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METHOD OF PRODUCING TEST SPECIMENS
OF CONCRETE FOR PRESSURE TESTS
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2,644,220

Fig. 1.

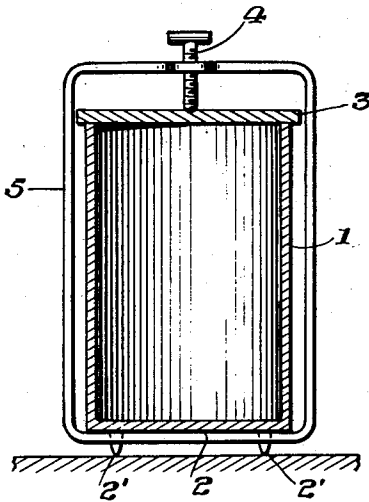


Fig. 2.

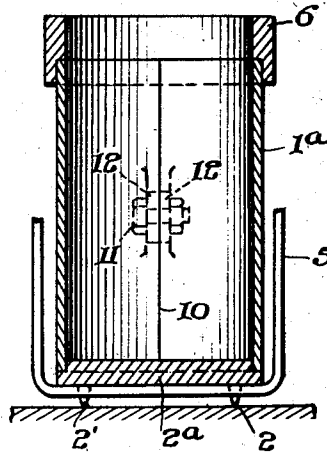


Fig. 3.

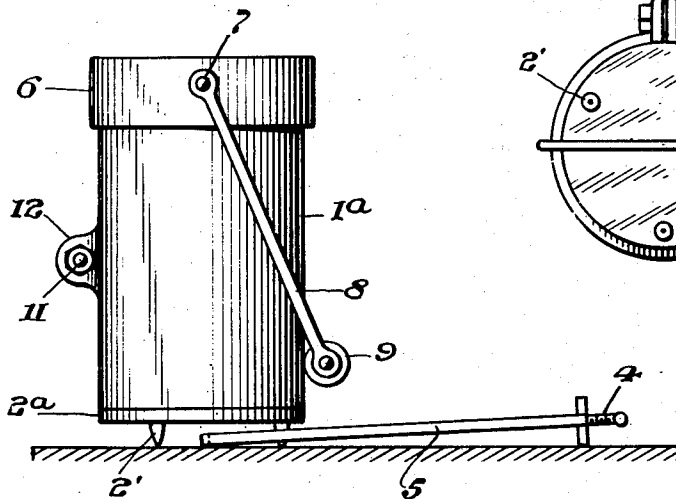
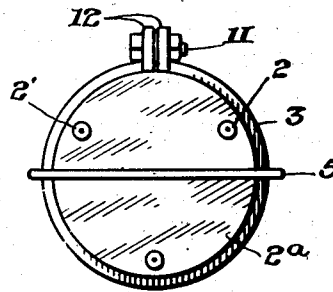


Fig. 4.



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METHOD OF PRODUCING TEST SPECIMENS
OF CONCRETE FOR PRESSURE TESTS

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3 Claims. (Cl. 25-155)

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In the production of specimens for the testing of concrete a cylindrical container is used as casting mould having standardized dimensions (diameter and height). This container is filled with a concrete mass during simultaneous tamping and/or shocking of the same, the casting being then smoothed level with the upper edge of the container which is thereafter left at rest until the concrete casting has sufficiently solidified and hardened for removal from the container for further hardening outside thereof, usually in moist sand or the like.

However, this mode of production has the drawback that the mass during solidifying decreases in volume so that the upper end surface of the resulting specimen does not become sufficiently plane and therefore must be submitted to a subsequent treatment, such as fill-up, which involves firstly increased work and secondly that the layer cast onto the end surface easily obtains a different structure as compared with the other parts of the specimen which may influence the transmission of pressure and the effect thereof upon the specimen during testing.

The present invention relates to a method for the production of test specimens of concrete, by which the above-mentioned drawbacks are eliminated and by which specimens are obtained having uniform structure and end surfaces with the necessary parallel and plane ends to permit of an exact pressure test.

The invention is mainly distinguished thereby that the container used as a casting mould for the test specimen, after having been filled with concrete mass in prescribed manner, is closed and, thereafter, supported in a position in which the longitudinal axis thereof extends horizontally, until the mass has solidified and at least partially hardened.

By this method the concrete mass in the horizontal container, owing to its static pressure, is held pressed against the interior opposite plane surfaces of the bottom and cover of the container during the solidifying, and an eventual sinking in the mass is distributed along the whole length of the specimen at the upwardly directed side thereof and, thereby, becomes so small that it is of practically no importance.

In order to obtain additional assurance of uniform structure in the whole length of the test specimen and to minimize the sinking of the mass during solidifying the container is equipped with a removable extension ring for temporarily extending the effective height of the container.

The whole assembly is filled with concrete mass

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in the prescribed manner, the extension ring removed and the surplus of mass abraded and smoothed level with the upper end of the container, which is then closed and supported in the above mentioned position during the solidifying and partial hardening of the concrete mass.

