

(No Model.)

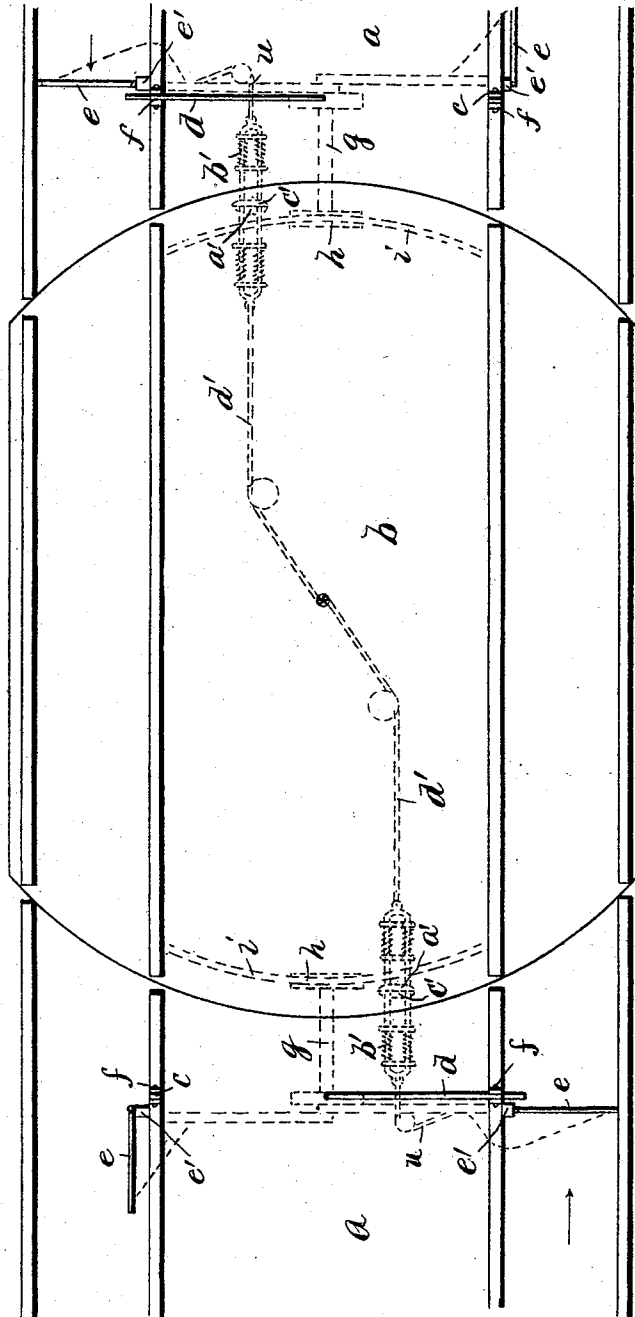
3 Sheets—Sheet 1.

W. F. CLAUSEN.
AUTOMATIC BRIDGE GATE.

No. 536,129.

Patented Mar. 19, 1895.

Fig. 1.



