R. D. WEAKLEY.

METHOD OF DISPOSING KEY DEVICES IN CONCRETE STRUCTURES.

APPLICATION FILED FEB. 9, 1912.

1,053,257. Patented Feb. 18, 1913.

Fig. 1.

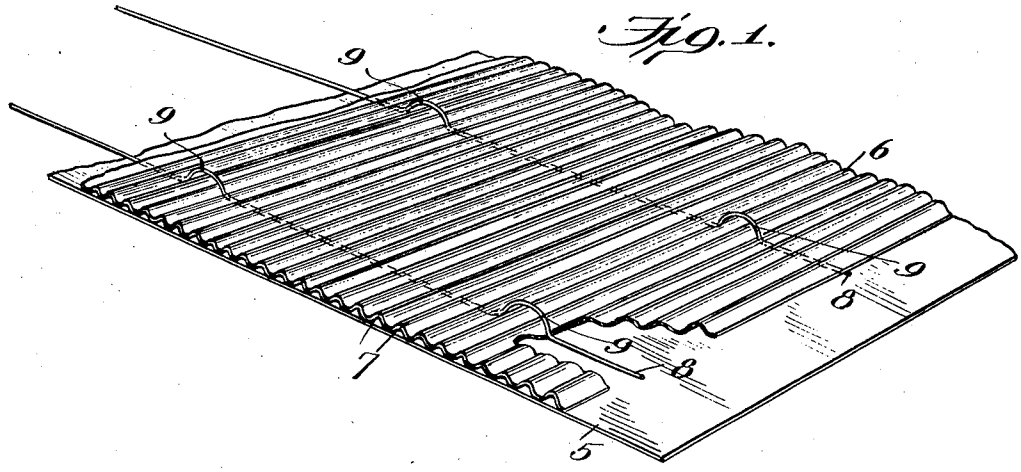


Fig. 2.

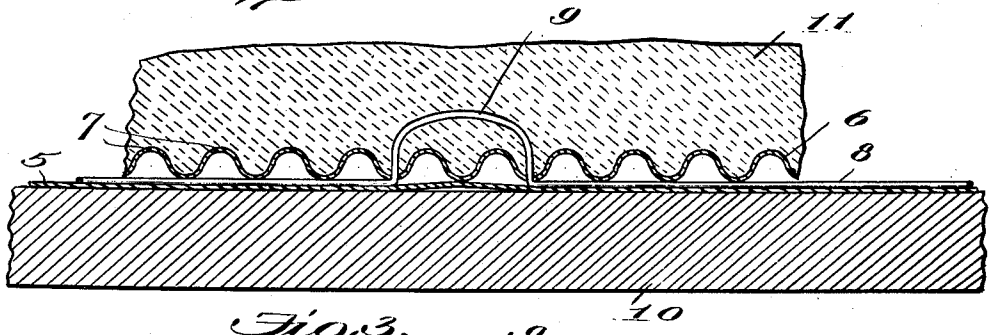


Fig. 3.

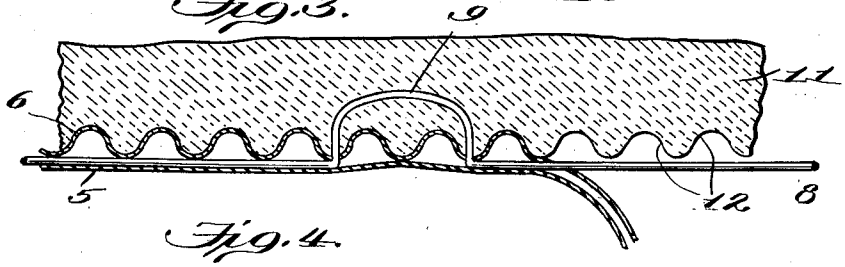
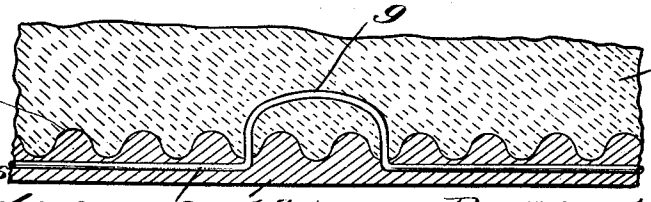


Fig. 4.



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METHOD OF DISPOSING KEY DEVICES IN CONCRETE STRUCTURES.

