No. 776,916. PATENTED DEC. 6, 1904.

W. A. KENNEDY.

FIREPROOF CONSTRUCTION.

APPLICATION FILED MAY 25, 1904.

NO MODEL.

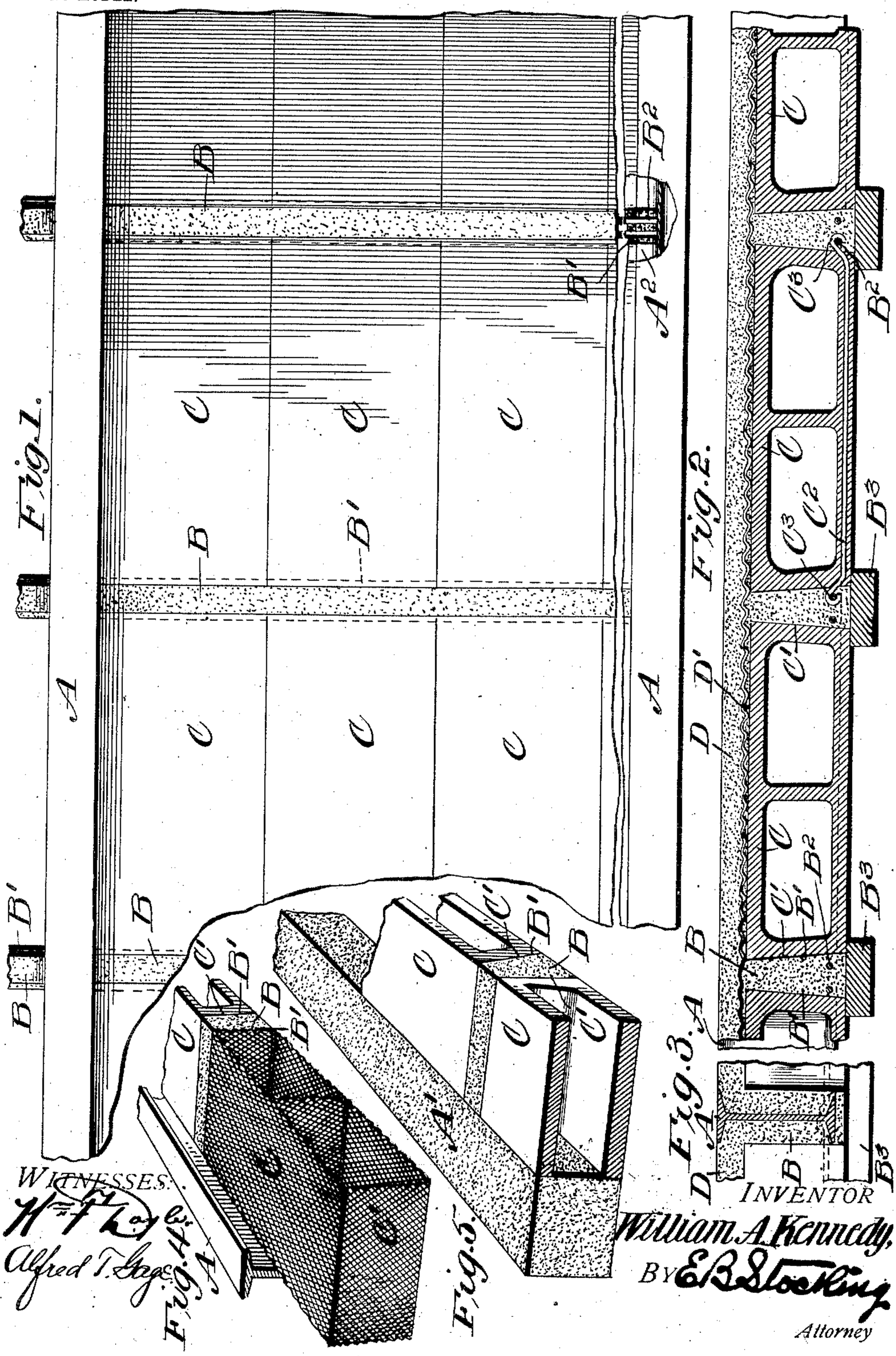

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

WITNESSES:

Alfred T. Legg.

INVENTOR

William A. Kennedy,

BY E. B. Stocking

Attorney

No. 776,916. Patented December 6, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM A. KENNEDY, OF WASHINGTON, DISTRICT OF COLUMBIA.

FIREPROOF CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 776,916, dated December 6, 1904.

Application filed May 25, 1904. Serial No. 209,725. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. KENNEDY, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Fireproof Construction, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a fireproof construction, and particularly to a structure composed of concrete and hollow blocks to secure the maximum of strength and fire protection at a minimum of weight and cost of construction.

The invention has for an object to provide parallel girders having intersecting transverse concrete key-beams and a series of abutting hollow blocks parallel with said girders and supported by an inclined contact-surface upon said key-beams at their opposite ends.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings, Figure 1 is a plan showing the application of the invention; Fig. 2, a longitudinal section thereof with a superposed concrete flooring provided; Fig. 3, a transverse vertical section through one of the girders; Fig. 4, a detail perspective of an I-girder in connection with a metallic block and key-beam; and Fig. 5, a similar view of a modified application of the invention, showing the formation of the girder from concrete material.

Like letters of reference refer to like parts in the several figures of the drawings.

