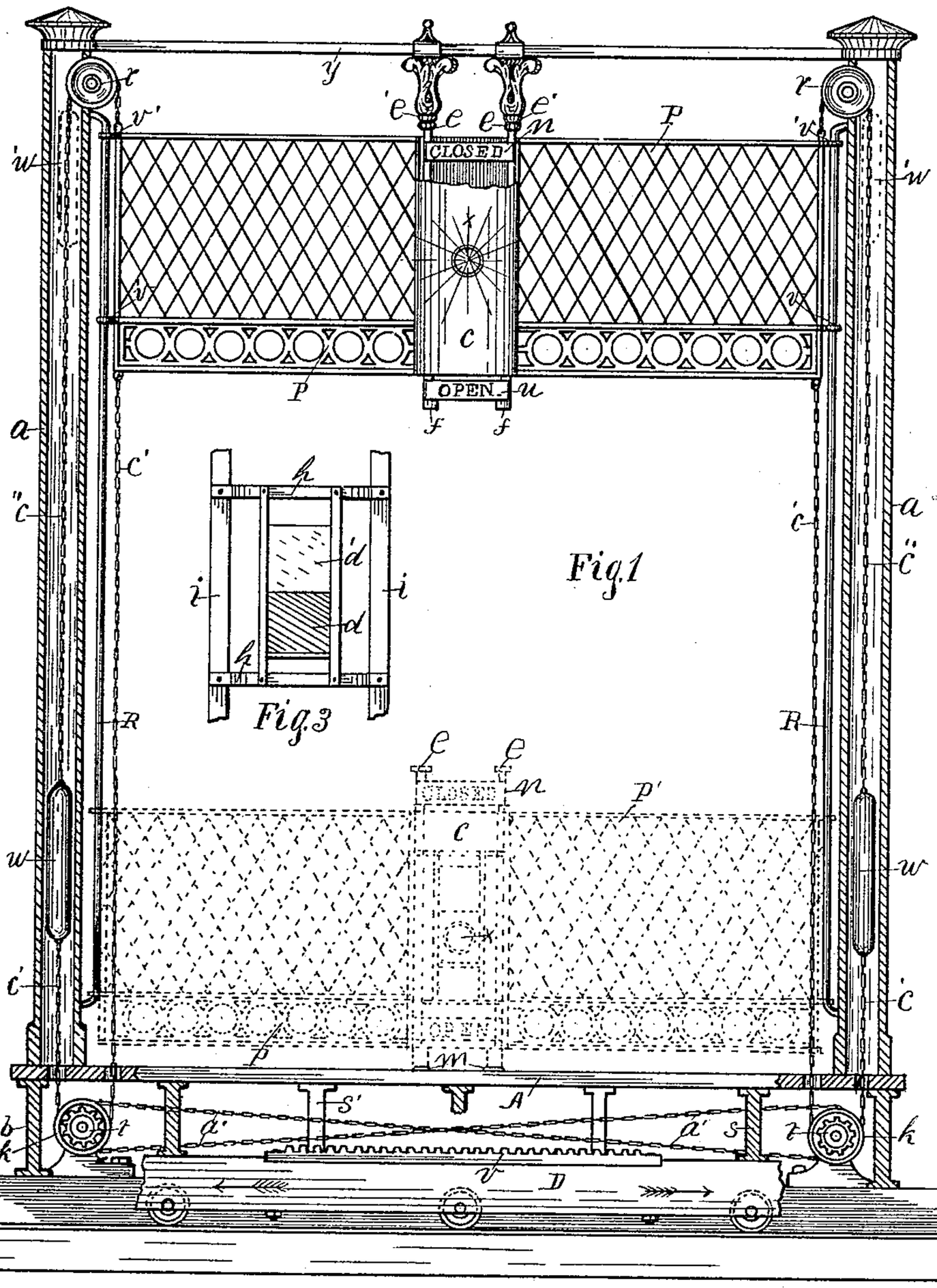
