

L. SIMON.  
DRAW-BRIDGE GATE.

No. 173,508.

Patented Feb. 15, 1876.

Fig. 1.

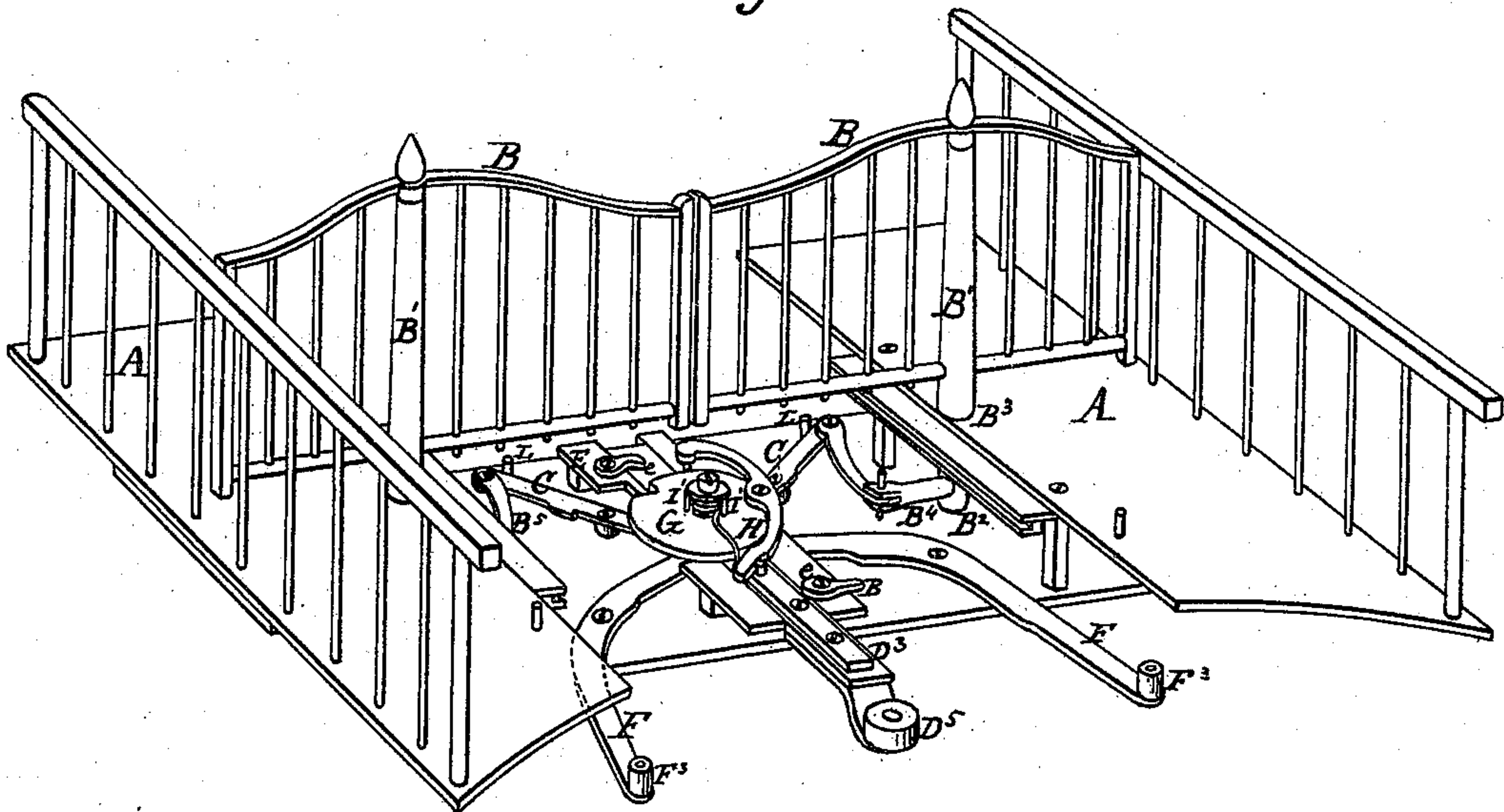


Fig. 2.

