

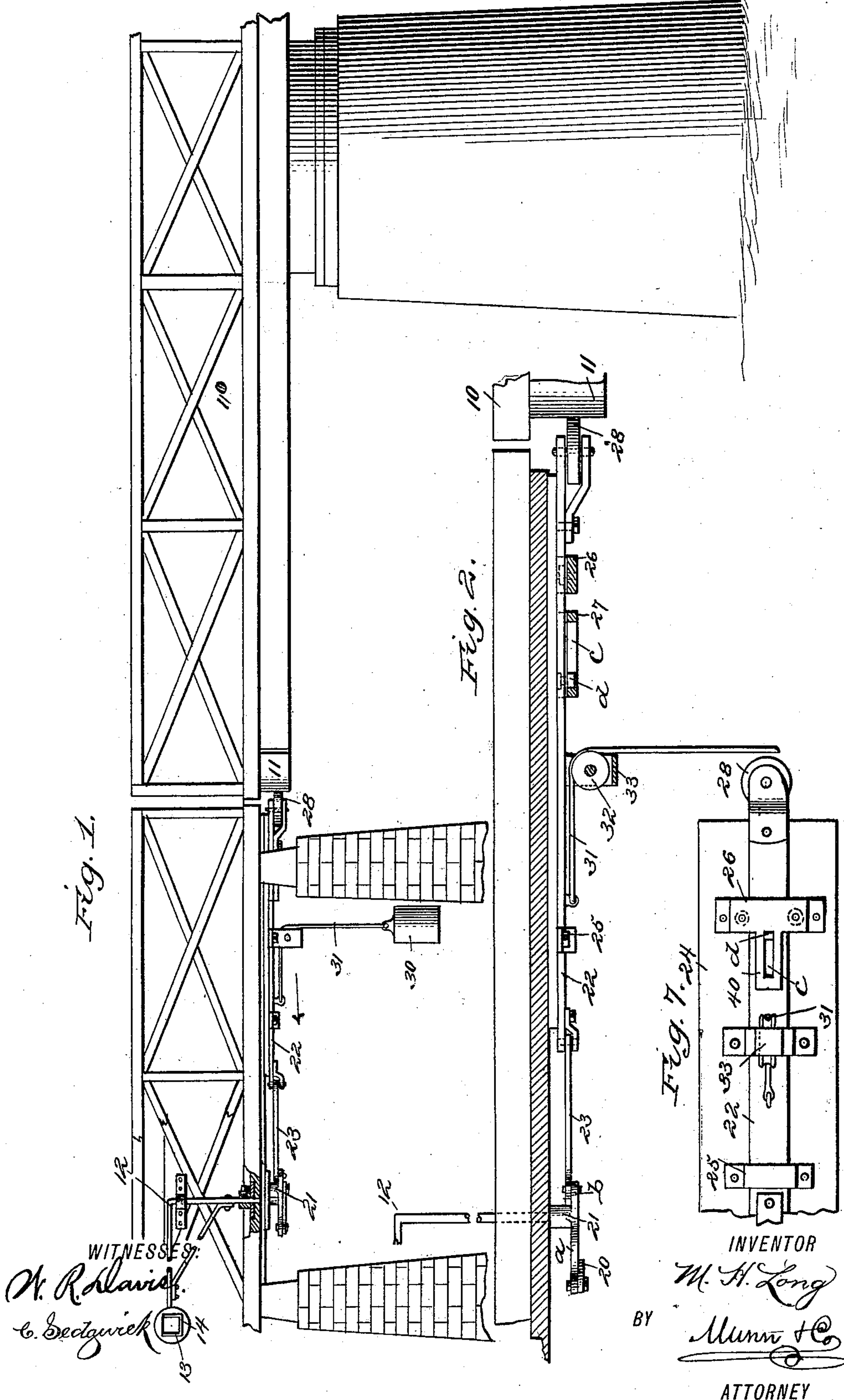
(No Model.)

2 Sheets—Sheet 1.

M. H. LONG.
DRAW BRIDGE SIGNAL.

No. 405,042.

Patented June 11, 1889.



