A compact drain assembly for sinks and the like, comprising at least one drain duct which can be coupled hermetically at a drain hole which is provided at least at the lateral surface of a sink and has at least one portion which is at the same level as, or lower than, the bottom of the sink. An element for closing the drain is further provided which affects the drain duct.
COMPACT DRAIN ASSEMBLY FOR SINKS AND THE LIKE

[0001] The present invention relates to a compact drain assembly for sinks and the like.

BACKGROUND OF THE INVENTION

[0002] As is known, sinks and the like have a drain assembly which is generally provided by means of a drain pipe or the like which is connected to a hole provided at the bottom of each bowl of the sink and the like.

[0003] The overflow safety drain duct must then be connected to the drain pipe and requires the provision on the sink of an additional hole, which is generally provided a few centimeters from the upper rim of the sink.

[0004] With this embodiment, therefore, it is necessary to use under the bottom of the sink an underlying space which is usually larger than 120 mm.

[0005] Moreover, the placement of the overflow requires providing a hole in the bowl for inserting the drain inlet, setting a maximum level in the bowl which is not variable in any manner.

[0006] Another drawback further consists in that it is necessary to provide several elements, which cause difficulties during installation.

SUMMARY OF THE INVENTION

[0007] The aim of the invention is to eliminate the drawbacks mentioned above by providing a compact drain assembly for sinks and the like which allows to reduce drastically the space required for the drain under the sink, thus contributing to a better utilization and optimization of the spaces in the household environment.

[0008] Within this aim, an object of the invention is further to achieve the overflow function without having to provide additional holes in the bowl except for the drain hole.

[0009] Another object of the present invention is to provide a drain assembly which, thanks to its particular constructive characteristics, is capable of giving the greatest assurances of reliability and safety in use.

[0010] Still another object of the present invention is to provide a compact drain assembly for sinks and the like which can be obtained easily starting from commonly commercially available elements and materials and is also competitive from a merely economical standpoint.

[0011] This aim and these and other objects, which will become better apparent hereinafter, are achieved by a compact drain assembly for sinks and the like, according to the invention, characterized in that it comprises at least one drain duct which can be coupled hermetically at a drain hole which is defined at least at the lateral surface of a sink and has at least one portion which is at the same level as, or lower than, the bottom of said sink, an element for closing the drain being further provided which affects said at least one drain duct.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] Further characteristics and advantages of the present invention will become better apparent from the description of a preferred but not exclusive embodiment of a compact drain assembly for sinks and the like, illustrated by way of non-limiting example in the accompanying drawings, wherein:

[0013] FIG. 1 is a schematic perspective view of the drain assembly according to the invention;

[0014] FIG. 2 is a sectional view of the drain assembly, taken at the drain hole;

[0015] FIG. 3 is a sectional view of the drain assembly, taken downstream of the closure element, in the direction of water outflow;

[0016] FIG. 4 is a sectional view of the drain assembly applied to a single-bowl sink;

[0017] FIG. 5 is a schematic perspective view of the actuation means of the closure element;

[0018] FIG. 6 is a perspective view of a detail of the partition wall for controlling the overflow level;

[0019] FIG. 7 is a perspective view of the means for positioning the partition wall for controlling the overflow level.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0020] With reference to the figures, the compact drain assembly for sinks and the like, generally designated by the reference numeral 1, comprises a bowl element 2, which can be applied hermetically to a sink and the like, generally designated by the reference numeral 3, preferably at the region between the two bowls 4 of a sink or, in the case of a single-bowl sink, on the side of a bowl 4.

[0021] The bowl element 2 is provided with a sealing gasket 10, which acts on the outer surface of the sink 3 so as to optimize the hermetic coupling.

[0022] The sink 3 is connected to a drain duct 11, which is provided so that it has a drain duct 11 for each bowl 4.

[0023] In the case of two bowls, as shown schematically in FIG. 1, there are two ducts 11, which are mutually separated by a partition wall 13 which substantially divides the region arranged between the two bowls.

[0024] A peculiar feature of the invention consists in that each drain duct 11 is connected to a respective bowl 4 by means of a drain hole 20, which is arranged laterally in order to affect the lateral surface of the sink and also a portion which is flush with the bottom of the sink, so as to allow complete discharge of the water, allowed by the fact that the bottom of the sink is provided so that it slopes toward the drain hole.

[0025] The drain hole 20 is closed by a grille 21, which acts only as a barrier but does not provide a seal and is provided with a grip pin 22, which can be accommodated in a spiked element 23 so as to retain the grille 21 in position.

[0026] A drain closure element is provided at each drain duct 11 and in practice replaces the conventional closure plug of the bowl, which in the specific case is closed by means of a flow control element which can be of any type and advantageously can be actuated remotely.

