Aug. 25, 1936. J. G. BRUSH 2,052,126

CORE FOR MOLDING DEVICES

Original Filed Aug. 15, 1928

Fig. 1.

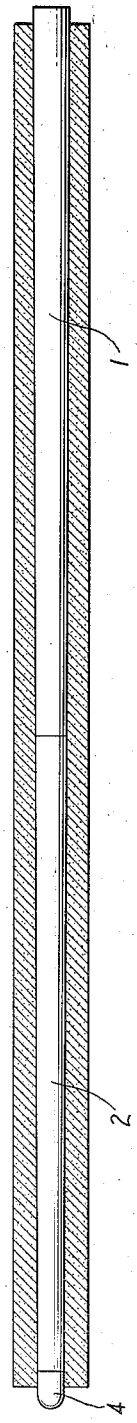


Fig. 2.

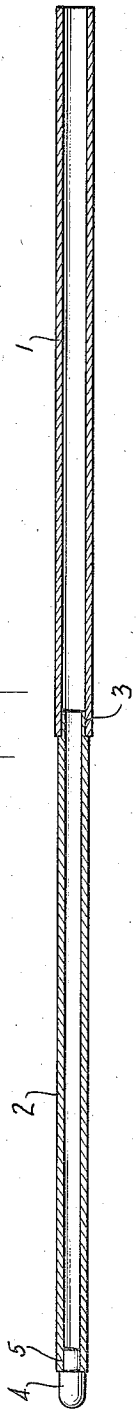
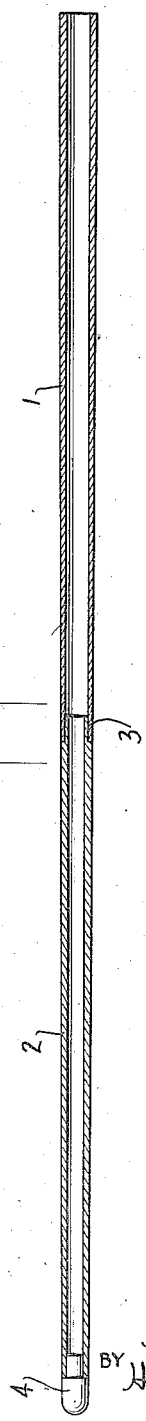


Fig. 3.



INVENTOR
JOHN G. BRUSH
BY H. C. Bierman
ATTORNEY

Patented Aug. 25, 1936 2,052,126

UNITED STATES PATENT OFFICE

2,052,126

CORE FOR MOLDING DEVICES

John G. Brush, Westfield, N. J., assignor, by mesne assignments, to American Cyanamid & Chemical Corporation, a corporation of Delaware

Application August 15, 1928, Serial No. 299,747
Renewed October 18, 1934

6 Claims. (Cl. 25—128)

My present invention relates to a core for the manufacture of plastic blocks or slabs of the gypsum type. While the invention is particularly adapted for use with gypsum slabs, yet obviously it is not to be limited thereto, as it is applicable also to blocks or slabs made of concrete or the like.

It is customary in the art to produce slabs of appreciable length which are provided with apertures running lengthwise therethrough, for the purpose of lightening the slab and also to save material. Various ways have been devised for producing these lateral or longitudinal apertures in the slabs, principally by the use of cores placed in the mold at the time the slab is formed. One of the main difficulties encountered in the use of such a core is the removal thereof. It has been proposed to use solid cores of a frusto conical form so as to facilitate the removal thereof from the finished or set slab or block. I am aware that there have been used cores made, for instance, of aluminum or of bronze, but these have not proved satisfactory inasmuch as it was necessary to pull the core from the finished slab or to drive the same from the block by means of hammers or the like. Such a procedure has very often a detrimental effect upon the block, as in numerous instances the block is cracked or split to the point where it cannot be used. On the other hand, the core itself is so deformed or battered by the blows necessary to remove the same from the slab that it is either unfit for further use or work must be done upon it before it can be again used.

I have found from numerous experiments that a core may be made of tubing such as cold rolled steel or of ordinary standard steel, having a sufficient wall thickness to enable the entire core to be turned in a lathe. In my experiments I have found that the most desirable results are secured where the average wall thickness is one-quarter (¼) of an inch.

In the use of these cores in block or slabs, for instance, averaging about 7 ft. 6 ins. in length, and from 4 to 6 inches in thickness, and in order to have a sufficient amount of taper from the larger to the smaller end, it would ordinarily be necessary to begin with a tube of appreciable size. This is not only an expensive proposition, but it also adds materially to the weight of the finished article. To overcome this objection I make use of two or more tubular sections having different diameters. From one end of a smaller tube a portion is removed to form a step or the like, and this stepped end is then fitted or otherwise secured in the end of a larger tube. Any number of such combinations may be made. Into the opposite end of the smaller or smallest tube there is secured a solid cylindrical plug, the end of which is likewise stepped. This composite core is then placed in a lathe and turned so that the diameter of the core at the juncture of two tube sections is just slightly less than the larger diameter of the smaller tube, and the turning operation completed so as to form a continuous surface and the exterior of the entire core is tapered slightly. Obviously, the plug may be inserted before the beginning of the turning operation, or afterwards, as found expedient.

