

- [54] CERAMIC TILE SHELF AND FORM FOR MAKING IT
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- [52] U.S. Cl.108/152, 248/223, 248/225, 264/261, 249/160, 269/1
- [51] Int. Cl.A47b 5/00
- [58] Field of Search108/42, 152; 248/223, 224, 248/225; 52/36, 721

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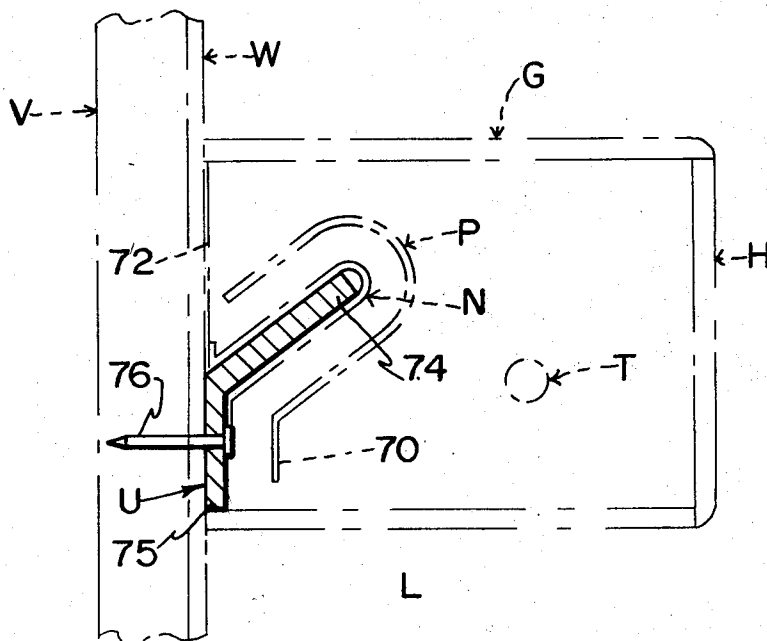
ABSTRACT

An adjustable form is used and its prism-shaped space

has four walls and a base that can be lined with ceramic tile and then the interior is filled with concrete. A reinforcing bar is embedded in the concrete. Before the concrete has set a jig is used having a blade that has a length slightly less than the distance between the ceramic tiles that are disposed adjacent to the two end walls of the form. A removable sleeve is placed over the blade and a reinforcing screen or screen lath encloses the sleeve. The jig has handles which permit an operator to force the jig blade sleeve and reinforcing screen into the concrete at preferably an acute angle so that the sleeve and reinforcing screen will be embedded in the concrete. After the concrete has partially set, the jig is removed from the sleeve and when the concrete has completely set, the completed ceramic tile shelf is freed from the form.

A hanger can be secured to a wall or other vertical surface and the hanger will have a flat portion that extends upwardly and at an acute angle with the vertical surface. The operator takes the shelf and attaches it to the hanger by permitting the inclined portion of the hanger to enter the sleeve. The weight of the shelf will hold it in place and the inclination of the hanger flat portion will keep the shelf in contact with the supporting wall surface due to gravity.

