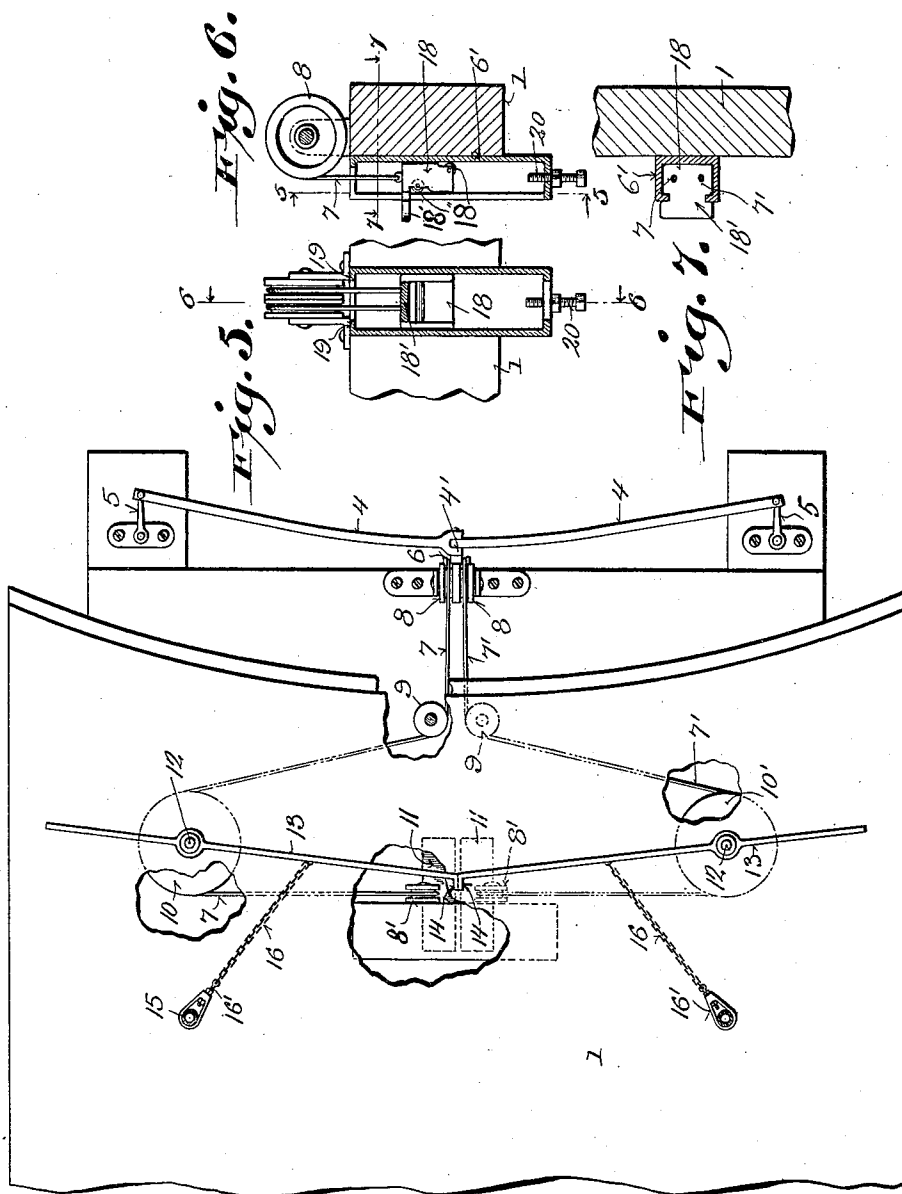


C. FAUST.
SAFETY GATE FOR BRIDGES.
APPLICATION FILED JUNE 5, 1911.

1,007,190.

Patented Oct. 31, 1911.

2 SHEETS—SHEET 1.



Witnesses:
Charles Young
May Downey.

Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 4.

