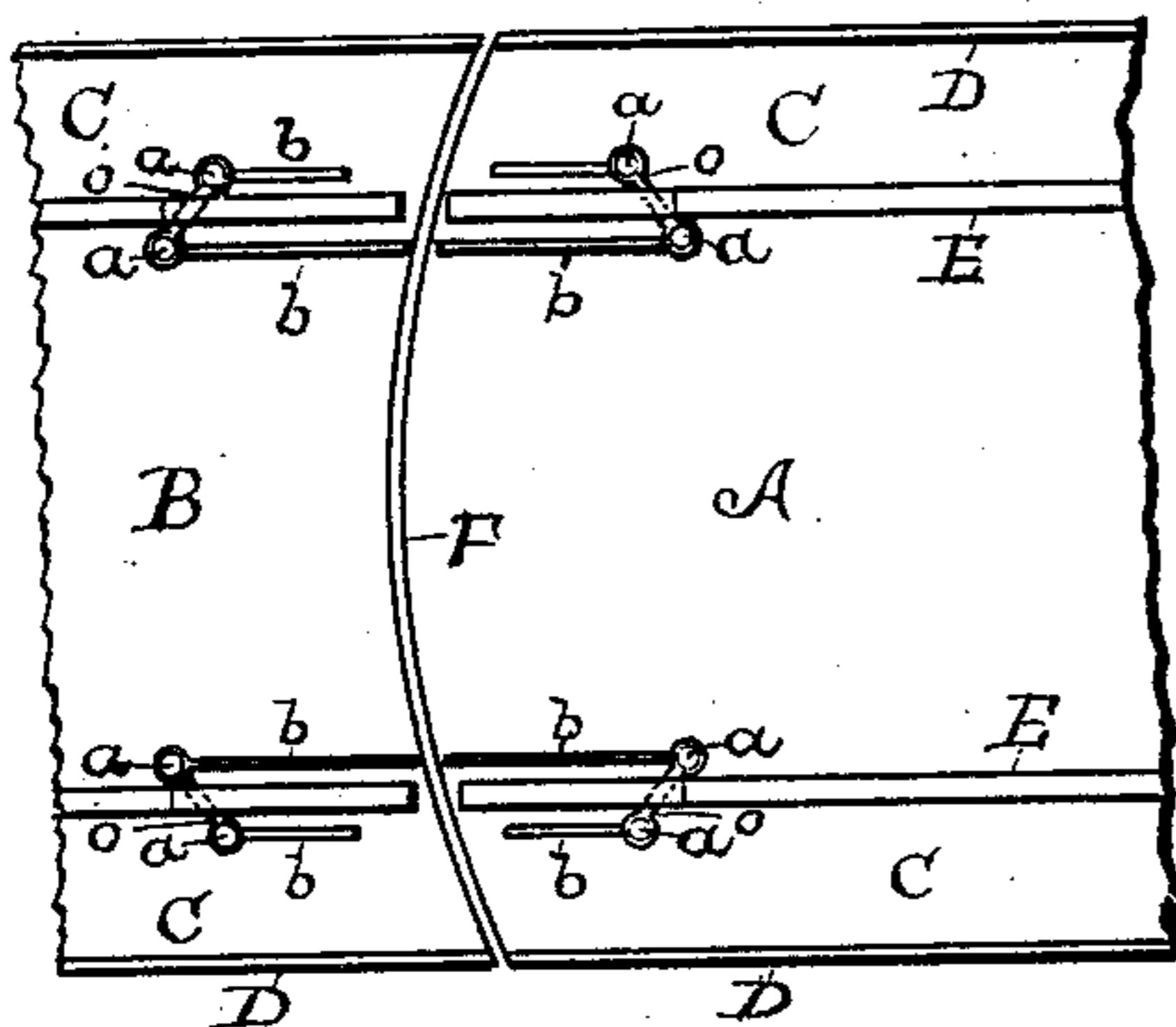


F. BOUCHER.  
DRAWBRIDGE GUARD.

Patented Sept. 6, 1892.



