A. B. IVES.

METALLIC COLUMN FOR BRIDGES.

72859

PATENTED
DEC 31 1867

Fig. 1

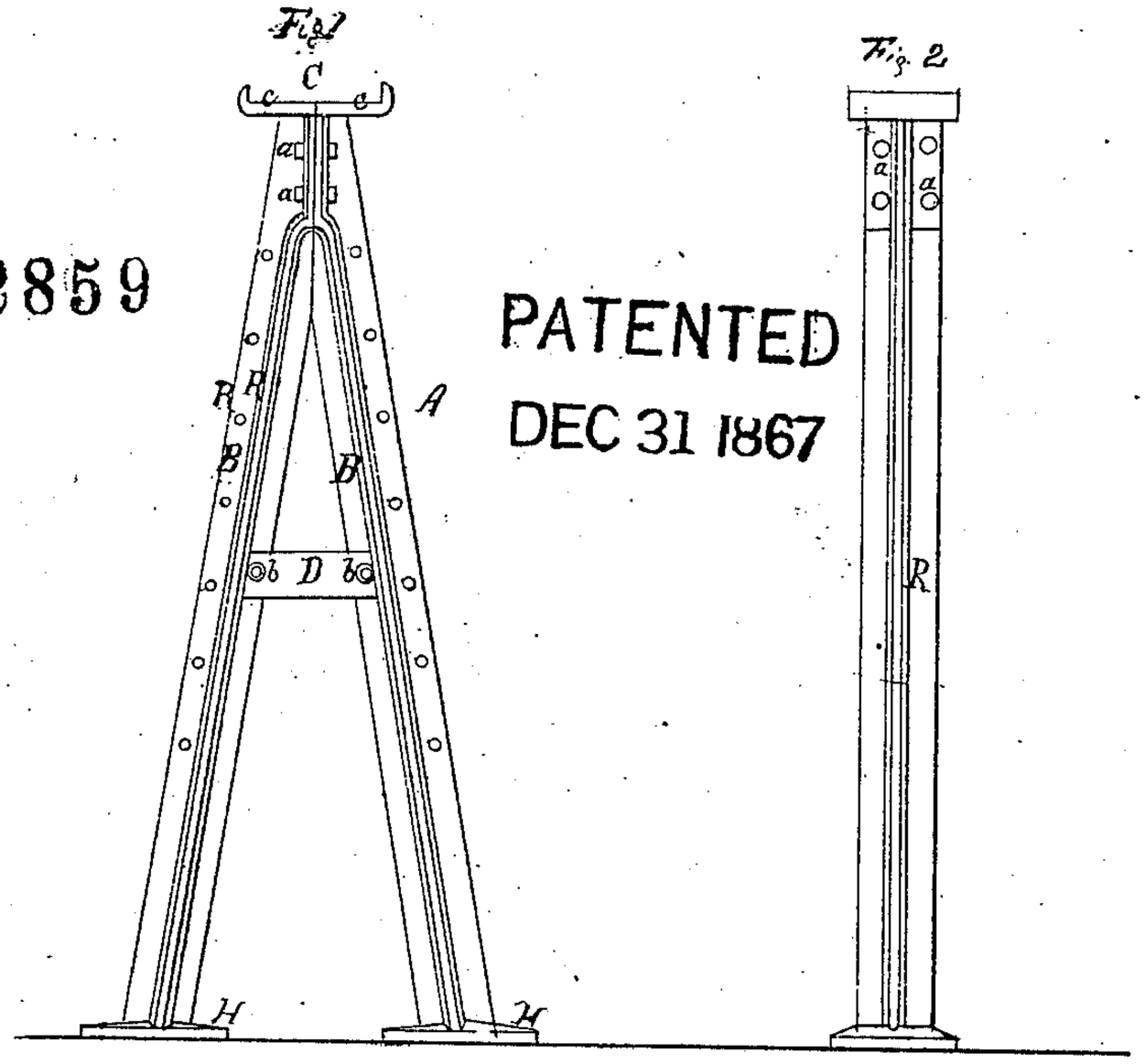


Fig. 2

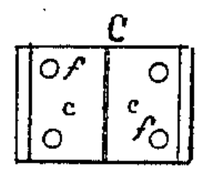


Fig. 3

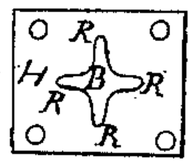


Fig. 4

Fig. 5

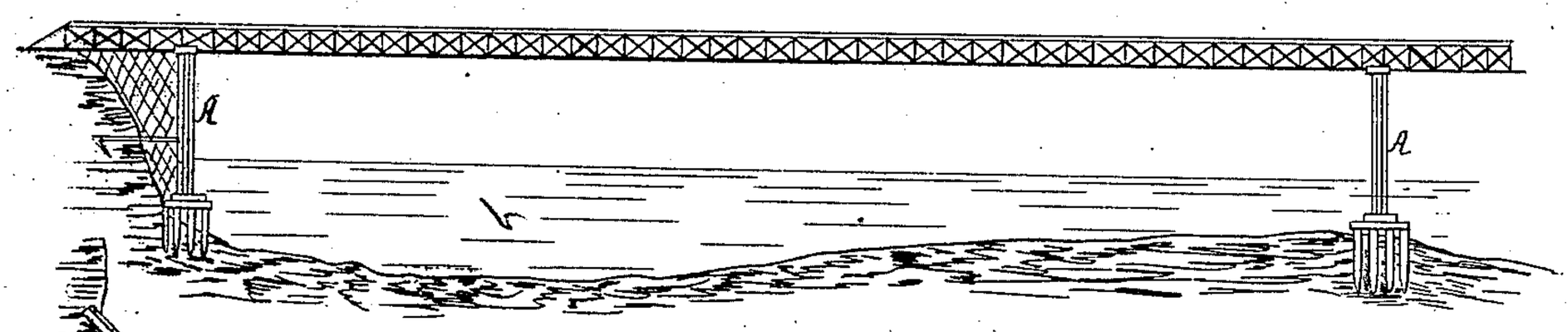
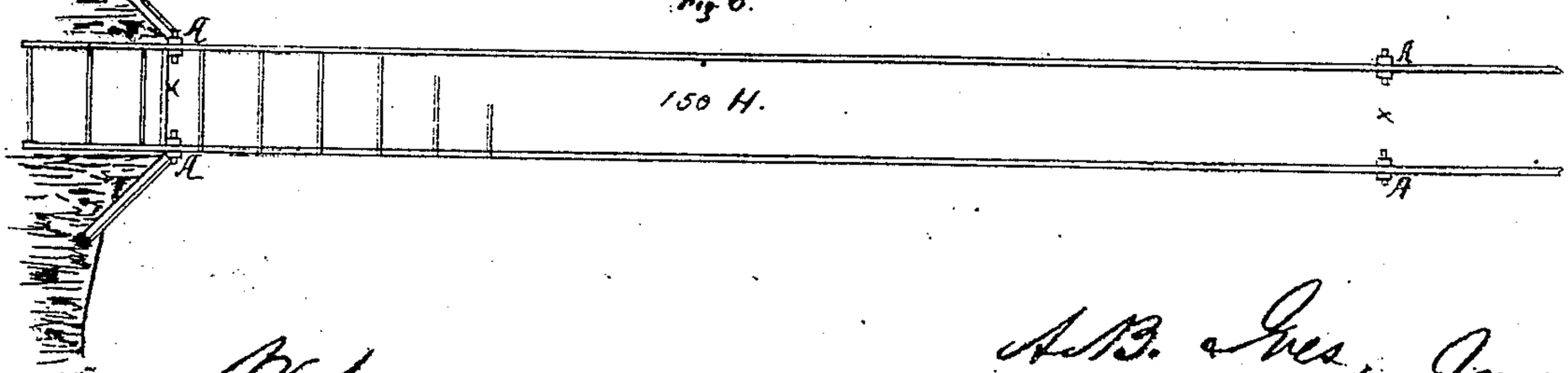


Fig. 6.



Witnesses.

James H. Morton

William Gale

A. B. Ives, Inventor

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his attorney

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ALMON B. IVES, OF BLOOMINGTON, ILLINOIS.

Letters Patent No. 72,859, *dated December* 31, 1867.

IMPROVED METALLIC COLUMN FOR BRIDGES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ALMON B. IVES, of Bloomington, in the county of McLean, and State of Illinois, have invented new and useful "Metallic Column for Bridges;" and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents the side elevation, and

Figure 2 another side elevation of the column.

Figure 3 the plan of the cap, and

Figure 4 the plan of the foot of the column.

Figures 5 and 6 represent the position of columns in a bridge.

The object of my invention is to produce cheaper, more convenient, and easier means to construct abutments and piers for bridges; and its nature consists in a cast-iron column, consisting of two substantial arms, bolted at the top and spread at the foot, connected with sufficient number of cross-braces, and each provided with a half-cap, and a foot or shoe; the half-caps of each arm forming the cap of the column.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the column, B B are the arms of the column, in casting which the same mould is used. C is the cap of the column formed of two half-caps *c c* of the arms, their outside edges turned up to keep chords in their places. The ribs R R of the arms form flanges, and are provided with holes for bolts *a a* that secure together the upper end of the arms, and bolts *b b* to secure brace or braces D in their places. The outer ribs of the arms are also provided with holes *d d* for the purpose of securing timbers or planks to them when the column is used for