

(No Model.)

2 Sheets—Sheet 1.

F. H. KINDL.
CONSTRUCTION OF Z-BAR COLUMNS.

No. 546,781.

Patented Sept. 24, 1895.

Fig. 1.

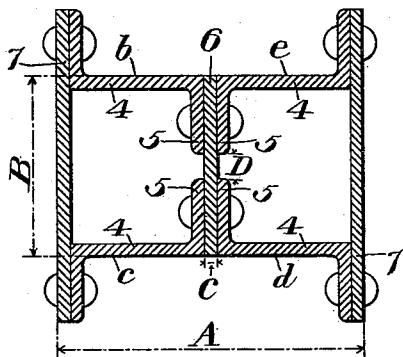


Fig. 3.

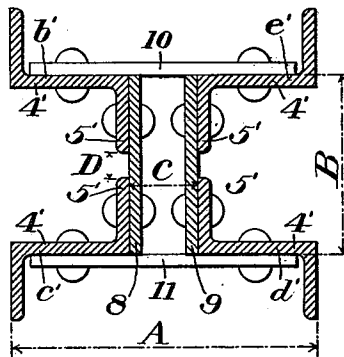


Fig. 2.

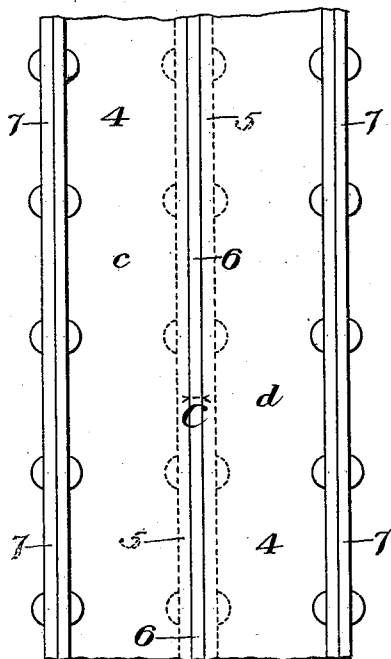
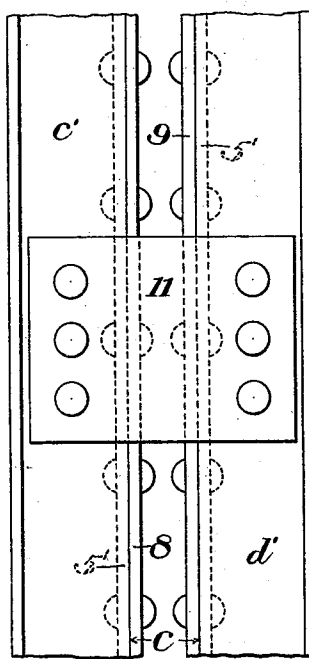


Fig. 4.



WITNESSES

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Fig. 5.

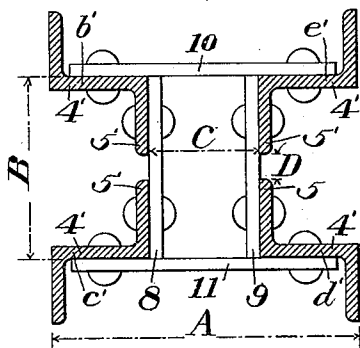


Fig. 6.

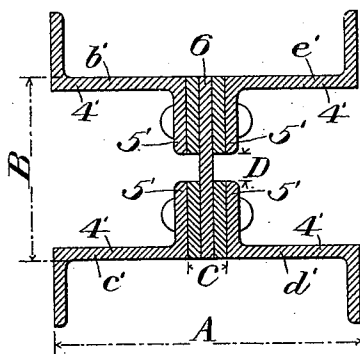
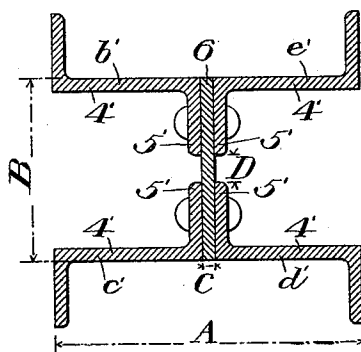


Fig. 7.



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UNITED STATES PATENT OFFICE.

FREDERICK H. KINDL, OF PITTSBURG, PENNSYLVANIA.

CONSTRUCTION OF Z-BAR COLUMNS.

SPECIFICATION forming part of Letters Patent No. 546,781, dated September 24, 1895.

Application filed July 15, 1895. Serial No. 556,009. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK H. KINDL, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in the Construction of Z-Bar Columns, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a horizontal sectional view of one of the sections of a column constructed in accordance with my invention. Fig 2 is a side elevation of a part of the section of column shown in Fig. 1. Fig. 3 is a horizontal section of one of the upper sections of the column. Fig. 4 is a side elevation of a part of the section of column shown in Fig. 3. Figs. 5, 6, and 7 show, respectively, different ways in which the Z-bars are assembled to form the column to give the desired strength to the several sections of the column and keep the dimensions A and B constant.