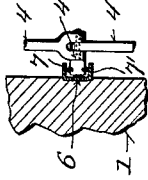


Fig. 2.

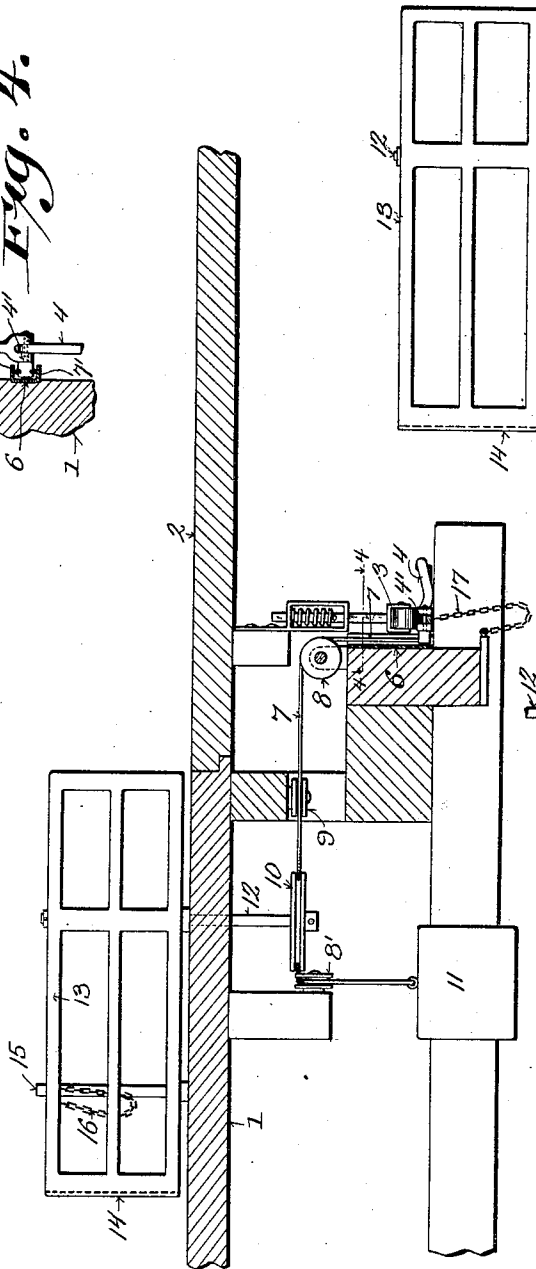
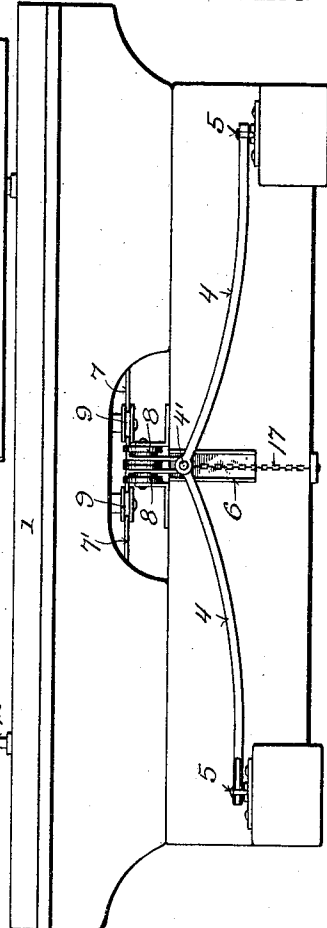


Fig. 3.



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UNITED STATES PATENT OFFICE.

CASPER FAUST, OF OSHKOSH, WISCONSIN.

SAFETY-GATE FOR BRIDGES.

1,007,190.

Specification of Letters Patent.

Patented Oct. 31, 1911.

Application filed June 5, 1911. Serial No. 631,304.

