(No Model.)

E. B. STEPHENS.

BRIDGE.

No. 268,309. Patented Nov. 28, 1882.

Fig. 1.

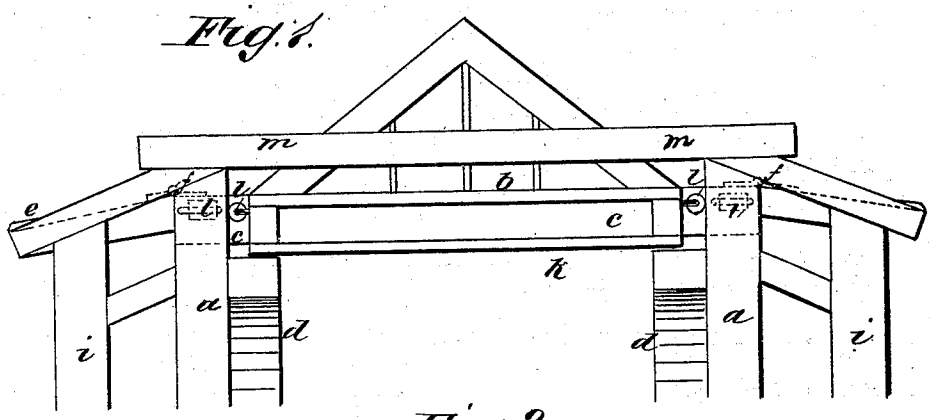


Fig. 2.

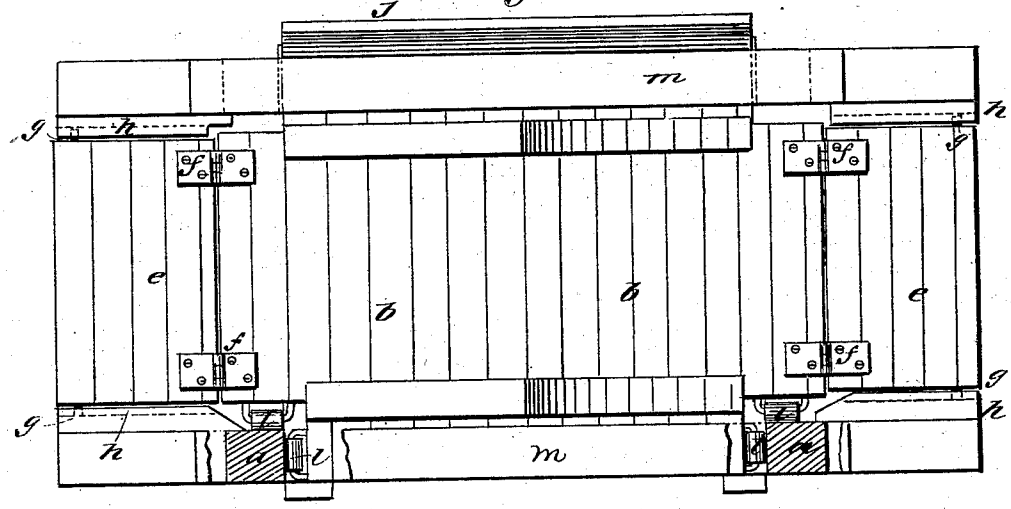
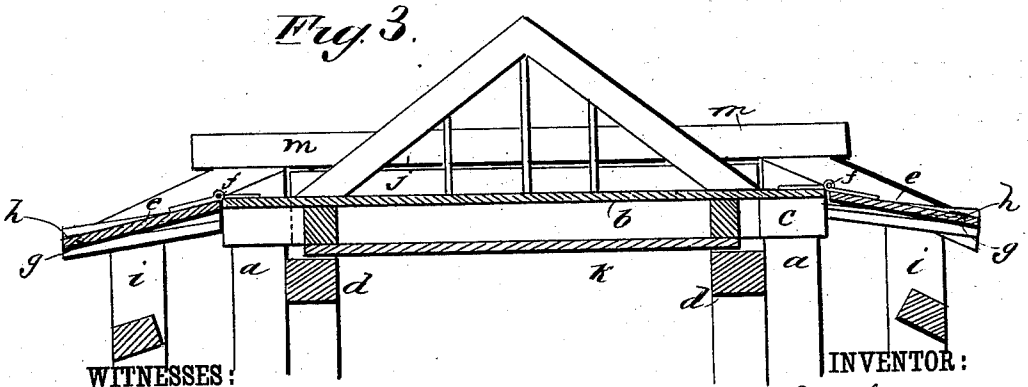


Fig. 3.



