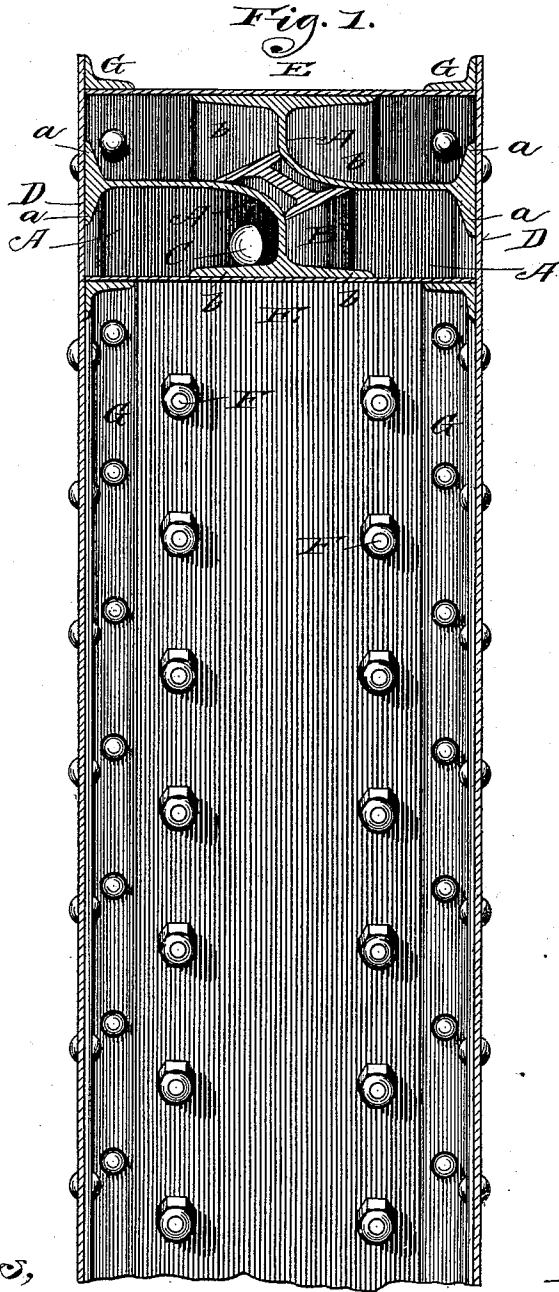


J. M. LARIMER.
ARCHITECTURAL COLUMN.

No. 484,026.

Patented Oct. 11, 1892.



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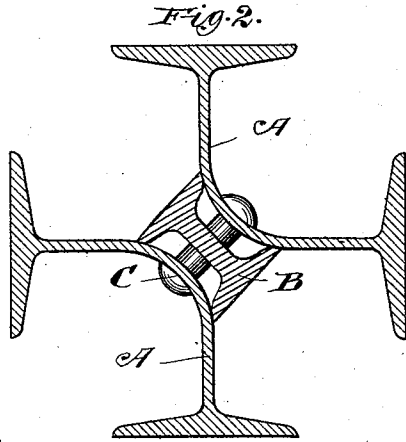


Fig. 6.

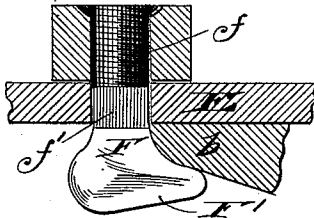


Fig. 7.

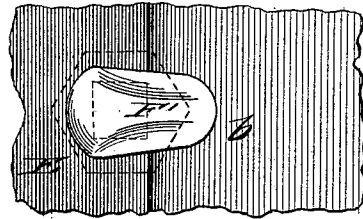


Fig. 3.

