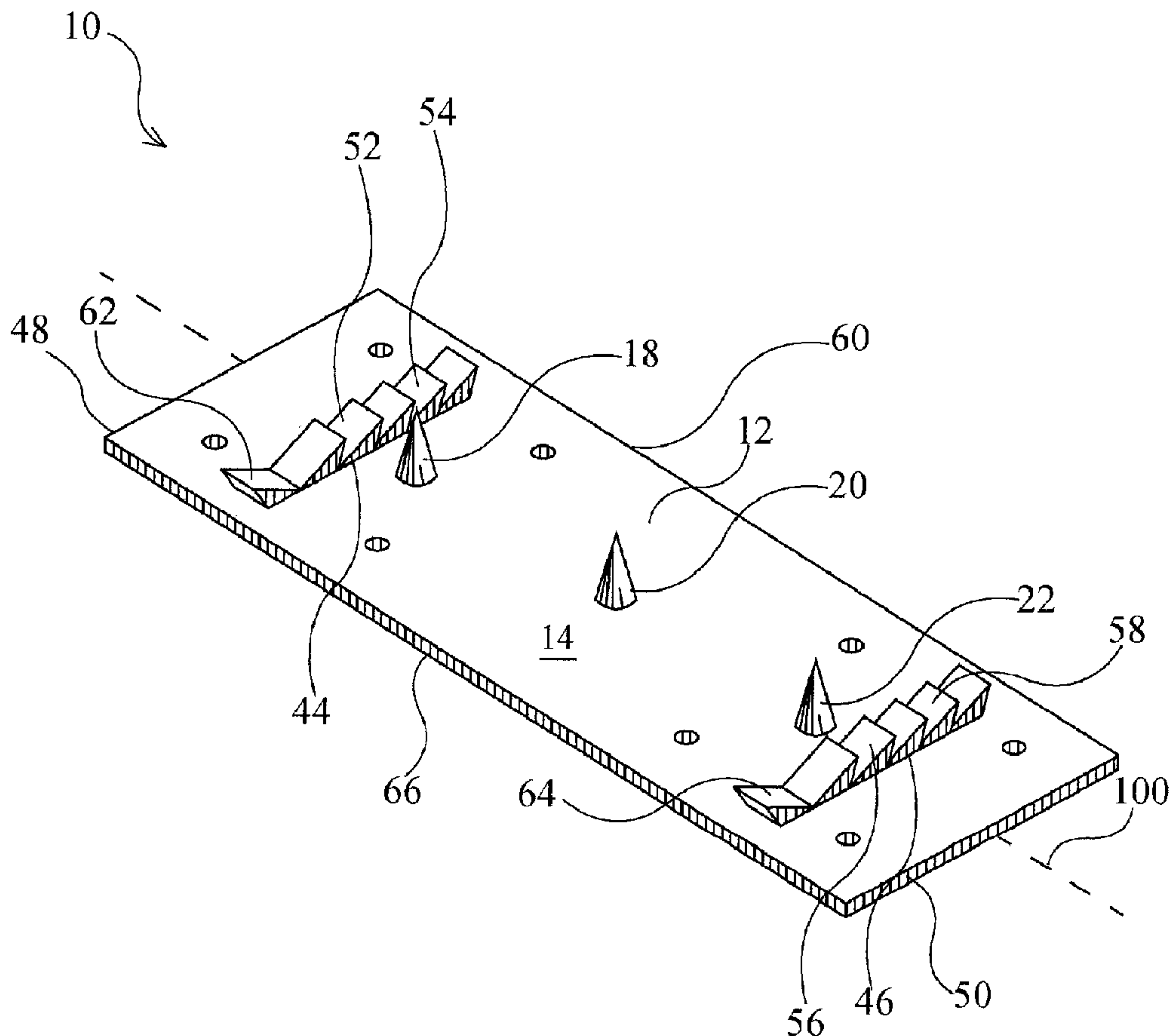




(86) **Date de dépôt PCT/PCT Filing Date:** 2014/03/06
(87) **Date publication PCT/PCT Publication Date:** 2014/09/12
(45) **Date de délivrance/Issue Date:** 2016/05/10
(85) **Entrée phase nationale/National Entry:** 2015/09/04
(86) **N° demande PCT/PCT Application No.:** CA 2014/050187
(87) **N° publication PCT/PCT Publication No.:** 2014/134735
(30) **Priorité/Priority:** 2013/03/06 (US61/773,800)

(51) **Cl.Int./Int.Cl.** *E02D 29/02* (2006.01),
B65D 33/00 (2006.01), *E02B 3/12* (2006.01)
(72) **Inventeur/Inventor:**
CALLEWAERT, MIKE, CA
(73) **Propriétaire/Owner:**
CALLEWAERT INTELLECTUAL PROPERTY INC., CA
(74) **Agent:** CAMERON IP

(54) **Titre : ELEMENT D'INTERCONNEXION POUR UNE STRUCTURE DE SAC DE TERRE OU DE SABLE**
(54) **Title: INTERCONNECTING MEMBER FOR A SAND OR SOIL BAG STRUCTURE**



(57) **Abrégé/Abstract:**

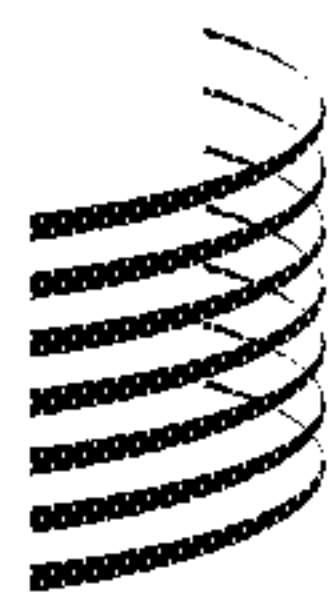
An interconnecting member for a sand or soil bag comprises a plate having a first side and a second side. There is a plurality of projections on the first side of the plate and a plurality of projections on the second side of the plate. There is also a pair of



(57) Abrégé(suite)/Abstract(continued):

serrations on the first side of the plate. The serrations each include a plurality of teeth arranged in a row and extending away from the plate in a first direction, and an end tooth at one end of the row which extends away from the plate in a second direction which is opposite of the first direction.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

WIPO | PCT



(10) International Publication Number

WO 2014/134735 A1

(43) International Publication Date
12 September 2014 (12.09.2014)

(51) International Patent Classification:

E02D 29/02 (2006.01) E02B 3/12 (2006.01)
B65D 33/00 (2006.01)

(21) International Application Number:

PCT/CA2014/050187

(22) International Filing Date:

