

(No Model.)

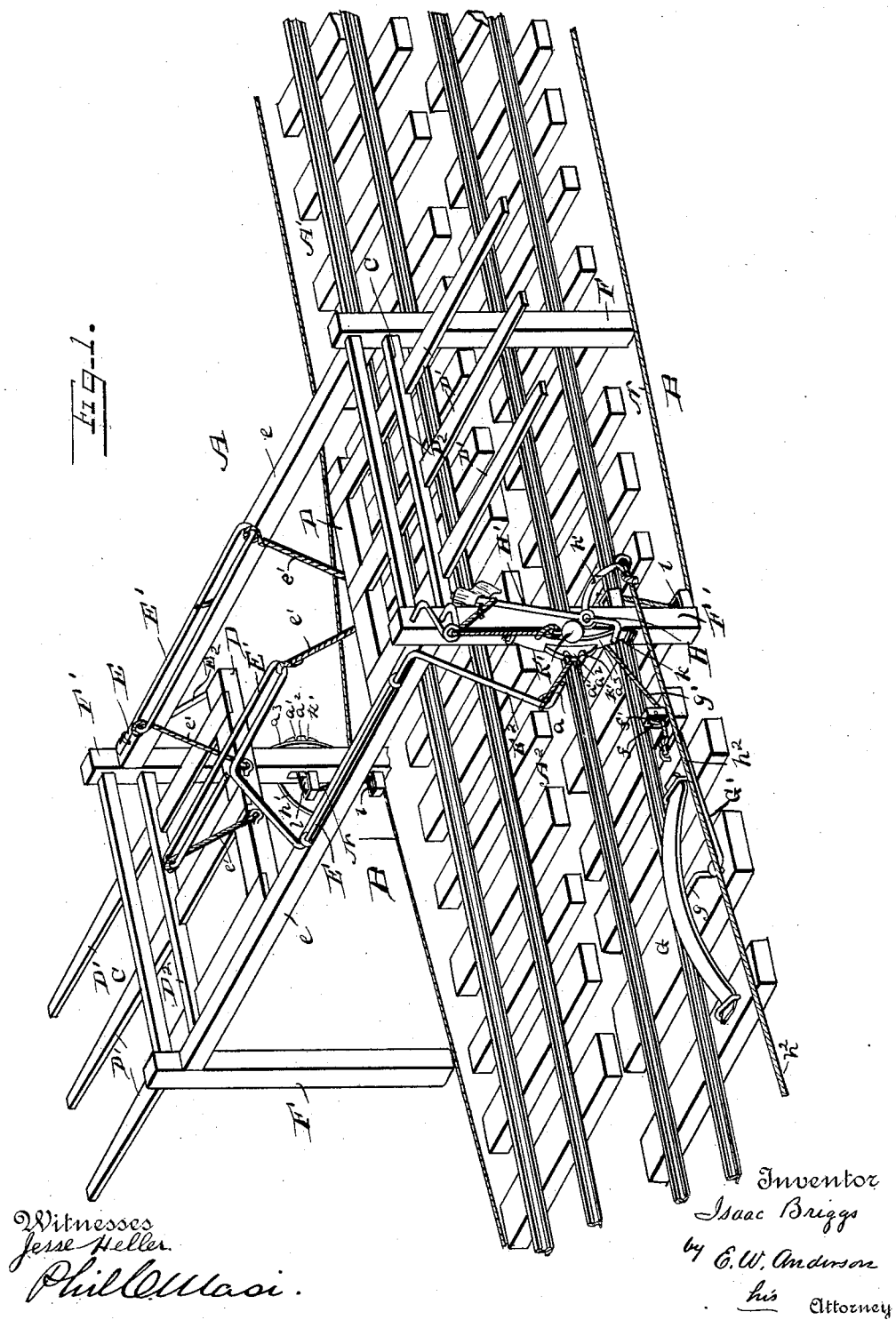
2 Sheets—Sheet 1.

I. BRIGGS.

RAILROAD CROSSING GATE AND SIGNAL.

No. 489,365.

Patented Jan. 3, 1893.