Witnesses:
E. C. Duffy
Hubert P. Reck

Inventor:
H. F. Clausen
per J. E. Duffy
Attorney

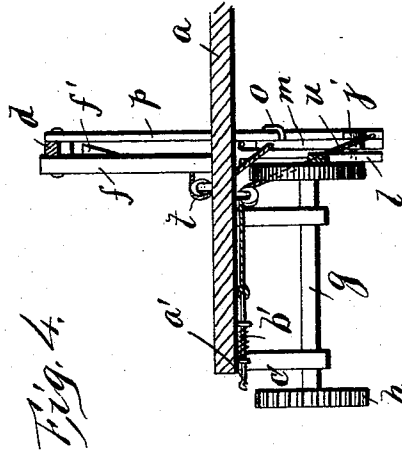
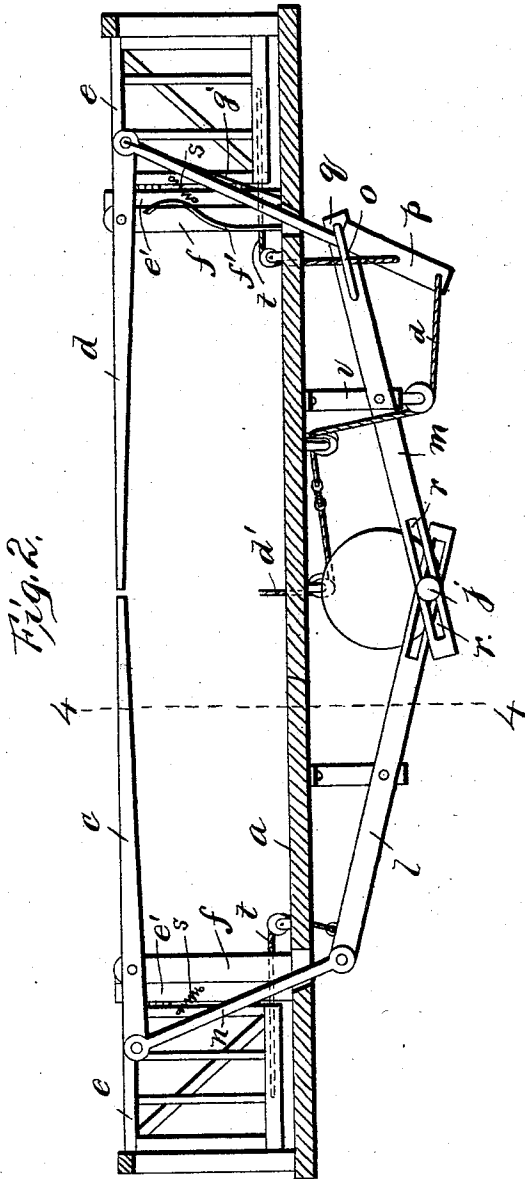
(No Model.)

3 Sheets—Sheet 2.

W. F. CLAUSEN.
AUTOMATIC BRIDGE GATE.

No. 536,129.

Patented Mar. 19, 1895.



Witnesses
E. C. Duffy
C. M. Werle

Inventor
H. F. Clausen
per *[Signature]*
Attorney

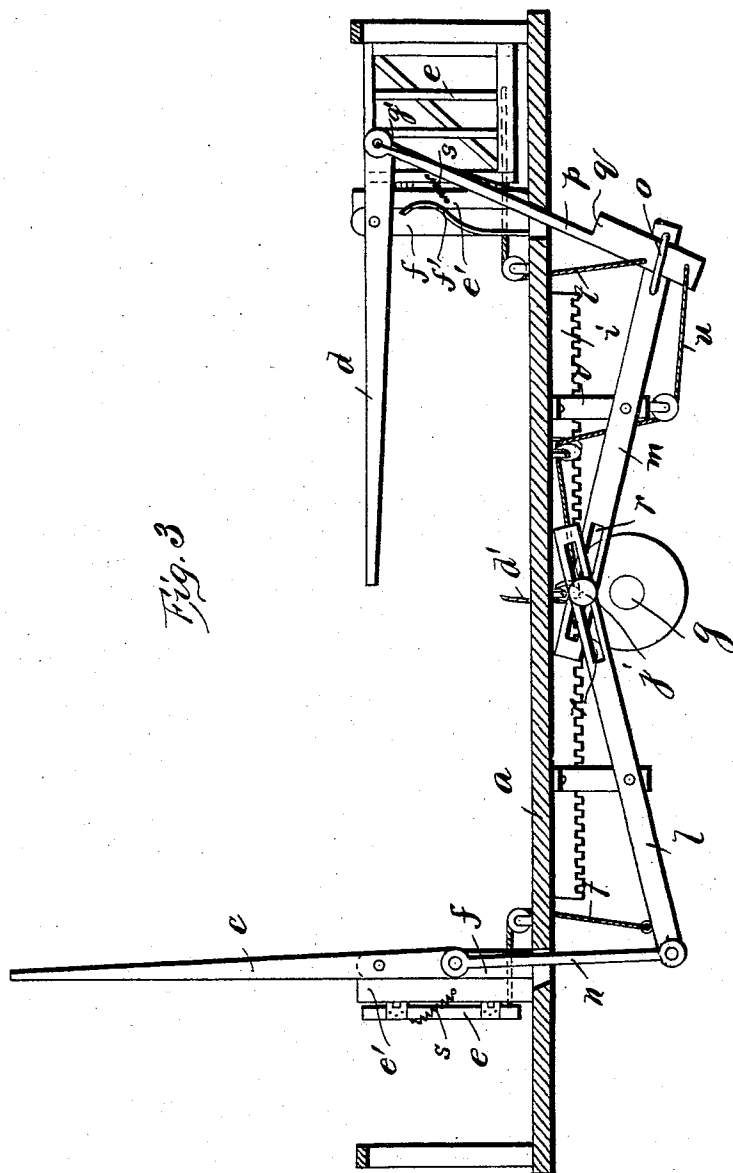
(No Model.)

