

(No Model.)

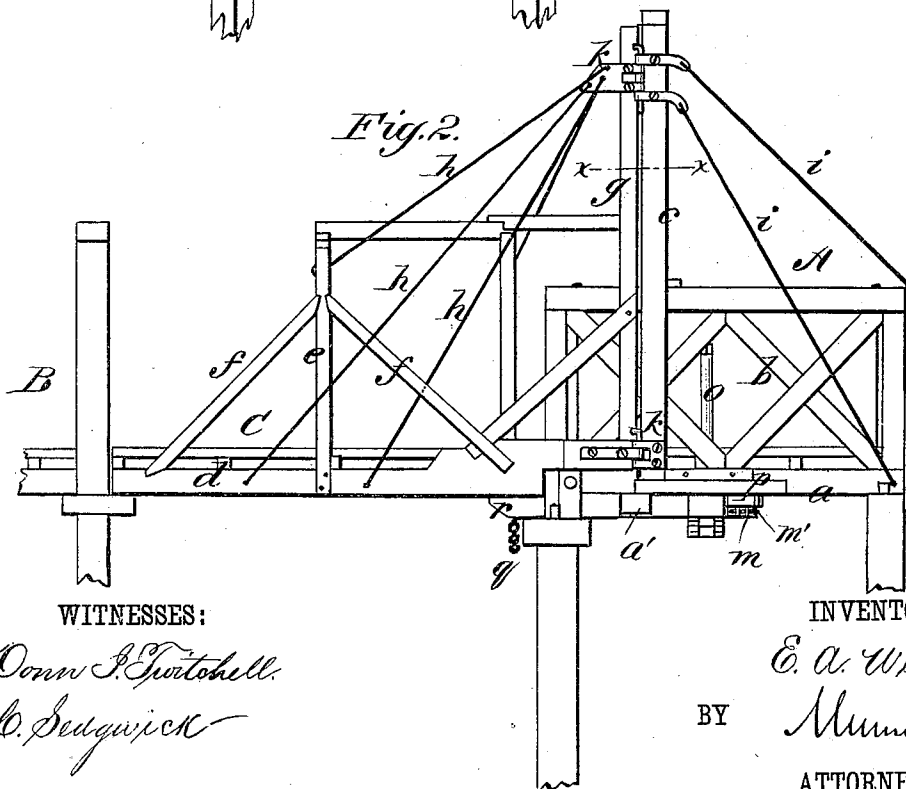
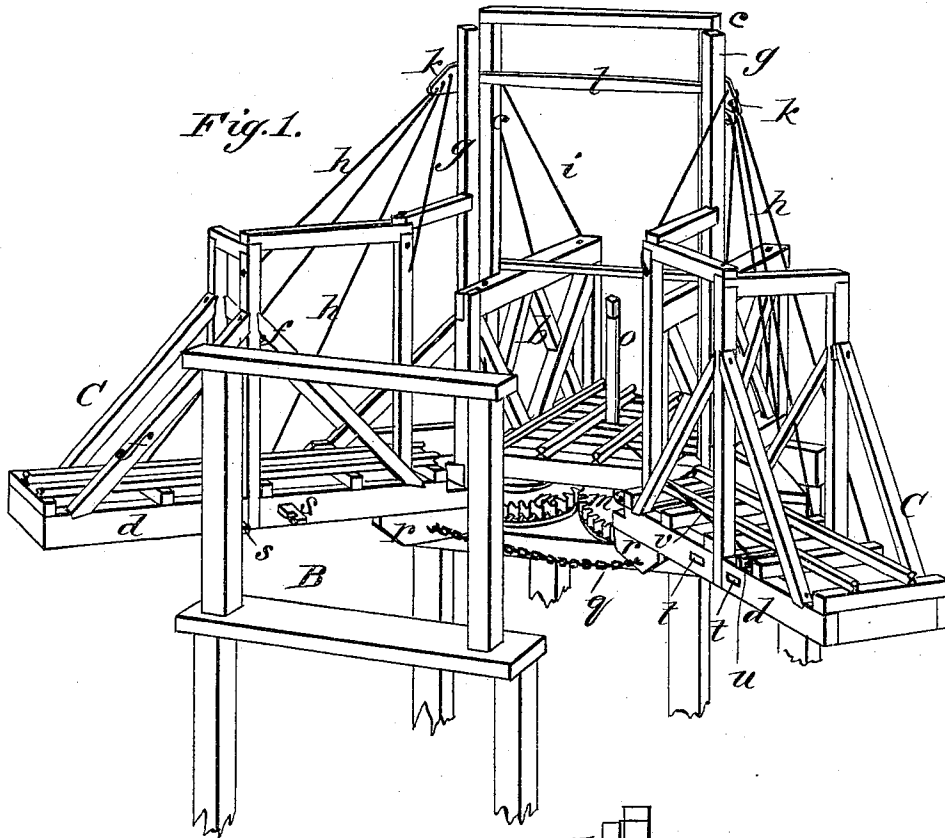
2 Sheets—Sheet 1.

E. A. WIBLE.

DRAW BRIDGE.

No. 250,027.

