



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
13.03.2013 Bulletin 2013/11

(51) Int Cl.:
E03F 1/00 (2006.01) E03F 5/02 (2006.01)

(21) Application number: **12183449.3**

(22) Date of filing: **07.09.2012**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(71) Applicant: **Dakota Italia S.p.A.**
37122 Verona (IT)

(72) Inventor: **Cipriani, Zeno**
37122 Verona (IT)

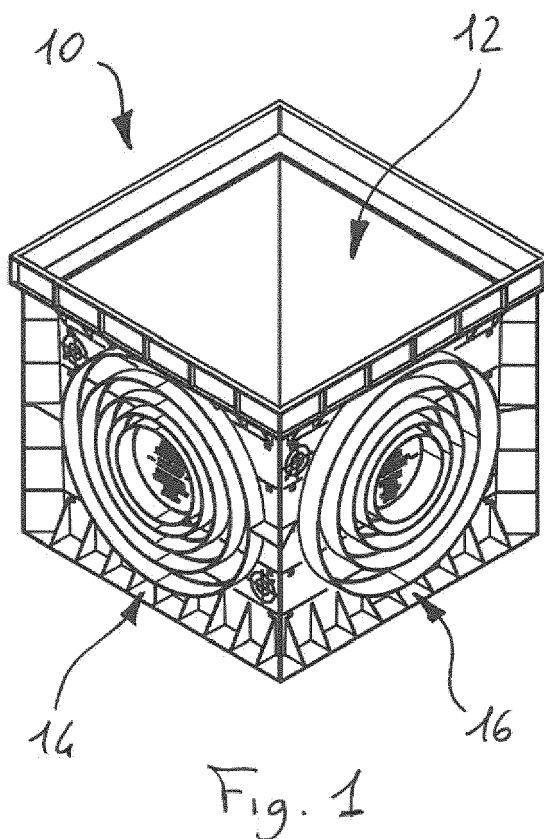
(74) Representative: **Fisauli, Beatrice A. M.**
Con Lor S.p.A
Via Renato Fucini, 5
20133 Milano (IT)

(30) Priority: **09.09.2011 IT VR20110177**

(54) **Sump**

(57) It is an underground monolithic sump (10) for the drainage and collection of waste and rain water and/or for the housing of cables or meters.

The sump (10) comprises a bottom (40) and four side walls (14, 16) on which signs and reliefs are comprised for an easy assembly of the sump (10) with tubes and conduits.



Description

[0001] The present invention refers, in general, to a sump. More particularly, the invention refers to an underground monolithic sump for the drainage and collection of waste and rain water and/or for the housing of cables or meters. According to the prior art, the underground sumps for the drainage of water and for the housing of cables or meters are usually made of concrete; as a consequence, sumps with proper dimensional and shape characteristics must be chosen according to the needs of the different applications. In other words, the known sumps are not very flexible and besides they need difficult operations in order to be adapted to the various utilization needs.

[0002] As an example, if a concrete sump has to be connected to a conduit, the carrying out of a hole is difficult and often inaccurate.

[0003] An aim of the invention is to remove the above mentioned disadvantages and other ones by carrying out a sump which is easily adaptable and modifiable according to the different use needs.

[0004] The above aim and other ones are achieved according to the invention by an underground monolithic sump for the drainage and collection of waste and rain water and/or for the housing of cables or meters, characterized by the fact of being carried out in a single cubic piece in a plastic material obtained by molding, comprising a bottom and four side walls; circumferential signs being formed on the side walls and utilized to drill holes with diameters of 1 and 2 inches to which ducts are connected to install water and/or gas meters; embossed rings being comprised on the side walls and utilized for the insertion of pipes having a predetermined diameter.

[0005] Thanks to the arrangement of cuts and signs for the assembly of the accessories and connections, the sump according to the invention shows the undoubted advantage of being adaptable and adjustable in an intuitive way and it does not need any work with particular tools.

