

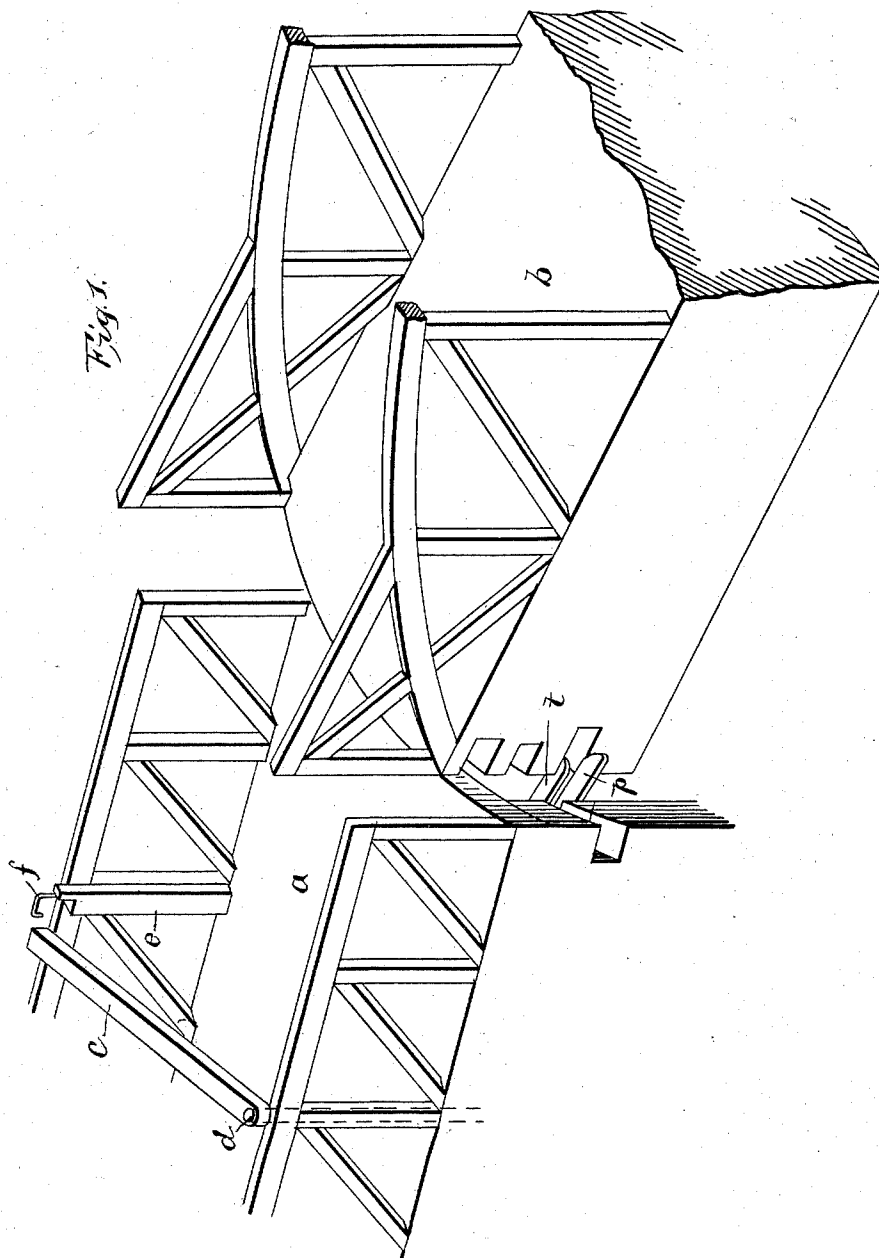
(No Model.)

2 Sheets—Sheet 1.

W. HERRICK.
GUARD GATE FOR DRAWBRIDGES.

No. 483,445.

Patented Sept. 27, 1892.



WITNESSES:

E. C. Duff
Chas M. Werli

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(No Model.)

