

TOPS HAVING BASINS AND PROCESS FOR  
THEIR PRODUCTION

TECHNICAL FIELD

5       The present invention relates to tops having  
basins, for use in washing stands, kitchen sinks etc., and  
more particularly, it relates to tops fitted with basins  
having good water draining properties by being so construct-  
ed that water spilt on the surface of the top flows into the  
10 basin and a process for their production.

BACKGROUND ART

Lately with the development of the housing industry,  
the secondary housing industry has progressed very  
rapidly, including manufacture of built-in furniture, kitchen  
15 sinks, washing stands as unit equipments.

Kitchen sinks and washing stands are one of the inte-  
rior fixtures essential for every day life, and a variety of  
such products to the taste of customers are being presented  
on the market.

20       Since kitchen sinks and washing stands are fixtures  
which inevitably involve use of water, a top which supports a  
basin is provided horizontally as one of the constituent  
members. In such a top there is usually employed  
a structure obtained by making the upper surface of a wood based

core material repellent to water and at the same time giving the surface a decorative color. Alternatively, a melamine decorative board having a woodgrain pattern may be bonded to the upper surface. The kitchen sinks and washing stands described above are indoor fixtures utilizing water \_\_\_\_\_ and therefore the used water should not leak into areas other than the sinks and washing stands.

Accordingly, various ways have been devised \_\_\_\_\_ to prevent leakage of water spilt on the surface of the top passing through a joint part between a flange part of the basin and the edge of a hole in the top used for imbedding the basin. One such example is a product in which a basin flange is mounted on a top, the joint part thereof with the edge of a hole in the top for imbedding the basin is sealed by fixing a rubber packing or other sealing materials, and the top and the basin flange part are fixed together by screwing from the rear surface of the top. However, such a structure suffers from the disadvantage \_\_\_\_\_ that with prolonged use, the rubber packing or other sealing materials are degraded and permit spaces around the edge of the aforementioned imbedding hole to cause water leakage, thereby resulting in swelling and corrosion of the top itself, which then forms gaps between the surface of the top and the basin flange part, finally permitting water spilt on the top to drop onto the floor instead of flowing into the basin, thus making the neighborhood of the sink or washing stand very moist.

As an alternative to such structures having \_\_\_\_\_ the joint between the basin flange and the edge of the hole in the top \_\_\_\_\_ sealed using a rubber packing or other sealing materials, there is a structure in which a hole in the top is made larger than the basin itself, and the top decorative board alone is provided with a hole having the same dimension as the open part of the basin, and the basin flange part is fitted and directly adhered to the underside of the decorative board by using \_\_\_\_\_

10 a synthetic resin. Since the \_\_\_\_\_ flange part of the basin is situated lower than the surface of the top, all the water spilt on the surface of the top flows into the basin, thus solving the aforementioned problem of drainage of water spilt on the surface of the top. However,

15 with this structure, the strength of the bonded part between the top decorative board and the basin flange part is weak, and it therefore tends to be damaged during transport and the decorative board is also easily impaired. Moreover, the finish treatment of the synthetic resin used for adhering the

20 joint part between the hole edge of the decorative board and the basin flange part is troublesome and requires a lot of labor and time, and therefore it is not applicable to manufacture of products having a structure suitable for mass production.

25 As mentioned above, in fabricating tops fitted with basins used in kitchen sinks, washing stands etc., various problems are present from a standpoint of working to prevent

water leakage in the joint part between the basin flange and the hole in the top for imbedding a basin.

The present invention aims to present tops fitted with basins which can provide good water drainage and have a structure permitting 5 their mass production by eliminating problems involved in the structure and fabrication of tops fitted with basins which are constituent members for kitchen sinks and washing stands, as well as a process for their production.

#### DISCLOSURE OF THE INVENTION

10 According to one aspect of this invention there is provided a top comprising a wood based laminate used as a core material with a decorative board bonded to the upper surface thereof in combination with a basin, a hole in the decorative board, a cavity in the core material beneath the hole in the decorative board, said cavity receiv- 15 ing a flange of the basin below the under surface of the decorative board, and a synthetic resin filling and reinforcing the cavity, whereby the flange of said basin is entirely imbedded in said resin.

