(No Model.)

E. M. BUTZ.

STRUCTURAL SHAPE FOR COLUMNS, PILASTERS, AND GIRDERS.

No. 308,828. Patented Dec. 2, 1884.

Fig. 1.

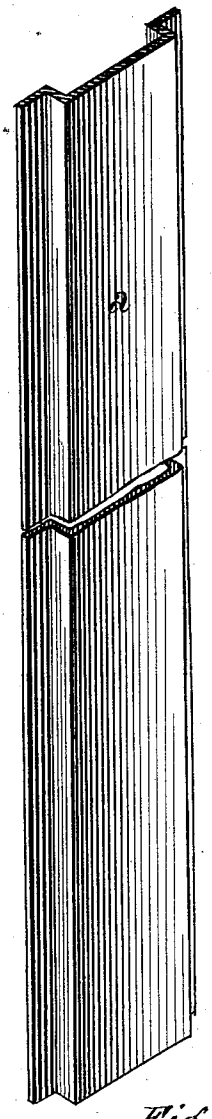


Fig. 5.

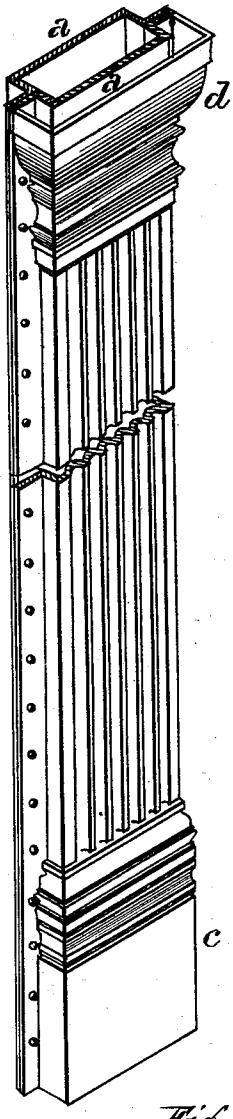


Fig. 6.

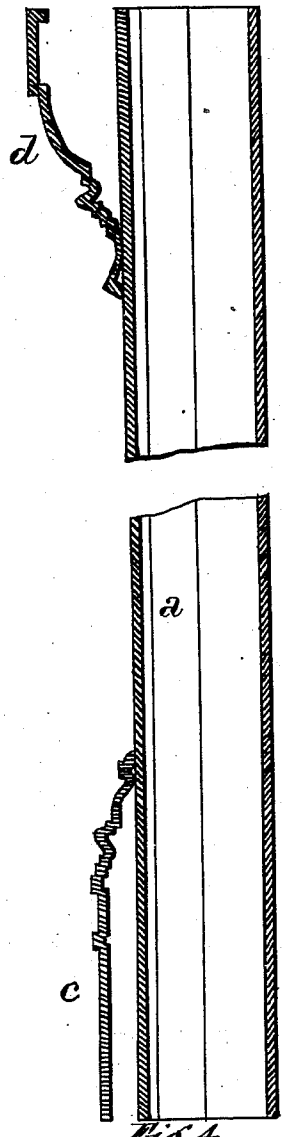


Fig. 2.

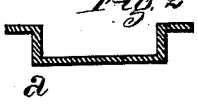


Fig. 3.

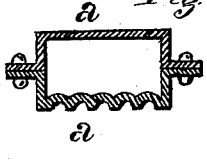
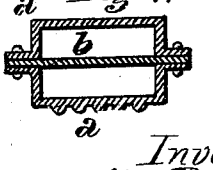


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD M. BUTZ, OF ALLEGHENY, PENNSYLVANIA.

STRUCTURAL SHAPE FOR COLUMNS, PILASTERS, AND GIRDERS.

SPECIFICATION forming part of Letters Patent No. 308,828, dated December 2, 1884.

Application filed January 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. BUTZ, a citizen of the United States, residing at Allegheny, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Structural Shapes for Columns, Pilasters, Girders, &c.; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a perspective section of a metal shape, plate, or bar adapted for use in columns or girders embodying my invention; Fig. 2, a plane transverse section through the same; Figs. 3 and 4, similar sections through columns, illustrating applications of the same; Fig. 5, a view in perspective of the column shown in Fig. 3 when provided with a base and capital, and Fig. 6 a longitudinal section through the same.

My invention relates to the construction of columns, pilasters, or girders for buildings, bridges, and other structural uses; and my improvements consist in a rolled-metal plate or bar of shape or section as herein shown and described, and in a composite column, pilaster, or girder having one or more of its webs formed of a plate of said section, all as hereinafter fully set forth.

To carry out my invention I form, of rolled iron or steel, a plate or bar, *a*, the transverse section of which accords substantially with that shown in the several figures—to wit, that of a hollow backed tongue, face, or rib, the circumscribing figure of which is rectangular, and having a flange at each side thereof, said flanges being in line one with the other, so that their faces shall be in the same longitudinal plane. The face of the plate *a* is connected with the side flanges by short webs perpendicular to said flanges, and its length materially exceeds the length of said flanges, so as to form a broad and shallow tongue, face, or rib, the corners of which are right angles, in order to be properly adaptable for having hollow bases and capitals fitted to its front in building constructions, as well as to be capable of being readily formed by the action of rolls. The face of the plate *a* may either have a plain surface, as in Figs. 1 and 2, or, for purposes of ornamentation, be rolled into grooves or flutes, as in Figs. 3 and 5, or outwardly-projecting ribs, as in Fig. 4.

In the construction of a composite column, pilaster, or girder I take one or more shapes, *a*, of section as described, and unite it or them by rivets or bolts to one or more rolled plates, which may be of similar or of any other section desired. Columns, each composed of two similar shapes *a*, united at their flanges, are shown in Figs. 3 to 6. A transverse strengthening-plate, *b*, may be interposed between the flanges of the plates, to impart additional strength and stiffness to the column, as shown in Fig. 4, and it will be obvious that by combining a shape *a* with one or more shapes of different section the transverse form and dimensions of the columns may be varied within a wide range, as may be desired or required.

My invention is of special applicability in the construction of pilasters for wrought-metal fronts for buildings as an element combining strength with architectural ornamentation, and in such applications the shape *a* is located upon the front of the pilaster, and is preferably combined with plates of such section—as, for example, a similar plate and a pair of channel-plates—as to present flat or flattened faces on the sides and rear thereof. Where the pilasters are to be used in locations where such ornamentation is appropriate and desirable, I combine with a shape *a* a hollow base, *c*, and capital *d*, formed of any suitable metal, as shown in Figs. 5 and 6, said members being fitted over the shape *a* at its ends and secured to its flanges.

I claim herein as my invention—

1. A structural rolled-metal plate, of shape or section as described, adapted to serve as a member of a column, pilaster, or girder, said plate being in the form of a wide and shallow hollow-backed rectangular tongue, face, or rib, having a flange at each side thereof, said flanges being in line one with the other, substantially as set forth.

2. A composite column, pilaster, or girder formed of rolled-metal plates united at their edges, and having upon one or more of its faces a web formed of a plate of shape or section

substantially as herein described and shown.

3. The combination, in a composite column or pilaster, of a rolled-metal front plate, of shape or section as described, a back plate, and a hollow base and capital fitting in front of and secured to said front plate, substantially as set forth.

In testimony whereof I have hereunto set my hand.

EDWARD M. BUTZ.

Witnesses:
J. SNOWDEN BELL,
R. H. WHITTLESEY.