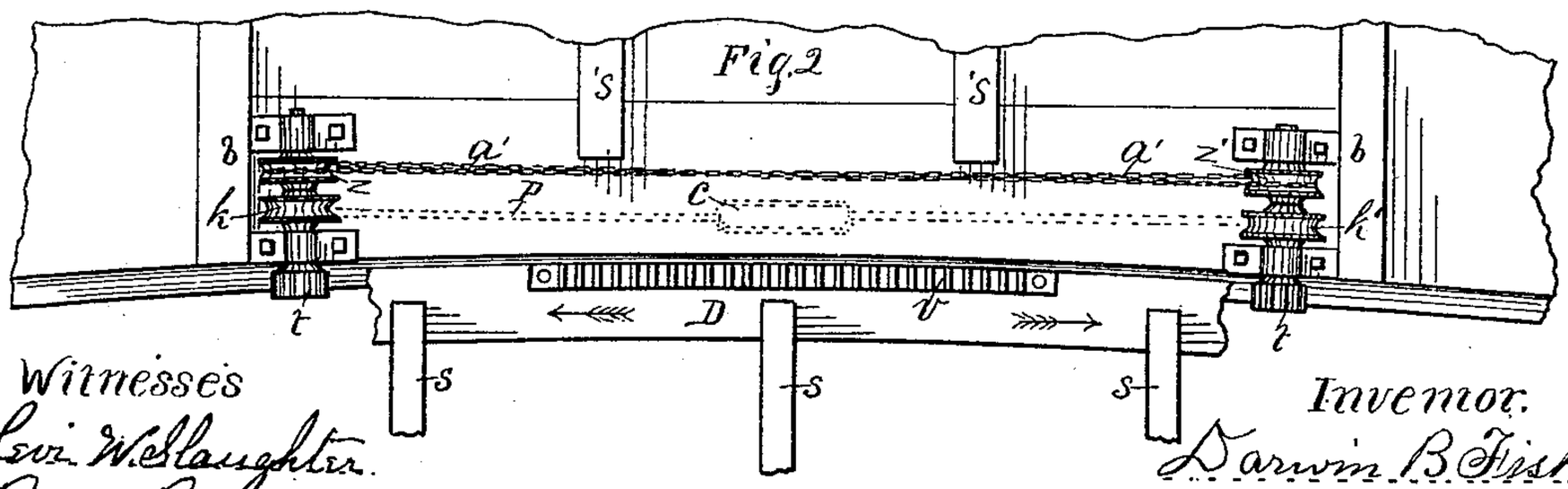
(No Model.) 2 Sheets—Sheet 1.