According to a further aspect of this invention there is provided a process for producing a top comprising a wood based core 20 material bonded with a decorative board on the upper surface thereof, in combination with a basin including the steps of bonding the under surface of the decorative board to the upper surface of the core material, said wood based core material having a cavity therein for accepting the basin, mounting a flange of the basin so as to be 25 spaced from said decorative board, said decorative board having an aperture therein which enables the decorative board to cover the flange; filling the space of said cavity between the core material, the decorative board and the basin with a synthetic resin and curing same, whereby said basin is integrated with said core material and

said flange is entirely imbedded in said synthetic resin.

According to another aspect of this invention there is provided a process for producing a top comprising a wood based core material bonded with a decorative board on the upper surface thereof in combination with a basin having a flange, the core material having a cavity therein for accepting the basin including the steps of applying a synthetic resin over part of the under surface of the decorative board, said decorative board having an aperture therein which enables the decorative board to overlie the basin flange, curing said resin to form a reinforcing resin layer, bringing said layer into contact with the flange of the basin, bonding the wood based core material to the under surface of the decorative board, filling the space of said cavity between the core material and the basin with a synthetic resin and curing same whereby said basin is integrated with the core material and said flange is entirely imbedded in said synthetic resin.

The present invention is essentially seen to reside in a top including a basin to be used in kitchen sinks and washing stands, having a structure presenting good water drainage by situating the surface of a flange part of the basin at a position lower than the surface of the top in which it is imbedded, thereby allowing all the water spilt on the surface of the top to flow into the basin, and further in which the joint between the basin flange part and the top is made strong, as well as a process for their production.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described by way of example with reference to the accompanying drawings in which:-

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Figures 1 - 4 show vertical cross sections of tops fitted

with basins according to the present invention; Figures 5 - 12

are illustrative diagrams showing the production principle of

that shown in Figure 1 as a representative; and Figures 13 - 16

5 are illustrative diagrams showing the production principle of a

top fitted with a basin according to the present invention, all

of which are given in vertical cross sections.

BEST MODE OF CARRYING OUT THE INVENTION

In Figures 1 - 4, (16) is a top and is composed of a wood derived core material (10) and a decorative board (4) laminated thereon with an adhesive (13).

5 In this top (16) is imbedded a metal basin (6). Herein, a flange (7) of the basin (6) is situated close to the rear surface of a hole edge (4a) of an open part (5) on the surface of the abovementioned decorative board (4) with a specific space therebetween, and the space is filled  
10 with a thermosetting synthetic resin, such as a polyester type, rigid polyurethane type or epoxy type resin (15) to adhere with the wood derived core material (10) to give reinforcement. In other words, the flange (7) is imbedded in the synthetic resin at a position lower than the surface of the decorative  
15 board (4) and fixed therein, and therefore water spilt on the top can flow into a basin (6), thus preventing a poor drainage problem, which is a great feature of the present invention.

Figure 2 shows a modification of the top fitted with a basin shown in Figure 1, in which a channel (16a) is provided  
20 around the peripheral wall of the hole edge in the wood derived core material (10) and a synthetic resin is introduced also into this part and cured therein, thereby further reinforcing the effectiveness of the resin. The top fitted with a basin shown in Figure 3 is that in which a thermosetting synthetic  
25 resin has been poured into a cavity formed by the flange (7) and the rear surface of the hole edge (4a) of the open part (5) of the decorative board (4) in the top fitted with a basin

shown in Figure 1 and cured to form a reinforcing resin layer (15a), then the basin is placed and the thermosetting synthetic resin (15) is poured, thereby imbedding and fixing the flange (7). The top fitted with a basin shown in Figure

5 4 is of a structure in which, similar to that in Figure 3, the thermosetting synthetic resin is poured into the cavity made along with the rear surface of the hole edge (4a) of the open part (5) of the decorative board (4) and cured to form the reinforcing resin layer (15a), then the flange (7) is 10 firmly fixed using a fixing means (17), the thermosetting synthetic resin (15) is again poured and a rear surface facing material (18) is bonded.

