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**(54) Backpack type firefighting device and container therefor**

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**WO-A1-00/03763** **WO-A1-2006/038046**  
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## Description

### Technical Field

[0001] The present disclosure generally relates to firefighting devices. In particular, a portable firefighting device of the backpack type that is to be strapped to the back of a firefighter is described. Also described is a container for such a firefighting device.

### Background

[0002] There exist various types of portable firefighting devices. Well known is the conventional fire extinguisher that has a circular cylindrical tank filled with a fire extinguishing medium. The medium tank is equipped with a handle and has an outlet hose on its upper end. The outlet hose is connected to a medium spreading device such as a nozzle.

[0003] FR 2 926 998 A1 discloses a fire-extinguishing device comprising two pressurized bottles which are arranged side by side on a harness. Further the fire-extinguishing device comprises a panel, wherein the two bottles are arranged between the panel and the harness.

[0004] A fire-extinguishing device is also disclosed in WO 2006/038046 A1.

[0005] WO 00/03763 A1 discloses a backpack type firefighting device which comprises a storage tank and a high-pressure tank arranged in an aperture formed in the storage tank.

[0006] Also known are firefighting devices with a strap system that permits to strap the medium tank to the back of the firefighter (simply called "user" hereinafter). Such firefighting devices are referred to as being of the backpack type and typically also comprise an outlet hose and a spreading device connected thereto.

[0007] Backpack type firefighting devices operate with a non-pressurized or with a pressurized fire extinguishing medium in the medium tank. In a non-pressurized scenario, the fire extinguishing medium such as water is pumped from the tank into the outlet hose. To this end, the firefighting device is equipped with a (typically battery-operated) pump system. In a pressurized scenario, the fire extinguishing medium stored in the tank is pressurized. The pressurizing may occur either upon filling the fire extinguishing medium into the medium tank or by activating a pressure source during operation of the firefighting device. The pressure source can take the form of a gas tank from which pressurized gas is selectively transferred (e.g., via a pressure regulator) into the medium tank.

[0008] It is readily apparent that it is generally desirable to store a large amount of fire extinguishing medium in the medium tank. However, as the medium amount increases, the weight of the firefighting device increases as well. In particular, the dimensions and thus the weight of the medium tank may become considerable. The latter is particularly true when the medium tank is to store pres-

surized fire extinguishing medium due to the fact that the medium tank has to withstand pressures of well above 10 bar and the resulting need of comparatively thick tank walls. Consequently, firefighting devices of the backpack type can become large, heavy, and difficult to handle.

### Summary

[0009] There is a need for a backpack type firefighting device operable with pressurized fire extinguishing medium that is easy to handle.

[0010] According to one aspect, a container for a backpack type firefighting device to be strapped on a back of a user with the features of claim 1 is provided. The container comprises a medium reservoir having at least one medium tank of an essentially round cylindrical shape and adapted to store a pressurized fire extinguishing medium, and a shell portably housing the medium reservoir and adapted to be connected to a strap system. A center of gravity of the medium reservoir is closer to its region facing the strap system than to its lateral regions.

[0011] By bringing the center of gravity of the medium reservoir (in the filled state, the unfilled state or both states) close to the strap system, and thus close to the user, the handling of the firefighting device when strapped to the back of the user is improved. Accordingly, the medium reservoir may have a suitably selected (e.g., non-circular) overall shape. As an example, an envelope of the medium reservoir (as seen in a plane perpendicular to a user's spine) may have a first extension in a direction generally towards the strap system and a second extension perpendicular to the first extension, wherein the second extension is generally larger than the first extension.

[0012] The shell of the container is formed of a rigid material and may be realized as a one-piece or multi-piece structure. In one implementation, the shell may be shaped in its region facing the user to at least partially conform to the back of the user. As an example, the shell may be concavely shaped (e.g., curved).

[0013] The medium reservoir comprises two or more individual medium tanks, wherein each individual medium tank has a round cylindrical (e.g., oval or circular) shape. In a realization with multiple medium tanks, the individual medium tanks may be configured to communicate with each other. To this end, the medium tanks may be connected or connectable (e.g., via a pipe or pipe system). The medium tanks may selectively be connectable via a valve or any other flow control element.

[0014] The shell fully encloses the medium reservoir. The shell comprises at least one depression adapted to accommodate fire extinguishing equipment. Further, the shell may comprise at least one recess (e.g., an opening in the shell or another depression of the shell) adapted to accommodate fire extinguishing equipment such as a pressure source (e.g., a gas tank filled with a pressurizing gas or a compressor), an outlet hose, a protective face mask, a gas tank filled with breathable air or a spreading

device. The recess may have an axial extension generally parallel to a longitudinal axis of the at least one medium tank.

**[0015]** In the implementation the depression is arranged in the shell in a location between two adjacent medium tanks such that the depression extends into an envelope of the two adjacent medium tanks. The depression extends in an axial direction generally parallel to a longitudinal axis of the adjacent medium tanks. In this implementation, the fire extinguishing equipment can be brought closer to the center of gravity of the medium reservoir (and thus also closer to the back of the user). If integrally formed in the shell, the depression may have a cross-section in accordance with a U or V.

**[0016]** The at least one recess may be arranged in any region of the shell. As an example, the at least one recess may be arranged on at least one lateral side of the shell. Alternatively, or in addition, one or more recesses may be arranged in a region of the shell facing away from the strap system (i.e., from a user's perspective, on a backside of the container).

**[0017]** The at least one recess and the depression may be adapted to (e.g., detachably) accommodate a gas tank filled with breathable air or a pressure source for pressurizing the fire extinguishing medium in the medium reservoir. As an example, the pressure source may be realized in the form of one or multiple gas tanks having a cylindrical or any other shape. The medium reservoir, in turn, may comprise an inlet for a pressurizing medium such as pressurizing gas.

**[0018]** In one realization, the medium reservoir and the shell form a one-piece structure. In an alternative configuration, the medium reservoir (e.g., each medium tank) on the one hand and the shell on the other may be realized as separate structures.

**[0019]** The shell may comprise a stand portion. The stand portion may be configured to stably put the container on the ground. The stand portion may be detachable from the remainder of the shell. In a similar manner, the shell may comprise a detachable top portion. The top portion may comprise an opening for filling the fire extinguishing medium into the medium reservoir.

**[0020]** Also provided is a backpack type firefighting device to be strapped on the back of a user, wherein the firefighting device comprises the container described herein. In addition to the container, the firefighting device may comprise one or multiple further components such as a pressure source for pressurizing the fire extinguishing medium in the medium reservoir, a pressure regulator connected between the pressure source and the medium reservoir, a medium spreading device connectable to the medium reservoir (e.g., via an outlet hose), a strap system adapted to strap the firefighting device to the back of the user, a protective face mask, a gas tank filled with breathable air, and so on.

**[0021]** The pressure source may be realized in the form of a (e.g., battery-operated) compressor or in the form of one or more gas tanks accommodated in one or more of

the recesses of the shell. The medium spreading device may additionally be connectable via the pressure regulator to the pressure source. As for the strap system, the shell may be provided with an attachment structure such as one or more openings, holders or bows to which the strap system can be connected.

### Brief Description of the Drawings

**[0022]** Further aspects, advantages and implementations of the firefighting device and container described herein will become apparent from the following description of exemplary embodiments in connection with the accompanying drawings, which show:

- Fig. 1 a base body of a first embodiment of a backpack type firefighting device in a perspective front view;
- Fig. 2 the base body of Fig. 1 in a perspective back view;
- Fig. 3 an exploded view of the base body of Fig. 1;
- Fig. 4 a sectional view of the base body of Fig. 1 taken along the line IV-IV in Fig. 1;
- Fig. 5 a sectional view of the base body of a conventional backpack type firefighting device;
- Fig. 6 a first embodiment of a backpack type firefighting device comprising the base body of Fig. 1;
- Fig. 7 a second embodiment of a backpack type firefighting device comprising a base body of Fig. 1;
- Fig. 8 is a sectional view of a second embodiment of a base body in a sectional view according to Fig. 4;
- Fig. 9 is a sectional view of a third embodiment of a base body in a sectional view according to Fig. 4; and
- Fig. 10 is a sectional view of a fourth embodiment of a base body in a sectional view according to Fig. 4, which does not form part of the invention.

### Detailed Description

**[0023]** In the following description, for purposes of explanation and not limitation, specific details of various embodiments of a backpack type firefighting device and an associated container will exemplarily be set forth. It will be apparent to one skilled in the art that the backpack type firefighting device and the associated container may

be realized in other configurations that depart from these specific details. For example, while particular examples of medium reservoirs and medium tanks will be described hereinafter, the person skilled in the art will appreciate that those examples are only illustrative.

**[0024]** Fig. 1 shows in a perspective view a first embodiment of a base body 10 for a backpack type firefighting device operating with a pressurized fire extinguishing medium such as a liquid (e.g., water), foam or powder. The base body 10 comprises a container 12 and a strap system 14 connected to the container 12. The container 12 comprises a shell 16 portably housing a medium reservoir (not shown in Fig. 1) and adapted to be connected to the strap system 14 via an attachment structure (likewise not shown in Fig. 1).

**[0025]** The shell 16 is formed of a rigid material such as stainless steel, iron alloy, plastic, fiber-reinforced plastic (including, for example, carbon or glass fibers), or aluminum.

