Aug. 2, 1949. H. L. HIEBERT 2,477,930

METHOD OF MOLDING REINFORCED CONCRETE STORAGE STRUCTURES

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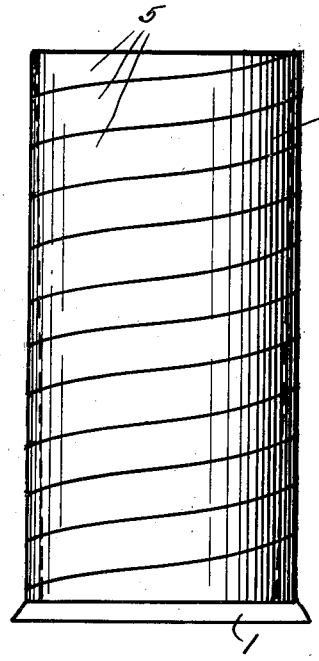

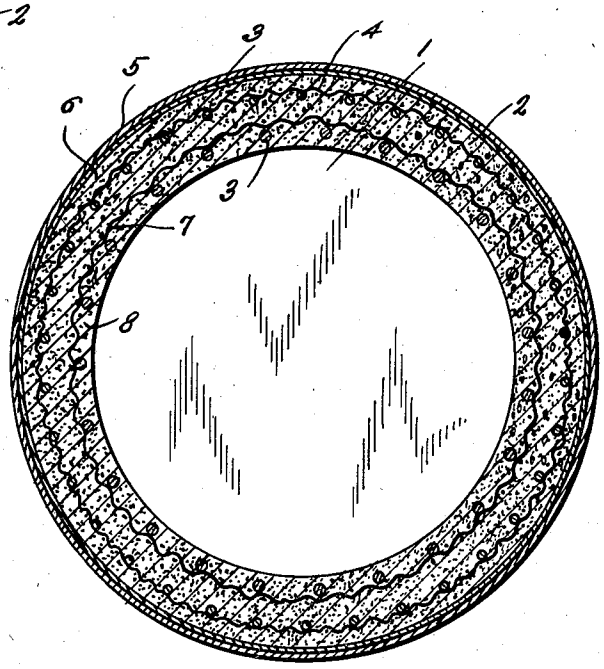

Fig. 1

Fig. 2

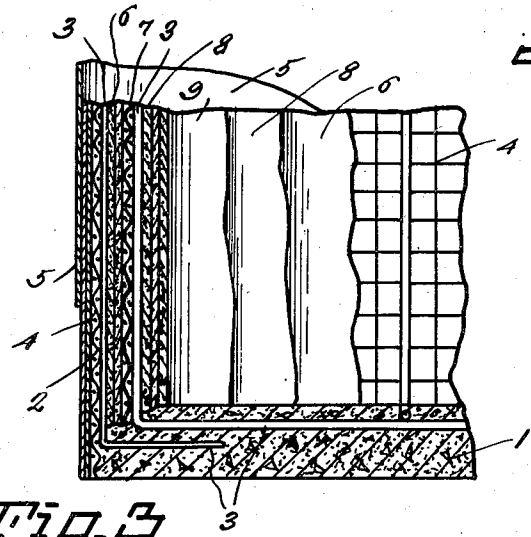

Fig. 3

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METHOD OF MOLDING REINFORCED CONCRETE STORAGE STRUCTURES

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1 Claim. (Cl. 25—154)

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This invention relates to an improved method of constructing a silo, grain tank, or other structure for which it may be found suitable and it is one object of the invention to provide a method by which a silo or similar structure may be very easily erected with minimum effort and at low cost.

Another object of the invention is to provide a method whereby the walls of a structure will be firmly anchored to the base and strongly braced so that the wall will be prevented from cracking and also held perpendicular to the base.

Another object of the invention is to provide a method which allows a concrete silo or similar structure to be erected without the use of molds or equivalent forms into which concrete is customarily poured and allowed to set before removal of the forms.

