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METHOD OF CASTING CONCRETE STRUCTURAL MEMBERS

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This invention relates to casting concrete articles. More particularly it relates to a method of casting concrete articles such as beams or joists in such manner that immediately after the concrete has been placed, the forms may be removed.

Heretofore it has been common to coat with oil, the forms used for casting concrete articles. This oil film was undesirable particularly in cases where the article, for example a concrete beam, was to be fabricated with grouting in the making of a floor or the like. The oil film prevented the grout from adhering firmly to the beam.

It is an object of our invention to provide a method of casting articles of concrete, which will not leave a film on the article.

Another object is to provide a method which will allow immediate removal of the forms or molds and thus make possible a reduction in the number of forms or molds that were heretofore required to produce a given number of articles in any specified time.

Another object is to provide a method in which means will be provided to assist the concrete article in holding its shape after the forms are removed so that the forms may be earlier removed.

Other objects and advantages of our invention will appear as it is more fully hereinafter described.

Our method of casting concrete articles will be described in connection with casting a concrete beam or joist. But, it will be understood that it may be applied generally to the casting of concrete articles.

According to our method the form is placed in the desired position and a lining of paper is placed in the form. The paper may be pressed into the form by a die or member having a shape somewhat like the form. A suitable paper for this purpose we have found to be ordinary kraft paper. Any paper may be used which has sufficient strength to withstand the stress to which the paper is subjected in the mold and yet will absorb a limited amount of moisture from the surface of the concrete. When the lining is in the form the concrete is placed in the form and the form is vibrated to produce a concrete of great density. During this time the paper will absorb the moisture at the surface of the joist and thus tend to accelerate the setting of the concrete there. The form may then be removed and the slightly hardened surface of the joist with the paper will cause the joist to retain its shape. The paper is allowed to remain on for a short time after the initial set but it must be removed before the drying of the concrete. This drying may take from one to twelve hours depending upon the air temperature and humidity, as well as on the composition of the concrete mixture.

Concrete mixtures of various degrees of wetness may be used successfully in the process. However, a semi-dry mix is preferred, but within this term quite a wide variation in the quantity of water used is permissible. The mix should not be so wet as to have a watery consistency nor should it be so dry that it will not flow readily into the mold.

An advantage of our method is that one form will suffice for the molding of a large number of joists whereas one form heretofore could only make one joist daily because the form had to remain on the joist overnight or until the final set had taken place, in which case the form had to be taken apart to remove the joist. With our method the disassembly of the forms is unnecessary because it is possible to lift the forms off while the concrete is still plastic. In the old methods the hardness of the concrete when set, made it imperative that the forms be disassembled.

After the joists are dry and hard they may be transported to the desired place for fabrication into a building.

It has been found that the surface of the joists resulting from their manufacture by our process, is superior for further treatment, as for example, applying a finish coat of mortar or the adherence of grout to the joist.

From the foregoing, it will be apparent that we have provided a new method of manufacturing concrete joists, beams and other articles, which is superior to former methods in its saving of time, money and material.

We claim:—

1. The method of casting concrete beams, joists and like massive members for building construction, comprising the steps of lining a form with strong absorbent paper, placing a mix of semi-dry concrete in the form, vibrating the form while the concrete is in it to increase the density of the concrete, removing the form immediately, allowing the concrete to take an initial set, and then removing the paper before the concrete dries.

2. The method of casting concrete beams, joists and like massive members for building construction, comprising molding a mix of semi-dry concrete in a form lined with strong absorbent paper,

vibrating the form while the concrete is in it to increase the density of the concrete, and removing the form before the concrete has taken an initial set and removing the paper before the concrete dries.

3. The method of casting concrete beams, joists and like massive members for building construction, comprising the steps of lining a form with strong absorbent paper, placing a mix of semi-dry concrete in the form, vibrating the concrete within the form, removing the form immediately, allowing the concrete to take an initial set, and then removing the paper before the concrete dries.

4. The method of casting concrete beams, joists and like massive members for building construction, comprising molding a mix of semi-dry concrete in a form lined with strong absorbent paper, vibrating the concrete within the form, and removing the form before the concrete has taken an initial set, and then removing the paper before the concrete dries.

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