The letter A designates girders or beams of any desired or usual construction and extending parallel with each other. These beams may comprise the ordinary I-beam, as shown in Figs. 1 and 4, or this girder may be composed of concrete material, as shown at A′ in Fig. 5, the character and construction thereof being adapted to the floor-weight to be supported therefrom. By the use of the term "concrete" herein I refer to any character of cement composition adapted to set and form an artificial stone structure as usual in this art. Extending transversely between the girders A are a series of concrete key-beams B, molded in position as hereinafter described, and the opposite sides of these beams are inclined outwardly toward the lower end of the beam, as at B′, so as to form a wedge-shaped key adapted to coöperate with a similarly-inclined face C′ upon the opposite ends of the tile, sheet-metal, or other hollow blocks C, which extend parallel to the girders A and are supported at their opposite ends by the concrete key-beams B. As shown in Fig. I, a series of these blocks are placed side by side with their edges abutting, and are firmly supported by an extended contact at the opposite ends thereof.

If it be desired to brace the key-beams B for the purpose of strengthening the same, rods B^2 may be disposed therein, as shown in Figs. 1 and 2, and are adapted to rest at their opposite ends upon the base-flange A^2 of the girder A, which also supports the opposite ends of the key-beams B, carried thereon. In some classes of work it has also been found desirable to provide a reinforcing-rod C^2 in the base of the blocks C, as shown in Fig. 2, which at its opposite ends C^3 may be extended about one of the rods B^2, embedded in the key-beams.

In Fig. 2 the blocks and beams are surmounted by a concrete flooring D, by which additional arching strength is secured between the opposite girders A, and if found desirable a suitably-corrugated strengthing-strip D′ may be disposed within this flooring and extended longitudinally of the girders. In Fig. 4 the construction is such that the girder extends above the block, so that a tile, wooden, or other desired character of flooring may be applied, while in Fig. 5 a structure of floor particularly adapted for lighter weights is shown, wherein the block itself forms by its opposite faces both the flooring and ceiling beneath.

The invention may be applied in any desired manner; but a preferable method of constructing the same consists of disposing temporary cross-timbers B^3 between the opposite girders beneath the position to be occupied by the concrete key-beams, and upon these cross-pieces the opposite ends of the blocks

are disposed in proper position and the rods also extended between the opposite girders when the concrete material for the beam is properly placed in position, thus embedding the girders and forming a downwardly-extending wedge-key, which effectually prevents any movement of the blocks and supports the entire surface at the opposite ends thereof, so that there can be no loosening from expansion or contraction. After this key-beam has become set the cross-pieces are removed, thus providing a centered ceiling and one which for many purposes can be used without any further finishing. It will also be noted that in this construction the block is not connected to nor supported by the girders extending parallel thereto, but owing to the wedge-shaped key an extended arch-support is secured throughout the length of the beam, the key-beams comprising practically a keystone of an arch structure, so that a maximum of resisting strength against downward strain is secured with the minimum weight of material, which provides a structure particularly adapted for use in fireproof buildings, in which the hollow blocks afford both a heat-resisting and sound-deadening structure, while also materially decreasing the weight of the floor structure and the consequent danger of collapsing of an arch between opposite girders. This structure also permits a longer length of span than ordinary in this class of work, which spans can be reinforced in any desired manner, as herein illustrated, depending upon the load to be carried. Under light loads the block may be used to form both the floor and ceiling structure, while, if desired, for heavier loads the superposed flooring-arch may be used, and the key beams or ribs molded about the blocks secure an accurate fit, so that all finishing of irregularities upon the terra-cotta blocks is avoided and a close tight joint between the several parts secured. The blocks may be of any desired material—for instance, metal sheets, as shown in Fig. 4.

It will be obvious that changes may be made in the details of construction and configuration without departing from the spirit of the invention as defined by the appended claims.

Having described my invention and set forth its merits, what I claim, and desire to secure by Letters Patent, is—

1. A fireproof construction comprising parallel girders, a series of hollow blocks having upwardly-divergent ends and arranged parallel to and in side contact with each other, the terminal block of each series being bound at its side to the girder by a concrete bond, and transverse concrete beams having downwardly-divergent sides abutting the upwardly-divergent ends of said blocks.

2. A fireproof construction comprising parallel girders, a series of hollow blocks having upwardly-divergent ends and arranged parallel to and in side contact with each other, the terminal block of each series being bound at its side to the girder by a concrete bond, and transverse concrete beams having downwardly-divergent sides abutting the upwardly-divergent ends of said blocks, said blocks and transverse beams extending in a common plane below said girders, whereby a flush under surface is produced and the girder incased therein.

3. A fireproof construction comprising parallel girders, transverse concrete key-beams having downwardly-divergent sides, blocks having upwardly-divergent ends contacting with the surface of said key-beams, and reinforcing-rods carried by said block and embedded in said key-beams.

4. A fireproof construction comprising parallel girders, transverse concrete key-beams having downwardly-divergent sides, blocks having upwardly-divergent ends contacting with the surface of said key-beams, supporting-rods extending between the opposite girders through said key-beams, and a reinforcing-rod carried by said blocks and engaging said supporting-rods.

5. A fireproof construction comprising parallel girders, transverse concrete key-beams having downwardly-divergent sides, blocks having upwardly-divergent ends contacting with the surface of said key-beams, supporting-rods extending between the opposite girders through said key-beams, a reinforcing-rod carried by said blocks and engaging said supporting-rods, a superposed concrete flooring above said beams and blocks, and a metallic strengthening-strip disposed within said flooring.

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

WILLIAM A. KENNEDY.

Witnesses:

ALFRED T. GAGE,

JOHN E. LANSDALE.