Patented Nov. 22, 1881.



WITNESSES:

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INVENTOR:

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

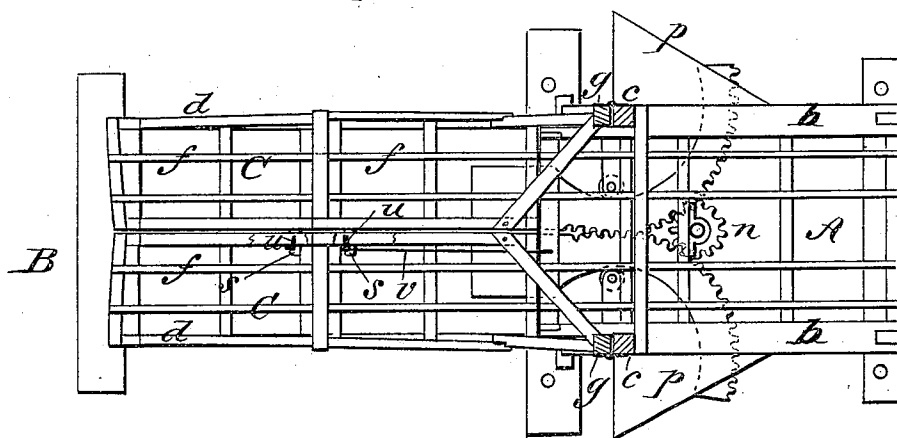
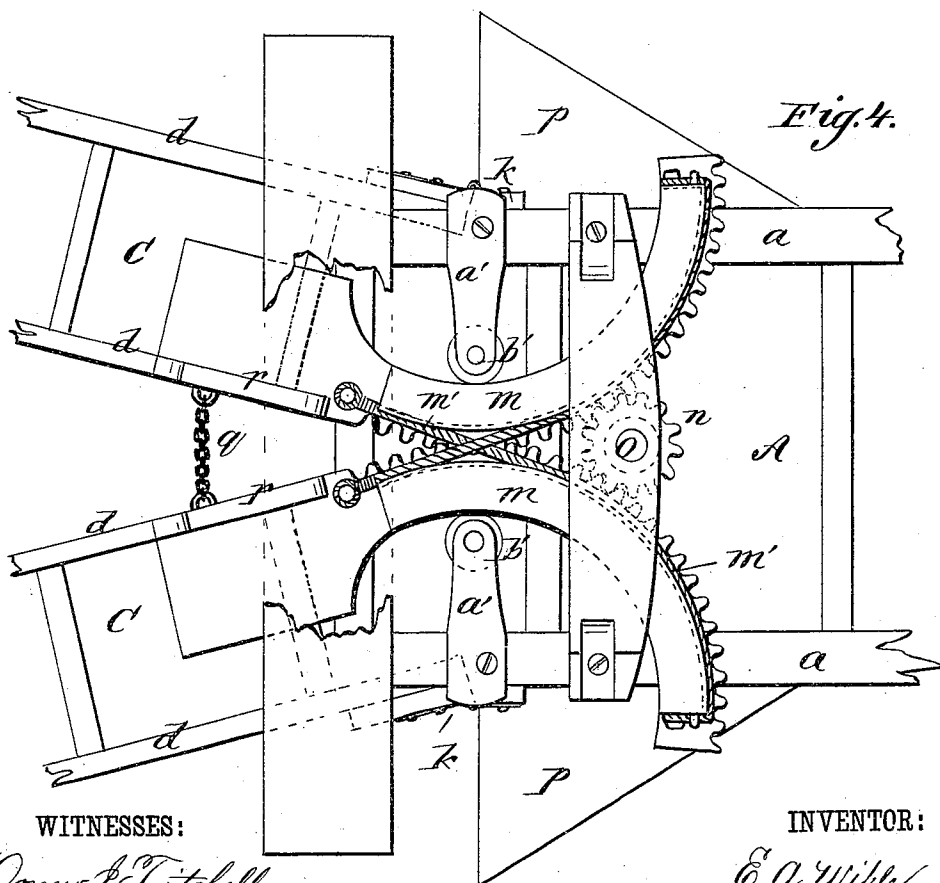


Fig. 4.



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UNITED STATES PATENT OFFICE.

ELIAS A. WIBLE, OF BRIGHTON, CALIFORNIA.

DRAW-BRIDGE.

SPECIFICATION forming part of Letters Patent No. 250,027, dated November 22, 1881.

Application filed August 19, 1881. (No model.)

To all whom it may concern:

Be it known that I, ELIAS ALEXANDER WIBLE, of Brighton, county of Sacramento, and State of California, have invented certain
5 useful Improvements in Draw-Bridges, of which the following is a specification.

The object of my improvements is to construct a draw-bridge which can be readily operated, and will be equally balanced and self-sustained
10 when partially or wholly opened, in a manner to relieve the main bridge from lateral strain and rack.

The invention consists in a double draw composed of two hinged sections operated simultaneously by cogged segments, in a system
15 of bracing whereby the weight is equally divided and balanced, and in certain other features of construction for effectively obtaining the object named, all as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a draw-bridge embodying my improvements, shown partially open. Fig. 2 is a side elevation of the bridge closed.
25 Fig. 3 is a plan view, in section, on line *x x* of Fig. 2, and Fig. 4 is an inverted plan view, showing the inner ends of the swinging section.

