

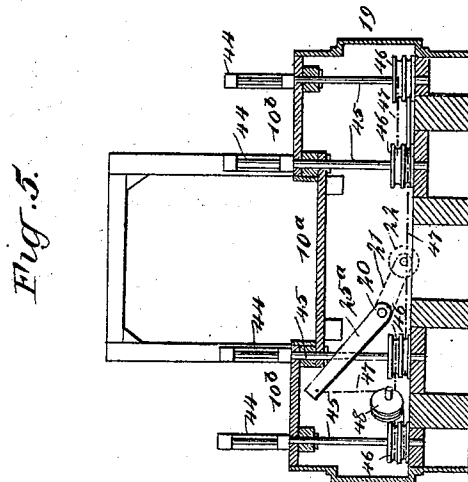
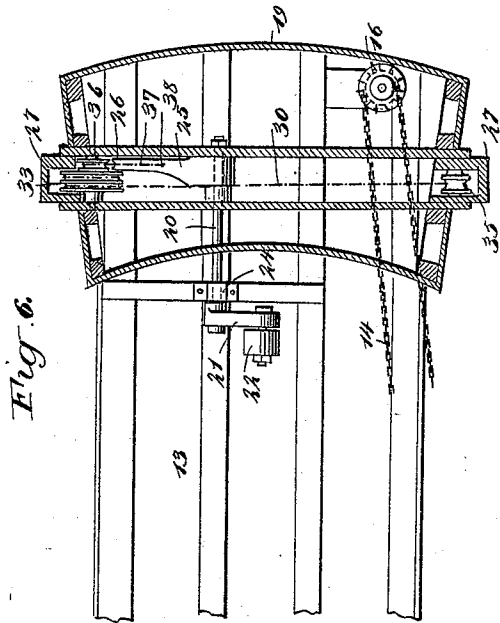
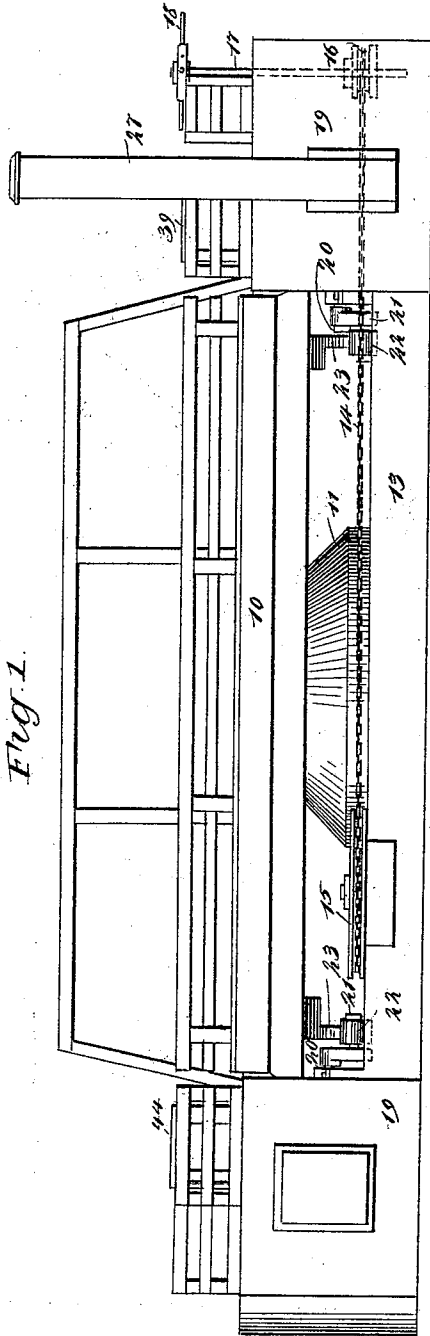
(No Model.)

3 Sheets—Sheet 1.

B. MOORE.
BRIDGE GATE.

No. 518,111.

Patented Apr. 10, 1894.