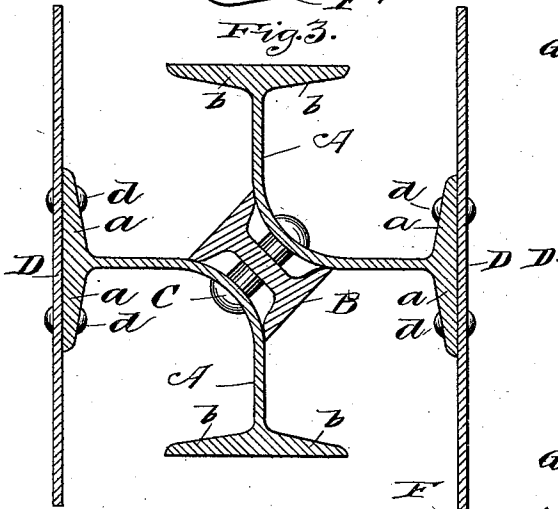
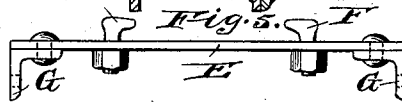
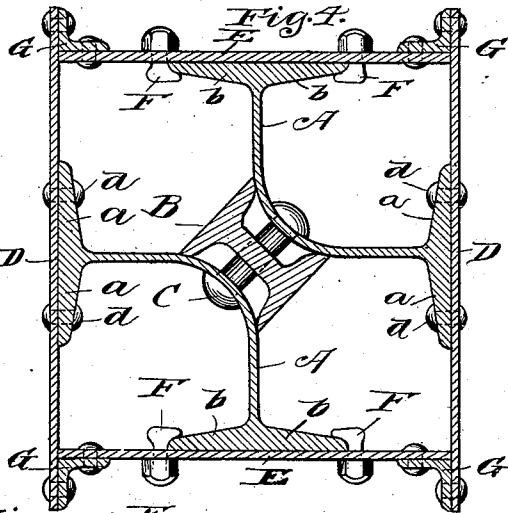


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOSEPH M. LARIMER, OF CHICAGO, ILLINOIS.

ARCHITECTURAL COLUMN.

SPECIFICATION forming part of Letters Patent No. 484,026, dated October 11, 1892.

Application filed September 29, 1891. Serial No. 407,114. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. LARIMER, of Chicago, Illinois, have invented certain new and useful Improvements in Architectural Columns, of which the following is a specification.

The object of my invention is to provide an architectural column so constructed that it may be adapted to carry much greater weight in proportion to its cross-sectional area than the known forms of rolled or steel columns.

Laterally rolled iron and steel columns have come into extensive use, a well-known type being a box-column constructed from channels or plates and angles. Another well-known type is the Z-column, constructed from Z bars and plates. In order to support great loads, these common forms of columns must be made of such diameter that their use becomes objectionable because of the waste of room and because of their cost, and also because of the added weight which the columns themselves give to the structure, thus rendering necessary increased expense for foundations.

In my patent, No. 453,341, dated June 2, 1891, I have shown and described a column of my invention constructed from steel beams having outwardly-facing heads or flanges, and the webs bent upon curved lines and placed with their convex sides toward each other, and secured through an interposed fillet by means of a line of bolts or rivets. Said column is well adapted for the purposes for which it was designed; but in some cases it is deemed expedient to use an extra-heavy column, and the present invention provides such a column without increasing appreciably the cross-sectional area.

It has been heretofore considered impossible to construct a hollow or box column composed of plates or bars which shall be entirely inclosed and provided with an internal core to brace the exterior plates, because no means have been devised prior to my invention for securing the external plates to the internal core, as evidently the riveting of the parts together in a column of any considerable length is a mechanical impossibility.

My invention consists in a column having an internal core and an external shell formed from plates, said core and shell being secured

rigidly together, all as hereinafter described, and particularly pointed out in the claims.

In carrying out my invention I preferably employ as a core the column described in my said patent, and I inclose said column with an external shell, consisting, preferably, of metal plates arranged in pairs, the members of the pairs being disposed in parallel planes, two of the plates being riveted to opposite heads of the internal core and the other two plates being secured to the other of said heads by clip-fasteners, and the plates being rigidly connected by bolts or rivets and angle-pieces, which serve as stiffeners for the structure and give, also, an increased thickness of metal at the rivet-line. I may use channels instead of plates for the exterior shell, in which case the angle-pieces would be dispensed with.

