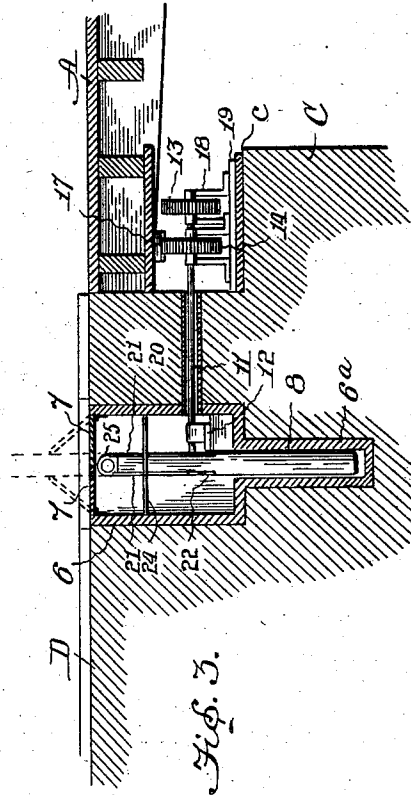
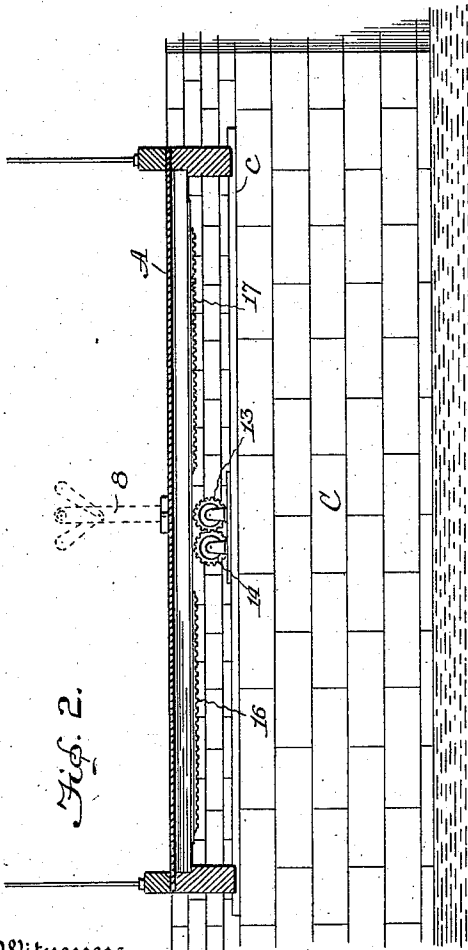
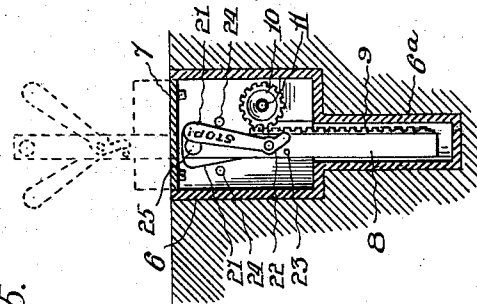
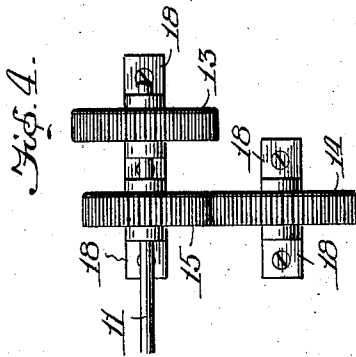


G. R. BOCK.
 SIGNAL DEVICE FOR DRAWBRIDGES, &c.
 APPLICATION FILED MAY 26, 1911.

1,027,100.

Patented May 21, 1912.

2 SHEETS—SHEET 2.



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SIGNAL DEVICE FOR DRAWBRIDGES, &c.

1,027,100.

Specification of Letters Patent.

Patented May 21, 1912.

Application filed May 26, 1911. Serial No. 629,566.

To all whom it may concern:

Be it known that I, GEORGE R. BOCK, a citizen of the United States, residing at Port Washington, in the county of Ozaukee and State of Wisconsin, have invented a Signal Device for Drawbridges, &c., of which the following is a full and complete specification.

This invention is an improvement in signal devices, and relates more especially to that class in which a visible warning signal is displayed automatically upon the operation of a movable object, for instance the draw of a bridge.

The primary object of my invention is to provide a warning signal located at the approach of a draw-bridge, and normally housed, in connection with mechanical means operated automatically by the draw to bring the warning signal into view when said draw is open and again house the signal when the draw is closed.

Other objects and advantages of the invention will hereinafter appear; and what I claim as new and desire to secure by Letters-Patent is more specifically set forth in the appended claims.

In the accompanying drawings, which form a part of this specification:—Figure 1 is a plan view, showing the application of my invention to a draw-bridge. Fig. 2 is a transverse sectional view through one end of the draw, on the line 2—2 of Fig. 1. Fig. 3 is a longitudinal sectional view, enlarged, showing the warning-signal and means for operating the same. Fig. 4 is an enlarged detail plan view of the gearing hereinafter referred to. Fig. 5 is a detail sectional view through the housing containing the warning-signal, and showing the means for operating the latter.

Like numerals of reference indicate like parts in all the figures of the drawings.

In the present instance I have shown my invention applied to an ordinary form of revolving draw-bridge, in which A is the draw, rotatably mounted at B; C, C the abutments, and D, D the approaches to the draw. The abutments are each provided with a ledge, *c*, over which the ends of the draw move into place in alinement with the approaches, and upon these ledges are mounted part of the operating mechanism for the signal devices, all as hereinafter described.