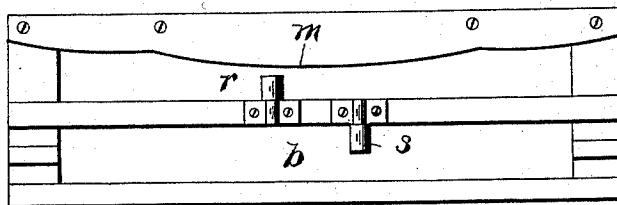
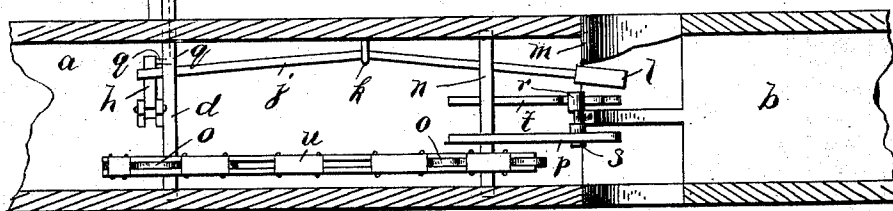
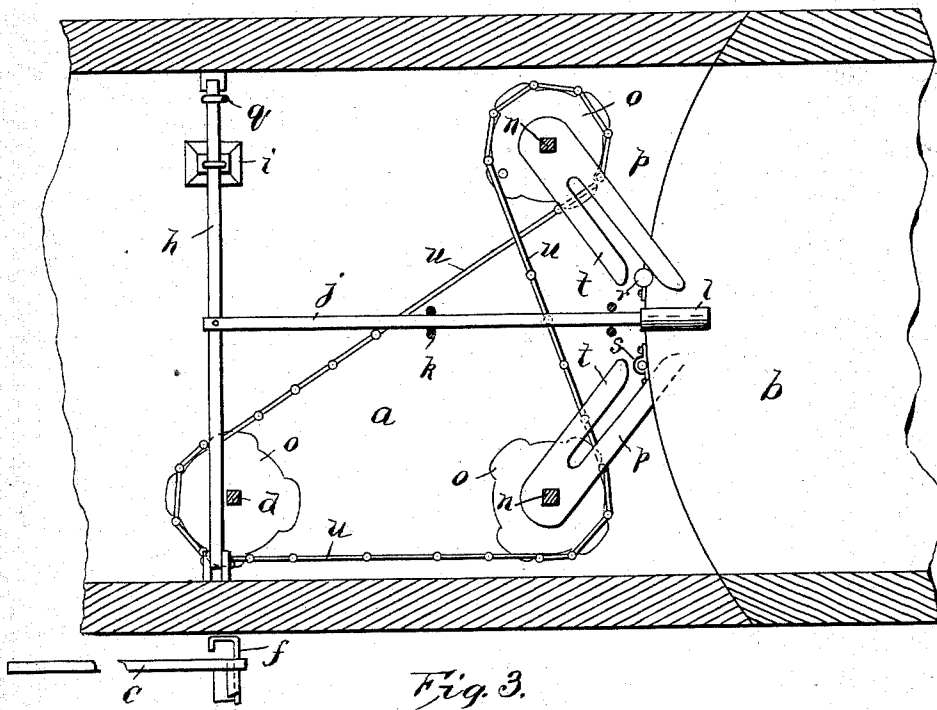
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Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM HERRICK, OF RUSSELL, MINNESOTA.

GUARD-GATE FOR DRAWBRIDGES.

SPECIFICATION forming part of Letters Patent No. 483,445, dated September 27, 1892.

Application filed October 31, 1891. Serial No. 410,487. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HERRICK, of Russell, in the county of Lyon, and State of Minnesota, have invented certain new and useful Improvements in Guard-Gates for Drawbridges; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in guard-gates for drawbridges.

The object of the invention is to provide an improved automatic guard-gate arranged to be automatically operated by the opening and closing of the draw of the bridge to close the ends of the bridge at the draw when said draw is open and to open the gates and the bridge when the draw is closed.

Referring to the accompanying drawings, Figure 1 is a view showing a bridge and its draw provided with my invention. Fig. 2 is a sectional plan taken in a horizontal plane, showing the means for operating the gate and lock for the gate. Fig. 3 is a vertical section showing the relative position of the parts. Fig. 4 is an end view of the draw.

In the drawings reference-letter *a* indicates the bridge, having a draw *b* mounted on a pivot to swing horizontally to open or close the bridge.

c are the swinging guard-gates, located on the bridge at opposite sides of the draw-opening, each gate at one end being rigidly mounted on a vertical shaft *d*, suitably journaled in the framework of the bridge and extending beneath the surface of the bridge. Each gate closes against a vertical gate-post *e* on the opposite side of the passage-way of the bridge from the vertical shaft carrying the swinging gate, and an end or projection of the gate overlaps this gate-post. When the gate is closed, it is locked by a suitable lock or catch, such as *f*, controlled by suitable means, such as a rod *g*, extending down said post beneath the surface of the bridge and there secured to the free end of lever *h*, pivoted at one end to swing vertically and provided with the weight *i* to hold the lever and

the lock down in their normal positions, the locked position being the normal position of the lock. This weighted lever is raised to release the lock by means of horizontal lever *j*, fulcrumed between its ends at *k* and at one end secured to the free end of the weighted lever, with its opposite end extending centrally beyond the end of the bridge at the draw-opening and provided with horizontal roller *l*, bearing up against downwardly-projecting curved edge *m* on the end of the draw. This edge *m* is cam-shaped, and its greatest depth is at the central portion of the end of the draw, from whence it tapers upwardly to its ends, so that when the draw is in its normal closed position said edge will depress the outer end of said lever *j*, and thereby hold the weighted lever and the lock raised, so that the gate can be swung open; but when the draw is swung laterally to open, the roller, traveling on said edge, is allowed to move up, whereby the weighted lever is allowed to drop and carry the lock down into locking position.