*Fig. 1.*

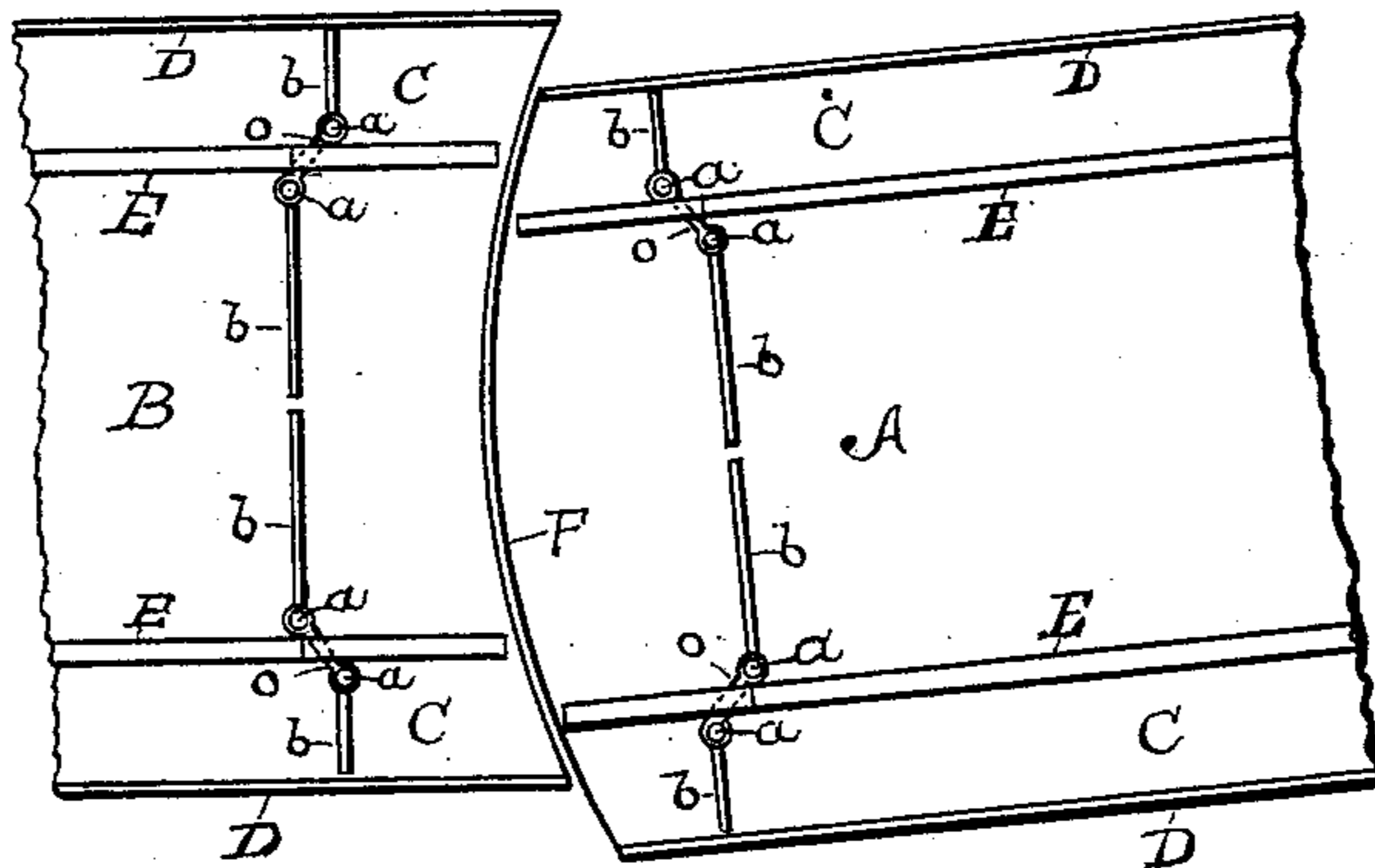
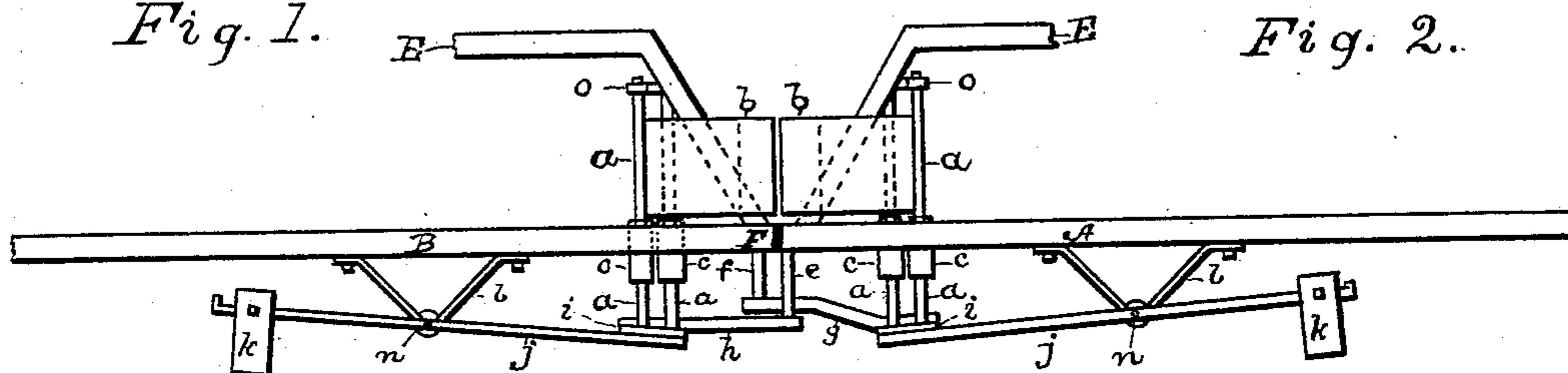