2 Claims, 10 Drawing Figures



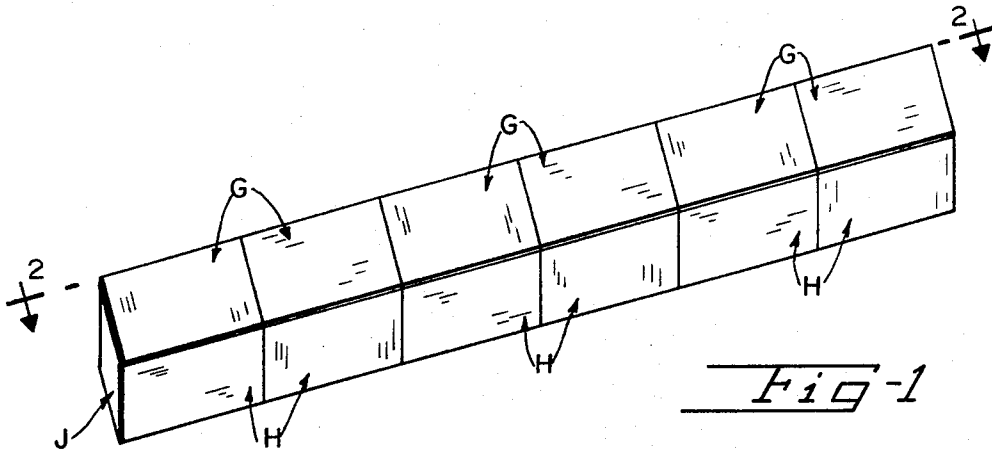


Fig-1

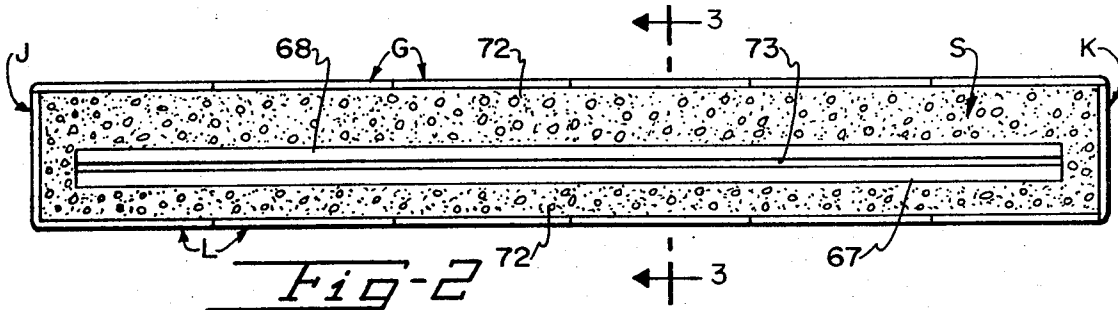


Fig-2

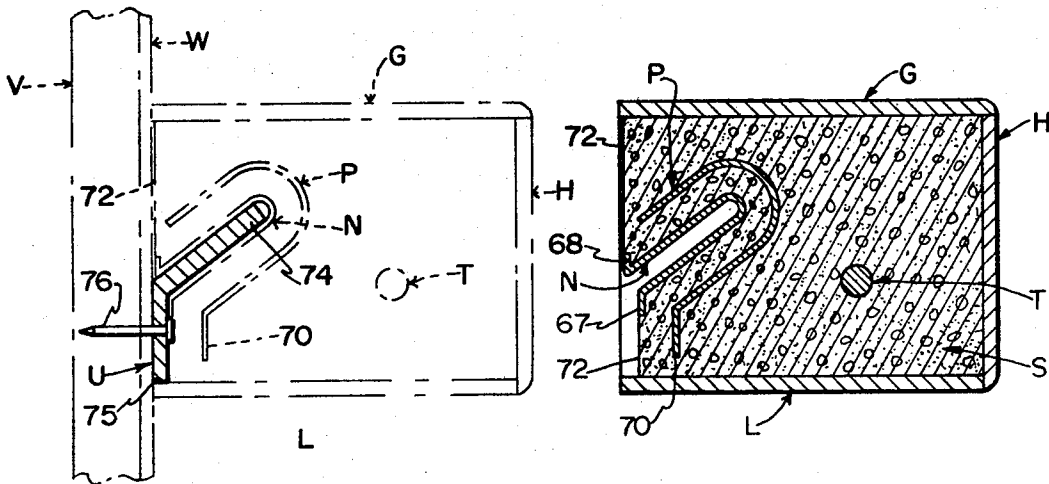


Fig-3

Fig-4

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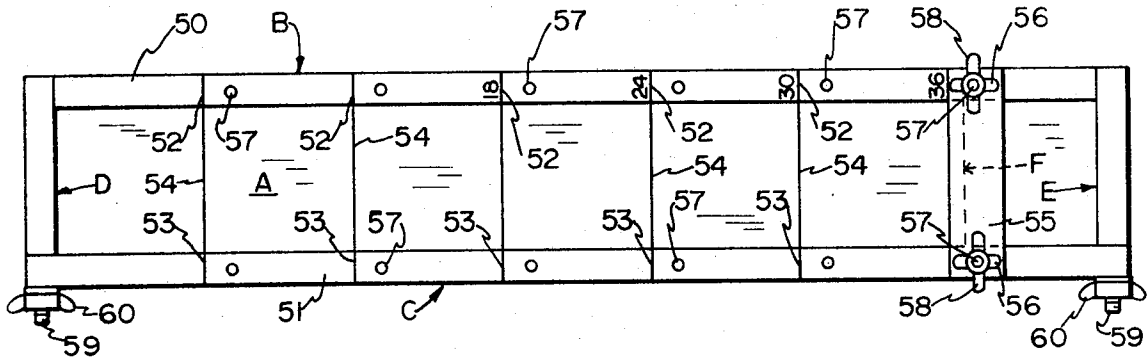


