

No. 796,227.

PATENTED AUG. 1, 1905.

J. LALLY.
COLUMN.

APPLICATION FILED NOV. 1, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

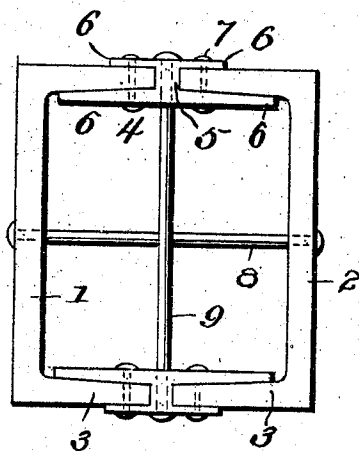


Fig. 2.

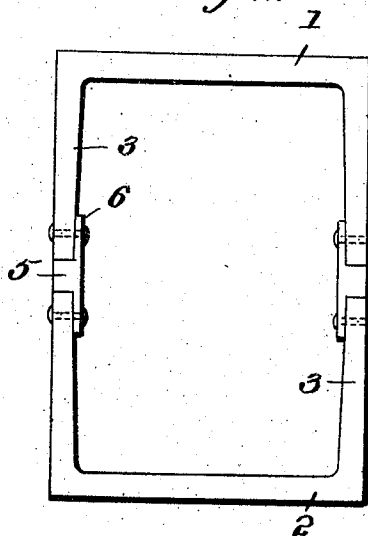


Fig. 3.

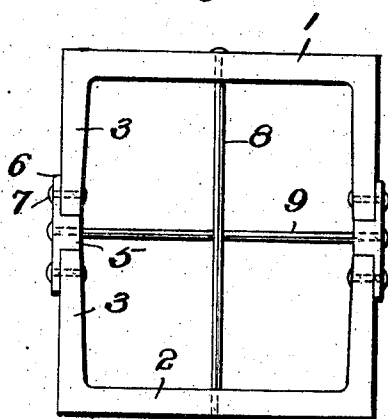


Fig. 4.

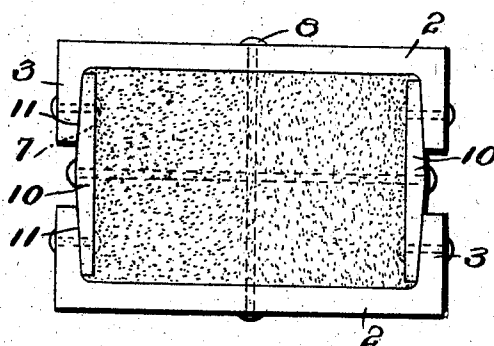
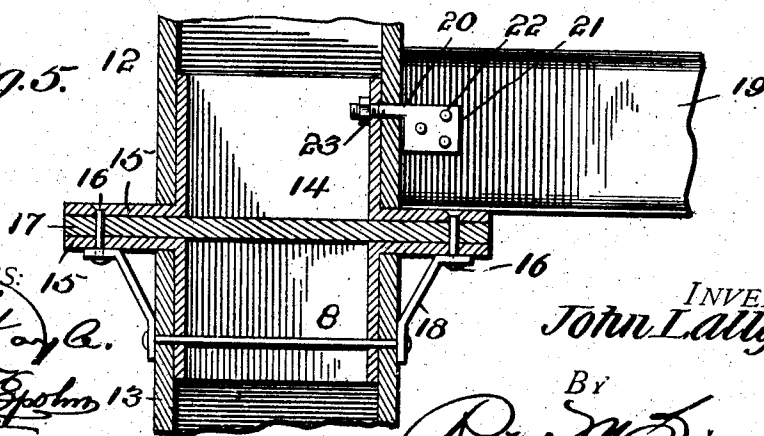


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 6.

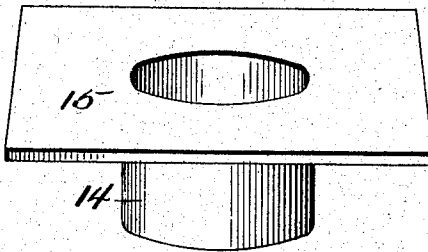


Fig. 8.