The process steps of producing a top fitted with a basin will now be explained using that having the structure shown in Figure 1.

15 In Figure 5, (1) is a wood or metal mold release frame constructed of a flat plate provided with a protruded part (2),

the periphery of the top surface of which is made into the beveled part (3) corresponding to the open sloped surface of the basin (6). Further, the protruded part (2) has a dimension complementary to the hole (5) for imbedding a basin to be made in a decorative board (4) described hereinbelow which constitutes the top surface part of the top.

In the first place, the decorative board provided with the hole (5) for imbedding a basin shown in Figure 6 is put on the abovementioned protruded part (2) as shown in Figure 7, with the surface to be the top surface of the top facing down, and fixed in the mold release frame (1). In this case, it is essential that the hole (5) in the decorative board (4) for imbedding a basin have such a size that the flange (7) provided at the upper edge of the basin (6) covers the hole edge.

After the decorative board (4) is fixed in the mold release frame (1), a basin (6) consisting of the flange (7) surface, a body (8) and a sloped surface (9) is mounted upside down on the protruded part (2) of the abovementioned mold release frame (1) as shown in Figure 8. In this case, since the beveled part (3) of the protruded part (2) and the abovementioned sloped surface (9) of the basin fit right with each other, stable mounting is enabled, thereby a certain space is formed between the flange (7) surface and the decorative board (4).

In the next place, the wood derived core material (10) to be the main part of the top is laminated on the above-

mentioned decorative board (4). This wood derived core material (10) is made of, for example, plywood, particle board etc., and as shown in Figure 9, it is provided with holes (11) and (12) both having large sizes than the body (8) of the basin 5(6) with difference in dimension therebetween and the surface to be laminated with the abovementioned decorative board (4) is coated with the adhesive (13). This is inserted into the basin (6) as shown in Figure 10 and pressed onto the decorative board (4).

10 By this, there is formed a cavity (14) defined by the body (8) of the basin, the wood derived core material (10) and the decorative board (4), and the flange (7) surface is then placed approximately in the center of said body (14).

Next, as in Figure 11, the thermosetting synthetic 15resin (15), e.g. a polyester resin, a polyurethane resin, an epoxy resin etc. is injected into the abovementioned cavity and cured so as to imbed the flange (7) in the resin layer, thereby fixing it as well as fixing it with the decorative board (4) and the wood derived core material (10).

20 After the flange (7) has been fixed as above described, then as in Figure 12, the mold release frame (1) is removed, and the assembly is turned over, thereafter the extra part (a) consisting of a part of the decorative board around the open part of the basin and the cure resin is cut off along 25the broken line in the figure using, for example, a router, thereby the top fitted with a basin shown in Figure 1 is completed.

Figure 13 is an illustrative diagram showing the production principle of the top fitted with a basin shown in Figure 3, in which the thermosetting resin is poured over the rear surface of the decorative board (4) to be brought into contact with the flange (7) of the basin (6) and cured to form the reinforcing resin layer (15a) around the hole (5) in the decorative board (4) for imbedding a basin, thereafter the basin (6) is placed thereon with its bottom up and fixed so that its flange (7) lies on the abovementioned reinforcing resin layer (15a), then the core material (10) having holes (11) and (12) which are larger than the body of the basin (6) is bonded onto the decorative

board (4) using the adhesive (13), and the synthetic resin (15) is injected and filled into the cavity (14) formed by the core material (10) and the body of the basin (6), to fix the basin body.

The top fitted with a basin shown in Figure 4 may also be fabricated by a similar principle, but in this case, it differs from that shown in Figure 3 in that in injecting and filling the synthetic resin (15) the rear surface facing material (18) and the fixing means (17) are used to fix the flange (7) more firmly.

In addition, Figure 14 and Figure 15 show an example of a method to form the reinforcing resin layer (15a) on the rear surface to be brought into contact with the flange of the basin (6) in fabricating the tops fitted with basins shown in Figure 3 and Figure 4. More specifically, the surface

(4b) of the decorative board (4) is turned down, the mold release frame (1) from which the central part has been removed is mounted thereon, and the synthetic resin (15a) is poured up to the predetermined height and allowed to cure, thereafter the frame (1) is removed. The reinforcing resin layer (15a) formed as in Figure 15 and the decorative board (4) are integrated and by cutting along the sloped surface of the basin (6) using a tool such as a router there is provided the hole (5) for imbedding a basin.