Fig-5

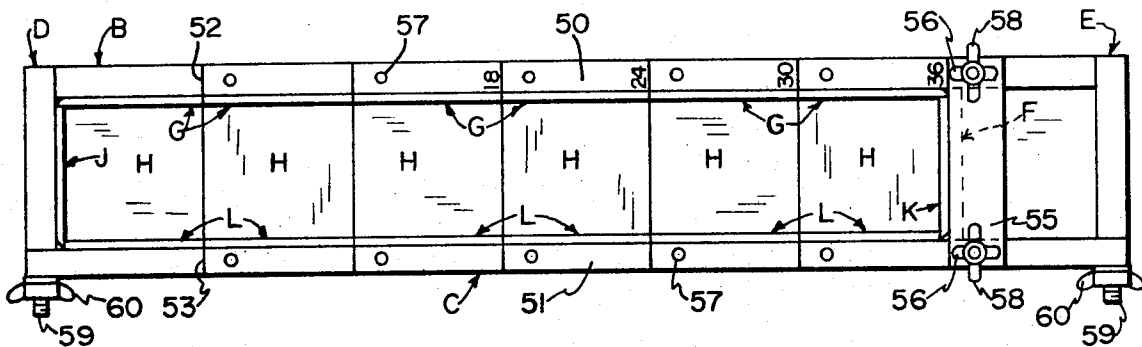


Fig-6

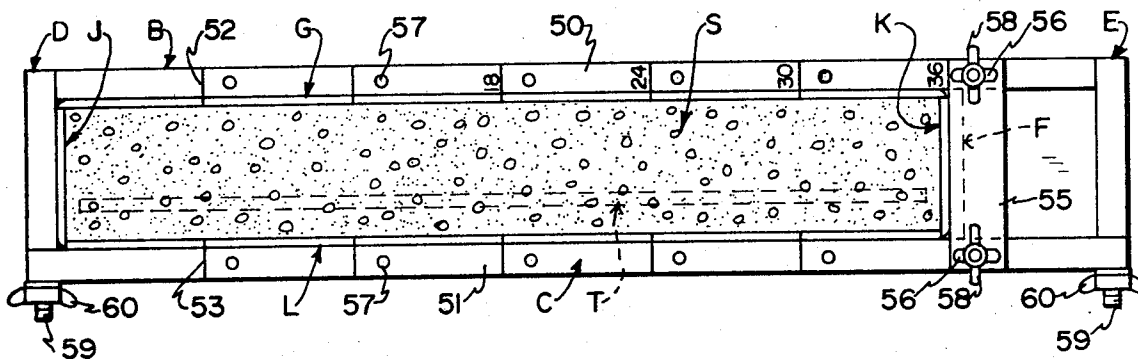


Fig-7

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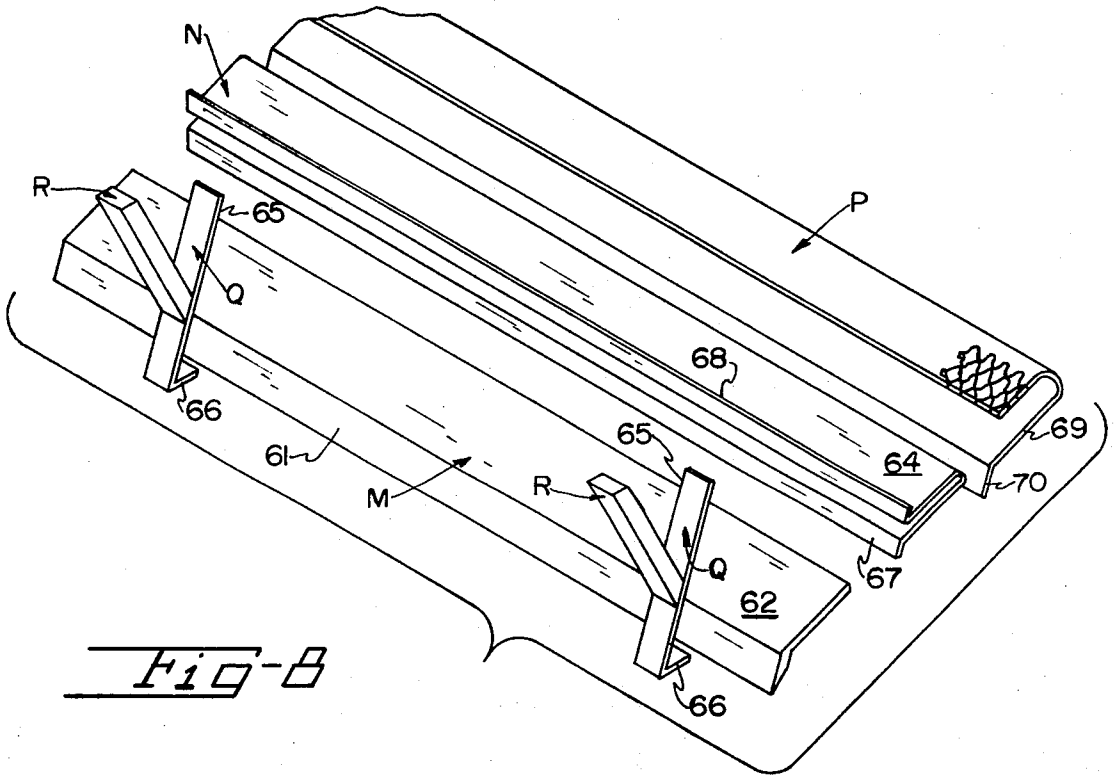


Fig-8

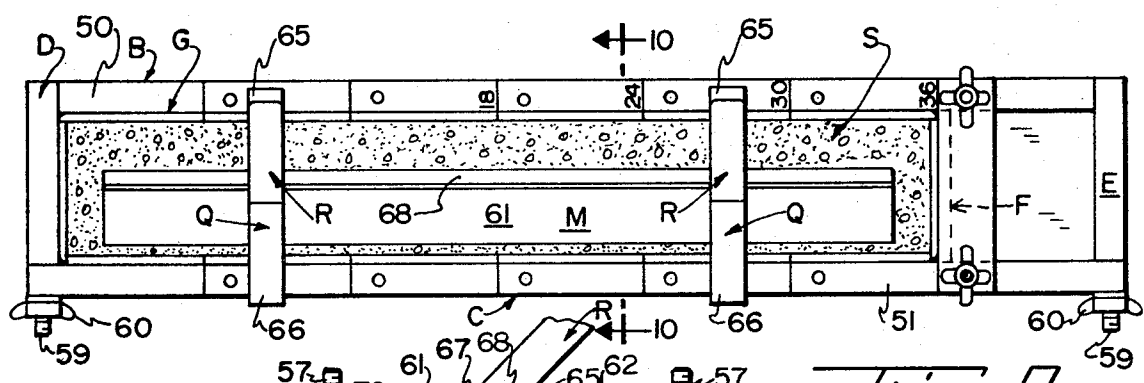


Fig-9

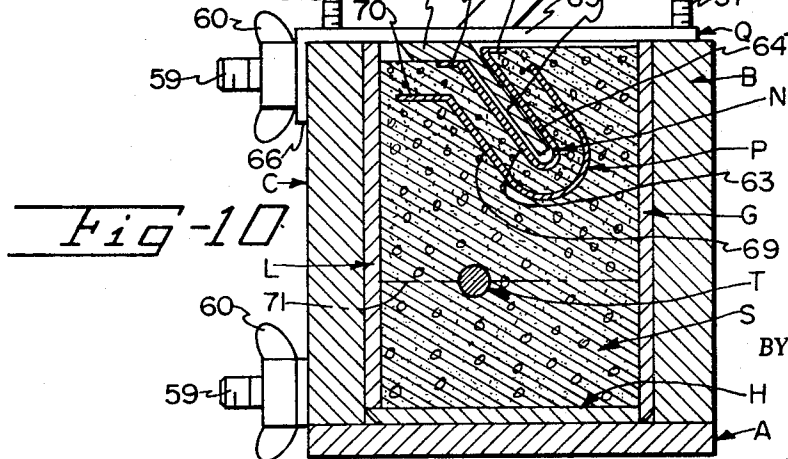


Fig-10

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CERAMIC TILE SHELF AND FORM FOR MAKING IT

CROSS REFERENCE TO RELATED APPLICATION 5

In my copending patent application on a form for making tile seats for stall showers and the like, Ser. No. 882,007, filed Dec. 4, 1969, now U.S. Pat. No. 3,640,041 I disclose a form whose walls and base can be lined with ceramic tile, the form being constructed to make triangularly-shaped tile covered seats.

