

(No Model.)

3 Sheets—Sheet 1.

R. C. BLACKALL.

SAFETY GATE FOR RAILROAD CROSSINGS.

No. 334,930.

Patented Jan. 26, 1886.

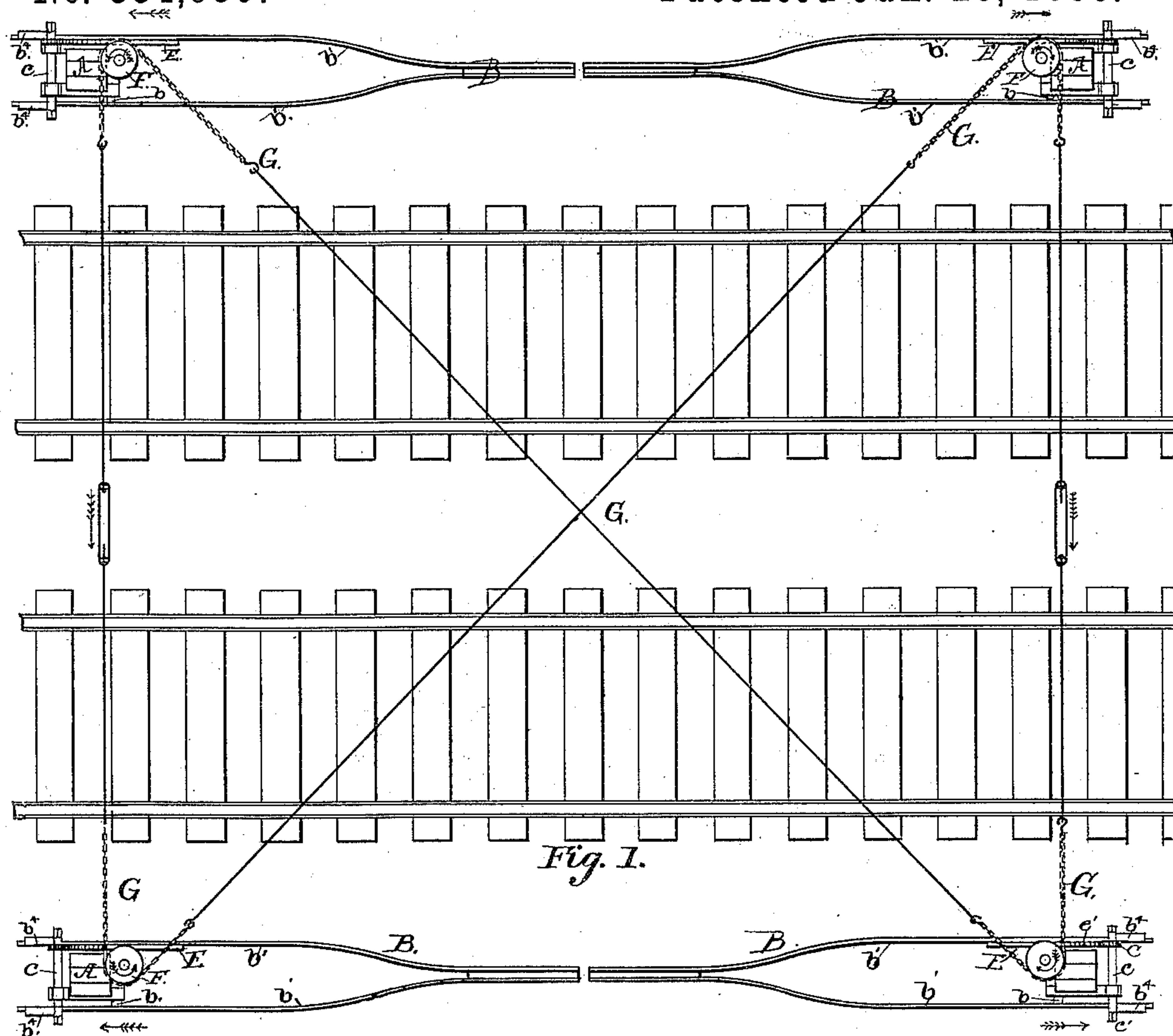


Fig. 1.