[0027] In the specific example, which illustrates one of the possible embodiments, there is a flow control element with a flap 30 which rotates about its own axis and has a pivot 31 which protrudes radially from the flap-like flow control element 30 and is connected to a gear 32, which meshes for example with a rack 33 which can slide by way of the action of a cable 34 which can be actuated from a control knob 35 which can be arranged above the sink.

[0028] In this manner, by turning the flap-like flow control element 30, the drain duct is opened and closed, controlling the outflow of the liquid from the bowl.

[0029] With the described arrangement it is therefore possible to reduce drastically the space occupation below the sink, since it is not necessary to provide a connection to the
drain pipe, but the drain duct lies substantially horizontally at a level which is slightly lower than the bottom of the sink, so that the space below the bowl is left completely free.

Moreover the solution allows to provide an overflow which can be obtained without having to produce another hole in the bowl.

In the specific case, the overflow function is achieved by means of a chamber 40 which is provided laterally with respect to the bowl and is delimited by a level control partition 41, which can slide so as to vary its useful height, which determines the level of overflow of the water, said overflow occurring downstream of the flow control element 30, with reference to the direction of outflow of the water.

The level partitions 41 can be adjusted in height so that each user can freely define the overflow level simply by varying the height of the partition 41, which can slide in hermetic guides 42 provided in the dividing wall 13 or in any case laterally adjacent to the sink, so as to define an overflow region, beyond which the water passes directly to the drain.

In order to position the level control partition it is possible to use different actuation means; according to a possible embodiment, which must not be construed as limiting, it is possible to provide a linear set of teeth 60 on the partition 41, such set being engaged by an actuation gear 61 arranged on a shaft 62 provided with a pinion 63 which meshes with a hook-like detent system 64 actuated by a cable 65, which can be operated by means of a level knob 66 which can be accessed above the sink.

The rotation of the gear 61 changes the vertical position of the partitions and consequently changes the overflow level according to the requirements of the user.

From what has been described above it is therefore evident that the invention achieves the intended aim and objects, and in particular the fact is stressed that a drain assembly for sinks and the like is provided which allows first of all to reduce drastically the space occupation under the sink and further allows to obtain the overflow safety level without having to resort to the additional traditional provision of a hole in the bowl of the sink.

Another important aspect further consists in that it is possible to adjust the overflow level at will.

The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

All the details may further be replaced with other technically equivalent elements.

In practice, the materials used, as well as the contingent shapes and dimensions, may be any according to requirements.

The disclosures in Italian Patent Application No. MI2006A005527 from which this application claims priority are incorporated herein by reference.

What is claimed is:

1-12. (canceled)

13. A compact drain assembly for sinks and the like, comprising at least one drain duct which can be coupled hermetically at a drain hole which is defined at least at the lateral surface of a sink and has at least one portion which is at the same level as, or lower than, the bottom of said sink, a closure element for closing said drain duct being further provided which affects said at least one drain duct.

14. A drain assembly for sinks and the like, comprising at least one drain duct which can be coupled hermetically at a drain hole provided in said sink, an element for closing the drain being further provided which affects said at least one drain duct, a safety overflow being provided which is arranged downstream of said drain closure element.

15. The drain assembly according to claim 13, further comprising a bowl element which can be applied hermetically at a lateral portion of at least one bowl of said sink.

16. The drain assembly according to claim 15, further comprising, on said bowl element, in case of a two-bowl sink, two drain ducts which are separated by a dividing wall arranged in the region located between the two bowls of a sink.

17. The drain assembly according to claim 13, further comprising a grille which is arranged at said drain hole and only acts as a barrier.

18. The drain assembly according to claim 13, wherein said closure element comprises a flow control element with a flap which can rotate about its own axis and is arranged so as to control the respective drain duct.

19. The drain assembly according to claim 18, wherein said flap-like flow control element comprises a radially protruding pin, which is connected to a gear which meshes with a rack which can slide due to the action of a cable which can be actuated by a control knob which can be located on said sink.

20. The drain assembly according to claim 14, wherein said safety overflow has an height-adjustable level.

21. The drain assembly according to claim 20, wherein said safety overflow is defined in a chamber which is positioned laterally with respect to said bowl and is provided with a level control partition which can move in order to vary the useful height which determines the water overflow level.

22. The drain assembly according to claim 21, wherein said level control partition can slide hermetically within guides defined at the dividing wall between the two bowls of a sink.

23. The drain assembly according to claim 22, comprising actuation means for positioning said level control partition.

24. The drain assembly according to claim 23, wherein said actuation means for positioning the level control partition comprise a linear set of teeth, which is provided on said partition and is engaged by an actuation gear, which is arranged on a shaft which is associated with a pinion which is connected to a detent system which can be actuated by means of a cable connected to a knob.

* * * * *