6 March 2014 (06.03.2014)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/773,800 6 March 2013 (06.03.2013) US

(72) Inventor; and

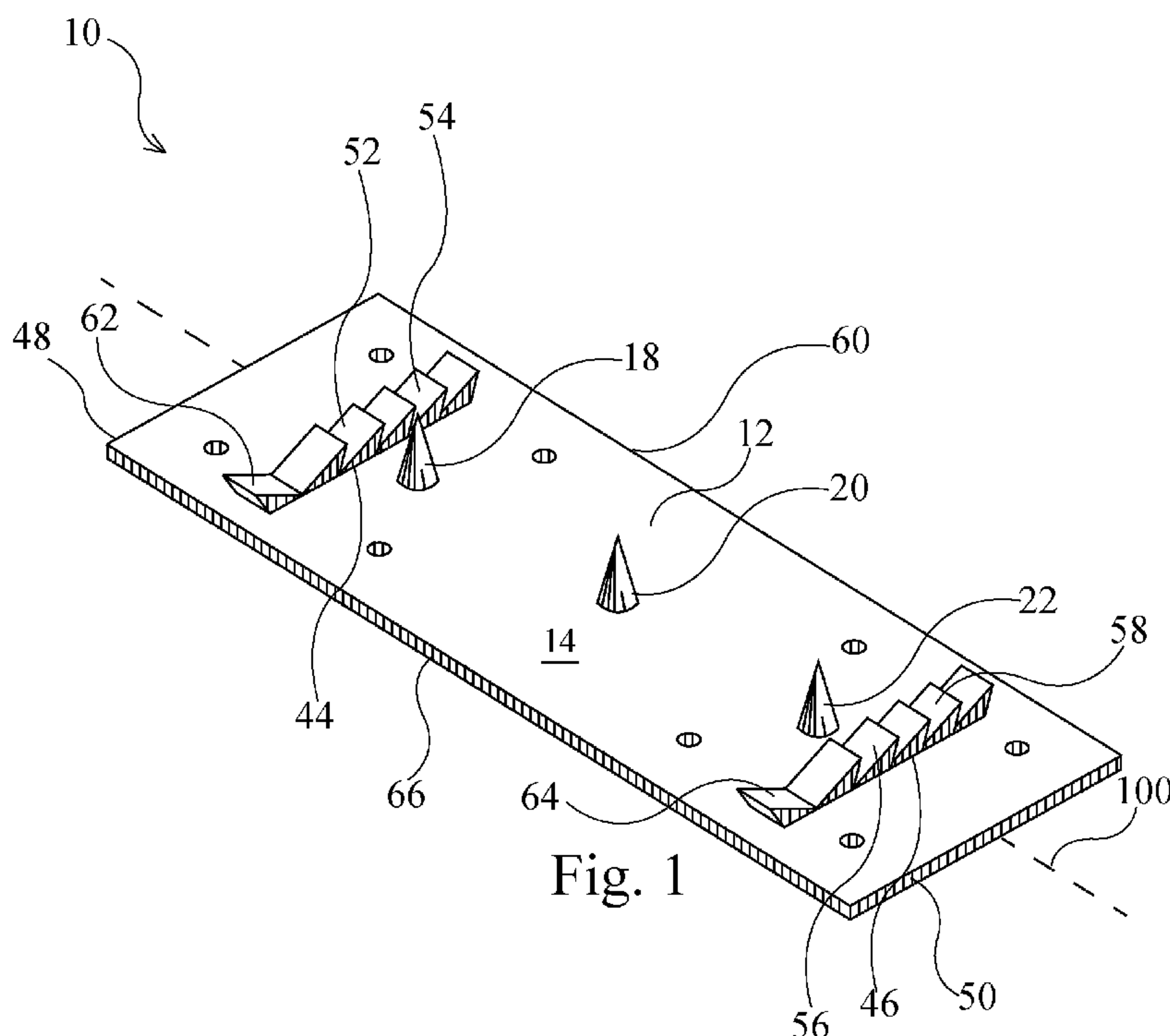
(71) Applicant : CALLEWAERT, Mike [CA/CA]; 12543
24th Ave, Surrey, British Columbia V4A 2E5 (CA).(74) Agent: CAMERON IP; 1401 - 1166 Alberni Street, Van-
couver, British Columbia V6E 3Z3 (CA).(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,
KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,
SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM,
ZW.(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— as to the identity of the inventor (Rule 4.17(i))

[Continued on next page]

(54) Title: INTERCONNECTING MEMBER FOR A SAND OR SOIL BAG STRUCTURE



(57) Abstract: An interconnecting member for a sand or soil bag comprises a plate having a first side and a second side. There is a plurality of projections on the first side of the plate and a plurality of projections on the second side of the plate. There is also a pair of serrations on the first side of the plate. The serrations each include a plurality of teeth arranged in a row and extending away from the plate in a first direction, and an end tooth at one end of the row which extends away from the plate in a second direction which is opposite of the first direction.

WO 2014/134735 A1



-
- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- Published:**
- *with international search report (Art. 21(3))*

INTERCONNECTING MEMBER FOR A SAND OR SOIL BAG STRUCTURE

5

BACKGROUND OF THE INVENTIONField of the Invention

10

[0001] The present invention relates to sand or soil bag structures and, in particular, to an interconnecting member for interconnecting sand or soil bags in a sand or soil bag structure.

Description of the Related Art

15

[0002] United States Patent Number 7,452,164 which issued on November 18, 2008 to Kim and which is a continuation-in-part of United States Patent Application Number 10/842,620, which issued to United States Patent Number 7,083,364 on August 1, 2006 to Kim, discloses a retaining wall structure built of wall-building units such as sand or soil bags or hardenable building units such as clay bricks. The retaining wall structure has interconnecting members placed between adjacent courses of units to attach the adjacent courses to one another. The interconnecting members are plates having projections on both sides which protrude into the wall-building units of the adjacent courses. Sheets of geogrid preferably extend from between some of the courses of wall-building units into the fill retained by the wall-building units. Projections on the interconnecting members protrude through holes in the geogrid sheet, anchoring the wall side to the reinforced soil structure.

25

[0003] United States Patent Number 8,371,772 which issued on February 12, 2013 to Chang discloses a retaining wall structure which includes a number of bag units piled to

form a wall and interconnecting units disposed between vertically adjacent bag units. The interconnecting units each has a plate and protrusions protruding from upper and lower
sides of the plate. A reinforcing layer is provided between the plate of a relative
interconnecting unit and a relative bag unit. The reinforcing layer is selected from cement
5 or adhesive (such as glue). The reinforcing layer between the plate of the interconnecting
unit and the bag unit is used to enhance the entire stability of the retaining wall adapted
for operation in different circumstances.

[0004] United States Patent Application Publication Number 2012/0027528 which
published on February 2, 2012 in the name of Alfreds discloses retaining wall systems
10 and methods of making retaining wall systems. In one embodiment, the retaining wall
system includes a first horizontally-extending course of sand or soil bags and a second
horizontally-extending course of sand or soil bags positioned vertically adjacent to the
first course of sand or soil bags. An interconnecting member attaches the first course of
sand or soil bags to the second course of sand or soil bags. The interconnecting member
15 has an upper side and a lower side. At least one of the upper side and the lower side has a
first projection that includes a notch therein to engage geogrid.

SUMMARY OF THE INVENTION

[0005] It is an object of the present invention to provide an improved interconnecting
20 member for interconnecting sand or soil bags in a sand or soil bag structure.

[0006] It is another object of the present invention to provide improved sand or soil
bag structures including, but not limited to, artificial slopes, bridge abutments, dams,
dykes, retaining walls and seawalls.

[0007] There is accordingly provided an interconnecting member for a sand or soil
25 bag comprising a plate having a first side and a second side. There is a projection on the
first side of the plate and a projection on the second side of the plate. There is a serration
including a plurality of teeth arranged in a row on the first side of the plate. The plurality

of teeth extends away from the plate in a first direction. There is a tooth on the first side of the plate which extends away from the plate in a second direction which is opposite the first direction.

5 [0008] There is also provided an interconnecting member for a sand or soil bag comprising a plate having a first side and a second side. There is a plurality of projections on the first side of the plate and a plurality of projections on the second side of the plate. There is a pair of spaced-apart serrations on the first side of the plate. The serrations each include a plurality of teeth arranged in a row and extending away from the plate in a first direction. The serrations also each include an end tooth disposed at an end of the row and
10 extending away from the plate in a second direction which is opposite the first direction.

[0009] The projections on the first side of the plate may be hollow and the projections on the second side of the plate may be hollow. Each said projection in the plurality of projections on the first side of the plate may be cone shaped. The plurality of projections on the first side of the plate may be aligned in a single row and may be disposed between
15 the pair of spaced-apart serrations. Each said projection in the plurality of projections on the second side of the plate may be cone shaped. The plurality of projections on the second side of the plate may be aligned in two parallel rows. The teeth may be wedge shaped and the end tooth may be wedge shaped. The plate may be elongate. The serrations may each extend transversely along the first side of the plate. The plurality of
20 projections on the first side of the plate may be aligned in a single row along a longitudinal axis of the plate. The plurality of projections on the second side of the plate may be aligned in two parallel rows aligned parallel to the longitudinal axis of the plate.