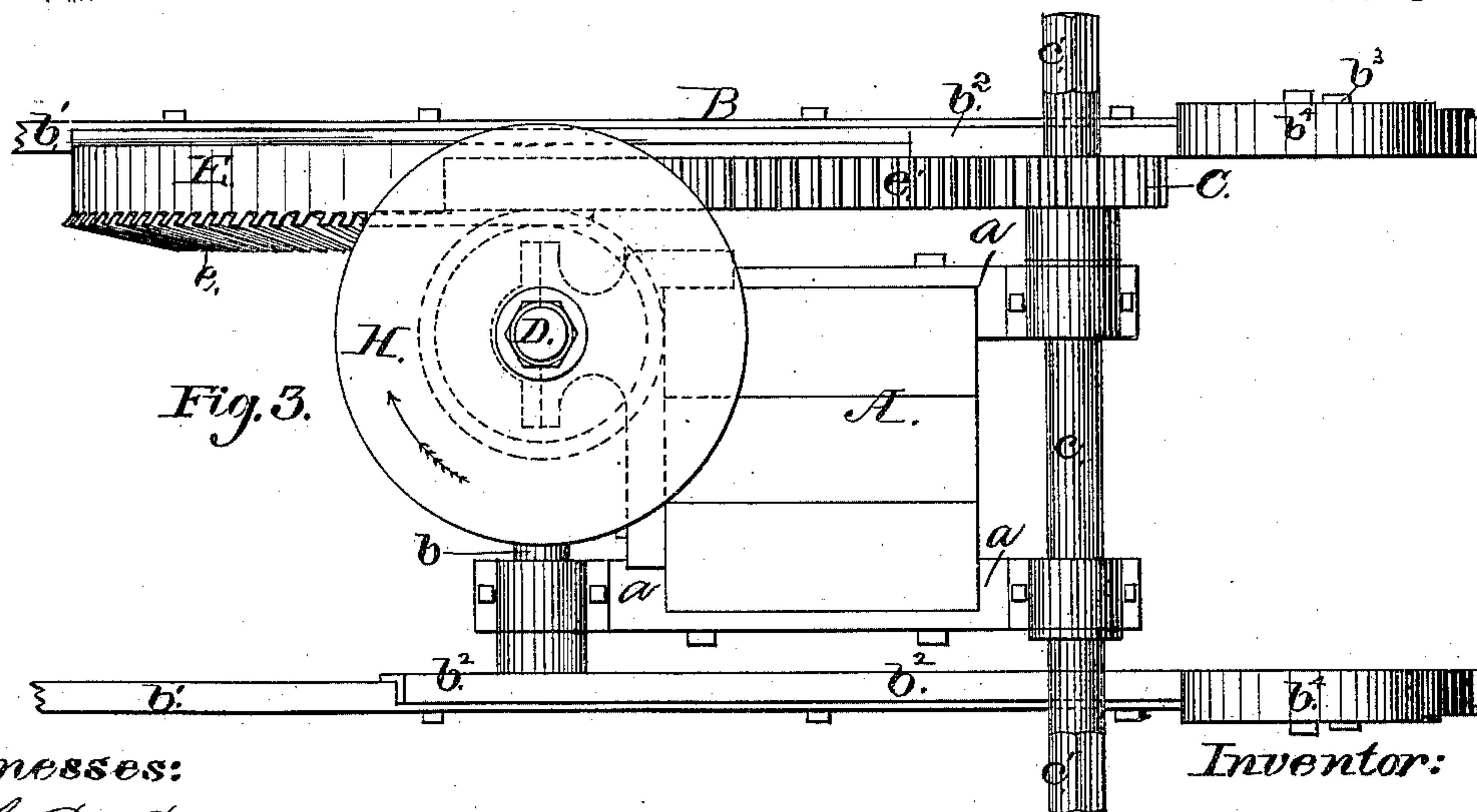


Fig. 3.