Fig. 2.



*Fig. 3.*

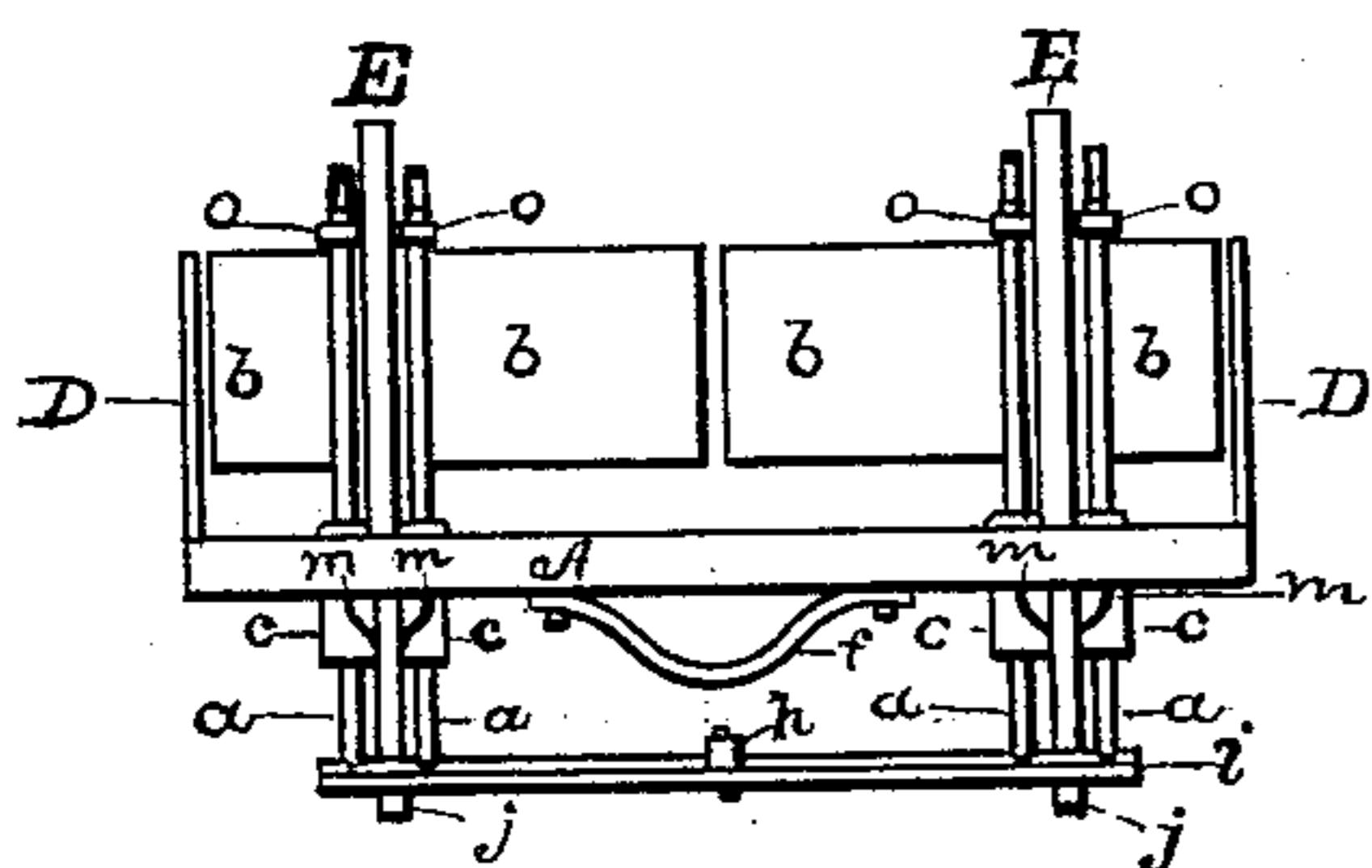