D. B. FISK.

SIGNAL GATE FOR DRAW BRIDGES.

No. 326,965. Patented Sept. 29, 1885.





Witnesses
Levi W. Slaughter.
Burr Bannister.

Inventor.
Darwin B. Fisk
By John C. Perkins
Atty.

(No Model.) 2 Sheets—Sheet 2.

D. B. FISK.

SIGNAL GATE FOR DRAW BRIDGES.

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Fig. 4

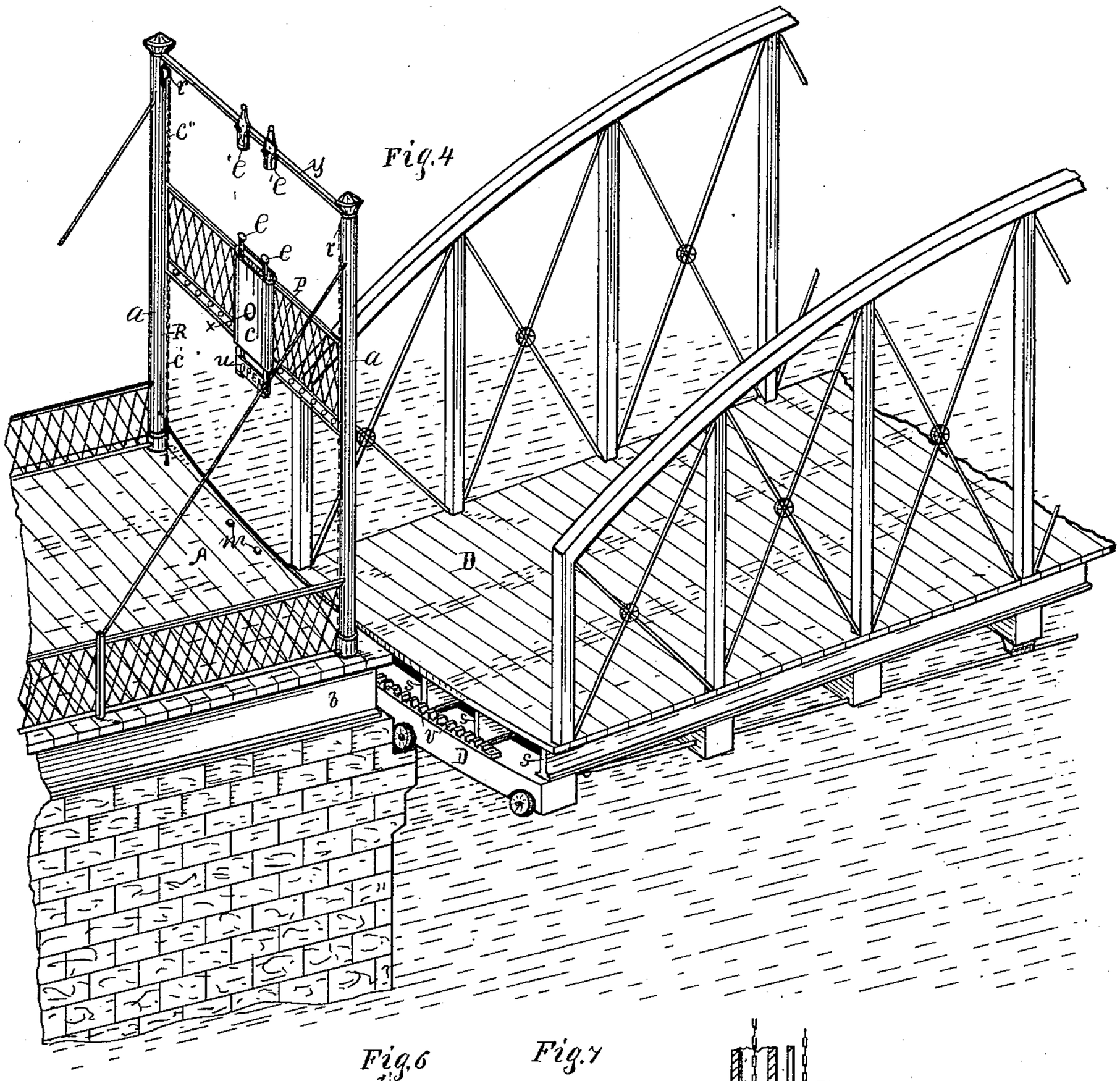


Fig. 5

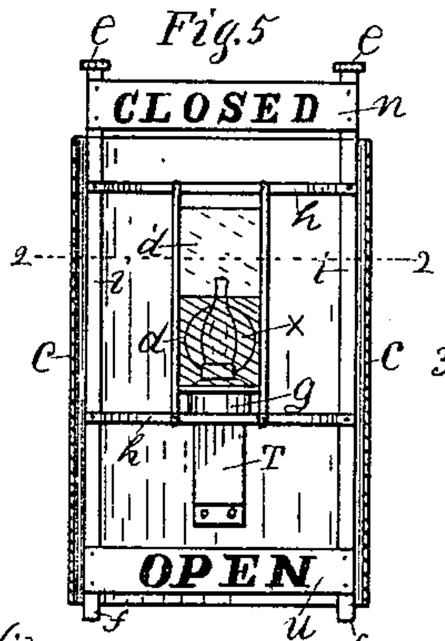


Fig. 6

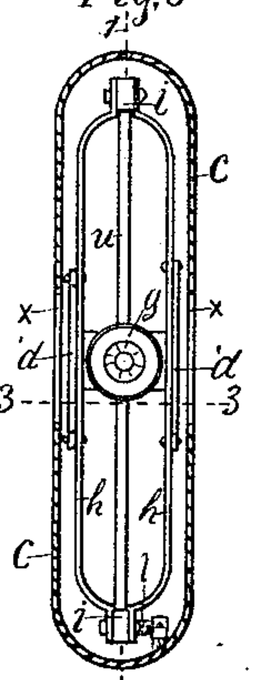


Fig. 7

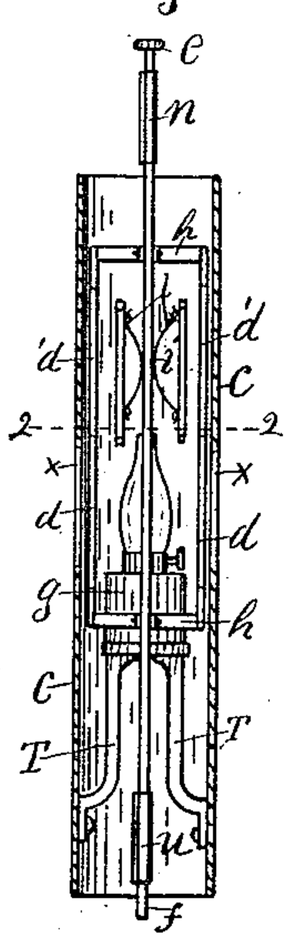
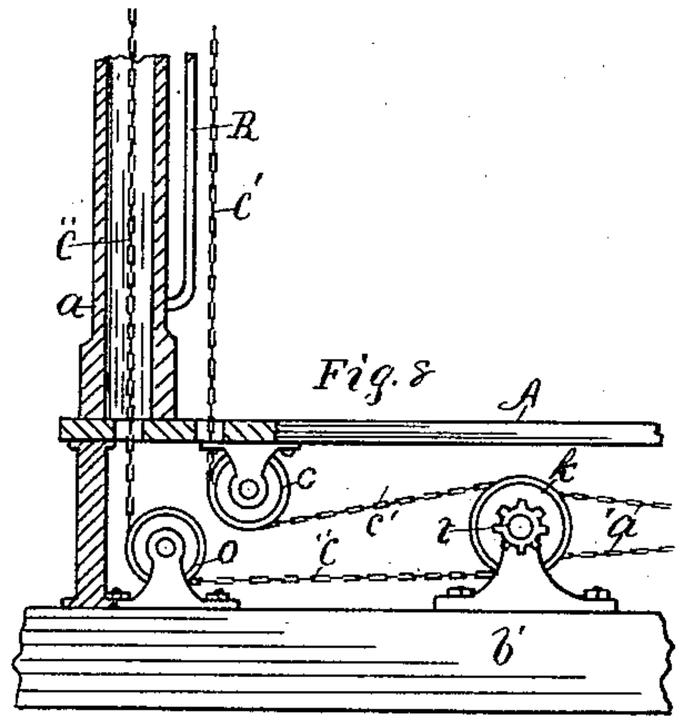


Fig. 8



Witnesses.

Levi W. Slaughter

Wm. T. Bannister

Inventor.

Darwin B. Fisk

By John C. Perkins

Atty.

UNITED STATES PATENT OFFICE.

DARWIN B. FISK, OF KALAMAZOO, MICHIGAN.

SIGNAL-GATE FOR DRAW-BRIDGES.

SPECIFICATION forming part of Letters Patent No. 326,965, dated September 29, 1885.

Application filed June 13, 1884. Renewed August 10, 1885. (No model.)

To all whom it may concern:

Be it known that I, DARWIN B. FISK, a citizen of the United States, residing at Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented certain new and useful Improvements in Gates for Draw-Bridges; and I do declare the following to be a full, clear, and exact description of my invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to that class of gates having signals attached thereto for the purpose of closing a street or railway-line at the entrance to a draw-bridge.

The object of my invention is to prevent accidents while the bridge is open, and to operate the gates by bridge swinging in either direction. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a gate suspended over the roadway, and mechanism operating the same, and also showing a signal-case. Fig. 2 is a plan view showing pulleys, pinion-gear, and rack attached to the bridge for operating the same. Fig. 3 represents a portion of a frame inclosed in a signal-case, carrying glasses for signal purposes. Fig. 4 is a perspective view of bridge and gate partially open, showing rack for operating the gate. Fig. 5 is a sectional view of signal-case, taken on dotted line 1 1, Fig. 6, showing frame carrying signals. Fig. 6 is a sectional view taken on dotted lines 2 2, Figs. 5 and 7. Fig. 7 is a sectional view taken on dotted line 3 3, Fig. 6, showing position of lamp for signal purposes. Fig. 8 is a modification of elevating device, Fig. 1.