To all whom it may concern:

Be it known that I, CASPER FAUST, a citizen of the United States, and resident of Oshkosh, in the county of Winnebago and State of Wisconsin, have invented certain new and useful Improvements in Safety-Gates for Bridges; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention refers to safety gate attachments for bridges of a type similar to that shown in a patent issued to me November 1, 1910, No. 974,558, and also in an application for patent for improvements in safety gates for bridges filed by me May 12, 1911, Serial No. 626,671.

The object of my present invention is to simplify the structural features of the devices above referred to whereby all toothed gearing is dispensed with, weights being utilized for closing the gates.

Another object of my invention is to provide vertically disposed cam-rails which are operated upon by a yielding tappet-roller when the apparatus is used in connection with a horizontally swinging bridge, this arrangement of vertically disposed rails being also capable of use in connection with a vertically folding bridge. Thus said device may be termed a combination safety gate appliance for either swinging or lifting bridges.

Another object of my invention is to provide a pair of swinging road-gates with interlocking or abutting ends whereby the gates cannot be sprung open when closed by the impact of force exerted thereon in a direction toward the end of the abutment.

With the above objects in view the invention consists in what is herein shown, described and subsequently claimed.

In the drawings Figure 1 represents a plan view of a bridge-abutment equipped with a safety gate appliance embodying the features of my invention, parts being broken away to more clearly illustrate the sheave and cable connections for operating said gates; Fig. 2, a longitudinal central section view of the device showing the bridge in its closed position with the gates open for travel; Fig. 3, a front elevation of the bridge abutment showing the construction and arrangement of the cam-rails and their connections; Fig. 4, a detail cross-section illustrating a guide-track for the connected head of the cam-rails; Fig. 5, a detail front elevation of a modified form of guide-track

for a tappet-head which may be substituted for the cam-rails when the apparatus is to be applied to a lifting or folding bridge; Fig. 6, a longitudinal section of the same, the section being indicated by line 6—6 of Fig. 5, and Fig. 7, a cross-section of the head and track the section being indicated by line 7—7 of Fig. 6.

Referring by characters to the drawings, with especial reference to Figs. 1, 2 and 3, 2 represents the end of a swinging bridge and 1 the abutment, the bridge being shown in its open position in Fig. 1. Secured to the bridge 2 is a spring-controlled roller-tappet 3, which tappet is arranged to engage the upper faces of oppositely disposed vertically movable cam-rails 4, the same having their outer ends connected to the abutment by links 5 to permit yielding of the end of said rails when they are forced down by the bridge-tappet. The inner ends of the cam-rails are in hinge connection with each other together forming a head 4' one end of which projects into a vertically disposed U-shaped guide-track 6, the guide-track being secured to the abutment frame. Cables 7, 7', are connected to the cam-rail head being passed over vertically disposed sheaves 8 supported by the abutment at the upper end of the guide-track. Each cable passes backwardly under the abutment and over an idle sheave 9 and from thence said cables travel in opposite directions transversely of the abutment to large gate-actuating sheaves 10, 10', the said cables being fast thereto, and from thence they return to approximately the center of the abutment, passing over vertically disposed idle sheaves 8' and are connected to independent weights 11. The gate-actuating sheaves 10 and 10' are secured to the lower ends of pivot-posts 12 which are journaled in the abutment and project thereabove for the support of butterfly gates 13, the road-arms of which terminate with rectangular abutting shoes 14 that engage with each other when said gates are closed across the roadway of the abutment, the road arms of the gates being flexibly connected to posts 15 by chains 16 whereby the closing movement of said gates is limited, there being slight adjustment of the chains through turn-buckle connections 16' to compensate for variations in the stretch of the operating cables, etc. The gate-chains are provided for the purpose, as stated, of limiting the closing movement of said gates, it being understood that in some

instances one of the gates may be slightly in advance of the other in closing and hence if it were not for the said chains the abutting shoes 14 would fail to properly articulate. By utilizing the abutting shoes, it is apparent that owing to the fact that said shoes engage each other, slightly in advance of a straight line intersecting the gate pivot-posts, a lock is thereby formed which will resist any tendency of the gates to be sprung open accidentally in case the same are subjected to strain by a vehicle or other heavy body accidentally coming in contact therewith when the bridge is opened. Vertical upward movement of the cam-rail head 4' in its track is limited by a flexible cord or chain 17 which is connected to the abutment and said head from below as shown.