1,053,257. Specification of Letters Patent. **Patented Feb. 18, 1913.**

Application filed February 9, 1912. Serial No. 676,570.

To all whom it may concern:

Be it known that I, RAYMOND D. WEAKLEY, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented new and useful Improvements in Methods of Disposing Key Devices in Concrete Structures, of which the following is a specification.

This invention relates to a method of forming concrete structures and disposing key devices therein for the purpose of positively retaining a plaster coating or finish covering thereon.

In carrying out the method the key devices are temporarily secured to a carrying medium of a flexible and readily tearable nature when moistened, the said carrying medium being disposed on a molding base and having the concrete material poured thereon and embedding portions of the key devices, the carrying medium after the concrete material has hardened being removed and leaving the key devices intact with the said material and ready to receive thereover a plaster coating or finishing covering. The advantage of the method is that by a simple and effective procedure, key devices may be positively associated with a concrete structure at a minimized cost and permitting the use of an inferior grade of lumber as a sheathing or molding base without liability of leakage of the moist concrete material through the sheathing or base.

To demonstrate one practical means of carrying out the method a key device supporting medium or temporary retention means is shown in the accompanying drawing, but it will be understood that the invention contemplates the use of any key device carrying medium of a character that will permit ready separation thereof from the key devices. It is preferred, however, that a flexible corrugated sheet be used as the key carrying means in order that the mold surface may be correspondingly corrugated to form auxiliary key-ways which, in conjunction with the keys when the latter are set in the concrete structure, produce a base for reliably holding a concrete or other plaster covering that may be applied to the base structure.

In the drawing: Figure 1 is a perspective view of a key device carrying medium shown broken away to illustrate the structure of the same. Fig. 2 is a sectional view of a portion of a sheathing or molding base, key carrying medium thereon, and the concrete material as it will appear after having been poured onto the carrying medium and the key devices. Fig. 3 is a sectional view showing the sheathing or molding base removed and illustrating the manner of separating the key device carrying medium from the concrete structure and the key devices. Fig. 4 is a sectional view showing a plaster coating or finishing covering applied to the concrete structure and key devices disposed in said structure in accordance with the improved method.

The transfer means or supporting medium for the key devices embodies a backing sheet 5 and a surface or molding sheet 6, which, as shown, is preferably formed with a plurality of corrugations 7 extending thereacross in regular order or sequence. The key devices each consists of a strand of stiff wire as at 8, the wire being of suitable gage and having at regular intervals therein upwardly projecting loops 9 which extend above the corrugations 7, the wire strand being threaded through the corrugated surface or molding sheet 6 at regular intervals and the loops 9 formed between the points where the wire strand is threaded through the sheet. After the wire strands 8 and their loops 9 have been associated with the surface or molding sheet 6, the backing sheet 5 is supplied with an adhering substance, such as glue, and pasted to the under side or back of the said surface or molding sheet to maintain the key devices in proper position relatively to the said surface sheet.

The surface or molding sheet 6 is composed of paper having suitable rigidity to maintain its corrugated shape, yet flexible enough to permit rolling of the sheet, and though it is not absolutely necessary, the paper used for forming the surface sheet as well as the backing sheet may be waterproof, or the said sheets may be treated, if desired, to render the same impervious to water, and in some instances the paper may be treated with a fire-proofing compound or material. Ordinary glue has also been found by experiment to answer the requirements of an adhering substance between the sheets 5 and 6, but in some instances it is proposed to use hot asphalt as the binding

material for the two sheets. It has also been found that the concrete will work in perfect harmony with the paper of which the transfer means or sheet is composed, and will not crush the paper, as the air cushions below each corrugation and the strong arch of each corrugation will prevent the concrete from crushing or misshaping the corrugations. So far as the essential steps of the method are concerned, any other form of key transferring device may be used, and in some instances it may be desired to dispense with the formation of the corrugations and set the key devices in the concrete structure by means of a smooth sheet, the salient qualifications of the transfer means or sheet being that it holds the key devices in proper relative position for transfer to the concrete structure and that it is readily removable or tearable when moistened so as to separate the key devices therefrom and leave such devices intact with the concrete structure. The transfer means will be furnished in strips of considerable length and width and may be rolled without injury to the key devices carried thereby, or misshaping or displacing said key devices.

