(No Model.)

B. F. DAVIS.

STRAINING BEAM.

No. 284,824. Patented Sept. 11, 1883.

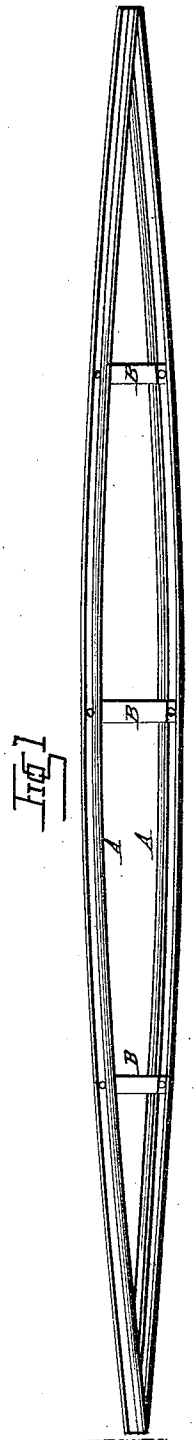


Fig. 1

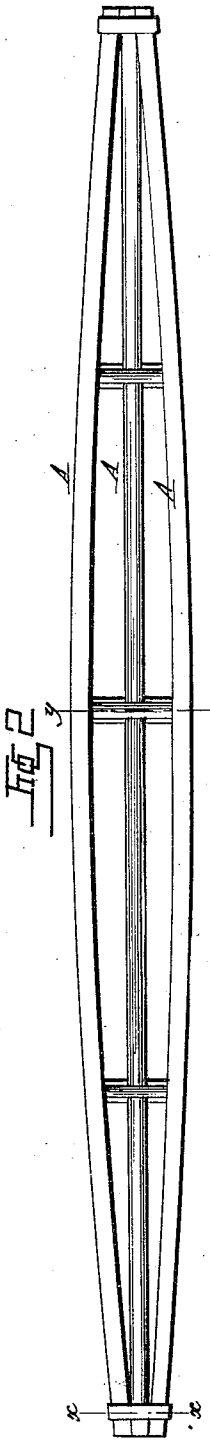


Fig. 2

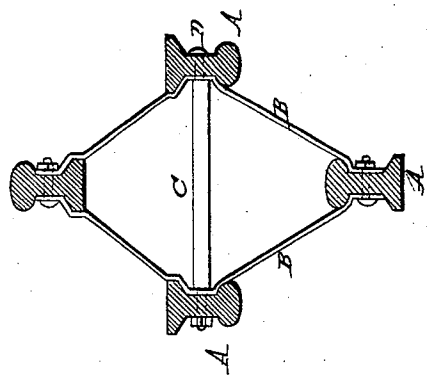


Fig. 5

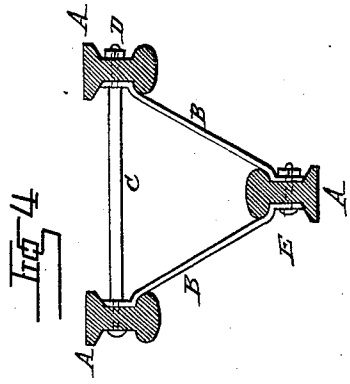


Fig. 4

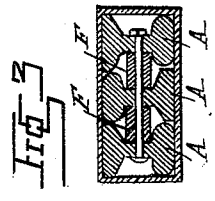


Fig. 3

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UNITED STATES PATENT OFFICE.

BENJAMIN F. DAVIS, OF DALLAS, TEXAS.

STRAINING-BEAM.

SPECIFICATION forming part of Letters Patent No. 284,824, dated September 11, 1883.

Application filed May 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. DAVIS, of Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Straining-Beams; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side view of my improved straining-beam. Fig. 2 is a top view of the same. Fig. 3 is a cross-section on line *x x*, Fig. 2. Fig. 4 is a cross-section on line *y y*, Fig. 2; and Fig. 5 is a cross-section of a modification of my invention.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to straining-beams, and is especially adapted to be used in that class of structures, especially bridges and columns, in which it is necessary to combine the maximum of strength with the minimum of weight; and it consists in the improved construction and combination of parts of a beam, as hereinafter more fully described and claimed.

In the accompanying drawings, A A A represent steel or iron rails, forming the side pieces of the beam, the end of the bottom rail passing between the ends of the two top rails when the extremities of the three rails are firmly fastened together, in the manner hereinafter more fully described.

B B are metal bars, preferably of wrought-iron, the ends of which are bent to conform to the curvature of the side rails and the bottom rail.

C is a hollow iron pipe, fitting between the upper ends of the bars B B and held in position by a bolt, D. The two top rails are placed in position in the drawings with their flanges upward, while the bottom rail has the ball or head of the rail turned upward. The lower ends of the metal bars B B are placed against the sides of the stem of the bottom rail, and are fastened thereto by a bolt, E, passing through the ends of the bars and the stem of the rail. The upper ends of the bars B B are placed one against the inner face of the stem of each rail, respectively. The hollow pipe C is then placed between the upper ends of the bars B B, and a bolt, D, previously referred to, passes through the stem of each rail, the upper ends of the bars B B, and the hollow pipe C, thereby binding them firmly together and preventing the top rails from being forced farther apart, while the pipe C will serve to keep the said rails from closing together; or the bolt D may be enlarged between the bars, thus dispensing with the tube C. The position of the side rails of the beam and the shape of the bars will readily be understood by reference to Fig. 4 of the drawings. When the ends of the three rails are brought together, there will be (on account of the shape of the rails) two openings or spaces between the stem of the middle rail and the stems of the outer ones. These spaces are filled by two metal plugs, F F, fitting tightly into the said spaces, and the whole is bound together by one or more bolts passing through the stems and plugs, and a metal band passing around the ends. In the accompanying drawings I have shown the beam provided with three connecting-braces; but the number of the said connections can be varied, according to the length of the beam.

I do not confine myself to the number of rails used in constructing this beam. If desired, a fourth rail can be added, in which case the connecting-bars are made of the shape shown in the modification, Fig. 5. Where four rails are employed, each rail has a direct curve away from the center; but where three rails only are used the two top rails have an oblique curve from the center, and the bottom rail has a direct downward curve.

From the foregoing description, taken in connection with the accompanying drawings, the construction of my improved straining-beam will readily be understood without requiring extended explanation. By placing the rails in the manner shown in Fig. 4, so that the sides of the bars B B bear against the rounded ball or head of the rail, it is only necessary to curve the bars very slightly from a straight line, by which arrangement I incur the least possible loss of strength in the said bars. The metal plugs, which are inserted into the spaces between the meeting ends of the rails and held therein by one or more bolts,

serve to render the ends of the beam solid and materially aid in strengthening the beam.

I am aware that straining-beams or compression members of bridges have been made before, consisting of three or more railway-rails, arranged about a central open space and fastened rigidly together, so as to form a compound beam. Neither do I claim such construction, broadly; but

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a straining beam or column, the combination of the rails A A A, bars B B, pipe C, bolt D, and metal plugs F F, fitting into the spaces between the meeting ends of the rails and held in place by bolts passing through the webs of the rails and the plugs, substantially as and for the purpose shown and set forth.

2. In a straining-beam of the described class, the bars B B and pipe C, held in position by bolts passing through the webs of the side rails, and adapted to act as connecting-braces for the said rails, substantially as and for the purpose shown and described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

BENJAMIN F. DAVIS.

Witnesses:
WM. M. JOHNSON,
J. S. THATCHER.