The use of an extension ring as above described makes it possible to combine therewith a special shocking device by means of which the mass within the container may be submitted to a definite predetermined shocking.

Embodiments of a device for carrying the method into effect will now be described by way of example with reference to the accompanying drawing, in which:

Figure 1 is a sectional view of a container for moulding concrete specimens,

Figure 2 is a similar view of a modified embodiment,

Figure 3 is a side view of a further embodiment, and

Figure 4 shows the container seen from the bottom thereof.

Referring first to Figure 1 there is shown a cylindrical container 1 having a bottom 2. The internal diameter and height of said container correspond to the accepted standard for such moulds. The bottom 2 of the container is provided with a number of pegs or knife-like projections 2' which may be pressed into a support and serve to hold the container in relation thereto during filling, as well as to maintain the bottom elevated to some extent above said support. A cover 3, having a plane lower surface, extends somewhat outside the circumference of the container and is clamped against the upper open end of the container by means of a clamping screw 4, threaded through one transverse portion of a frame shaped hoop 5 the other transverse portion of which extends diametrically across the bottom 2 between the projections 2' as shown.

It is evident that the clamping means for the cover may be constructed in any suitable manner. Thus the hoop 5 may be U-shaped and the legs thereof be provided with hooks co-operating with diametrically arranged projections on the circumference of the container.

After the container having been filled with concrete mass, which is tamped and shocked in the prescribed manner, and the surplus of material abraded and smoothed level with the upper end of the container the cover 3 is placed in position and clamped fast to the container by means of the screw 4. Thereupon the container is placed in lying position, that is, supported with its lon-

gitudinal axis horizontally, until the mass has solidified and at least partially hardened. The finished casting is then removed from the container for further hardening in moist sand and the like.

A modified embodiment of the device is shown in Figures 2 and 3 in which the container consists of a cylindrical sleeve or tube 1a having a detachable bottom 2a with sharp projections 2'. The sleeve 1a is provided with a longitudinal split 10 which is normally closed by means of a bolt 11 passing through lugs 12 arranged outside the sleeve and integrally with same at either side of said split 10.

At the upper end the sleeve 1a is provided with a removable ring 6 having a wall consisting of a lower portion and an upper portion. This upper portion has an internal diameter corresponding to that of the sleeve and the lower portion has an internal diameter similar to the external diameter of said sleeve, and the two portions join at a circumferential shoulder by which the ring rests on the upper end of the sleeve.

The ring 6 constitutes a temporary extension of the sleeve 1a, and after the assembly has been filled in the prescribed manner to the upper edge of the ring 6, said ring is removed and the surplus material is abraded and smoothed level with the upper end of the sleeve. The sleeve is thereafter closed by the cover 3 which is clamped fast in this position by means of the hoop 5 and screw 4 as above described. Owing to the fact that the hoop 5 engages the lower side of the bottom 2a the latter is clamped against the lower end of the sleeve simultaneously with the cover being pressed against the upper end of said sleeve. When the container is filled and closed in the manner as described, it is placed with its axis horizontal, preferably with the split 10 directed upwardly, as and for the purpose described.

In Figure 3 the extension ring 6 is provided with a device for shocking the container, for bringing the mass to subside, which device comprises a member 8, 9 forming a handle for the ring 6 pivotally attached to said ring by bolts 7 as shown. In order to obtain an even subsidence of the mass within the container during filling, said handle 8, 9 is dropped alternately against opposite sides of the container wall. The kinetic energy imparted to said body when moving along its nearly semi-circular path, is transferred to the container by means of the impact or shock of the body when striking the container.

This means for bringing the concrete mass to subside is the same as described in my co-pending U. S. patent application No. 206,529 of

January 18, 1951. Preferably the same number of shocks as found by the measuring means described in said application is also used in connection with the casting of specimens according to the present invention, the weight and dimensions of the handle 8, 9 as described above being chosen correspondingly, taking the quantity of concrete mass in both cases into consideration.

I claim:

1. A method of producing test specimens of concrete for pressure tests, comprising filling a standard cylindrical container while in an upright position with concrete mass during tamping and shocking of the same, closing the filled container, rotating said container to and supporting said container in a position with its longitudinal axis extending horizontally until the mass has solidified and at least partially hardened.

2. A method of producing test specimens of concrete for pressure tests, comprising assembling a standard container and a removable extension ring for temporarily extension of the height of said container, filling said assembly with concrete mass during tamping and shocking of the same, removing said extension ring from the container, abrading surplus mass until level with the upper end of the container, closing the filled container and supporting said container with its longitudinal axis horizontally until the mass has solidified and at least partially hardened.

3. A method of producing test specimens of concrete for pressure tests, comprising assembling a standard container and a removable extension ring having a shocking device formed as a handle pivotally attached thereto, filling said assembly with concrete mass during tamping, shocking said mass by dropping the handle body alternately against opposite sides of the container, removing said extension ring, abrading surplus of mass in level with the upper end of the container, closing the filled container and supporting said container with its longitudinal axis horizontally until the mass has solidified and at least partially hardened.

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