WITNESSES:
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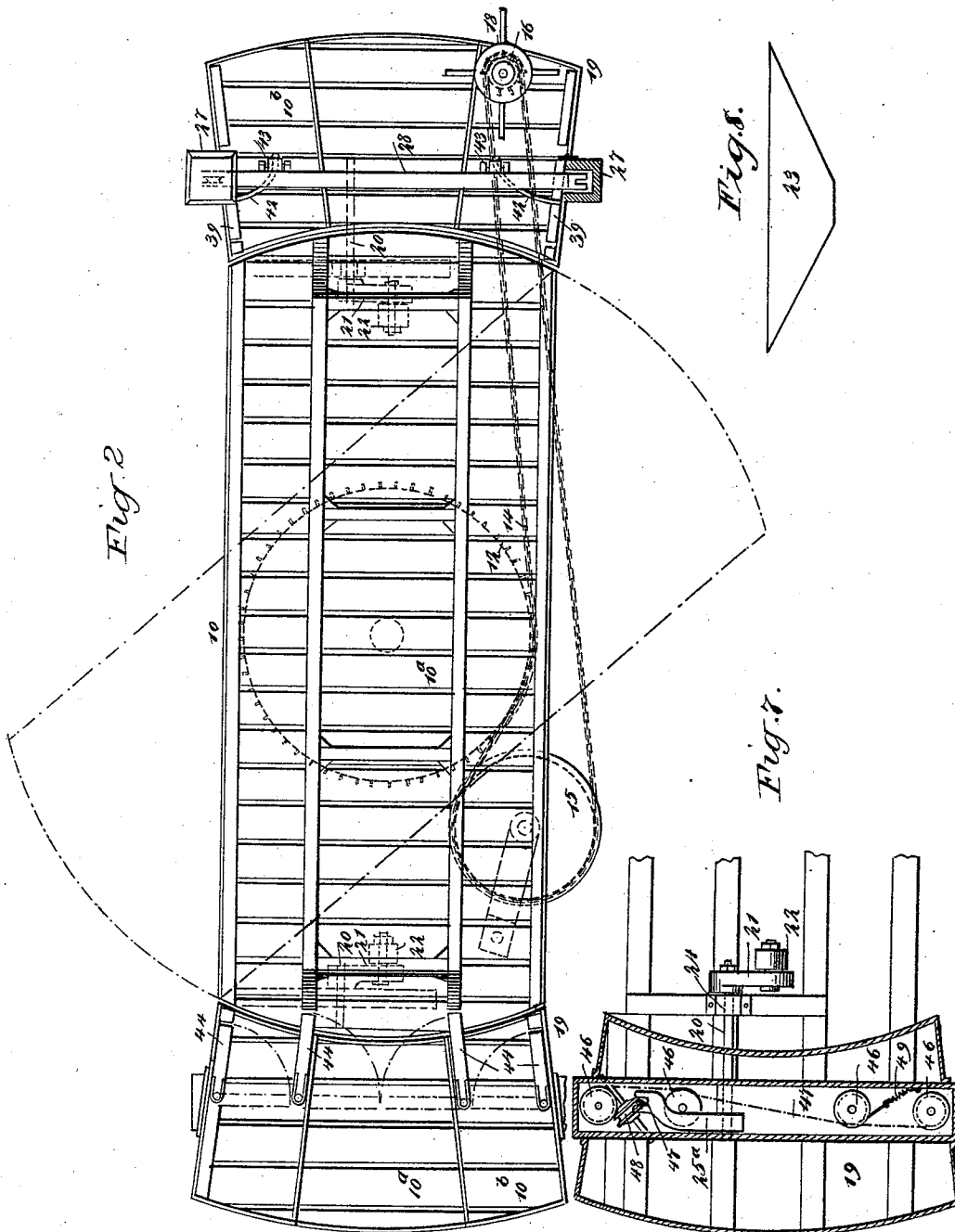
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B. MOORE.
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Fig. 3.

