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3,527,439

MOLD FOR CASTING TEST SAMPLES

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FIG. 1

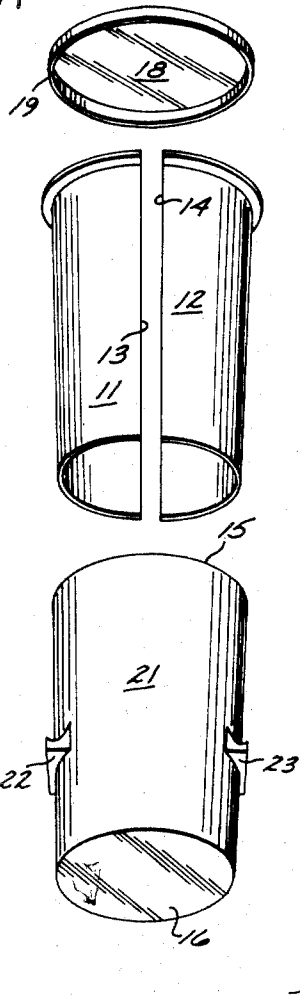


FIG. 2

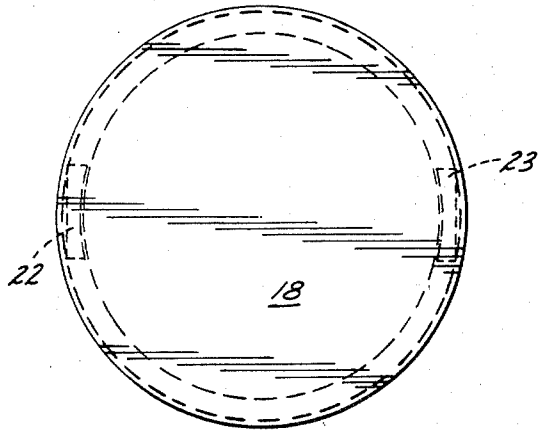


FIG. 3

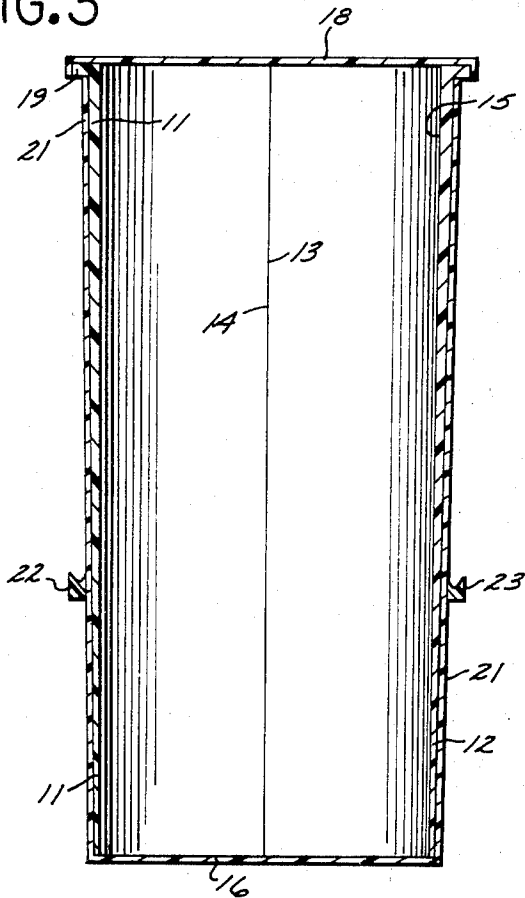
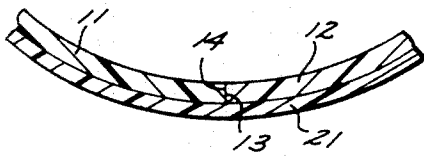


FIG. 4



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**MOLD FOR CASTING TEST SAMPLES**  
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1 Claim

## ABSTRACT OF THE DISCLOSURE

A reusable plastic mold for casting cylindrical concrete test samples, the mold including a pair of complementary mold sections which abut and define a cylindrical mold cavity, the outer surface of the mold sections being frusto-conical and fitting within a frusto-conical sleeve having a base. The mold also includes a cover plate for closing the open upper end of the mold cavity, and the assembled mold is upended to enable the sleeve to be upwardly separated from the mold sections so that the mold sections can in turn be separated from the set concrete test sample.

