April 7, 1964 E. C. KARSTEDT 3,127,702

CORE AND MOLD UNITS FOR CASTING CONCRETE POSTS AND A POST FORMED THEREBY

Filed Jan. 12, 1960

Fig. 2.

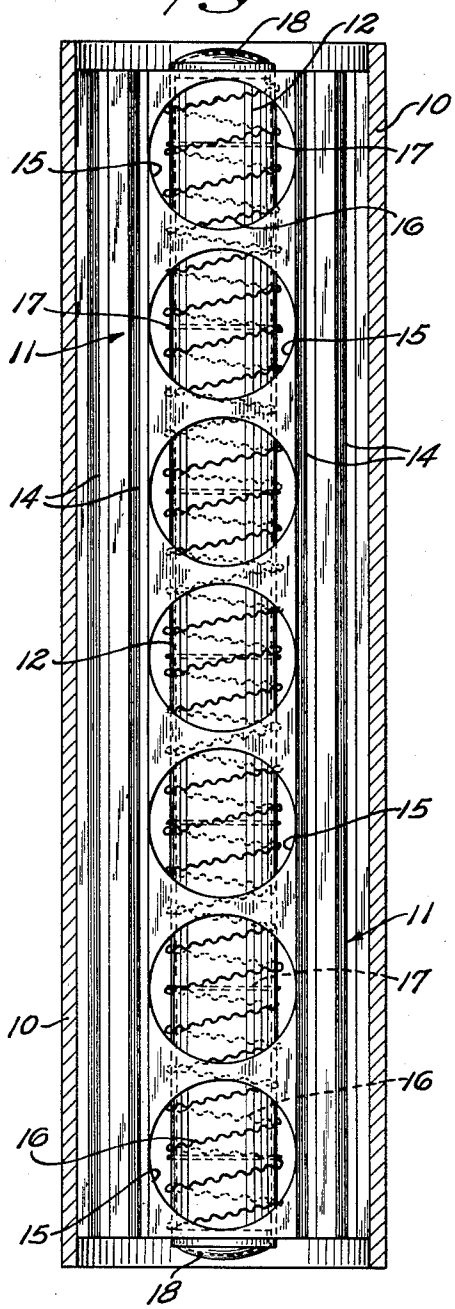


Fig. 1.

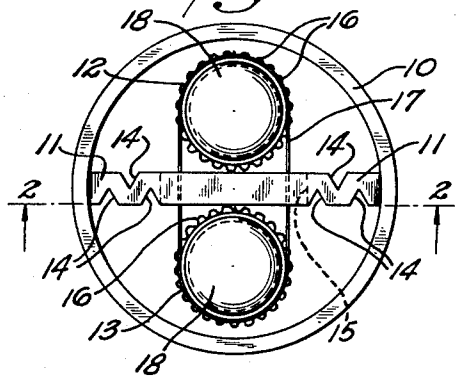


Fig. 3.

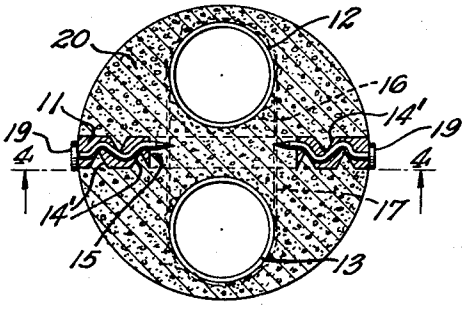
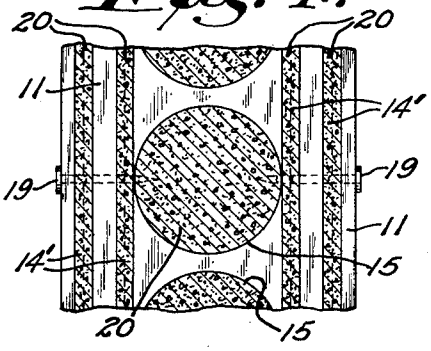


Fig. 4.



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CORE AND MOLD UNITS FOR CASTING CONCRETE POSTS AND A POST FORMED THEREBY

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This invention relates to improvements in core and mold units for casting concrete posts and a post formed thereby, and more particularly to an inexpensive and efficient device for forming an improved type of concrete post.