The gate is controlled and operated by suitable means—such as a pair of vertical shafts *n*—mounted beneath the surface of the bridge, on opposite sides of the open end thereof. Each of said shafts *n*, and also the gate-carrying shaft *d*, is provided with horizontal sprocket-wheels *o*, and a sprocket-chain *u* or other suitable connection so connects all of these sprocket-wheels that when said two shafts *n* are turned in opposite directions they will rotate the gate-carrying shaft in the same direction. Each shaft *n* is provided with a pair of fingers or arms *p t*, which project beyond the bridge beneath the end of the draw. The arms or fingers of each pair are located parallel, or side by side, with a space between, and the inner arm is shorter than the outer arm, and the pair of arms on the two shafts *n* are located in different horizontal planes. The draw at its end carries a projection for each pair of said arms *p t*. Said two projections *r s* are provided with vertical rollers and are located in different planes to correspond to the plane of their respective arms *p t*. These projections *r s* and their respective arms *p t* are so arranged that when the draw is closed and in its normal position the guard-gate is swung open and the two series of arms *p t* are swung inwardly

and the projections *r s* rest within their respective pairs of arms and the gate-lock is held raised by the depending edge on the end of the draw. Thus when the draw is swung open in either direction one of the projections *r s* will engage the long outer arm of its respective pair of arms and will swing the same outwardly, and thereby operate the shaft and gearing and swing the gate-shaft in the direction to swing said gate closed against its post, and as soon as the gate strikes its post the depending edge at the end of the draw permits the weighted lever to draw the lock down and hold the gate closed.

It is evident that duplicate mechanisms are employed at opposite ends of the draw to control the gates at opposite ends of the draw.

It is obvious that by the use of my invention many accidents would be avoided and safety assured.

The device is exceedingly simple and is entirely automatic in action, requiring no attention or operators, and can be put up at a minimum cost.

Any kind of gearing can be employed other than that here shown and other means not here shown can be used to operate the lock.

It is evident that various changes might be made in the form, constructions, and arrangements of the parts described without departing from the spirit and scope of my invention. Hence I do not wish to limit myself to the construction herein set forth.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a bridge-guard, the combination of the draw provided with a cam edge at its end, the horizontally-swinging gate, a gate-post, gearing whereby the gate is automatically operated by the movements of said draw, an automatic vertically-movable gravity-lock for said gate at said gate-post, and a system of levers, one of which is weighted, operated by said edge of the draw to control said lock, as set forth.

2. In a bridge-guard, the combination of the draw having projections and the cam edge, the vertical shaft carrying the swinging gate, the sprocket-wheel on said shaft, the two ver-

tical shafts on opposite sides of the end of the bridge, provided with sprocket-wheels, a sprocket-chain connecting all of said shafts, substantially as described, so that the gate can be operated from either shaft, the double fingers on each of said shafts at the end of the bridge to respectively engage a projection of the draw, a lock for said gate, and the levers controlling said lock and operated by said edge of the draw, substantially as described.

3. In a bridge-guard, the combination of a vertical shaft carrying the swinging gate, a sprocket-wheel on said shaft, two shafts at opposite sides of the edge of the approach, carrying sprocket-wheels, a sprocket-chain uniting said sprocket-wheels, substantially as described, the double fingers on said last-mentioned shafts, and the draw having means to engage and swing said projections, in the manner substantially as described.

4. In a drawbridge-guard, the operating-shafts on opposite sides of the end of the approach, the gate-shaft carrying the horizontally-swinging gate, gearing connecting said shafts, so that the gate-shaft will be swung by either of said operating-shafts, as described, the double fingers rigid with said operating-shafts, the fingers on each shaft located in different planes, and the draw provided with vertical projections in different planes projecting into the path of said fingers, substantially as described.

5. In a bridge-guard, the swinging gate, operating mechanism therefor controlled by the draw, the draw having a cam edge, a gate-post, the vertically-movable vertical rod having the lock in its upper end to hold the gate closed, a swinging lever and counterweight mechanism for said lock, and a controlling lever therefor having one arm held in engagement with said edge to operate the lock, as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WILLIAM HERRICK.

Witnesses:

H. A. BARNES,
E. D. WILSON.