**[0026]** In the specific embodiment illustrated in Fig. 1, the shell 16 is realized in the form of a three-piece structure comprising a body part 18, a bottom part 20 as well as a top part 22. The bottom part 20 comprises a stand portion with two feet 24. The feet 24 permit to stably put the base body 10 to the ground when not in use. The top part 22 has a closure cap 26 which, when removed, provides access via the resulting opening to the medium reservoir not shown in Fig. 1. When the closure cap 26 is removed, the medium reservoir may thus be filled with fire extinguishing medium.

**[0027]** The shell 16 comprises three recesses 28, 30, 32 (only two recesses 28, 30 are visible in the perspective view of Fig. 1) that extend axially in the body part 18 and into the top part 22 of the shell 16. The recesses 28, 30, 32 in the shell 16 are adapted to detachably accommodate fire extinguishing equipment as will be described in more detail below.

**[0028]** With respect to Fig. 1, a first recess 28 of a V-shaped cross-section is provided in a central region of the shell 16 on a side facing away from the strap system 14. Two further recesses 30, 32 (only one recess 30 is shown in the perspective view of Fig. 1) of a V-shaped cross-section are arranged on both lateral sides of the shell 16. In the embodiment illustrated in Fig. 1, the recesses 28, 30, 32 are realized as depressions in the shell 16. It should be noted that in an alternative embodiment, the recesses could also be configured as openings in the shell 16. Moreover, it will be appreciated that the recesses 28, 30, 32 could have any cross-section different from a V.

**[0029]** Fig. 2 shows in a perspective view the backside of the base body 10 of Fig. 1. As becomes apparent from Fig. 2, the shell 16, in its portion facing the strap system 24, is shaped to conform to the back of the user. Specifically, the portion of the shell 16 facing the strap system 24 has an approximately concave cross-section in accordance with the curvature of the back of the user.

**[0030]** As also becomes apparent from Fig. 2, the shell

16 of the container 12 is provided with an attachment structure in the form of four pairs of slits 34 provided in the four corners of the shell 16. The strap system 14 comprises a complementary attachment structure in the form of four straps or bands 36 extending through the corresponding slits 34 in the shell 16. In this way, the strap system 14 can detachably be mounted on the container 12. It will be appreciated that the strap system 14 could, in an alternative embodiment, also be mounted on the container 12 in a non-detachable manner. It will further be appreciated that instead of the slits 34 and bands or straps 36 illustrated in Fig. 2 alternative attachment structures could be provided.

**[0031]** In the following, the configuration of the container 12 and in particular of its medium reservoir will be described in more detail with reference to Figs. 3 and 4. Fig. 3 illustrates an exploded view of the base body 10 discussed above with reference to Figs. 1 and 2. As becomes apparent from Fig. 3, the shell 16 is configured as a hollow structure housing a medium reservoir 40 which, in the present embodiment, comprises two medium tanks 42, 44, each of essentially round cylindrical and, more specifically, circular cylindrical shape. The two medium tanks 42, 44 are adapted to store a pressurized fire extinguishing medium and are thus configured to withstand a maximum pressure of 10 bar and above. At an operating pressure of, for example, approximately 10 bar, the medium tanks 42, 44 will thus need to withstand maximum pressures of 40 bar and above. The round cylindrical shape of the medium tanks 42, 44 assists the task of withstanding such pressures.

**[0032]** As shown in Fig. 3, the medium tanks 42, 44 are configured to communicate with each other via a pipe system 46 and with an inlet that can be closed with the closure cap 26 in a pressure tight manner. It will be appreciated that the medium reservoir 40 is not restricted to comprising two medium tanks 42, 44 but could also comprise three or more medium tanks or a single (e.g., oval) medium tank. As shown in Fig. 3, the medium tanks 42, 44 are preferably arranged such that their respective longitudinal axes extend parallel to each other.

**[0033]** Fig. 4 shows a sectional view of the container 12 of Figs. 1 to 3 taken along the line IV-IV in Fig. 1. Fig. 4 is only directed to the container 12 (i.e., the strap system 14 has been omitted).

**[0034]** The sectional view of Fig. 4 illustrates the three V-shaped recesses 28, 30, 32 for detachably accommodating fire extinguishing equipment such as a gas tank 50 filled with breathable air or pressurizing gas, or any other pressure source (e.g., a compressor) for pressurizing the fire extinguishing medium stored in the medium reservoir 40. It will be appreciated that if the fire extinguishing medium is already pressurized upon filling the medium reservoir, an auxiliary pressure source can optionally be omitted. Fig. 4 also illustrates the fact that the shell 16 is concavely shaped on its side facing a user 52.

**[0035]** Reference numeral C1 in Fig. 4 denotes the center of gravity of the medium reservoir 40 in the ab-

sence of the gas tank 50, and reference numeral C2 in the presence of the gas tank 50. In each case, the center of gravity C1, C2 of the medium reservoir is closer to its region facing the user 50 (and thus the strap system 14 not shown in Fig. 4) than to its lateral regions. This location of the center of gravity C1, C2 becomes apparent from a look on the envelope of the medium reservoir 40 comprising the two medium tanks 42, 44 each having a circular cross-section. In the particular embodiment, the envelope of the two circular structures defining the location of the medium tanks 42, 44 will be an essentially oval structure with parallel sidewalls. The envelope has a first extension E1 in a direction generally towards the user 52 (and the associated strap system 14) and a second extension E2 perpendicular to the first extension E1. The second extension E2 is clearly larger than the first extension E1. In view of the particular mass distribution of the (filled or un-filled) medium tanks 42, 44, it thus becomes apparent that the respective center of gravity C1, C2 (also in the presence of the gas tank 50) will be closer to the region of the medium reservoir 40 (and container 12) adjacent to the back of the user 52 than to the lateral regions of the medium reservoir 40 defining the extension E2.

**[0036]** As a result of the particular location of the center of gravity C1, C2 of the medium reservoir 40 illustrated in Fig. 4, the lengths L1, L2 of the resulting lever arm extending between the back of the user 52 and the center of gravity of the container 12 (as essentially defined by the center of gravity C1, C2 of the medium reservoir 40 in the absence/presence of the gas tank 50) becomes short compared to a conventional arrangement as illustrated in Fig. 5. Fig. 5 shows a sectional view similar to Fig. 4 of a conventional backpack type firefighting device comprising a single circular cylindrical medium tank 142 with two laterally attached gas tanks 150. As illustrated in Fig. 5, the resulting length L3 of the lever arm extending between the back of the user 52 and the resulting center of gravity C3 (essentially defined by the medium tank 142) is much longer than the corresponding lengths L1, L2 of the lever arms in the scenario illustrated in Fig. 4. The shorter lever arm in the scenario of Fig. 4 makes the firefighting device as a whole easier to carry and easier to handle.

**[0037]** The easier handling of the firefighting device is assisted by the fact that the recess 28 is arranged in the shell 16 between the two adjacent medium tanks 42, 44 such that the recess 28 extends into the envelope of the two adjacent medium tanks 42, 44 (see Fig. 4). As a result, the gas tank 50 or any other fire extinguishing equipment can be brought closer to the back of the user 52, and the same applies to the corresponding center of gravity C2. It will be appreciated that the same effect can be obtained in case the recess 28 is defined as an opening within the shell 16 or as having a cross-section in accordance with, for example, a U.

**[0038]** Returning to Fig. 4, each of the two medium tanks 42, 44 is provided with a respective outlet opening

42A, 44A capable of connecting the respective medium tank 42, 44 with a medium spreading device not illustrated in Fig. 4. Additionally, a pipe 54 arranged within the shell 16 between the two medium tanks 42, 44 connects a pressure source (e.g., the gas tank 50 when filled with pressurizing gas) with the medium tanks 42, 44. Pipe 54 ends in pipe system 46 (see Fig. 3).

**[0039]** Fig. 6 shows a first embodiment of a fully assembled firefighting device 60 comprising the base body 10 described above with reference to Figs. 1 to 4. As illustrated in Fig. 6, a gas tank 50 as well as a pistol-shaped medium spreading device 62 are detachably mounted to the container 12 of the base body 10. To this end, the body part 18 of the shell 16 is provided with a further attachment structure in the form of four spaced-apart slits 64 in the region of the recess 28 in which the gas tank 50 is to be accommodated (only two slits 64 are shown in the perspective view of Fig. 6). The gas tank 50 is held in the recess 28 by a complementary attachment structure in the form of two straps or bands 66 threaded through the slits 64 in the shell 16. Additionally, a removable holder 68 of a generally cylindrical shape is attached to the bottom part 20 of the shell 16 to removably accommodate the medium spreading device 62.

**[0040]** As illustrated in Fig. 6, the firefighting device 60 further comprises a pressure regulator 70 coupled to an outlet of the gas tank 50 filled with pressurizing gas. The pressure regulator 70 is connected via a first hose 72 to the pipe 54 (see Fig. 4) and via this pipe 54 to an inlet for pressurizing gas at the pipe system 46 of the medium reservoir 40 (not shown in Fig. 6). The pressure regulator 70 is also connected via a second hose 74 to the medium spreading device 62. The medium spreading device 62 is further connected via a third hose 76 to the outlet openings 42A, 44A for pressurized medium of the medium reservoir 40 (likewise not shown in Fig. 6).