My invention consists in a compound column for buildings composed of a series of sections, the sections for the successive floors or parts of the building in which the column is erected being composed of Z-bars of successively less size, the column itself having substantially uniform outline dimensions A and B from top to bottom.

The lower section of the column shown in Fig. 1 is composed of four Z-bars *b c d e*, set in upright position, so that their webs 4 shall be parallel, the outside faces of the webs of the Z-bars *b* and *e* being in the same plane, and the outside faces of the webs of the Z-bars *c* and *d* being also in the same plane, the flanges 5 of the bars being secured together by an intermediate plate or web or batten-work 6.

7 7 are cover-plates, which are riveted to the sides of the column. The sections of column above the lower section are similarly constructed of successively smaller Z-bars, and I assemble them as follows, so that the dimensions represented by the lines A B shall be constant from the top to the bottom of the compound columns.

Fig. 3 shows in horizontal section a section of the column of an upper story of the building. In this section four Z-bars *b', c', d',* and *e'* have the outer faces of their webs 4', respect-

ively, in line, as above described; but the flanges 5' are not directly connected by abutting against an intermediate plate 6. These flanges of the bars *b'* and *c'* have a separate side plate 8' and the flanges 5' of the bars *e'* and *d'* have another side plate 9, the side plates 8 and 9 being separated, so as to make the dimension A the same as the length of the dimension A in Fig. 1. The ends of the flanges 5' of the bars *d'* and *e'* are also separated from the ends of the corresponding flanges *d'* and *c'* sufficiently to make the dimension B equal to the corresponding dimension of Fig. 1. There are also tie plates or bars 10 11, connecting, respectively, the bars *b'* and *e'* and the bars *c'* and *d'*, so as to make the two sections of the column act as one.

In Figs. 5, 6, and 7 I show other methods of constructing Z-bar columns as will make the dimensions A and B constant, the dimensions C and D being the variables.

The principal advantages of a column so constructed are as follows:

First. Having practically equal radii of gyrations in all directions, it will have practically a maximum strength in all directions.

Second. The floor beams and girders which abut against or fit between such columns in successive stories and supported on brackets attached to their sides or on cap-plates will have the same length throughout the successive floors, and can be ordered directly from the mill without the previous calculations necessary when the dimensions A and B of the columns on the successive floors of the building are not the same.

Third. The beams which abut against or are connected to the columns can have the same spacing for their rivets, bolts, or open holes. These are made according to the same measurement throughout, and therefore one detail drawing for the beams or girders on any one floor will suffice for all of them, and it is unnecessary to make separate drawings for the beams and girders for the several floors, as required when the dimensions A and B of the column are different on the several floors. Labor and chances of error are thus reduced in making the drawings.

Fourth. The plates, fillers, angle-bars, batten-plates, and other connections required in the construction of the column, as well as

the brackets required to support the beams or girders which abut against or are extended between the columns, can be made substantially alike in respect of their punching, riveting, &c., in the successive floors of the building, and thus the working up of the details and the cost of the drawings, as well as the chances of error, are largely reduced. The columns can be made of less cost because of the uniformity of such connections, and these connections can be kept in stock in large quantities ready for use to be supplied as required.

Fifth. As the floor beams or girders which abut or extend between the columns will have the same workmanship and will be substantially alike, the erection of buildings having such columns will be greatly facilitated in respect of saving of time and cost.

I claim—

1. A compound column, the successive sections of which are composed respectively of four Z-bars the bars of the several sections being of unequal dimensions but being riveted together in such a way that the dimensions A and B are constant; substantially as described.

2. A compound column, the successive sections of which are composed respectively of

four Z-bars riveted together, so that the dimensions C between the opposing flanges of the Z-bars shall vary, and that the outline dimensions A and B of the column shall be constant throughout; substantially as described.

3. A compound column, the several sections of which are composed respectively of four Z-bars tied together, the bars of the several sections being of unequal dimensions, but being tied together so that the dimensions C between the opposing flanges of the Z-bars shall vary, and so that the outline dimensions A and B of the column shall be constant throughout; substantially as described.

4. A compound column, the several sections of which are composed respectively of four Z-bars tied together, the bars of the several sections being of unequal dimensions, but being tied together so that the dimensions D between the ends of the opposing flanges of the beams shall vary, and so that the outline dimensions A and B of the column shall be constant throughout; substantially as described.

In testimony whereof, I have hereunto set my hand.

F. H. KINDL.

Witnesses:

H. M. CORWIN,
WARREN W. SWARTZ.