3 Sheets—Sheet 3.

W. F. CLAUSEN.
AUTOMATIC BRIDGE GATE.

No. 536,129.

Patented Mar. 19, 1895.



Witnesses
E. C. Duffy
C. M. Werle

Inventor
W. F. Clausen
per *E. C. Duffy*
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM FREDRICK CLAUSEN, OF SHEBOYGAN, WISCONSIN, ASSIGNOR OF
ONE-HALF TO S. J. FAIRWEATHER, OF SAME PLACE.

AUTOMATIC BRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 536,129, dated March 19, 1895.

Application filed April 23, 1894. Serial No. 508,750. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FREDRICK CLAUSEN, of Sheboygan, in the county of Sheboygan and State of Wisconsin, have invented certain new and useful Improvements in Automatic Bridge-Gates; 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 automatic safety gates for draw bridges.

The object of the invention is to provide an improved safety gate for draw bridges, automatically operated by the movement of the draw or swinging portion of the bridge to close the roadway of the bridge when the draw is opened, and to open the roadway for traffic when the draw is closed.

A further object of the invention is to provide an improved automatic safety gate for draw bridges having means to close the roadway of the bridge and also means to close the side walk or walks of the bridge connected with and operated by the movement of the roadway gate.

A further object of the invention is to provide an improved automatic safety gate for draw bridges operated by the movement of the draw and wherein one or more of the gates can be operated previously to the opening of the draw so that the passage of vehicles or pedestrians on to the draw just previous to the opening thereof can be prevented.

A further object of the invention is to provide certain improvements in details of construction and arrangements of parts whereby a simple, durable and highly efficient automatic safety gate for draw bridges is provided.

The invention consists in certain novel features of construction and in combinations of parts more fully and particularly described hereinafter and pointed out in the claims.

Referring to the accompanying drawings:—
50 Figure 1, shows, somewhat diagrammatically

a plan view of the draw bridge provided with the present improvement, the draw bridge closed and consequently the gate held in the open position by the gearing of the draw, the right hand gates being shown in the lowered positions which they assume when the draw is about to be opened. Fig. 2, is a sectional view showing the gates in their closed positions. Fig. 3, is a similar view showing the left hand gate opened and the right hand gate closed. Fig. 4, is a sectional view on the line 4—4 Fig. 2, through a portion of the bridge showing the shaft which is controlled by the gearing on the draw and operating the levers controlling the gates.

In the drawings the reference letter *a*, is a bridge having the draw *b*, usually swinging transversely on the center pin or support. The bridge is shown as having the center roadway with the side walks on opposite sides thereof. The bridge on both sides of the draw is provided with suitable gates to close the roadway and the side walks when the draw is opened for obvious reasons. Mast gates *c* and *d*, are usually provided to close the roadway while ordinary swinging gates, such as *e*, can be employed to close the side walks.

f, indicates posts on which the mast gates are pivoted, these posts being located at the sides of the roadway.

The mast gates of the road way are preferably arranged in pairs as shown, or if desired I can employ but one mast gate only at each end of the draw by extending the right hand gate *d*, so as to project completely across the roadway.

