

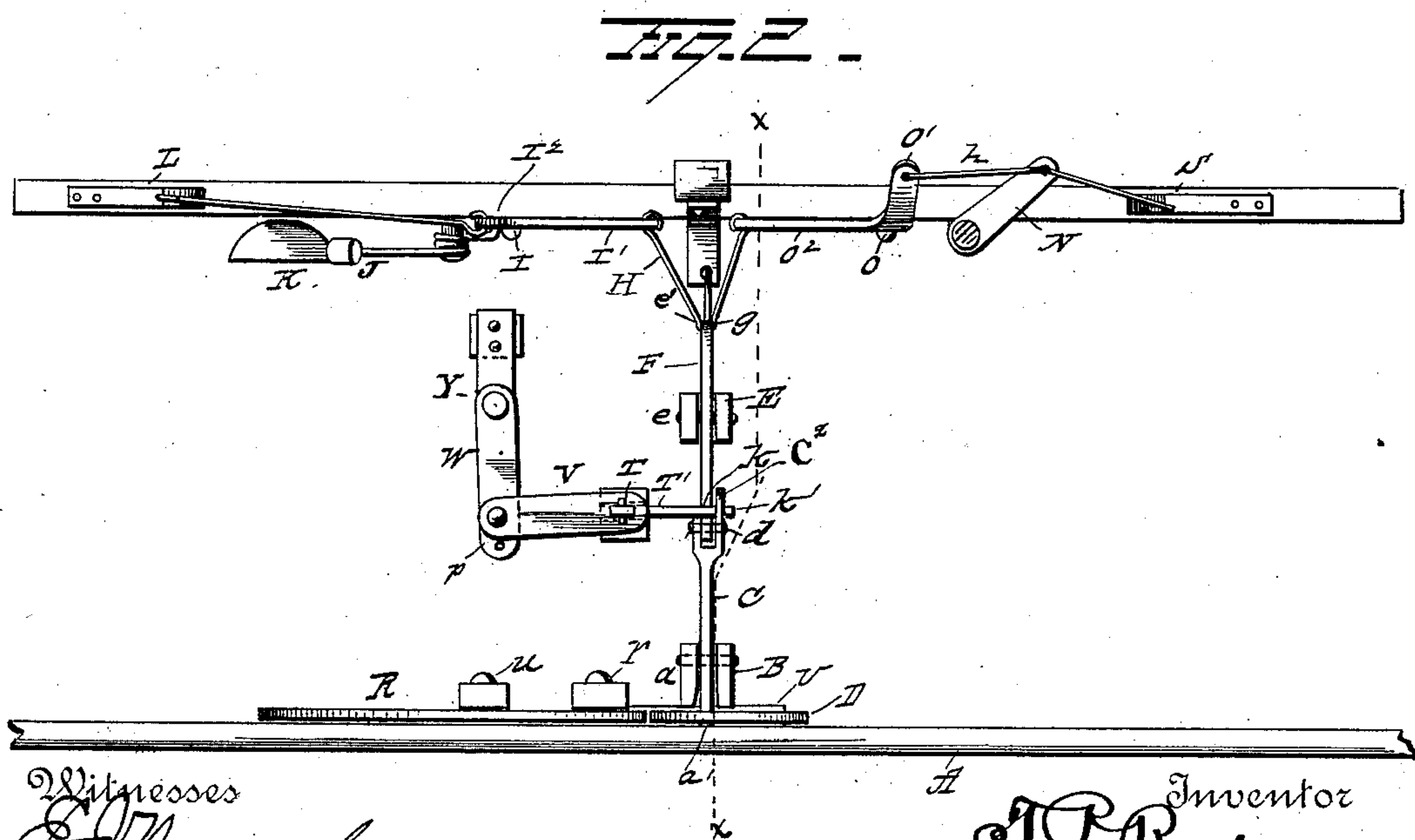
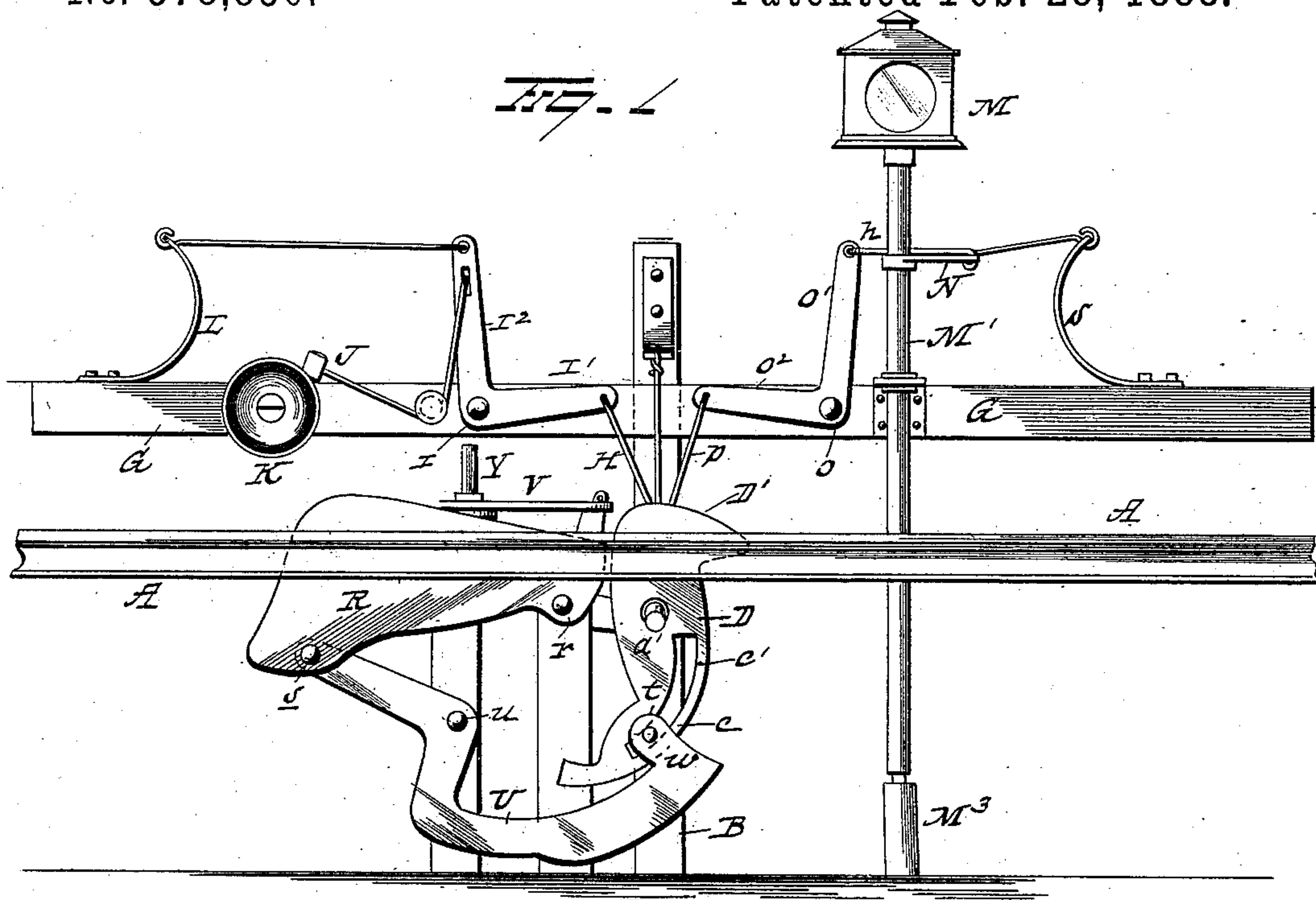
(No Model.)

