CLAIMS

1. A device (10) for filtering stormwater inside a storm drain (11), wherein the device (10) comprises a filter unit (17) and a floating carrier (18) for carrying the filter unit (17),

wherein the filter unit (17) comprises a bottom portion (21) and a top portion (22), **characterized** in that the carrier (18) comprises

a recess (28) for receiving the bottom portion (21) of the filter unit (17), which recess (28) extends axially through the carrier (18) so that the filter unit (17) can be arranged on top of the carrier (18) while the bottom portion (21) of the filter unit (17) is be arranged in the recess (28), whereby at least a part of the bottom portion (21) of the filter unit (17) is adapted to be arranged below a surface (A) of the stormwater inside the storm drain (11) when the device (10) is arranged in a floating condition inside the storm drain (11); and

through apertures (30) extending radially from an outer surface of the carrier (18) to the recess (28), so that stormwater at the surface (A) can pass through the apertures (30) and reach the bottom portion (21) of the filter unit (17) when the device (10) is arranged in a floating condition inside the storm drain (11).

2. A device according to claim 1, wherein the top portion (22) of the filter unit (17) comprises an inclined surface (23) for guiding non-filterable objects to the surface (A) of the stormwater inside the storm drain (11).

3. A device according to claim 2, wherein the top portion (22) of the filter unit (17) is tapered.

4. A device according to any of the preceding claims, wherein the filter unit (17) comprises an absorbing material, a heavy metal filtering peat and activated carbon.

5. A device according to claim 4, wherein the filter unit (17) comprises a first filter layer (24) including a first absorbing material, a second filter layer (25) including heavy metal filtering peat, a third filter layer (26) including activated carbon and a fourth filter layer (27) including a second absorbing material.

6. A device according to claim 5, wherein the filter layers (24-27) are arranged in sequence and wherein the fourth filter layer (27) at least partially is arranged in the bottom portion (21) of the filter unit (17).

7. A device according to claim 5 or 6, wherein the first absorbing material of the first filter layer (24) comprises a granular synthetic fibre, the heavy metal filtering peat of the second filter layer (25) is formed as granules, the activated carbon of the third filter layer (26) is formed as granules, and the absorbing material of the fourth filter layer (27) is a synthetic fibre felt or fleece.

8. A device according to any of the preceding claims, wherein the floating carrier (18) is made of expanded plastic, such as expanded polystyrene.

9. A device according to any of the preceding claims, wherein the filter unit (17) comprises a perforated plastic cover.

10. A device according to any of the preceding claims, wherein the device (10) is narrower than the storm drain (11) in which it is to be arranged, thereby allowing formation of a gap (19) between the device (10) and an interior wall (20) of the storm drain (11).

11. A device according to any of the preceding claims, wherein the device comprises an RFID transponder having an ID-number and a pressure sensor (31) for monitoring the weight of the device.

12. A method of filtering stormwater in a storm drain (11), including the steps of

a) providing a filter unit (17) having a bottom portion (21) and a top portion (22),

b) providing a floating carrier (18) having a recess (28) extending axially through the carrier (18) so that the filter unit (17) can be arranged on top of the carrier (18) while the bottom portion (21) of the filter unit (17) is arranged in the recess (28); and through apertures (30) extending radially from an outer surface of the carrier (18) to the recess (28),

c) arranging the bottom portion (21) of the filter unit (17) in the recess (28) of the carrier (18),

d) arranging the carrier (18) and the filter unit (17) in the storm drain (11), so that at least a part of the bottom portion (21) of the filter unit (17) is arranged below a surface (A) of the storm water inside the storm drain (11) and at least a part of the top portion (22) is arranged above said surface (A),

e) providing stormwater to the bottom portion (21) of the filter unit (17) through the apertures (30) of the carrier (18), and

f) by means of the top portion (22) of the filter unit (17), receiving at least a major part of any stormwater entering the storm drain (11).

13. A method according to claim 12, including the step of arranging the carrier (18) and the filter unit (17) in the storm drain (11), so that a gap (19) is formed between them and an interior wall of the storm drain (11).

14. A method according to claim 13, including the step of guiding non-filterable material to the gap (19) by means of an inclined surface (23) of the top portion (22) of the filter unit (17).

15. A method according to any of claims 12-14, including the steps of detecting the weight of the device by means of an RFID transponder having a pressure sensor (31), and sending a signal to a central monitoring unit when a predetermined weight has been exceeded or a predetermined weight change during a specific time period has been exceeded.

