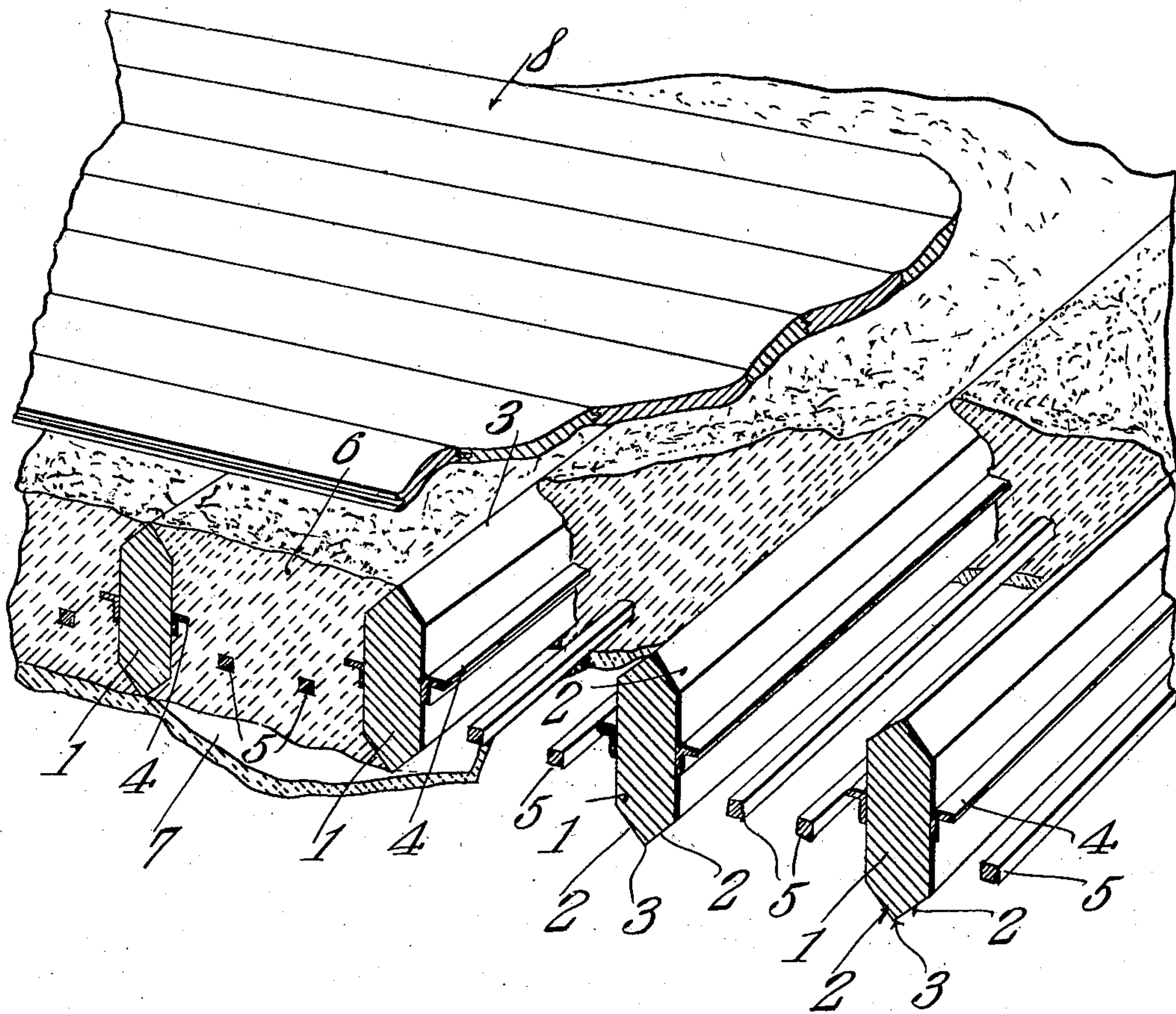


J. A. FERGUSON.
CONCRETE STRUCTURE.
APPLICATION FILED MAY 28, 1909.

983,699.

Patented Feb. 7, 1911.



Witnesses
Edw. H. Hunt
Herbert D. Lawson

Inventor
John A. Ferguson.
By *Chas. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

JOHN A. FERGUSON, OF DENVER, COLORADO.

CONCRETE STRUCTURE.