Similar letters of reference indicate corresponding parts.

30 At A is the head of the bridge or pier, at which the swinging sections of the draw are hung, and at B is the pier on which the sections rest when closed. As shown, the superstructure of the pier A consists of longitudinal string-pieces *a a*, strengthened by side trusses,
35 *b b*. At the end next to the draw-opening posts *c c* are firmly secured, preferably by mortising into the top chords of the trusses *b*, and they may be placed directly above the cross-plate
40 on which the outer ends of timbers *a* rest, or they may be, as shown, set back, so that the full width of opening shall be given when the draw is open.

45 *CC* are the swinging sections of the bridge, which are of similar construction, and consist of longitudinal timbers *d d*, connected by cross-timbers, and fitted with the struts *e* and braces *f*, so as to form inverted trusses of great strength and stiffness. At the inner end and

outer angle of the sections C are posts *g*, and
50 these posts are connected at top and bottom to the posts *c c* of the pier by hinges *k k*. The plates of the upper hinges are formed to receive the ends of brace-rods *h h* and *i i*, that
55 pass to the timbers *d d* of the swinging sections and stringers *a a* of the pier, respectively, so that the posts *g c* are securely braced. A cross bar or plate, *l*, connects the upper hinges and
60 upper ends of the posts *c*. The rear ends of sections C are fitted with quadrant-shaped
65 arms or extensions *m m*, the outer edges of which are curved from the centers on which the sections swing, and are formed with cogs that intermesh. With one cogged segment a
70 pinion, *n*, that is on a vertical shaft, *o*, engages. The shaft *o* is suitably fitted and formed at its
75 upper end for receiving levers, whereby it is to be turned, the sections C being thus simultaneously operated.

To the segments *m* there are connected cables *m' m'*, which are crossed and connected
80 respectively to the inner end of one segment and outer end of the other, so as to bear on the outer surfaces of the segments at all times, and insure the simultaneous movement of the
85 swinging sections. These cables may be used in addition to or as a substitute for the cogs, and to prevent misplacement of the cables the outer surfaces of the quadrants are grooved or fitted with grooved plates for the cables.

To prevent lateral play of the segments and riding of the cogs, there are fitted on the bridge-timbers *a* short braces *a'*, (shown in Fig. 4,) carrying friction-wheels *b'*, that bear on the
90 outer edges of the segments *m*, so that they are prevented from separation.

The outward swing of the sections C is limited by buffer-blocks *p*, which may be upon the sections, or, as shown, upon the timbers *a* of the pier. As an additional stay for the
95 same purpose, and to prevent undue strain on the lever-hinges, a chain, *q*, is connected to the inner ends of the sections C in such manner that it becomes taut when the sections are fully open, and thus receives the shock. This
stay-chain loops down when the sections are closed.

At the inner ends and under sides of the

sections C there are fitted resting-blocks *r r*, that are tapered to pass upon the cross-plates of the pier when the draw closes, so as to support the swinging sections. The outer ends of the sections at the same time pass upon the cross-plates of the other pier, so that the hinges are thus relieved from strain when the bridge is fully closed.

At intervals on the inner timber, *d*, of one section C there are fitted tongues *s*, and the timber of the other section is provided with mortises *t*, that receive the tongues *s*. The tongues *s* are notched at their outer ends, which project beyond the mortises when the bridge is closed, and keys or wedges *u* are fitted for movement by a lever, *v*, to engage the tongues, so that the two sections are thus securely locked in their closed position and are mutually supporting.

With this construction the two sections of the swinging draw can be simultaneously opened by hand or other power. When partially or wholly open they balance each other, and thus relieve the pier from lateral strain.

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

1. The combination, in a draw-bridge, of two hinged sections fitted to swing in opposite directions and having their inner ends connected to insure simultaneous movement, substantially as shown and described.

2. The combination of the swinging draw-bridge sections C, provided with intermeshing cogged segments *m*, substantially as shown and described.

3. The hinges *k* and brace-rods *h i*, in combination with the draw-bridge sections C and pier A, provided with posts *g c*, substantially as shown and described.

4. The stay-wheels *b'*, in combination with the curved extensions *m* of the swinging draw-bridge sections C, substantially as and for the purposes set forth.

5. The cogged segments *m* and stay-cables *m'*, combined with the swinging draw-bridge sections C, substantially as and for the purposes set forth.

6. The stay chain or cable *q*, in combination with the swinging draw-bridge sections C, substantially as and for the purposes set forth.

7. The locking-tongues *s* and wedges or keys *u*, in combination with the swinging draw-bridge sections C, substantially as shown and described.

8. The pinion *n*, shaft *o*, and cogged segments *m*, combined with the hinged draw-bridge sections for giving them simultaneous movement in opposite directions, substantially as shown and described.

ELIAS ALEXANDER WIBLE.

Witnesses:

JAMES COMPTON,
WILLIAM PRINGLE.