2 Sheets—Sheet 1.

T. P. RODGERS.
RAILROAD SIGNALING DEVICE.

No. 378,850.

Patented Feb. 28, 1888.



Witnesses
E. M. Thompson
G. F. Downing

Inventor
T. P. Rodgers

By *his* Attorney
W. A. Seymour

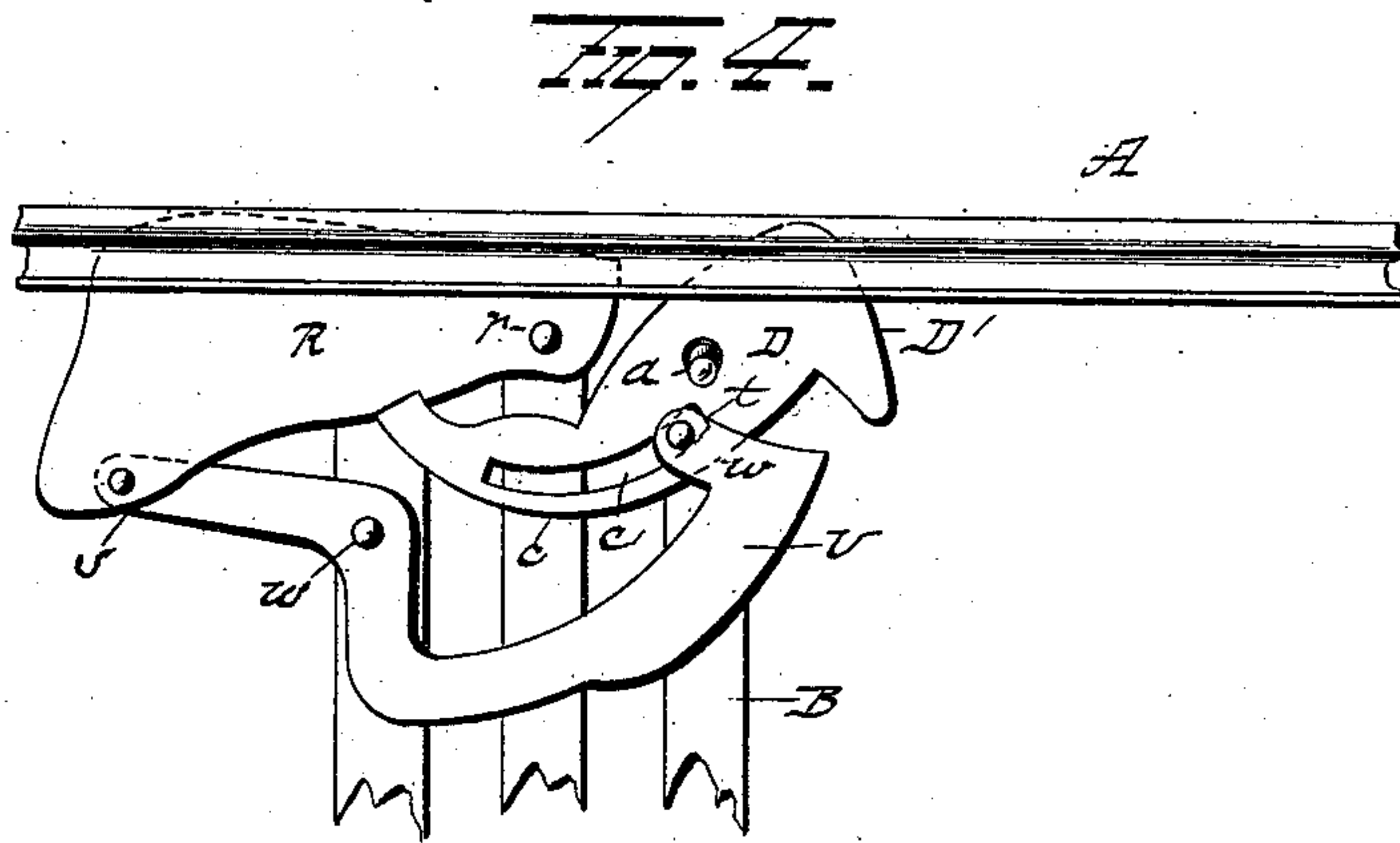
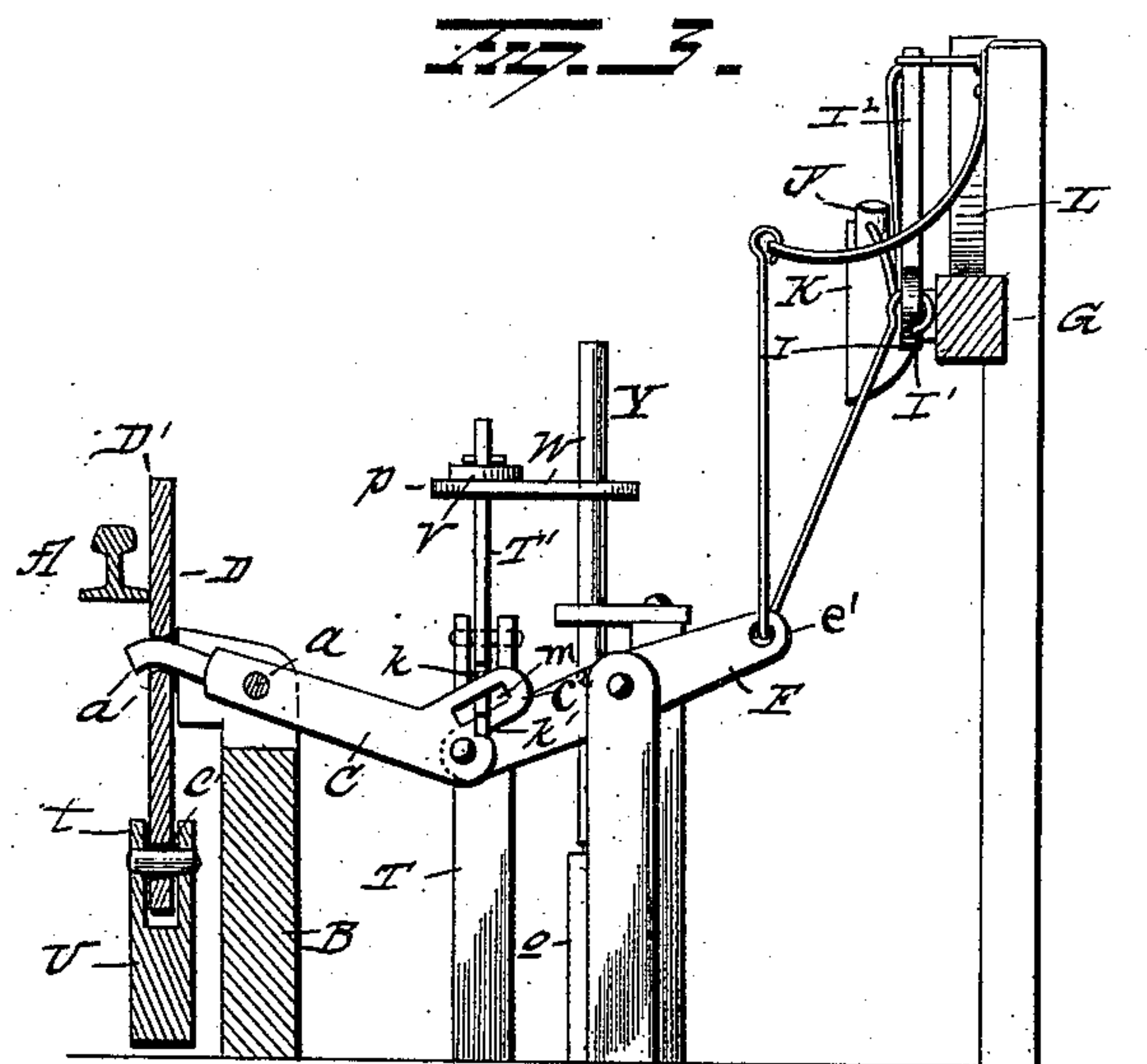
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