The invention is illustrated in the accompanying drawings wherein:

Fig. 1 is a side view of a silo erected in accordance with the invention.

Fig. 2 is a sectional view taken horizontally through Figure 1.

Fig. 3 is a fragmentary view showing the lower portion of the silo in vertical section.

The silo shown in the accompanying drawings has a base 1 formed of concrete and an annular wall which is also formed of concrete and while the structure illustrated is a silo of a conventional tower-like construction it will be understood that other structures of desired height and shape in transverse cross section may be erected in accordance with the improved method constituting the subject matter of this invention.

After the base 1 has been formed the wall or walls 2 will be built up and attention is called to the fact that the base is reinforced by metal rods 3 having portions extending upwardly into the walls of the silo. The reinforcing rods may extend the full height of the silo or additional rods used after the walls have been built up as far as the upwardly bent end portions of the rods for reinforcing the base extend into the walls. Referring to Figures 2 and 3 it will be seen that the reinforcing rods are arranged in such manner that inner and outer reinforcing rods are provided in the wall and thus cause both inner and outer portions of the wall to be reinforced by rods which are spaced from each other circumferentially of the silo. After the rods have been bent upwardly wire mesh netting 4 is disposed in encircling relation to the outer row of rods and heavy asphalt paper 5 is then wrapped about the wire netting. This paper is wrapped about the base and lower

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portions of the rods a couple of times to firmly anchor the lower portion of the paper wrapping and the paper is then shifted upwardly so that it follows a spiral path and gradually approaches the height to which the silo is to be built. Concrete is then applied from within the silo and pressure applied so that the concrete or equivalent cementitious material will be forced through meshes of the wire netting and into contacting engagement with the inner surface of the paper wrapping. While it has been stated that asphalt paper has been used for forming the outer wrapping it will be understood that other flexible materials such as thin sheet metal, canvas, or other suitable material may be used. After the first layer of concrete 6 or cement has been applied from within the silo and is of such thickness that its inner surface is approximately midway between the inner and outer rows of reinforcing rods 3 the inner surface of the concrete is troweled to form a smooth surface and cause the concrete to be well packed through the wire screening. A second sheet of wire screening 7 is set in place about the inner reinforcing rods and concrete applied from within the silo to provide a second layer 8 which is forced through meshes of the screening 7 and merges with the first layer, the surface of the concrete exposed within the silo being troweled to a smooth finish. It will be understood that when a silo or other structure having very thick walls is being erected additional rows of reinforcing rods may be provided and that each row of rods will be encircled by wire netting through which concrete is squeezed from within the silo to merge with concrete previously applied. A final coating 9 of cement or other suitable plastic material is applied to form the inner surface of the wall. After the concrete forming the wall of the silo has dried the paper wrapping 5 may be removed and a layer of stucco applied to impart an attractive appearance to the erected structure and also cause the walls of the structure to be waterproof. It will thus be seen that a silo or other structure may be rapidly erected and formed without use of molds and that the expense and trouble of providing molds which must be removed after the structure has been erected and carted away will be eliminated.

Having thus described the invention, what is claimed is:

The method of effecting a reinforced concrete storage structure comprising forming a base of concrete reinforced by metal rods having portions extending upwardly from marginal portions of the base and arranged to form inner and

outer rows of upstanding rods, encircling the outer row of rods with metal screening, wrapping paper about the metal screening, applying concrete from within the said structure to embed the rods therein and subjecting the concrete to pressure to squeeze cement forming part of the concrete through the metal screening to fill space between the screening and the paper and thereby form the wall with an outer coating having a smooth surface, encircling the inner row of rods with wire screening, applying concrete from within the structure to embed the inner row of rods therein and applying pressure to squeeze cement forming a portion of the second mass of concrete through the second mentioned wire screening and into binding engagement with the first mentioned concrete, applying a finishing coat of cement to the second mentioned mass of concrete, allowing the concrete and cement to set and dry, and removing the paper from about the outer surface of the formed wall.

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