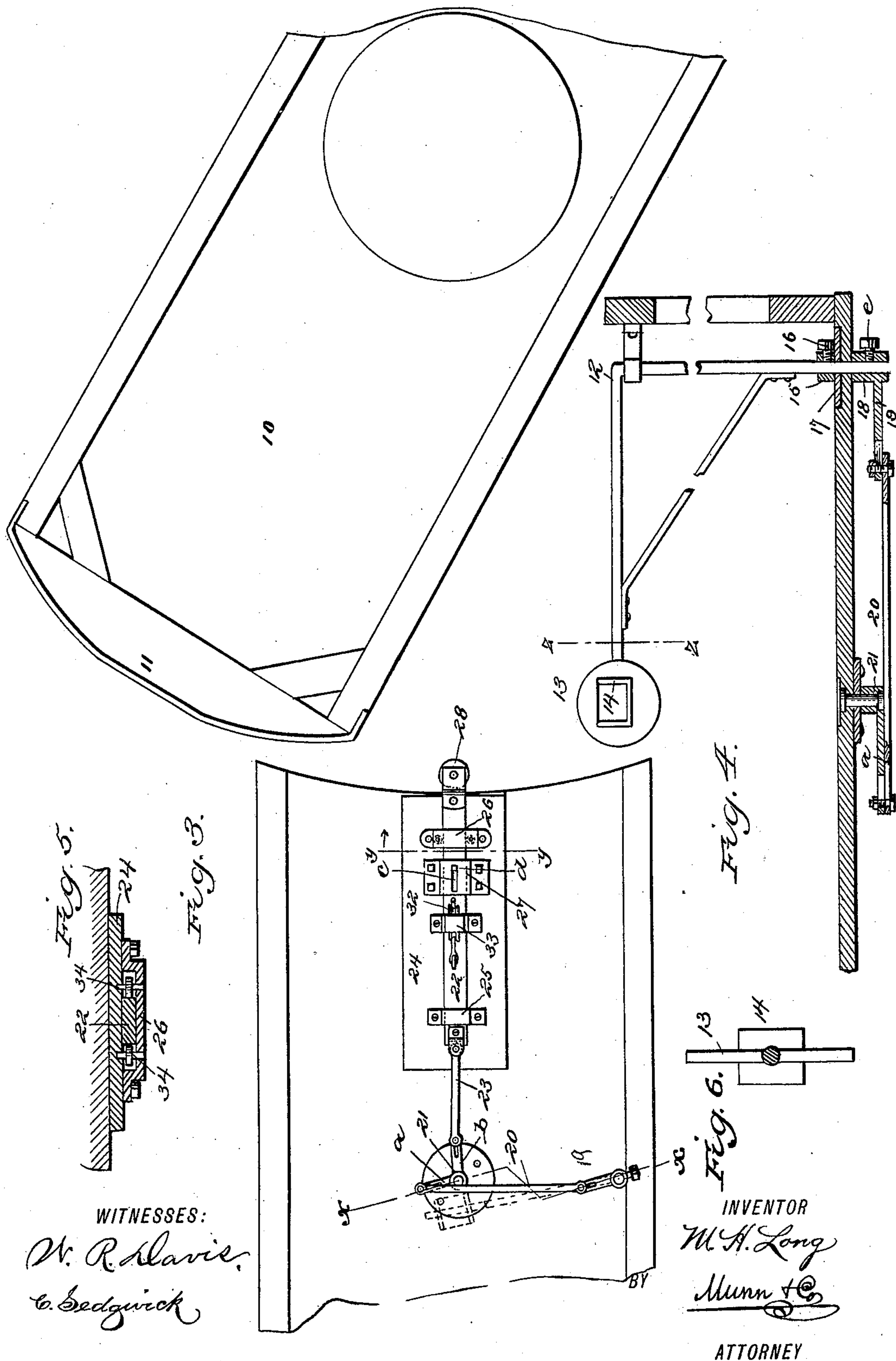
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DRAW BRIDGE SIGNAL.

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Patented June 11, 1889.



UNITED STATES PATENT OFFICE.

MOSES HASTINGS LONG, OF SABULA, IOWA.

DRAW-BRIDGE SIGNAL.

SPECIFICATION forming part of Letters Patent No. 405,042, dated June 11, 1889.

Application filed February 27, 1889. Serial No. 301,355. (No model.)

To all whom it may concern:

Be it known that I, MOSES HASTINGS LONG, of Sabula, in the county of Jackson and State of Iowa, have invented a new and Improved
5 Draw-Bridge Signal, of which the following is a full, clear, and exact description.

This invention relates to draw-bridge signals, the object of the invention being to provide a signal which shall be automatically
10 displayed when the bridge is open.

To the end named the invention consists of a signal constructed and arranged all as will be hereinafter more fully described, and specifically pointed out in the claims.

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

20 Figure 1 is a side view of a portion of a bridge, representing the same as it appears when provided with my improved danger-signal. Fig. 2 is a central longitudinal sectional view of the bridge-approach and the
25 signal-operating mechanism, a portion only of the signal-crane being shown. Fig. 3 is an inverted plan view of a portion of the bridge, the signal-operating mechanism being represented as it appears when the signal is in the
30 danger-indicating position. Fig. 4 is a cross-sectional view on line *x x* of Fig. 3, on an enlarged scale. Fig. 5 is an enlarged cross-sectional view on line *y y* of Fig. 3. Fig. 6 is a sectional view on line *z z* of Fig. 4, and Fig.
35 7 is a detail view of a modified construction.