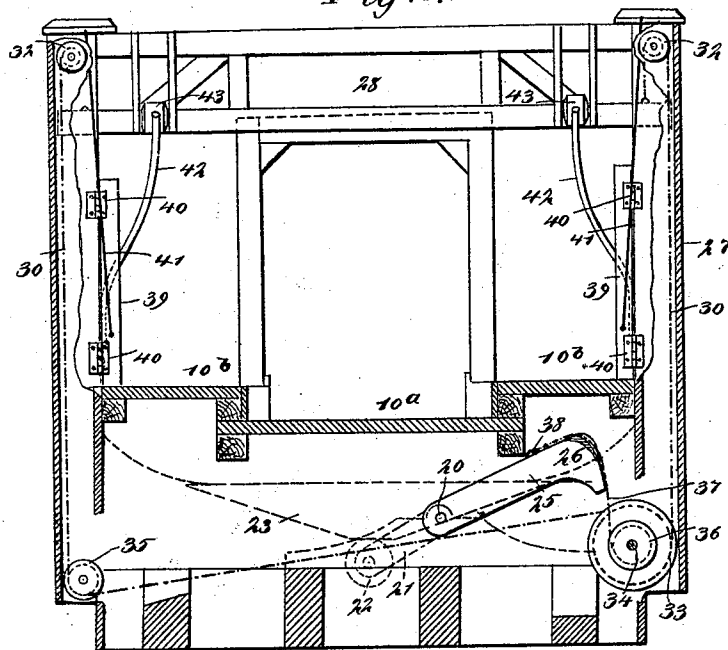
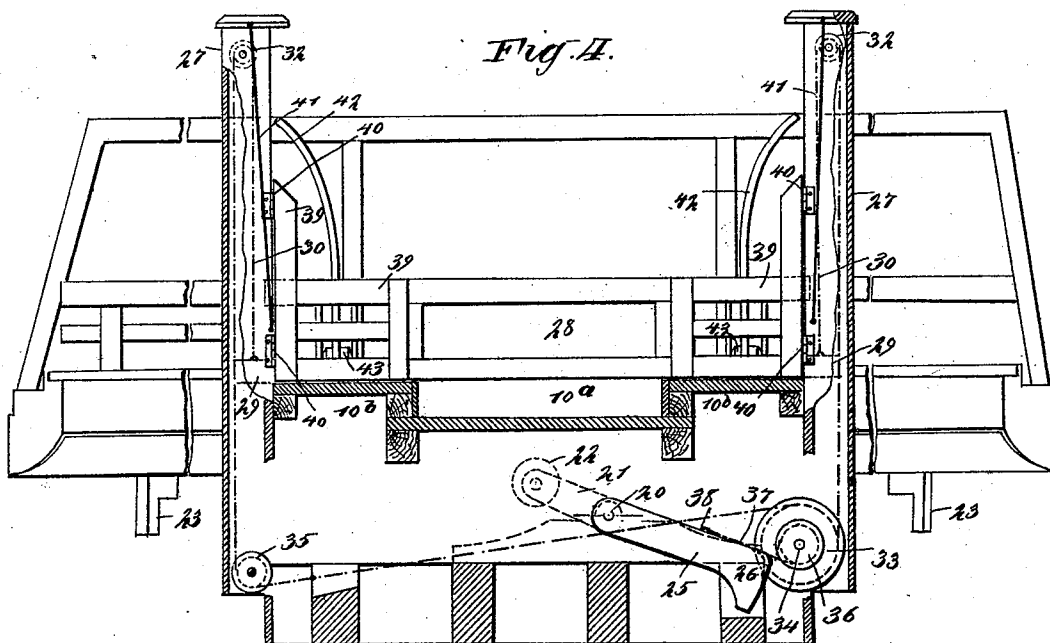


Fig. 4.



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UNITED STATES PATENT OFFICE.

BENJAMIN MOORE, OF CHICAGO, ILLINOIS.

BRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 518,111, dated April 10, 1894.

Application filed May 23, 1893. Serial No. 475,247. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN MOORE, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful
5 Improvements in Bridge-Gates, of which the following is a full, clear, and exact description.

My invention relates to improvements in gates which are used in connection with swing
10 bridges and which are adapted to be automatically operated by the movements of the bridge so as to open and close the approaches to the latter.