CLAIMS

1. A device (10) for filtering stormwater inside a storm drain (11), wherein the device (10) comprises a filter unit (17) and a floating carrier (18) having an axis for carrying the filter unit (17),
wherein the filter unit (17) comprises a bottom portion (21) and a top portion (22), **characterized** in that the carrier (18) comprises

a recess (28) for receiving the bottom portion (21) of the filter unit (17), which recess (28) extends axially through the carrier (18) so that the filter unit (17) can be arranged on top of the carrier (18) while the bottom portion (21) of the filter unit (17) is be arranged in the recess (28), whereby, in use, at least a part of the bottom portion (21) of the filter unit (17) is arranged below a surface (A) of the stormwater inside the storm drain (11) when the device (10) is arranged and floating therein; and

through apertures (30) extending radially from an outer surface of the carrier (18) to the recess (28), so that stormwater at the surface (A) can pass through the apertures (30) and reach the bottom portion (21) of the filter unit (17) .

2. A device according to claim 1, wherein the top portion (22) of the filter unit (17) comprises an inclined surface (23) for guiding non-filterable objects to the surface (A) of the stormwater inside the storm drain (11).

3. A device according to claim 2, wherein the top portion (22) of the filter unit (17) is tapered.

4. A device according to any of the preceding claims, wherein the filter unit (17) comprises an absorbing material, a heavy metal filtering peat and activated carbon.

5. A device according to claim 4, wherein the filter unit (17) comprises a first filter layer (24) including a first absorbing material, a second filter layer (25)

including heavy metal filtering peat, a third filter layer (26) including activated carbon and a fourth filter layer (27) including a second absorbing material.

6. A device according to claim 5, wherein the filter layers (24-27) are arranged in sequence and wherein the fourth filter layer (27) at least partially is arranged in the bottom portion (21) of the filter unit (17).

7. A device according to claim 5 or 6, wherein the first absorbing material of the first filter layer (24) comprises a granular synthetic fibre, the heavy metal filtering peat of the second filter layer (25) is formed as granules, the activated carbon of the third filter layer (26) is formed as granules, and the absorbing material of the fourth filter layer (27) is a synthetic fibre felt or fleece.

8. A device according to any of the preceding claims, wherein the floating carrier (18) is made of expanded plastic, such as expanded polystyrene.

9. A device according to any of the preceding claims, wherein the filter unit (17) comprises a perforated plastic cover.

10. A device according to any of the preceding claims, wherein the device (10) is narrower than the storm drain (11) in which it is intended to be arranged to form a gap (19) between the device (10) and an interior wall (20) of the storm drain (11).

11. A device according to any of the preceding claims, wherein the device comprises an RFID transponder having an ID-number and a pressure sensor (31) for monitoring the weight of the device.

12. A method of filtering stormwater in a storm drain (11), including the steps of

a) providing a filter unit (17) having a bottom portion (21) and a top portion (22),

b) providing a floating carrier (18) having an axis and a recess (28) extending axially through the carrier (18) so that the filter unit (17) can be arranged on top of the carrier (18) while the bottom portion (21) of the filter unit (17) is arranged in the recess (28); and through apertures (30) extending radially from an outer surface of the carrier (18) to the recess (28),

c) arranging the bottom portion (21) of the filter unit (17) in the recess (28) of the carrier (18),

d) arranging the carrier (18) and the filter unit (17) in the storm drain (11), so that at least a part of the bottom portion (21) of the filter unit (17) is arranged below a surface (A) of the storm water inside the storm drain (11) and at least a part of the top portion (22) is arranged above said surface (A),

e) providing stormwater to the bottom portion (21) of the filter unit (17) through the apertures (30) of the carrier (18), and

f) by means of the top portion (22) of the filter unit (17), receiving at least a major part of any stormwater entering the storm drain (11).

13. A method according to claim 12, including the step of arranging the carrier (18) and the filter unit (17) in the storm drain (11), so that a gap (19) is formed between them and an interior wall of the storm drain (11).

14. A method according to claim 13, including the step of guiding non-filterable material to the gap (19) by means of an inclined surface (23) of the top portion (22) of the filter unit (17).

15. A method according to any of claims 12-14, including the steps of detecting the weight of the device by means of an RFID transponder having a pressure sensor (31), and sending a signal to a central monitoring unit when a predetermined weight has been exceeded or a predetermined weight change during a specific time period has been exceeded.