Similar letters refer to similar parts throughout the several views.

The gate P is suspended by means of chains or belts c'', passing over pulleys $r\,r$ near the top of columns $a\,a$, and is guided by eyebolts v', attached to gate, sliding on rods R R, as shown in Fig. 1.

P′, Fig. 1, represents in dotted lines the position of gate and signals when the bridge is closed.

P represents the position of gate and signals when the bridge is open.

D represents a portion of the bridge carrying rack v. By moving D in either direction, as indicated by arrows, Figs. 1 and 2, the rack v engages with pinion-gear $t\,t$, thereby rotating shafts carrying pulleys $k\,k'$ and $z\,z'$.

In opening or closing gate P it is necessary to operate both ends of the gate at the same time, which is accomplished by means of crossed chain belt a' operating pulleys $z\,z'$ in opposite directions, and by means of chain belt c' the gate is lowered to a closed position when the bridge is opening in either direction, and by means of chain belt c'' the gate is raised to an open position when the bridge is closing from either direction. The weights $w\,w$, inclosed in hollow columns a and attached to chain or belt c'', counterbalance the weight of gate and signals, the weights $w\,w$ taking the position shown in dotted lines w', Fig. 1, when the gate is closed.

When the gate is raised, the upper ends, $e\,e$, of frame in signal-case engage with projections $e'\,e'$, attached to bar y at the top of hollow columns, forcing the frame downward, thereby exposing the word "Open" at the lower end of signal-case c, and at the same time concealing the word "Closed" in the upper end of signal-case c, thereby indicating that the bridge is closed and the street or railway-line is open.

When the gate is lowered, the ends $f\,f$ of frame i in signal-case c engage with projections m on roadway A, Figs. 1 and 4, the frame is forced upward, exposing the word "Closed" at the top of signal-case c, and at the same time concealing the word "Open" in the lower end of signal-case c, thereby indicating that the bridge is open and the street or railway-line is closed.

The frame $i\,i$, carrying the words "Open" and "Closed," also carries frames $h\,h$, containing glasses indicating "safety" and "danger." The signal-case c is provided with an aperture, x, centrally located for the display of signal-lights. When the frame $i\,i$ is forced upward, the danger-signal glass d is carried between aperture x in signal-case and light of signal-lamp g, thereby indicating "danger," and that the bridge is open and street or railway-line

is closed, and when the frame *i i* is forced downward the safety-signal glass *d'* is carried between aperture *x* in signal-case and light of signal-lamp *g*, thereby indicating "safety," and that the bridge is closed and the street or railway-line is open. The frame *i i*, carrying signals, is held in position at any point by means of springs attached to the inside of signal-case, as shown at *l*, Fig. 7.

The lamp is held in position by brackets T T, attached to inside of signal-case, as shown in Fig. 7.

When bridges are of great width, a modification of the elevating device may be used, as shown in Fig. 8. Sliding and hinged gates may be operated by similar means.

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

1. In combination with a draw-bridge, the suspended counterbalanced gate P, the signal-case attached thereto for inclosing and protecting signals, the frame carrying signals, and means for operating the same, as shown and described.

2. The combination, with an automatically-operating gate and signals, chains *c' c''*, counterbalance-weights, pulleys *r r*, hollow columns inclosing the weights, pulleys *k k'*, pulleys *z z'*, crossed chain *a'*, and pinions *t t*, of a swing-bridge having a rack, *v*, substantially as described.

3. The automatically-operating gate and signals, the chain or belt *c''*, attached to the gate and passing over pulleys *r r*, and attached to upper end of counterbalancing-weights inclosed in said columns, the hollow columns for inclosing weights and supporting gate, the chain or belt *c'*, attached to lower end of said weight and passing under pulleys *k k'*, thence upward and attached to the gate, the crossed chain or belt *a'*, for operating pulleys *z* and *z'* in opposite directions, and the pinions *t t*, rotated by rack *v*, attached to bridge, all in combination, as specified and shown.

DARWIN B. FISK.

Witnesses:
J. H. HOBART BABCOCK,
LEVI W. SLAUGHTER.