Shafts *g*, are arranged centrally and longitudinally beneath the bridge in suitable supports at opposite ends of the draw. Each shaft can be provided with a gear wheel, *h*, arranged to mesh with the rack *i*, carried by the draw, the rack and pinion at each end of the draw being so arranged and proportioned as to rotate each shaft *g*, the desired distance as the draw opens or closes. Suitable mechanism is interposed between these shafts *g*, and the gates to automatically operate the gates as required. To accomplish this end each shaft at its inner end is pro-

vided with a disk (or crank arm) having the crank pin *j* on the outer face thereof.

l and *m*, indicate levers transversely arranged beneath the bridge end, each lever 5 between its ends being fulcrumed to a hanger or supported from the bridge so that the lever can rock vertically. The outer end of each lever is attached to the short end of its mast gate, the lever *l*, having its outer end at- 10 tached to the short end of the gate *c*, by means of the link *n*, passing up through the opening in the bridge roadway. The lever *m*, is provided with the longitudinal slot *o*, at its outer end. A link or bar *p*, is at its upper end 15 pivotally joined to the short end of the gate *d*. This rod extends downwardly through an opening in the bridge floor and is extended downwardly through the slot *o*, in the lever *m*, and within its length is provided with the 20 upwardly facing shoulder or catch *q*, arranged to engage the outer end of the slot *o*, the arrangement being such that when the lever *m*, is in the position shown in Fig. 2, with the end of the slot *o*, resting in said notch of the 25 bar *p*, the gate *d*, will be held in the lowered position. The inner ends of the levers *l-m*, cross each other and extend across the face of the disk *j*, and said levers are provided with the elongated longitudinal slots *r*, through 30 which the crank pin *j*, extends. Thus it will be observed that when the shaft *g*, is rotated so that the crank pin *j*, is at its lowest point the outer ends of the levers *l-m*, may be thrown upwardly thereby raising the short 35 ends of the mast gate and lowering said gates. As the draw is closed the shafts, *g*, at opposite ends thereof in the bridge are rotated until the crank pins *j*, reach their highest positions when the draw is closed and the outer ends 40 of the levers *l-m*, are depressed thereby drawing down the short ends of the mast gates and raising said gates to their vertical positions.

The gates for the side walk are pivoted to 45 suitable posts *e'*, and provided with springs *s*, tending to close the gates. Each gate is operated by the flexible connections or cords *t*, extending from the gates down through the floor of the bridge. The connection *t*, from 50 the left hand gate is secured to the lever *l*. The connection *t*, from the right hand is attached to the bar *p*. Thus when the levers *l, m*, and consequently bars *n, p*, are drawn down to raise the mast gates, the connections 55 *tt*, will swing open the side walk gates against the tension of their springs *s*, constantly tending to close them. When the lever *l*, or bar *p*, is raised to close the mast gates connections *tt* will be loosened and springs *s s*, will 60 close the sidewalk gates.

The flexible connections *u*, extend inwardly from the lower end of each bar *p*, to the pulley in the hangers *v*, and from thence upwardly along the under side of the bridge floor around 65 suitable pulleys to the spring actuated shoe *a'*, having the curved surface and arranged to

extend beyond the edge of the bridge at the opening for the draw. This shoe can be supported by suitable rods and is held yieldingly in its normal position by the springs *b'*, the 70 similar shoe being arranged at opposite sides or ends of the draw opening in the bridge connected respectively with the bars *p*, on opposite sides of the draw opening.

The draw is provided with the corresponding 75 shoes *c'*, yieldingly held by springs and rods in the manner similar to the shoe *a'*. These shoes *c'*, are arranged at opposite ends of the draw, so as to engage the inner surface of the shoe *a'*, when the draw is swinging to 80 closed position; the inner surfaces of the shoes being curved or rounded for this purpose. The shoes *c'*, of the draw are provided with the connections *d'*, extending beneath the 85 floor of the draw to about a central portion thereof and then upwardly through the floor so that the operator can move the said shoes by pulling on the connections *d'*. When the 90 gates are in their open position and it is desired to lower the right hand gates to prevent traffic toward the draw previously to the opening of the draw, the operator at the mid- 95 dle of the draw pulls on the connections *d'*, thereby through the medium of the shoes *a'*, and *c'* drawing on the connections *u*, so as to swing in the lowered ends of the bars *p*, and 100 release the catches or shoulders *q*, from the inner ends of the slots *o*. The gates *d*, are thus released and will fall to the lowered position, the bars *p*, passing freely upwardly through the slots *o*. Springs *f'*, can be provided to start the gates *d*, in their downward 105 movement and flexible connections *g'*, can be provided to limit their downward movement. When the draw is open the gearing will throw 110 the levers *l-m*, and close the other gates and the slots *o*, will pass upwardly on the bar *p*, and catch in the notch *q*, in position or raise the gates when the levers *l-m*, are again 115 rocked in the opposite direction.