## BACKGROUND OF THE INVENTION

### Field of the invention

The present invention relates generally to molds for casting test samples and more particularly to reusable, sectional plastic molds for casting test cylinders of concrete, gypsum, and like materials.

### Description of the prior art

In order to determine the quality and strength of concrete mixes, it is customary to cast test cylinders and to subject the cylinders to various tests at various stages of setting and curing, including tests of ultimate strength in which the cylinders are tested to destruction. Such tests may be conducted at any time to ascertain the quality of the cement, sand and aggregate used in particular mixes and are particularly helpful in ascertaining the quality of concrete mixes during progressive stages of large construction jobs.

Heretofore, molds for casting such test cylinders have been made of various materials. Some have been made of non-reusable materials such as paperboard whose consumption is comparatively expensive, or of metals which are relatively heavy and have a high initial cost. A mold made of lightweight, reusable plastic is described in U.S. Letters Patent No. 3,163,908, issued Jan. 5, 1965, but that particular mold requires utilization of a separable base. The joints enabling such separation undesirably provide paths for water leakage, and the separable base plate arrangement itself is characterized by other problems.

## SUMMARY

According to the present invention, a mold is provided for casting test cylinders of concrete and like materials which is of sectional construction and preferably formed of a lightweight, inexpensive and reusable plastic such as polypropylene. The mold is preferably of two-part sectional construction with the parts engaged and held together by a sleeve which is also preferably made of a plastic, such as polyethylene, which has limited flexibility and provides a snug fit over the mold sections to hold them securely in place.

The encompassing sleeve includes an integral lower end wall defining a flat base to support the lower edges of the assembled mold sections when they are fitted within the sleeve. A cover plate is provided for engagement upon the upper edges of the assembled mold sections to close the mold cavity. Once the concrete is set, the

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assembled plastic mold can be upended and the sleeve upwardly separated from the mold sections to enable separation of the mold sections from the cast concrete sample. Assuming the cover plate was left in place when the mold was upended, the concrete test sample will then be left resting upon the cover plate.

With this arrangement, the sleeve holding the mold sections together is integral with the base of the mold cavity so that there are no joints through which water can possibly leak.

Other objects and features of the invention will become apparent from consideration of the following description taken in connection with the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded perspective of the mold according to the present invention;

FIG. 2 is a top plan view of the assembled mold;

FIG. 3 is a vertical sectional view taken on the line 3-3 of FIG. 2; and

FIG. 4 is a detail view of the encircled area designated by the numeral 4 in FIG. 2.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

In the embodiment of the invention selected for illustration in the drawing, there are a pair of mating, complementary mold half sections **11** and **12** which are exact duplicates or mirror images of each other. The mold sections **11** and **12** are characterized by vertically oriented edges **13** and **14**, respectively, which abut when the sections **11** and **12** are assembled, as best seen in FIG. 4. As will be seen, abutment of the edges **13** and **14** forms a continuous cylindrical mold cavity.

The internal surfaces of the sections **11** and **12** are preferably truly cylindrical while their outer surfaces have a slight taper so that the outer surface of the assembled mold is slightly frusto-conical.

Surrounding the mold sections **11** and **12** to hold them together in assembled relation is a plastic sleeve **21** having at least its inner surface of frusto-conical form, corresponding to the frusto-conical taper of the outside surface of the assembled sections **11** and **12**. Thus, the sleeve **21** fits snugly over the mold sections to hold them together, as shown in FIG. 3. Handle grips **22** and **23** are cemented or integrally cast to the outside of the sleeve **21** to facilitate lifting thereof from the mold sections after a test sample is cast in the mold. The peripherally continuous sleeve **21** includes an open upper end for receiving the mold sections **11** and **12**, and also includes an integral, closed lower end which defines a flat base **16**. The adjacent upper ends of the mold sections **11** and **12** each includes a peripheral flange **19** whose underside rests upon the upper edge of the sleeve **21** when the lower edges of the sections **11** and **12** rest upon the base **16**. The flanges **19** project radially outwardly of the adjacent edges of the sections **11** and **12** to facilitate later separation of the mold components, as will be seen.