In the drawings, 10 represents a draw-bridge, to the under side of each end of which there is connected a double cam-faced flange
40 11. Upon the bridge-approach I mount a crane 12, which carries a disk 13, such disk being centrally apertured to receive a box-like structure 14. The crane 12 is supported by a collar 15, which is held to the crane-standard by a set-screw 16, this collar resting upon a wear-
45 plate 17, that is secured to the bridge-approach and centrally apertured to provide for the passage of the crane-standard. To the lower end of this standard I secure a sleeve 18, which carries a sliding lever-arm 19, and
50 to this lever-arm I pivotally connect a link 20, which link is in turn pivotally connected to the arm *a* of a bell-crank lever 21, that is

pivotally mounted beneath the bridge-standard, the arm *b* of said lever 21 being connected to a slide 22 by means of a link, 23. 55

The slide 22 is held to a plate 24, that is secured to the under side of the bridge-support, straps 25, 26, and 27 being employed to support the slide. Upon the forward end of the slide there is mounted an anti-friction roll or
60 wheel 28, which, when the bridge is in the position shown in Fig. 1, will be borne upon by the cam-flange 11 and forced in the direction of the arrow, thus carrying the crane so that its disk-supporting arm will be substantially
65 parallel with the bridge-roadway. In order that the crane may be moved to the position in which it is shown in Fig. 4, when the bridge is open, I connect a weight 30 to the slide 22, this connection being established by means
70 of a rope or chain 31, which passes over a sheave 32, that is mounted in a bracket 33, said bracket straddling the slide, as shown.

In order to reduce the friction between the strap 26 and the slide 22, I mount at each
75 side of the slide anti-friction rolls 34, as shown best in Fig. 5, such rolls serving to prevent any undue friction incident to the side-thrust of the slide; and in order to limit the throw of the weight 30, I form the strap 27 with a
80 slot *c*, that is entered by a pin or stud *d*, carried by the slide.

In practice I prefer that the arms *a b* of the lever 21 should be slotted, this slotting being
85 desirable in order that a proper adjustment of the parts may be readily secured, and it is to further this easy adjustment that I connect the lever 19 to the crane-standard by means of a set-screw such as the one shown
90 at *e* in Fig. 4.

It is a well-known fact that in the operation of railway draw-bridges the bridge-tender is obliged to set danger-signals at either end of the bridge whenever the bridge is open. This setting of the signals not only consumes
95 valuable time, but at times the signals are not set at all, owing to the carelessness of the attendant, and consequently many accidents have occurred which could have been avoided had an automatic signal such as the one here-
100 inbefore described been employed. During the day the signal-disk 13 answers every purpose of a danger-signal; but at night a lantern will be placed in the box-like structure 14,

and as the opening in such structure is at right angles to the extending crane-arm it will be readily understood that when the crane is in the position in which it is shown in Fig. 4 the light would be displayed; but that when the crane is folded back to "safety" the sides of the box 14 would intercept all rays of light.

Instead of the construction above described, I might dispense with the strap 27 and form the strap 26 with a slotted projection 40, adapted to receive the stud *d*.

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

1. The combination, in a draw-bridge signal, of the vertically-adjustable crane 12, having a sliding collar 15, provided with a set-screw, a wear-plate 17, and a lever 19, having a collar or hub 18 on the lower end of the vertical arm of the crane, a set-screw *e* therefor, with the slide projecting beyond the draw-opening, and connections between the rear end of the slide and the lever 19, substantially as set forth.

2. The combination, with a bridge provided

with a cam-face, of a slide provided with an anti-friction roll, straps by which the slide is supported, one of said straps being provided with a slot, a stud carried by the slide which rides in said slot, a weight connected with the slide, a bell-crank lever, connections between the bell-crank lever and the slide, a crane, a lever-arm carried thereby, and connections between said lever-arm and the bell-crank lever, substantially as described.

3. The combination, with a bridge provided with a cam-face, of a slide carrying an anti-friction roll against which the cam-face at times will bear, a weight connected to the slide, a bell-crank lever provided with slotted arms, a link connected to the slide and adjustably connected to one of the bell-crank-lever arms, a crane, a slotted lever-arm adjustably connected thereto, and a link connecting said lever-arm and one of the bell-crank-lever arms, substantially as described.

MOSES HASTINGS LONG.

Witnesses:

WM. E. LONG,
EDWARD C. BROWN.