(No Model.)

J. H. IBEL.

BRIDGE.

No. 250,921. Patented Dec. 13, 1881.

Fig. 1.

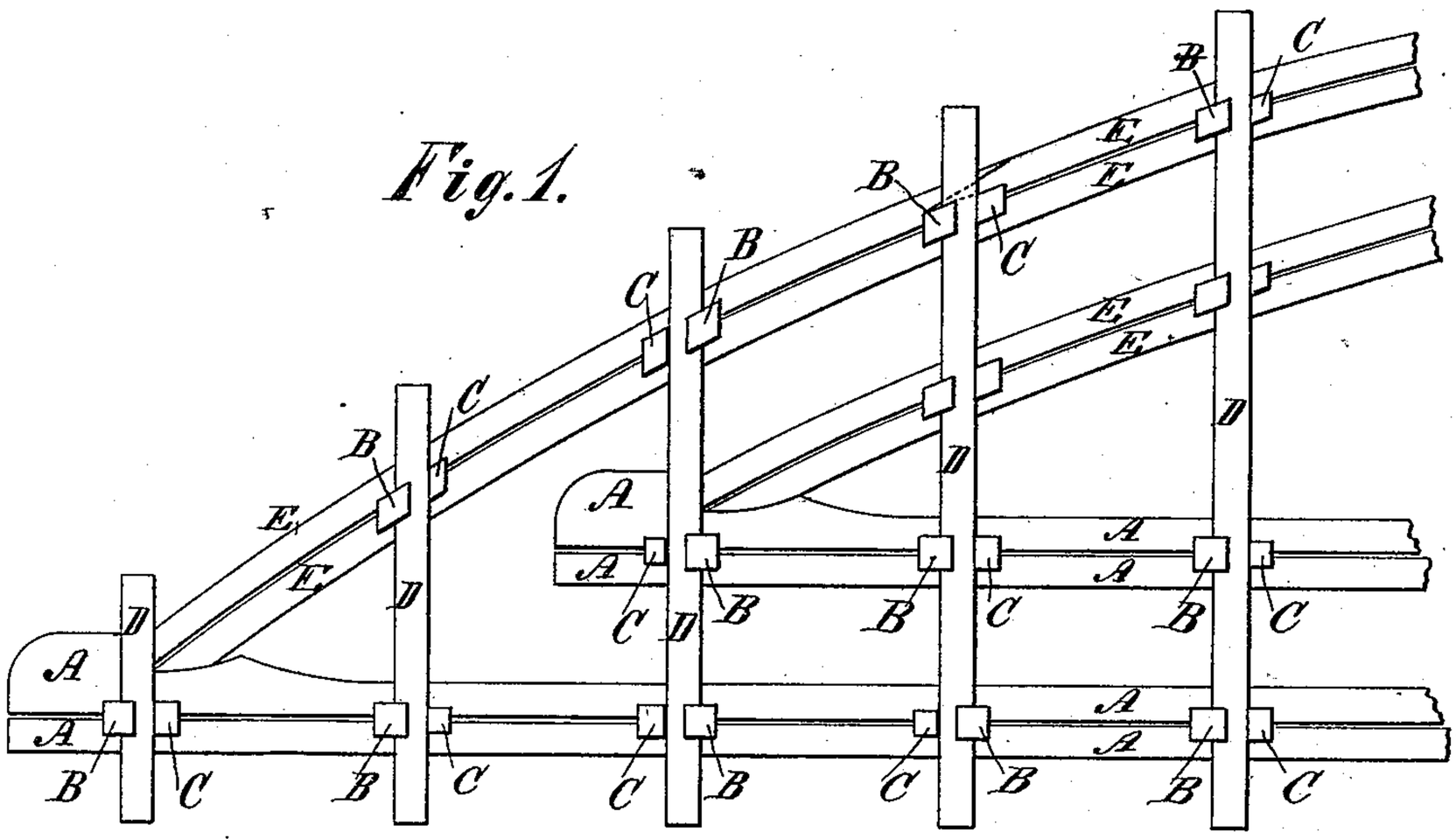


Fig. 2.

Fig. 3.

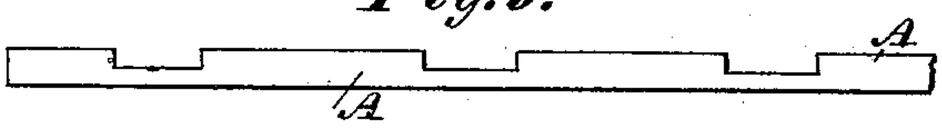


Fig. 4.