It is evident that various changes might be made in the forms, arrangements and constructions of the parts described without departing from the spirit and scope of my invention. Hence I do not wish to limit myself 115 to the exact construction herein set forth, but consider myself entitled to all such changes as fall within the spirit and scope of my invention.

Having thus fully described my invention, 120 what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. An automatic safety gate for draw bridges detachably connected with and operated by the draw, and operating connections for the 125 gate normally controlled by the draw, and connected and arranged so that said gate can be disconnected from its gearing with the draw and lowered independently of the draw, substantially as described.

2. A safety gate for draw bridges, comprising the gate detachably connected with and 130

operated by the draw and provided with independent connections for releasing the gate when raised so that it can drop to closed position independent of the draw.

5 3. A safety gate for draw bridges, comprising the swinging gate, a system of gearing and levers operating the gate from the draw, and a detachable connection between a gate and a lever whereby the gate can be released from
10 said gearing and levers and drop to lowered position independently of the draw, substantially as described.

4. In a safety gate for draw bridges, the combination of the vertically movable mast
15 gate, the shaft beneath the floor of the bridge connected with and operated by the movements of the draw and having the crank pin, the two vertically movable levers fulcrumed between their ends and having the inner slot-
20 ted ends on said crank pin, outer end of one lever directly connected to the short end of one of the gates, and a separable or detachable connection between the outer end of the opposite lever and the short end of the oppo-
25 site gate, substantially as described.

5. In an automatic gate for draw bridges, the combination of the vertically swinging lever having a longitudinal slot at one end, means for operating said lever from the draw
30 bridge, a swinging gate, a rod connected with the gate to swing the same and extending down through said slot and provided with a shoulder to engage one end of the slot, and means, substantially as described, to move the
35 rod to disengage said shoulder from the slot, substantially as set forth.

6. In a safety gate for draw bridges, a swinging gate, operating connections for the gate, detachably connecting said gate with
40 the draw to operate the gate by the movement of the draw, and a tripping connection arranged in relation to said gate operating connections to detach said connections from the gate when the gate is elevated so that it can

drop to lowered position, a spring to start the
45 gate in its downward movement, and a stop, substantially as described.

7. In a safety gate for draw bridges, a swinging gate, operating connections there-
50 for actuated by the movements of the draw bridge and detachably connected with the gate, and connections from the draw bridge arranged to detach said operating connections from the gate for the purpose set forth.

8. In a swinging gate for draw bridges, the
55 combination of the vertical swinging mast gate, gear and lever connections from the draw bridge to the controlling rod of said gate, said controlling rod having a detachable connection with said operating lever, a spring
60 shoe substantially as set forth, connected with said rod and arranged at the end of the bridge, and another spring shoe carried by the draw bridge and arranged to engage the first men-
65 tioned shoe and provided with the connections to the upper side of the draw bridge, substantially as described.

9. A draw bridge safety gate comprising a shaft connected with and rotated by the
70 swinging of the draw, a movable gate constantly tending to assume the closed position, detachable operating connections between the gate and said shaft arranged to move the gate to open or closed position by the move-
75 ment of the shaft and connections arranged, to detach said operating connections when the gate is in open position and thereby permit the gate to automatically close independently of the shaft and draw, substantially as de-
80 scribed.

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

WILLIAM FREDRICK CLAUSEN.

Witnesses:

F. I. SAEMANN,

SAML. J. FAIRWEATHER.