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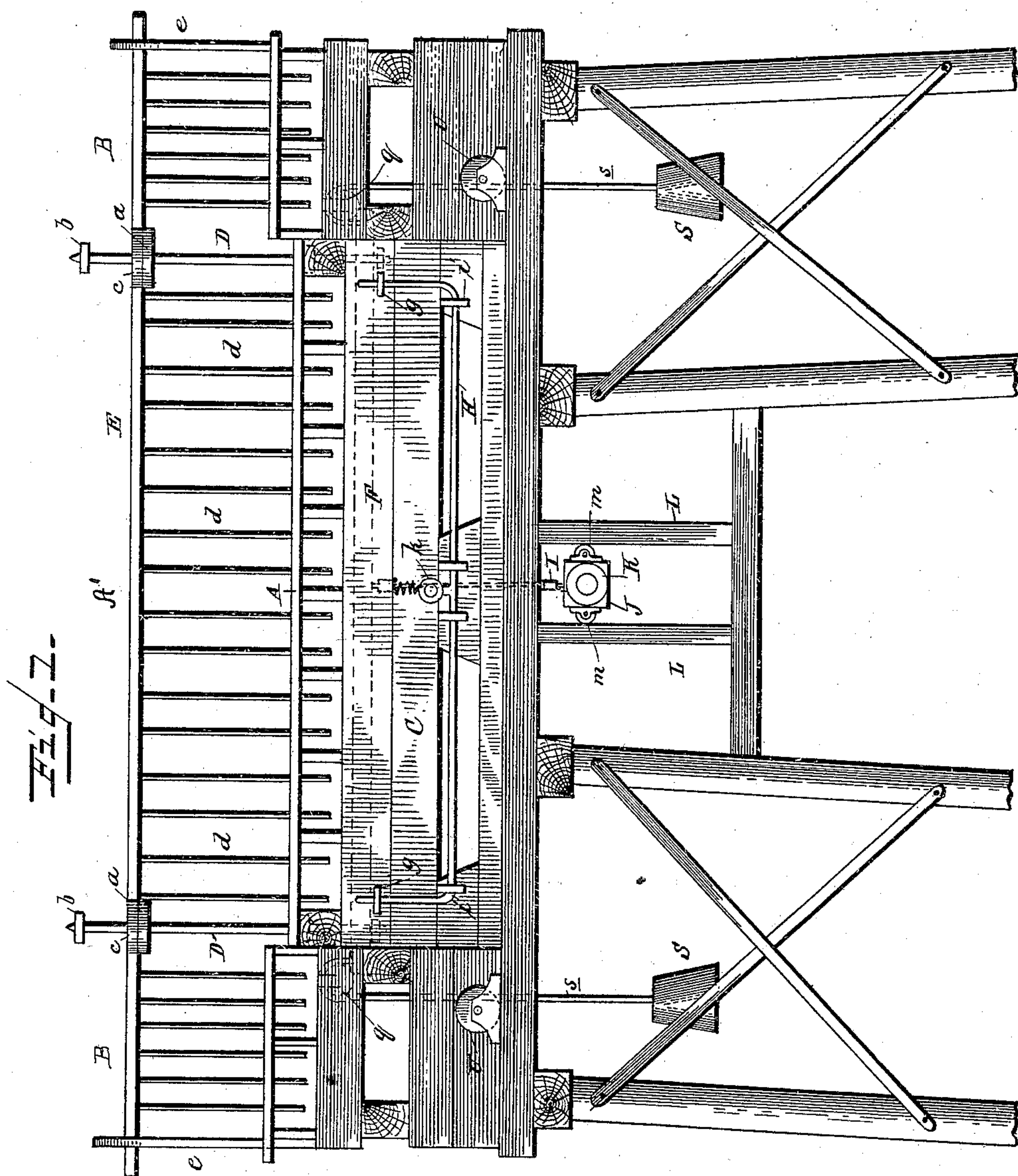
2 Sheets—Sheet 1.

C. FISHER.

GATE FOR BRIDGES.

No. 368,524.

Patented Aug. 16, 1887.



