L. B. EDGECOMB.

Draw Bridge Signal.

No. 56,491. Patented July 17, 1866.

Fig: 1.

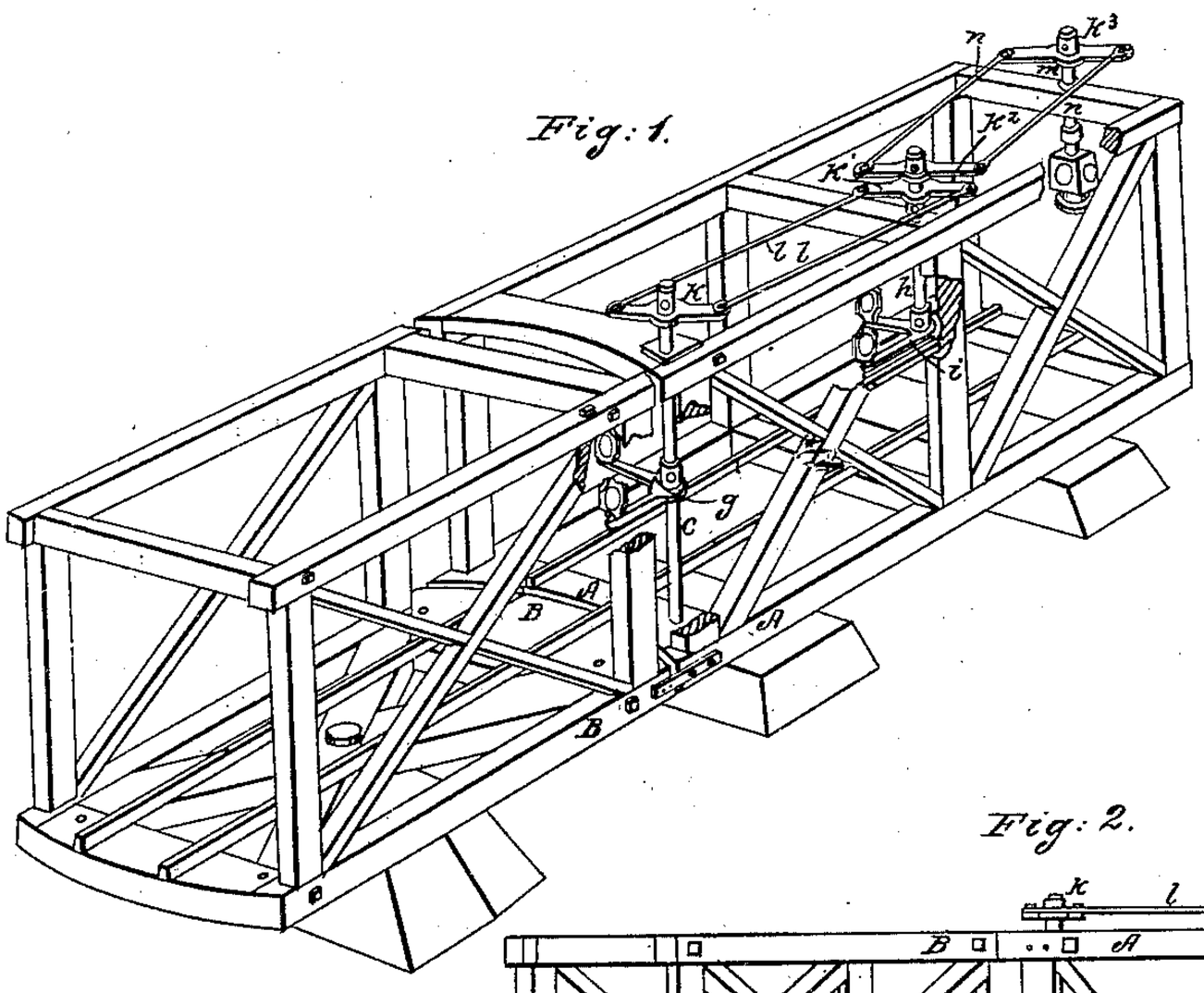


Fig: 2.