In the operation of my apparatus it is apparent that when the bridge is closed as shown in Fig. 2 that the tappet roller will rest upon the head of the cam-rails and thus hold the gates closed in opposition to the weights 11. When the bridge is swung open the tappet-roller will ride upon either one of the cam-rails and thus permit the same to gradually rise under the control of the weights whereby the gates are closed, it being also apparent that when the bridge is swung closed its tappet-roller 3 will exert gradual pressure upon the engaged cam-rail whereby the cam-rail head is forced downwardly and will thus through its cable and sheave connections open the gates in opposition to the weights. It is also apparent that by reversing the direction of the cables over the sheaves 10 that the weights will operate in a reverse direction to open the gates in place of closing the same.

The apparatus as just described will operate as efficiently in connection with a vertically folding bridge, as in connection with the horizontal type in which case the end of the bridge or a tappet carried thereby would engage the cam-rail head and thus force the same directly downward. In this case, however, the cam-rails themselves would have no function other than guides for the cam-rail head and, owing to this fact I have illustrated a modified form of guide-track, as shown in Fig. 5, which guide-track is to be used preferably when the apparatus is applied to a folding bridge. The guide-track in this case carries a sliding head 18 provided with anti-friction rollers 18'' for engagement with the opposite faces of said track, whereby friction is eliminated, the head being connected to the ends of the cables 7, 7'. Upward movement of the head in this instance is limited by engagement of the latter with terminal flanges 19 that form part of the guide-track, the downward

movement being limited by an adjustable stop 20 which is in threaded union with the base of said track. The head 18 is also provided with a projecting tongue 18' which is designed to be engaged by a tappet carried by the folding bridge and thus when said bridge is folded to a closed position its tappet will engage the tongue 18' and through the cable connections with the head 18 and weights, the gates will be opened, being closed by the weights when the bridge is folded up or swung open.

I claim:

1. In a horizontally swinging bridge having a tappet adjacent to its end, and an abutment with which the bridge is adapted to register; the combination of a vertically movable head, a centrally disposed guide-track for the head secured to the abutment, vertically movable cam-rails carried by the head, a supporting means for the outer ends of the cam-rails, oppositely disposed posts journaled in said abutment, a gate secured to each post above the aforesaid abutment, a sheave secured to each post below the abutment, a cable secured to each sheave having one end connected to the head, weights connected to the opposite ends of said cables, and guide-sheaves for said cables.

2. In a horizontally swinging bridge having a tappet adjacent to its end, and an abutment with which the bridge is adapted to register; the combination of a vertically movable head, a centrally disposed guide-track for the head secured to the abutment, vertically movable cam-rails carried by the head, a supporting means for the outer ends of the cam-rails, oppositely disposed posts journaled in said abutment, a gate secured to each post above the aforesaid abutment, a sheave secured to each post below the abutment, vertically disposed guides-sheaves above the guide-track, horizontally disposed guide-sheaves carried by the abutment intermediate of the gate-actuating sheaves, a second set of vertically disposed guide-sheaves carried by the abutment rearwardly of the horizontally disposed sheaves, a pair of cables connected with the head, the cables being arranged to travel over the vertical and horizontal sheaves and about the gate-actuating sheave, and weights connecting the opposite ends of said cables.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee in the county of Milwaukee and State of Wisconsin in the presence of two witnesses.

CASPER FAUST.

Witnesses:

GEO. W. YOUNG,
MAY DOWNEY.