C. H. SNYDER.

COMBINATION STEEL AND CONCRETE BUILDING CONSTRUCTION.

APPLICATION FILED DEC. 21, 1910.

1,086,866.

Patented Feb. 10, 1914.

2 SHEETS—SHEET 1.

Fig. 2.

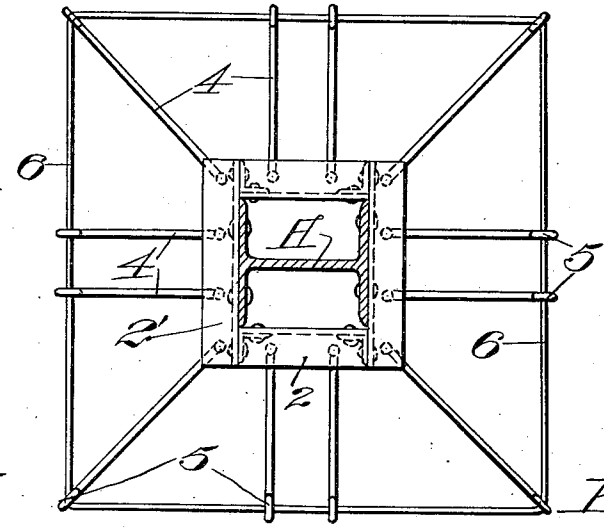


Fig. 5.

Fig. 3.

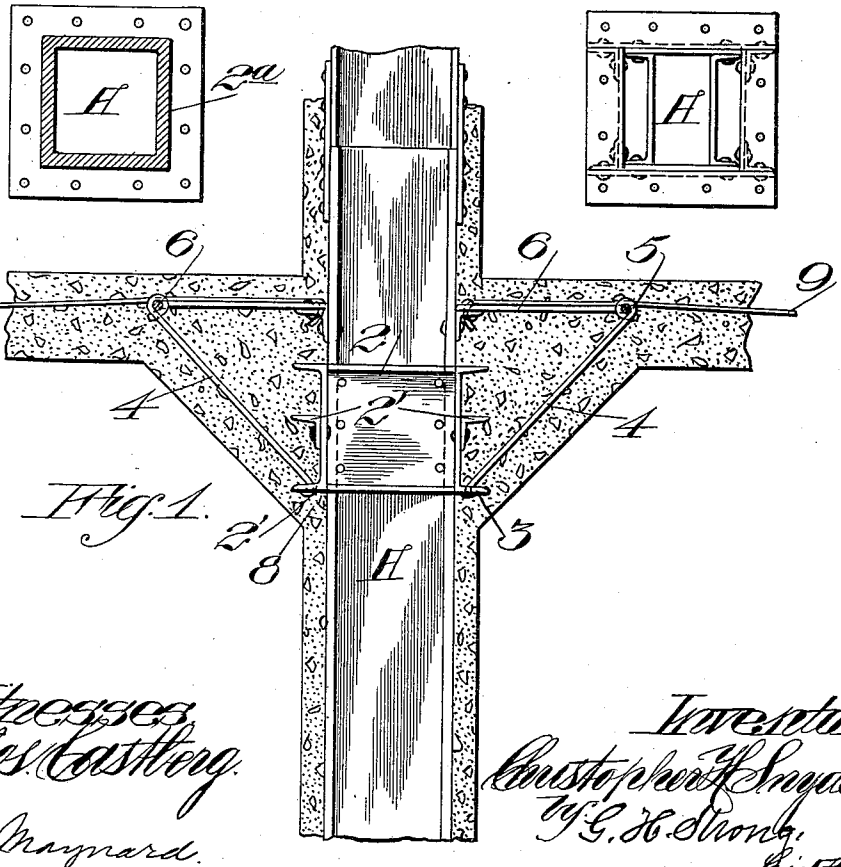


Fig. 1.

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Inventor.
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by G. H. Strong.
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2 SHEETS—SHEET 2.