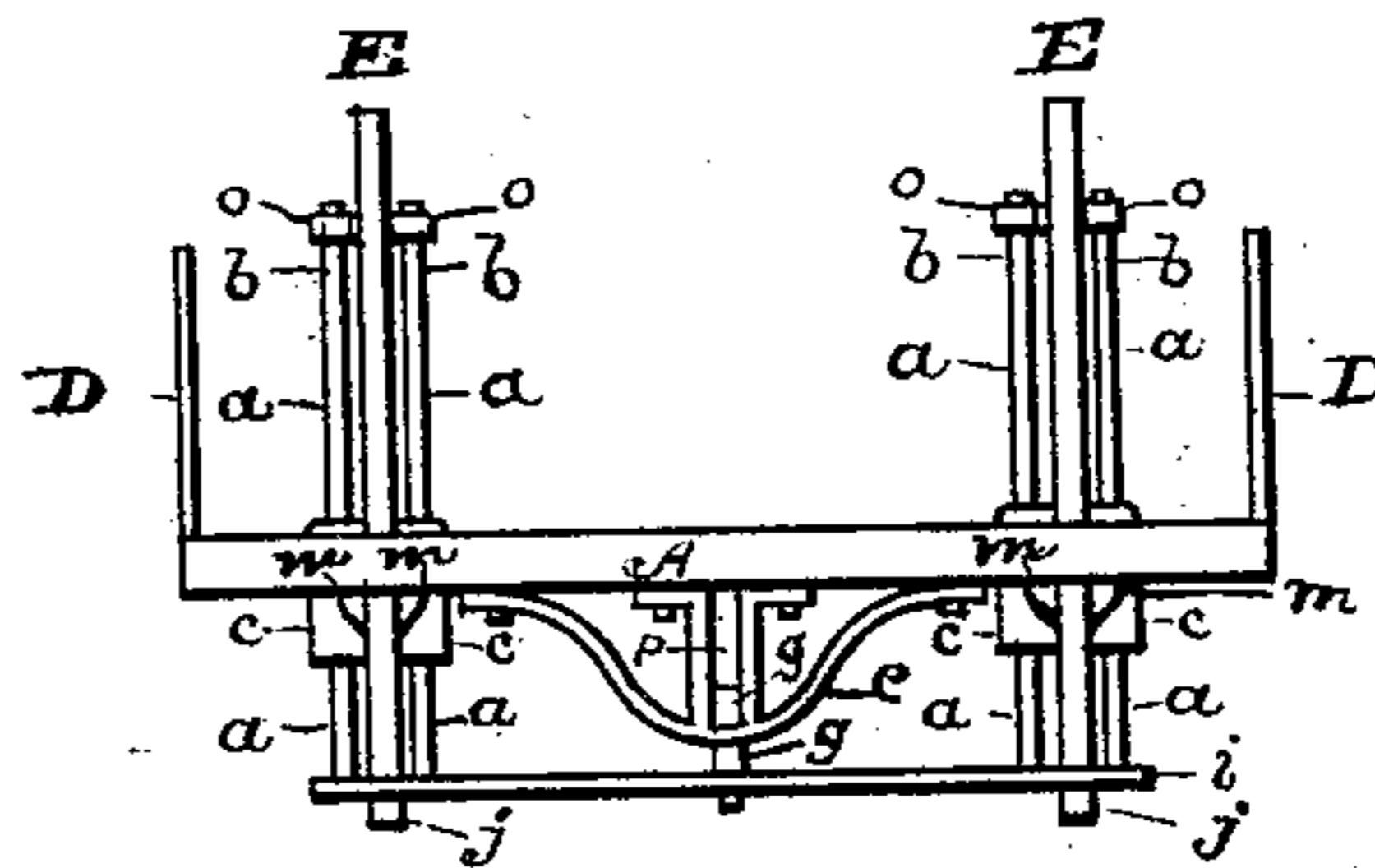