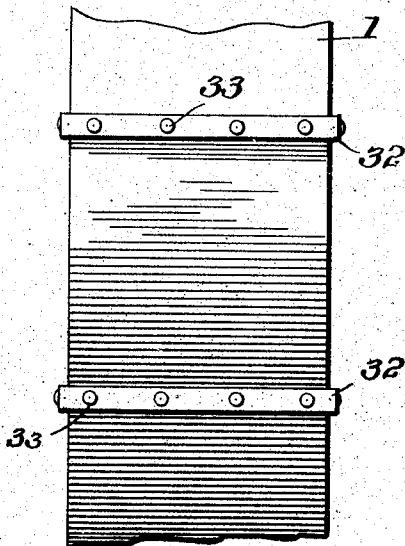


Fig. 7.

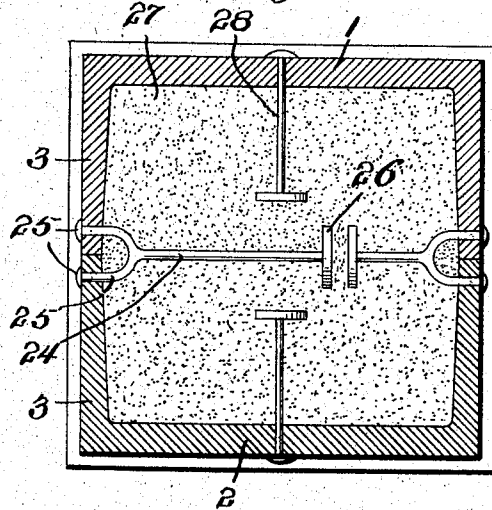


Fig. 9.

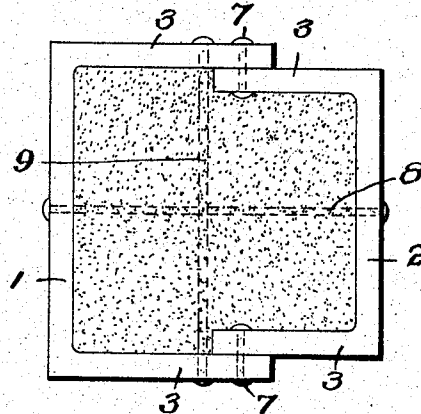
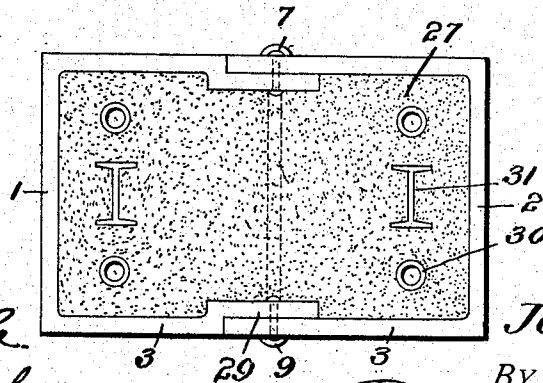


Fig. 10.



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Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed November 1, 1904. Serial No. 230,951.

To all whom it may concern:

Be it known that I, JOHN LALLY, a citizen of the United States of America, residing at Waltham, in the county of Middlesex and State of Massachusetts, have invented a certain new and useful Column, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to structural columns employed in buildings and structures of various kinds, the object of the present invention being to provide a structural column which is in the main composed of channel-irons, the dimensions of which may vary according to the sizes, shapes, and strengths of the columns and the uses for which they are intended. In addition to the strength imparted by the channel-irons the column is also rendered fireproof and materially strengthened by the introduction of a composite filling and further strengthened by the use of stay-bolts and braces of different kinds.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination, and arrangement of parts, as herein fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a top plan view of a channel-iron column embodying the present invention. Figs. 2, 3, and 4 are similar views showing a slightly-different arrangement of joint. Fig. 5 is a vertical section through a portion of a column, showing the manner of connecting the column-sections and securing a beam or girder thereto. Fig. 6 is a detail perspective view of one of the caps or bases. Fig. 7 is a horizontal cross-section through a column, showing another kind of stay-bolt. Fig. 8 is a side elevation of a portion of a column, illustrating the use of stay straps or bands. Figs. 9 and 10 are plan views similar to Fig. 1, showing the use of channel-irons of different sizes and shapes.