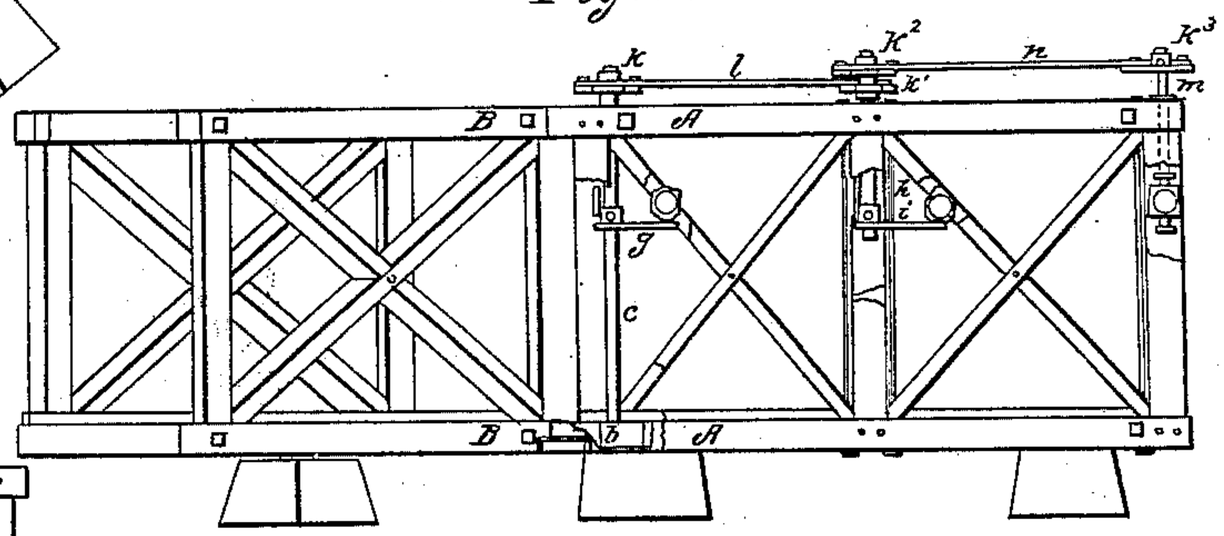


Fig: 4.

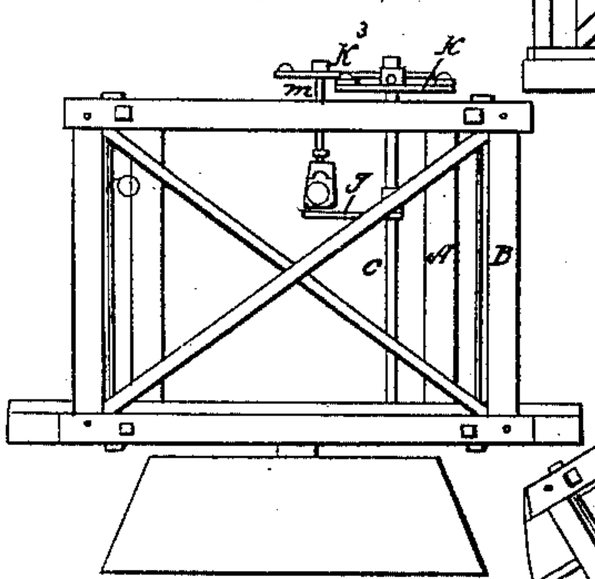
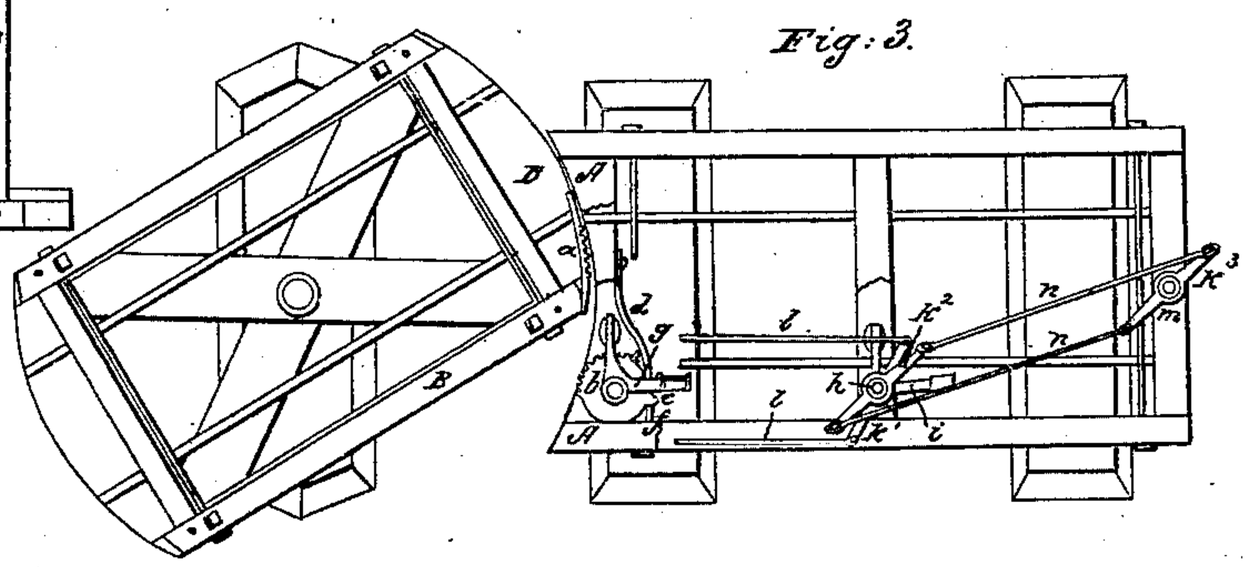