Fig. 4.



*Fig. 5.*

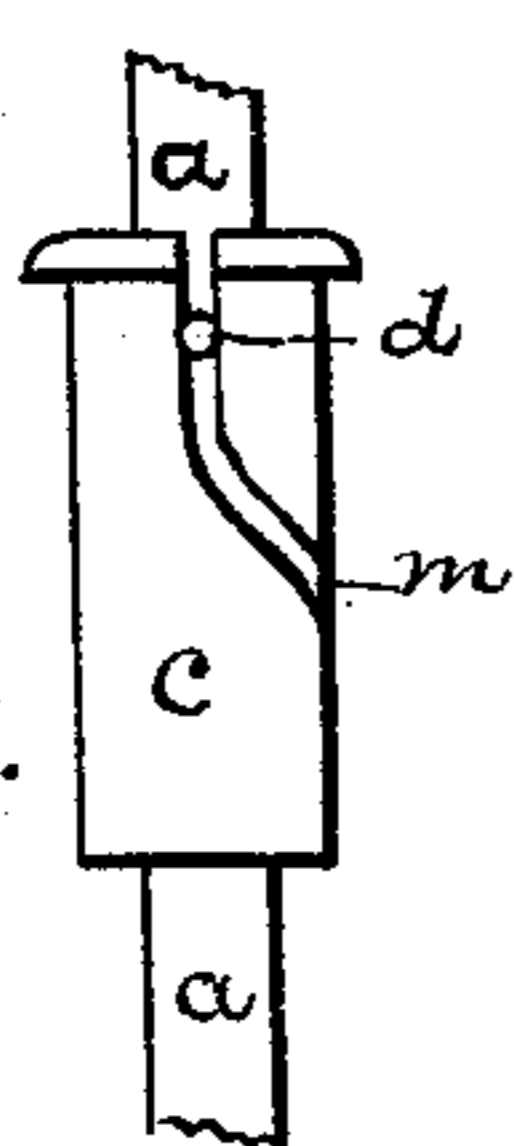


Fig. 6.