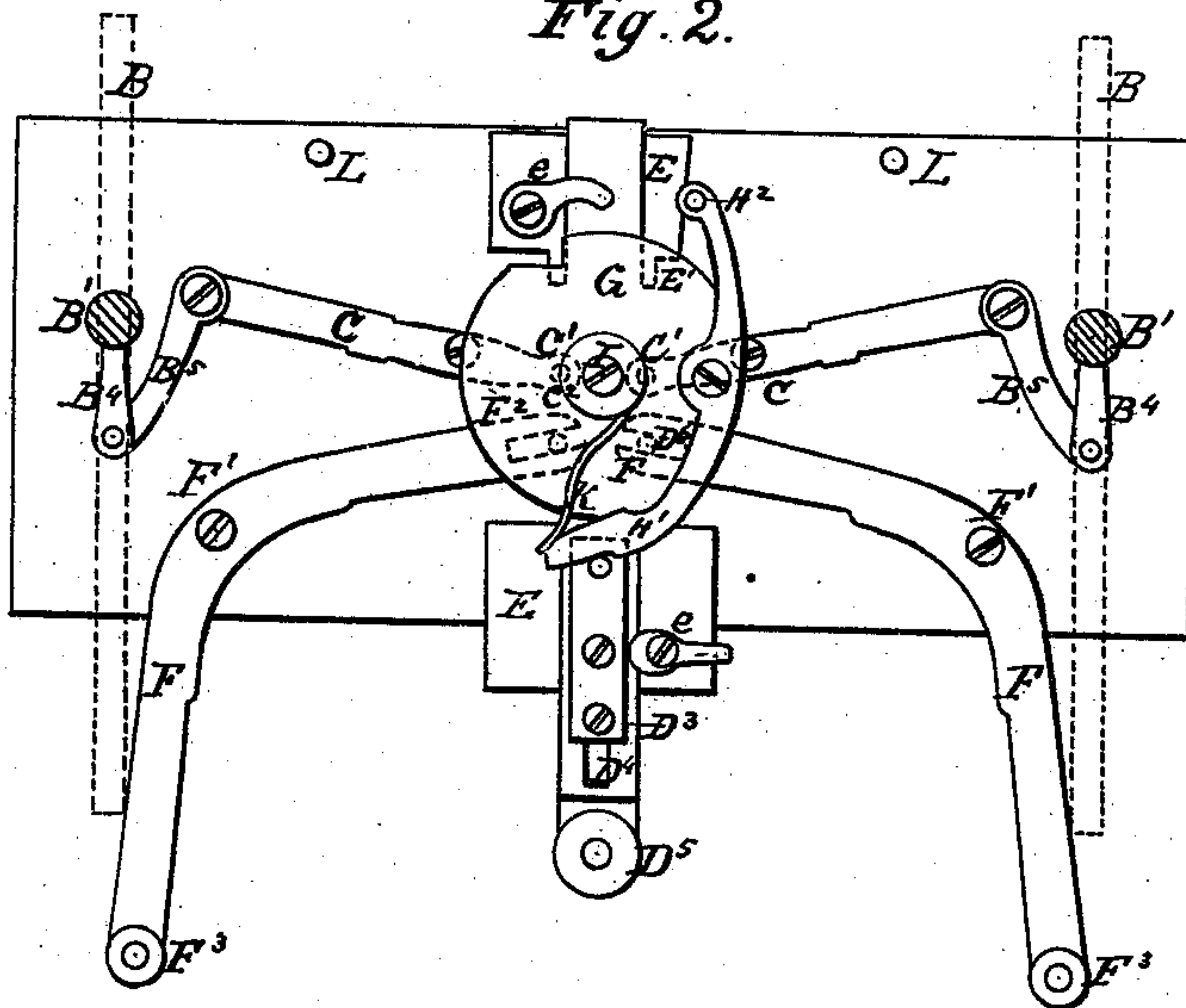