WITNESSES

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INVENTOR

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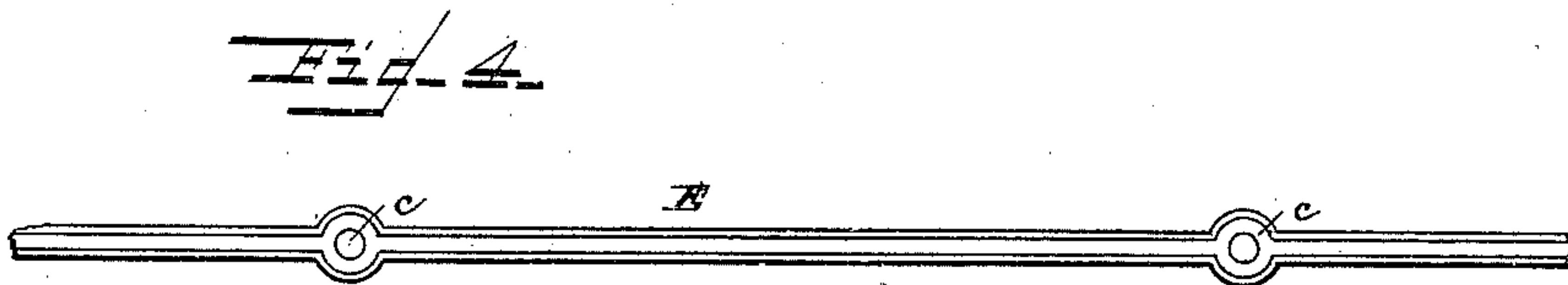
