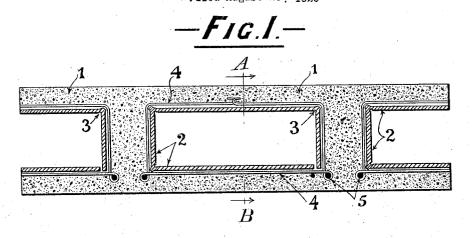
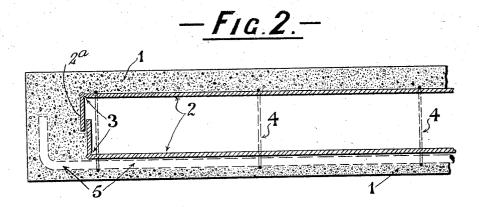
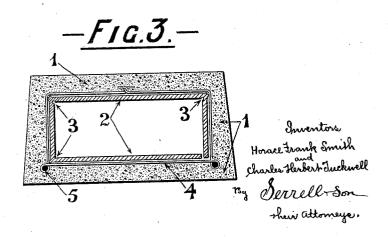
MANUFACTURE OR PRODUCTION OF HOLLOW CONCRETE FLOORS, BEAMS, AND SLABS Filed August 28, 1925







## UNITED STATES PATENT OFFICE.

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MANUFACTURE OR PRODUCTION OF HOLLOW CONCRETE FLOORS, BEAMS, AND SLABS.

Application filed August 28, 1925. Serial No. 53,020.

This invention relates to improvements ularly understood that the invention is not in the manufacture or production of hollow concrete floors, beams and slabs, and particularly to improvements in the cores employed 5 in such structures and articles of manufacture, whereby such cores may be transported in flat sheets and readily made up into rigid box-like cores for use on the building site

or elsewhere as required.

It has before been proposed to construct hollow concrete floors, beams or the like, by casting concrete around cores or matrices of tile, timber or metal. These cores or matrices have been costly in themselves and bulky in transport and have required skilled labour or appliances for their formation into box-like form. It has also been proposed to strengthen such hollow concrete beams by means of metal hoops or stirrups and main

reinforcing bars.

Now, according to the present invention, the cores which are to be employed in the production of concrete floors, beams, slabs and the like, are composed of sheets of fibrous material such as fibre-board, papier-mâché, cardboard, millboard or the like of requisite dimensions according to the shape and size of the cavity or cavities to be produced in the concrete slab. Such sheets are scored in parallel lines on one side of the sheet, so as to render them foldable into the required form of the core with great ease and without calling for the exercise of skilled labour. Such sheets may therefore be foldable into boxlike form.

During the operation of manufacturing a hollow concrete floor, beam or slab by means of cores formed in accordance with the present invention, the cores are located upon a base of concrete, which is previously laid to a sufficient depth, and then concrete is filled around the sides of the cores thus forming webs and over the tops of the cores to the re-

quired thickness.

With sheets scored to facilitate folding on such lines, by turning the said sheet inwards at each scoring line to an angle of about 90°, a box-like core is produced which may be rigidly maintained in position by means of metal hoops or stirrups, which latter may be utilized to secure the main reinforcing bars of the concrete floor, beam or slab.

Each sheet of fibre-board may be conveniently folded say three times to produce a

limited to the form of this section. The ends of the box-like core may also be closed by auxiliary folded flaps, and these will stiffen

The invention will be further described with reference to the accompanying draw-

ings, in which,

Fig. 1 is a cross section of a portion of a hollow concrete floor constructed according 65 to this invention.

Fig. 2 is a longitudinal section on the line A-B of Fig. 1, and

Fig. 3 is a transverse section of a hollow

Referring to the drawings, 1 is the concrete forming the shell of the floor, beam or slab, and 2 is the core of fibre-board, papier-maché, cardboard, millboard or the like around which the concrete is cast.

The core sheets are scored or creased in predetermined positions indicated at 3, to enable them to be readily and accurately foldable into box-like form from flat sheets.

Metal hoops or stirrups 4 maintain the 80 cores rigidly in box-like form, and such hoops or stirrups have loops at the lower corners provided to locate the main rein-

forcing bars 5 of the floor, beam or slab. To form the scored sheets 2 into box-like cores, each sheet is folded upon the scored or indented lines 3 to an angle of about 90° (see Fig. 1), and wire hoops or stirrups 4 placed around the folded sheet to hold the scored sheet rigidly in its folded box-like formation. When reinforcing bars 5 are used in the concrete structure, the hoops or stirrups 4 may also encircle the bars 5 by loops at the corners to secure them in position. The ends of the box-like core may be closed by folding inwards the ends of the sheet 2 as indicated at 2<sup>a</sup> in Fig. 2, by which means additional stiffening of the core is obtained.

In this way a rigid core may be produced 100 et the building site from sheets of fibrous material sent out flat for facility and economy of transport.

During the operation of manufacturing a hollow concrete floor, beam or slab by means of cores formed in accordance with the present invention, the cores are located upon a base of concrete, which is previously laid to a sufficient depth, and then concrete core of box-like section, but it is to be particious filled around the sides of the cores thus

forming vertical webs and over the tops of the cores to the required thickness, thus producing a hollow concrete floor, beam or slab of required section.

What we claim as our invention and desire to secure by Letters Patent is:—

1. A concrete floor, beam, or slab, comprising in combination cores of folded fibrous material scored within the folds, a 10 concrete layer located below the cores, concrete webs at the sides of the cores, a concrete layer above the cores, metal hoops our hands. around the cores, and formed with loops at the lower corners thereof and metal rein-15 forcing bars located in the loops.

2. A concrete floor, beam, or slab, comprising in combination cores of folded fibrous material scored within the folds, a concrete layer located below the cores, concrete webs at the sides of the cores, a con-20 crete layer above the cores, metal hoops around the cores, formed with loops at the lower corners thereof and metal reinforcing bars having their ends upturned and located in the loops.

In witness whereof we have hereunto set

HORACE F. SMITH. CHARLES HERBERT TUCKWELL.