10 Alternatively, as in Figure 16, the decorative board (4) and the core material (10) may be bonded together without using the mold release frame (1), and the molten synthetic resin is poured into this assembly placed upside down and cured to form the reinforcing resin layer (15a), after which the  
15 hole (5) for imbedding a basin may be provided.

It is preferred to use a synthetic resin added with foaming agents, fibers, coloring agents etc. to make it a low foaming-setting type, since it is lightweight and excellent in strength, thus making cutting operation and nailing operation easy and rendering the finished resin surface colorful.

#### INDUSTRIAL APPLICABILITY

The top fitted with a basin obtained by the present invention has its basin flange lower than the surface of the top, and therefore water spilt on the surface of the top  
25 can flow into the basin. Installation of such units provides kitchen sinks, washing stands etc. having good water drainage.

Furthermore, since it has a structure in which a firm resin layer is formed between the basin flange surface and a wood derived core material is the main material of the top, there is virtually no danger that a space is formed in the joint part between the basin flange and the wood derived core material to cause water leakage or penetration of water into the decorative board or the core material. Additionally, by imbedding the flange, satisfactory strength and mass production of uniform quality products is enabled.



## CLAIMS:

1. A top comprising a wood based laminate used as a core material with a decorative board bonded to the upper surface thereof in combination with a basin, a hole in the decorative board, a cavity in the core material beneath the hole in the decorative board, said cavity receiving a flange of the basin below the under surface of the decorative board, and a synthetic resin filling and reinforcing the cavity, whereby the flange of said basin is entirely imbedded in said resin.
2. A top as claimed in Claim 1, in which the cavity part is filled and reinforced with the synthetic resin in two layers with the flange therebetween, at least one of said layers being thermosetting whereby said flange is held by said two layers.
3. A top as claimed in Claim 1 or 2, in which the resin is a polyester type, rigid polyurethane type or epoxy type synthetic resin.
4. A top as claimed in Claim 1, in which a channel is provided in the inner periphery of the core material cavity to permit the resin to enter thereinto.
5. A top as claimed in any preceding claim, wherein a sloping surface is provided from the upper surface of the decorative board through said resin to the inner surface of said basin whereby run off of water from the decorative board to the basin is facilitated.
6. A process for producing a top comprising a wood based core material bonded with a decorative board on the upper surface thereof, in combination with a basin including the steps of bonding the under surface of the decorative board to the upper surface of the core material, said wood based core material having a cavity therein for accepting the basin, mounting a flange of the basin so as to be spaced from said decorative board, said decorative board having an aperture therein which enables the decorative board to cover the flange;



filling the space of said cavity between the core material, the decorative board and the basin with a synthetic resin and curing same, whereby said basin is integrated with said core material and said flange is entirely imbedded in said synthetic resin.

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7. A process as claimed in Claim 6, wherein the decorative board and resin are finally shaped to provide a sloping run-off of water from the decorative board to the basin.

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8. A process for producing a top comprising a wood based core material bonded with a decorative board on the upper surface thereof in combination with a basin having a flange, the core material having a cavity therein for accepting the basin including the steps of applying a synthetic resin over part of the under surface of the decorative board, said decorative board having an aperture therein which enables the decorative board to overlie the basin flange, curing said resin to form a reinforcing resin layer, bringing said layer into contact with the flange of the basin, bonding the wood based core material to the under surface of the decorative board, filling the space of said cavity between the core material and the basin with a synthetic resin and curing same whereby said basin is integrated with the core material and said flange is entirely imbedded in said synthetic resin.

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9. A process as claimed in Claim 8, wherein the flange is fixed to the reinforcing resin layer using a fixing means before the cavity is filled with synthetic resin.

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10. A top substantially as herein described with reference to and as shown in the examples of the Figures.

11. A process for producing a top substantially as herein described with reference to and as shown in the examples of the Figures.

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