

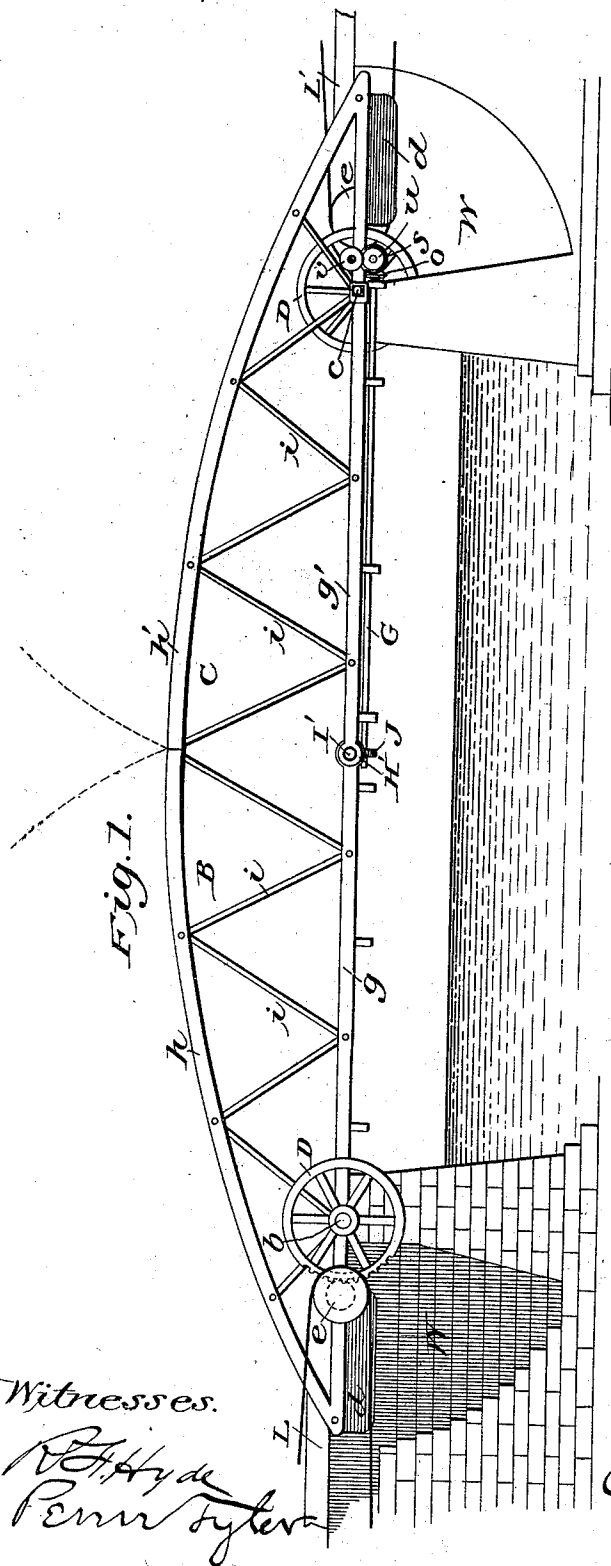
(No Model.)

2 Sheets—Sheet 1.

E. B. JENNINGS.
DRAWBRIDGE.

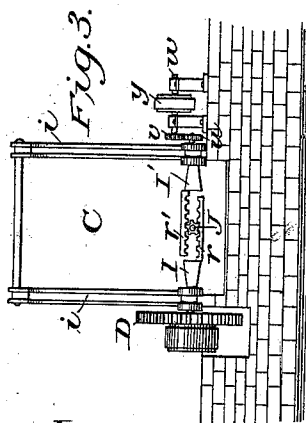
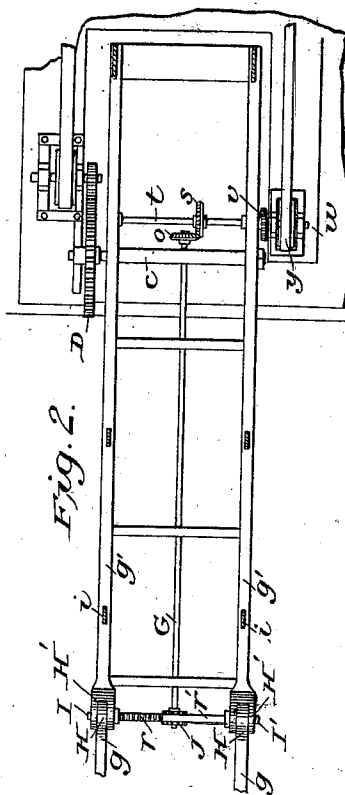
No. 554,390.