In carrying out the method a number of the transfer means or sheets carrying the key devices are laid on a sheathing or molding base 10, the edges of the sheets being overlapped for a suitable distance and completely covering the said sheathing or molding base. After the transfer means or sheets are disposed on the molding base the concrete material 11, usually composed of crushed stone or gravel, sand, cement and water, is poured on the transfer means or sheet to any thickness desired or that may be necessary. The concrete material is then left to set or harden for a certain length of time, say about three or four weeks. During this hardening process the water or moisture gravitates to the bottom of the concrete material and carries with it the sand and cement, and if the corrugated molding sheet 6 be used, these ingredients cast themselves perfectly to the form of the corrugations 7 and completely surround the loops 9 that project upwardly above the corrugations. At the termination of the time required for the concrete material to harden, the sheathing or molding base 10 is removed and the paper of the transfer means or sheet will be found to be damp and in such condition that it may be readily removed by tearing the same off the hardened concrete material and thereby leave the key devices firmly associated or held intact with the concrete material, the strands 8 being held suspended from the concrete material below the corrugations 12 in the lower side of said material, as shown by Fig. 3. The step of removing the transfer means or sheet is also clearly shown by Fig. 3, and Fig. 2 illustrates the sheathing or molding base, the transfer means or sheet, and the concrete material as they will appear during the hardening process of said material. As shown by Fig. 4, a plaster coating or finishing covering 13 may be applied with material advantage over the portions of the key devices suspended from the hardened concrete material and against the adjacent surface of the latter, and if corrugations are formed in the hardened concrete material the said plaster coating will fill in the corrugations and also between and around the suspended portions of the key devices and the adjacent surface of the concrete material.

What is claimed is:

1. The method of disposing key devices in concrete structures, consisting in pouring plastic concrete material on flexible carrying means having key devices secured thereto to embed portions of the key devices therein and permitting the concrete material to harden and the carrying means to become damp, the carrying means adhering to the hardened concrete material and finally tearing the carrying means away from the concrete material and key devices.

2. The method of disposing key devices in concrete structures, consisting in placing flexible carrying means for key devices on a rigid molding means, pouring plastic concrete material on the carrying means and permitting said material to harden, and removing the hardened concrete material and the key carrying means from the molding means and separating the carrying means from the concrete material and key devices and leaving the latter intact with said material.

3. The method of disposing key devices in concrete structures, consisting in securing key devices in a supporting means, laying the supporting means carrying the key devices on a rigid molding means, pouring concrete material on the supporting means and permitting said material to harden, and removing the hardened concrete material together with the supporting means for the key devices from the molding means and detaching the supporting means from the hardened concrete material and leaving the key devices intact with the hardened concrete material.

4. The method of disposing key devices in concrete structures, consisting in pouring plastic concrete material on a flexible molding sheet carrying key devices in fixed positions and embedding portions of said key devices, while said sheet is held on a rigid support allowing the concrete material to harden, and finally separating the sheet away from the concrete material and key devices.

5. The method of disposing key means

and forming key ways in concrete structures, consisting in pouring plastic concrete material on a molding sheet having alternate depressed and raised portions and removing the hardened concrete material and the sheet from the support and carrying key devices in fixed positions and covering and embedding portions of said key devices in the concrete material while the sheet is held on a rigid support, allowing the concrete material to harden, and removing the hardened concrete material and sheet from the support and finally tearing the molding sheet away from the hardened concrete material and the key devices and leaving the latter intact with said material.

6. The method of disposing key devices and forming key ways in concrete structures, consisting in securing key devices in a paper sheet disposing the sheet on a rigid support, pouring plastic concrete material on the sheet and over portions of the key devices and allowing the material and sheet to remain associated until the material hardens and the sheet becomes damp, and removing the concrete material and sheet from the support and finally tearing the sheet away from the concrete material and the keys.

7. The method of forming concrete structures with key-ways and securing key devices thereto, consisting in forming a paper support with corrugations disposing the paper support on a rigid holding means and securing key devices therein with portions projecting outwardly from the corrugations, pouring a plastic concrete material on the support to receive the impression of the corrugations and embed the outwardly projecting portions of the key devices, allowing the concrete material to harden, and removing the hardened concrete material and support from the holding means and finally pulling the support away from the hardened concrete material and the portions of the key devices engaging the said support.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

RAYMOND D. WEAKLEY.

Witnesses:
CHAS. S. HYER,
F. B. KEEFER.