W. H. OLIVE.

GATE.

APPLICATION FILED MAY 1, 1912.

1,041,663. Patented Oct. 15, 1912.

3 SHEETS—SHEET 1.

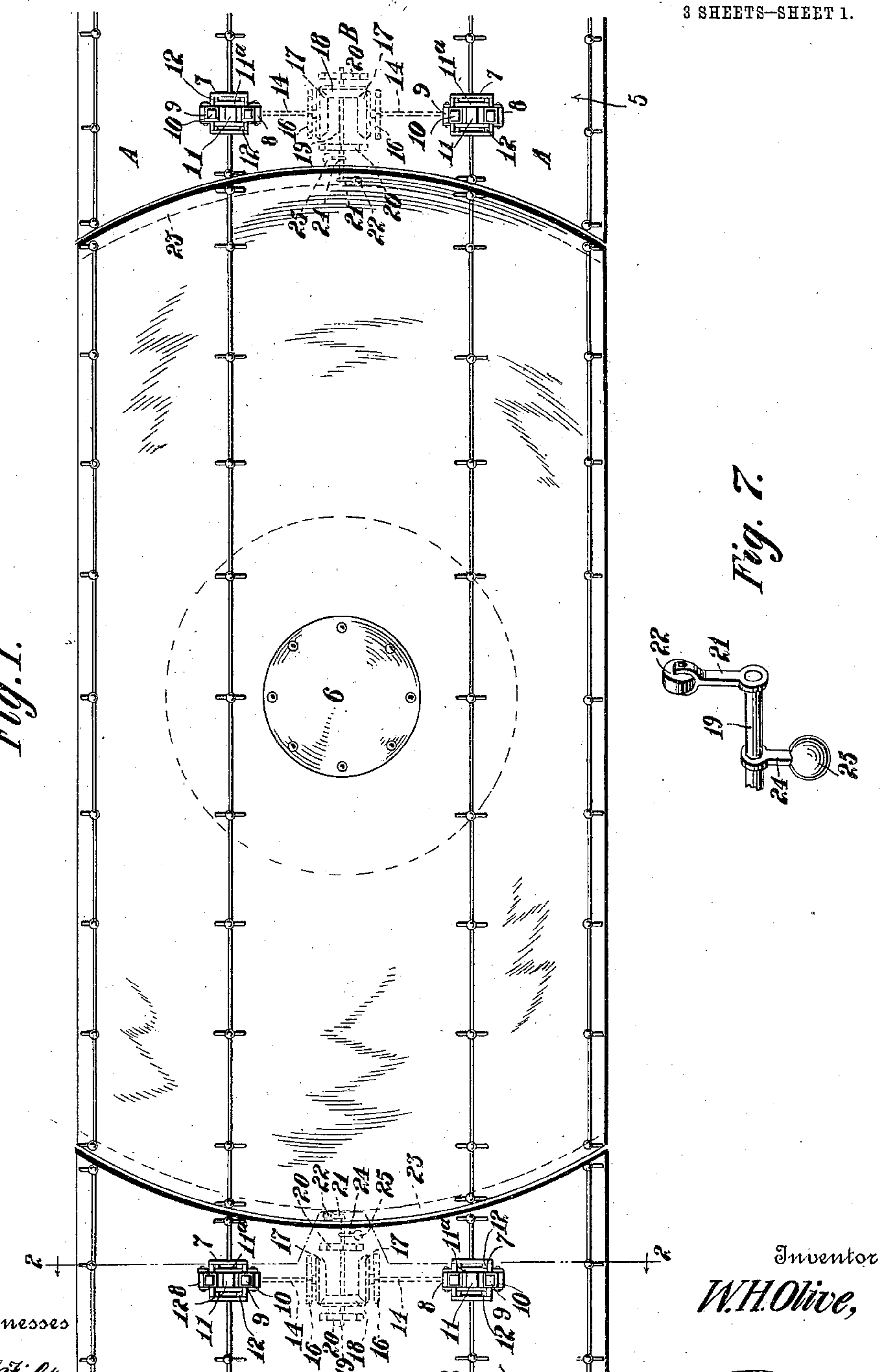

Fig. 1.

Fig. 7.

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3 SHEETS—SHEET 2.

Fig. 2.

