(No Model.) 2 Sheets—Sheet 1.

W. W. BARNES.

TOY SUSPENSION BRIDGE.

No. 249,448. Patented Nov. 15, 1881.

Fig. 1.

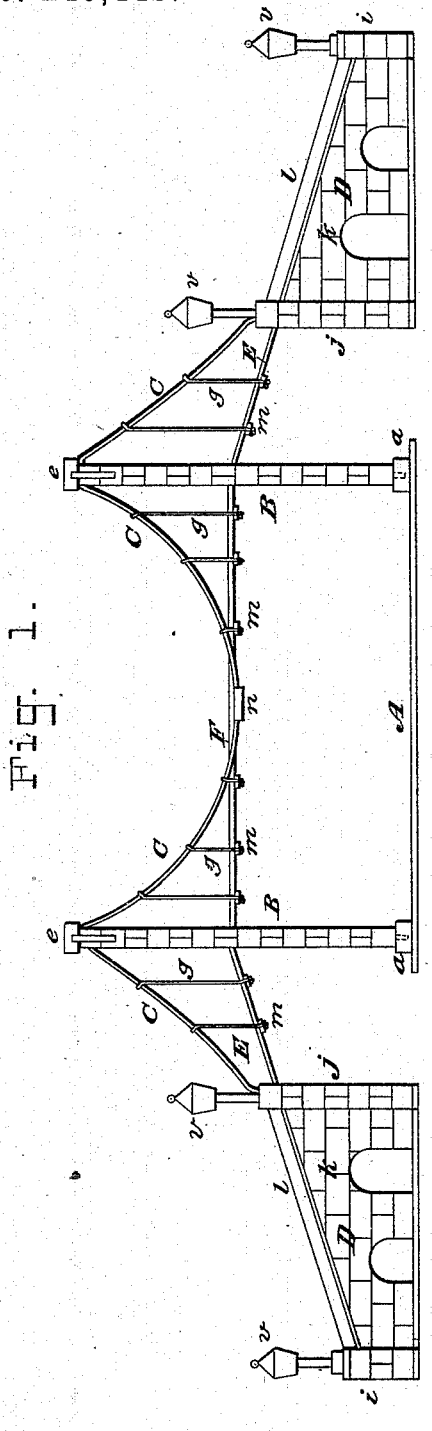
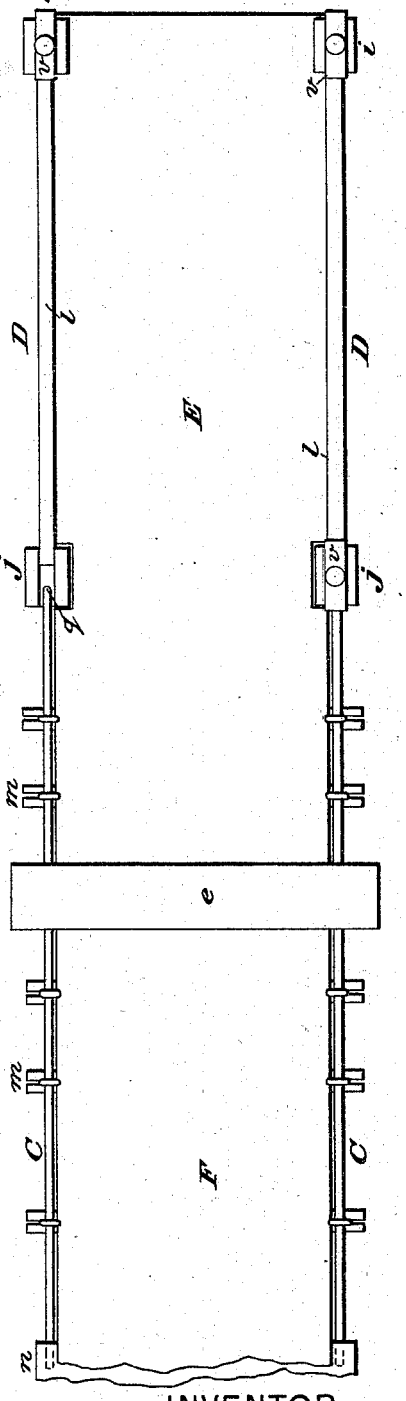


Fig. 2.



WITNESSES:

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Wm. Bainton

INVENTOR:

Wesley W. Barnes,

By his Attorneys,

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(No Model.) 2 Sheets—Sheet 2.

W. W. BARNES.

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Fig. 3.