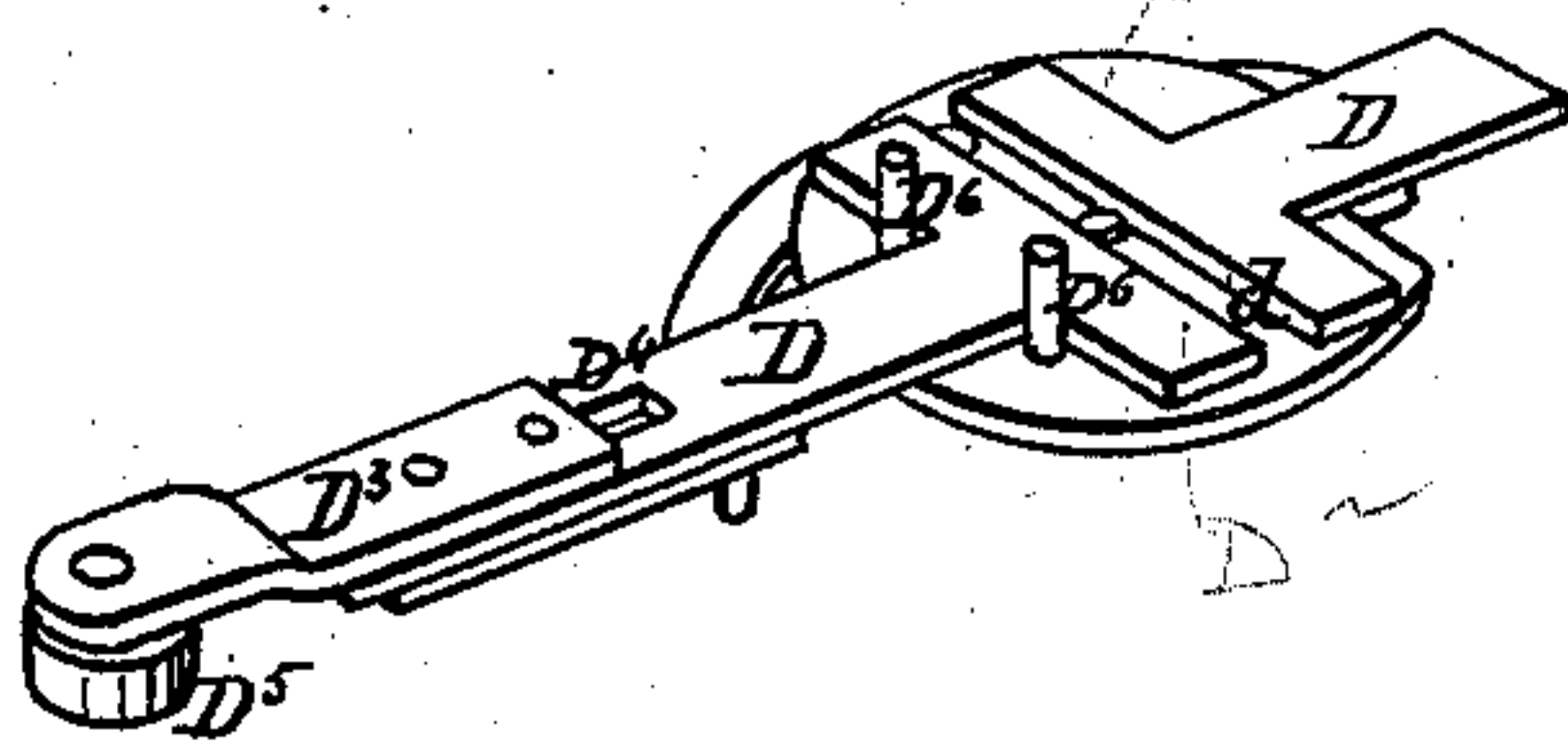