Like reference-numerals designate corresponding parts in all the figures of the drawings.

The structural column contemplated in this invention is composed mainly of a pair of channel-irons, as shown at 1 and 2, and these channel-iron members are arranged so that the flanges 3 thereof project toward each other, as clearly shown in the drawings, so that the coupling devices or unions which connect the channel-iron members are applied directly to the inwardly-projecting flanges.

Under the preferred embodiment of this invention the flanges 3 are fastened or coupled together by means of splice-bars or unions 4, as shown in Figs. 1, 2, 3, and 4. In Fig. 1 each splice-bar or union comprises a body portion 5, which approximately fills the space which intervenes between the oppositely-located edges of the flanges 3, and in addition to the body portion 5 each splice-bar embodies parallel pairs of flanges 6, which project in opposite directions from the body 5, so as to embrace the edges of the flanges 3 of the channel-iron members. When the parts are assembled in the manner illustrated, they are firmly connected by passing bolts, rivets, or analogous fastening devices 7 through the flanges 3 and 6.

In order to prevent the opposite sides of the column thus constructed from spreading apart, stay-bolts 8 and 9 are inserted through such opposite sides, as clearly shown in Fig. 1, the bolts 8 passing through the body portions of the channel-irons, while the bolts 9, extending at right angles to the bolts 8, pass through the body portions 5 of the splice-bars or unions.

Instead of providing flanges 6 upon both the outer and inner sides of the column, said flanges may be omitted from the outer side, as shown in Fig. 2, or they may be omitted from the inner side, as shown in Fig. 3. It is also within the scope of this invention to omit the body portions 5 (shown in Figs. 1, 2, and 3) and employ a plain splice-bar or union 10, as shown in Fig. 4, the same being preferably arranged upon the inner side of the column and having its outer face reversely beveled, as shown at 11, to correspond with the bevel of the inner faces of the flanges 3 of the channel members, as clearly shown in Fig. 4. After the column is completed in the manner above described the interior thereof is filled with a composite filling, preferably inserted in a plastic condition and allowed to harden, the said composite filling adding greatly to the strength of the column and also increasing its fireproof qualities.

In connecting or coupling together two column-sections end to end I employ a cap and a base. By reference to Fig. 5 it will be seen that a base is connected with the lower end of the upper column-section, (indicated at 12,) and a correspondingly-shaped cap is applied to the upper end of the lower column-section 13. Each cap and base comprises a hollow sleeve 14, provided at one end with an outwardly-

extending flange 15, the same being best illustrated in Fig. 6. The flange 15 is preferably rectangular in plan and of sufficiently larger dimensions than the cross-sectional area of the column to project outwardly from all sides thereof in order to receive the connecting-bolts 16. The sleeves 14 may be riveted, bolted, or otherwise secured within their respective column-sections and are filled with the plastic composition when it is inserted in the column. The sleeves 14 readily admit the securing-bolts 20.

Between the flanges 15 of the cap and base there is inserted an abutment-plate 17, which is preferably of the same size as the flanges of the cap and base connections, as illustrated in Fig. 5. The bolts or rivets 16 pass through both of the flanges 15 and the abutment-plate 17, and, if desired, the connection between the column-sections may be strengthened and stiffened by means of auxiliary braces 18 extending obliquely across the angles between the column-sections and the flanges 15, as shown in Fig. 5, said braces receiving the bolts or rivets 16, and also the stay-bolts passing transversely through the column-sections, as hereinabove described. If desired, however, separate bolts or rivets may be employed for connecting the lower end of the brace 18 to the lower column-section.

