

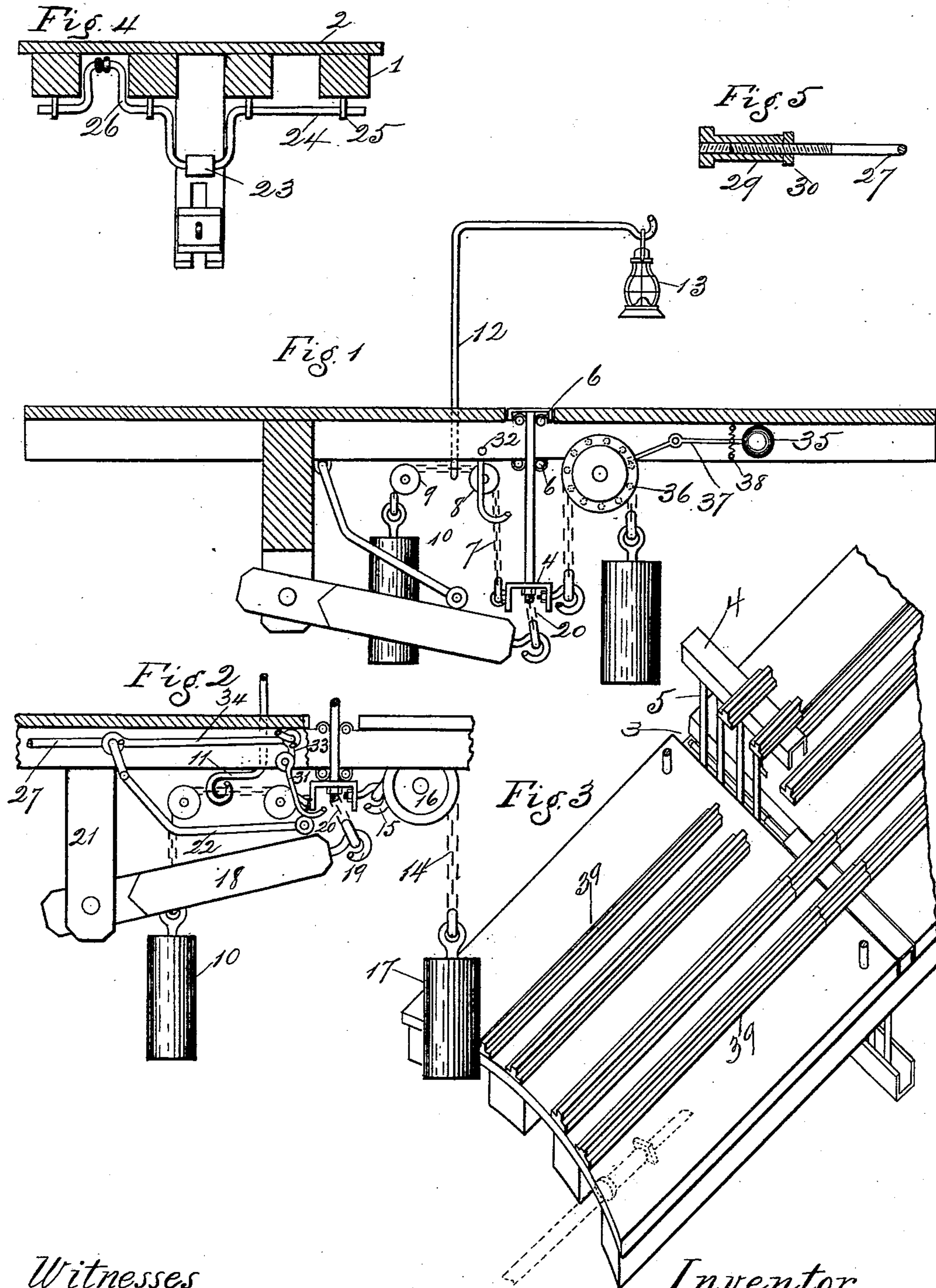
(No Model.)

W. F. CONDON.

SAFETY GATE FOR DRAWBRIDGES AND RAILROAD CROSSINGS.