My present invention makes use of a form that is prism-like in shape and can be adjusted to make ceramic tile covered shelves of different lengths. The tile will cover the top, bottom and front walls as well as the end walls of the shelf. The angle of the embedded sleeve and the upwardly inclined angle of the shelf-supporting portion of the hanger that enters the sleeve makes it possible to slip the shelf into place on the hanger after the latter has been secured to the surface of a supporting wall. The weight of the shelf will hold it in proper position on the hanger and the shelf may be mounted onto the hanger or removed therefrom without the use of tools.

BACKGROUND OF THE INVENTION

Field of the Invention

It is desirable to mount ceramic tile shelves on bathroom walls adjacent to sunken tubs or other types of bathroom tubs or shower stalls. The ceramic tile shelf can be installed as an accessory in a completed bathroom, stall shower or at any other desired place on a wall. The tile shelf is waterproof because it consists of a reinforced concrete block of a predetermined shape, this block being entirely enclosed in ceramic tile with the exception of the rear face of the shelf that abuts the adjacent surface of the supporting wall. The reinforced concrete block has a sleeve with an elongated entrance slot, the interior of the sleeve extending upwardly and inwardly into the concrete block from the exposed rear face of the block. The shelf is mounted on a hanger that is secured to a wall and the hanger has an upwardly inclined blade or flat portion which enters the sleeve in the shelf when the latter is mounted on the hanger.

SUMMARY OF THE INVENTION

An object of my invention is to provide a waterproof ceramic tile covered shelf of a desired size and shape that is made of reinforced concrete that forms a block and has an embedded sleeve which extends upwardly and inwardly at an angle from the rear surface of the concrete block. The embedded sleeve has an elongated entrance slot that extends substantially throughout the length of the concrete block, the slot opening out at the rear surface of the block which is not covered with tile, and being adapted to receive an upwardly inclined, shelf-supporting blade-like portion of a hanger that is mounted at a desired position on a supporting wall.

A further object of my invention is to provide an adjustable form in which the ceramic tile covered shelf can be constructed. I further provide a jig of novel construction for inserting and properly positioning a sleeve and a reinforcing screen in the concrete before it has set, the jig being used to force the sleeve into the concrete at the proper angle and to the proper depth in

the concrete so that the longitudinal slot in the sleeve will be positioned at the surface of the rear face of the concrete.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an isometric view of the completed ceramic tile covered shelf.

FIG. 2 is an enlarged plan view of the rear side of the shelf when looking in the direction of the arrows 2—2 in FIG. 1. This rear side is the only surface not covered with tile and it is the surface that will lie adjacent to the supporting wall surface.

FIG. 3 is a further enlarged transverse section through the tile covered shelf and is taken along the line 3—3 of FIG. 2. The shelf in FIG. 3 has been rotated counterclockwise through an arc of 90° about the longitudinal axis of the shelf when looking in the direction of the arrows 3—3 of FIG. 2. This is the position the shelf will occupy when it is to be supported by a hanger that is secured to a vertical wall.

FIG. 4 is a transverse section through a shelf-supporting hanger and it is shown secured to a wall that is illustrated by dot-dash lines. The shelf of FIG. 3 is also illustrated by dot-dash lines as being mounted on the hanger.

FIG. 5 is a plan view of the adjustable form that is used to construct the ceramic tile covered shelf illustrated in FIG. 1.

FIG. 6 is similar to FIG. 5 and shows the inner wall surfaces and the base of the form lined with ceramic tile preparatory to making the shelf.

FIG. 7 is a view similar to FIG. 6 and illustrates a further step in the method of filling the space, surrounded by tile, with concrete and embedding a reinforcing rod therein.

FIG. 8 is an exploded isometric view of the jig, sleeve and reinforcing screen. The sleeve is telescoped into the reinforcing screen and the jig has an elongated blade that is inserted into the open side of the sleeve just prior to the operator using the jig for embedding the sleeve and reinforcing screen in the concrete before the latter has set.

FIG. 9 is a plan view of the form and is similar to FIG. 7 with the added feature of showing the jig embedding the sleeve and reinforcing screen in the concrete before the latter has set.