Witnesses:

S. B. Brewster,  
C. W. Hamlin.

Inventor:

R. C. Blackall,  
by William M. Low,  
Attorney.

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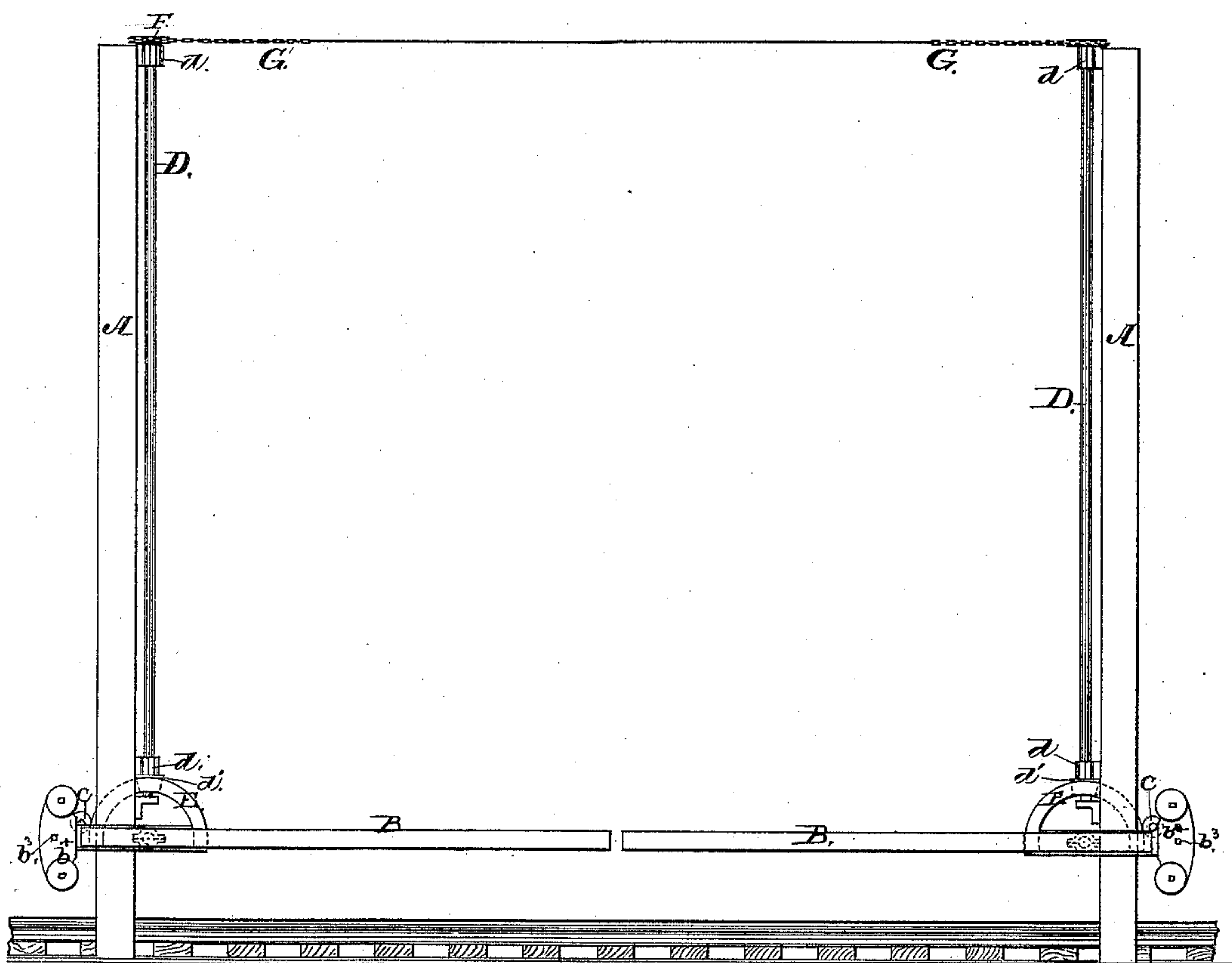


Fig. 2.