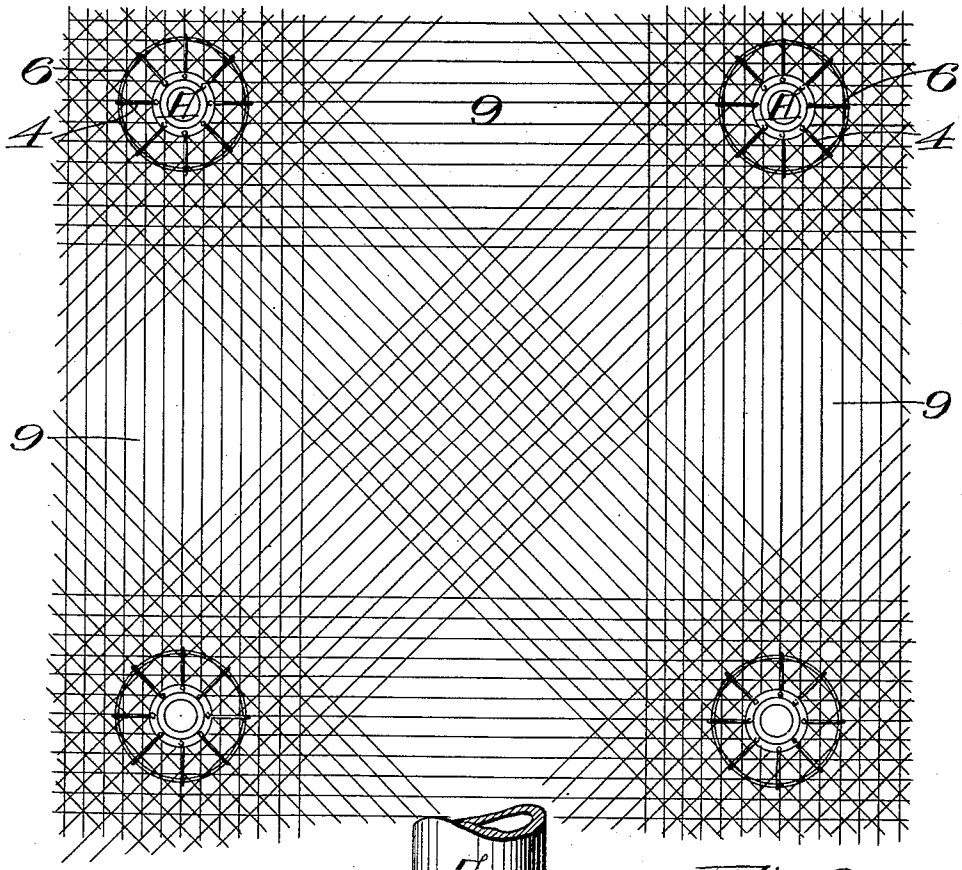


Fig. 6.

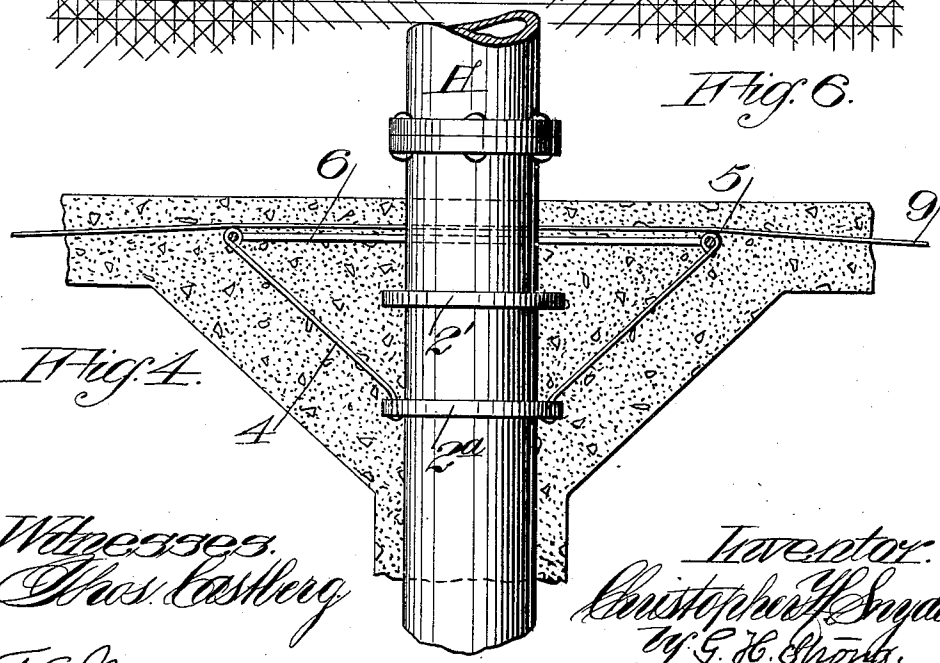


Fig. 4.

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UNITED STATES PATENT OFFICE.

CHRISTOPHER H. SNYDER, OF BERKELEY, CALIFORNIA.

COMBINATION STEEL AND CONCRETE BUILDING CONSTRUCTION.

1,086,866. Specification of Letters Patent. Patented Feb. 10, 1914.

Application filed December 21, 1910. Serial No. 598,605.