[0006] Advantageously, the sump according to the invention can show cut marks which are formed near each ring on the side walls to cut the innermost wall portion and remove the innermost rings so as to obtain the passage hole of a pipe.

[0007] Besides, at least one of the side walls in the inside of the smallest ring can comprise an inscription indicating whether the at least one of the side walls is to be utilized for water inlet pipes or water outlet pipes. As an example, the inscription can be "OUTLET" or "INLET".

[0008] Advantageously, at least a side wall is provided with straight signs which are parallel to the bottom and are utilized to cut the sump at different heights, marked with each straight sign. In this way the sump can be cut so as to obtain, once the bottom is removed, an extension for an analogous sump. The sump according to the invention can comprise an edge which is in the upper part of the sump, is parallel to the bottom and provided with

a perimetric frame; said edge is connected through a recess to the side walls and, along with the frame, is very useful for stacking up several sumps. Besides, first notches can be formed along the frame, at the frame corners, and second notches can be formed between the edge and the frame so that it is possible to remove the frame from the edge. In this way a structure and a manhole cover, for example, made of cast iron, can be mounted on the edge of the sump.

[0009] Further features and details of the invention will be better understood from the following specification which is supplied as a non-limiting example as well as from the accompanying drawing, wherein:

figure 1 is an axonometric view of a sump according to the present invention;

figure 2 is a lateral view of the sump of figure 1 from the outlet side;

figure 3 is a lateral view of the sump of figure 1 from the inlet side;

figure 4 is a top view of the sump of figure 1;

figure 5 is a second axonometric view of the sump of figure 1;

figure 6 is a view of a detail indicated with A in figure 5, showing signs in order to obtain the passage of ducts;

figure 7 is a view of a detail indicated with B in figure 5, showing a straight sign in order to cut the sump and to obtain an sump extension;

figure 8 is a view of a detail indicated with C in figure 5, showing different rings in order to obtain accesses of various measures;

figure 9 is a view of a detail indicated with D in figure 5, showing a carving to remove the frame in order to fit a structure for manhole cover;

figure 10 is a top view of the sump wherein the sections E and F are shown; figure 11 is a vertical cross-sectional view of the sump according to the section plane F indicated in figure 10;

figure 12 is a vertical longitudinal sectional view of the sump according to the section plane E indicated in figure 10;

figures 13 and 14 are views of details indicated respectively with G and H in figure 11, wherein a carving is shown;

figure 15 is a view of a detail indicated with J in figure 12;

figures 16 and 18 are axonometric views of several superimposed sumps, highlighting the stackability of the sump according to the invention;

figure 17 is a view of a detail indicated with K in figure 16, wherein it is highlighted the method with which the base of a sump according to the invention is inserted in the top end of an analogous sump.

[0010] With reference to the accompanying figures, number 10 denotes a sump which is carried out in a single piece in a plastic material obtained by molding. The sump

is a cubic body comprising a bottom 40 and four side walls 14, 16; in the upper part, the sump is open and has an opening 12.

[0011] The side walls 14, 16 have circumferential signs, indicated with references 18, 19 in Figures 2 and 6. The circumferential signs 18, 19 are utilized to obtain holes having diameters of 1 and 2 inches to which ducts are connected for the installation of water and/or gas meters.

[0012] Besides, embossed rings, indicated with references 20, 21, 22, 23, 24 in Figures 2 and 9, are provided on the side walls 14, 16 and are utilized for the insertion of pipes having a diameter of 500, 400, 315, 250, 200 mm, respectively.

[0013] Cut marks are formed near each ring to remove the innermost rings and obtain a pipe passage hole of the wished size. Rings 23, 24 with their respective cut marks 34, 36 are represented in Figure 14. In this case, it is sufficient for instance, to perform the cutting in correspondence of the cut sign 34, to remove the innermost part, namely, the innermost ring and obtain a hole of amplitude equal to that of the second smaller ring 23 having an inner diameter of 250 mm. In this way, it is possible to obtain a hole which has the exact perimeter to receive a pipe having a diameter of 250 mm, according to the standardized dimensions.