[0010] There is further provided a sand or soil bag structure comprising a first sand or soil bag, a second sand or soil bag and an interconnecting member disposed between the
25 first sand or soil bag and the second sand or soil bag. The interconnecting member includes a plate with a first side and a second side. There is a first projection on the first side of the plate and a second projection on the second side of the plate. There is a plurality of teeth on the first side of the plate. The plurality of teeth extends away from

the plate in a first direction. There is a tooth on the first side of the plate which extends away from the plate in a second direction which is opposite the first direction. The first projection on the first side of the plate engages the first sand or soil bag and the second projection on the second side of the plate engages the second sand or soil bag. There may
5 be a geogrid which engages the tooth on the first side of the plate. The plurality of teeth on the first side of the plate may be arranged in a row. The tooth may be aligned with the plurality of teeth arranged in a row.

BRIEF DESCRIPTIONS OF DRAWINGS

10 [0011] The invention will be more readily understood from the following description of the embodiments thereof given, by way of example only, with reference to the accompanying drawings, in which:

[0012] Figure 1 is a top perspective view of an improved interconnecting member for a sand or soil bag structure;

15 [0013] Figure 2 is a bottom perspective view of the interconnecting member of Figure 1;

[0014] Figure 3 is a top plan view of the interconnecting member of Figure 1;

[0015] Figure 4 is a bottom plan view of the interconnecting member of Figure 1;

[0016] Figure 5 is a side elevation view of the interconnecting member of Figure 1;

20 [0017] Figure 6 is an end view of the interconnecting member of Figure 1;

[0018] Figure 7 is a perspective view showing a plurality of interconnecting members similar to the type shown in Figure 1 being stacked together;

[0019] Figure 8 is a perspective view showing a plurality of interconnecting members similar to the type shown in Figure 1 stacked together;

[0020] Figure 9A is a front elevation view of a sand or soil bag structure constructed using the interconnecting member of Figure 1;

5 [0021] Figure 9B is an enlarged view of the interconnecting member of Figure 1 as shown in Figure 9A; and

[0022] Figure 10 is a side elevation view of a sand or soil bag structure constructed using the interconnecting member of Figure 1.

10

DESCRIPTIONS OF THE PREFERRED EMBODIMENTS

[0023] Referring to the drawings and first to Figures 1 and 2, an improved interconnecting member 10 for interconnecting sand or soil bags in a sand or soil bag structure is shown. The interconnecting member 10 includes an elongate plate 12 that has
15 a first side 14 which is shown in Figure 1 and a second side 16 which is shown in Figure 2. The first side 14 of the plate 12 is a top side of the plate and includes a plurality of projections 18, 20 and 22. The second side 16 of the plate 12 is a bottom side of the plate and also includes a plurality of projections 24, 26, 28, 30, 32, 34, 36 and 38. The projections are hollow cones, in this example, with open bottoms adjacent the plate 12.
20 Figures 3 to 6 show exemplar hollows 40 and 42 of respective projections 18 and 24. The hollow projections allow the interconnecting member 10 to be tightly stacked with like interconnecting members because the projections of one interconnecting member are received by corresponding hollows of another interconnecting member. Figures 7 and 8 show the stacking of a plurality of like interconnecting members 10a, 10b, 10c and 10d.

25 [0024] The interconnecting member 10 as thus far described is generally conventional. However, as best shown in Figure 1, the interconnecting member 10

disclosed herein is further provided with serrations 44 and 46 on the first side 14 of the plate 12. In this example, the serrations 44 and 46 are adjacent opposite end edges 48 and 50 of the plate 12. The serrations each include a plurality of teeth, for example, teeth 52 and 54 shown for a first one of the serrations 44 and teeth 56 and 58 shown for a second one of the serrations 46. The teeth are arranged in rows and are generally wedge shaped, in this example, and extend away from the plate 12 in a first direction towards a first longitudinal edge 60 of the plate 12 in this example. The serrations also each include a respective end tooth 62 and 64 which is also generally wedge shaped but extends away from the plate 12 in a second direction towards a second longitudinal edge 66 of the plate 12 in this example. The first direction and second direction are opposite of each other. In other examples, the serrations may only include a plurality of teeth extending away from the plate in the first direction and there may be a tooth remote of the serrations which extends away from the plate in the second direction. In still other examples, there may not be a serration but rather a plurality of spaced-apart teeth extending away from the plate in the first direction.

[0025] Figures 9A and 9B show the interconnecting member 10 interconnecting sand or soil bags 68, 70 and 72 in a sand or soil bag structure 74. The plurality of projections 18, 20 and 22 on the first side 14 of the plate 12 engage the sand or soil bag 68 on an upper course 76 of the sand or soil bag structure 74. Respective ones of the plurality of projections on the second side 16 of the plate 12, for example projections 24, 26, 28 and 30, engage respective sand or soil bags 70 and 72 in a lower course 78 of the sand or soil bag structure 74. It will be understood by a person skilled in the art that the terms upper course and lower course as used herein refer to the position of the course relative to the interconnecting member. The serrations 44 and 46 minimize the potential of wall creep after installation of a sand or soil bag structure installation where surcharge, hydrostatic pressure or natural movement may otherwise cause bulging or structural failure. The respective end tooth 56 and 58 of each of the serrations 44 and 46 allow a geogrid reinforcement 80 to directly engage the interconnecting member 10 as shown in Figure 10 for end tooth 64 of serration 46.

[0026] The interconnecting member 10 shown in Figures 1 to 6 has a rectangular shaped plate. There are three hollow cone shaped projections 18, 20 and 22 on the first side 14 of the plate 12 and eight hollow cone shaped projections 24, 26, 28, 30, 32, 34, 36 and 38 on the second side 16 of the plate 12. The projections on the first side of the plate are aligned in a single row along a longitudinal axis 100 of the plate and are disposed between the spaced-apart serrations 44 and 46 which extend transversely along the first side of the plate. The projections on the second side of the plate are arranged in two parallel rows of four projections which are aligned parallel to the longitudinal axis 100 of the plate. It will however be understood by a person skilled in the art that alternative shapes and configurations may be used.

[0027] It will also be understood by a person skilled in the art that many of the details provided above are by way of example only, and are not intended to limit the scope of the invention which is to be determined with reference to the following claims.

WO 2014/134735

PCT/CA2014/050187

What is claimed is:

1. An interconnecting member for a sand or soil bag comprising:
 - a plate having a first side and a second side;
 - a projection on the first side of the plate;
 - a projection on the second side of the plate;
 - a serration including a plurality of teeth arranged in a row on the first side of the plate, the plurality of teeth extending away from the plate in a first direction; and
 - a tooth on the first side of the plate extending away from the plate in a second direction which is opposite the first direction.
2. An interconnecting member for a sand or soil bag comprising:
 - a plate having a first side and a second side;
 - a plurality of projections on the first side of the plate;
 - a plurality of projections on the second side of the plate; and
 - a pair of spaced-apart serrations on the first side of the plate, wherein the serrations each include a plurality of teeth arranged in a row and extending away from the plate in a first direction, and an end tooth disposed at an end of the row and extending away from the plate in a second direction which is opposite the first direction.

3. The interconnecting member as claimed in claim 2 wherein the projections on the first side of the plate are hollow and the projections on the second side of the plate are hollow.
4. The interconnecting member as claimed in claim 2 or 3 wherein each said projection in the plurality of projections on the first side of the plate is cone shaped.
5. The interconnecting member as claimed in claim 4 wherein the plurality of projections on the first side of the plate are aligned in a single row and are disposed between the pair of spaced-apart serrations.
6. The interconnecting member as claimed in claim 2 or 3 wherein each said projection in the plurality of projections on the second side of the plate is cone shaped.
7. The interconnecting member as claimed in claim 6 wherein the plurality of projections on the second side of the plate are aligned in two parallel rows.
8. The interconnecting member as claimed in claim 2 wherein the teeth are wedge shaped.
9. The interconnecting member as claimed in claim 2 wherein the end tooth is wedge shaped.
10. The interconnecting member as claimed in claim 2 wherein:

the plate is elongate;

the serrations each extend transversely along the first side of the plate;

the plurality of projections on the first side of the plate are aligned in a single row along a longitudinal axis of the plate; and

the plurality of projections on the second side of the plate are aligned in two parallel rows aligned parallel to the longitudinal axis of the plate.