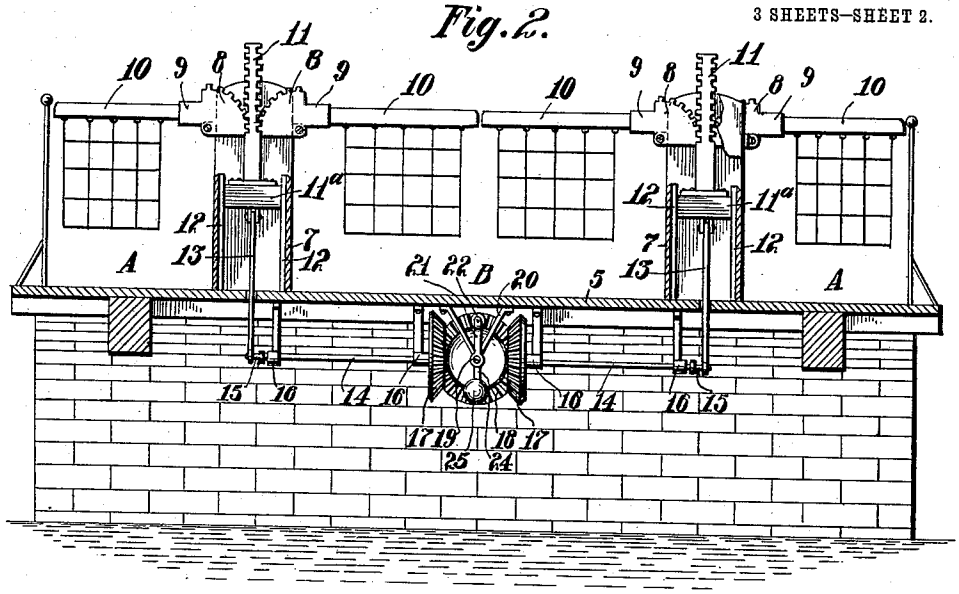
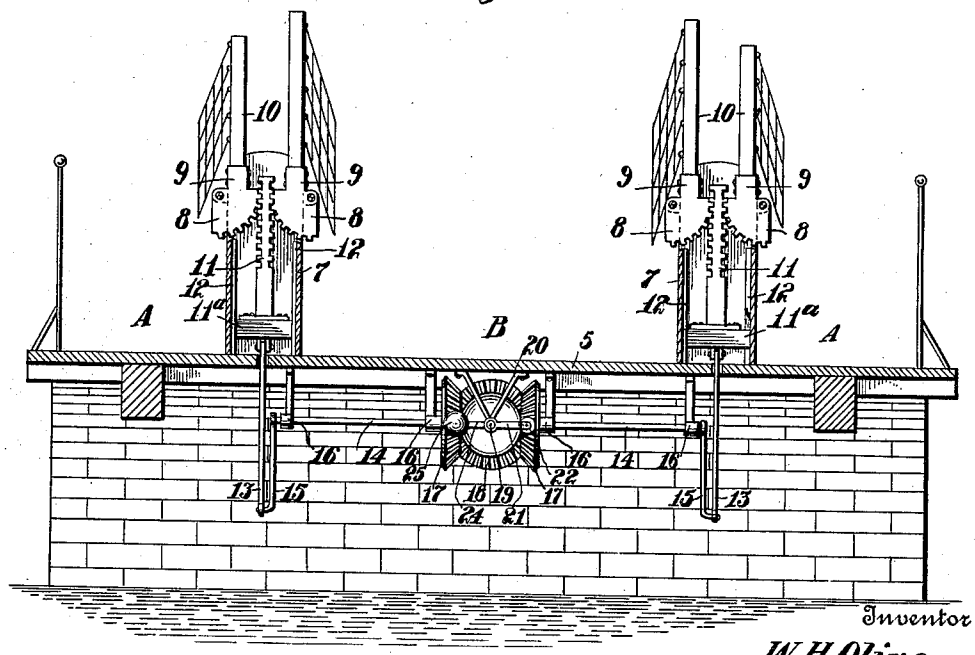


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 4.

