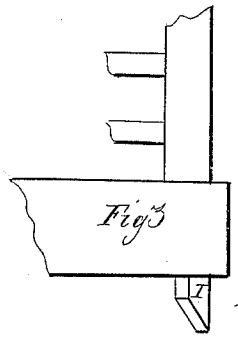
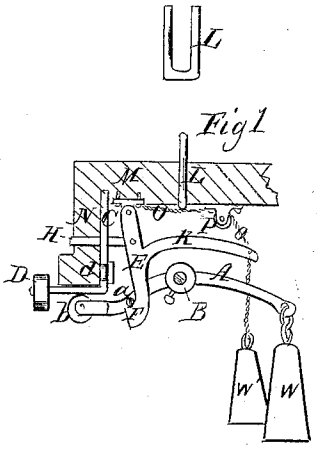
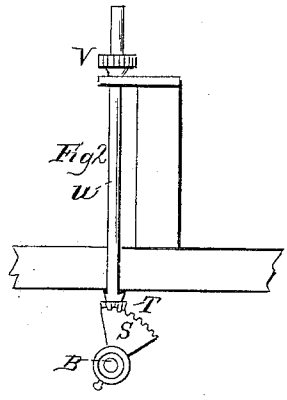
R. Gratz,

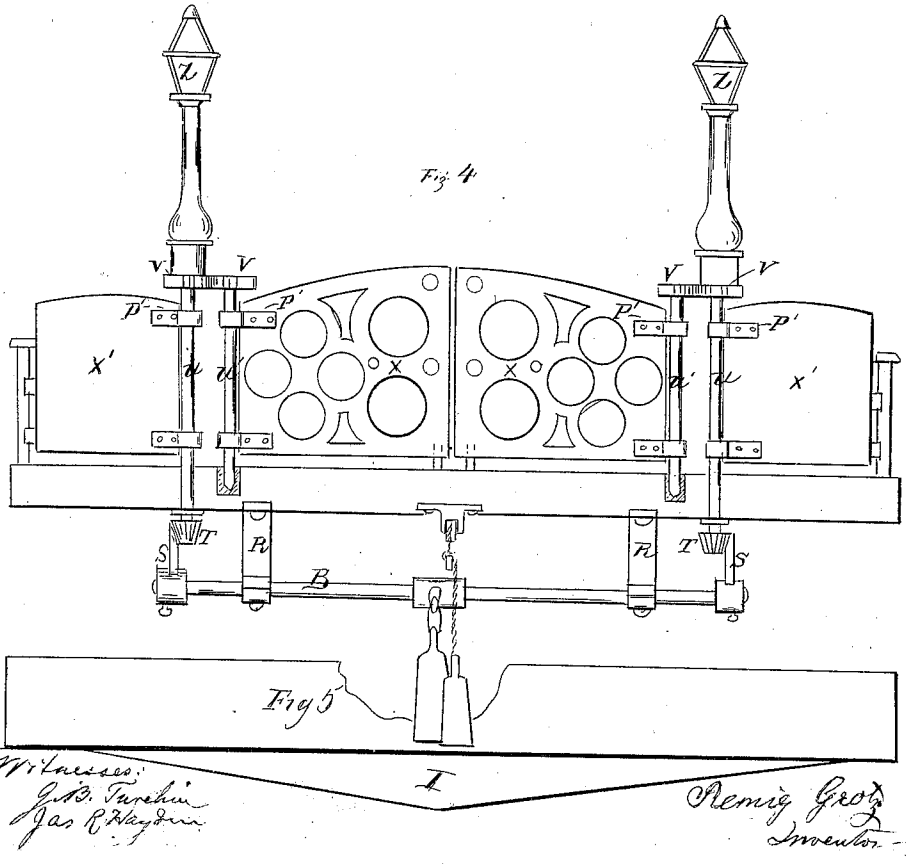
Ferry Guard.

No. 63,507. Patented Apr. 2. 1867.