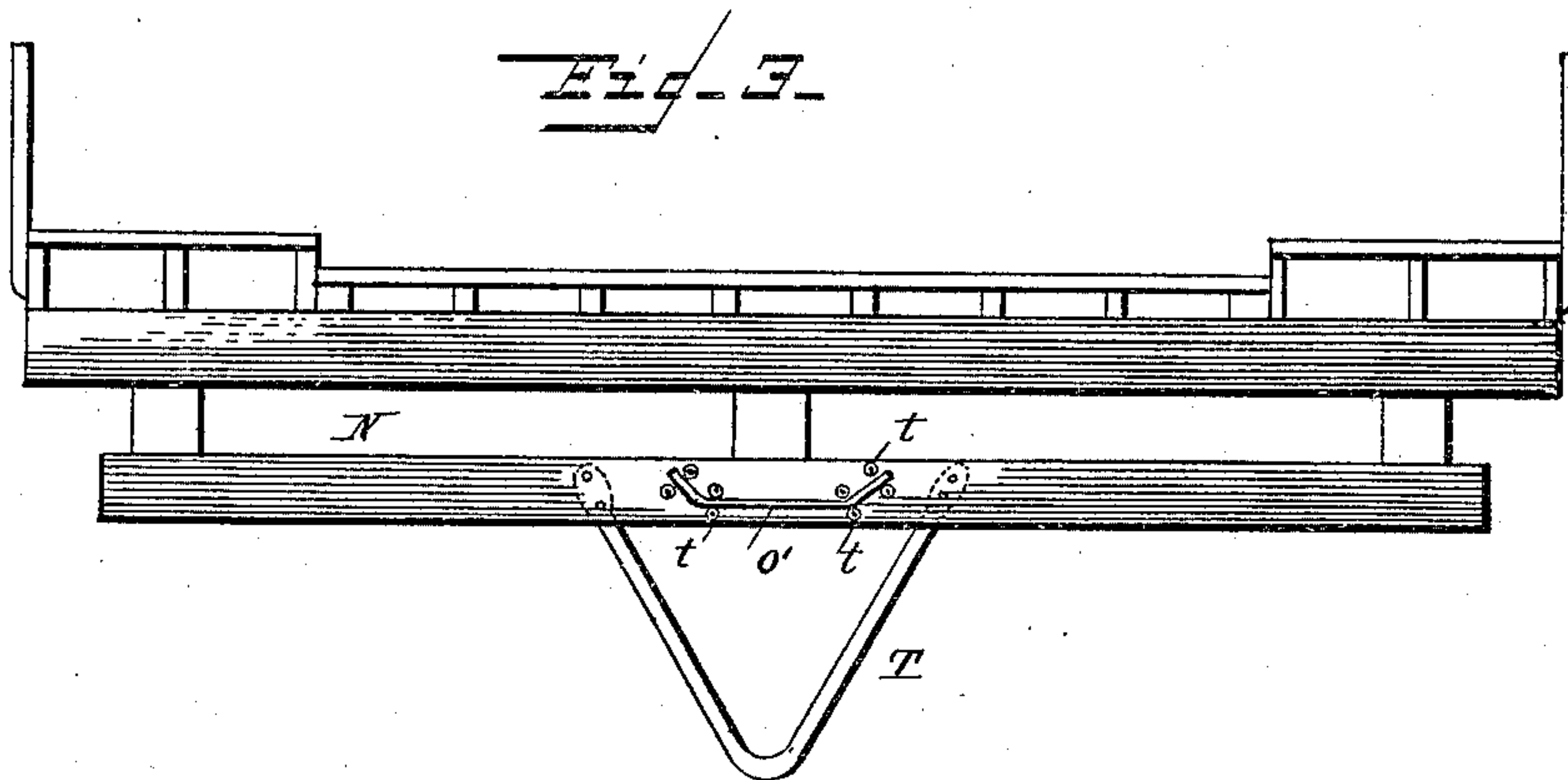
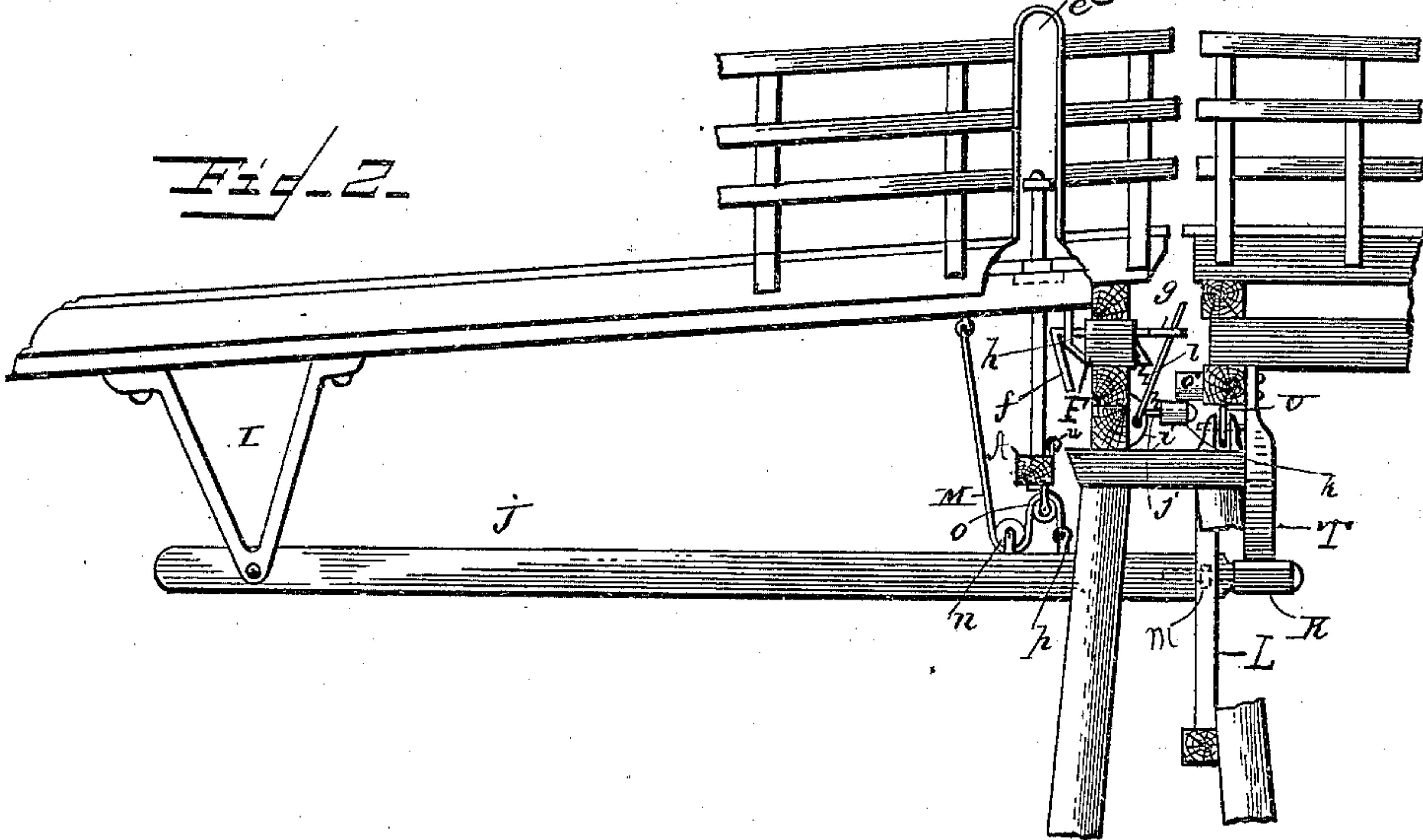
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UNITED STATES PATENT OFFICE.