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To all whom it may concern:

Be it known that I, JOHN A. FERGUSON, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented a new and useful Concrete Structure, of which the following is a specification.

This invention relates to floor or roof structures of that type consisting of joists having interposed fillings of concrete or other plastic material on which the boards, shingles or other surfacing materials of the structure are designed to be placed.

The principal object of the present invention is to provide joists which are so shaped as to be practically entirely concealed within the concrete, only a single edge of each joist being exposed above the concrete and this exposed portion being designed to receive nails utilized for securing boards upon the concrete.

A further object is to so shape the joists as to positively hold the concrete thereto.

Another object is to provide reinforcing means upon the joists for engaging the concrete and further assisting in maintaining it in proper relation to a joist.

With these and other objects in view the invention consists of certain novel details of construction and the combinations of the parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred form of the invention has been shown.

Said drawing shows in perspective a portion of a structure embodying the present improvements, the parts thereof being broken away and boards being shown in position thereon.

Referring to the drawing by characters of reference, 1 designates a joist having its side faces flattened and parallel, the upper and lower portions of the joist being beveled longitudinally as indicated at 2 so as to form longitudinal upper and lower ridges 3. Angle irons 4 are preferably secured to the sides of the joist and extend longitudinally thereof, and, if desired, reinforcing bars 5 may be supported between the joists, these bars being particularly desirable in the construction of large spans.

As shown in the drawing the joists 1 are preferably arranged parallel to each other and when it is desired to place the concrete filling between the joists, boards are secured to the lower ridges 3 of the joists and form

supports for the concrete which is poured between the joists and onto the boards. This concrete filling, which has been indicated at 6 will completely inclose the joists except along the narrow ridges 3 and it is of course to be understood that the upper surface of the filling should be smoothed so as to lie in the same plane with the top ridges 3. After the concrete has set sufficiently the supporting boards referred to can be removed and plaster, such as indicated at 7 may then be applied directly to the lower face of the concrete filling. If boards 8 are used in finishing the structure, they are placed flat upon the joists 3 and the concrete filling 6 and secured to the upper ridges 3 by means of nails as ordinarily. If preferred, however, tiles, or cement can be used instead of the boards 8 and in such event it would not be necessary to leave the top ridges 3 exposed.

It will be apparent that by forming the joists in the manner described the concrete filling 6 cannot be displaced because said filling bears upon the beveled faces of the joists which will thus act to positively key said fillings and prevent shifting thereof. The angle irons 4 also assist in maintaining the joists and fillings in proper relation.

It will be obvious that this invention can be used either in floor or roof construction, it being possible to provide it with a cover of concrete, shingles, slate, or any other kind of material in lieu of the boards 8.

It is of course to be understood that various changes may be made in the construction and arrangement of the parts without departing from the spirit or sacrificing any of the advantages of the invention.

What is claimed is:—

1. A building structure consisting of joists, each having its upper and lower portions beveled longitudinally along the sides thereof to form upper and lower longitudinal ridges or edges, the upper and lower portions of each joist being similar, reinforcing angle irons secured to opposed faces of the joists, a plastic filling interposed between every two adjoining joists and engaging the irons and the beveled faces of the joists, the top and bottom faces of the fillings being in the same planes with the top and bottom edges of the joists, and reinforcing rods interposed between the joists and extending through the fillings, said rods being spaced apart and from the joists.

2. A building structure comprising a joist having substantially parallel sides the upper and lower portions of the joist being beveled to provide surfaces which meet in longitudinal lines of intersection, in combination with a plastic filling extending at opposite sides of the joist with its upper and lower surfaces in common planes with the respective lines of intersection of the joist, whereby the filling is keyed in place and edges are provided in the surfaces of the filling to receive nails or other fastening devices for securing a covering in place.

3. A building structure comprising a joist having substantially parallel sides the upper and lower portions of the joist being beveled to provide surfaces which meet in longitudinal lines of intersection, in combination with a plastic filling extending at

opposite sides of the joist with its upper and lower surfaces in common planes with the respective lines of intersection, and reinforcing bars embedded in the plastic filling and secured to the sides of the joist, said reinforcing bars extending longitudinally of the joist, whereby the filling is keyed in place and edges are provided in the surfaces of the filling to receive nails or other fastening devices employed to secure a covering in place.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN A. FERGUSON.

Witnesses:

HARMON H. RICE,
NELLIE V. KNAPP.