Patented Feb. 11, 1896.



Witnesses.

17
R. H. de
Pennsylvania



Inventor.

Edwin B. Jennings.

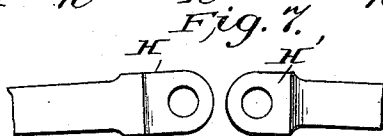
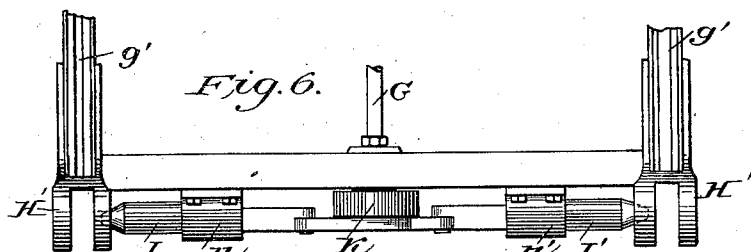
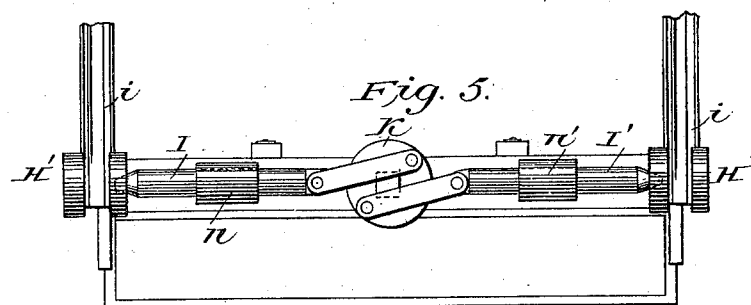
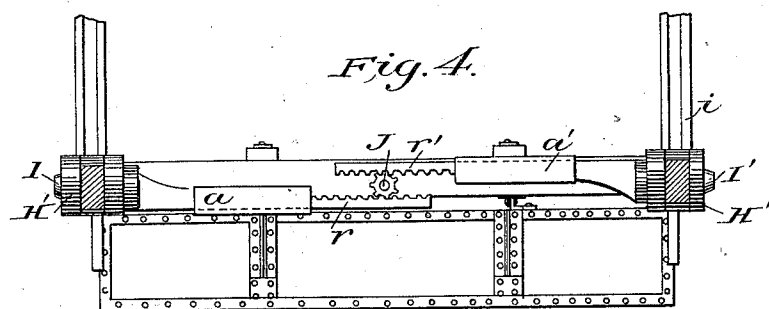
(No Model.)

2 Sheets—Sheet 2.

E. B. JENNINGS.
DRAWBRIDGE.

No. 554,390.

Patented Feb. 11, 1896.



Witnesses.

R. Hyde
Penn Tyler.

Inventor.

Edwin B. Jennings.

UNITED STATES PATENT OFFICE.

EDWIN B. JENNINGS, OF SPRINGFIELD, MASSACHUSETTS.

DRAWBRIDGE.

SPECIFICATION forming part of Letters Patent No. 554,390, dated February 11, 1896.

Application filed October 15, 1895. Serial No. 565,702. (No model.)

To all whom it may concern:

Be it known that I, EDWIN B. JENNINGS, a citizen of the United States, residing at Springfield, county of Hampden, and State of Massachusetts, have invented a new and useful Improvement in Drawbridges, of which the following is a specification.

My improvements relate to the class of drawbridges in which two sections rotate vertically from a closed position forming a bridge to an open position leaving a passage-way, and in which the two sections rotate in opposite directions upon pivots, and have for their object the provision of a secure fastening or joint for the free ends of the sections when prolonged; and the invention consists in the combination and construction as hereinafter described, and more particularly pointed out in the claims.

My invention is fully illustrated in the accompanying drawings, in which—

Figure I is a side elevation of a drawbridge having my improvements. Fig. II is a plan view of one section with the top chord removed. Fig. III is an end elevation of one section viewed from its free end. Fig. IV is an enlarged end view of one section. Fig. V is the same, showing a modification. Fig. VI is a top plan view of the mechanism shown in Fig. V, and Fig. VII is an enlarged detail.

