L. SOULERIN.

Lowering Bridges.

No. 153,729. Patented Aug. 4, 1874.

Fig 1.

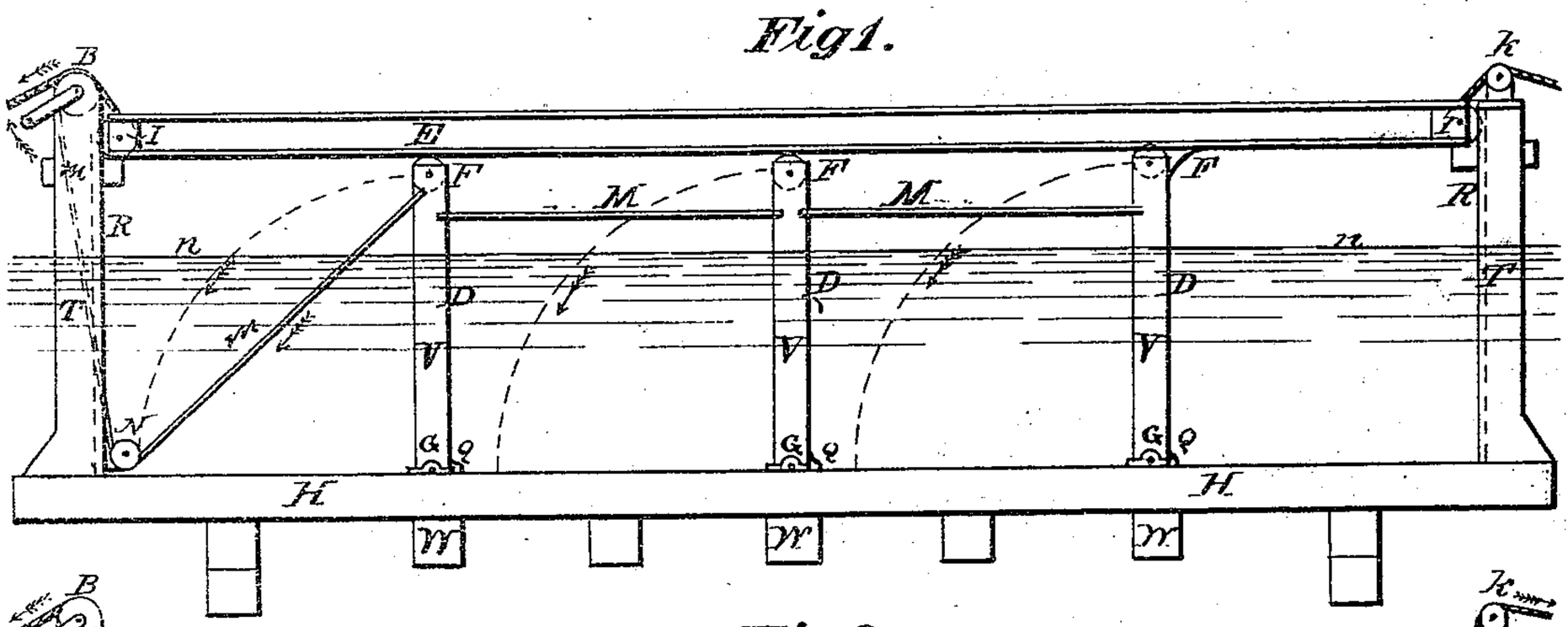


Fig 2.