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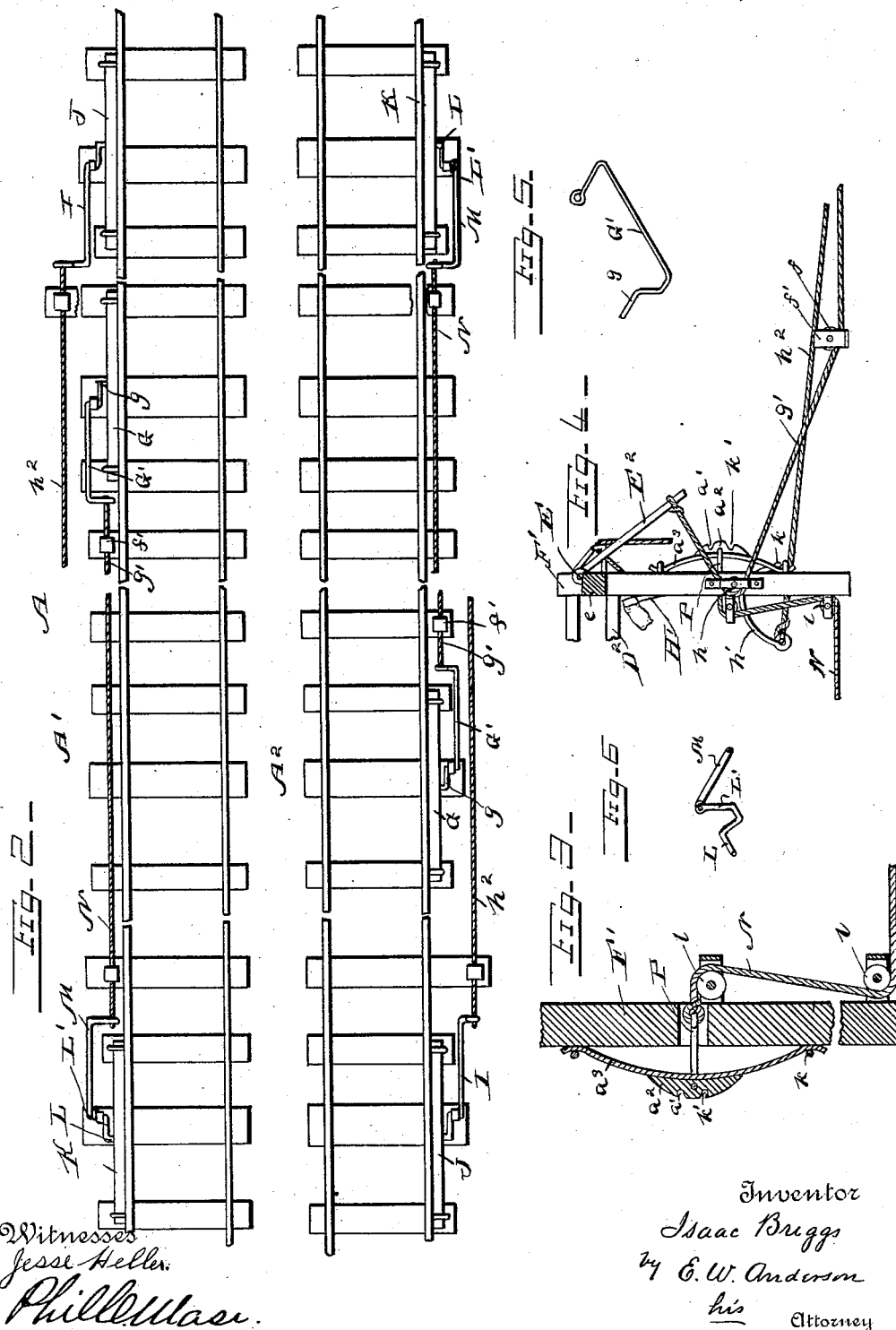
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UNITED STATES PATENT OFFICE.

ISAAC BRIGGS, OF MIDDLEBOROUGH, MASSACHUSETTS.

RAILROAD-CROSSING GATE AND SIGNAL.

SPECIFICATION forming part of Letters Patent No. 489,365, dated January 3, 1893.

Application filed April 16, 1892. Serial No. 429,381. (No model.)

To all whom it may concern:

Be it known that I, ISAAC BRIGGS, a citizen of the United States, and a resident of Middleborough, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Railroad-Crossing Gates and Signals; and I do 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a perspective view of the invention showing the gates in a raised or horizontal position. Fig. 2 is a top plan view of the track mechanism. Fig. 3 is a vertical section of gate post F' showing the mechanism for operating the rack. Fig. 4 is a section through cross beam E. Fig. 5 is a detail view of one of the levers acted upon by the wheel beams, and Fig. 6 is a detail view showing the lever acted upon by the trip K, and the rod connected thereto.

This invention has relation to certain new and useful improvements in railway crossing gates and signals, together with means for automatically operating the same by the passage of a train, and it consists in the novel construction and combination of parts all as hereinafter specified.

In the accompanying drawings, the letter A designates a section of a railway track, having a grade crossing at B, protected by the gates C, C, one on each side of the tracks. These gates comprise each the upper bars D, having secured thereto a series of vertical bars D', which are also secured to an intermediate bar D², having journals at its ends, loosely engaging bearings in posts F, F' between which the gates are designed to oscillate, or swing vertically. The upper bar D of each gate is of such weight, and so far above the journal bar D², that it will overbalance the lower portion and normally hold the gates up, or in horizontal position.

E designates a rock shaft, having loose bearings on a cross bar e, extending above the track and connecting the two end posts. Said shaft has an arm E', extending over the

tracks, and connected to the upper bar of each of the gates by a flexible connection e'. At the opposite end of said shaft is a depending arm E². The arm E' should be extended transversely to each side sufficiently to enable it to exert an upward lift on the upper bar of the gates, when said arm is raised, as hereinafter described.