The object of my invention is to produce
15 a simple mechanism which may be used in connection with any swing bridge, which is adapted to automatically close the approaches to the bridge when the bridge is swung out of alignment with the same, which automatically
20 opens the gates when the bridge is brought into its normal position, which operates successfully without regard to the direction in which the bridge is turned, which is cheap and simple, and which is not likely to
25 get out of order.

To these ends my invention consists of certain features of construction and combinations of parts, as will be hereinafter described and claimed.

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

Figure 1 is a side elevation of a bridge provided with my improved gate mechanism.
35 Fig. 2 is a plan view of the same. Fig. 3 is a sectional elevation of one of the bridge approaches, showing the gate operating mechanism in detail and the gates open. Fig. 4 is a similar view, but with the gates closed. Fig.
40 5 is a sectional elevation of the operating mechanism at the opposite end of the bridge. Fig. 6 is a sectional plan of the bridge operating mechanism shown in Figs. 3 and 4. Fig.
45 7 is a sectional plan of the operating mechanism shown in Fig. 5; and Fig. 8 is a detail elevation of one of the contact blocks which is used to strike one of the operating cranks and work the gate mechanism.

50 The bridge 10 may be of any approved construction and may swing in any ordinary way, but as shown the bridge and its approaches are provided with a depressed driveway 10^a and with raised sidewalks 10^b for pedestrians.

The bridge is provided with the usual large
55 central wheel 11, which is mounted on suitable supports 13 and the teeth 12 of which engage a drive chain 14, this being carried at one end by a suitable pulley 15 and at the
60 other end by a pulley 16, the latter being secured to a vertical shaft 17 which has at its upper end a hand wheel 18 by which it may be turned, and the shaft and hand wheel are arranged in one of the hollow approaches 19. This construction just described affords a con-
65 venient means of rotating the bridge, but it is shown merely to illustrate an operative device and any suitable mechanism may be employed to turn the bridge.

The approaches or abutments 19 are ar-
70 ranged in the usual way, so that the bridge may turn between them, and in each abutment and beneath the bridge end is a crank shaft 20 which is journaled in suitable sup-
75 ports and which has at one end a crank 21 carrying a roller 22, and this roller extends into the path of an inclined block 23 which is secured to the under side of the bridge near the end and there is a block for each end of the bridge and also a crank shaft at each end,
80 and as the block is thickest at the middle, see Fig. 8, it will be seen that the turning of the bridge will cause the block to engage and depress the roller 22 without regard to the direction in which the bridge is turned. The
85 shafts 20 are journaled in suitable supports 24 and one has at its inner end a crank 25 which has a grooved head 26 at its free end and the other shaft is provided with a similar crank 25^a, see Figs. 5 and 7, and these two
90 cranks operate the gate mechanism when the crank shaft 20 is turned by the depressing of the roller 22. The grooves in the heads of the cranks 25 and 25^a receive and retain the cables, hereinafter described, in position on the
95 said heads.

In the drawings I have shown different gates at the opposite ends of a bridge, but the two kinds are alike in principle and the construction of both as well as that of the operation,
100 will be clearly described below.

At one end of the bridge and on opposite sides of the approach 19 are posts 27 in which slides vertically a gate 28, which is adapted to extend across the driveway 10^a, and upon
105 the sidewalks 10^b, and which when raised as in Fig. 3 opens the driveway and which when dropped as in Fig. 4 closes the same.

To the ends 29 which extend into the posts are secured cables 30 which extend upward over guide pulleys 32 in the tops of the posts, and the cables then extend downward and are secured and wound in opposite directions on drums 33 carried by a shaft 34 in the abutment 19. One of the cables 30 is passed around a guide pulley 35, as shown in Fig. 3, so as to give it the proper direction, and it will be seen that when the cables 30 are wound upon the drums 33 the gate 28 will be raised and when the drums are turned to unwind the cables, the weight of the gate will cause it to drop. The shaft 34 is also provided with a drum or pulley 36 to which is secured a cable 37, and this cable extends over the grooved head 26 of the crank 25 and is secured to the crank, as shown at 38 in Figs. 3 and 4. The crank 21 extends oppositely to the crank 25, see Fig. 4, and consequently when the roller 22 and crank 21 are depressed the crank 25 is raised into the position shown in Fig. 3, and this tightens the cable 37 so as to turn the shaft 34, actuate the drums 33, and raise the gate 28.