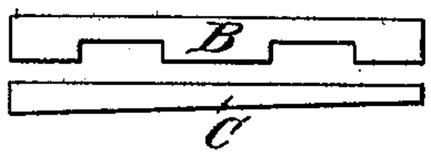


Fig. 5.

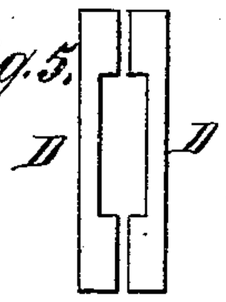
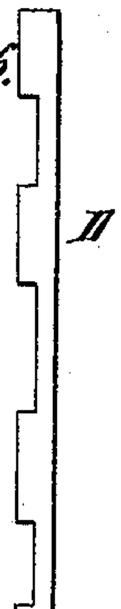


Fig. 6.



WITNESSES:

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JUSTUS H. IBEL, OF MARSHALL, TEXAS.

BRIDGE.

SPECIFICATION forming part of Letters Patent No. 250,921, dated December 13, 1881.

Application filed June 2, 1881. (No model.)

To all whom it may concern:

Be it known that I, JUSTUS H. IBEL, of Marshall, in the county of Harrison and State of Texas, have invented a new and useful Improvement in Bridges, of which the following is a full, clear, and exact description.

Figure 1 is a side elevation of a part of my improvement. Fig. 2 is a plan view of the same. Fig. 3 is a side elevation of a part of one of the stringers. Fig. 4 is a side elevation of one of the horizontal tie-bars and its key. Fig. 5 is a front elevation of the end upright tie-bars. Fig. 6 is a front elevation of a longer upright tie-bar.

Similar letters of reference indicate corresponding parts.

The object of this invention is to facilitate the construction of bridges and increase the strength and security of the said bridges.

I will describe my improved bridge as being made of wood, but any suitable material can be used in its construction.

A are the stringers of the bridge, which are made in pairs, the stringers of each pair being placed one upon the other, and being notched upon their adjacent sides to receive the horizontal tie-bars B and their wedge-keys C. The notches of the stringers A are made of such a length that the upright tie-bars D can be placed between the horizontal tie-bars B and their wedge-keys C, which are arranged parallel with the bars B, whereby great binding effect is produced. The upright tie-bars D are arranged in pairs, the ties of each pair being placed upon the opposite sides of the stringers A, as shown in Fig. 2.

E are the arched bars, which are also arranged in pairs, the bars of each pair being placed the one above the other, and being notched upon their adjacent sides to receive the horizontal tie-bars B and their wedge-keys C.

One or more additional sets of stringers, A, and arched bars E can be placed between the base stringers, A, and the top arched bars, E, as shown in Fig. 1, the said additional arched bars and stringers being placed between the same upright tie-bars D as the said base stringers and top arched bars, and secured by horizontal tie-bars and wedge-keys B C in the same manner.

Two or more sets of stringers, A, and arched bars E and their tie-bars and wedge-keys can be used at each side of the bridge, at a little distance apart, as may be required. The ends of the arched bars E are inserted in notches in the upper side of the upper stringer A, to which they belong, at the inner side of a pair of upright tie-bars, D, as shown in Fig. 1, said end part of the stringer being made thicker, or having a thickening piece attached to it, to prevent the said stringer from being weakened by the said notch. The upright tie-bars D are notched upon their adjacent sides to receive the stringers A and arched bars E, and the horizontal tie-bars B are notched upon one side to receive the upright tie-bars D, so that the structure will be bound firmly together by driving the wedge-keys C into place.

The horizontal tie-bars B can be extended across the bridge to support the floor. When a very strong floor is required two rows of horizontal tie-bars can be used, in which case sleepers should be placed between the rows to equalize and distribute the pressure among the said tie-bars. When the timbers are to be spliced the said timbers have shoulders formed upon them, near their adjacent ends, to receive the tie-bar B and wedge-key C, and the said adjacent ends are beveled to overlap each other within the notches of the upright tie-bars D, as shown in Fig. 1.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

In a bridge, the combination, with the base stringers, the top arched bars, and the upright tie-bars, of the intermediate stringers A, arched bars E, and their horizontal tie-bars B, and wedge-keys C, substantially as herein shown and described, whereby the structure is greatly strengthened, as set forth.

JUSTUS H. IBEL.

Witnesses:
WM. B. ALLEN,
HOWARD M. PRICE.