11. A sand or soil bag structure comprising:

a first sand or soil bag;

a second sand or soil bag; and

an interconnecting member disposed between the first sand or soil bag and the second sand or soil bag, the interconnecting member having:

a plate with a first side and a second side,

a first projection on the first side of the plate,

a second projection on the second side of the plate,

a plurality of teeth on the first side of the plate, the plurality of teeth extending away from the plate in a first direction, and

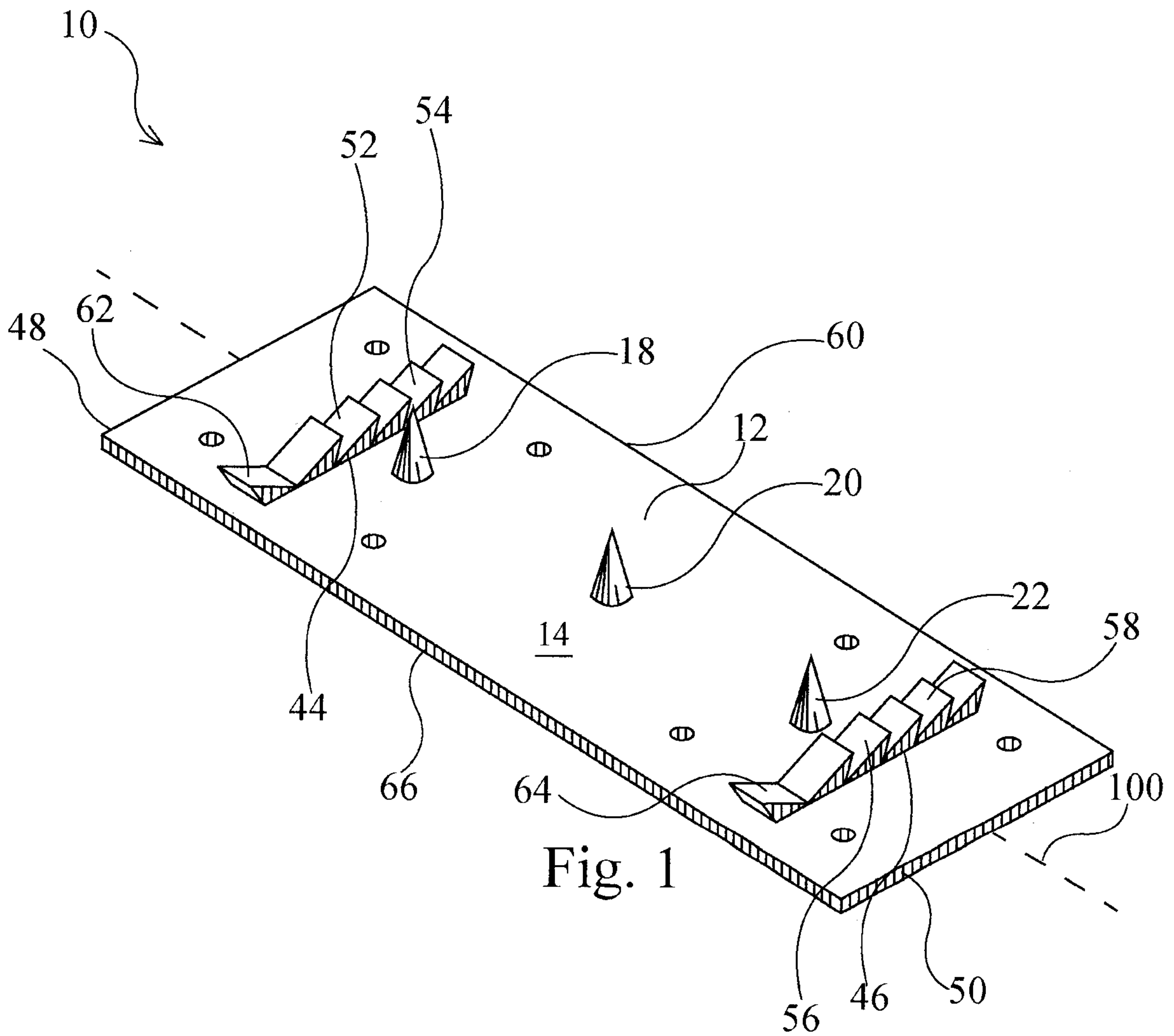
a tooth on the first side of the plate extending away from the plate in a second direction which is opposite the first direction; and

wherein the first projection on the first side of the plate engages the first sand or soil bag and the second projection on the second side of the plate engages the second sand or soil bag.

WO 2014/134735

PCT/CA2014/050187

12. The sand or soil bag structure as claimed in claim 11 further including a geogrid which engages the tooth on the first side of the plate.
13. The sand or soil bag structure as claimed in claim 11 wherein the plurality of teeth on the first side of the plate are arranged in a row.
14. The sand or soil bag structure as claimed in claim 13 wherein the tooth is aligned with the plurality of teeth arranged in a row.