No. 563,019.

Patented June 30, 1896.



Witnesses
E. C. Overholt
Alfred T. Sage.

Inventor
William F. Condon

UNITED STATES PATENT OFFICE.

WILLIAM F. CONDON, OF SAGINAW, MICHIGAN.

SAFETY-GATE FOR DRAWBRIDGES AND RAILROAD-CROSSINGS.

SPECIFICATION forming part of Letters Patent No. 563,019, dated June 30, 1896.

Application filed April 6, 1896. Serial No. 586,369. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. CONDON, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Safety-Gates for Drawbridges and Railroad-Crossings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to gates intended more particularly for drawbridges, and it has for its object to provide an efficient and comparatively inexpensive construction, in which the gate, as the draw is swung open, will be projected above the road-bed of the bridge and which will stand in that position until the draw is closed and the locking-lever ordinarily employed is operated to lock the draw, said lever when operated being adapted to contact with a part of the gate mechanism, so as to lower the gate and hold it lowered until the draw is again to be opened.

To the accomplishment of the foregoing and such other objects as may hereinafter appear the invention consists in the construction and in the combination of parts hereinafter particularly described, and then sought to be specifically defined by the claims, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a longitudinal section through a portion of a bridge, showing the parts in position when the gate is lowered. Fig. 2 is a side view of a portion of the gate, partly in section, showing the operating parts of the gate in full lines with said parts in the position which they have when the gate is raised, parts of the gate proper and of the light suspending-arm being broken away and a portion of the longitudinally-extending operating-rod being broken away. Fig. 3 is a perspective of a part of a bridge illustrating the gate formed of two parts, with one part elevated and the other depressed. Fig. 4 is a transverse section through the bridge, showing a front elevation of the transverse crank-rod and beam-depressing lever; and Fig. 5 is a detail, partly in section, of a portion of the main operating-rod, which is broken away in Fig. 2 of the drawings.

In the drawings, the numeral 1 designates longitudinal timbers of the bridge, and 2 the bridge-floor. A portion of the bridge-floor adjacent to the draw will be cut away transversely, as indicated at 3, so as to permit the draw-gate to operate through the cut-away portion.

The gate is composed, preferably, of two channel-irons 4, connected together by a series of vertical rods 5, said rods being so positioned that they can move up and down between the longitudinal timbers of the bridge, the upper channel-iron being adapted to lie in the transverse opening 3 of the bridge-floor and flush with the bridge-floor when the gate is lowered.

The gate is guided in its vertical movements and prevented from swinging laterally by means of transverse rods 6, extending across the longitudinal timbers of the bridge and secured thereto by staples or otherwise to both the top and bottom of the longitudinal timbers.

A chain 7 is connected to one side of the lower channel-iron 4 and passes over sheaves 8 and 9 and has a weight 10 connected to its end, to which chain is connected the crank-arm 11 of a swinging standard 12, which carries the lantern 13, so that when the draw-gate is raised the weight 10 will turn the crank-arm 11, so as to swing the upper arm of the standard 12 to bring the lantern crosswise of the bridge, to indicate that the gate is raised, said crank-arm being turned in the opposite direction in the downward movement of the gate, so as to swing the upper arm of the standard parallel with the bridge when the gate is lowered, to indicate that the roadway is clear. To the opposite side of the lower channel-iron 4 is connected one end of the chain 14 by means of a hook 15 or otherwise, which chain passes over a sheave 16 and has connected to its lower end a weight 17, adapted to project the gate into its elevated position when the gate is to be raised, which weight may be assisted in its action in lifting the gate by the other weight 10.