A flanged circular cover plate **18** made of resilient plastic material closes the open upper end of the mold cavity, the plate **18** engaging the upper edges of the sections **11** and **12**, with the flange of the plate **18** snapping over the flanges **19** of the assembled mold sections **11** and **12**.

When assembling the mold according to the present invention, the sections **11** and **12** are joined together with their vertical edges **13** and **14** in abutment, as shown in FIG. 4. The assembled mold sections **11** and **12** are then lowered or placed into the interior of the sleeve **21**, with the lower edges of the sections **11** and **12** resting upon

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the flat base 16, and with the flanges 19 resting upon the upper edge of the sleeve 21. The sleeve 21 securely holds the sections 11 and 12 together, with the parts in the positions shown in FIGS. 2 and 3. The mold is now completely assembled and ready for a test sample to be cast therein.

The concrete or other mix is poured into the cylindrical mold cavity and the cover plate 18 fitted into position over the assembled mold sections 11 and 12 and sleeve 21. After the concrete is cured or set to the extent desired, the cover plate 18 may be removed and the assembled mold upended or turned upside down so that the mold rests upon some suitable flat surface. The sleeve 21 is separated from the mold sections 11 and 12 by grasping the handle grips 22 and 23 and pulling the sleeve 21 upwardly, while also stepping upon the portions of the flanges 19 which project radially outwardly of the sleeve 21. The mold sections 11 and 12 can thereafter be readily stripped away from the cast sample for use of the cast sample in testing procedures. The mold parts can then be reassembled for use in casting additional test samples.

The inner surfaces of the sections 11, 12 and the plate 18 being of smooth plastic material, the concrete or other material cast therein will ordinarily not adhere to the molding surfaces. However it is conventional to place coatings of powder, oil or wax on the mold surfaces if desired, to insure against any possibility of sticking of the mold parts and the cast samples.

The mold parts may be formed of any desired materials but are preferably of inexpensive, durable, lightweight plastic material and, as an example, the sections 11 and 12 and the bottom plate 11 may be formed of polypropylene. The sleeve 21 is preferably also formed of inexpensive, lightweight and durable plastic material which has some flexibility to insure a snug fit over the sections 11 and 12, and for these qualities an example is a polyethylene plastic material.

The mold according to the present invention is relatively inexpensive and durable and may be reused many times. It is lightweight for easy manipulation so that the parts may be readily assembled and disassembled in completing the mold and removing the mold parts from the cast sample.

With the sleeve 21 snugly engaging the mold sections 11 and 12 substantially throughout their entire length, the mold when assembled is quite strong and rigid. At the same time, the frusto-conical tapered surfaces by which the sleeve 21 and the sections 11 and 12 engage permits the ready sliding removal of the sleeve from the mold

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sections in effecting disassembly of the mold parts from about a cast sample. Moreover, the fabrication of the base 16 integral with the remainder of the sleeve 21 eliminates any joints in the base so that there is no opportunity for undesirable leakage of water from the test sample out of the mold.

Various modifications and changes may be made with regard to the foregoing detailed description without departing from the spirit of the invention or the scope of the following claim.

I claim:

1. A reusable plastic mold for casting cylindrical concrete test samples, said mold comprising:

a pair of complementary mold sections having vertically oriented edges which abut to define a cylindrical mold cavity, the outer surface of said mold sections being frusto-conical upon assembly of said mold sections with said edges in abutment;

a peripherally continuous sleeve substantially the height of said mold sections and having an inner surface of frusto-conical form corresponding to the frusto-conical outer surface of the assembled said mold sections, said sleeve having an open upper end and a closed lower end defining a flat base, said assembled mold sections fitting snugly within said sleeve and upon said base to hold said mold sections together during casting and setting of a concrete test sample in said mold cavity; and

a cover plate engaged upon the upper edges of said assembled mold sections to thereby close the open upper end of said mold cavity after said casting of said concrete test sample, said sleeve, subsequent upending of the plastic mold, being upwardly separable from said mold sections whereby said mold sections can be removed from the set concrete test sample.

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215—1; 220—63; 249—112, 134, 173