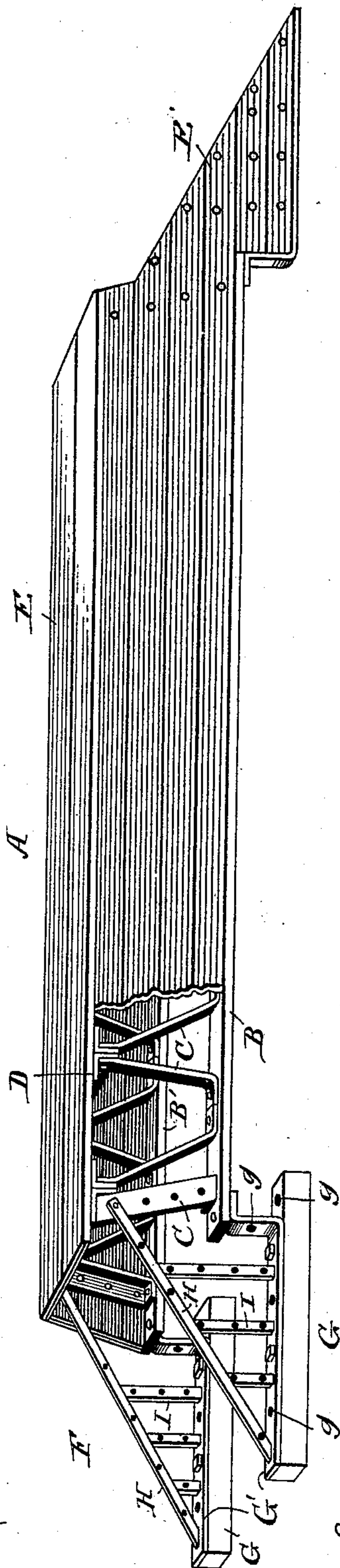


(No Model.)

L. BARNES.
BRIDGE.

No. 487,819.

Patented Dec. 13, 1892.



Witnesses
Geo. G. Hinkel
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UNITED STATES PATENT OFFICE.

LEWIS BARNES, OF PHILADELPHIA, ASSIGNOR TO WILLIAM A. NICHOLS, OF WAYNE, PENNSYLVANIA.

BRIDGE.

SPECIFICATION forming part of Letters Patent No. 487,819, dated December 13, 1892.

Application filed March 5, 1892. Serial No. 423,924. (No model.)

To all whom it may concern:

Be it known that I, LEWIS BARNES, a citizen of the United States, and a resident of Philadelphia city and county, State of Pennsylvania, have invented certain new and useful Improvements in Bridges, of which the following is a specification.

My invention relates to bridges, and more especially to that class of bridges which may be termed "portable" and which are adapted to be used in roadways where there are small streams, wet or boggy places, drains or places for waste water, or culverts for railroads and the like; and it has for its object to improve the construction of these bridges, whereby they are best adapted for the purposes set forth.

My present invention may be termed an "improvement on the bridge covered in my patent, No. 392,094, of October 30, 1888," and, while it is especially adapted for use in connection with such a bridge, it will be understood that it may be applied to other bridges to which it is adapted.

Referring to the accompanying drawing, I have shown a perspective view of the bridge embodying my improvements, some of the parts being cut away to more clearly show the structure.

In the use of a bridge of such a character it is sometimes desirable to provide means which shall more firmly and securely hold the bridge in position and which shall form guides for the water passing through the bridge, so as to direct it more perfectly toward the center of the bridge, as well as to prevent the banks from caving in or washing away from the sides or around the bridge, and it is in order to provide means to overcome this objection that my present invention is made.

In the drawing, A represents a bridge of the character referred to, consisting, essentially, of the bottom sills B B', upon which a number of truss-pieces or girders C rest, which support the plates D, and which plates, together with the truss-pieces, form a framework to which the covering E may be attached when desired. Connected to a bridge of this character is what may be termed a "wing" or "wings," forming an approach to the bridge, and these wings F are shown in the present

instance as consisting of sill-plates G, which may be of any desired material and are preferably arranged below the base-plates B of the bridge and are connected therewith in any suitable manner, as by a plate G', shown as of metal, secured to the under side of the base B and the upper side of the sill G. In some instances the sill-plate G may be dispensed with, the plate G' acting as a sill. Extending from the sill G or the plate G' to some portion of the bridge, as to the truss-pieces C, is a stringer or plate H, and this is shown arranged at an angle and preferably being a T-bar of metal, although, of course, it may be of other suitable material. Between this stringer and the base are a number of standards or connecting-pieces I, which may be bolted or otherwise secured to the parts to form braces therefor. These wings are shown in the present instance as extending parallel with the bodies of the bridge; but of course they can be extended at an angle, if desired, and instead of projecting below the base of the bridge they may be at a level therewith. These wings may be covered with the same material that covers the bridge, as shown at E', or they may be covered with other material to suit the convenience of the user. The sills G may be provided with holes g, into which bolts, spikes, and other securing devices may be fitted to form additional anchors for the approach and bridge.

While I have shown a simple and effective embodiment of my invention, it is obvious that the shape and construction thereof will vary to suit the different requirements or the purposes to which it is intended; but it will be seen that when constructed substantially in the manner indicated the wings form guards for the bridge to protect the banks at the ends of the bridge, as well as guides for the water, and when the sills are depressed, as shown, they form anchors for the bridge to prevent it being washed away in case of excessive pressure of water. These wings can be made as a part of the bridge and sold with the bridge or may be made separate and adapted to be attached to the bridge on one or both ends or on one or both sides of each end, as is required by any particular use of the bridge.

What I claim is—

1. An approach for a portable bridge or ditch-covering, consisting of the sills, stringers, and brace-pieces forming wings adapted to be secured to the end of the bridge, as and
5 for the purposes set forth.
2. The combination, with a bridge or ditch-covering, of the wings attached to the ends of the bridge and consisting of sills, stringer, and connecting-pieces, forming approaches to
10 the bridge, substantially as described.
3. The combination, with the bridge or ditch-covering consisting of a framework, of the wings connected thereto and having a sill extending below the base of the bridge and a
15 stringer connecting the sill to the bridge, substantially as described.
4. The combination, with the bridge, of the wing connected thereto and comprising a base-

piece having holes for the reception of anchors, a stringer connecting the base-piece to
the bridge, and supports connecting the
stringer and base, substantially as described. 20

5. The combination, with the portable bridge, of a wing connected to the bridge and forming an approach therefor, the wing being
25 comprised of a base-piece, stringer, and standards and being covered, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of
30 two subscribing witnesses.

LEWIS BARNES.

Witnesses:

WM. H. R. LUKENS,
WM. H. DIETRICH.