Presently, posts formed of concrete are used only sparingly in the building industry for the reason that such posts are relatively expensive to manufacture, and for the further reason that it is difficult to anchor or support other structural members on such posts, the concrete forming a very unsatisfactory base for nails or similar fastening devices. With these deficiencies of conventional concrete posts in mind, therefore, the principal objects of the present invention are to provide an improved core and mold unit for concrete posts wherein the cost of manufacturing such posts is substantially reduced, and wherein the finished posts are adapted to receive and securely retain nails or other fastening devices.

A more specific object of the present invention is to provide a core and mold unit formed of an inexpensive prefabricated material, the cost of which unit is minute in comparison to the steel molds presently used in the manufacture of concrete posts.

A further specific object of the present invention is to provide a prefabricated core and mold unit for concrete posts, and the post formed thereby, wherein the core members become an integral part of the finished post.

A further specific object is to provide an improved type of concrete post having integral means formed therein for receiving and securely retaining nails or other fastening devices.

A further object is to provide an inexpensive core and mold unit for concrete posts, as described, wherein the mold also functions as a shipping container or carton for the finished post.

A further object of the invention is to provide means for forming an improved type of concrete post, which post requires substantially less concrete than conventional posts of comparable strength and durability, and which light-weight post is relatively cheap to transport.

With the above and other objects in view, the invention consists of the improved core and mold unit for concrete posts and a post formed thereby, and all of its parts and combinations, as set forth in the claim, and all equivalents thereof.

In the accompanying drawing, wherein the same reference characters designate the same parts in all of the views:

FIG. 1 is a top plan view of the core and mold unit comprising the present invention;

FIG. 2 is a longitudinal sectional view of the unit, taken along line 2—2 of FIG. 1;

FIG. 3 is a transverse sectional view through a concrete post formed by the improved core and mold unit, showing nails driven into said post; and

FIG. 4 is a fragmentary longitudinal sectional view of the post, taken along line 4—4 of FIG. 3.

Referring now more particularly to FIGS. 1 and 2 of the drawing, it will be seen that the core and mold unit comprising the present invention include an elongated cylindrical shell **10**, which is constructed of paperboard or the like, and which member comprises the mold portion of the unit. Positioned within said shell **10** is

a diametrically disposed central wall **11**, preferably at least ½ inch in thickness, and formed of similar material, and a pair of elongated hollow tubes **12** and **13**, said wall and tube members forming the core element of the unit.

It is to be understood that while the foregoing members are described as being made of paperboard, other inexpensive materials including rubber, wood, or a plastic such as polystyrene might also be employed, the important characteristic of the material being its relatively small cost in comparison to the steel molds ordinarily used in casting forms. Moreover, with respect to the wall member **11**, it is essential, as will be hereinafter seen, that the material be relatively soft so that it can be readily penetrated by a nail or the like, and that it have sufficient cohesive qualities so that it will not crumble or deteriorate when a nail is driven into the same, as frequently occurs with a relatively brittle substance like concrete.

Referring now to FIGS. 1 and 3, the above mentioned wall member **11** is provided with a series of vertical channels or grooves **14**, which are alternately spaced on opposite sides of the wall. The longitudinal edges of said wall abut the inner surface of the cylindrical outer shell **10** and when the latter is removed from the finished post, the edge faces of said wall are flush with and become part of the post exterior surface, forming diametrically-opposed, longitudinal strips into which nails, staples, or other fastening devices may be driven, as will be hereinafter described in greater detail.

As shown in FIG. 2, the wall **11** is also provided with a series of longitudinally-spaced, central openings or holes **15** therethrough, which openings comprise about 75% of the total surface area of said wall in the illustrated form of the invention. The purpose of said openings is to prevent the wall from functioning as a divider between the two half sections of the post, the concrete extending through said openings to join said sections in the finished post.

The internal tubes **12** and **13** are mounted on each side of the wall member **11**, and as will be seen in FIG. 1, said tubes are clamped against said wall and held in position by means of a plurality of retaining wires **17** which pass thereabout and through the aforementioned wall openings **15**. It is to be understood that while two interior tubes **12** and **13** are illustrated, a greater number might be preferred and the invention is not to be limited in this respect. The purpose of said interior tubes, of course, is to provide hollow spaces in the post interior, thereby conserving concrete and lessening the weight of the finished post. The result is a post that is not only more economical to manufacture, requiring less concrete than conventional posts, but a post that because of its lightness is comparatively inexpensive to transport.