Fig. 3.



Witnesses:  
A. Stark  
J. H. Cooksey

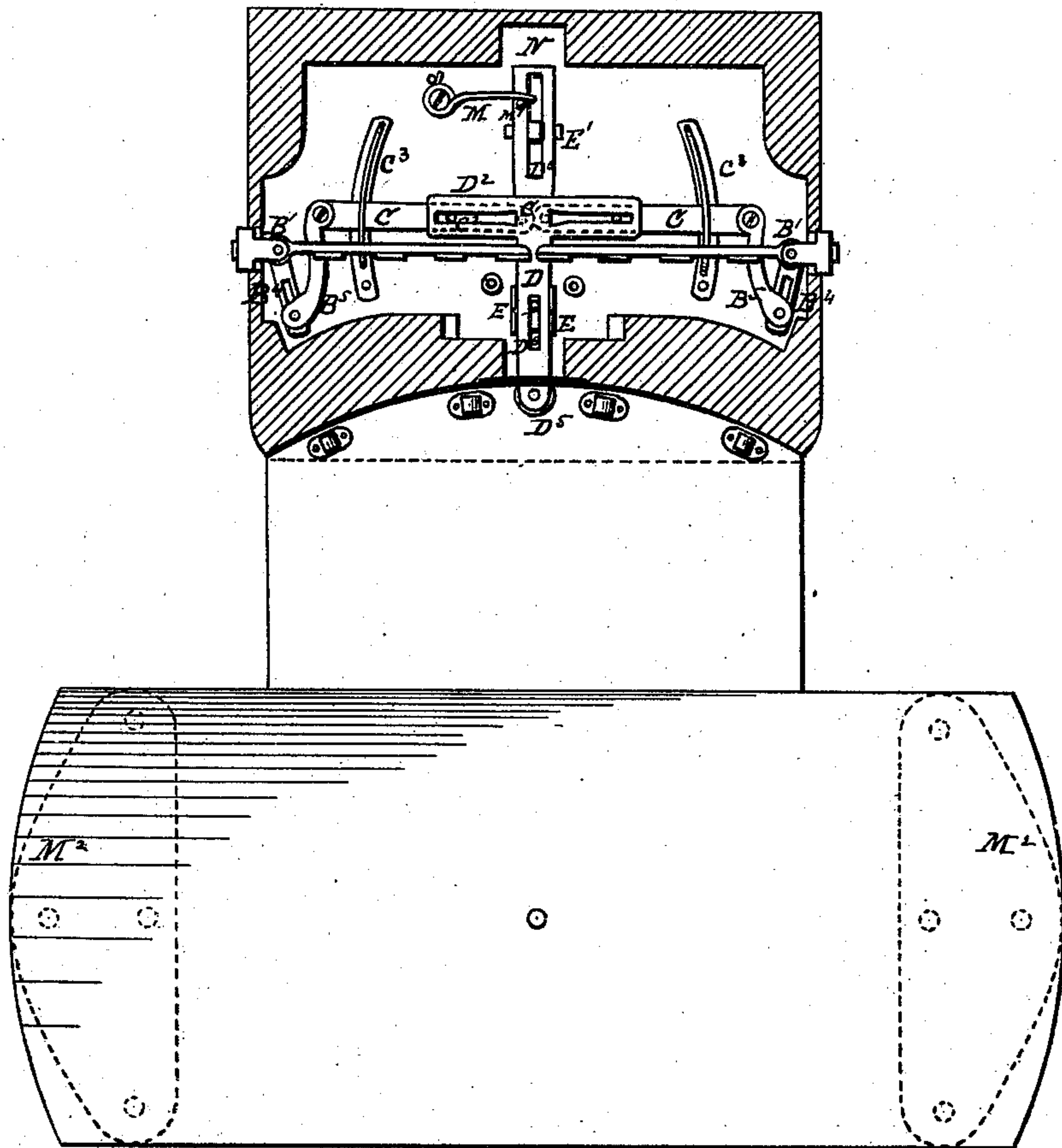
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Fig. 4.



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# UNITED STATES PATENT OFFICE.

LOUIS SIMON, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN DRAW-BRIDGE GATES.

Specification forming part of Letters Patent No. **173,508**, dated February 15, 1876; application filed October 8, 1875.

*To all whom it may concern:*

Be it known that I, LOUIS SIMON, of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gates for Draw and Swing Bridges, Ferry-Boat Landings, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to furnish swing and draw bridges, ferry-boats, and their landing places, &c., with a sure, safe, and speedy means for opening and closing the approaches to and exits from the same, by gates to be operated by the bridge, draw, or boat.