TOPPAN P. RODGERS, OF TAUNTON, MASSACHUSETTS.

RAILROAD SIGNALING DEVICE.

SPECIFICATION forming part of Letters Patent No. 378,850, dated February 28, 1888.

Application filed April 23, 1887. Serial No. 235,890. (No model.)

To all whom it may concern:

Be it known that I, TOPPAN P. RODGERS, of Taunton, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Railroad Signaling Devices; 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 appertains to make and use the same.

My invention relates to an improvement in signaling devices for railroad crossings, switches, and curves, and has for its object the construction of a simple and efficient mechanism that in operation will ring an alarm-gong at a point in advance of a locomotive or moving train to notify a switchman of its approach.

A further object is to construct a signaling mechanism that is operated by direct contact of the wheels of the moving locomotive, and that will exhibit a signal-lantern to indicate "danger" simultaneously with the sounding of a gong.

With these objects in view my invention consists in certain features of construction and combinations of parts, that will be hereinafter described, and pointed out in the claims.

Referring to the drawings making a part of this specification, Figure 1 is a side elevation of the device. Fig. 2 represents a plan view of the mechanism. Fig. 3 is an end elevation of the device on a line, *xx*, Fig. 2. Fig. 4 is a front elevation of the connected quadrant-bar and guard-block when the guard-block is depressed.

A represents a railroad-track. At a proper point for the erection of the signaling mechanism an excavation is made at one side of the track to receive the signal-operating machinery.