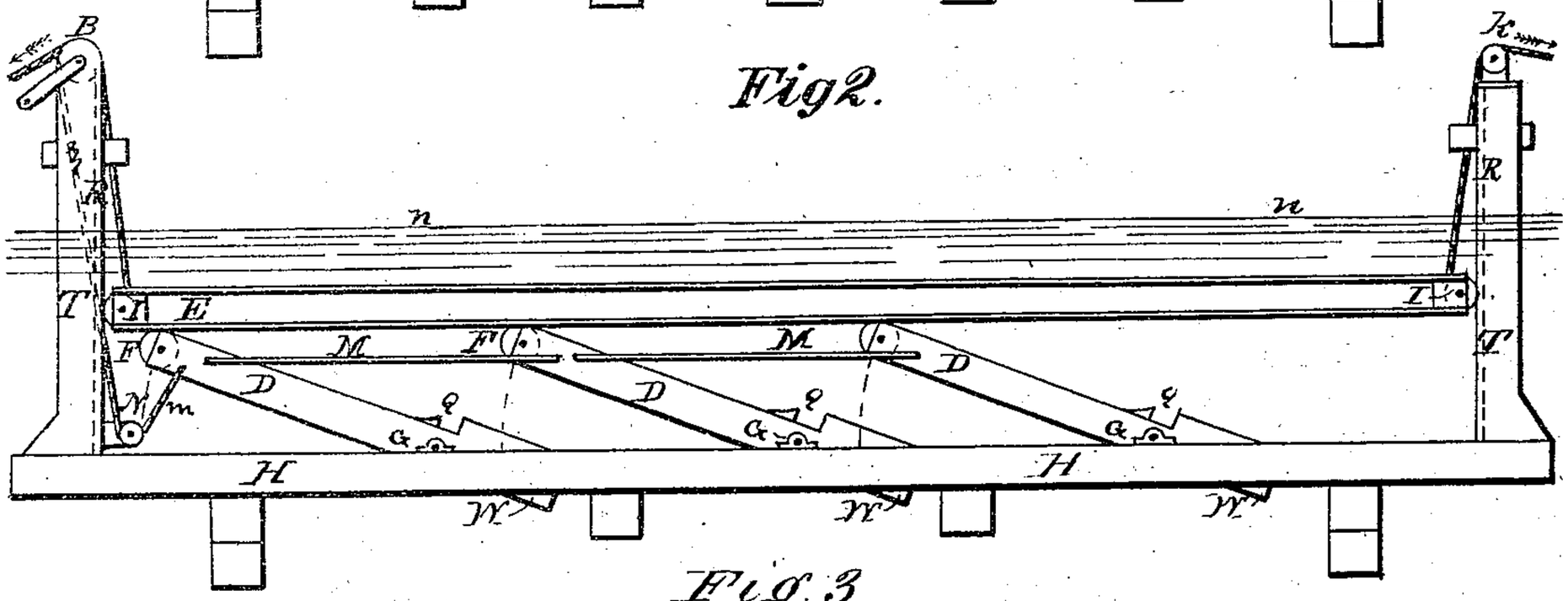


Fig 3

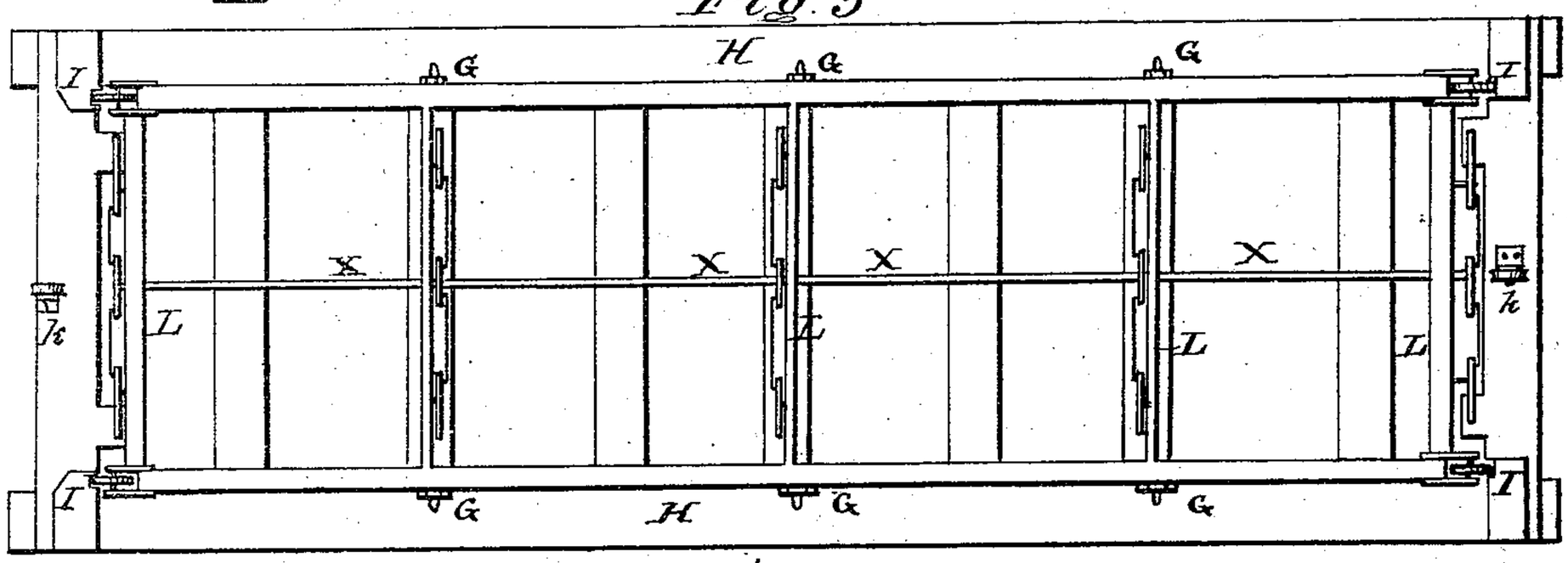
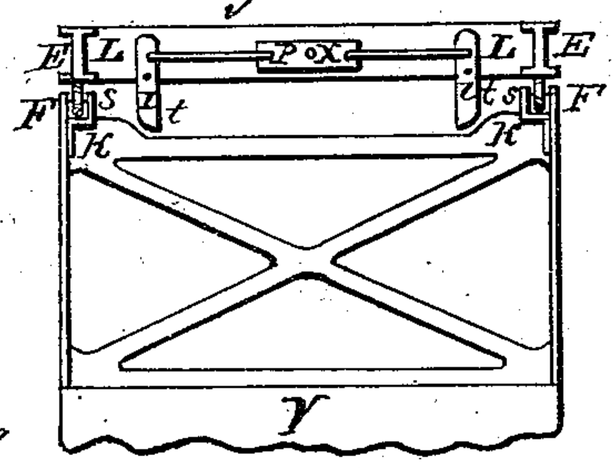