Fig: 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

LUTHER B. EDGECOMB, OF TROY, NEW YORK, ASSIGNOR TO HIMSELF AND VAN RENSSELAER POWELL, OF SAME PLACE.

IMPROVED DRAW-BRIDGE SIGNAL.

Specification forming part of Letters Patent No. **56,491**, dated July 17, 1866.

To all whom it may concern:

Be it known that I, LUTHER B. EDGECOMB, of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Manner of Operating Signals of Draw-Bridges; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, and to the letters of reference marked thereon, forming part of this specification, in which—

Figure 1 is a perspective view of a draw-bridge with my improvements attached to it. Fig. 2 is a side elevation of the same with the draw partially turned off. Fig. 3 is a top or plan view of a bridge with the draw partially turned off, showing the signal to "stop" as fully set in its proper position; and Fig. 4 is an end view of the bridge with the draw turned fully off.

The same letters refer to like parts in each of the said figures.

The object which my invention and improvement is designed to accomplish is to lessen the liability of railway-trains to accidents when in the act of crossing draw-bridges; to make less liable the occurrence of those serious disasters to human life and to property by a railway-train of cars running into an open draw of a bridge by reason of not having, through carelessness or culpable neglect of the person appointed to do such duty, the proper signals quickly and fully set to safely guide the movements of coming trains. This danger I lessen by the combination and arrangement of certain mechanical devices with a draw-bridge, whereby the operation of setting the signals of the same is surely and quickly effected by the draw itself when in the act of opening or closing, in manner as hereinafter fully shown.

The nature of my said invention and improvements consists in the combination of a pinion, a rack, and a swinging or adjustable bearer for signals with a draw-bridge, in a manner to operate the signals thereof by the draw of such bridge in its acts of opening or of closing, substantially as hereinafter fully described and shown.

It also consists in the combination of swinging or adjustable signal-bearers with yokes or double transmitting-arms connected by wires or their equivalent means, substantially as and for the purpose hereinafter fully set forth.

It also consists in the combination of yokes or double transmitting-arms and a signal and its swinging or adjustable bearer with each other and with another yoke or yokes arranged relatively, substantially as and for the purpose hereinafter fully set forth.

To enable others skilled in the art to make and use my invention and improvements in manner of operating signals of draw-bridges, I will proceed to fully describe the same, to wit:

In the annexed drawings, A represents the fixed part, and B the draw part, of a draw-bridge. To the curved or connecting end of said draw part I affix a toothed rack, *a*, substantially in manner as shown in Fig. 3. To the fixed portion of a draw-bridge, at the end connecting with a draw, I affix a pinion, *b*, with its shaft or spindle *c* arranged to operate in suitable bearings. One end of a spring, *d*, is affixed to the bridge in such a manner that its loose or operating end shall be made to hug or press on the face of the pinion *b*, said pinion having a stud or projection, *e*, on its face, which limits the turning motion of said pinion by stopping the same by striking on a properly-adjusted stop, *f*, affixed to the bridge, while said spring, by its action on said pinion, holds it in its proper position for showing fully the proper signal while the draw is off, substantially in manner as shown in Figs. 2 and 3. Arranged on the said pinion-shaft *c* is a signal support or bearer, *g*, consisting of two arms arranged at about right angles to each other and projecting from a hub secured to said pinion-shaft. Upon these arms, each arm having its own proper signal, is placed the usual signals for directing the movements of railway-trains when about to cross draw-bridges—that is, either a white or a red light in the night time, or a white or a red target or flag in the day time, as coming trains or passing occasions may call for.