**[0041]** Fig. 7 shows a second embodiment of a fully assembled firefighting device 60 similar to the embodiment illustrated in Fig. 6. The main difference between the embodiment of Fig. 6 and the embodiment of Fig. 7 resides in the fact that instead of a gas tank arranged centrally at the shell 16 (see reference numeral 50 in Fig. 6), in the embodiment of Fig. 7 two larger gas tanks 50' are detachably accommodated in the lateral recesses 28, 32 of the shell 16. Similar to the embodiment of Fig. 6, attachment structures in the form of slits 64 provided in the shell 16 as well as bands or straps 66 extending through the slits 64 are used to secure the gas tanks 50' to the shell 16. As shown in Fig. 7, the medium spreading device 62 is connected to only a single gas tank 50'. It thus becomes necessary to switch the pressure regulator 70 from the first gas tank 50' to the second gas tank 50' when the first gas tank 50' becomes empty.

**[0042]** Figs. 8 to 10 show sectional views of three further embodiments of containers 12 similar to Fig. 4. The containers 12 of Figs. 8 to 10 may be used in a firefighting device similar to the firefighting device 60 illustrated in Figs. 6 and 7.

[0043] With reference to Fig. 8, the shell 16 and the medium reservoir 40 (i.e., the two medium tanks 42, 44) form a one-piece structure. As becomes apparent from Fig. 8, it will generally be desirable to maintain the round cylindrical shape of the medium tanks 42, 44 also in an integral realization of the shell 16 and the medium reservoir 40 due to the resulting stability (with respect to high pressures) of the medium reservoir 40. The shell 16 is still housing the medium reservoir 40 and provides the corresponding recesses 28, 30, 32 for accommodating fire extinguishing equipment such as a gas tank 50. Also maintained is the concavely shaped portion of the shell 16 that faces the back of the user as well as the stand portion (not shown in Fig. 8).

[0044] In the embodiment of the container 12 shown in Fig. 9, the shape of the recesses 28, 30, 32 provided in the shell 16 has been changed compared to Fig. 4. Specifically, the V-shaped cross-section of the recesses 28, 30, 32 has been replaced with a curved, generally U-shaped cross-section. As further illustrated in Fig. 9, three gas tanks 50, 50' may be attached to the shell 16 in a combination of the embodiments illustrated in Figs. 6 and 7. The smaller gas tank 50 may be filled with breathable air, and the two larger gas tanks 50' with pressurizing gas.

[0045] Now turning to the embodiment of the container 12 shown in Fig. 10, the number of recesses provided in the shell 16 may be increased as necessary. For example, the region of the shell 16 facing away from the user may be provided with altogether three recesses 28, 28', 28" so as to accommodate up to three gas tanks 50.

[0046] As has become apparent from the above description of exemplary embodiments, the provision of a shell 16 for portably housing the medium reservoir 40 has a plurality of advantages, which need not all be realized in all configurations. As an example, the shell 16 permits to connect the medium reservoir 40 to the strap system 14. To this end, the shell 16 may be provided with a suitable attachment structure. Further, the shell 16 permits to flexibly attach auxiliary fire extinguishing equipment such as a pressure source (e.g., one or more gas tanks 50, 50') or a spreading device 62 thereto. To this end, the shell 16 may be provided with one or more recesses 28, 28', 28", 30, 32 for a stable and thus secure accommodation of such equipment. Still further, the shell 16 may be shaped to conform to the back of the user to increase the wearing comfort. It will be appreciated that the above advantages can be realized in combination with various designs and structures of the shell 16 and the medium reservoir 40, so that the designs and structures discussed above in connection with the exemplary embodiments may not be construed to be of a limiting nature.

[0047] As has also become apparent from the above description, arranging the center of gravity of the medium reservoir 40 as close as possible to its region facing the strap system (and thus the user) permits to shorten the lever arm between the center of gravity and the back of

the user compared to conventional realizations as illustrated in Fig. 5. As a result, the handling of the firefighting device 60 when strapped on the back of the user will be improved. This handling is improved further if the shell 16 is provided with recesses 28, 28', 28" that allow to also bring auxiliary fire extinguishing equipment closer to the back of the user.

[0048] While the present invention has been described with respect to particular embodiments, those skilled in the art will recognize that the invention is not limited to the specific details described and illustrated herein. Therefore, it is to be understood that the present disclosure is only illustrative and that it is intended that the invention be limited only by the scope of the claims appended hereto.

## Claims

1. A container (12) for a backpack type firefighting device (60) to be strapped on a back of a user (52), the container (12) comprising:

a medium reservoir (40) having at least one medium tank (42, 44) of an essentially round cylindrical shape and adapted to store a pressurized fire extinguishing medium, wherein a center of gravity (C1, C2) of the medium reservoir (40) is closer to its region facing a strap system (14) connectable to the container (12) than to its lateral regions,

### characterized in that

the medium reservoir (40) comprises two or more individual medium tanks (42, 44), and **in that** the container (12) further comprises a shell (16) formed of a rigid material, the shell (16) fully enclosing the medium reservoir (40) and being configured as a hollow structure portably housing the medium reservoir (40) and adapted to be connected to the strap system (14), wherein the shell (16) comprises at least one depression (28, 30, 32) adapted to accommodate fire-extinguishing equipment, the at least one depression (28, 30, 32) being arranged in the shell (16) on a side facing away from the strap system (14) in a location between two adjacent medium tanks such that the depression extends into an envelope of the two adjacent medium tanks (42, 44) and extends in an axial direction generally parallel to a longitudinal axis of the adjacent medium tanks (42, 44).

2. The container of claim 1, wherein the envelope of the medium reservoir (40) has a first extension (E1) in a direction generally towards the strap system (14) and a second extension (E2) perpendicular to the first extension (E1), wherein the second extension (E2) is generally larger than the first extension (E1).

3. The container of claim 1 or 2, wherein the shell (16) is shaped to at least partially conform to the back of the user (52).
4. The container of claim 3, wherein the medium tanks (42, 44) are configured to communicate with each other.
5. The container of any of the preceding claims, wherein the at least one depression (28, 30, 32) has a cross-section in accordance with a U or V or wherein the recess is defined as an opening in the shell (16).
6. The container of any one of the preceding claims, wherein the depression (30, 32) is arranged on at least one lateral side of the shell (16).
7. The container of any one of the preceding claims, wherein the at least one depression (28, 30, 32) is adapted to accommodate a pressure source (50, 50') for pressurizing the fire extinguishing medium in the medium reservoir (40).
8. The container of any one of the preceding claims, wherein the medium reservoir (40) comprises an inlet for a pressurizing medium.
9. The container of any one of the preceding claims, wherein the medium reservoir (40) and the shell (16) form a one-piece structure.
10. The container of any one of the preceding claims, wherein the shell (16) comprises a stand portion (24).
11. A backpack type firefighting device (60) to be strapped on a back of a user (52), the firefighting device (60) comprising the container (12) of any one of the preceding claims.
12. The firefighting device of claim 11, further comprising a pressure source (50, 50') for pressurizing the fire extinguishing medium in the medium reservoir (40).
13. The firefighting device of claim 12, wherein the pressure source comprises one or more gas tanks (50, 50') accommodated in one or more of the recesses (28, 30, 32) of the shell.
14. The firefighting device of any one of claims 12 and 13, further comprising a pressure regulator (70) connected between the pressure source (50, 50') and the medium reservoir (40).
15. The firefighting device of any one of claims 11 to 14, further comprising a medium spreading device (62) connectable to the medium reservoir (40).
16. The firefighting device of claims 14 and 15, wherein

the medium spreading device (62) is additionally connectable via the pressure regulator (70) to the pressure source (50, 50').

17. The firefighting device of any of claims 11 to 16, further comprising a strap system (14) adapted to strap the firefighting device (60) to the back of the user (52).

#### Patentansprüche

1. Behälter (12) für eine rucksackartige Brandbekämpfungsvorrichtung (60), die auf einen Rücken eines Benutzers zu schnallen ist, wobei der Behälter (12) umfasst:

ein Mediumreservoir (40), das wenigstens einen Mediumtank (42, 44) von einer im Wesentlichen rundzylindrischen Form hat und das dazu ausgebildet ist, ein unter Druck stehendes Feuerlöschmedium aufzubewahren, wobei ein Schwerpunkt (C1, C2) des Mediumreservoirs (40) näher an seinem Bereich ist, der einem mit dem Behälter (12) verbindbaren Gurtsystem (14) zugewandt ist, als an seinen seitlichen Bereichen,

**dadurch gekennzeichnet, dass**

das Mediumreservoir (40) zwei oder mehr einzelne Mediumtanks (42, 44) aufweist, und dadurch, dass der Behälter (12) weiter aufweist:

eine Hülle (16), die aus einem starren Material gebildet ist, wobei die Hülle (16) das Mediumreservoir (40) vollständig umschließt und als hohle Struktur konfiguriert ist, die das Mediumreservoir (40) tragbar aufnimmt und die dazu ausgebildet ist, mit dem Gurtsystem (14) verbunden zu werden, wobei die Hülle (16) wenigstens eine Vertiefung (28, 30, 32) aufweist, die dazu ausgebildet ist, Feuerlöschgerätschaft aufzunehmen, wobei die wenigstens eine Vertiefung (28, 30, 32) in der Hülle (16) auf einer von dem Gurtsystem (14) abgewandten Seite so an einer Stelle zwischen zwei benachbarten Mediumtanks angeordnet ist, dass sich die Vertiefung in eine Einhüllende der zwei benachbarten Mediumtanks (42, 44) hinein erstreckt und sich in einer axialen Richtung allgemein parallel zu einer Längsachse der benachbarten Mediumtanks (42, 44) erstreckt.

