Jan. 27, 1925. 1,524,035

W. E. IRVING

REENFORCED CONCRETE SLAB

Filed April 1, 1924

FIG 1

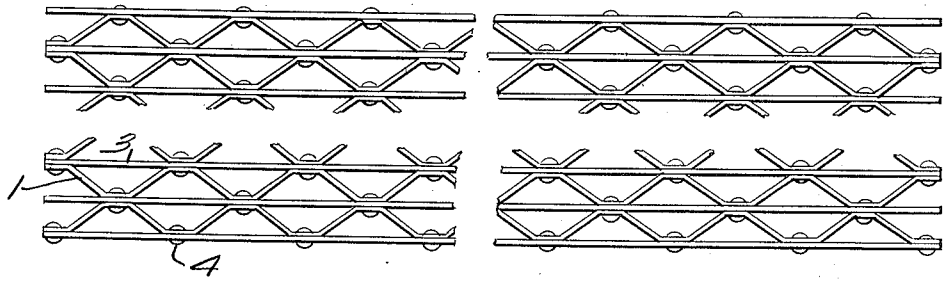


FIG 2

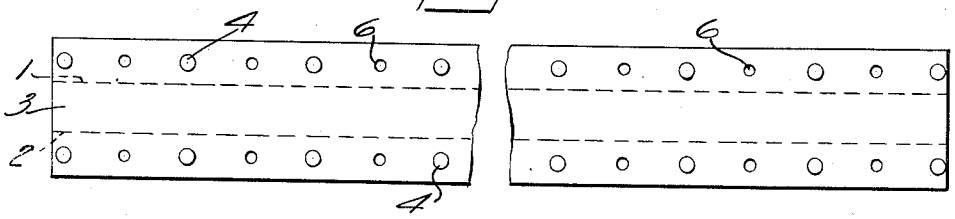
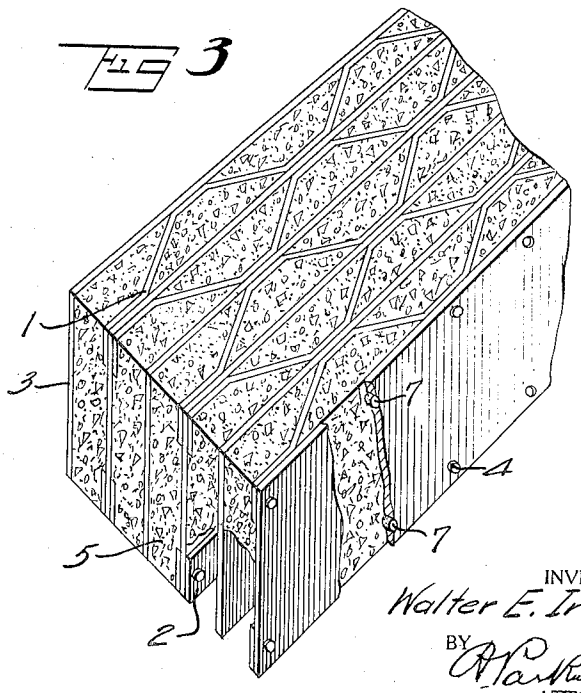


FIG 3



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UNITED STATES PATENT OFFICE.

WALTER E. IRVING, OF GLENBROOK, CONNECTICUT, ASSIGNOR TO IRVING IRON WORKS COMPANY, A CORPORATION OF NEW YORK.

REENFORCED CONCRETE SLAB.

Application filed April 1, 1924. Serial No. 703,378.

To all whom it may concern:

Be it known that I, WALTER E. IRVING, a citizen of the United States of America, residing at Glenbrook, county of Fairfield, State of Connecticut, have invented certain new and useful Improvements in Reenforced Concrete Slabs, of which the following is a specification.

My invention relates generally to flooring, stair treads, pavements and the like structures which are designed to be subjected to excessive amounts of wear and heavy stresses, and more specifically comprises a modification of the type of structure disclosed in my copending application Serial No. 703,377 filed of even date herewith, which said modification is capable of maintaining even greater rigidity under heavy loads. The best form of apparatus now known to me embodying my present invention is illustrated in the accompanying sheet of drawings in which,

Fig. 1 is a plan view of the preferred form of metal skeleton employed in my invention, parts being broken away,

Fig. 2 is a side elevation of the same, parts being broken away, and,

Fig. 3 is a perspective view of a completed slab on a larger scale, parts being broken away.