This combination of mechanical devices, substantially as above described, with a draw-bridge, and being provided with the usual signals employed, makes an automatical oper-

ating or self-setting signal draw-bridge, which, whenever occasion demands the draw to be opened, the first movement of the same in the act of opening causes the toothed rack to turn or swing the signal-shaft pinion the proper distance necessary to set and show fully and clearly, in manner as shown in Figs. 3 and 4, and keep the same in position, the proper signal to "stop" to any coming trains when said draw is entirely off or but partially disconnected with the bridge; and upon returning said draw to its proper connection with the bridge for passing trains over it the act of returning said draw does not fully set in its proper position the signal to "go ahead" until said draw is completely connected with the bridge for passing trains safely over it.

The advantage of the above-described improvement for setting signals of draw-bridges consists in its economy and reliability and increased safety assured to the traveling public. The attendance of a special person to set the signals is dispensed with. The draw, by its acts of opening and closing, sets in a sure reliable manner its own proper signals, all the personal attention required being simply to open and close the draw by setting in motion the machinery used for such purpose.

Attached to a pendent shaft, *h*, is another signal-bearer, *i*, provided with signals the same as the preceding bearer *g*.

To the respective signal-bearer shafts *c* and *h* are affixed yokes or double transmitting-arms *k* and *k'*, having their ends or arms connected together by means of wires or ropes *l l*.

At any desired angle to the left or to the right of the immediate or adjacent draw signal-bearers is arranged a pendent or otherwise supported signal-bearer or bearers, *m*, to which is affixed a yoke or double transmitting-arm, k^3, and the arms of said yoke are connected to the arms of yoke k^2 by wires or ropes *n n*, substantially in manner as shown in Figs. 1 and 3.

This manner of connecting signals of draw-bridges and on curved tracks, so as to be operated together by the employment of yokes or double transmitting-arms, admits of certain and reliable connection being made by means of ropes or wires, as the operating force is applied always, in this arrangement, by pulling only always at and to the operating station. Hence the double arrangement of arms and connecting-wires, as above set forth, requires no springs or counter-weights to make its operation effectual.

This combination and arrangement at any angle, either to the right or to the left of the signals near the draw of the bridge, in manner as above described, is for the purpose of operating the proper signals on curved tracks to a draw-bridge, and by increasing the number of signal-bearers, with their connecting yokes or arms connecting with each other, according to the manner substantially as shown, a series of or two or more proper signals may be arranged on a curved track and all be operated together from one station, or simultaneously, to set, in an expeditious and reliable manner, the proper signals to "stop" or to "go ahead," as the existing position or condition of the draw may require.

The same combination and arrangement, substantially, may be used with much advantage on curved tracks leading to a station at which it may be occasionally desired to stop a train on signal.

Having fully described my said invention and improvements, what I claim as my invention therein, and desire to secure by Letters Patent, is—

1. The combination of a rack, *a*, a pinion, *b*, and a swinging or adjustable signal-bearer, *g*, or their equivalent operating devices, with a draw-bridge, in manner substantially as shown, and for the purpose of operating the signals of draw-bridges in manner as described.

2. The combination of a spring, *d*, and a stop, *f*, with a pinion, *b*, with its stud *e* and a signal-bearer, *g*, in manner substantially as shown and for the purpose set forth.

3. The combination of the swinging or adjustable signal-bearers *g* and *i* with the yokes or double transmitting-arms *k* and *k'*, connected by means of ropes or wires *l l*, in manner substantially and for the purpose as shown.

4. The combination of a signal and its swinging or adjustable bearer *i*, and the double transmitting-arms or yokes *k'* and k^2, with each other and with the double arms or yoke k^3 and its adjustable signal-bearer *m*, arranged relatively to and in manner substantially as described, and for the purpose set forth.

LUTHER B. EDGECOMB.

Witnesses:
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