The lower portion of the gate is connected to a vertically-swinging beam 18, for instance, by means of a hook 19, projecting from the end of the beam and connected by a link or chain 20 to the lower part of the draw-gate, as illustrated in Figs. 1 and 2 of the drawings, which

beam 18 is pivoted at its rear to a depending bracket 21. Above the beam 18 is a swinging lever 22, which may have a friction-roller 23 at its end adapted to contact with the top of the beam 18. I prefer to form this lever 22 as a part of rod 24, extending transversely across the bottom of the longitudinal timber 1 of the bridge and adapted to turn in eye-bolts 25, which will support the rod from the longitudinal timbers. This transverse rod is formed with a crank 26, to which is connected the inner end of an operating-rod 27, extending longitudinally of the bridge-timbers and between two of them, as indicated in Figs. 2 and 4 of the drawings. The outer end of this rod will terminate in a line flush with the end of the timbers 1 next to the draw, or slightly in from the ends thereof in position to have the end of the locking-lever of the draw to contact with it when the locking-lever is thrown in position by the draw-tender to lock the draw, said locking-lever being indicated by dotted lines in Fig. 3 of the drawings, but not illustrated in detail because it is in common use and forms no part of this invention. When this locking-lever is thrown into locking position, it bears against the end of the rod 27 and pushes the same inward, so as to turn the crank 26 of the rod 24, and thus throw down the lever 22, which bearing against the top of the swinging beam 18 will press down that beam and draw down the draw-gate, at the same time lifting the weights 10 and 17, and the several parts are thus brought into the position indicated in Fig. 1 of the drawings and held in that position by the pressure of the locking-lever against the end of the rod 27, so long as the draw remains locked. When the locking-lever is withdrawn to unlock the draw, the weights 10 and 17 will throw the draw-gate and its connections into the position indicated in Fig. 2 of the drawings, at which time the lantern 13 will stand across the road-bed and give the signal that the gate is up and the draw open.

For the purpose of providing for adjustment in the length of the operating-rod 27, so as to compensate for wear and tear or other causes and keep the rod at the proper length, the end of the rod 27 is screw-threaded and a cap 29 is screwed thereon and locked in place by a jam-nut 30. (Illustrated in Fig. 5 of the drawings.)

For the purpose of guarding against any accidental or wilful lowering of the gates by any person other than the draw-tender, I pivot a hook 31 to a cross-rod or pin 32 in such manner that when the draw-gate is elevated the end of the hook will fit beneath the bottom channel-iron 4 and thus prevent the gate from being lowered. This hook has an upwardly-extending arm or extension 33, to which is connected one end of a link rod 34, the other end of which is connected to the crank of the cross-rod 24, so that when the operating-rod 27 is pressed inwardly to depress the beam 18 the rod 34 will press on the extension 33, so

as to throw the hook 31 from under the bottom channel-iron and into the position indicated in Fig. 1 of the drawings, and thus leave the draw-gate free to be lowered.

For the purpose of sounding an alarm at the time that the gate is both raised and lowered, I provide a gong 35, which will be operated by some suitable connection with some part of the gate-operating mechanism. For instance, I may provide a series of pins 36, projecting from one side of the sheave 16 and arranged so as to contact with the rear end of a pivoted finger 37, which at its other end will have the ball or knocker adapted to strike the gong 35. This finger may be connected with a spring 38, adapted to retract the finger in whichever direction it may be moved to strike the gong. As the sheave 16 rotates, the projecting pins thereon will strike the rear end of the finger 37, and thus a series of alarms are given. This will be the case in whichever direction the sheave rotates, so as to sound the alarm in both raising and lowering the gate.

In Fig. 3 of the drawings I have illustrated the bridge as provided with two of these gates, both of which will be provided with and operated in the manner just described, and the construction and operation already given will answer for both. The purpose of employing two gates at each side of the draw is to enable vehicles already on the draw to pass off and prevent others from passing onto the draw, thus enabling the draw-tender to have the draw cleared of all travel before proceeding to open the same. This is done by raising one gate at each end of the draw on opposite sides of the roadway. I have also illustrated in the same figure street-railway tracks laid upon the floor of the bridge. These tracks can be the ordinary flat rails used for street-railways or any other form desired, and are designated by the numerals 39. It will also be observed that where the draw-gates are located sections of these rails are secured to the top channel-bars, so as to be raised and lowered with them.

I have illustrated this draw-gate as applied to only one end of the bridge near the draw; but it will be understood that the other section of the bridge next to the opposite end of the draw will be provided with the gates in the same way.

