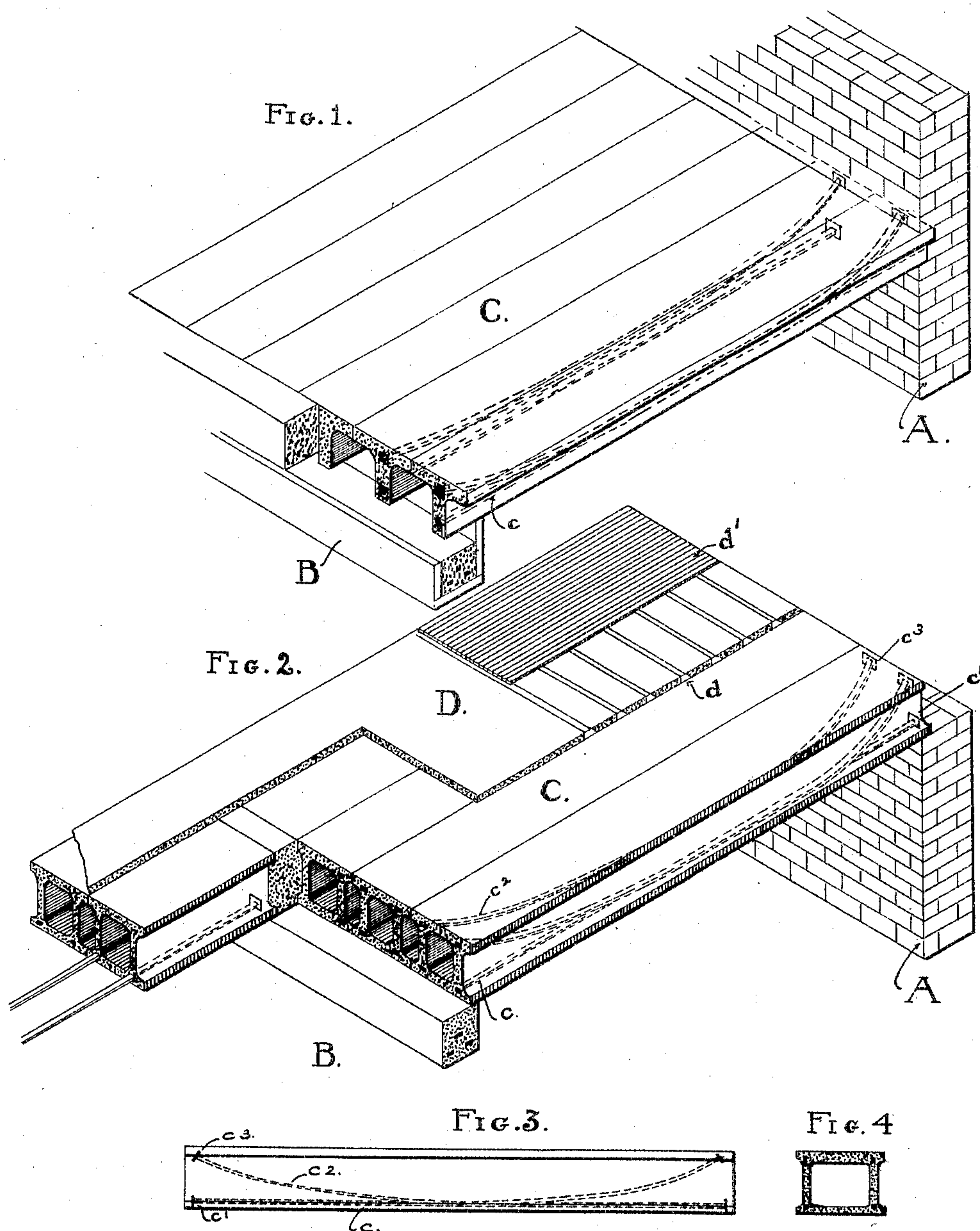


No. 784,158.

PATENTED MAR. 7, 1905.

L. G. HALLBERG.
COMPOUND BLOCK.
APPLICATION FILED APR. 24, 1903.



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LAWRENCE G. HALLBERG, OF CHICAGO, ILLINOIS.