Upon a suitable supporting-post, B, the tripping-lever C is pivoted at *a*, the lever being located in a slot in the top end of the post. A projecting end, *a'*, of the lever C is made to extend near to the rail A of the track, and is rounded to receive and pivotally support the quadrant-bar D, which is perforated at a proper point in its body to engage the rounded end of this lever, as stated. The upper portion of the bar D lies near the side of the rail A and is parallel to it, and this portion D' is extended

sufficiently above the top surface of the rail A to afford a proper abutment for the wheels of a car or locomotive when they pass over it, this impinging action of the wheels being the means whereby the signaling mechanism is actuated, as will be hereinafter explained, and in order to facilitate the engagement of the wheels and prevent injury to the working parts of the machinery the top surface of the abutment D' is sloped or inclined to avoid an injurious shock when the signaling apparatus is being operated by a rolling car or locomotive.

The quadrant-bar D is extended downward below the point of support *a'* and is curved to form a quadrant, *c*, which portion is slotted, as seen at *c'*, the lower portion being weighted to cause the abutment-piece to be held normally in the position shown in Fig. 1, or above the rail-face.

A post, E, (see Fig. 3,) is erected at a suitable distance from the post B, and is slotted to form a stable support for the vibrating lever F, which is supported upon a bolt at the point *e*, the body of this lever having an elongated hole formed in it to permit a proper action of the same when moved on its support. The levers C and F are jointed together at the point *d*, so as to transmit any vibration of the lever C to lever F, and thus cause a depression of the end *e'* of the lever F when the abutment D' of the quadrant D is depressed by contact of wheels passing over it.

At a switch or other point where it is essential that a danger-signal be given or the approach of a train or a locomotive be indicated a frame, G, is erected in close proximity to the track to permit the convenient attachment of wire cable or wire rope to mechanism which is mounted on the frame, and that I will now describe. It should be premised, however, that the position of the frame G is preferably at a considerable distance from the signal-operating mechanism just described, the latter being placed at a curve which will obscure the approach of a train when on it, or at such a safe distance from a switch-stand that the operation of the signals at a switch will be sufficiently in advance of the approaching train or locomotive to permit a correct position to be given to a switch if it is necessary to change it

to suit the track upon which the train is moving.

Upon proper devices, either above the surface of the ground or in closed boxes, pipes, or other conduits, the wires or wire ropes that operate the signaling gong and lantern are supported or laid in a manner to permit them to work freely and independently, or without interference with each other.

The wire H is connected by one end to the free end *g* of the lever F, and is extended in the manner before specified to connect to the bell-crank I, which is pivotally attached to one side of the frame G, the other limb, I², of this crank being connected to a retracting-spring, and also to the hammer J of the gong K, to ring this gong when the wire H is pulled, it being understood that this wire H, which connects to the tripping-lever C by means of the vibrating lever F, is made to pass over such necessary grooved pulleys as to permit its free action to cause a depression of the limb I' of the bell-crank I when the abutment D' of the quadrant D is depressed and suddenly released to assume a normal position.

In order to overcome frictional resistance that would prevent a proper return to normal position of the tripping mechanism, a spring, L, is fixed upon the frame G to engage with the lever F; or it may be attached to the end I' of the bell-crank I, and the same result will follow.

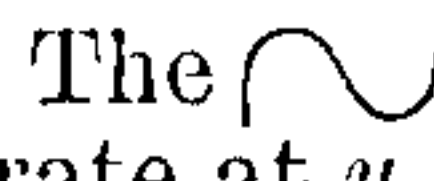
The signal-lantern M is vertically supported upon an upright shaft, M', that preferably rests in a step, M³, and is thus adapted to revolve and show a safety or danger signal. The shaft M' is provided with a projecting arm, N, which is connected by a link, *h*, to the vertical limb O' of the bell-crank O, its horizontal limb O² being secured to a wire or wire rope, P, which is properly conducted to attach to the end *g* of the lever F, and a retractile spring, S, is affixed to the frame G in convenient position to be linked to the end of the arm N in a manner to hold the lantern M to expose its face to the track and illuminate the switch or other position within the range of vision of the switchman or other watchman.

When the cars or locomotive has contact with the tripping devices herein previously described, the bell-crank O will be made to vibrate, and partially revolve the lantern M, so as to expose a red or danger signal in place of the safety-signal, and at the same time the gong will be struck to call attention to the position of the lantern.