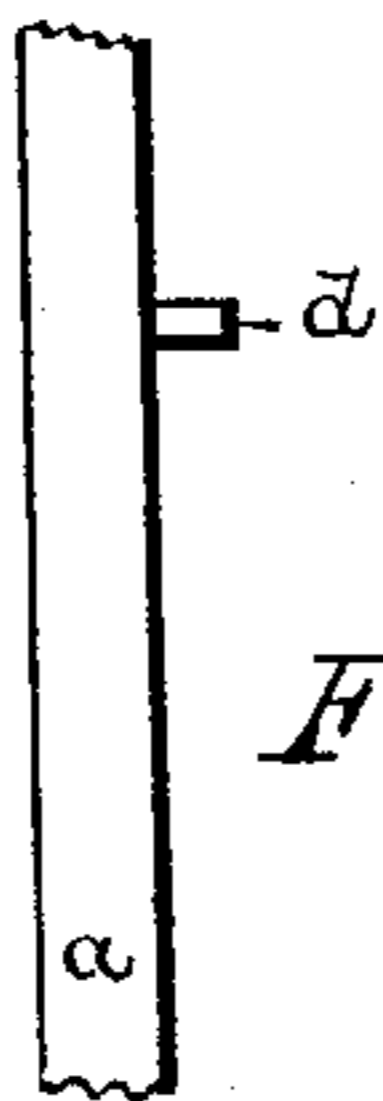


Fig. 7.

Witnesses:

*Ypsdruff*  
*P. J. Corbelle*

*Inventor:*

Frank Boncher  
By his atty in fact J. S. Conklin

# UNITED STATES PATENT OFFICE.

FRANK BOUCHER, OF FOND DU LAC, WISCONSIN, ASSIGNOR OF ONE-HALF  
TO PETER T. CORBEILLE, OF SAME PLACE.

## DRAWBRIDGE-GUARD.

SPECIFICATION forming part of Letters Patent No. 482,291, dated September 6, 1892.

Application filed April 22, 1892. Serial No. 430,282. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK BOUCHER, a citizen of the United States, residing at Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented a new and useful Gate or Guard for Open Drawbridges, of which the following is a specification.

My invention relates to improvements in automatic gates or guards in which horizontal panels open and shut across the roadway and footway at the ends of swing-bridges and their adjoining piers or docks in conjunction with the opening and shutting of the draws or ends of the bridge; and my object is to provide a complete system of gates or guards on and across the ends of both dock and draw, operating simultaneously and automatically upon the movement of the draw.

I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top view of the bridge and its pier closed, with the gates *b b* open. Fig. 2 is a similar top view with the draw partly opened and the gates *b b* closed. Fig. 3 is a side sectional elevation of the entire machine. Fig. 4 is an end elevation showing the end of the pier or dock, with the gates closed. Fig. 5 is a cross-section of the bridge end with the gates open. Fig. 6 is a detached view of the thimble or sleeve with its slot or groove and its engagement with the spindle or shaft supporting the gate bar or panel. Fig. 7 is the spindle or shaft with its guide-pin.

Similar letters refer to similar parts throughout the several views.

My gate system and operation of same consists of the spindles or posts *a a*, each bearing lateral wings or gate-panels *b b*, affixed solidly to the parts above the bridge-deck A and pier-floor B. These spindles move up and down freely in and through the thimbles or sockets *c c*, into which they are sleeved, and through which sleeves the spindles extend downward and rest upon the plates or cross-ties *i i*, which are raised, in conjunction with the spindles, by means of the weighted levers *j k n*, secured to the under sides of the bridge and pier by hangers *l l* and pivots or fulcrums *n n*.