2. Behälter nach Anspruch 1, wobei die Einhüllende des Mediumreservoirs (40) eine erste Ausdehnung (E1) in eine Richtung allgemein in Richtung des Gurtsystems (14) und eine zweite, zur ersten Ausdeh-

- nung senkrechte Ausdehnung (E2) hat, wobei die zweite Ausdehnung (E2) allgemein größer ist als die erste Ausdehnung (E1).
3. Behälter nach Anspruch 1 oder 2, wobei die Hülle (16) geformt ist, um wenigstens teilweise dem Rücken des Benutzers (52) angepasst zu sein. 5
  4. Behälter nach Anspruch 3, wobei die Mediumtanks (42, 44) ausgebildet sind, um miteinander kommunikativ in Verbindung zu stehen. 10
  5. Behälter nach einem der vorhergehenden Ansprüche, wobei die wenigstens eine Vertiefung (28, 30, 32) einen Querschnitt gemäß einem U oder V hat oder wobei die Ausnehmung als eine Öffnung in der Hülle (16) definiert ist. 15
  6. Behälter nach einem der vorhergehenden Ansprüche, wobei die Ausnehmung (30, 32) auf wenigstens einer lateralen Seite der Hülle (16) angeordnet ist. 20
  7. Behälter nach einem der vorhergehenden Ansprüche, wobei die wenigstens eine Ausnehmung (28, 30, 32) dazu geeignet ist, eine Druckquelle (50, 50') zum unter Druck setzen des Feuerlöschmediums in dem Mediumreservoir (40) aufzunehmen. 25
  8. Behälter nach einem der vorhergehenden Ansprüche, wobei das Mediumreservoir (40) einen Einlass für ein unter Druck setzendes Medium aufweist. 30
  9. Behälter nach einem der vorhergehenden Ansprüche, wobei das Mediumreservoir (40) und die Hülle (16) eine einteilige Struktur bilden. 35
  10. Behälter nach einem der vorhergehenden Ansprüche, wobei die Hülle (16) ein Standteil (24) aufweist. 40
  11. Rucksackartige Brandbekämpfungsvorrichtung (60), um auf einen Rücken eines Benutzers (52) geschnallt zu werden, wobei die Brandbekämpfungsvorrichtung (60) den Behälter (12) nach einem der vorhergehenden Ansprüche umfasst. 45
  12. Brandbekämpfungsvorrichtung nach Anspruch 11, ferner umfassend eine Druckquelle (50, 50') zum unter Druck setzen des Feuerlöschmediums in dem Mediumreservoir (40). 50
  13. Brandbekämpfungsvorrichtung nach Anspruch 12, wobei die Druckquelle ein oder mehr Gastanks (50, 50') aufweist, die in einer oder mehr der Ausnehmungen (28, 30, 32) der Hülle aufgenommen sind. 55
  14. Brandbekämpfungsvorrichtung nach einem der Ansprüche 12 oder 13, ferner umfassend einen Druckregler (70), der zwischen der Druckquelle (50, 50')

und dem Mediumreservoir (40) geschaltet ist.

15. Brandbekämpfungsvorrichtung nach einem der Ansprüche 11 bis 14, ferner umfassend eine Mediumverbreitungsvorrichtung (62), die mit dem Mediumreservoir (40) verbindbar ist.
16. Brandbekämpfungsvorrichtung nach den Ansprüchen 14 und 15, wobei die Mediumverbreitungsvorrichtung (62) zusätzlich mittels des Druckreglers (70) mit der Druckquelle (50, 50') verbindbar ist.
17. Brandbekämpfungsvorrichtung nach einem der Ansprüche 11 bis 16, ferner umfassend ein Gurtsystem (14), das dazu geeignet ist, die Brandbekämpfungsvorrichtung (60) auf den Rücken des Benutzers (52) zu schnallen.

## Revendications

1. Conteneur (12) pour un dispositif (60) de lutte contre l'incendie de type sac à dos destiné à être saigné sur un dos d'un utilisateur (52), le conteneur (12) comprenant :

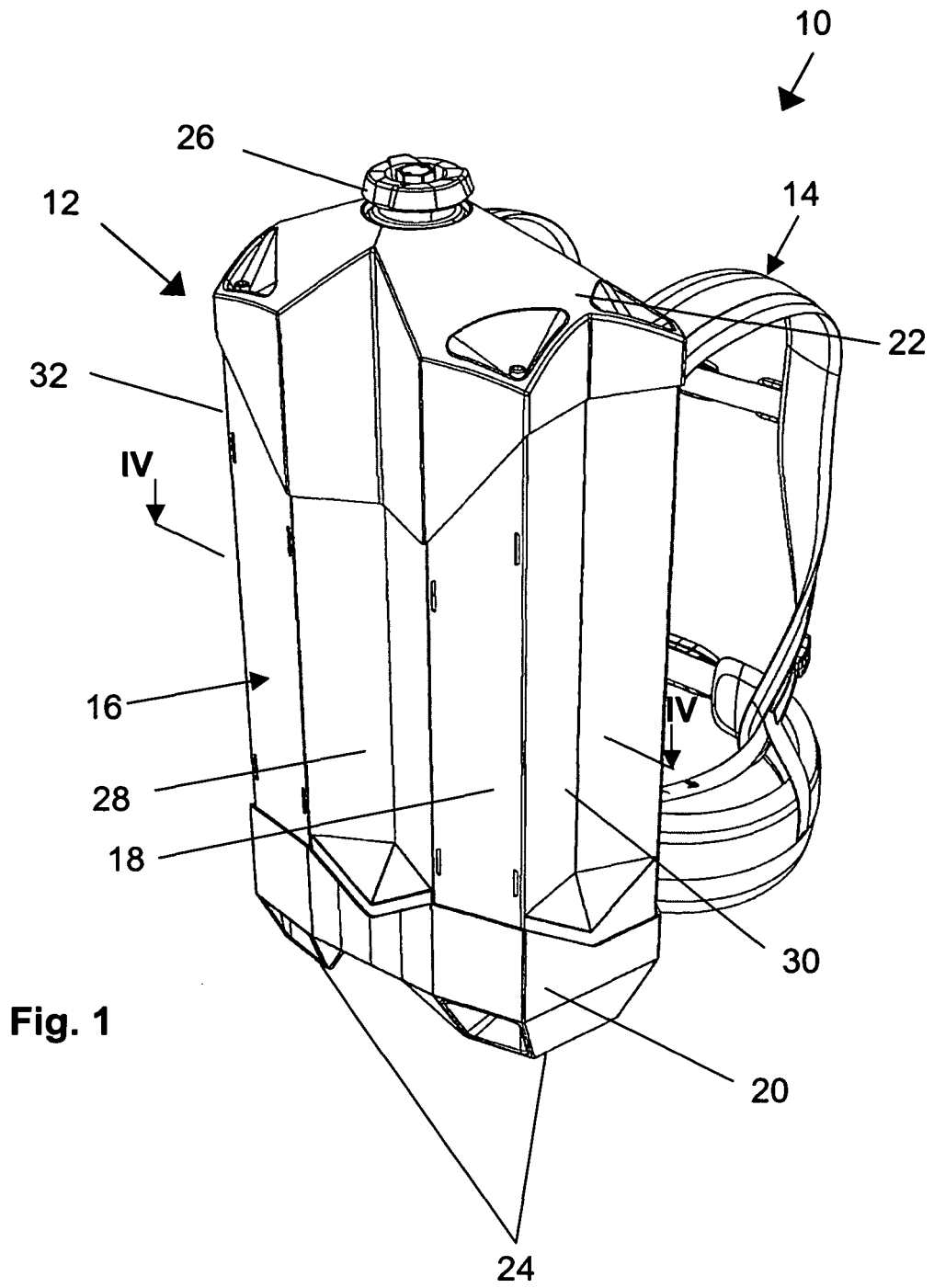
un réservoir (40) de milieu de suspension ayant au moins une bouteille (42, 44) de milieu de suspension d'une forme cylindrique essentiellement ronde et adaptée à stocker un milieu d'extinction d'incendie sous pression, dans lequel un centre de gravité (C1, C2) du réservoir (40) de milieu de suspension est plus proche de sa région faisant face à un système (14) de sangles connectable au conteneur (12) que de ses régions latérales,