When it is desired to signal several advanced points on the railroad, to indicate the approach of a train, it may be done by the use of a supplementary device, which will be described. A post, T, is located near the tripping-lever C and the attached vibrating lever F. This post is provided with a bell-crank, T', adapted to vibrate thereon, the limb *k* of this bell-crank having a bent portion, *k'*, formed upon its free end, which is made to work in a slot, *m*, formed in an upward extension,

C², of the tripping-lever C, and which will communicate motion received from the lever C through the link V to an arm, W, attached to a vertical shaft, Y, and properly supported to partly rotate on its foot *o*. It is evident that a wire or wire rope secured to the outer end, *p*, of the arm W may be extended to a distant point and be connected to a gong-striking works, such as has been described, to operate it, and thus signal the advancing locomotive or train of cars.

In order to prevent an improper signal being given by a train or locomotive moving in an opposite direction, or away from a switch, the guard-block R is pivoted at *r* to vibrate and lie in the line of the track A. This block R is made to project above the face of the track and sufficiently near it to be struck and depressed by the wheels of a locomotive or cars that are moved over it on the track.

The  shaped lever U is pivoted to vibrate at *u*, and is loosely secured to the guard-block R at its outer end, *s*, the opposite end, *w*, being weighted and made to engage the slot of the quadrant-bar D, two parallel projecting ears, *t*, being perforated and furnished with a pivot-bolt to effect a sliding engagement of these parts.

When a locomotive depresses the guard-block R by a movement that is in a direction opposite to or away from a switch, the downward movement of this block will vibrate the weighted lever U, which, from its sliding connection with the curved slot in the quadrant-bar D, will raise the engaged end of this bar and lower the abutment D' to a level with the track by the rocking of the quadrant-bar on the pivotal point *a'* of the tripping-lever C, and in this manner prevent the operation of the signaling apparatus by turning quadrant-bar D on the pivotal point *a'* instead of depressing this point.

Slight changes may be made in the constructive details of this device to facilitate manufacture without departure from the spirit and scope of my invention. Hence I do not desire to restrict myself to exact forms shown; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a railroad signaling device, the combination, with a quadrant-bar and a pair of levers loosely connected at their adjacent ends, of a signal and a flexible connection loosely connecting the signal to one of the levers, so that the former is operated by a motion of said levers, substantially as set forth.

2. In a railroad signaling device, the combination, with a quadrant-bar and its integral abutment, a tripping-lever, and a vibrating lever, of a wire rope or other flexible appliance adapted to cause the sounding of a gong when the abutment is depressed and released suddenly, and a gong or bell located at a distance from the quadrant-bar, substantially as set forth.

3. In a railroad signaling device, the combi-

nation, with a quadrant-bar and its attached abutment, a tripping-lever, a vibrating-lever connected pivotally to the tripping-lever, and two wire ropes that are extended to a point 5 distant from the quadrant and its mechanism, of a gong and a lantern, the gong being connected to one wire rope, the lantern to a second wire rope, each being operated to give alarm-signals by the vertical depression and 10 release of the quadrant-bar, substantially as set forth.

4. In a railroad signaling device, the combination, with a quadrant-bar, a tripping-lever, a vibrating lever, a wire rope, and a gong 15 connected to sound when the quadrant-bar is acted upon by the wheel of a locomotive or car, of a guard-block that is connected to the quadrant-bar and is adapted to rock it and prevent a signal being sounded when a car- 20 wheel or locomotive-wheel strikes this guard-block before striking the quadrant-bar, substantially as set forth.

5. In a signaling device for railroads, the combination, with a quadrant-bar and mechanism that communicates motion to a gong 25 and a lantern when the quadrant-bar is vertically depressed and released by a movement of a car or locomotive over the quadrant-bar, of a pivoted guard-block and a weighted bent lever pivotally attached to it and having slid- 30 ing engagement with the slotted body of the quadrant-bar to cause it to rock and carry its abutment below the top surface of a railroad-rail near which these devices are located, and thus prevent a signal when the guard-block is 35 struck by a car or locomotive before striking the quadrant-bar, substantially as set forth.

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

TOPPAN P. RODGERS.

Witnesses:

E. D. GODFREY,
E. L. CROSEMAN.