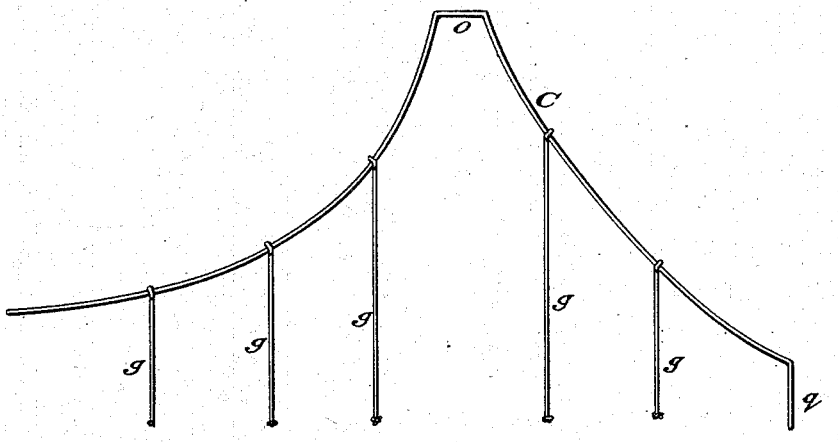


Fig. 4.

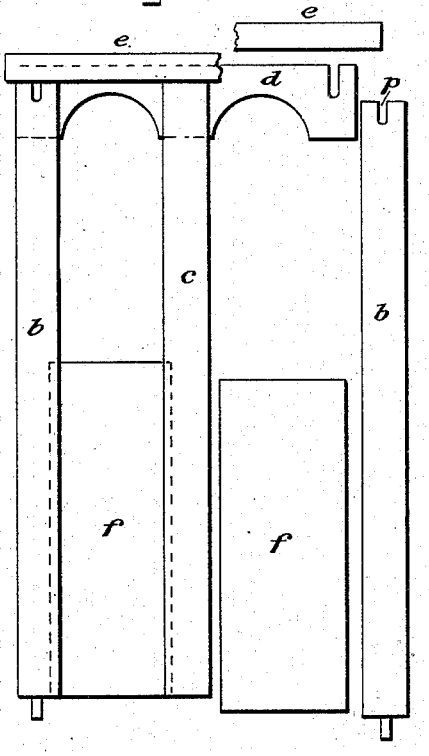
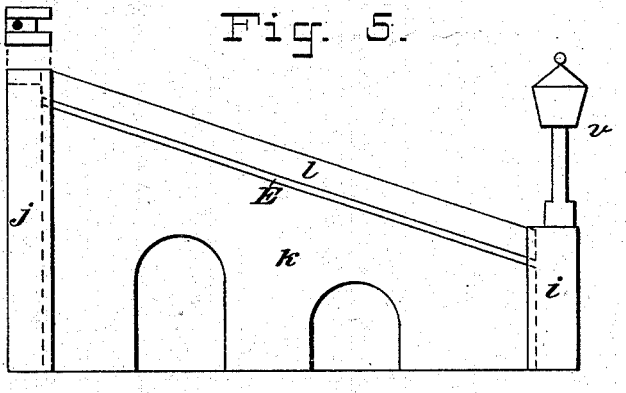


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WESLEY W. BARNES, OF NEW YORK, N. Y., ASSIGNOR TO STIRN & LYON, OF SAME PLACE.

TOY SUSPENSION-BRIDGE.

SPECIFICATION forming part of Letters Patent No. 249,448, dated November 15, 1881.

Application filed July 1, 1881. (No model.)

To all whom it may concern:

Be it known that I, WESLEY W. BARNES, a citizen of the United States, residing in the city, county, and State of New York, have invented a Toy Suspension-Bridge, of which the following is a specification.

This invention relates to a novel and instructive toy for children in the nature of a miniature suspension-bridge, which is adapted to be readily taken to pieces and set up again by a child, thus affording both amusement and instruction, while it develops the constructive faculties. When taken to pieces the various parts of the bridge may be packed in a box of small size for convenience of storing and shipment.

In the drawings which serve to illustrate my invention, Figure 1 is a side elevation of the bridge as a whole. Fig. 2 is a plan of one-half the bridge, on a scale double that of Fig. 1. Figs. 3, 4, and 5 are detail views, showing the parts or elements of the bridge drawn to the same scale as Fig. 2. These will be more particularly referred to hereinafter.

The entire bridge consists of the following-named major elements: four sides to form the approaches, two piers, four half-cables, one floor for the span, and two floors for the approaches. These major elements are formed of or provided with minor elements, which will be referred to hereinafter. As the approaches are alike, the piers alike, and the half-cables alike, it will only be necessary to describe one of each.