FIG. 10 is an enlarged transverse section taken along the line 10—10 of FIG. 9.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In carrying out my invention, I provide an adjustable form shown in FIGS. 5, 6 and 7 for constructing the ceramic tile covered shelf illustrated in FIGS. 1 to 4 inclusive. The adjustable form has a base A, vertical sides B and C, and end walls D and E, see FIG. 5. The upper edges 50 and 51 of the vertical sides B and C, respectively, representing the widths of 6 inch tiles when these tiles are placed adjacent to the inner surfaces of the vertical sides in a manner presently to be described. The third marking 52 from the left hand end wall D has the total inch-indicating mark 18" placed thereon, and the fourth, fifth and sixth markings 52 from the same left hand end wall D have, respectively, the total inch-indicating marks of 24", 30" and 36". The form in

FIGS. 5, 6 and 7 may be made longer or shorter than that shown in these Figures. It is possible to have these markings 52 and 53 extend downwardly along the inner surfaces of the vertical sides B and C, respectively, although they are not shown in the drawings and it is also possible to extend these markings across the upper surface of the base A, as is shown in FIG. 5 at 54.

I provide an adjustable end wall, indicated generally at F in FIGS. 5, 6 and 7. This vertical end wall F has a width equal to the distance between the inner surfaces of the vertical side walls B and C. The lower edge of the adjustable end wall will contact with the upper surface of the base A. A top piece 55 is secured to the upper edge of the adjustable end wall F, and the ends of this top piece extend over the upper edges 50 and 51 of the side walls B and C, respectively. The two ends of the top piece 55 have slots 56 formed therein and these slots removably receive threaded studs 57 that extend upwardly from the top edges 50 and 51 of the vertical side walls B and C.

FIG. 5 shows the adjustable end wall F placed adjacent to the markings 52 and 53 on the upper edges 50 and 51 of the side walls B and C, respectively, that are marked 36". This means that the ceramic tile shelf when made will be thirty-six inches long. The slots 56 in the top piece 55 permit the end wall F to be adjusted so that the left hand face of this end wall F can be aligned with the markings 52 and 53 associated with the marking 36". Wing nuts 58 are threaded upon the studs 57 for clamping the top piece 55 and end wall in the predetermined position shown in FIG. 5. The form is now ready to have the ceramic tile covered shelf constructed in it.

The first step in the method of constructing the tile covered shelf is shown in FIG. 6. The inner surfaces of the base A, vertical sides B and C, end wall D and the adjustable end wall F are sprayed with a mold release liquid, not shown. Then a line of ceramic tile G is placed along the inner surface of the vertical side B of the form with the glazed surfaces pointing outwardly. The lower edges of these tiles G, will contact with the upper surface of the base A and the tiles will have their adjacent side edges spaced only a slight distance away from each other so as to provide grout-receiving spaces between adjacent tile which will be explained later. The two end tiles of the line or row of tile will have their outer vertical edges rounded as shown in FIG. 6. The row of tile G will form the top row of tile in the completed shelf.

The second step in my method is to lay another row of ceramic tile H along the upper surface of the base A, see FIG. 6, so that the tile edges adjacent to the row of tile G will abut the inner surfaces of these tiles or be spaced a slight distance therefrom to form grout-receiving spaces therebetween. The opposite edges of the tiles H will abut the inner surface of the vertical side C. This line or row of tile H will have their glazed surfaces resting on the top of the base A. This row of tiles H will therefore become the front tile H on the completed form shown in FIG. 1.

The third step in my method is to place an end ceramic tile J against the end wall D of the form and have the lower edge of this tile rest on the upper surface of the tile H that is disposed therebelow, see FIG. 6. The end tile J has one vertical edge abutting or

placed a slight distance from the inner face of the adjacent front tile G so as to provide a space that is later filled with grout. The opposite vertical edge of the end tile J has a rounded edge as shown in FIG. 6, and this edge abuts the inner surface of the vertical side C of the form.

As a part of the third step in my method, I place another ceramic end tile K against the adjustable end wall F of the form and the lower edge of this tile rests on the upper surface of the tile H that is disposed therebelow, see FIG. 6. The end tile K has one vertical edge abutting or placed a slight distance from the inner face of the adjacent front tile G so as to provide a space that is later filled with grout. The opposite vertical edge of the end tile J has a rounded edge as shown and this edge abuts the inner surface of the vertical side C of the form.