Throughout the drawings like reference characters indicate like parts. 1, 1, represent a series of metal strips crimped into one of the wavelike forms common in grating, arranged in one plane and 2, 2, indicate a similar series arranged in another plane parallel to and spaced away from the first series, while 3, 3, represent a series of straight, parallel bars of considerably greater depth then the strips 1 and 2 which bars are interspersed between the constituent members of the two series of crimped strips 1 and 2 so as to form with each a complete panel of grating when fastened thereto in the usual way by rivets 4, 4, or other convenient means. The resultant structure, as shown in Fig. 3, forms a box-like metal skeleton consisting of two panels of grating placed one above the other and spaced apart and held together by the straight bars 3, 3, which are common to both said gratings. 5 is a body of mastic which fills all the spaces between said bars and strips and the interior of the described metal skeleton, including the meshes of the respective gratings. Preferably an extra series of rivet holes 6, 6, are punched in the straight bars 3, 3, at points such that said holes will not be closed off by any portions of the crimped strips 1 or 2. Consequently, portions of the mastic 5 can be forced through these holes and form keys or fins, as shown at 7, 7, in Fig. 3, which will bind the body of mastic 5 even more securely to the metal skeleton.

The mastic 5 may be ordinary concrete where great body strength and wear-resisting qualities of surface are desired, or it may be composed of any other materials, originally plastic and capable of setting or hardening at ordinary atmospheric temperatures, such as a compound of asphaltic substances, with or without a mineral aggregate combined therewith. The mastic is inserted and compressed within the metal skeleton when in plastic condition so as to fully envelope all the elements of the skeleton structure except perhaps the outer edges of the bars 3 and strips 1 and 2, and then allowed to harden in situ.

The crimped strips of series 1 are preferably so placed that their outer edges will be substantially in the plane of one surface of the completed slab, and the other series 2 are similarly placed with reference to the opposite surface of said slab. This produces a slab of great strength under bending stresses by reason of the great rigidity of the integral truss-like members 3, and having armored upper and lower surfaces presenting great resistance to wear, and of a non-slipping character under the tractive action of motor propelled vehicles, or of the feet of pedestrians. By thus placing the two series of crimped bars at or near the upper and lower surfaces of the slab two surfaces of this kind are produced so that, if one surface ever does become worn, the slab can be turned over and a fresh, unworn surface thus brought into operative position without any expense of replacement.

The present invention possesses practically all the advantages of that described in my above noted copending application, and, in addition, that of greater strength and rigidity under bending stresses.

It is to be understood that the drawings herein are merely illustrative and do not show the exact dimension advisible in practice under various conditions. Thus the slab shown in Fig. 3 is much narrower in

proportion to its depth than would be customary in commercial practice. The outlines of the constituent gratings are also illustrative merely and other gratings of any desired design might be substituted therefor.

Having described my invention, I claim:

1. As a new article of manufacture, a slab or plate for use as flooring, treads, paving and the like purposes, which slab comprises a metal skeleton composed of a series of straight, parallel bars having the full depth of the slab and two series of strips of considerably less depth fastened to and connecting together said series of straight bars, the outer edges of one said series of strips being located substantially in the plane of one surface of the slab and the other of said series of strips having their outer edges located substantially in the plane of the opposite surface of the slab, and a body of mastic filling all the spaces between said bars and strips.

2. As a new article of manufacture, a slab or plate for use as flooring, paving and the like purposes, which slab comprises a metal skeleton consisting of two series of crimped metal strips arranged in parallel planes spaced apart, and a series of straight parallel bars interspersed between said crimped strips and riveted to the strips of each set, and a body of concrete set in and filling the spaces between said bars and strips.

3. A metal skeleton adapted for use in armoring and reinforcing bodies of mastic, which skeleton comprises, in combination, a series of straight parallel bars of considerable depth and two sets of intermediate spacing and connecting members, one of which sets is located near the edges of said series of parallel bars.

4. A metal skeleton adapted to armor and reinforce slabs of concrete, which skeleton comprises, in combination, a series of straight parallel bars of considerable depth, and two sets of crimped strips of much less depth riveted to and between said straight bars, one set of said strips being located adjacent one set of the edges of said straight bars and the other being located adjacent the other set of edges of said straight bars.

WALTER E. IRVING.