Witnesses:

*S. B. Brewer,*  
*Chas. Hamlin,*

Inventor:

*R. C. Blackall,*  
by *William N. Low,*

*Attorney.*

(No Model.)

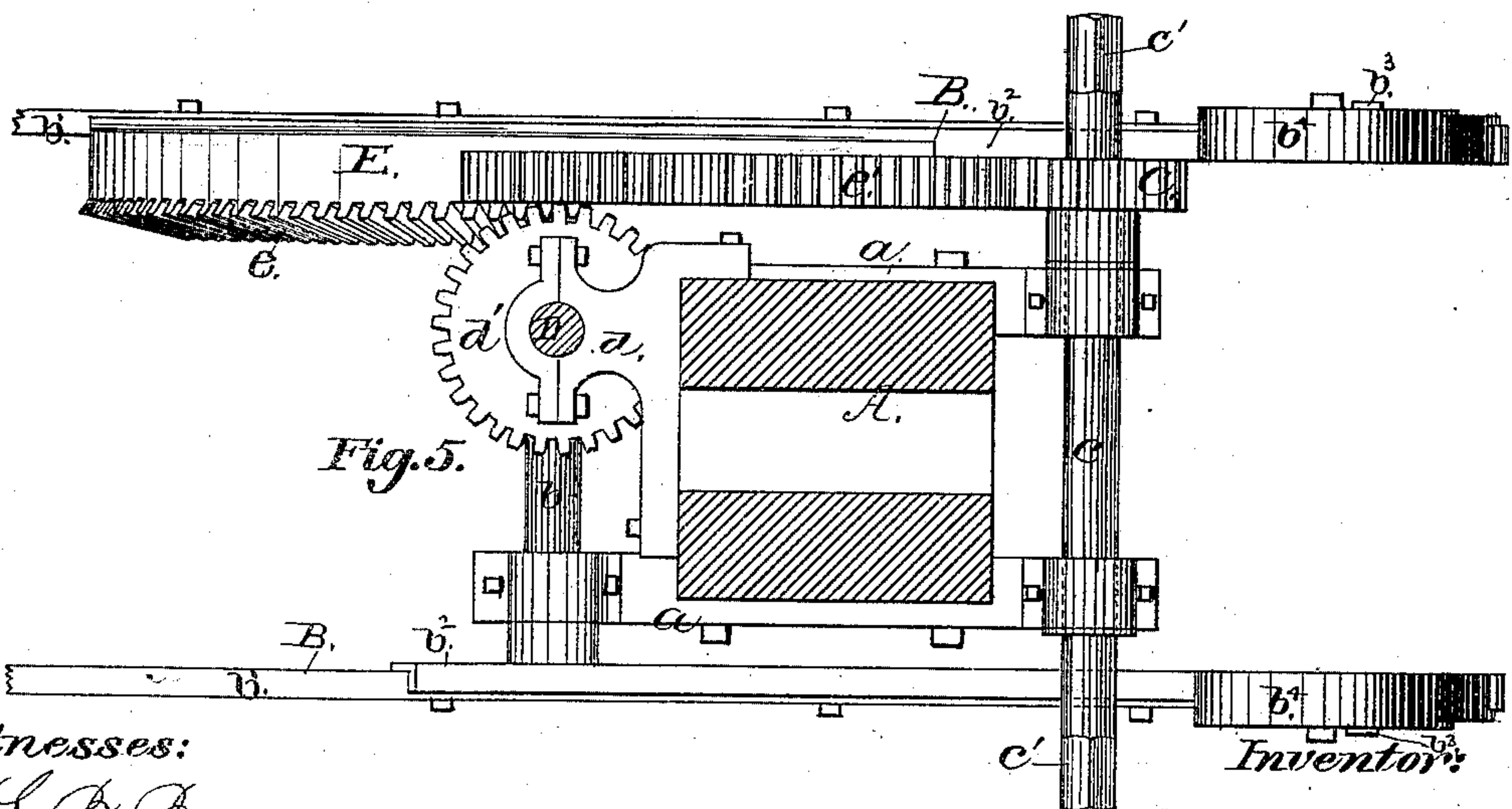
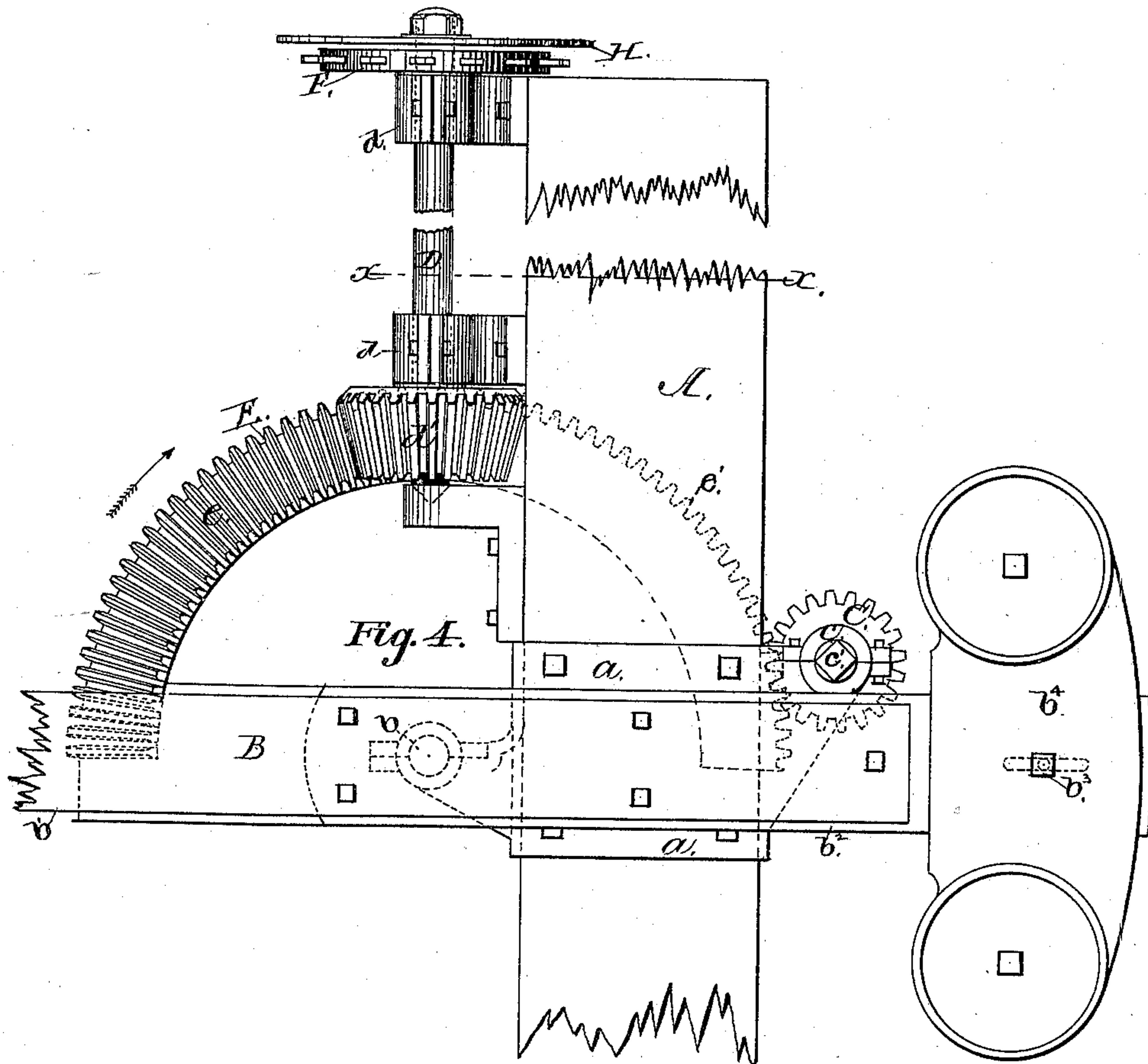
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Chas. Vanlin.