In the drawing like letters of reference designate similar parts of my invention, and Figure 1 represents a perspective view of the same with the draw open, and the floor of the bridge or approach thereto removed so as to show the machinery by means of which the gates are operated. Fig. 2 is a plan view of the same with the gates open and occupying the position indicated by the straight dotted lines. Fig. 3 represents the principal lever by means of which the machinery operating the gates is set in motion, the same being reversed so as to show the under side. Fig. 4 is a plan view of a modified form of my invention showing the machinery, the chief peculiarity of which consists in the fact that the gates are self-closing.

A, Fig. 1, represents the stationary part or approach to the draw of a bridge; B B, the gates for closing the foot and road way, occupying the position when the bridge is open as shown in the drawing. These gates are firmly fixed upon the standards B<sup>1</sup> B<sup>1</sup>, and may be constructed of any suitable material, and after any appropriate design. The standards B<sup>1</sup> B<sup>1</sup> are placed upon opposite sides of the roadway facing each other, their lower ends projecting down through the flooring, and resting in sockets B<sup>2</sup> B<sup>2</sup>, in the foundation or bed-pieces of the bridge, or upon a foundation expressly

constructed for the machinery to rest upon. The shoulders B<sup>3</sup> B<sup>3</sup> serve to keep the standards B<sup>1</sup> B<sup>1</sup> steady in their places, and enable them to support the gates without swagging.

They may be supplied with rollers to bear upon a metal plate fastened to the flooring, or with any other proper means for reducing the amount of friction, so that the gates may turn more easily upon their pivotal centers. Additional stability may be given to the gates by upright posts on each side of the bridge, with a cross-piece overhead uniting them, in which are sockets to receive the upper ends of the standards B<sup>1</sup> B<sup>1</sup>.

The lower ends of the standards B<sup>1</sup> B<sup>1</sup> are supplied with arms, B<sup>4</sup> B<sup>4</sup>, projecting at right angles from the same. The levers C C are pivoted to the bed or foundation upon which the machinery rests at C<sup>1</sup> C<sup>1</sup>, (see Fig. 2,) and their longer arms are connected with the arms B<sup>4</sup> B<sup>4</sup> of the standards B<sup>1</sup> B<sup>1</sup> by the links B<sup>5</sup> B<sup>5</sup>. The short arms of the levers C C are provided with pins C<sup>2</sup> C<sup>2</sup>, working in slots or channels *d d* of the arms D<sup>2</sup> D<sup>2</sup> of the lever D. D is the principal lever, by means of which the machinery is operated. It is supplied with the slotted arms D<sup>2</sup> D<sup>2</sup> and the slide D<sup>3</sup> working in the slot D<sup>4</sup>.

The object of this latter device is to release the locking attachment holding the gates in place when closed, until the closing of the bridge or draw, or arrival of the boat at the wharf or pier.

The outer end of the slide D<sup>3</sup> is supplied with a roller, D<sup>5</sup>, to reduce the friction as the draw impinges against the lever D in swinging around, thus enabling the machinery to operate more easily. The lever D works in the slides or ways E E, in which it is held by the buttons *e e*, or other equivalent device. F F are levers, bent as shown in the drawing, and pivoted at their elbows or angles F<sup>1</sup> F<sup>1</sup> to the bed upon which the machinery rests. Their inner ends are supplied with slots F<sup>2</sup> F<sup>2</sup>, to receive the pins D<sup>6</sup> D<sup>6</sup> on the under side of the principal lever D, while their outer ends are furnished with rollers F<sup>3</sup> F<sup>3</sup>, the uses of which are similar to those of the roller D<sup>5</sup> on the lever D. G is a plate of metal, the principal object of which is to furnish a bed for the locking attachment H. This locking at-