[0014] In addition, the side walls 14, 16 in the inside of the smallest ring 24 include useful inscriptions to recognize which walls have to be utilized for the water inlet pipes and which wall has to be utilized for the water outlet pipe. In particular, the inside of the ring 24 of the wall indicated with 16 shows the inscription "OUTLET" and other analogous words meaning "exit" in different languages. The inside of the ring 24 of the walls indicated with 14 shows the inscription "INLET" and other analogous words meaning "entry" in different languages.

[0015] Besides, the side walls 14, 16 are provided with straight signs 26 which are parallel to the bottom 40. The straight signs 26 are utilized to cut the sump at different heights, suitably marked in correspondence of each sign 26. In this way, by removing the bottom 40 it is possible to transform the sump in an extension of different heights according to the requirements.

[0016] The upper portion of the sump 10 comprises an edge 29 provided with a perimetric frame 30 and connected through a recess 38 to the side walls 14, 16, as visible in Figure 15.

[0017] This configuration allows to put the outermost portion of the bottom 40 of a second sump on top of the edge 29, as it appears from Figure 17, on obtaining a higher sump in case the upper sump is shaped like an extension and its bottom has been removed.

[0018] In addition, the shape of the edge 29 allows to easily stack up more sumps 10, 110, 210 for a safer transport, as represented in Figures 16, 18.

[0019] First notches 28 are formed along the frame 30, at the frame corners. Besides, second notches 32 are formed also between the edge 29 and the frame 30.

Thanks to the first and second notches 28, 32 it is possible to remove the frame 30 more easily for the installation of a structure with cast iron cover or alternatively, covers in different shapes and materials.

5 [0020] Thanks to the predisposition of the notches and the instructions for the mounting of the accessories and connections, the sump according to the invention involves the undoubted advantage of being adapted and modified in an intuitive way and does not require to be worked with particular tools.

10 [0021] In comparison with the known articles, this sump is easy to install and thanks to its particular configuration, the costs for its production and mounting are low.

15 [0022] Besides, the sump is advantageous for its lightness due to the plastic material and for a consequent easiness in the installation and transport, the transport being facilitated also by the particular feature of the stackability of the sumps according to the invention.

20 [0023] The well-defined cut marks and the inscriptions with the indication of the inlet holes and outlet holes for the entrances of the pipes allow to obtain holes of precise and standardized dimensions. Consequently, a perfect hydraulic seal is reached for the inlet and outlet pipes.

25 [0024] The sump may be utilized also for the connection of ducts for the installation of water and gas meters thanks to the presence of signs adapted to form holes of 1 and 2 inches.

30 [0025] A technician of this sector may conceive changes or variants that are to be considered as included in the scope of protection of the present invention.

Claims

- 35
1. Underground monolithic sump (10) for the drainage and collection of waste and rain water and/or for the housing of cables or meters, **characterized by** the fact of being carried out in a single cubic piece in a plastic material obtained by molding, comprising a bottom (40) and four side walls (14, 16); circumferential signs (18, 19) being formed on the side walls (14, 16) and utilized to drill holes with diameters of 1 and 2 inches to which ducts are connected to install water and/or gas meters; embossed rings (20, 21, 22, 23, 24) being comprised on the side walls (14, 16) and utilized for the insertion of pipes having a predetermined diameter.
 - 40 2. Underground monolithic sump (10) according to the preceding claim, wherein cut marks (34, 36) are formed near each ring (20, 21, 22, 23, 24) on the side walls to cut the innermost wall portion and remove the innermost rings so as to obtain the passage hole of a pipe.
 - 45 3. Underground monolithic sump (10) according to any of the preceding claims, wherein at least one of the
- 50
- 55

side walls (14, 16) in the inside of the smallest ring (24) comprises an inscription indicating whether the at least one of the side walls (14, 16) is to be utilized for water inlet pipes or water outlet pipes.