To enable the child to set up the bridge readily by providing it with a measured base for the span, I generally provide the sliding cover A of the box in which the bridge is packed with cleats *a a*, arranged at the proper distance apart to form bases for the towers B. In these cleats small sockets are made to receive pins or tenons on the corner-posts of the towers.

Referring to Fig. 4, which shows the several elements of the cover slightly separated, *b b* are the corner-posts, and *c* the central post. These are slitted at their tops to receive the arch-piece *d*. This latter projects above the top of the posts, and its projecting edge fits into a groove in a coping or cap-plate, *e*. Between the posts *b b* and *c*, below the roadway, are fitted panels *f f*, the edges of which take into grooves in the posts. Across the tops of the posts *b*, and through the arch-piece *d*, are formed notches, in which the cables rest.

Fig. 3 shows one of the four half-cables, C, which is formed of a piece of wire bent approximately to the proper catenary curve and provided with numerous suspension cords or wires, *g*. These may be formed of threads.

Fig. 5 shows the elements which form the siding D of an approach. This consists of a short post, *i*, a taller post, *j*, a side wall, *k*, pierced with arches and arranged to take into grooves in the posts *i* and *j*, and a railing-strip, *l*, also arranged to take in the grooves in said posts.

E represents the flooring of one of the approaches. This is a thin plate of wood, pasteboard, or other suitable material, arranged to rest laterally on the sloping top of the side walls, *k*, and at its upper end on the tower. It is provided at its higher end with several floor-beams, *m m*.

F is the floor of the span, which rests on the towers at its ends and on a tie-beam, *n*, at its middle. It is also provided with floor-beams *m*, and may be made in two lengths or sections, if desired.

I will now assume that the bridge has been taken to pieces and packed up, and will proceed to describe the manner of setting it up.

The cover A of the box is first removed and turned cleats up on a table or other moderately level surface. The parts which make up the towers are then put together, except the cap pieces or plates *e*, and the towers are set up on the cleats, as shown. The four half-cables C are now placed on the towers, the angular parts *o* of the former resting in notches *p p* in the latter. The cap-plates *e e* are next put on to finish the towers, and the cables are joined by inserting their adjacent ends into the tie-beam *n* at the middle of the span. The four sidings D, which form the approaches, are now set up by inserting the side walls, *k*, into the posts *i* and *j* and pressing the bent-down ends *q* of the cables into sockets in the taller posts *j*. The floors E of the approaches are now put in place, and the railings *l* inserted in the posts *i j* and pressed down firmly

on the floor. The floor F of the span is now laid, and the suspenders *g* drawn down and attached to the ends of the floor-beams *m* by pushing them into slits in the ends of said beams. No fastenings other than the snug fitting of one part into another are employed, and I contemplate saw-kerfing the parts to form grooves, and making the tenons, panels, &c., to fit tightly into said kerfs in a well-known way.

In addition to the bridge proper, which has been described, I may use extraneous ornaments in the nature of lamps, *v v*, made to fit into the elements of the bridge, as shown.

In lieu of the tie-beam *n*, I may employ sleeves or other couplings to connect the two halves of the cable at the center; but I prefer the beam, as shown.

I have shown the towers with double arches through them; but I do not wish to limit myself to this. I may construct them with but one arch, or with more than two.

The cover of the box A may or may not be employed. It forms no essential part of my invention.

Having thus described my invention, I claim—

1. A toy suspension-bridge constructed substantially as and for the purposes set forth.

2. A toy suspension-bridge constructed of separable parts, held together by friction and capable of being taken to pieces, all the parts being constructed and arranged substantially as set forth.

3. A toy suspension-bridge comprising the towers B B, the four half-cables C C, the approaches formed of the sidings D and floors E, and the floor F of the main span, all arranged substantially as set forth.

4. The combination, to form a toy suspension-bridge, of the towers B B, having notches *p p* to receive the cables, the four half-cables C C, provided with means of connection at the center of the span, and suspenders *g g*, the approaches comprising the posts *i j*, side walls, *k*, rails *l*, and floors E, the floor F of the main span, and the floor-beams *m*, all constructed and arranged substantially as set forth.

5. The combination of the towers B, comprising the posts *b b c*, arch-piece *d*, and cap-piece *e*, the four half-cables, the sidings of the approach, comprising the walls *k*, posts *i j*, and rails *l*, the floors E and F, provided with floor-beams *m*, secured thereto, the tie-beam *n* or its equivalent, and the suspenders *g g*, all arranged to fit together substantially as and for the purposes set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WESLEY W. BARNES.

Witnesses:
HENRY CONNETT,
GEO. BAINTON.