The spindle is provided with a guide-pin *d*,

which engages with a spiral slot or groove *m* on the inside of the thimble or sleeve *c* and extending one-quarter or ninety degrees about the periphery of the sleeve. The upper end of the spindle *a* is supported and steadied by collars *o o*, which are in the ordinary draw-bridge connected by a yoke affixed to the truss cord or brace E. (In the absence of a truss on the bridge these collars may be provided by stanchions or their equivalents supporting the top of the spindles.) The spindles *a a* when raised or lowered through the thimbles *c c* are rotated by means of their guide-pins *d d* engaging with the spiral slots or grooves *m m*, and so swing their gate panels or bars in an arc of ninety degrees open or shut in reference to the draw and pier roadway and footway A B C.

The gates are located on the draw and on the pier on either side of the joint F and respectively on the outer sides of the roadway and inner sides of the footways and extend, when shut, respectively, to the middle line of the roadway and to the rail D of the bridge. When the draw is closed, the spindles and their bottoms rest on the tie-plates *i i* and are held down or locked by means of the segments or frustums *e f*, respectively affixed to the under side of the draw and pier fronts A A B B, Figs. 3, 4, and 5, and bearing on the ends of the levers *g h*, or, more properly, *g* and *h*, are the levers *j j*, produced from the center of the tie-plates *i i* and acting as triggers, passing across the segments or frustums *e f* and setting loose the action of the weighted levers *j n k*. The lever end or trigger *g* belongs to the bridge-lever and passes through and is guided by the slot *p*, vertically cut in the segment *e* on the bridge side (see Fig. 5) and engages with the segment *f* on the pier side of the joint F, while the lever end or trigger *h* belongs to the pier side and reaches across the joint F and engages with the segment or frustum *e* on the bridge end.

Having thus described in detail the construction of the different parts of my device, it will be seen that the opening of the draw will release the weighted levers and by their action force upward the spindles *a a* through the thimbles or sleeves *c c* and by the engagement of the guide-pins *d* with the spiral slots

or grooves *m m* will turn the spindles, and with them their gate panels or bars *b b*, one-quarter of a circle, and so close all the gates simultaneously, and, on the other hand, the closing of the draw will by means of the lever ends or triggers *g h*, respectively engaging with the segments or frustums *e f*, respectively, press down and relieve the action of the weighted levers and simultaneously open and hold open the several gates while the bridge is closed.

The ordinary drawbridge is composed mostly of iron and steel, with floor of plank, sleepers, and other parts. The deck or bottom is from twelve to eighteen inches thick. I therefore adapt my thimbles *c c* to a length equal, or nearly so, to the thickness of the bridge-deck and pier-platform and set them rigidly down through the bottoms A B. The spiral slots or grooves *m m* should be continued at top and bottom a few inches in a straight line to provide against sags or dips in the bridge at the joint F and allow thereby a play of the guide-pins *d d* in these perpendicular slot ends before engaging with and operating through the spiral section of the slots or grooves. The weights *k k* may be constructed to slide on the outer ends of the levers *j j*, respectively, and so be adjustable,

as desired, and secured in place by set-screws or equivalent devices. My whole system may be constructed of iron or steel, or both, in strong, compact, and durable form and manner.

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

1. The spindles carrying lateral wings or gate-panels and provided with guide-pins adapted to rotate the spindles in an arc of ninety degrees by their passage in slots or grooves cut on the inside and in spiral form of the fixed thimbles or sleeves set in and through the floors of the draw and pier, respectively, of the bridge structure, in combination with said thimbles, grooved as described, and the actuating levers and weights under the bridge and pier, all substantially as and for the purposes set forth.

2. In a system of automatic guards for drawbridges, the combination of the rotating posts *a*, carrying gate-panels *b*, sockets or sleeves *c c*, with spiral slot *m*, the weighted levers *g h*, and segments *e f* with bridge and pier A B C D E.

FRANK BOUCHER.

Witnesses:

F. F. DUFFY,  
P. T. CORBEILLE.