The fourth step of my method is the placing of a row of ceramic tile L along the vertical side C of the form with the glazed surfaces of the tile contacting the inner surface of this form side C. Again the tiles in the row may be placed a slight distance apart from each other to provide spaces that will later be filled with grout. The lower edges of the tile L will rest on the adjacent upper surfaces of the row of tile H. Also the two end tiles in the row of tiles L will be spaced a slight distance from the adjacent surfaces of the two end tiles J and K so that spaces will be provided that will be filled with grout later. This completes the lining of the inner surfaces of the form with ceramic tile.

Before describing any more steps in my method of constructing the ceramic tile covered shelf, it is best to state that the vertical side form C is removably secured in place so that this side can be removed after the tile shelf is completed and the concrete has had time to partially set. This will permit the completed shelf to be removed from the form so that the form can be used again. FIGS. 5, 6, 7, 9 and 10 illustrate the two ends of the form side C being removably secured to the vertical edges of the end walls D and E of the form by studs 59 that extend from these vertical edges and wing nuts 60 that have washers permanently attached to the wing nuts. FIG. 10 shows that each form end D and E has two studs 59 projecting therefrom. The two ends of the vertical side C have two openings for receiving the studs. The wing nuts 60 when mounted on the studs removably connect the vertical side C to the two ends D and E of the form.

In FIG. 8, I show an exploded isometric view of a jig M, a U-shaped sleeve N and a reinforcing screen or screen lath P that is also U-shaped and has a length substantially the same as the length of the sleeve N. The jig M has a length slightly less than the length of the interior of the form in which the tile-covered shelf is being constructed, see FIG. 9 where the jig is shown placed in the form in a manner presently to be described.

The jig M has an elongated base portion 61, see FIGS. 8, 9 and 10 and the base has an integral blade 62 of equal length as the base and inclined at an obtuse angle to the base. The thickness of the jig blade 62 is slightly less than the distance between the two sides 63 and 64 of the U-shaped sleeve N so that the sleeve can be slipped over the blade for a purpose hereinafter described. The thickness of the base 61 is greater than the thickness of the blade as clearly shown in FIGS. 8 and 10. The edge of the base 61 is bevelled.

The jig M is provided with two L-shaped guides Q and these have their longer arms 65 welded or otherwise secured to the jig base 61 and extend transversely with respect to the jig base, see FIGS. 8, 9 and 10. The length of the longer guide arms 65 is such as to project laterally across the upper edges 50 and 51 of the vertical sides B and C of the form as clearly shown in FIG. 10. The L-shaped guides Q have their shorter arms 66 bent at right angles to the plane of the longer arms 65 and these bent ends will contact with the outer surface of the vertical side C of the form so as to position the jig Q in the proper position in the space enclosed by the tiles G. A handle the longer arms 65, see is mounted on each jig positioning guide Q and these handles are inclined with respect to the plane of the FIG. 10.

Referring again to FIG. 8, I have shown the U-shaped sleeve N with an outwardly bent integral lip 67 on the side 63 and an outwardly bent integral lip 68 on the side 64. FIG. 10 shows how the lip 67 makes an obtuse angle with the sleeve side 63 and how the lip 68 makes an acute angle with the sleeve side 64. When the sleeve N is mounted on the jig blade 62, the sleeve lip 67 will underlie the jig base 61 and the sleeve lip 68 will underlie the longer arms 65 of the jig-positioning guides Q.

The reinforcing screen or screen lath P is also U-shaped, see FIG. 8, so as to slide over the sides 63 and 64 of the sleeve N, see FIG. 10. The latter Figure shows the U-shaped reinforcing screen P spaced from the adjacent sides 63 and 64 of the sleeve N. Both FIGS. 8 and 10 show the side 69 of the U-shaped reinforcing screen P provided with an integral lip 70 that makes an obtuse angle with the plane of the side. The lip 70 parallels the lip 67 of the sleeve N.

Returning to the various steps of my method, in step five the operator butters all of the inner tile surfaces in the form with cement and follows this with filling the lower one-fourth portion of the interior enclosed by the tiles with a concrete aggregate S, see the dot-dash line 71 in FIG. 10. Then a reinforcing rod T is placed on the concrete and the remainder of the interior is filled with additional concrete. The length of the reinforcing rod T is slightly less than the distance between the inner surfaces of the end tiles J and K, see FIG. 7, where the rod is shown by dotted lines.