Fig 4.



Witnesses:

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UNITED STATES PATENT OFFICE

LEON SOULERIN, OF MILWAUKEE, WISCONSIN.

IMPROVEMENT IN LOWERING-BRIDGES.

Specification forming part of Letters Patent No. **153,729**, dated August 4, 1874; application filed February 19, 1874.

To all whom it may concern:

Be it known that I, LEON SOULERIN, of the city and county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Draw-Bridges; and that the following is a full, clear, and exact specification thereof, which will enable others skilled in the art to make and use the said invention.

My invention relates to certain improvements in that class of bridges known as draw-bridges.

Said invention consists in the combination of counter-weights and floats, used together or separately, with the pier or piers of a lowering-bridge, the several parts being so connected and arranged that in lowering and raising the bridge the weight of the superstructure and piers shall be balanced as nearly as is desired.

In the accompanying drawing, Figure 1 is a side elevation, showing my invention when raised. Fig. 2 is a side elevation, showing the bridge partly lowered. Fig. 3 is a plan of my invention when raised. Fig. 4 is a cross-section, showing an elevation of the upper part of one of the movable piers.

H H is the foundation of a lowering-bridge. D D are movable piers, built of iron or wood, or of any other material or combination of materials, which turn on hinges G G that are securely fastened to the foundation H H, and in the direction shown by the arrows, Fig. 1. F F are friction-rollers turning in shoulders *s s* built in the upper ends of the piers, and by the means of which rollers the friction between the piers and the superstructure is diminished when the lowering or raising of the bridge takes place. I I are end friction-rollers carried at the ends of the girders and working in vertical guides R R made in the approaches T T. Said rollers I I may turn as here shown, or in a plane at right angles with the plane of the webs in the girders. W W are counter-weights, either built as a part of or securely fastened to the piers D D, below or at their axles or hinges G G. Said counter-weights may be made of iron or other suitable material, and of such size and shape as the weight of the bridge may demand. V V are floats, built of wood or iron, or of any other suitable material or combination of materials, and of any size or shape, as the case may demand, and secured to the piers at or above the hinges. Said counter-weights W W and floats V V may be used separately or together, as above specified. M M are struts or ties, working freely at their ends, which hold the piers together. P is an eccentric, Fig. 4, moved by the axle X turning in the cross-girders L L, and *t t* are latches connected by arms to the eccentric P and turning about pins *l l*, so as to enter or leave notches K K made in the piers, and so fasten or unfasten the superstructure E E and the piers D D. B and N are drum and pulley, secured to the approaches T, about which ropes or chains *m m* pass, by which the bridge is lowered and raised. Q Q are projections made in the foundation, immediately behind the piers D D, to act as guards and prevent the piers, when being raised, from passing the vertical line drawn through their hinges. *n n* represent the surface of the water, and *k k* are pulleys over the approaches.

The mode of working the draw-bridge is as follows: In order to lower the bridge, turn the axle X so as to disconnect the piers and the latches *t t;* then turn the drum B in the direction shown by the arrow, and the bridge will go down to its foundation. In order to raise the bridge, pull in the direction shown by arrows, by means of weights or otherwise, on the ropes or chains passing over the pulleys *k k*, and, when the bridge is lifted, fasten girders and piers by turning the axle X.

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

The combination, with the pier or piers of a lowering-bridge, of counter-weights and floats, substantially as and for the purpose described.

LEON SOULERIN.

Witnesses:
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