On the track A, at one side of the rail, at a suitable distance from the gates is secured a curved wheel-beam, plate, or trip G, which at its central portion rests on the short arm g of a pivoted lever G', the longer arm of which has a flexible connection g' with the depending arm E² of the rock shaft E. This connection g' consists of a wire or cable, passing under a pulley f held in a bracket f', between the trip or wheelbeam G, and the gates, under a second pulley h on one of the gate posts F', and then to the arm E² to which it is connected.

The wheelbeam or trip G is designed to be engaged by the flanged wheel of a locomotive, or by other engaging devices carried thereby, causing sufficient depression of said trip to raise the long arm of the lever G'. This action causes a tension on the wire or cable g', which actuates the rock shaft E, raising its arm E', and consequently swinging the gate into vertical or closed position. As the gates come to their closed position, a dog a on the lower end of the arm E², comes into engagement with a notch a' on a rack plate a², carried on a spring plate a³, this engagement holding the gates closed during the passing of the train.

For the purpose of giving notice of the approach of a train, before the closing of the gates, I provide a signal device H. This signal may consist of a flag or signal board, carried by an arm or lever H', pivoted to the post F'. The shorter arm h' of this lever has a flexible connection h' with a pivoted lever I, similar to the lever G' above referred to, and which is actuated in the same manner as said lever G' by means of a trip or wheelbeam J, located at a greater distance from the track than the beam or trip G, but operated in the same manner. The lever H' with its signal is normally held up or in vertical position by means of the weight K'.

When the wheel-beam J is acted upon by an approaching train, the tension on the wire or cable h^2 , overcomes the action of this weight, and the lever with its signal falls down over the crossing, and is held in this position by a dog k thereon, which engages a second notch k' in the rack plate a^2 .

In place of this signal, I may obviously provide a bell or gong which would be sounded by the action of the lever H' , or other suitable device, to denote the approach of the train.

For the purpose of opening the gates and raising the signal after a train has passed, I provide a third wheel-beam or trip K, located at the proper distance beyond the gates, and which acts upon an angular lever L, having an arm L' , connected to a rod M, as shown in Figs. 2 and 6. Said rod at its other end is connected to a flexible wire or cable N, which passing up at the side of the post F' , under and over pulleys l , is connected to an arm P of the spring plate a^3 , which carries the rack plate, as shown in Figs. 3 and 4. When the wheel-beam or trip K is acted upon by the train, an endwise pull is given the rod M, through the lever L, causing a tension on the wire or cable N, which retracts the rack plate a^2 , and releases the arm E^2 and the lever H' . This permits the gates to swing upwardly or open by reason of their weighted upper portion, and also allows the weight K to raise the signal or flag. As the gates come to their open horizontal position, they are prevented from moving farther in that direction owing, to the fact that they bring the rock shafts to a position where the tension of the cables g' will prevent the further depression of the arms E' .

The mechanism for the opposite track A^2 is an exact duplicate of that for the track A' , above described, with the exception that the various trips are of course arranged reversely, as they are to be operated by trains approaching from the opposite direction. The signal and gate-operating devices are also the same as above described, the arrangement being clearly shown in Fig. 1. Further detailed description is therefore not deemed necessary.

Having described this invention, what I claim as new, and desire to secure by Letters Patent is:

1. The combination with the vertically swinging or oscillating gates, one at each side

of the tracks, of the wheel-beam located in advance of said gate, the lever acted upon by the action of the wheel-beam, the rock shaft having bearings in the gate frame, its arm, having a flexible connection with the gates, and a second arm connected flexibly with said lever, substantially as specified.

2. The combination with the vertically oscillating or swinging gates, normally held open by gravity, of the distant wheelbeam or trip, the lever having its shorter arm acted upon by said wheel beam, the rock shaft, having one arm flexibly connected with the gates, and a second arm flexibly connected with the distant lever, the dog on said second arm, the rack plates, and means for automatically releasing said dog after the passage of the train, substantially as specified.

3. The combination with the vertically swinging gates normally held open by gravity, the rock shaft having a flexible connection therewith, the spring supported rack plate, designed to engage an arm of said shaft when the gates are closed, the signal lever and signal, also arranged to be locked in display position by said rack plate, of the wheel beams in advance of the gates flexibly connected with the said rock shaft and signal lever, and the wheel beam beyond the gates having a flexible connection with the support for the rack plate, substantially as specified.

4. The combination with the automatically swinging or oscillating gates, the rock shafts having bearings on the gate frames, and flexibly connected with said gates, the signal lever pivoted to one of the gate posts, means for locking said signal lever, and rock shaft when the gates are down, and the signal displayed, the wheel beams or trips in advance of the gates, their levers, the flexible connections between said levers and the signal lever and rock shaft, the wheel beam located beyond the gates, a connection between said beam and the locking devices for the rock shaft and signal lever, and means for returning said signal and gates to their original position when the lever and rock shaft are released, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

ISAAC BRIGGS.

Witnesses:

HENRY S. DRAKE,
CHARLES W. DRAKE.