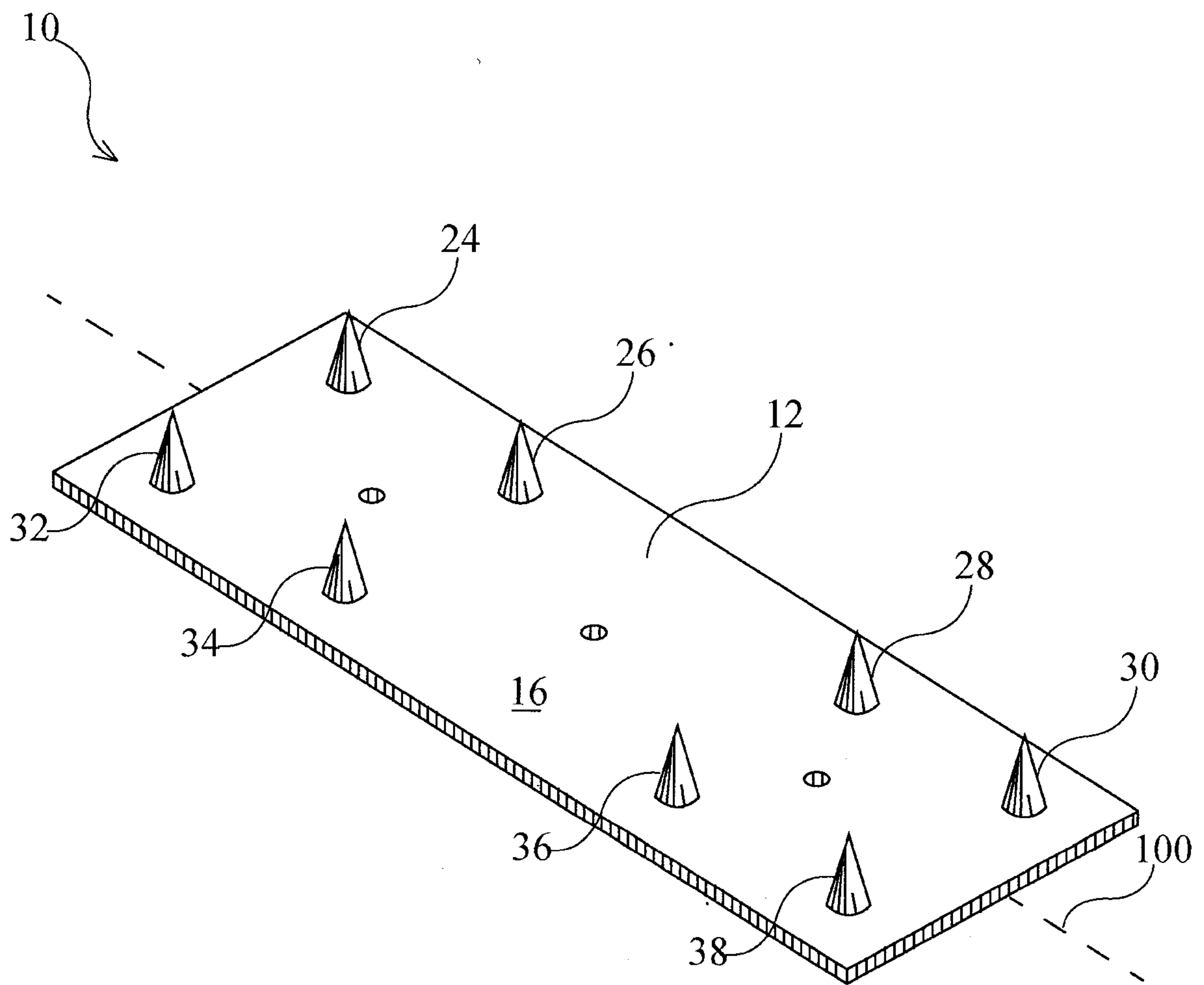
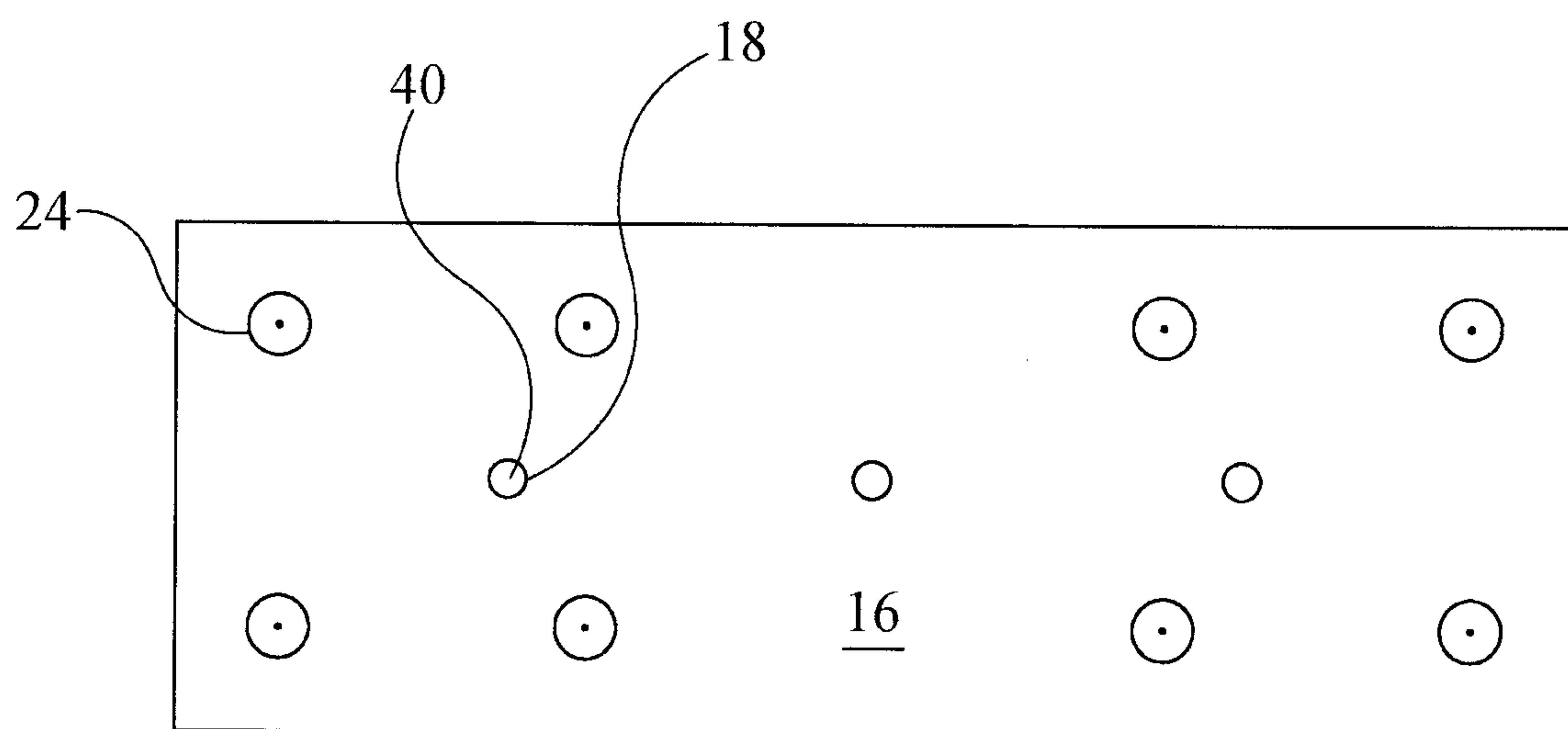
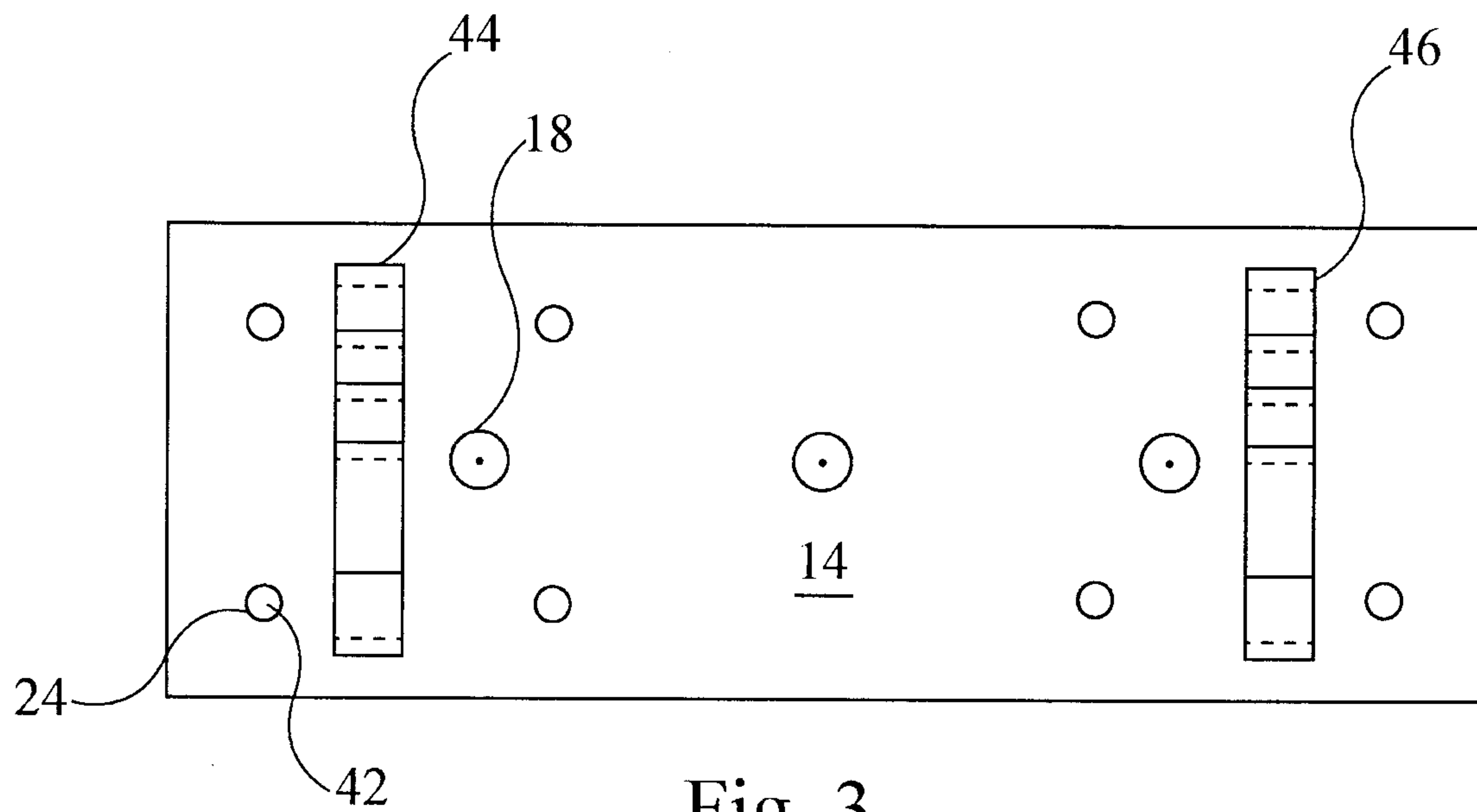