The invention contemplates a method of making such a core, the core itself, and a method of making slabs by the use of such cores.

I have illustrated in the accompanying drawing one form of the invention, although obviously I do not wish to be limited strictly thereto. In this drawing:

Fig. 1 is a sectional view through a molded slab showing the core in place.

Fig. 2 is a sectional view of an assembled core before beginning the turning operation.

Fig. 3 is a sectional view through a complete core.

Referring now with particularity to the embodiment illustrated, I have shown at 1 a section of steel tubing which is preferably of the cold rolled type, although obviously I do not wish to be limited strictly to this form of steel. Into the end of tube 1 is sweated, welded, or otherwise secured a section 2 of steel tubing having a smaller diameter than that of the section 1. As clearly shown in the drawing Fig. 1, the end of the tube 2 is stepped as at 3 for insertion into the tube or element 1 in an overlapped relation.

It will now be seen that the interior of the at present incomplete core consists of a bore having two different diameters.

Obviously any number of such combinations may be made, to produce a core of any desired length. Into the opposite end of the smaller tube 2 is secured a solid plug 4. This plug may be of any desired material such as iron, steel, or the like. The end of the plug 4 is likewise stepped as at 5, for insertion into the end of the tube 2.

The entire device is then placed in a lathe or the like and turned so as to give to the thus assembled article a slight taper.

The two tubes are chosen for size so that the diameter of the finished core at approximately the location of the numeral 3, will be slightly less than the largest diameter of the tube 2. In

this way, it will be apparent that by using a plurality of tubes I am able to save considerable waste. For instance, if a single tube had been used it would have been necessary to provide a much thicker tube wall in order to have the smaller end of the finished core a thickness sufficient to withstand the wear to which the core is subjected. This, of necessity, would mean that the opposite or larger end thereof would have to be much thicker than in the present case.

I desire to have in my finished core an average wall thickness of approximately one-quarter of an inch, as this has been found to give the most efficient results.

In using a core of this description, I place the same in a mold, not shown because no claim is made to such a construction, this mold being well known in the art. Obviously a plurality of such cores may be provided where a block or slab is of such dimensions to warrant the use thereof. The plastic, wet material such as gypsum or cement is then poured, tamped or otherwise placed around the core or cores in the mold and permitted to set or harden in the usual and well-known manner. When it is desired to remove the core or cores from the block or slab, I have found that it is only necessary to tap the plug 4 in a direction toward the larger end with a hammer. This blow need not have any great force, and I have found that an 8 or 10 ounce hammer is sufficient for this purpose. Striking the plug a blow as above mentioned, I believe, sets up a certain amount and character of vibration simultaneously throughout the length of the core. This causes the core to be loosened and freed from the block throughout its length.

While I have stated that I believe a vibration of one kind or another is set up in the core under the impulse of the hammer blow, yet obviously I do not wish to be limited to this theory. It may well be that there is some other reason for this phenomenon, but my experiments have demonstrated that a comparatively slight blow upon the plug or smaller end of a core of this description, and of substantially these proportions will cause the core to become completely separated from the slab and actually move an appreciable distance out of the aperture formed by the core.

By making use of a core of this description the core need only be tapered approximately ½ inch in a length of 7 ft. 6 ins. Heretofore, it has been necessary to have a much greater difference in diameter in order to remove the core from the block.

I claim:

1. A core for plastic slab manufacture, comprising a hollow slightly tapered steel element, a second hollow frusto conical steel element secured in the smaller end of the first mentioned element, and a solid plug secured in the smaller end of the second element, the outer surfaces of the first and second elements and of the plug being continuously and evenly tapered so as to form a core tapered throughout its length.

2. A core for plastic slab manufacture, comprising a hollow slightly tapered steel element, a second hollow slightly tapered steel element secured in the smaller end of the first mentioned element, the surface of the two elements being continuous and conical.

3. A core for plastic slab manufacture, comprising a hollow slightly tapered steel element, a second hollow slightly tapered steel element secured in the smaller end of the first mentioned element, the outer surfaces of the first and second elements being continuously and evenly tapered so as to form a core tapered throughout its length.

4. A core for plastic slab manufacture comprising a relatively long and slender hollow member, the outer surface of which is tapered in the proportion of about one-half inch in seven and one-half feet and uniformly from one end to the other, the core being made of steel, the core permitting a vibration to be set up therein when struck a blow in the direction of its length and toward its larger end, while encased in set plastic material, so that the core may be freed from the set material.

5. A core for plastic slab manufacture comprising a relatively long and slender hollow member, round in lateral cross section, the outer surface of which is tapered in the proportion of about one-half inch in seven and one-half feet and uniformly from one end to the other, the core being made of steel, the core permitting a vibration to be set up therein when struck a blow in the direction of its length and toward its larger end, while encased in set plastic material, so that the core may be freed from the set material.

6. A core for plastic slab manufacture comprising a relatively long and slender hollow member, with an average wall thickness of about one-quarter inch, being round in cross section, the outer surface of which is tapered in the proportion of about one-half inch in seven and one-half feet and uniformly from one end to the other, the core being made of steel.

JOHN G. BRUSH.