In the drawings, B C are the two sections, pivoted respectively at *b c* to piers or to the walls upon opposite sides of a water-way to rotate vertically in opposite directions upon said pivots. As shown, said pivots are removed from the outer ends of the sections, and counterweights *d d* are interposed between the pivots and outer ends of the sections to render the rotation of the sections easier, which rotation is effected by gears D concentric to the pivots and secured thereto, engaged by gears *e e* driven by a belt and pulley. A well W at each end permits the depression of the section ends. These general features of a drawbridge are old and are only shown and mentioned in illustration of my invention, in which light upper chords, *h h'*, and lower chords, *g g'*, are prolonged to form a complete truss without any vertical extension of the joint-surfaces to secure a larger bearing and without any extraneous support above or below the chords, and by

means of which the bridge can be made lighter, the water-way be left unobstructed, and all thrust be removed from the pivots. 55

The chords *h h'* and *g g'* are united by the ties *i*, and when the corresponding-faced ends of the upper chords, *h h'*, are in contact, as shown in Fig. I, the tendency of a weight upon the bridge would be to separate the ends of the lower chords by depression; but it will be seen that if these ends of the lower chord are bolted together a complete truss is formed of the structure, and this I do by providing corresponding eyes H H' upon the ends of the lower chords, *g g'*, and arranging transverse bolts I I' in bearings in one section, to be operated from the pivot end of said section, to be shot into the eyes when they come opposite, to secure the sections, or retracted from said eyes when it is desired to free them for rotation. 60 65 70

As a means for operating the bolts I I', a rod G is shown arranged medially between the chords *g'* of section C to extend from opposite the free end of said section to a point a little past the pivot *c*, being journaled at its two ends and at as many intermediate points as is required to maintain it straight in the floor-beams. Upon the end near the pivot *c* is a gear *o*, engaging with a gear *s* on a counter-shaft *t*, journaled transversely in the lower chords, *g'*, and one end of the counter-shaft is prolonged outside of chord *g'* and is provided upon said end with a gear *u*. The gear *u* engages with a gear *v* upon a shaft *w* in fixed bearings and provided with a driving-pulley *y* operated by a belt. 75 80 85

It will be seen that upon the rotation of section C the gear *u* is swung away from gear *v* to re-engage with it when section C resumes a horizontal position. This is more particularly shown in Figs. II and III. 90

The pulley Y rotates rod G to slide the bolts I I'. 95

In Figs. II, III and IV a pinion J, engaging with racks *r r'* upon the shanks of bolts I I', is shown, the racks being upon opposite sides of the pinion, so as to move the bolts simultaneously in opposite directions, and are guided by sleeves *a a'*. 100

In Figs. V and VII in place of the pinion J upon the end of rod G a crank-wheel K is shown connected by toggles to the bolts I I',

so that a partial rotation of the crank-wheel will slide the bolts in their sleeves $n n'$.

In Fig. VII the eyes forming the terminal ends of chords $g g'$ are shown in side view, the eye H' being preferably bifurcated or with two leaves, so as to give a better bearing to the bolts.

The bolts $I I'$ are preferably pointed, as shown, so that said points will act as followers to cause the eyes of the two sections to coincide. As the points of the bolts can rest in one leaf of eye H' , the distance required to be slid by the bolts in securing or releasing the bridge-sections is very short, and a powerful cam may be employed to shoot them, although excessive force is not required, as no weight is on the bridge when the bolts are required to be operated.

In the drawings, Fig. I, stops $L L'$ are shown against which the inner ends of the sections come to bring their free ends in prolongation, so that with the eyes of the lower chords of the configuration shown it is immaterial whether the sections are lowered simultaneously or at random.

Now, having described my invention, what I claim is—

1. A truss-bridge bisected at or near its

middle part, the sections of the compression member being adapted to abut and bear against each other in the closed position, and the meeting ends of the tension member being provided with eyes registering when in the closed position, said sections being pivotally mounted upon the abutments and provided with readily removable pins to engage with and be disengaged from the eyes of the tension member as set forth.

2. The combination with a centrally-bisected truss forming as shown and described, the two vertically-rotating sections of a draw-bridge, of faced ends upon the upper chords, and eyes upon the lower chords arranged to have said faced ends bear and the eyes correspond when the bridge-sections are in a horizontal position, transversely-reciprocating bolts in one section in line with the eyes thereof, and adapted to enter said eyes, and mechanism operated from the pivot end of the section for reciprocating the bolts, all operating as and for the purpose set forth.

EDWIN B. JENNINGS.

Witnesses:

R. F. HYDE,
PENN TYLER.