CHARLES FISHER, OF MANITOWOC, WISCONSIN, ASSIGNOR OF ONE-HALF
TO GEORGE B. BURNETT, OF SAME PLACE.

GATE FOR BRIDGES.

SPECIFICATION forming part of Letters Patent No. 368,524, dated August 16, 1887.

Application filed December 22, 1886. Serial No. 222,246. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FISHER, of Manitowoc, in the county of Manitowoc and State of Wisconsin, have invented certain new and useful Improvements in Gates for Bridges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention has reference to gates for draw-bridges, and has for its object to increase the efficiency of such constructions, to render the operation both automatic and positive, and simplify the general character of such devices.

In the accompanying drawings, forming part of this specification, Figure 1 is a view in elevation of my improved bridge-gate and operating appliances, looking from the direction in which the draw is located. Fig. 2 is a side view of Fig. 1, a portion of the draw being represented to illustrate the relative operation of devices carried thereby with respect to the operating devices of the gate. Fig. 3 is a detail view of part of the draw, and Fig. 4 is another detail view.

Upon the supporting timber and frame-work of the bridge proper is located the central roadway, A', at each side of which is a path or footway, B B, as usual. Transversely beneath the central roadway, A', and at the point where the gate is located, is a beam, C, at or near each end of which is mounted a vertical rod or standard, D, which extends up at each side of the roadway A', as represented in Fig. 1. A washer or collar, a, is rigidly mounted on each standard D, preferably a short distance from the upper end thereof, and on the extreme end of each standard is also rigidly secured a second washer, b, forming a stop, the purpose of which will be hereinafter explained.

E refers to a horizontal rail, which is extended transversely across both the road and pathways, as seen most clearly in Fig. 1, and the said rail is provided with eyes c, through which pass the rods D, the said eyes being located between the washers a b, but normally resting on and supported by the washers a. From the rail E depends a series of rods, d,

which, together with lower beam, A, complete the gate structure proper and extend into and through a groove formed transversely in the floor of the road and pathways, and registering vertically with the rail E above. At the side of each pathway is a vertical slotted standard, e, into which the ends of the rail E extend and are guided. A beam, F, is located transversely beneath the bridge proper, and has playing horizontally therethrough and near each end thereof a bolt, f, the front ends of which are formed into horizontal eyes g, while the rear portion of each bolt is bent downwardly and inwardly, for a reason to be hereinafter explained.

h refers to a bracket secured on the rear side of the beam F, and perforated to support the outer end of each bolt.

On the outer side of a beam, C, below the beam F, are secured ears i, in which bears a horizontal rod, H, the ends of which extend up vertically through the eyes g of the bolts f above. An arm, j, extends out horizontally from the center of the rod H, and carries a roller, k. A coil-spring, l, is attached at one end to the arm j and at its other end to the beam F, and tends to normally maintain the eyes g of the bolts f close to the front of the said beam F, and consequently the roller-arm j in a horizontal position.

From the under side of the bridge proper, and at some distance back from the open part thereof, depends a bracket, I, to the lower portion of which is pivotally secured one end of a beam, J, the other end of which extends through and beyond the supporting frame-work of the bridge proper to a point beneath that occupied by the end of the draw when the latter swings into position. The free end of the beam J carries a short shaft, upon which turns a roller, K. The frame-work of the bridge proper is provided with two vertical bars, L L, parallel, as shown in Fig. 1, and serving as guides for the end of the beam J, which carries an anti-friction roller, m, at each side, to facilitate the free movement of said beam between said guides.

A chain or cable, M, is secured at one end to the under side of the bridge-abutment, then passes down and around a pulley, n, on the upper side of the beam J, then around a pul-

ley, *o*, on the under side of the beam A of the gate, and is finally secured to an eyebolt, *p*, on the upper side of the beam J.

A guide roller or pulley, *q*, is located permanently beneath each pathway; and serves as a guide for a chain or cable, *s*, which passes over the same and is connected at one end to one of the ends of the gate-beam A, while the other end of said chain or cable suspends a weight, *S*.