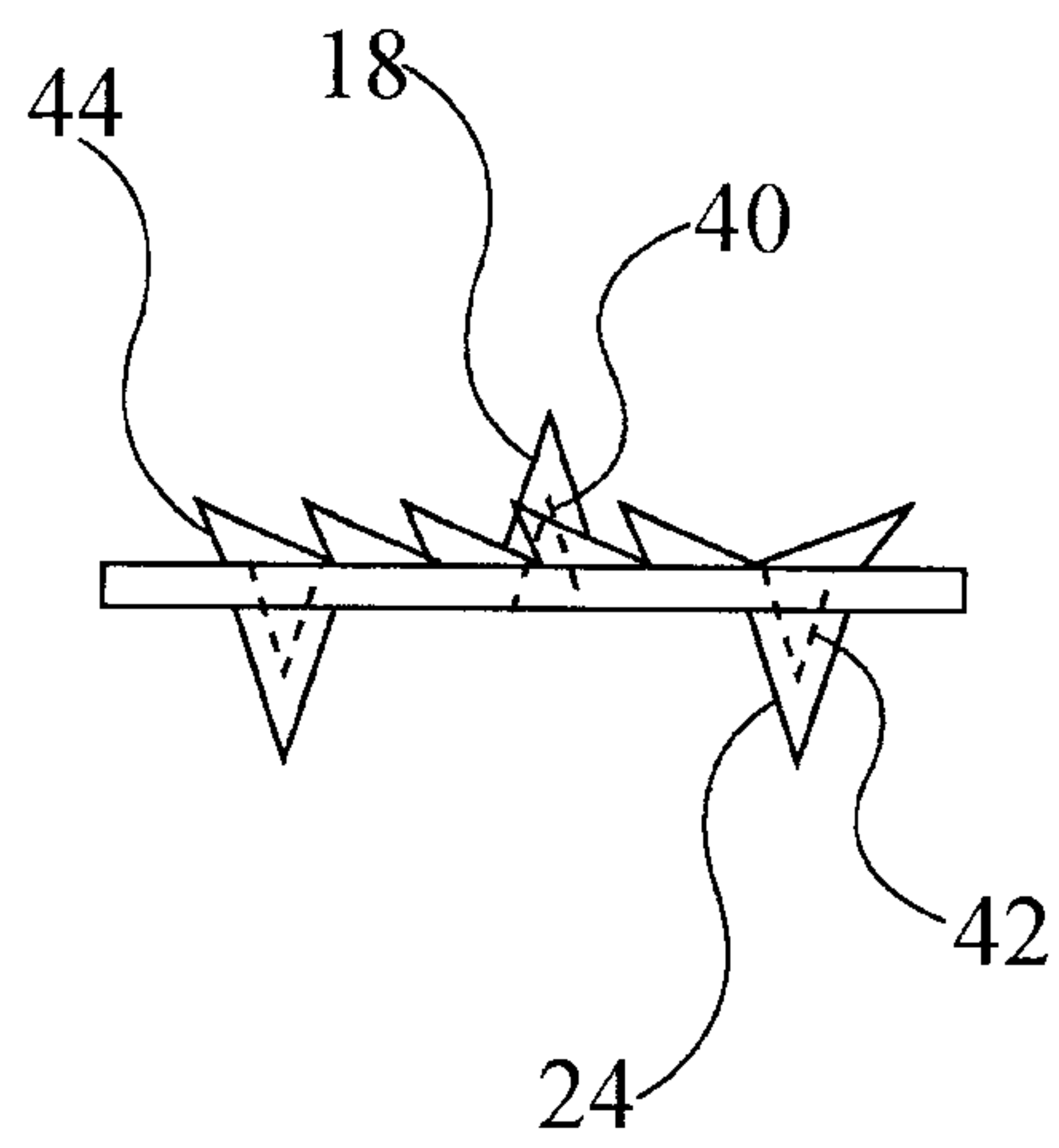
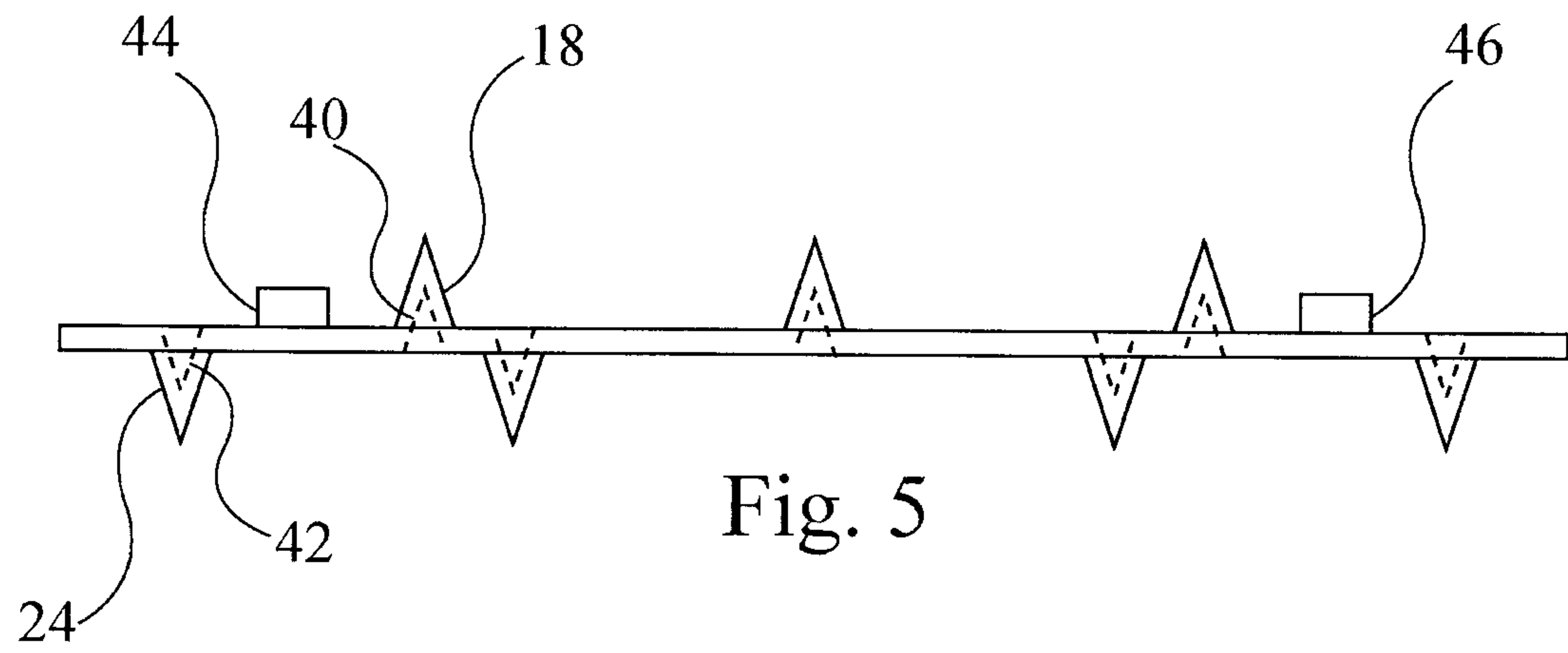


