Claims

1. Method for monitoring the amount of liquid of an extinguishing liquid container (1) of a fire-fighting apparatus, c h a r a c t e r i z e d in that the extinguishing liquid container (1) is filled with extinguishing liquid such that a predefined volume (6) remains unfilled, the extinguishing liquid container is pressurized with a gas, e.g. using the filling connector (2), to the standby pressure (P2), which is higher than the switching point (Psw) of the pressure sensor or pressure switch (3), in which case when the amount of extinguishing liquid (5) in the extinguishing liquid container (1) decreases, the pressure (P2) of the extinguishing liquid container (1) decreases from the standby pressure when the proportion of the volume of the gas expands, in which case as a consequence of the decrease in the amount of extinguishing liquid and when the pressure decreases from the standby pressure to a second, lower value, which is set as the switching limit (Psw) of the pressure sensor or pressure switch (3), the pressure sensor or pressure switch (3) gives a signal, on the basis of which a notification is obtained about the low amount of liquid in the extinguishing medium container.

2. Method according to claim 1, c h a r a c t e r i z e d in that the extinguishing liquid container is formed into a container system comprising a number of extinguishing liquid containers (1, 100), which different extinguishing liquid containers (1, 100) are connected to, or can be connected to, each other with a medium pathway (22, 23), such as with pipe means or hose means.

3. Method according to claim 1 or 2, c h a r a c t e r i z e d in that the extinguishing liquid container (1, 100) is a mainly cylindrical pressure container.

4. Method according to any of claims 1 – 3, c h a r a c t e r i z e d in that a pressurized gas source (20) can be connected to the extinguishing liquid container (1, 100).

5. Method according to any of claims 1 – 4, c h a r a c t e r i z e d in that the container system comprising an extinguishing liquid container (1) or a number of extinguishing liquid containers (1, 100) is at least in the non-active state of the fire-extinguishing system separated, with valve means or with burst disks (21, 31) breaking at a certain pressure, from the rest of the fire-extinguishing system.

6. Method according to any of claims 1 – 5, c h a r a c t e r i z e d in that the extinguishing liquid container (1, 100) is arranged in a position differing from the vertical position, more particularly in a horizontal position.

7. Method according to any of claims 1 – 5, c h a r a c t e r i z e d in that the extinguishing liquid container (1, 100) is arranged in a vertical position.

8. Method according to any of claims 1 – 7, c h a r a c t e r i z e d in that the method is used in a fire-fighting system which is a fire-extinguishing system spraying, when activated, a liquid mist from at least one spraying nozzle (29).

9. Method according to any of claims 1 – 8, c h a r a c t e r i z e d in that a liquid, or a mixture of a liquid and a gas, is used as an extinguishing medium.

10. Apparatus for monitoring the amount of liquid of an extinguishing liquid container (1) of a fire-fighting apparatus, c h a r a c t e r i z e d in that the extinguishing liquid container (1) comprises a filling connector (2) and a pressure sensor or pressure switch (3) in medium connection with the container space, which pressure sensor or pressure switch has a certain set switching pressure (Psw), which extinguishing liquid container (1) is configured to be filled with extinguishing liquid such that a predefined volume (6) remains unfilled, that the extinguishing liquid container is pressurized using with a gas to the standby pressure, which is higher than the set value (Psw) of the pressure sensor or pressure switch (3), in which case when the amount of extinguishing liquid (5) in the extinguishing liquid container (1) decreases, the pressure of the extinguishing liquid container (1) decreases from the standby pressure when the proportion of the volume of the gas expands, in which case as a consequence of the decrease in the amount of extinguishing liquid and when the pressure decreases from the standby pressure to a second, lower value, which is set as the switching limit (Psw) of the pressure sensor or pressure switch (3), the pressure sensor or pressure switch (3) gives a signal, on the basis of which a notification is obtained about the low amount of liquid in the extinguishing medium container.

11. Apparatus according to claim 10, c h a r a c t e r i z e d in that the extinguishing liquid container is formed into a container system comprising a number of extinguishing liquid containers (1, 100), which different extinguishing

liquid containers (1, 100) are connected to, or can be connected to, each other with a medium pathway (22, 23), such as with pipe means or hose means.

12. Apparatus according to claim 10 or 11, c h a r a c t e r i z e d in that the extinguishing liquid container (1, 100) is a mainly cylindrical pressure container.

13. Apparatus according to any of claims 10 – 12, c h a r a c t e r i z e d in that a pressurized gas source (20) can be connected to the extinguishing liquid container (1, 100), which pressurized gas source is, when activated, configured to drive extinguishing liquid from the extinguishing liquid container into piping leading to a spray head, which extinguishing liquid container (1, 100) and pressurized gas source (20) together form the medium source of an extinguishing system.

14. Apparatus according to any of claims 10 – 13, c h a r a c t e r i z e d in that the container system comprising an extinguishing liquid container (1) or a number of extinguishing liquid containers (1, 100) is at least in the non-active state of the fire-extinguishing system separated, with valve means or with burst disks (21, 31) breaking at a certain pressure, from the rest of the fire-extinguishing system.

15. Apparatus according to any of claims 10 – 14, c h a r a c t e r i z e d in that the extinguishing liquid container (1, 100) is arranged in a position differing from the vertical position, more particularly in a horizontal position.

16. Apparatus according to any of claims 10 – 14, c h a r a c t e r i z e d in that the extinguishing liquid container (1, 100) is arranged in a vertical position.