5

4. Underground monolithic sump (10) according to the preceding claim, wherein the inscription is "OUT-LET" or "INLET".
5. Underground monolithic sump (10) according to any of the preceding claims, wherein at least a side wall (14, 16) is provided with straight signs (26) which are parallel to the bottom (40) and are utilized to cut the sump at different heights, marked with each straight sign (26). 10 15
6. Underground monolithic sump (10) according to any of the preceding claims, wherein an edge (29) parallel to the bottom (40) and provided with a perimetric frame (30) is comprised in the upper part, said edge (29) being connected (14, 16) through a recess (38) to the side walls (14, 16). 20
7. Underground monolithic sump (10) according to the preceding claim, wherein first notches (28) are formed along the frame (30), at the frame corners, and second notches (32) are formed between the edge (29) and the frame (30) so that it is possible to remove the frame (30) from the edge (29). 25 30

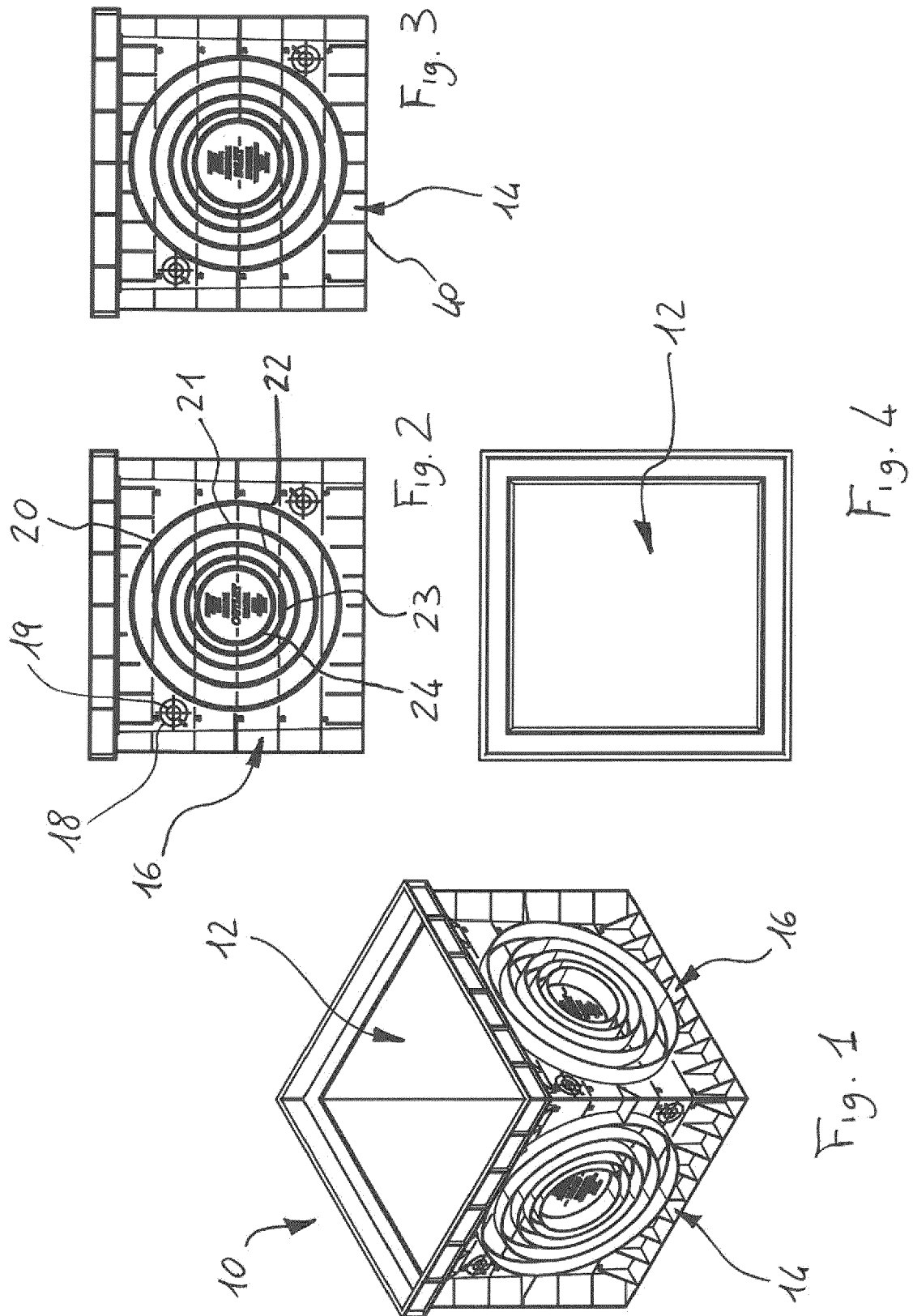
35

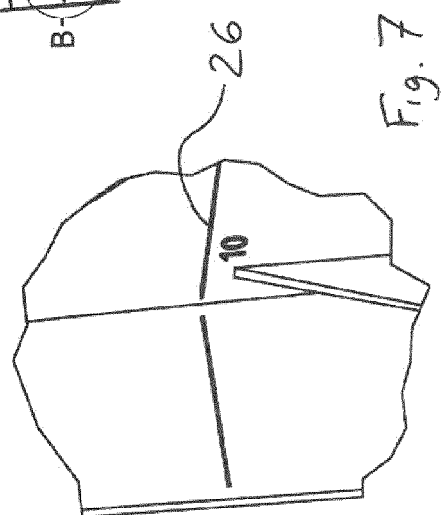
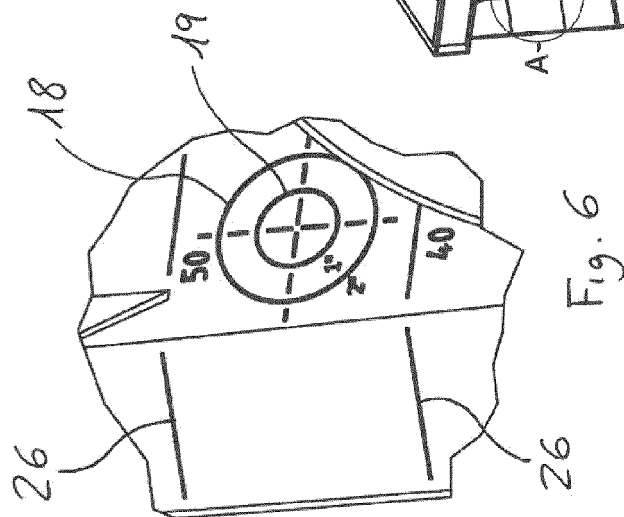
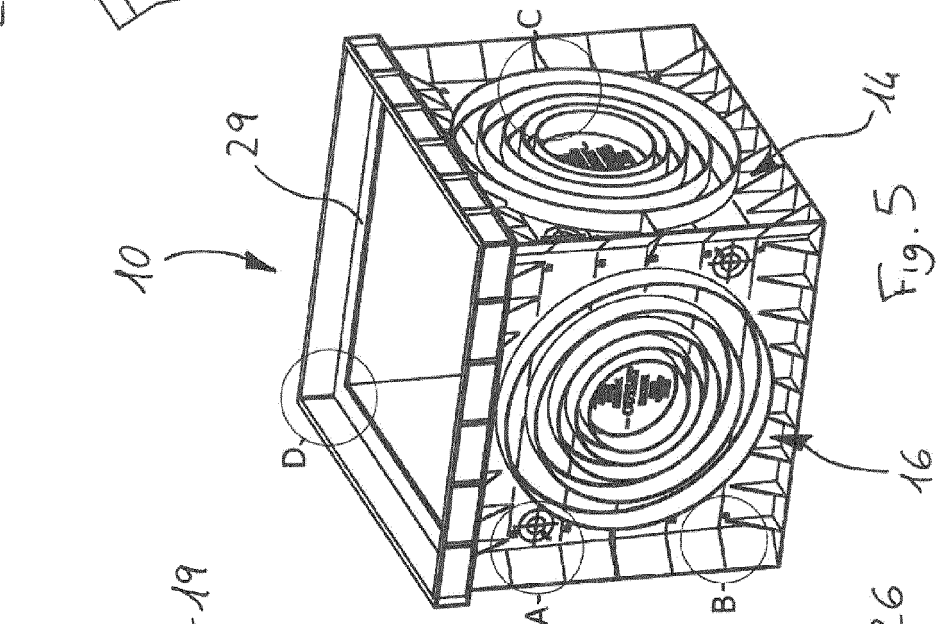
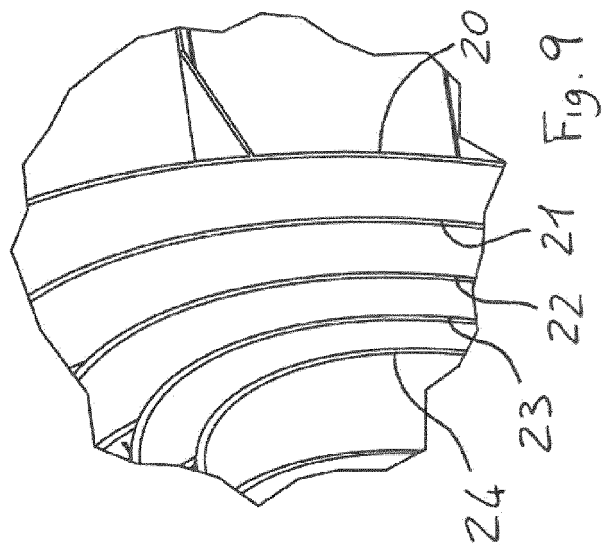
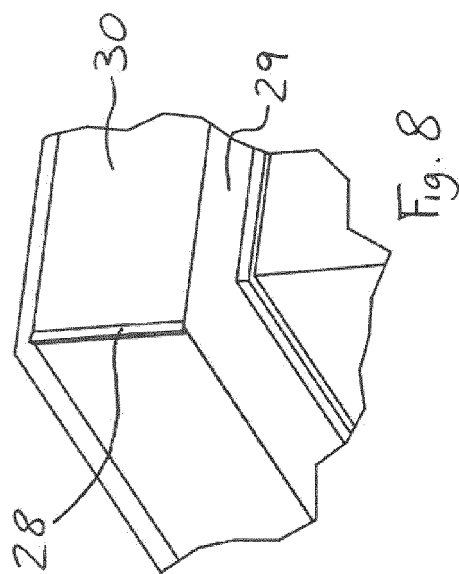
40