The sidewalks 10^b at the ends next the gate 28 are provided with independently swinging gates 39 which are hinged to the posts 27, as shown at 40, and which are pressed by springs 41 so as to normally stand in an open position. The gates 39 are provided with upwardly extending rods or levers 42 which are fixed to the gates and which extend into the paths of rollers 43 on the gate 28. It will be seen then that when the gate 28 is raised the gates 39 will also swing open under the pressure of their springs 41 and when the gate 28 is dropped, the rollers 43, acting on the inclined levers or rods 42, cause the rods to swing inward, thus closing the gates 39.

At the opposite end of the bridge; that is, at the left-hand in Figs. 1 and 2, I have shown ordinary swinging gates 44, the two middle gates being arranged to swing across the driveway, as shown by dotted lines in Fig. 2, and close it and the outer gates 44 being arranged to swing across the sidewalks 10^b, as shown by dotted lines in Fig. 2. These gates 44 are hung on vertical shafts or spindles 45 which project downward through the top of the abutment 19 and they are provided with double drums 46 around which extends a cable 47, the cable being arranged so as to give the shafts, and the gates which they carry, the right direction when the cable is pulled. The cable extends over a suitable guide pulley 48 which turns on a horizontal axis, see Fig. 5, and is connected at one end to the crank 25^a and at its other end it connects with a spring 49, see Fig. 7, and consequently the depression of the crank 21 and the raising of the crank 25^a, as in Fig. 5, will turn the gates 44 into open position and when the bridge is turned out of alignment with its approaches the spring 49 pulls back the cable and crank and closes the gates.

From the foregoing description it will be

seen that when the bridge 10 is in its normal position; that is, when it aligns with its approaches, the contact blocks 23 will depress the rollers 22 and cranks 21 and hold the gates at the opposite ends of the bridge in an open position, and when the bridge is opened, the gates will automatically close, as described.

It will be understood that various forms of gates may be used without departing from the principle of my invention, so long as the gates are operated by the depressing of the cranks 21 and the cranks are depressed by the action of the bridge, as specified.

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

1. The combination with a swing bridge provided with contact blocks, of crank shafts adapted to be engaged by the contact blocks, gates for closing the passage ways of the bridge, drums below the gates, cables connected with the gates and drums, and an arm on the crank shaft and projecting in an opposite direction from the crank arm, said arm operating the cable to open the gates, substantially as described.

2. The combination with a swing bridge provided with contact blocks, of crank shafts adapted to be engaged by the contact blocks, gates for closing the passage ways of the bridge, drums below the gates, cables connected with the drums and gates, an arm on the crank shaft, having a grooved head and a cable secured to the said arm and to one of the drums, substantially as described.

3. The combination with a swing bridge provided with contact blocks, of a shaft provided with two crank arms, one of which is adapted to be engaged by the contact blocks, a sliding center gate, hinged and spring pressed end gates, drums below the gates, cables secured to the sliding gate and drums, a cable secured to the other crank arm of the shaft and to one of the drums, and means for closing the end gates from the center sliding gate, substantially as herein shown and described.

4. The combination, with the vertically movable gate, of the spring-repressed gates arranged adjacent to the ends of the vertically movable gate, and inclined rods or levers secured to the swinging gates and extending into the path of the vertically movable gate, substantially as described.

5. The combination, of the vertically movable gate, the swinging spring-repressed gates arranged adjacent to the ends of the sliding gate, inclined rods or levers secured to the swing gates and extending into the path of the sliding gate, and rollers journaled on the sliding gate to contact with the rods, substantially as described.

BENJAMIN MOORE.

Witnesses:

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