Fig. 2





5/7

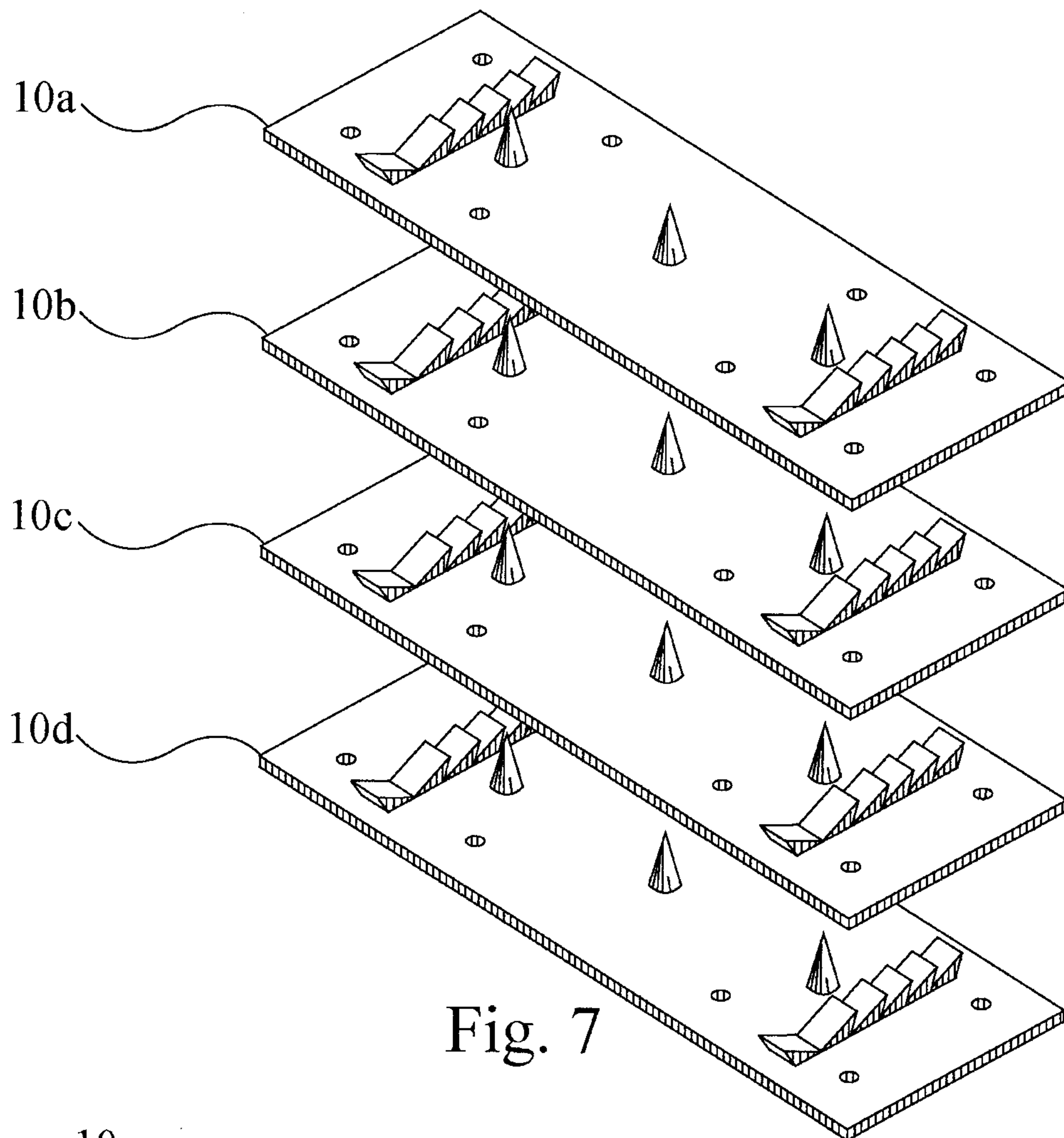


Fig. 7

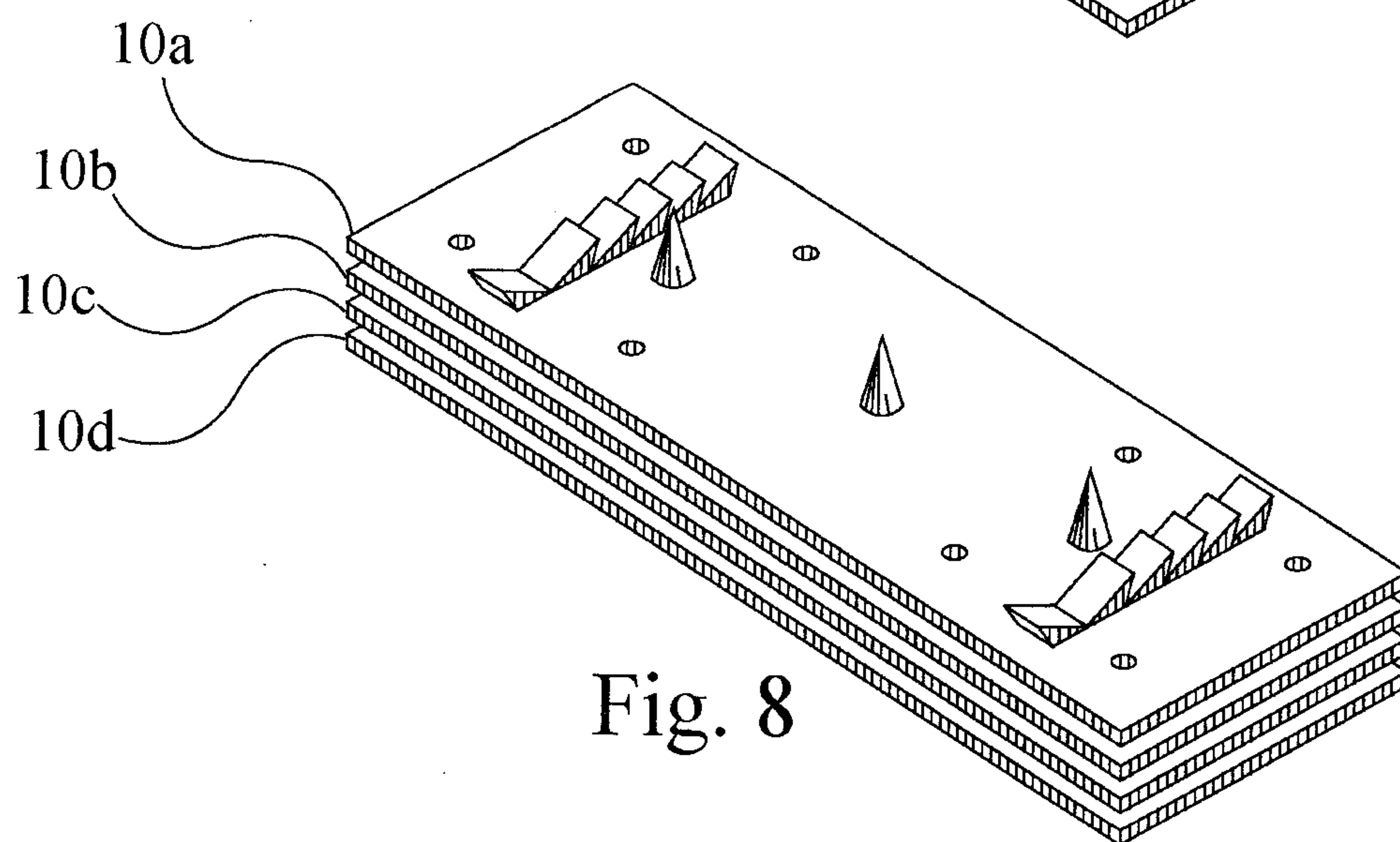