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UNITED STATES PATENT OFFICE.

EBENEZER B. STEPHENS, OF HUMBOLDT, NEBRASKA.

BRIDGE.

SPECIFICATION forming part of Letters Patent No. 268,309, dated November 28, 1882.

Application filed August 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, EBENEZER B. STEPHENS, of Humboldt, in the county of Richardson and State of Nebraska, have invented certain new and useful Improvements in Bridges, of which the following is a full, clear, and exact description.

My invention consists of a construction of bridges over streams subject to high floods, so that the floors may rise off their foundations and float on the surface of the water when the floods overflow the foundations, and at the same time may be crossed by means of aprons at the ends, arranged so as to connect at one end with the foundations at the road-levels and with the bridge at the other end, and afford practicable ascent to and descent from the bridge while floating above the foundations, all as hereinafter fully described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improved bridge. Fig. 2 is a plan view with some parts in horizontal section, and Fig. 3 is a longitudinal section of the bridge.

I drive four strong piles, *a*, in the banks of the stream, or firmly secure them in the abutments in any approved way, so as to extend as much above the floor *b* of the bridge as I desire to allow the floor to rise by the flood, and arrange the floor-timbers *c* between the posts or piles of each end, as shown in Figs. 1 and 2, for support against the stream, with suitable supports for them to rest on when in their normal conditions, which supports may consist of the timber-bents *d*, which I propose to use in the case of large streams.

To each end of the floor I connect an apron, *e*, by hinges *f*, the said aprons being extended along the roadway a suitable distance, and connected at their outer ends by studs *g* with grooved ways *h*, which hold the outer ends of the aprons down to about the level of the roadway, while the inner ends rise and fall with the bridge. The guideways *h* are suitably attached to the shorter piles *i* or other timbers of the abutments back of the piles *a*.

To the upstream side of the bridge I attach an inclined chute, *j*, to turn the water, together with the floating objects in it, under the floor and insure the rise of the latter on the water, and I cover the floor-timbers *c* on the under side with lining *k* to prevent obstruction to the water and flood-wood therein.

At the downstream side I arrange anti-friction rollers *l* to facilitate the rise and fall of the floor along the posts *a*, and to the top of the posts *a*, I fix caps *m* to limit the rise of the floor, the sides of which extend under said caps.

The piles *a* may be braced on the downstream side by braces extending into the bank in any approved way, or by other suitable means.

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

1. The floor of a bridge, arranged to be raised between piles or other guides and supports by the water of the stream when overflowing the height of the bridge, substantially as described.

2. The floor of a bridge, arranged to be raised between piles or other guides and supports by the water of the stream when overflowing the height of the bridge, and having aprons hinged to the ends and secured to the foundations at about the level of the roadway, substantially as described.

3. The combination of anti-friction rollers *l* with the floor of a bridge and guide-posts, on which the floor rises and falls by the floods, substantially as described.

4. The combination, with the floor of a bridge arranged to rise and fall with the flood, of the chute *j*, substantially as described.

5. The combination of a lining, *k*, with the floor-timbers of a bridge arranged to rise and fall with the flood, substantially as described.

6. The combination of grooved ways *h* with the aprons *e*, hinged to the bridge-floor *b*, and having studs *g*, substantially as described.

7. The combination of a bridge-floor arranged to rise and fall with the flood, posts to guide and hold the same, and caps to limit the rise of the floor, substantially as described.

EBENEZER B. STEPHENS.

Witnesses:
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