One of the timbers N, forming the adjacent end of the draw, has secured on its front side a metal bar, *o'*, which is secured in position by means of ears *t* and fastening-bolts. The end portions of the bar *o'* are inclined upward, as shown in said Fig. 3. On the other side of the beam N are secured the ends of a triangular-shaped bar, T, forming a depending projection. When the draw is in place, the parts occupy the position illustrated in Fig. 2—that is to say, with the plate O depressing the roller-arm *j*, so as to retain the bolts *f f* in a retracted position, while the bar T bears upon and holds the beam J in a depressed position, so that the gate-beam A occupies a position considerably below the bridge proper. Now, when the draw is swung away from the end of the bridge-abutment the plate O' and bar T move out of contact respectively with the roller-arm *j* and beam J, so that the latter is elevated through the traction of the weights, thus elevating the gate-beam to the position shown in Fig. 1, closing both road and pathways.

It will be noticed that the relative shape of the plate O and bar T is such that the beam J begins to ascend as soon as the draw moves, whereas the contact of the plate O with the roller-arm *j* is maintained for some time after the beginning of such movement on the part of the draw, and the projection of the bolts *f f* does not occur until one of the inclined ends of the plate O is reached, after which the roller-arm *j* begins a gradual ascent, so that the bolts *f f* gradually move into position and arrive in proper position when the gate-beam passes above them, so that the beam will be locked against any downward movement.

By bending downward and inward the ends of the bolts *f f*, I provide against any possible bending or derangement of parts which might occur owing to any interference with the proper and free ascent of the gate-beam. In my construction, if the bolts *f f* arrive in full position before the gate-beam has ascended to its limit, any subsequent movement of said beam will be readily accomplished by means of a roller, *u*, placed on the upper corner of said beam, which roller contacts with the inclined portion of the bolt and gradually forces said bolts out of the path of the beam until the latter is passed, after which the bolts move beneath the beam and lock it in position.

I prefer to so slot the road and pathways that the rail E will, when the gate has descended, rest in and be flush with the road-

way. Inasmuch as the footways are generally much higher than the roadway, the flooring and beams of the latter will have to be cut to a depth coincident with the slot in the roadway, in order that the rail may rest therein, and as the width of the slot is small it will not be inconvenient nor interfere with travel on the pathways. Instead, however, of cutting the footways as above explained, the slot therein may be just sufficient to receive the ends of the rail, which are bent to accommodate themselves to the height of the pathways.

By having the rail play freely between the washers *a b* the following advantage is secured: Should any one on the verge of the bridge get his foot over the slot therein, so that the descending rail comes down upon it, the rail can be lifted to such an extent as will permit the foot to be removed from beneath the same to prevent injury.

U U designate rollers for supporting the ends of the bridge-draw.

I do not limit myself to the precise construction herein described and set forth, as I reserve the right to apply the improvements to various bridge constructions without departing from the spirit of my invention.

I claim—

1. The combination, with a bridge, of a draw, a vertically-movable gate, a beam pivotally secured beneath the bridge, locking mechanism arranged upon the bridge proper to be engaged by mechanism arranged upon the draw, and weights secured to the gate-beam to elevate the gate as the draw is opened, substantially as described.

2. The combination, with a bridge, of a draw, a pivoted beam, J, a vertically-movable gate provided with weights, devices depending from the draw to engage the free end of the beam J, and locking devices arranged beneath the bridge to engage with a projection from the draw, said locking devices being adapted to be released to permit the rising of the gate as the draw is opened, substantially as described.

3. The combination, with a slotted bridge portion, of a gate, a beam pivoted at one end below the bridge, rollers located on the other end, vertical guides for said rollers, a connection between said beam and gate, and a draw adapted to depress said beam, substantially as set forth.

4. The combination, with a slotted bridge portion, of a gate having a beam beneath the bridge, a bridge-beam having locking-bolts playing therethrough, the rear end of said bolts being inclined, a roller, *u*, on said gate-beam, and projections on the draw for depressing the gate and retracting the bolts, substantially as set forth.

5. The combination, with a slotted bridge portion, of a gate consisting of a beam, standards, rail, and rods, the said rail being movable relative to the standards, a draw, and de-

vices operated thereby for effecting the descent of the gate through the slot, substantially as set forth.

5 6. The combination, with a slotted bridge portion, of a gate, a draw, devices operated thereby for effecting the descent of the gate, beam F, eyebolts f, a rod, H, having its ends bent up to engage said eyebolts, a projection located on said shaft, and a spring connected

to the same and to the beam, substantially as is set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES FISHER.

Witnesses:

OTTO SONSTHAYEN,
HARVEY F. HUBBARD.