I have illustrated and described with particularity the preferred details of construction and arrangement of the several parts; but it is obvious that changes can be made therein without departing from the essential features of the invention.

With a gate constructed and applied as I have described it may be said that absolute safety is afforded and accidents guarded against, as an alarm is sounded before the gates are operated either in raising or lowering and sufficient warning thus given to enable persons crossing the bridge to move away from the gates. The gates are also of such

construction that a person cannot pass from one side to the other when raised, nor can the gates be tampered with and operated by any one other than the draw-tender.

5 The bottom of the gate may be an angle-iron instead of a channel-iron.

While this gate is particularly well adapted for drawbridges, still it can be used at railway-crossings or elsewhere.

10 Having described my invention and set forth its merits, what I claim, and desire to secure by Letters Patent, is—

1. In a safety-gate, the combination with a gate adapted to be raised and lowered, of a weight connected with the gate to raise the same, a pivoted beam connected with the gate, a swinging lever adapted to bear against the beam to depress the same for lowering the gate, a rotatable rod having said lever connected to it and formed with a crank, and an operating-rod connected to said crank for operating the same to force the lever against the beam to lower the gate, substantially as and for the purposes described.

25 2. In a safety-gate, the combination with a gate adapted to be raised and lowered, of a weight connected with the gate to raise the same, a pivoted beam, a link connection between said beam and gate, a crank-shaft having a bent lever formed as a part thereof and adapted to bear against the top of the beam to depress the same for lowering the gate, and an operating-rod connected with the crank of said shaft for operating the bent lever, substantially as and for the purposes described.

3. In a safety-gate, the combination with a gate adapted to be raised and lowered, of a weight connected with the gate to raise the same, a pivoted beam connected with the gate, a swinging lever adapted to bear against the top of the beam to depress the same to lower the gate, a chain connected with the gate and having a weight attached thereto, sheaves for the chain to pass over, and a swinging signal-standard having a crank at its lower end connected to said chain so as to be swung across a road-bed as the gate is raised and parallel with the road-bed as the gate is lowered, substantially as and for the purposes described.

40 4. In a safety-gate, the combination with a gate adapted to be raised and lowered, of a weight connected with the gate to raise the same, a swinging beam connected with the gate to lower the gate, a crank-shaft provided with a lever adapted to bear against the top of the beam to depress the same, an operating-rod

connected with the crank of said shaft to lower the lever, a hook adapted to be thrown under the gate when the gate is raised to prevent the gate being lowered, and a link-rod connected at one end to said hook and at the opposite end to the crank of the crank-shaft so as to swing the hook from under the gate when the latter is to be lowered and project the hook under the gate when raised, substantially as and for the purposes described.

5. In a safety-gate, the combination of a gate adapted to be raised and lowered, a chain connected at one end to said gate and provided with a weight at the opposite end to raise the gate, a sheave for said chain to pass over, a swinging beam connected with the gate to lower the same, a lever adapted to bear against the top of the beam to depress the same, a swinging signal-standard formed with a crank at its lower end, and a chain connected at one end with the gate and having a weight at the other end and connected to the crank of the signal-standard so as to swing the standard as the gate is raised and lowered, substantially as and for the purposes described.

6. In a safety-gate, the combination with a gate adapted to be raised and lowered, means for raising the gate, a swinging beam connected with the gate to lower the same, a lever adapted to bear against the top of the beam to depress the same, a crank-shaft to which said lever is connected, an operating-rod connected to the crank of said shaft, and an adjustable cap on the end of said rod, substantially as and for the purposes described.

7. The combination of a gate adapted to be raised and lowered, a weight for raising the gate, a swinging beam connected with the gate to lower the same, a crank-shaft having a lever adapted to bear against the top of the beam to depress the same, an operating-rod connected to the crank of said shaft, a swinging signal-standard, a chain connected to the gate and having a weight and connected with a crank attached to the lower end of said standard for swinging the standard as the gate is raised and lowered, and means for sounding an alarm as the gate is raised and lowered, substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM F. CONDON.

Witnesses:

NATHAN H. ROBBINS,
E. E. OVERHOLT.