In the accompanying drawings, Figure 1 is a perspective view of my improved column. Fig. 2 is a cross-sectional view of my previously-patented column. Fig. 3 shows said column with two of the exterior plates riveted to opposite flanges thereof. Fig. 4 is a cross-sectional view of the improved column complete. Fig. 5 is a detail view showing the end of one of the exterior plates and having the angle-pieces and the clip-fastenings applied thereto, and Figs. 6 and 7 are detail views of said fastenings.

In the drawings, A A represent I-beams whose webs are bent on curved lines and secured with their convex sides toward each other through an interposed I-beam or double channel B and by the rivets C. In this construction the heads of the beams A present outwardly, the opposite heads being in parallel planes. This structure is of itself exceedingly strong and possesses merit over any prior form of steel column known to me; but in cases where a heavier column is desired I supply it by inclosing it with an extra shell which adds greatly to its strength, while but slightly increasing its diameter.

D D represent steel plates which are secured to the flanges *a a* of the beams A by the rivets *d*. The plates D D are thus arranged in parallel planes. E E represent other plates of such width preferably that they will pass between the plates D D, and these plates are secured to the flanges *b b* of the beams A by means of the clips F. These

clips may be constructed in various ways; but I prefer the form shown in the drawings, wherein the clip takes the form of a bolt having the threads f on its outer end, the squared portion f' , which passes through a corresponding aperture in the plates E and expanded head F' , adapted to take over the edges of the flanges $b b$. These clips are applied to the plates E E, the nuts being turned on loosely, and then the flanges $b b$ are entered beneath the heads of the clips at the end of the plate, and then one or both of the parts moved with relation to the other, so that the entire line of clips will engage the edges of the flanges. The squared portions of the clips prevent their turning in the plates. The nuts are preferably cupped, as shown in Fig. 6, and after they are tightened the ends of the bolts are headed or riveted down so as to lock the nuts, and then the angular edges of the nuts are rounded, as shown in Fig. 4, so as to present a perfectly-finished structure. If the plates E are used, some provision must be made for riveting them to the plate D, and I preferably employ the angles G, the flanges of which are secured to the plates D and E by means of the rivets; but if instead of using the plates E channels were employed then evidently the angles might be omitted. The angles when employed will, of course, be riveted to the plates E before the latter are applied to the flanges b of the beams A.

In the construction above described it will be observed that the plates forming the shell of the column are braced at the points where bracing is needed—viz., their middles—by means of the heads or flanges of the beams A. This is so essential that although many attempts have been made to provide box-columns with internal braces none of such attempts have, so far as I know, been successful, and therefore the use of box-columns of large diameter, although many times desirable, is found impracticable, owing to the lia-

bility of the plates buckling or bending at or near their middles. In the column above described the central structure and the inclosing shell are so rigidly tied or united together that the weight of the load is evenly distributed upon the various parts, and should the load be eccentrically placed so as to bear greater upon one side of the column than on the other the strain will be transmitted through the central structure to the several sides of the column.

I claim—

1. An architectural column having, in combination, a core formed of metal beams having their webs centrally connected and their heads presenting outwardly and an inclosing shell consisting of metal plates, two of which are secured directly to opposite heads by bolts or rivets and two of which are secured to the other of said heads by clips, substantially as described.

2. The herein-described column, comprising the central core, the inclosing shell, and the clips for securing the shell to the core, said clips being secured against turning, substantially as described.

3. An architectural column comprising, in combination, a central core composed of beams having outwardly-presenting heads or flanges, an inclosing shell consisting of metal plates, and clips for securing the plates of the shell to the heads of the beams composing the core, substantially as described.

4. An architectural column having, in combination, a core formed of metal beams having outwardly-presenting heads or flanges and centrally-connected webs and an inclosing shell consisting of metal plates secured to the heads or flanges of the core, the edges of said plates being suitably connected to each other, substantially as described.

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