

UNITED STATES PATENT OFFICE.

EDMUND ZEH AND WILLIAM D. FORSYTH, OF BUFFALO, NEW YORK.

METAL COLUMN, GIRDER, OR STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 742,549, dated October 27, 1903.

Application filed August 4, 1903. Serial No. 168,180. (No model.)

To all whom it may concern:

Be it known that we, EDMUND ZEH, a citizen of the German Empire, and WILLIAM D. FORSYTH, a citizen of the United States, both residents of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Metal Columns, Girders, or Structures, of which the following is a specification.

16 This invention relates to a metal column, girder, or analogous structure.

The object of the invention is to produce a light, strong, and stiff or rigid column, girder, or analogous structure of simple and inexpensive construction.

15 In the accompanying drawings, Figure 1 is a plan view of a column, pole, or post embodying the invention. Fig. 2 is a cross-section thereof on an enlarged scale. Fig. 3 is a similar section of the parts of the structure before they are connected. Fig. 4 is a perspective view of a girder, sill, beam, or the like embodying the invention. Fig. 5 is a plan view of a brake-beam embodying the invention. Fig. 6 is a central cross-section of the brake-beam shown in Fig. 5.

Like letters of reference refer to like parts in the several figures.

30 The structure, column, or beam is of hollow or box form; and it consists, as shown in the several figures, of four walls or pieces connected together at their longitudinal edges.

The opposite walls A A' of the structure, column, or beam are of channel shape in cross-section, having parallel body portions *a* and longitudinal edge flanges *a'*, which project outwardly from the body portions substantially at right angles thereto. Each of the other two opposite walls B B' of the beam has a central portion *b*, extending between and perpendicular to the body portions of the walls A A', outwardly-directed side portions *b'*, extending parallel with and against the inner faces of the body portions of the walls A A', and comparatively wide longitudinal flanges, with portions *b²* parallel with the flanges *a'* of the walls A A', and outer portions *b³*, which are bent or turned over the flanges *a'* of the walls A A', forming there-
50 with folded or interlocked joints which securely and permanently hold the several walls together. The walls B B' are rolled or

otherwise fashioned into the shape shown in Fig. 3, in which the outer portions *b³* of their flanges extend inwardly parallel with the outwardly-directed side portions *b'*, and the flanged sides of the walls A A' are placed between the outwardly-directed side portions *b'* and the intumed edges *b³* of the flanges, after which the latter are rolled, pressed, or otherwise turned inwardly around the flanges *a'* of the walls A A'. In thus turning the edge portions *b³* of the flanges of the walls B B' over the flanges of the other walls the portions *b b'* of the walls B B', which are between the body portions of the other walls A A', hold the latter in the proper relation and prevent the crushing of the column, girder, or beam without any other supporting means, thus greatly facilitating the manufacture of the structure. When the walls are connected as described, the union is very strong and permanent, for the trough-shaped central portions of the walls B B' prevent any inward movement of the walls A A' which would be necessary to disengage the interlocking flanges. No rivets or other securing means are necessary, thus greatly decreasing the cost and labor of producing the beams. Each side of the beam is of trough or channel shape, having portions or flanges perpendicular to its body portions, and the structure, therefore, has great strength, rigidity, and stiffness to resist bending in either direction.

The metal structure is adapted for a variety of different uses—for instance, as a column, telegraph or trolley pole or post, fence-post, lamp-post, girder, beam, sill or bolster for cars, car-trucks and other structures, brake-beam, and the like; but these several uses are sufficiently indicated by the devices shown in the drawings.

Fig. 1 shows a column, post or pole, or other upright member having its two opposite walls A A' tapering; but these walls could be straight or of the same width throughout their length, and, if preferred, the walls A A' could be straight and the other wall, B B' tapered.

The girder or beam shown in Fig. 4 is constructed in the same manner as the column, pole, or post described, but, as shown, is of uniform depth and width throughout.

Figs. 5 and 6 show the application of the structure to brake-beams. The brake-beam

is of the same construction as the column and girder except that it is of the same general shape as the ordinary brake-beam having wide top and bottom walls C C' and narrow side walls D D' and being of greater width at its central than at its end portions.

We claim as our invention—

1. A metal column, girder, beam or the like comprising opposite walls having outwardly-directed edge flanges, and connecting-walls having inbent portions arranged between said first-mentioned walls and flanges which embrace and interlock with the flanges of the first-mentioned walls, substantially as set forth.

2. A metal column, girder, beam or the like, comprising opposite substantially parallel walls having outwardly-directed edge flanges, and substantially parallel connecting-walls having inbent portions arranged between said first-mentioned walls, and flanges the inner portions of which extend outwardly parallel with the flanges of the first-mentioned walls and the outer portions of which extend inwardly around the flanges of the first-mentioned walls, substantially as set forth.

3. A metal column, girder, beam or the like,

comprising opposite substantially channel-shaped members having outwardly-directed flanges, and connecting members of substantially uniform thickness throughout having inbent portions which extend in between the body portions of said channel-shaped members to hold the latter from inward movement, and flanges which embrace and interlock with the flanges of said channel-shaped members, substantially as set forth.

4. A metal column, girder, beam or the like, comprising opposite substantially channel-shaped members having outwardly-directed edge flanges arranged at an angle relative to each other, and connecting members having inbent central portions which extend in between the body portions of the channel-shaped members, and flanges which embrace and interlock with the flanges of the channel-shaped members, substantially as set forth.

Witness our hands this 1st day of August, 1903.

EDMUND ZEH.

WILLIAM D. FORSYTH.

Witnesses:

CHAS. W. PARKER,
C. M. BENTLEY.