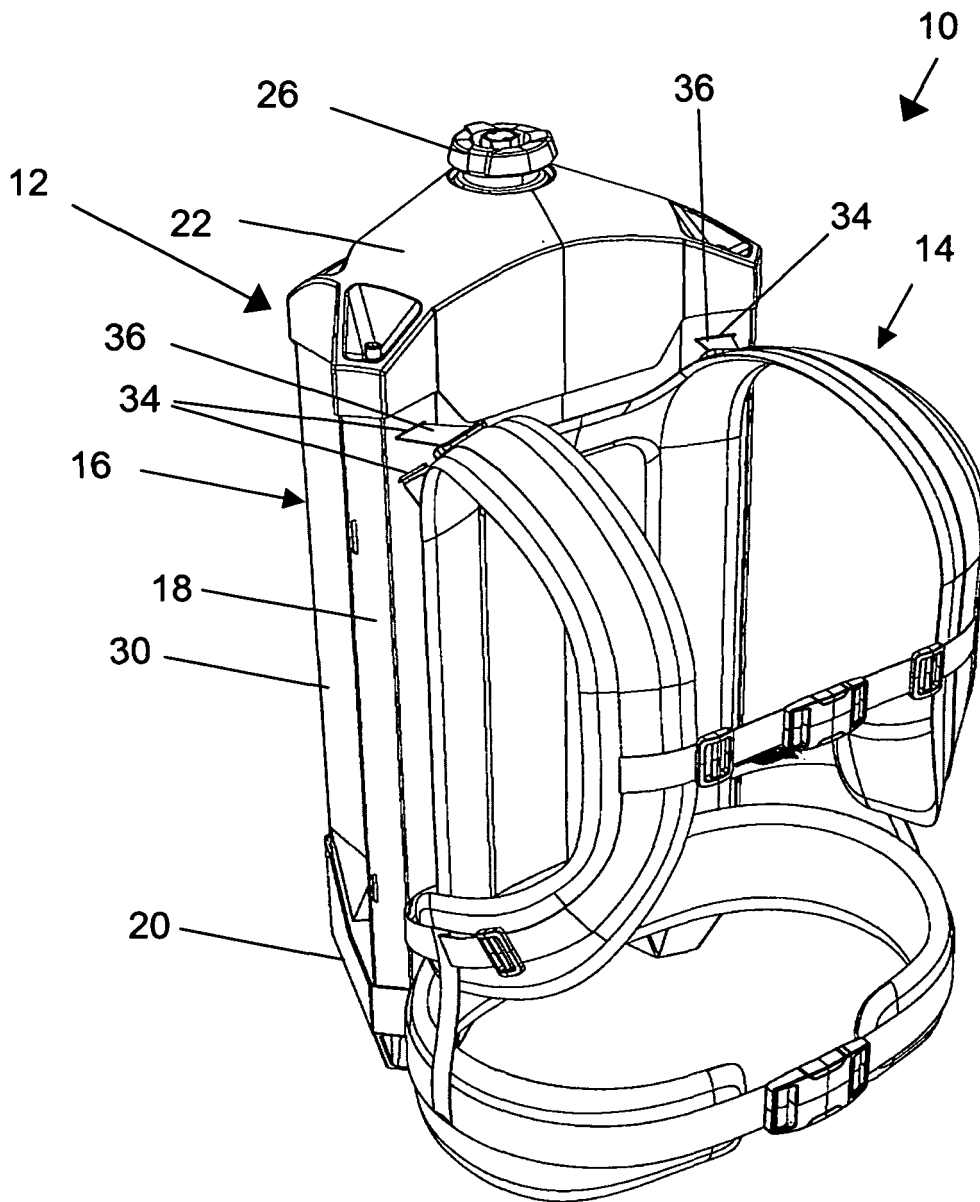
### caractérisé en ce que

le réservoir (40) de milieu de suspension comprend deux bouteilles (42, 44) de milieu de suspension individuelles ou plus, et **en ce que** le conteneur (12) comprend en outre une coque (16) constituée d'un matériau rigide, la coque (16) renfermant totalement le réservoir (40) de milieu de suspension et étant configurée comme une structure creuse logeant de manière portable le réservoir (40) de milieu de suspension et adaptée à être connectée au système (14) de sangles, dans lequel la coque (16) comprend au moins une dépression (28, 30, 32) adaptée à recevoir un équipement d'extinction d'incendie, l'au moins une dépression (28, 30, 32) étant agencée dans la coque (16) sur un côté faisant face à l'opposé du système (14) de sangles dans un emplacement entre deux bouteilles de milieu de suspension adjacentes de telle manière que la dépression s'étend dans une enveloppe des deux bouteilles (42, 44) de milieu de suspension adjacentes et s'étend