Before the concrete S sets, the operator places the U-shaped reinforcing screen over the sleeve N and then places the sleeve onto the blade 62 of the jig M. The jig with its sleeve N and screen lath P is then forced into the concrete at such a position and angle as to bring the jig-positioning guides Q against the upper edges of the vertical sides B and C of the form and to bring the short arms 66 against the outer surface of the form side C, see FIG. 10. This is step six in my method. The concrete S has not set and some of the concrete at the top of the form may be forced out because it has been displaced by the sleeve N and the reinforcing screen lath P. Also, the jig base 61 may force some of the concrete out of the form so that the final exposed surface 72, see FIG. 3, will be indented slightly from the free edges of the tiles G and L. The sleeve N and the reinforcing screen P will be buried in the concrete S and will extend at an angle to the exposed concrete surface 72. The lips 67 and 68 of the sleeve N will lie substantially flushed with the surface 72 while the lip 70 of the reinforcing screen P will be embedded in the concrete S. FIG. 2 shows a plan view of the concrete

surface 72 and illustrates how the lips 67 and 68 of the sleeve N are visible and how they are spaced apart so as to provide an elongated slot 73 that can receive the blade 74 of a tile shelf supporting hanger U, see FIG. 4. The bevelled edge on the jig base 61, see FIG. 10, permits this edge to clear the upper edge of the row of tiles L when the jig is moved for forcing the sleeve N into the concrete.

The completed tile-covered shelf must remain in the form for at least one hour to allow a partial setting of the concrete S. Then the blade 62 and jig M are removed from the sleeve N and form. The concrete S in the shelf interior should now set for about a 24 hour period after which the form board C may be removed by unfastening the wing nuts 60 from the studs 59. This will permit the tile shelf to be removed from the form after which the exterior surfaces of the tiles can be cleaned and the spaces between the edges of adjacent tiles may be filled with grout, not shown.

It is possible to install the tiled shelf on any supporting wall. In FIG. 4, I have shown vertical studding V by dot-dash lines and wall tile W is shown by dot-dash lines secured to the studding Y in a well known manner. The shelf-supporting hanger U, in FIG. 4, has a base portion 75 that has horizontal slots for receiving lag screws 76 or other suitable fasteners that extend into the studs V for supporting the hanger. The hanger blade 74 makes an acute angle with a vertical plane and this angle is the same as that made by the walls 63 and 64 of the sleeve N.

I show in dot-dash lines in FIG. 4, the position the tiled shelf will assume when the hanger blade 74 enters the slot 73 and is received in the sleeve N. Mastic, not shown, is first applied to the exposed surface 72 of the concrete filled interior of the shelf so that this mastic will form a water-tight seal between the tiled shelf and the wall W when the shelf is mounted in place. The shelf may be installed on any finished wall. It can be made of any length desired.

FIG. 3 shows the exposed surface 72 of the concrete S as having two levels. The deeper level of this surface is made by the thicker base portion 61 of the jig M and is for the purpose of providing a space for receiving the base portion 75 of the hanger U when the tiled shelf is mounted on the hanger. The same space will also receive the heads of the lag screws 76.

I claim:

1. A ceramic shelf comprising:

- a. an elongated body of concrete having a substantially vertical rear surface;
- b. a sleeve embedded in said body and having an elongated opening arranged at the rear surface of said body and being substantially coextensive with the length of said body, said sleeve being U-shaped in cross-section and extending upwardly and inwardly into said body from said opening, the two walls of the sleeve having lips that lie flush with the rear surface of said body;
- c. the elongated opening being adapted to receive an upwardly and outwardly inclined blade of a hanger that is attached to a wall, the blade entering the sleeve and being adapted to support said shelf, the weight of the body and the angle of the downwardly inclined blade portion of the hanger causing said shelf to move downwardly by gravity

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- on the inclined blade until the rear surface of the shelf contacts the wall; and
- d. ceramic tile covering at least the top and front surfaces of said body.
- 2. The combination as set forth in claim 1: and in which
 - a. the top tile on said shelf have their rear edge extending a slight distance beyond the upper rear surface of said body for providing a mastic-receiving space between the body and the shelf-support-

- ing wall and lying between the top tile and the hanger blade receiving opening; and
- b. the lower portion of the rear surface of said body that lies below said elongated opening being spaced inwardly a greater distance than said upper portion to provide sufficient space between this lower portion and the shelf-supporting wall to receive the base of the hanger.

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