In addition to the wires **17**, which are designed to maintain the tubes **12** and **13** in position, as described, each of said tubes is also provided with a crimped wire **16** which encircles the same in a spiral manner and which adds strength and rigidity to said tubes. It has been found that by crimping said wires the concrete fill is permitted to form around the same so that they are completely embedded and firmly retained in the concrete. As will be appreciated, the presence of steel wires, **16** and **17**, provides increased strength and renders the post more durable than an all-concrete post.

The complete core and mold unit also includes a cap **18** mounted on each end of the hollow tube members **12** and **13**. The purpose of said caps, of course, is to prevent concrete from entering the tubes during the pouring operation, and the exact design of said members is not critical. In this respect, it is to be understood that the

same is also true of the other components hereinabove described, and the invention is not to be limited to the exact design of said structures. It is possible, by following the teachings of the present invention, for example, to form posts of square or other cross-sectional shapes, as well as the cylindrical post illustrated.

In the use of the core and mold unit comprising the present invention, the concrete **20** is merely poured in through the top of the shell **10** in the conventional manner and fills up the spaces within the mold not occupied by the core elements. After the concrete has hardened or set, the outer shell **10** can be removed, although this is not necessary and said outer member can be left on the finished post to serve as a protective cover during shipment. As herebefore mentioned, the inner or core members, including the central wall **11** and the hollow interior tubes **12** and **13** are left in the concrete and become an integral part of the post interior, providing a post which is a combination of concrete and wire reinforced paperboard or plastic material.

The edge portions of the central wall member **11** are flush with the outer surface of the finished post and provide diametrically opposed strips extending the entire length of the post. As will be seen in FIGS. 3 and 4, the wall member **11** thus provides means on two sides of the post into which nails, staples or other fastening members may be driven. As shown in FIG. 3, a nail **19** driven into said relatively soft wall member is deflected by the alternate concrete ridges or protrusions **14'** which are formed by the hardened concrete fill in the aforementioned channels **14**. The effect is that a nail, when driven into the post its full length, is crimped and becomes securely held in said post.

The uses and advantages of the nail-receiving means formed in the present posts are, of course, numerous. In conventional concrete posts, it is not only difficult to drive a nail into the post, but a nail which is driven therein will not hold and can be easily pulled from its mounting. With the present invention, however, due to the aforementioned crimping action of the alternate protrusions **14'**, nails or the like are securely retained in the post. The result is that the present invention makes the use of concrete posts practical for many construction purposes heretofore impossible. This is particularly important, of course, in those areas of the world where wood and steel are relatively expensive and the use of concrete has definite economic advantages.

Additional advantages of the present core and mold device are that the inexpensive nature of the unit permits any concrete products manufacturer to cast a concrete post without the investment in expensive steel molds. Moreover, the present unit is extremely light in weight and can be shipped long distances for relatively little cost.

In addition to the shipping advantages of the lightweight core and mold unit, the weight of the finished posts is also considerably less than that of conventional concrete posts and permits the relatively cheap shipment of said posts. Moreover, of course, posts manufactured in accordance with the present invention require less

concrete than conventional posts of comparable size and strength and are substantially less costly to manufacture.

From the foregoing, it will be seen that the present invention provides means for manufacturing concrete posts, wherein the core and mold device is not only novel, but wherein the resulting post has definite advantages over conventional concrete posts. It is to be understood, however, that various changes and modifications may be made in both the core and mold unit as above described and in the finished product, without departing from the spirit of the invention, and all of changes or modifications are contemplated as may come within the scope of the following claim.

What I claim is:

In a concrete post, an integral core unit comprising: an upright, rectangular wall-like core member extending substantially the entire length of the post, said core member having a plurality of relatively large transverse openings therethrough, and having a plurality of channeled grooves adjacent each longitudinal edge spaced alternately on opposite sides thereof, said grooves extending the entire length of said wall-like core member, and said grooves extending inwardly at least half the thickness of said core member, the longitudinal edges of said core member being flush with the exterior surface of the post to receive driven fastening elements; a pair of elongated hollow tubes disposed vertically adjacent the opposite sides of said wall-like core members; closures on the ends of said tubes; crimped wire reinforcing means encircling said tubes in spiral fashion along substantially their entire length; and wire retaining means extending through the openings in said wall-like core member and arranged to clampingly support said tubes against the opposite sides of said core member and to also provide reinforcement in the post interior, the concrete of the post surrounding said core and tube members and filling the spaces therebetween.

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