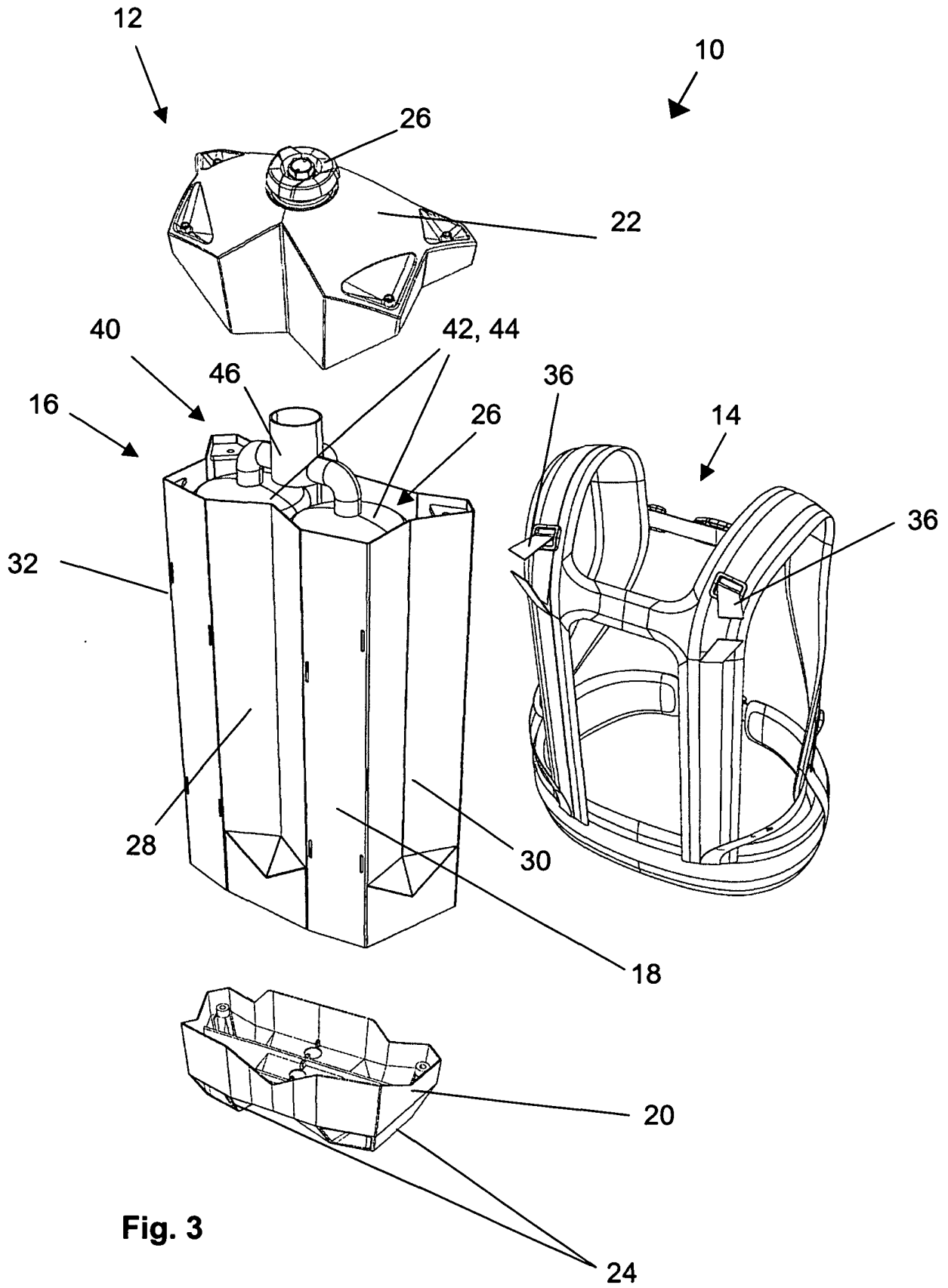


- dans un sens axial de façon générale parallèle à un axe longitudinal des bouteilles (42, 44) de milieu de suspension adjacentes.
2. Conteneur selon la revendication 1, dans lequel l'enveloppe du réservoir (40) de milieu de suspension a une première extension (E1) dans un sens de façon générale vers le système (14) de sangles et une deuxième extension (E2) perpendiculaire à la première extension (E1), dans lequel la deuxième extension (E2) est de façon générale plus grande que la première extension (E1). 5
  3. Conteneur selon la revendication 1 ou 2, dans lequel la coque (16) est formée de manière à se conformer au moins partiellement au dos de l'utilisateur (52). 10
  4. Conteneur selon la revendication 3, dans lequel les bouteilles (42, 44) de milieu de suspension sont configurées pour communiquer l'une avec l'autre. 15
  5. Conteneur selon l'une quelconque des revendications précédentes, dans lequel l'au moins une dépression (28, 30, 32) a une section transversale conformément à un U ou un V ou dans lequel le renforcement est défini comme une ouverture dans la coque (16). 20
  6. Conteneur selon l'une quelconque des revendications précédentes, dans lequel la dépression (30, 32) est agencée sur au moins un côté latéral de la coque (16). 25
  7. Conteneur selon l'une quelconque des revendications précédentes, dans lequel l'au moins une dépression (28, 30, 32) est adaptée à recevoir une source (50, 50') de pression pour mettre sous pression le milieu d'extinction d'incendie dans le réservoir (40) de milieu de suspension. 30
  8. Conteneur selon l'une quelconque des revendications précédentes, dans lequel le réservoir (40) de milieu de suspension comprend une entrée pour un milieu de pressurisation. 35
  9. Conteneur selon l'une quelconque des revendications précédentes, dans lequel le réservoir (40) de milieu de suspension et la coque (16) forment une structure en une seule pièce. 40
  10. Conteneur selon l'une quelconque des revendications précédentes, dans lequel la coque (16) comprend une partie de support (24). 45
  11. Dispositif (60) de lutte contre l'incendie de type sac à dos destiné à être sanglé sur un dos d'un utilisateur (52), le dispositif (60) de lutte contre l'incendie comprenant le conteneur (12) selon l'une quelconque 50
- des revendications précédentes.
12. Dispositif de lutte contre l'incendie selon la revendication 11, comprenant en outre une source (50, 50') de pression pour mettre sous pression le milieu d'extinction d'incendie dans le réservoir (40) de milieu de suspension. 55
  13. Dispositif de lutte contre l'incendie selon la revendication 12, dans lequel la source de pression comprend une ou plusieurs bouteilles (50, 50') de gaz reçues dans un ou plusieurs des renforcements (28, 30, 32) de la coque. 60
  14. Dispositif de lutte contre l'incendie selon l'une quelconque des revendications 12 et 13, comprenant en outre un régulateur (70) de pression connecté entre la source (50, 50') de pression et le réservoir (40) de milieu de suspension. 65
  15. Dispositif de lutte contre l'incendie selon l'une quelconque des revendications 11 à 14, comprenant en outre un dispositif (62) de pulvérisation de milieu connectable au réservoir (40) de milieu de suspension. 70
  16. Dispositif de lutte contre l'incendie selon les revendications 14 et 15, dans lequel le dispositif (62) de pulvérisation de milieu est en outre connectable par l'intermédiaire du régulateur (70) de pression à la source (50, 50') de pression. 75
  17. Dispositif de lutte contre l'incendie selon l'une quelconque des revendications 11 à 16, comprenant en outre un système (14) de sangles adapté à sangler le dispositif (60) de lutte contre l'incendie sur le dos de l'utilisateur (52). 80