attachment consists of a pawl,  $H^1$ , pivoted at or near its center to the periphery of the plate  $G$ ; or, if the plate be not circular, or is dispensed with, as it may be, then at any proper point so as to allow the stud  $H^2$  on the end of the pawl to engage with the notch or shoulder  $E^1$  of the guide or way  $E$ . The outer end of the pawl  $H^1$  is supplied with a projection or any suitable device against which the slide  $D^3$  impinges, as it is pressed inward by the end of the draw, thus releasing the stud  $H^2$  from the notch  $E^1$  before the lost motion can be recovered and the gates opened. The post or standard  $I$ , passing through the plate  $G$ , and which holds it in place, is supplied with a spring,  $K$ , one arm of which rests in a groove in the outer end of the pawl  $H^1$ , while the other is held in place by the post  $I$  and the studs  $I^1 I^1$ .  $L L$  are studs or blocks intended to stop the farther progress of the levers  $C C$ , when the gates are fully opened or closed, as the case may be.

The locking attachment  $H$  may be easily adapted to any of the modified forms of my invention by a slight mechanical change in the construction, which it is unnecessary to explain.

The ends of the draw, &c., where they come in contact with the lever  $D$ , may be protected from wear by a metal plate,  $M^2$ , of the necessary width to receive the face of the rollers  $D^5$ .

The mode of operation of this form of my invention is as follows: For instance, if it be a swing-bridge, and the gates are shut as the bridge, which is open, revolves in closing, the end impinges against the lever  $D$ , and, pushing it back, causes the slide  $D^3$  to release the locking-attachment  $H$ , after which, the lost motion being taken up, the pressure against the lever causes the gates to open at the same time, bringing the outer arms of the levers  $F F$  against the sides of the draw. As the draw is revolved in either direction, for the purpose of opening it, it presses one of the levers  $F$  outwardly, thus closing the gates as the bridge swings around. Fig. 4 is a modified form of my invention, more especially adapted to bridges operating with a draw or slide, and to ferry-boats, &c. The standards  $B^1 B^1$ , the arms  $B^4 B^4$ , the links  $B^5 B^5$ , and the levers  $C C$ , are constructed and arranged to operate substantially as shown and described in Fig. 1. The principal lever  $D$ , however, is somewhat differently constructed, the arms  $D^2 D^2$  being slightly bent and slotted to re-

ceive the studs or pins  $C^2 C^2$  of the levers  $C C$ , which are pivoted at their inner ends at  $c c$ , instead of near their centers as in Fig. 1. The lever  $D$  works in the way  $E$  and upon the studs  $E^1 E^1$ , passing up through the slots  $D^6 D^6$ , and may be kept from lifting up by any proper device. The levers  $C C$  work in the ways or guides  $C^3 C^3$ , which also act as stops instead of the studs  $L L$ , Fig. 1.  $M$  represents a spring bearing against the stud  $M^1$  on the lever  $D$ , by means of which the gates are closed as soon as the pressure against the outer end of the lever is removed. This spring may be made as shown in the drawing, or it may be of the form of an ordinary car-spring, placed at the head of the lever  $D$  at  $N$ . The gates  $B B$  may be constructed as shown in Fig. 4, or as in Fig. 1, as may seem most desirable.

The mode of operation of this form of my invention is as follows: Supposing it to be placed upon a bridge, as the draw is closed it presses back the lever  $D$  to open the gates, and as soon as the pressure is removed the gates are closed by the spring  $M$ . If placed upon a ferry-boat or its landing-place, the mode of operation is the same, and too obvious to require explanation.

It may be easily seen that my invention, by some slight modifications of the principal lever  $D$ , may be adapted for use upon farms, road-ways, &c.

I am aware that self opening and closing gates, as they are termed, have been before used, and therefore do not claim this feature of my invention as new; but

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

1. In a draw or swing bridge or ferry-guard, the combination, with the gates  $B B$  and the standards  $B^1 B^1$ , of the levers  $D, C$ , and  $F$ , the links  $B^5$ , and the locking attachment  $H$ , when constructed and adapted to operate substantially as and for the purposes set forth.

2. The combination, with the gates  $B B$ , of the standards  $B^1 B^1$ , the levers  $D C F$ , and the links  $B^5 B^5$ , the spring  $M$ , when constructed and arranged to operate substantially as and for the purposes described.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

LOUIS SIMON.

Witnesses:

JNO. S. SLATER.

E. M. FINCH.