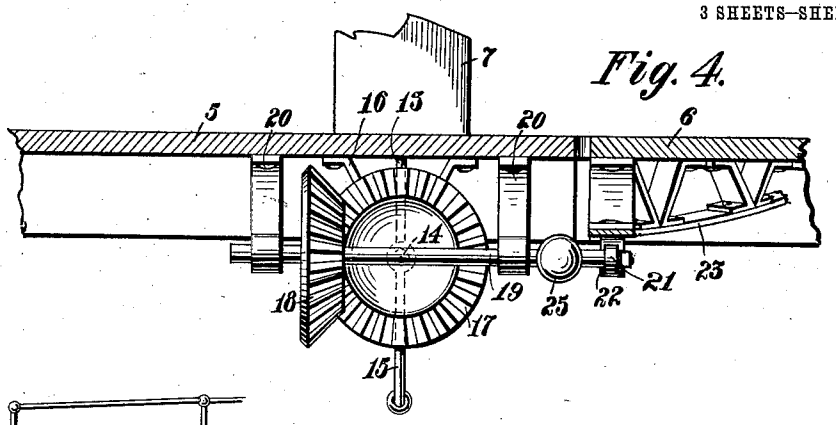


Fig. 5.

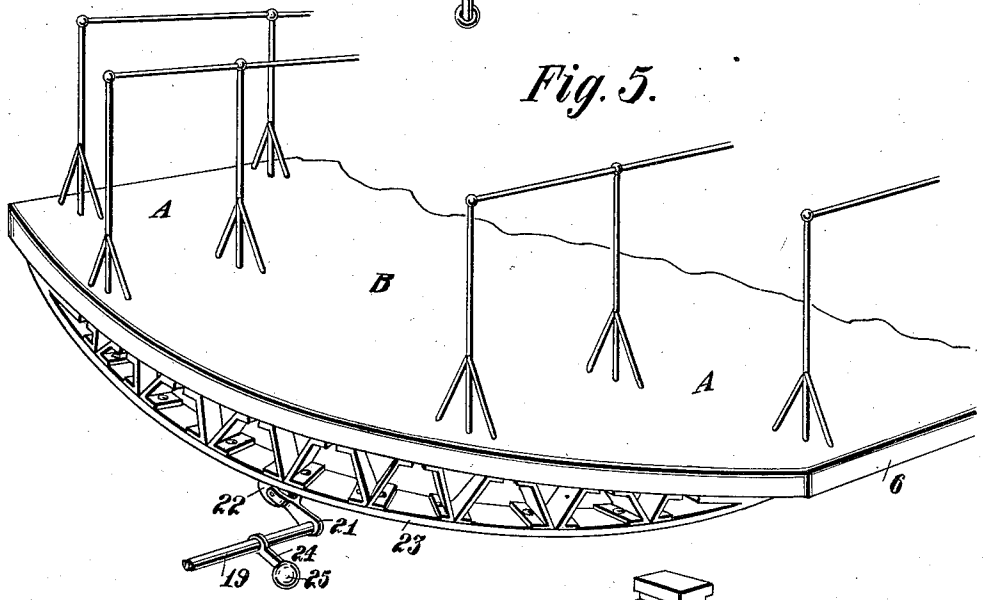


Fig. 6.

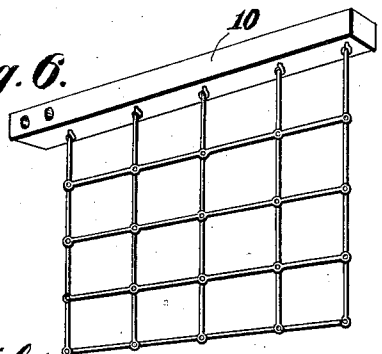
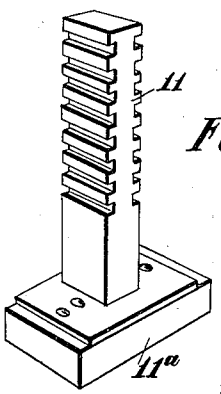


Fig. 8.



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UNITED STATES PATENT OFFICE.

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1,041,663. Specification of Letters Patent. Patented Oct. 15, 1912.

Application filed May 1, 1912. Serial No. 694,444.

To all whom it may concern:

Be it known that I, WILLIAM H. OLIVE, a citizen of the United States, residing at Menominee, in the county of Menominee, State of Michigan, have invented certain new and useful Improvements in Gates; 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.

This invention relates to improvements in gates employed in connection with draw bridges, and the principal object of the invention is to provide a gate which is normally held open by a novel mechanism when the draw is closed, and which is automatically lowered when the draw is opened.

Another object of the invention is to provide gates which are respectively arranged on either side of the draw and which are adapted to be actuated by said draw irrespective of the direction of movement thereof.