**Fig. 2**



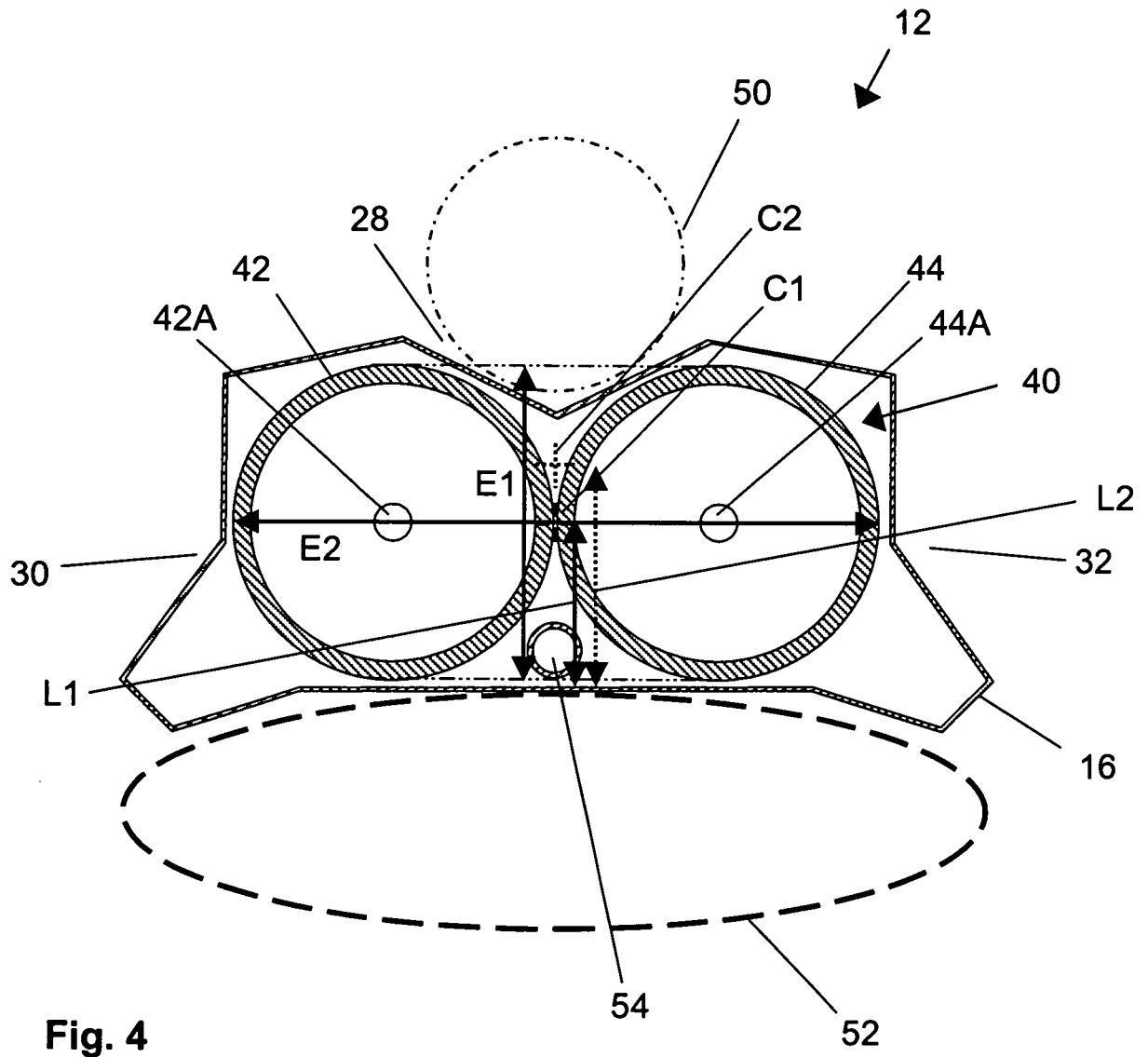


Fig. 4

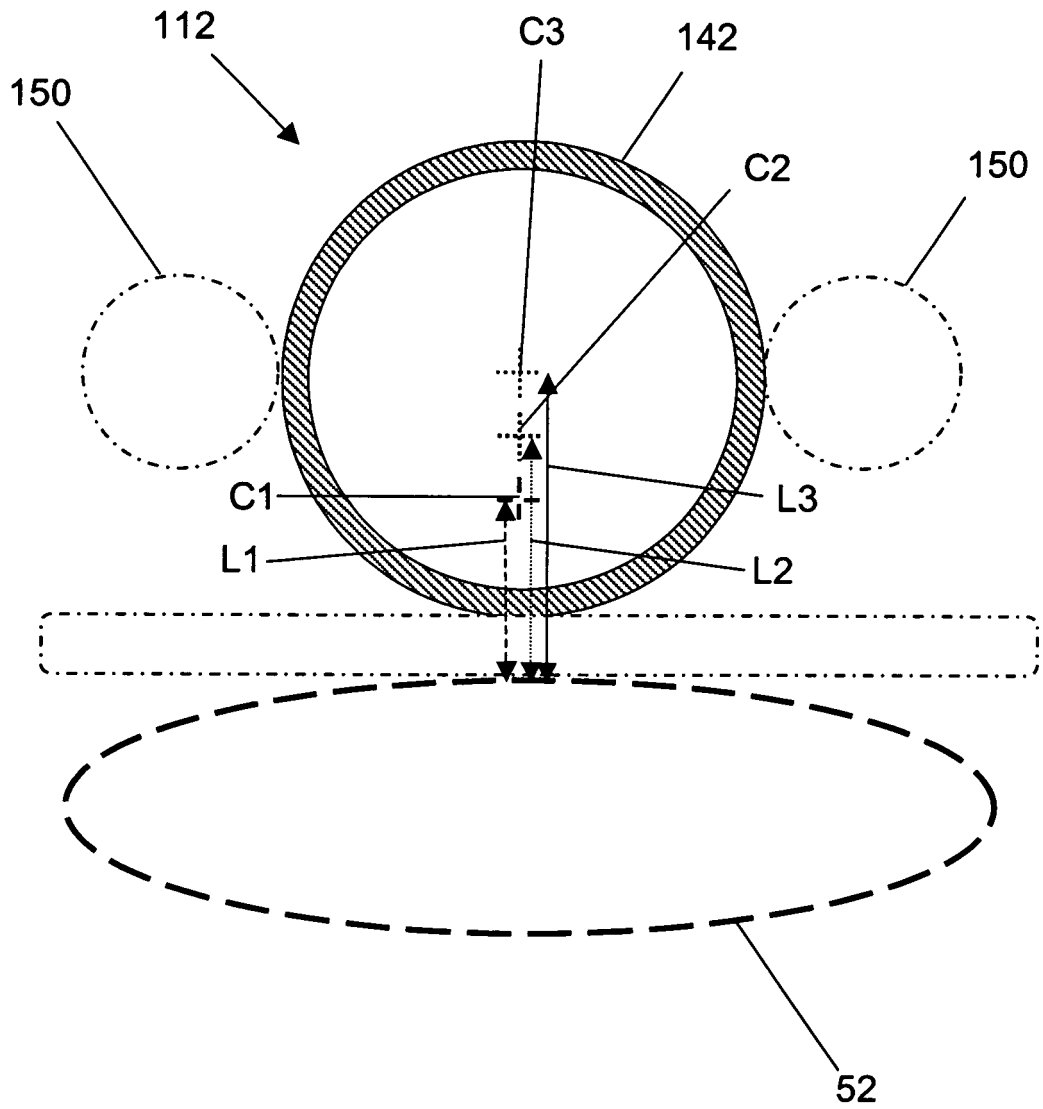


Fig. 5

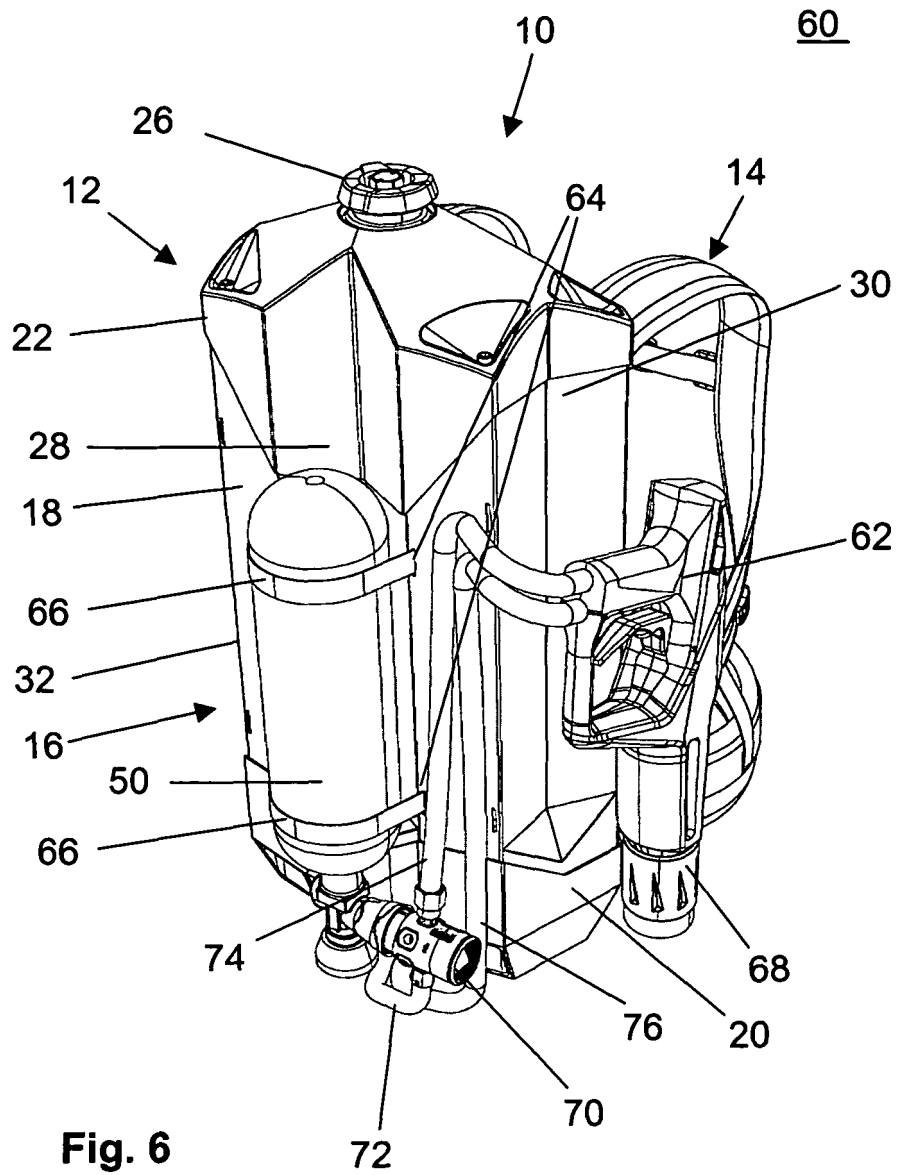


Fig. 6

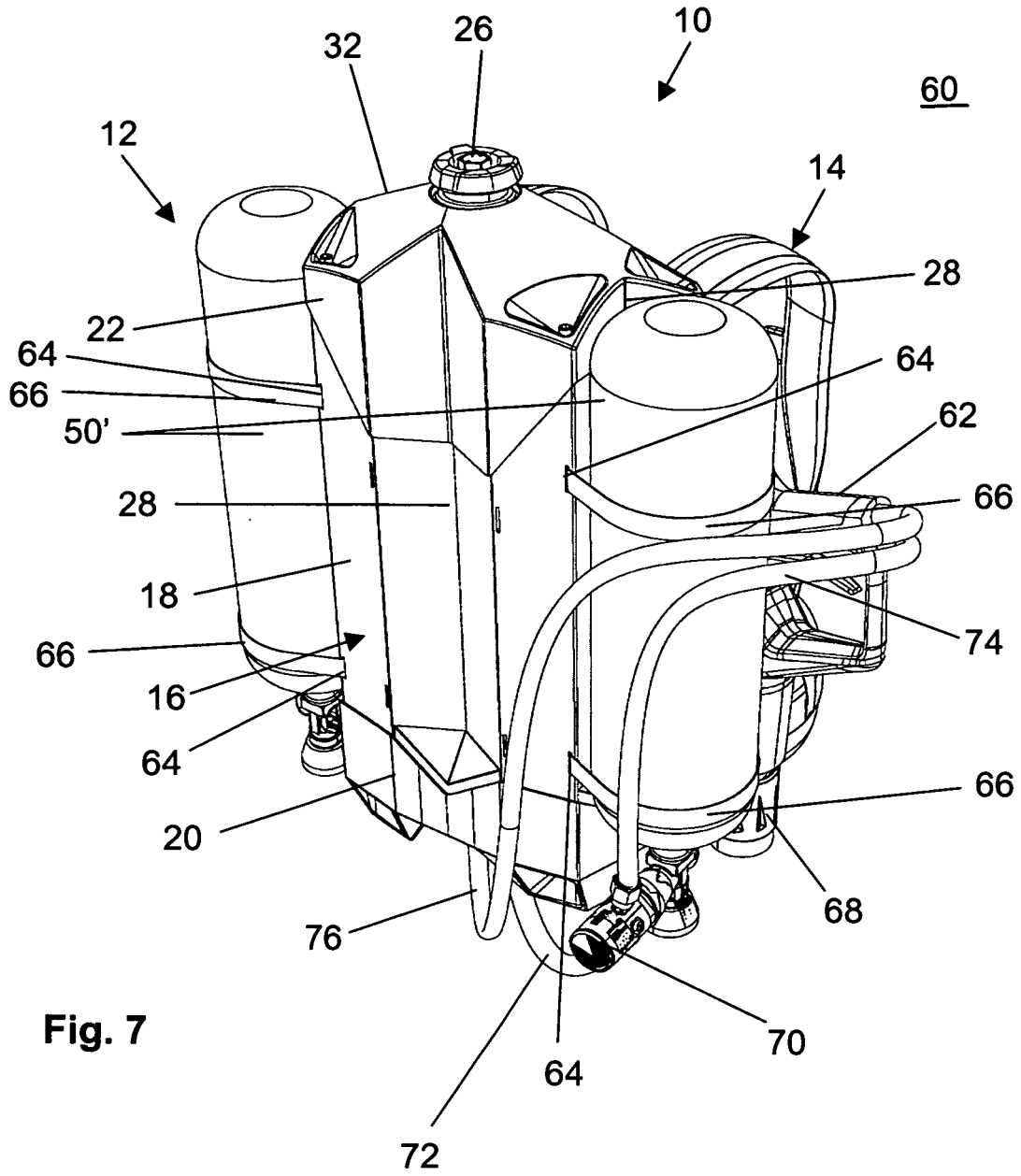


Fig. 7



