(No Model.)

C. H. KELLOGG.

GIRDER.

No. 309,063. Patented Dec. 9, 1884.

Fig. 1.

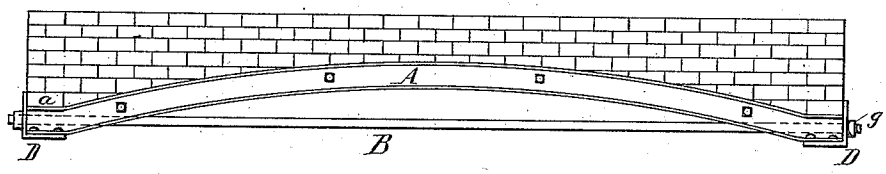


Fig. 2.

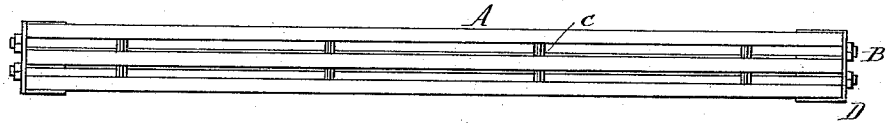
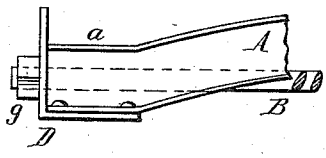


Fig. 4.

Fig. 3.



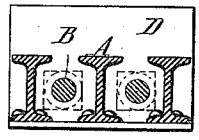


Fig. 5.

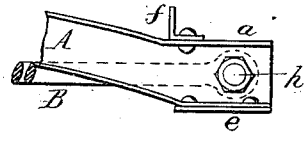


Fig. 6.

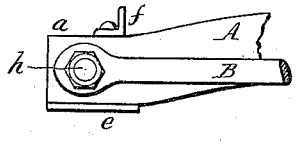


Fig. 8.

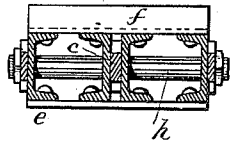
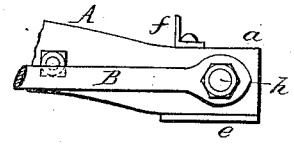


Fig. 7.



Theo. L. Popp.
Geo. E. Pittman. } Witnesses.

Chas. H. Kellogg Inventor.
By Wilhelm & Bonner.
Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES H. KELLOGG, OF BUFFALO, NEW YORK.

GIRDER.

SPECIFICATION forming part of Letters Patent No. 309,063, dated December 9, 1884.

Application filed February 18, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. KELLOGG, of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Girders, of which the following is a specification.

This invention relates to an improvement in arched or curved girders constructed of wrought-iron or steel, and has for its object to simplify and cheapen the construction of the girders and to increase their strength without increasing their weight.

My invention consists, to this end, of the improvements in the construction of the girders which will be hereinafter fully explained, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a side elevation of one of my improved girders. Fig. 2 is a top plan view thereof. Fig. 3 is a side elevation on an enlarged scale of one end of the girder. Fig. 4 is a cross-section thereof. Fig. 5 is a side elevation of one end of the girder, showing a modified construction thereof. Figs. 6 and 7 are side elevations of the ends of a girder constructed of channel-bars. Fig. 8 is a cross-section of the same.

Like letters of reference denote like parts in the several figures.

A represents the arched or curved body of the girder, constructed of beams or bars of wrought-iron or steel having any desired or suitable cross-section—for instance, the form of I-beams, as represented in Figs. 1 to 5, or the form of channel-bars, as represented in Figs. 6 to 8.

B represents the rods whereby the ends of each girder are secured together. The ends *a* of the beams or bars A are bent, so as to extend horizontally from the ends of the arched or curved body parallel with the tie-rods B, whereby the strain of the rods and of the load resting on the girder is applied to the ends of the girder in lines parallel with the fibers of the metal in the bent end portions *a*, thereby utilizing the metal in the most advantageous manner for resisting these strains. Each girder is preferably composed of two or more beams or bars, A, arranged side by side and separated by suitable space-blocks, *c*. The bent ends *a* of the beams or bars A rest squarely upon the brick-work, masonry, or other support, and form square supports for the masonry, brick-work, or other parts resting on the girders.

D represents an angle plate or shoe applied to the bottom and end of each bent end *a* of the beam or bar, as represented in Figs. 1 to 4. The upper portion of the angle-plate D projects above the top of the end portions, *a*, of the girder, and forms a stop against which the brick-work rests. If desired, a base-plate, *e*, and a separate stop-plate, *f*, may be substituted for the angle-plate D, as represented in Fig. 5.

The ends of the tie-rods B may be secured by screw-nuts *g*, which bear against the angle-plates D, as represented in Figs. 1 to 4; or they may be provided with eyes through which pass horizontal bolts *h*, as represented in Figs. 5 to 8.

The beams or bars A are constructed of rolled iron or steel of the desired cross-section and bent to the form shown, with their bodies curved or arched and their ends projecting horizontally in line with the tie-rods. This construction does away with the employment of cast chairs or sockets in which the ends of curved wrought beams are ordinarily seated, and produces a light and strong girder at greatly-reduced cost.

I claim as my invention—

In a wrought-iron girder, the combination, with a tie-rod, of a rolled-metal beam composed of an arched or curved body and straight or horizontal ends bent to stand in line with the rod, said body and ends being made in one piece and of uniform cross-section throughout, substantially as set forth.

In testimony whereof I have hereunto set my hand this 14th day of February, 1884.

CHARLES H. KELLOGG.

Witnesses:

F. L. BROWNE,

JNO. J. BONNER.