A further object of the invention is to provide a gate for the purpose described which is extremely simple in construction, it being composed of a minimum number of parts, and is therefore cheap to manufacture.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings: Figure 1 is a top plan view of a draw bridge showing the application of my invention, Fig. 2 is a transverse sectional view taken on the line 2—2 of Fig. 1, the gates being shown in a closed position, Fig. 3 is a similar view but showing the gates in their elevated positions, Fig. 4 is a detail longitudinal sectional view showing the connection between the draw and the rock shaft, Fig. 5 is a detail perspective view of one end of the draw showing the connection between the gate and the rocker arm, Fig. 6 is a perspective view of one of the gates, Fig. 7 is a perspective view of the rocker arm, and Fig. 8 is a perspective view of a cross head and rack bar.

Like reference numerals designate corresponding parts in all the figures of the drawings.

Referring to the drawings, 5 designates a bridge of any suitable construction which includes the usual draw or turntable 6. Any suitable mechanism (not shown) may be employed to rotate said draw. The bridge includes the usual sidewalks A—A on either side thereof and the roadway B which is centrally disposed between said sidewalks.

Disposed on either side of the approach 5 is a pair of transversely alined casings 7—7, said casings being disposed on either side of the roadway B. Pivotally mounted on opposite sides of the upper end of each casing 7 are opposed segmental gears 8—8, each gear terminating at its outer end in an arm 9. Gates 10—10 of any suitable construction are secured at one end to the respective arms 9 and are adapted to swing in a ninety degree arc by a mechanism hereinafter more fully described, one of said gates projecting partially over the roadway B and the other projecting over a respective sidewalk A. These gears 8 are disposed in alinement and in spaced relation and arranged therebetween and engaging said gears is a double-faced rack bar 11 which extends downwardly and is connected at its lower end to a cross head 11^a, said cross head being mounted to slide vertically between suitable guide strips 12. A pitman 13 has its upper end pivotally connected to the cross head and this pitman extends downwardly through a suitable opening formed in the bridge 5. Supported by the bridge and in alinement with the respective pairs of casings 7—7 are alined crank shafts 14—14, each shaft having a crank 15 which is operatively connected to the lower end of a respective pitman 13. These shafts are supported in suitable brackets 16, and mounted upon the inner end of each shaft is a bevel gear 17 and these gears are simultaneously driven by a main bevel gear 18 which is mounted on a longitudinally disposed rock shaft 19 that is suitably supported from the bridge by means of brackets 20. The inner end of each shaft 19 extends below the outer edge of the draw or turntable 6, and associated with each end is a rocker arm 21 which carries at its free end a roller 22 which is adapted to be en-

gaged by one of a pair of diametrically opposed cam plates 23 which are carried by the draw.

Normally the rocker arms 21 are disposed in horizontal planes, and are held in such positions by means of the cams 23, it being understood of course that the draw 6 is in its closed position. As soon as the draw 6 is swung around, the cams 23 will of course become disengaged from the rocker arms 21 and in order to assist in the rotation of the shaft 19 so as to lower the gates 10, the shaft 19 is provided with an arm 24 which is disposed in alinement with the rocker arm 21, and this arm carries a weight 25. As a result, as soon as the cams 23 become disengaged from the respective rocker arms, the weights 25 will assist in rotating the shaft 19 and this shaft, through the beveled gear 19 and gears 17 will rotate the crank shafts 14. These crank shafts will in turn, through the medium of the cranks 15 raise the cross heads 11ª through the medium of the pitmen 13 and consequently elevate the rack bars 11 which in turn will actuate the segments 8 to swing the gates downwardly so as to close the bridge. When the draw is returned to its normal position, the cams 23 will of course engage the rollers 22 of the rocker arms 21 and will rotate the shaft 19 against the weight 25. This movement will return the parts to their normal positions, and as a result the gates 10 will be disposed in an elevated position, thereby opening the bridge to traffic.

What is claimed is:

In combination with a bridge and its turntable, of a casing supported by the bridge opposed segmental gears pivotally mounted in the casing, gates respectively carried by said gears, a double-faced rack bar disposed between and engaging said gears, a rock shaft longitudinally supported below the bridge and having one end projecting under the turntable, operative connections between said shaft and the rack bar, a rocker arm fixedly connected on the projecting end of said shaft, means carried by the turntable for engagement with the rocker arm to rotate said shaft, an arm projecting from the shaft and arranged in alinement with the rocker arm, and a weight carried by said arm for returning the gates to their upright positions.

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

WILLIAM H. OLIVE.

Witnesses:
JOHN MCDONALD,
MICHAEL SULLIVAN.