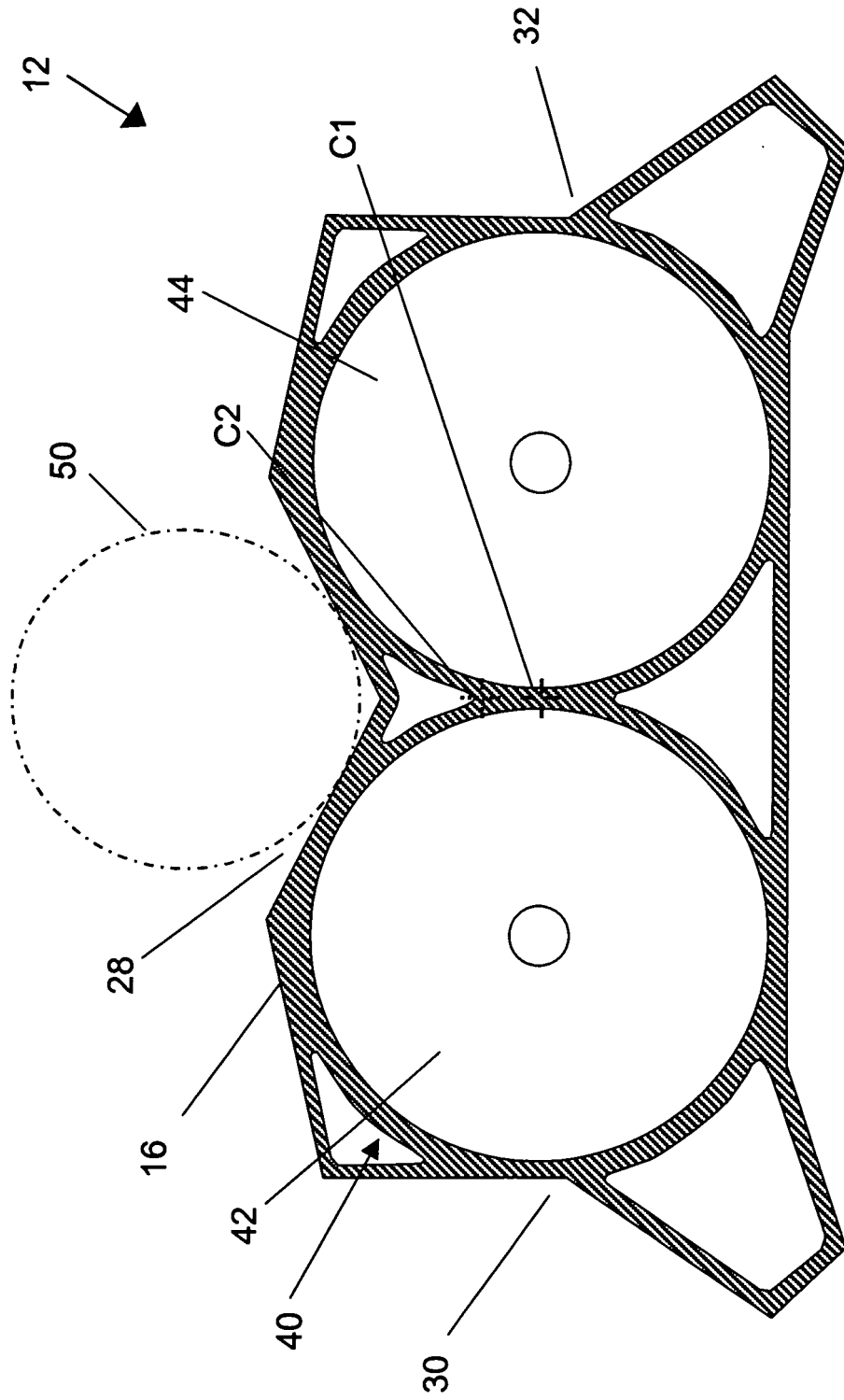


Fig. 8

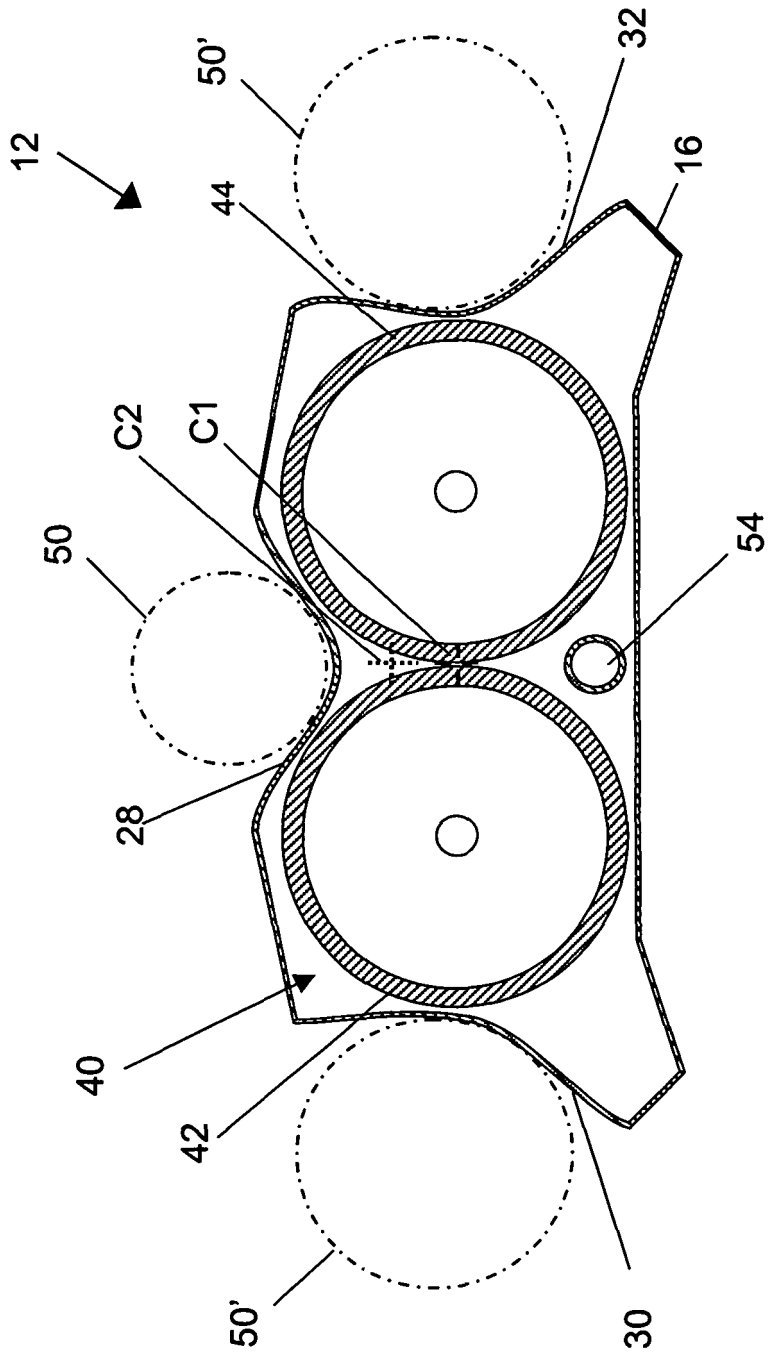


Fig. 9

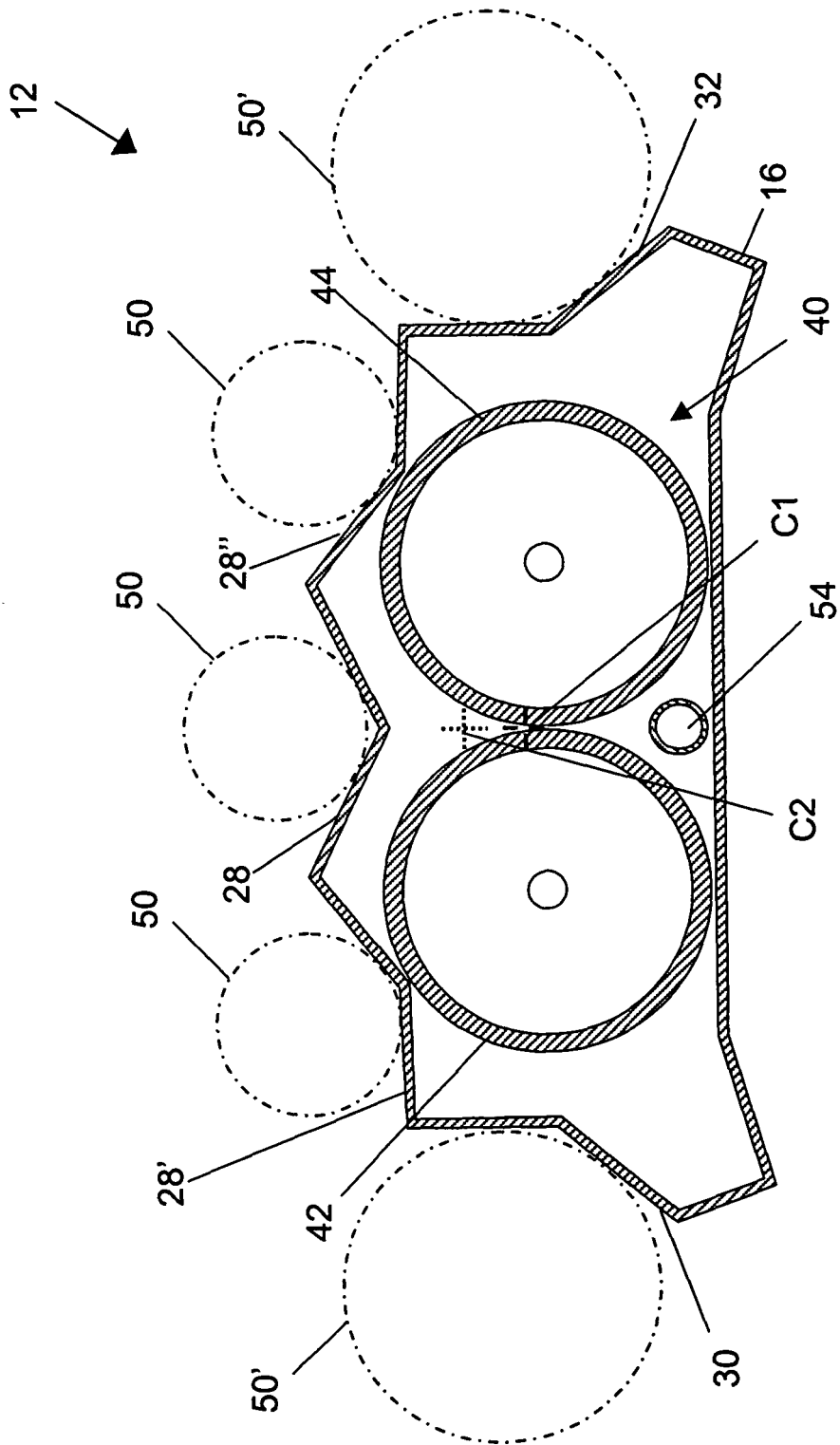


Fig. 10

**REFERENCES CITED IN THE DESCRIPTION**

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