To all whom it may concern:

Be it known that I, CHRISTOPHER H. SNYDER, citizen of the United States, residing at Berkeley, in the county of Alameda and State of California, have invented new and useful Improvements in Combination Steel and Concrete Building Construction, of which the following is a specification.

This invention relates to building construction, and particularly to combined steel and concrete building construction.

The object of this invention is to provide a reliable and practical reinforcing structure applicable to steel and cast iron columns of various designs, to which reinforcing structure may be readily connected the usual reinforcing wires, rods or netting commonly employed in the erection of concrete slabs and floors.

The invention consists of the parts and the combination and construction of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a side elevation of an H-column to which has been applied the stirrup or knee. Fig. 2 is a transverse section through the column showing the knee or girdle-members attached thereto. Fig. 3 is a transverse sectional view of a steel column erected of channel irons with the knee straps or the girdle applied. Fig. 4 is a side elevation of a cast iron column on which the knee flange or girdle is shown as being cast. Fig. 5 is a plan view of the cast iron column. Fig. 6 is a diagrammatic view of the reinforcing rods as attached to the supporting girdle.

In the art of reinforced concrete construction, it is desirable to provide a substantial and practical means for connecting the reinforcing rods, wires or other elements to the vertical columns of the structure in the most secure and permanent manner, and to accomplish this substantial construction in a simple method, both as regards the form of the elements and the saving of labor. To this end, my invention comprehends attaching to or forming with the building columns, such as are indicated at A in the several views, a girdle, as 2, comprised of sections 2′ of channel irons securely bolted with their backs against the columns A, and which sections 2′ have their lower flanges perforated, as at 3, for the reception of brace or knee members 4, which are here shown as being made of stout wire, the lower ends of which are suitably headed over after insertion through the perforations 3 in the girdle 2, and the upper portions of the rods are then bent forward at a suitable angle relative to the column. Through the eyes 5 formed on the upper ends of the rods 4 is threaded a stout rod, as at 6, forming a stirrup which may be in the form of a square, as in Fig. 2, or in the form of a circle, as in Fig. 6.

The girdle 2 may be attached to the column A after the same has been erected in a building at such height along its length as is determined by the relative height between the floors in the building. The lower perforated flange of the girdle shown in Fig. 1 forms the supporting knee of the concrete floor or slab, as indicated at 8, when the same has been tamped in firmly around the reinforcing nest formed by the network of the inclined brace rods 4 and the horizontal band or stirrup 6, which is mounted in the eyes at the upper end of the brace rods 4.

After the member 6 has been threaded through the several eyes 5 on the brace rods 4, the usual tension rods or reinforcing wires, as indicated at 9, may be attached to the girdle 2 in a substantial manner and the concrete tamped over the nest and the reinforcing wires to entirely inclose the same.

When the design of the building calls for cast iron columns such as are indicated in Figs. 4 and 5, these columns are provided with an integrally cast girdle 2^a, which may be of suitable diameter and located at the proper distance in the length of the column and perforated to receive the inclined knee 4, and if the column A be circular in cross section the brace rods 4 may be arranged radially about the column and the girdle, wire or bar 6 may be formed into a circle, thus making a substantial reinforce for the applied concrete.

The girdle member 2 not only has the function of forming a support for the lower ends of the knee rods 4, but by reason of its transverse projection from the body of the column A, the girdle 2 forms a support for the shear or pressure of the concrete when it has hardened in position.

If desired, further projections 2′ encircling the column A may be provided in order to support the shear or load of concrete, as

shown in Fig. 1. In this instance the projections 2′ are formed of angle iron attached to the body of the column, and upon these auxiliary brackets may be supported the horizontal fabric 9.

Having thus described my invention, what I claim and desire to secure by Letters-Patent, is—

1. In a building construction, a supporting column, a reinforcing structure attached thereto for supporting concrete, said reinforcing structure comprising a girdle rigid with the supporting column and having a plurality of perforations, upwardly projecting knee members supported in said girdle and having eyes at their upper ends, and a stirrup threaded through the eyes.

2. The combination in a building construction, of a supporting column, a perforated flange forming a girdle about the column, upwardly inclined knee members having their lower ends inserted in the perforations in the girdle, and having eyes at their upper ends, a stirrup supported in said eyes, and a reinforcing element attached to said stirrup.

3. The combination in a building construction, of a supporting column, a perforated flange forming a girdle about the column, upwardly inclined knee members having their lower ends inserted in the perforations in the girdle, and having eyes at their upper ends, a stirrup supported in said eyes, reinforcing elements attached to said stirrup, and a concrete body inclosing the aforesaid structural elements.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHRISTOPHER H. SNYDER.

Witnesses:
FREDERICK E. MAYNARD,
CHARLES EDELMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."