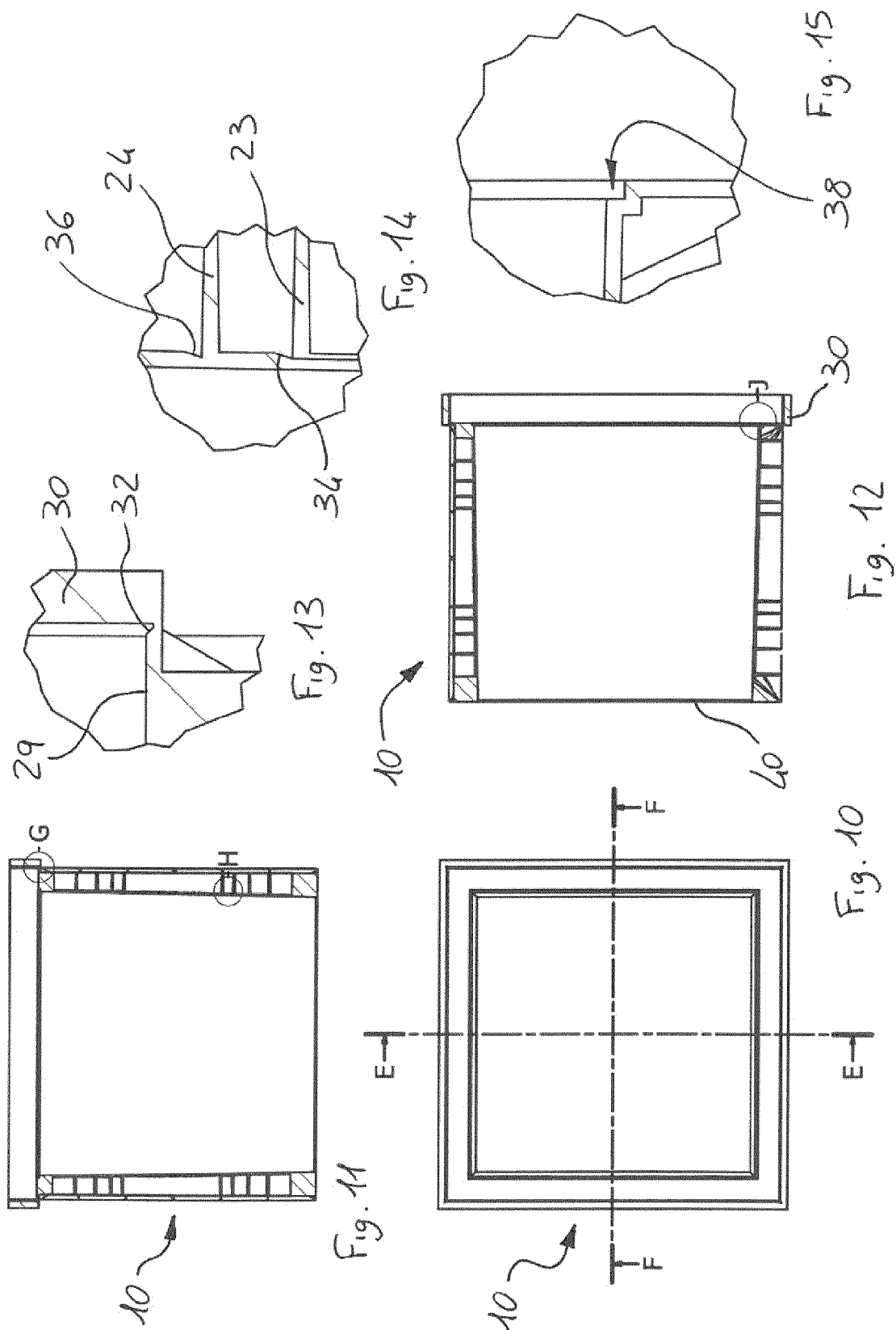
45

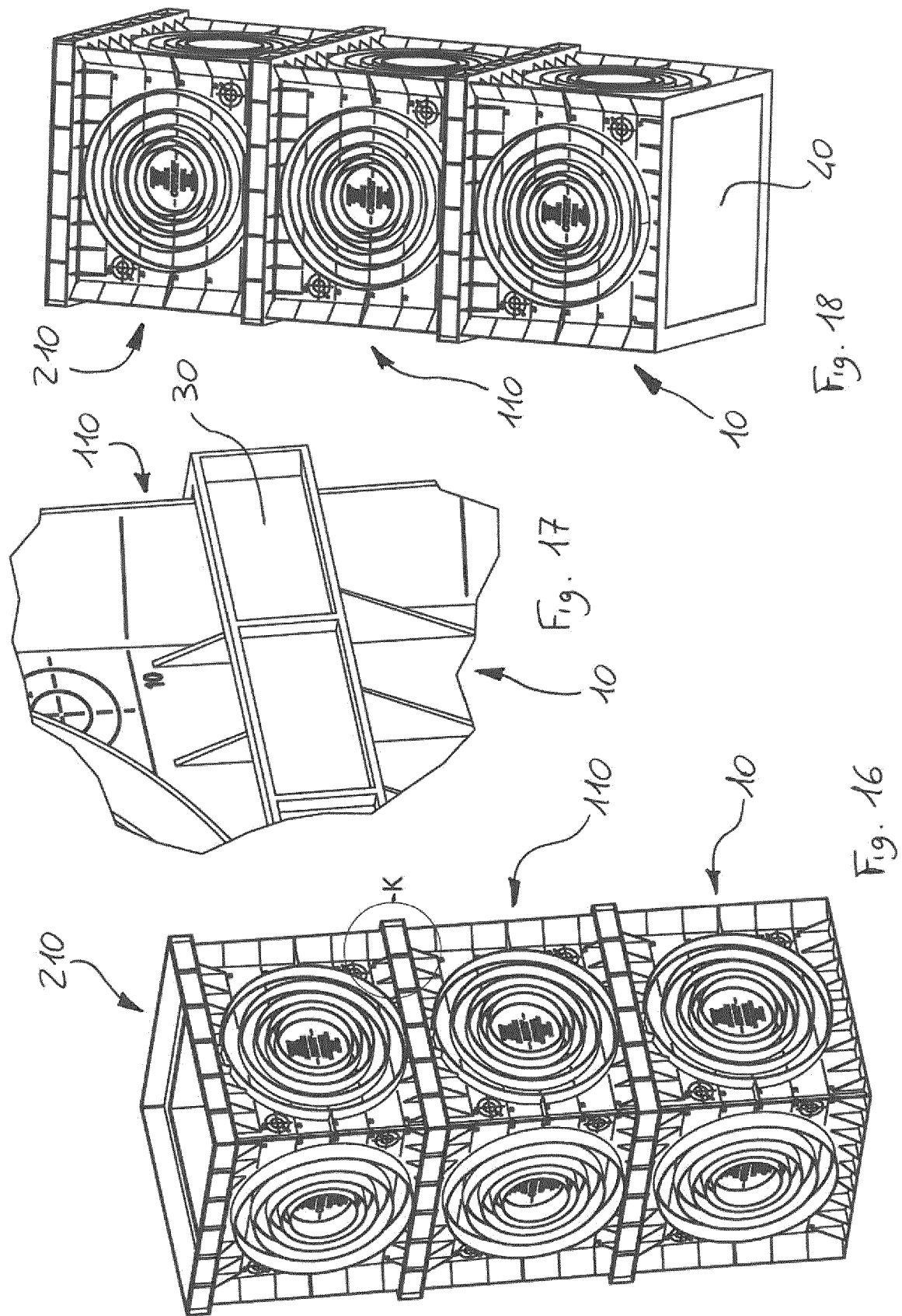
50

55











EUROPEAN SEARCH REPORT

Application Number
EP 12 18 3449

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 10 2005 056131 A1 (HEITKER GMBH [DE]) 27 July 2006 (2006-07-27) * paragraph [0006] * * paragraph [0036] * * paragraph [0044] * -----	1-4,6	INV. E03F1/00 E03F5/02
X	EP 1 820 914 A1 (HEGLER RALPH-PETER DR-ING [DE]) 22 August 2007 (2007-08-22) * the whole document * -----	1-4,6	
			TECHNICAL FIELDS SEARCHED (IPC)
			E03F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 7 January 2013	Examiner Flygare, Esa
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

1
EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 12 18 3449

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

07-01-2013

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 102005056131 A1	27-07-2006	NONE	

EP 1820914	A1	22-08-2007	AT 428830 T 15-05-2009
		DK 1820914 T3 10-08-2009	
		EP 1820914 A1 22-08-2007	