Witnesses:
Geo. B. Turnbull
Jas. R. Hayden

Remig Gratz
Inventor.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

United States Patent Office.

REMIG GROTZ, OF CHICAGO, ILLINOIS.

Letters Patent No. 63,507, *dated April* 2, 1867.

IMPROVEMENT IN BRIDGES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, REMIG GROTZ, of the city of Chicago, in the county of Cook, and State of Illinois, have invented a new and improved Mode of Constructing "Automatic Bridge-Barriers;" and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, the side view of the device,

Figure 2, the bevelled gear moving the upright shaft.

Figure 3, the side view of the lip.

Figure 4, the back view of the whole arrangement; and

Figure 5, the front view of the lip.

The object of my invention is to devise cheap, simple, and efficient means to automatically close or open gates or barriers at the draw-bridges across rivers, canals, &c., and thereby prevent accidents; and the nature of my invention consists in a combination of levers and weights with a lip of the bridge, projecting downwards along its end curvature, and pressing on said levers, which in their turn act on the uprights by means of bevelled gear, turning the same one way or the other, and thereby shutting or opening the gates fastened to the said uprights, as will be hereinafter described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A bent lever, A, with its fulcrum setting firmly on a shaft, B, has a weight, W, suspended at one end, while its other end is provided with a roller, *b*, supporting a slide, C, that moves up and down between two friction-rollers *d d*, along the back side of beams N, having its end bent and projecting beyond said beams, with a roller, D, set on its end. A bar, E, one end of which is secured to the upper beam M by means of a bracket and pin, has a notch, F, at its other end, which notch can catch a pin, *a*, of the lever A, or loosen it. A pin, H, and a lever, K, are attached to this bar, E. The pin passing through timber, if pressed from the outside, moves the bar E, which disengages the pin *a* of the lever A, and moves the end of the lever K upwards. There are two bolts L connected by a cross-piece that pass through the timber, and may be raised or lowered by means of a rope or chain, O, one end of which is fastened to the beam, while its other end, after passing over the block P, is secured by a knot to the end of the lever K, at which end the weight W′ is suspended. The result of this arrangement is that when the bridge is open the catch F catches the pin *a* of the lever A, and the lever K keeps tight the chain O, which in its turn keeps up the pins L L projecting above the flooring of the bridge. But when the bridge is closing, its pressure on the pin H disengages the pin *a*, the end of the lever K moves upward, the chain O being slackened, the pins L L drop down, to facilitate which movement a weight may be attached to their cross-piece. Meanwhile the roller D being pressed down, the lever A changes its position and moves the shaft B. This shaft B being secured to the beams by means of hangers R R, in which it is revolving, has two sectors S S, with bevel-cogs cut in them, set firmly on it, which sectors as the shaft revolves move bevelled pinions T T, that are set firmly on the upright shafts U U, and revolve these shafts, which in their turn revolve two other upright shafts *u′ u′*, by means of pinions *v v*, and thus move the gates or barriers X X′, which are secured to the said shafts by plates *p′ p′*. There are lanterns Z Z set firmly on the shafts U U, with glass colored differently. Said lanterns by revolving show the lights when the bridge is opened different from those when it is closed.

In order to put in motion the above-described machinery the curved end of the bridge has a curved triangular lip, I, whose sides may be longer or shorter, as from their length depends the quickness of the motion of the gates. The curvature of the end presses the pin H, and the lip of the bridge presses the roller D.

The advantages of my device are obvious. The gates by closing prevent accidents on land, and the lanterns with red or other light caution the boats in the right time that the bridge is closed.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The mechanical device, consisting of a combination of levers and weights as described, said levers being connected with and acting upon the upright shafts to which the gates or barriers and the lanterns are secured, the whole constructed and operating substantially as and in the manner herein described and specified.

2. The lip at the curved end of the bridge constructed and operating as described, in combination with the said mechanical device as and for the purposes set forth.

REMIG GROTZ.

Witnesses:

J. B. TURCHIN,

JAS. R. HAYDEN.