abutments. There are holes *f f* in the caps, with which only those columns are provided which are used for wooden bridges, for the purpose of securing to them the lower chords. The foot of each arm H is provided with holes also for the purpose of securing the same to the foundations. The columns may be made of any length, and of any dimensions, according to the strength and dimensions of the bridge required.

For putting up the abutments generally two columns are used to each abutment; four columns in all being sufficient for an iron bridge of one hundred and thirty to one hundred and fifty feet span. For longer iron bridges, two columns are used in place of a pier, the number of pairs of columns depending upon the length of the bridge. For wooden bridges, not less than four columns have to be used to form a pier. The foundations in deep rivers, and in sandy or shifting bottoms, are prepared in a usual way by means of coffer-dams, or piling, on which the columns rest, and to which they are secured. In building the abutments, the space between the columns and the embankment is filled in, and timbers put up in the shape of wings, and bolted to the flanges of the columns.

The advantages of the above-described columns are that they afford cheap means to have solid and durable abutments and piers for bridges, replacing with advantage the masonry, which is costly. Besides this, they are easily handled, and can be shipped from the foundry to any distance and place. Experience shows that they are particularly valuable in places where no quarries of good stone can be found.

What I claim as my invention, and desire to secure by Letters Patent, is—

The cast-iron column A, consisting of two arms B B, constructed as described, and provided with ribs or flanges R R, cap *c*, and foot or shoe H, said arms bolted at the top and spread at the foot, and connected by one or more braces D, substantially as and in the manner herein set forth; said column A to be used for abutments and piers in iron and wooden bridges, substantially as and in the manner herein described and specified.

ALMON B. IVES.

Witnesses:

J. B. TURCHING,

L. H. LANE.