A cross-beam or girder, such as is shown at 19 in Fig. 5, and preferably in the form of an I-beam, is adapted to rest on the ledge formed by the flange 15 and is secured to the upper column-section by means of a coupling-bolt 20 of special shape, in that said bolt is provided with a flat head or attaching-plate 21, which is bolted, riveted, or otherwise fastened, as shown at 22, to one side of the web of the I-beam, the shank of the bolt passing through the upper column-section and being secured by a nut 23 or its equivalent.

Instead of employing the splice-bars or unions hereinabove described, a special form of stay-bolt may be employed, as shown in Fig. 7, certain stay-bolts 24 having their outer ends bifurcated, as shown at 25, and inserted through openings close to the abutting edges of the side flanges 3 of the channel-iron members, the branches of the bolt being headed upon the outside of the flanges 3, as shown. These bolts are also provided at their inner ends with enlarged and preferably flat heads 26, which are firmly held by and anchored in the composite filling 27, as shown in Fig. 7. In this way the bolts 24 act in two capacities—namely, as splices or unions for the channel-iron members and as stay-bolts for bracing the sides of the channel-iron members against outward pressure. The bolts 28, which pass through the sides or body portions of the channel-iron members, do not need to be bifurcated, as in the case of the bolts 24, on account of there being no joints on such sides of the column.

If desired, and for the sake of economy, channel-irons of different sizes may be employed, as shown in Fig. 9, the flanges 3 thereof being set at such distances apart as to partially telescope one within the other and overlap, the securing-bolts or rivets 7 passing directly through and firmly joining said overlapping portions. This result may be obtained without interfering with the symmetry of the column by providing one of the channel-iron members with offset portions or edges, as shown at 29 in Fig. 10, thereby allowing the extreme edges of the flange 3 to overlap and be bolted or riveted together, while the exposed outer surface of said flanges are flush with each other. If desired, the stay-bolts may pass through the overlapping portions of the channel-iron members and be used either with or without auxiliary rivets or fasteners.

Before introducing the composite filling 27 strengthening-cores may be inserted in the column, as shown in Fig. 10, said cores being of any desired form—such as tubes 30 or I-beams 31, or beams or bars of any other shape—such strengthening-cores being firmly embedded in the composite filling of the column.

In any of the forms of column hereinabove described, and illustrated in the drawings, stay straps or bands 32 may be employed, the same extending around the column and being firmly bolted, riveted, or otherwise fastened thereto, as shown at 33.

The column hereinabove described may be made of any size and dimensions, according to the strength required, and the flanges 3 of the channel-iron members may be beveled or made tapering—as shown in Fig. 1, for example—or perfectly flat and of uniform thickness, as shown in Figs. 9 and 10. These and other changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. A structural column embodying oppositely-arranged channel-irons having their flanges projecting inward toward each other, and splice-bars connecting the channel-irons and having portions which fit between the edges of the flanges.

2. A structural column embodying oppositely-arranged channel-irons having their flanges projecting inward toward each other, and splice-bars having flanges which embrace the channel-iron flanges and fasten thereto.

3. A structural column embodying oppositely-arranged channel-irons having their flanges projecting inward toward each other, and splice-bars having body portions which fit between the channel-iron flanges and also provided with flanges which overlap the channel-iron flanges and fasten thereto.

4. A structural column embodying oppositely-arranged channel-irons having their flanges projecting inward toward each other, and splice-bars having body portions which fit between the channel-iron flanges and also provided with flanges which embrace the flanges of the channel-iron members and fasten thereto.

5. A structural column embodying oppositely-arranged channel-irons having their flanges projecting inward toward each other, splice-bars connecting said flanges, and stay-bolts connecting said splice-bars and extending transversely through the column.

6. A structural column embodying oppositely-arranged channel-irons having their oppositely-located flanges projecting inward toward each other, oppositely-arranged splice-bars or unions directly connecting said flanges, and stay-bolts connecting the oppositely-arranged splice-bars or unions.

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

JOHN LALLY.

Witnesses:

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PATRICK J. IVANS.