Inasmuch as the signal devices at both ends of the draw are exactly alike, a description of one will apply also to the other, like numerals of reference being applied to like parts of both.

In carrying out my invention I build or otherwise place in the roadway of the approach to the draw, at a suitable distance from the end of the latter, a housing or casing 6, the lower portion of which may be and preferably is contracted, as at 6^a. The upper end of the housing or casing is closed by a pair of hinged doors 7, adapted to open upward, said doors being opened and closed by the signal devices, in the manner herein-after described. Within this housing is located a vertically movable post 8, the lower end of which plays in the lower contracted end of the housing so as to maintain the post in an upright position at all times. In its lowermost position the upper end of the post is immediately below the hinged doors 7, and in order to raise said post so that the upper end thereof will project out of the housing above the roadway and serve as a warning-signal, it is provided at one side with a rack-bar 9, in mesh with a gearwheel or pinion 10 on an operating-shaft 11, which latter extends through the abutment of the bridge to a point above the ledge *c* and below the end of the draw, when the same is closed. The shaft is operated or turned in one direction through the intervention of a gearwheel 13 keyed directly thereon, and in the other direction by a gearwheel 14 in mesh with a gearwheel 15 on the shaft (see Fig. 4), in connection with rack-bars 16 and 17 attached to the underside of the draw and adapted to mesh with said gearwheels 13 and 14 respectively; this particular form of gearing being employed inasmuch as the draw rotates in one direction only. It will be noted that the gearwheels 13 and 14 are out of line with each other, and that the rack-bars 16 and 17 are disposed on the underside of the draw in line with their respective gearwheels; furthermore, that the gearwheel 15 is somewhat smaller than the gearwheel 14, intermeshing therewith, whereby the rack-bar 17 will engage said larger gearwheel 14 only.

The gearwheels 13, 14 and 15 are supported on the ledge *c* of the abutment by means of bearing brackets 18, which rest upon a base-plate 19, and the operating shaft 11

passes through a suitable tubing, as 11^a, from the gearwheels 13 and 15 to the gear-wheel or pinion 10 in the housing, being supported adjacent the latter by a bearing-block 12.

The vertically movable bar or post 8 forms the warning-signal, and in order to increase its efficiency it is provided with folding blades or arms 21, 21, pivoted at opposite sides of the bar or post and each provided with a tail-piece 22 for contact with a stop-pin 23 for limiting the outward movement of the blades. The blades or arms open outward by gravity, and for the purpose of closing the blades alongside of the bar or post as the latter is lowered into the housing rods 24 extend across the interior of the housing close against opposite sides of the bar or post and in the path of the blades. The blades or arms 21 may be provided with some word of warning, for instance the word "Stop," and for the purpose of signaling at night the upper end of the post may be provided with a lamp, as 25, showing a red light. The blades are preferably let into the sides of the bar or post so as to present straight surfaces against which the edges of the hinged doors 7 contact when the bar or post is raised or lowered between said doors, and of course the edges of the doors may be provided with rollers, so that they will not bind against the bar. Other details of construction may be readily suggested in the working out of the invention, and in the present instance, therefore, I have shown and described only the general construction of device or apparatus, reserving the right to make any such immaterial changes or modifications that may come within the spirit of my invention and claims.

The operation of the device is as follows. When the draw is closed the post will be lowered in the housing and the doors 7 closed, as shown in Figs. 3 and 5. Now upon the operation of the draw to open the same in the direction indicated by the arrows on Fig. 1 of the drawings the rack-bar 16 carried by the draw will engage and turn the gearwheel 13, thereby turning the shaft 11 so that the pinion 10 at the other end thereof will operate on the rack-bar 9 to lift the post and project the upper end thereof out of the housing to serve as a warning, the blades dropping down, as indicated in Fig. 5, to attract attention. When the drawer is further turned, in closing the same, the rack-bar 17 at the other end will engage the gearwheel 14 and reverse the operation of the shaft by means of gearwheel

15, so that the pinion 10 will lower the post into the housing. In the operation of the post the hinged doors 7, 7 will be opened and closed automatically, as hereinbefore described, said doors serving to protect the opening or housing and parts located therein.

It will be understood, of course, that the device may be used also as a danger signal in connection with a railroad crossing gate, and other similar apparatus, and in case a draw or gate is of that type which swings open and closed, like a gate, a single rack-bar and gearwheel would be sufficient for operating the shaft.

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

1. In a signal device for draw bridges, the combination with a revolving draw turning in one direction only, of a vertically movable post constituting a warning-signal, a rack-bar on the post, a shaft and pinion for operating the rack-bar, a gearwheel on the shaft for turning it in one direction, a pinion on the shaft, a second gearwheel in mesh with the pinion for turning the shaft in the other direction, said gearwheels being in different planes, and a pair of rack-bars carried at each end of the draw to turn the gearwheels alternately, substantially as shown and described.

2. In a signal device for draw-bridges, the combination with a revolving draw turning in one direction, of a vertically moving post, a housing therefor, hinged doors in the path of the post so as to be opened and closed thereby as said post is raised and lowered, arms pivoted to the sides of the post so as to swing outward thereon, rods in the path of the arms to close them alongside the post, a rack-bar on the post, a shaft and pinion operating on the rack-bar, a gearwheel on the shaft for turning it in one direction, a pinion on the shaft at one side the gearwheel, and a gearwheel in mesh with the pinion for turning the shaft in the opposite direction; together with a pair of rack-bars at each end of the draw to engage and turn the gearwheels alternately as the draw is operated, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE R. BOCK.

Witnesses:

OTTO SIEVERS,
N. E. WILSON.