17. Apparatus according to any of claims 10 – 16, c h a r a c t e r i z e d in that the apparatus is used in a fire-fighting system which is a fire-extinguishing system spraying, when activated, a liquid mist from at least one spraying nozzle (29).

18. Apparatus according to claim 17, c h a r a c t e r i z e d in that a liquid, or a mixture of a liquid and a gas, is used as the extinguishing medium of the fire-fighting system.

Claims:

1. Method for monitoring the amount of liquid of an extinguishing liquid container (1) of a fire-fighting apparatus, wherein the extinguishing liquid container (1) is filled with extinguishing liquid such that a predefined volume (6) remains unfilled, the extinguishing liquid container is pressurized with a gas to a standby pressure (P2) which is higher than a switching point (Psw) of a pressure sensor or pressure switch (3), in which case when the amount of extinguishing liquid (5) in the extinguishing liquid container (1) decreases, the pressure (P2) of the extinguishing liquid container (1) decreases from the standby pressure when the proportion of the volume of the gas expands, in which case as a consequence of the decrease in the amount of extinguishing liquid and when the pressure decreases from the standby pressure to a second, lower value, which is set as the switching limit (Psw) of the pressure sensor or pressure switch (3), the pressure sensor or pressure switch (3) gives a signal, on the basis of which a notification is obtained about the low amount of liquid in the extinguishing liquid container.

2. Method according to claim 1, characterized in that the extinguishing liquid container is formed into a container system comprising a number of extinguishing liquid containers (1,100), which different extinguishing liquid containers (1,100) are connected to, or can be connected to, each other with a medium pathway (22,23), such as with pipe means or hose means.

3. Method according to claim 1 or 2, characterized in that the extinguishing liquid container (1,100) is a mainly cylindrical pressure container.

4. Method according to any of claims 1-3, characterized in that a pressurized gas source (20) can be connected to the extinguishing liquid container (1,100).

5. Method according to any of claims 1-4, characterized in that a container system comprising the extinguishing liquid container (1) or a number of extinguishing liquid containers (1,100) is at least in a non-active state of a fire- extinguishing system, and is separated, with valve means or with burst disks (21,31) breaking at a certain pressure, from the rest of the fire-extinguishing system.

6. Method according to any of claims 1-5, characterized in that the extinguishing liquid container (1,100) is arranged in a vertical position, or alternatively in a position differing from the vertical position, more particularly in a horizontal position.

7. Method according to any of claims 1-6, characterized in that the method is used in a fire-fighting system which is a fire-extinguishing system spraying, when activated, a liquid mist from at least one spraying nozzle (29).

8. Method according to any of claims 1-7, characterized in that a liquid, or a mixture of a liquid and a gas, is used as an extinguishing medium.

9. Apparatus for monitoring the amount of liquid of an extinguishing liquid container (1) of a fire-fighting apparatus, wherein the apparatus comprises said extinguishing liquid container (1), said container having a filling connector (2) and a pressure sensor or pressure switch (3) in medium connection with a container space, said pressure sensor or pressure switch having a certain set switching pressure (Psw), and wherein said extinguishing liquid container (1) is filled with extinguishing liquid such that a predefined volume (6) remains unfilled and is pressurized with a gas to a standby pressure, which is higher than the set value (Psw) of the pressure sensor or pressure switch (3), in which case when the amount of extinguishing liquid (5) in the extinguishing liquid container (1) decreases, the pressure of the extinguishing liquid container (1) decreases from the standby pressure when the proportion of the volume of the gas expands, in

which case as a consequence of the decrease in the amount of extinguishing liquid and when the pressure decreases from the standby pressure to a second, lower value, which is set as the switching limit (Psw) of the pressure sensor or pressure switch (3), the pressure sensor or pressure switch (3) gives a signal, on the basis of which a notification is obtained about the low amount of liquid in the extinguishing liquid container.

10. Apparatus according to claim 9, characterized in that the extinguishing liquid container is formed into a container system comprising a number of extinguishing liquid containers (1,100), wherein different extinguishing liquid containers (1,100) are connected to, or can be connected to, each other with a medium pathway (22,23), such as with pipe means or hose means.

11. Apparatus according to claim 9 or 10, characterized in that the extinguishing liquid container (1,100) is a mainly cylindrical pressure container.

12. Apparatus according to claim 10 or 11, characterized in that a pressurized gas source (20) can be connected to the extinguishing liquid container (1, 100), wherein a pressurized gas source is, when activated, configured to drive extinguishing liquid from the extinguishing liquid container into piping leading to a spray head, wherein the extinguishing liquid container (1,100) and pressurized gas source (20) together form the medium source of an extinguishing system.

13. Apparatus according to any of claims 10-12, characterized in that the container system comprising an extinguishing liquid container (1) or a number of extinguishing liquid containers (1,100) is at least in a non-active state of a fire- extinguishing system, and is separated, with valve means or with burst disks (21,31) breaking at a certain pressure, from the rest of the fire-extinguishing system.

14. Apparatus according to any of claims 10-13, characterized in that the extinguishing liquid container (1,100) is arranged in a vertical position, or alternatively in a position differing from the vertical position, more particularly in a horizontal position.

15. Apparatus according to any of claims 10-14, characterized in that the apparatus is used in a fire-fighting system which is a fire-extinguishing system spraying, when activated, a liquid mist from at least one spraying nozzle (29), and optionally in that a liquid, or a mixture of a liquid and a gas, is used as the extinguishing medium of the fire- fighting system.