COMPOUND BLOCK.

SPECIFICATION forming part of Letters Patent No. 784,158, dated March 7, 1905.

Application filed April 24, 1903. Serial No. 154,079.

To all whom it may concern:

Be it known that I, LAWRENCE GUSTAV HALLBERG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Compound Blocks, of which the following is a specification.

My invention relates to an improved compound block which is especially designed for use in making fireproof floor and ceiling constructions; and it consists of a new and improved compound cement and metal block or tile having certain novel features, as hereinafter described and claimed.

In the drawings accompanying this specification, Figure 1 is an isometric perspective view of a portion of a flooring or ceiling with the supporting wall and beam or girder, showing blocks or tiles constructed in accordance with my invention. Fig. 2 is a view similar to Fig. 1, but showing a slightly-modified form of block or tile. Fig. 3 is a side view of one of the blocks constructed in accordance with my invention, and Fig. 4 is an end view thereof.

In the drawings the reference-letter A indicates a suitable wall, and B indicates a suitable beam or girder forming the supports or rests upon which the blocks are carried. It is of course understood that the blocks may be suitably supported by any convenient means and with any arrangement of walls, girders, or beams, and I have shown the forms indicated in the drawings merely as arbitrary and convenient illustrations of this general plan. It is also to be understood that the blocks may be employed in any other suitable manner or location, and I have illustrated them as applied to floors or ceilings for mere convenience of showing the preferred use to which they are put.

The blocks or tiles C are made of suitable lengths of concrete or other suitable material and are of any desired shape. In the drawings I have shown two forms, those of Fig. 1 being substantially T-shaped and adapted for use where ribbed ceilings are desired and those of Fig. 2 being in hollow form and adapted for use where smooth ceilings are employed. In any form in which the blocks

are embodied I embed longitudinal anchor-rods in the material thereof, which are provided with any suitable means to prevent the rods from slipping and becoming displaced in the material or to prevent the rods and material from moving relatively to each other. The rods *c* extend in substantially straight lines, are preferably located near the base of the blocks, and are provided with heads *c'* to securely anchor them. The curved rods *c''*, also provided with anchors, such as the heads *c'*, are embedded in the material above the straight rods, and when blocks having vertical walls or ribs or webs are employed the rods are arranged in the webs or ribs. The rods *c''* are suitably bent or sagged, being preferably arranged in an approximately catenary curve. The rods or bars furnish tensile resistance to the compressive stresses of the concrete, and their tensile stress or resistance is substituted for the mere resistance to transverse strain of the material of the block, whereby they prevent any buckling down or fracture of the blocks when weight or load is applied thereto. It is obvious that the application of weight or load will cause a stress or strain in the longitudinal lines of the rods or against their tensile resistance, whereby the stress is to draw the rods longitudinally, which is opposed by the most effective resistance inherent in the rods, so that they increase the resistance of the blocks, as they cannot be drawn out or lengthened. Moreover, the bent rods prevent shearing of the material either vertically or longitudinally, and as they represent the catenary line which the weight would take if no resistance medium like the cement or concrete were present they hold the material together in the most effective manner.

It is apparent that each block or tile provided with its strengthening-rods is a unitary structure which may be made complete and tested at the factory instead of being constructed *in situ* at the place of use, so that in erecting a building there is no delay while the cement sets; but the finished blocks may be easily and rapidly placed and a cement floor or ceiling may be quickly laid. When a floor is laid, the cement or other covering, as

D, may be placed thereon immediately and the floor-tiles set in it or the sleepers or strips *d* embedded or dovetailed into the cement, to which the flooring-boards *d'* are nailed.

5 Having described my invention, I claim—

A unitary structure of the class described, consisting of a hollow rectangular beam composed of cementitious material, a straight anchor-rod embedded in each side wall of the
10 beam near the base thereof, and a sagged

anchor-rod also embedded in said wall above the straight rod, the said rods extending substantially the length of the beam and being provided with heads at the ends thereof.

In testimony whereof I affix my signature in 15 presence of two witnesses.

LAWRENCE G. HALLBERG.

Witnesses:

E. MOLITOR,

J. McROBERTS.