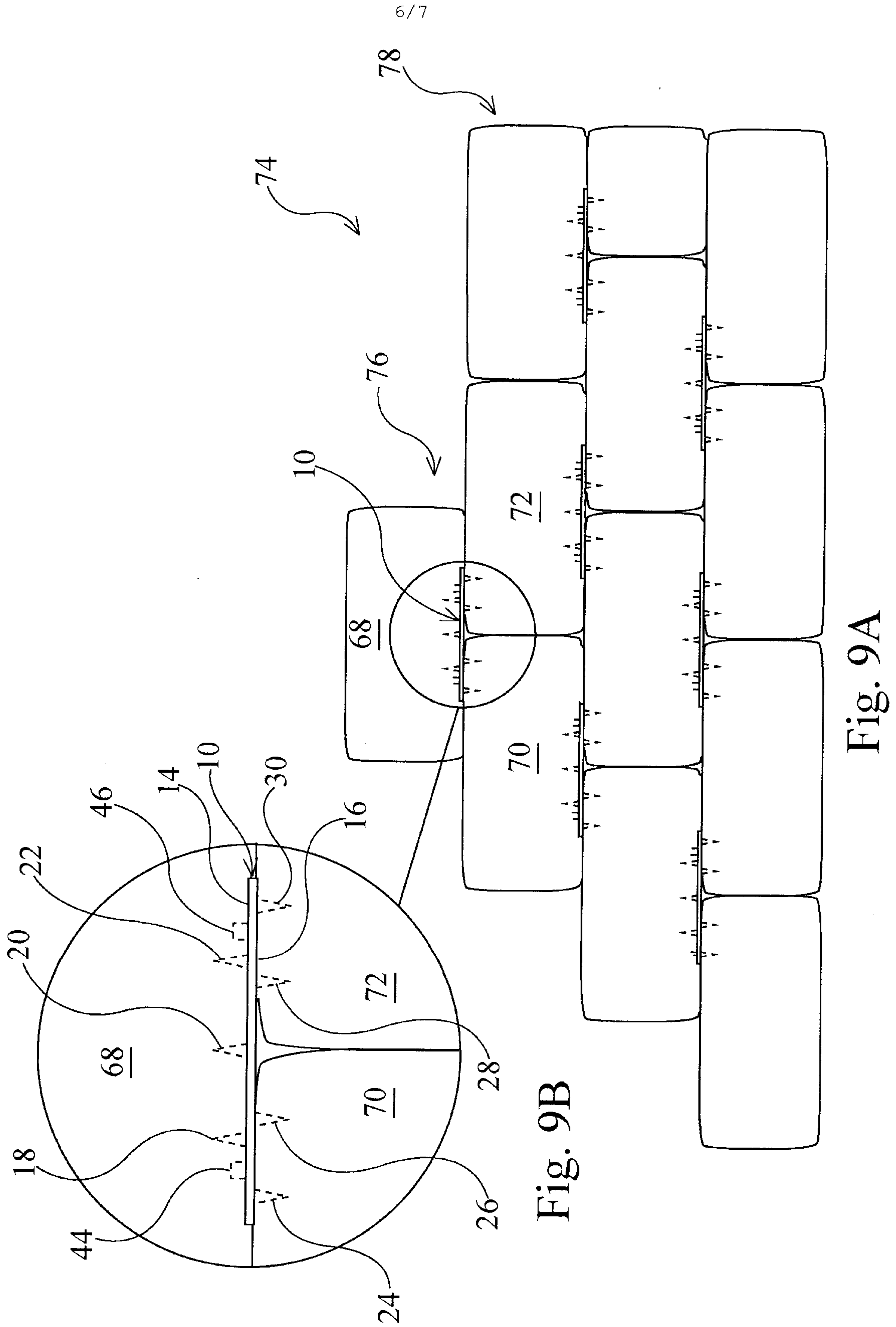


Fig. 8



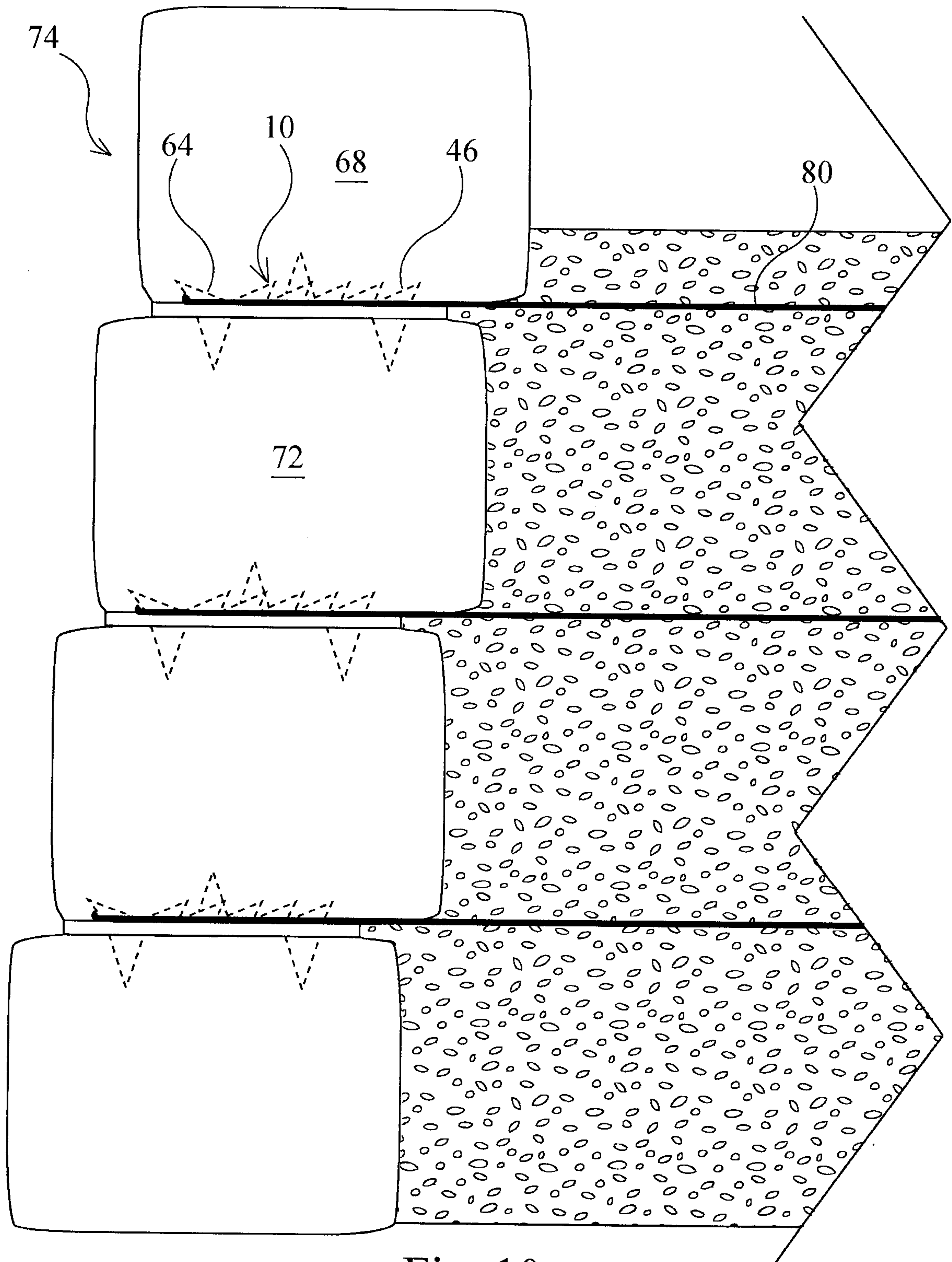


Fig. 10