Inventor:

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by William H. Low

Attorney.



# UNITED STATES PATENT OFFICE.

ROBERT C. BLACKALL, OF ALBANY, NEW YORK.

## SAFETY-GATE FOR RAILROAD-CROSSINGS.

SPECIFICATION forming part of Letters Patent No. 334,930, dated January 26, 1886.

Application filed July 20, 1885. Serial No. 173,021. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT C. BLACKALL, of the city and county of Albany, in the State of New York, have invented new and useful Improvements in Safety-Gates for Railroad-Crossings, of which the following is a specification.

Heretofore the mechanism for simultaneously operating two or more road-gates has been placed underground, and when these have been used in cold climates great difficulty has been encountered from a gathering of frost and ice in the underground pipes, whereby the proper working of the mechanism has been greatly impeded and often prevented.

The object of my invention is to remedy this defect by arranging the connecting mechanism for simultaneously operating the gates in an elevated position, where they will not interfere with the free passage of the trains over the railway-tracks, nor will their free operation be obstructed by frost, ice, or other elemental cause. This object I attain by means of the mechanism illustrated in the accompanying drawings, which, being herein referred to, form part of this specification, and in which—

Figure 1 is a plan view of railway-tracks with two pairs of safety-gates provided with my improvements; Fig. 2, a side elevation of the same; Fig. 3, an enlarged plan view of the post, gearing, and part of gate; Fig. 4, a side elevation of Fig. 3, and Fig. 5 a horizontal section at the line X X of Fig. 4.

As represented in the drawings, A indicates the stationary posts, to which the vertically-swinging safety-gates B are pivoted. Said posts are provided with cheek-plates *a*, in which are formed bearings for the pinion-shaft *c* and the gate-shaft *b*, both of which shafts are arranged horizontally. Bearing brackets *d* are also secured to each of the posts A, for the purpose of receiving the vertical shaft D. Each of the gates B is formed of two strips, *b'*, of wood, which are spaced at their rearmost ends to pass at opposite sides of the post to which they are attached. At their opposite ends said strips are drawn together and secured, as shown in Fig. 1. To the rearmost ends of the gate-strips *b'* flanged plates *b<sup>2</sup>* are secured, and into the latter the gate-strips *b'* and the transverse gate-shaft *b* are secured.

Counterbalance-weights *b<sup>4</sup>* are also attached to the plates *b<sup>2</sup>* in such manner that they can be adjusted nearer to or farther from the gate-shaft *b*, as occasion may require, and for this purpose the hole through which the bolt *b<sup>3</sup>* passes should be slotted, as indicated by dotted lines in Fig. 4. A semicircular arch-piece, E, is either formed on or attached to one of the flange-plates *b<sup>2</sup>*. The inner side of the foremost part of said arch-piece is made in the form of a quadrantal bevel-gear, *e*, and the aftermost part is made in the form of a quadrantal spur-gear, *e'*; but while I preferably make these two quadrantal gears in a single arch-piece, it must be understood that the two gears may be formed on separate and independent arch-pieces, and be located either on the same gate-strip or on opposite gate-strips of the same gate, as may be preferred. The shaft *c* has its outer projecting ends, *c'*, adapted to receive crank-handles of the usual form for the purpose of rotating said shaft, which has a pinion, C, secured thereto. Said pinion is adapted to engage in gear with the quadrantal spur-gear *e'* in such manner that by the rotations of said pinion in the required directions the gates B will be swung on their shafts *b* to raise and lower said gates, as occasion may require. The vertical shafts D are each provided with a bevel-pinion, *d'*, which is adapted to engage in the quadrantal bevel-gear *e* in such manner that either a rising or falling movement of the gates B will produce a corresponding rotation of the shaft D. Each of said shafts is provided at its upper end with a sprocket-wheel, F, for receiving the endless chain G, and by means of said sprocket-wheels and endless chain the several vertical shafts D are connected together in such manner that the rotation of any one of said shafts will produce simultaneously a corresponding rotation of all the vertical shafts, the arrangement being such that when any one of the gates B are moved (either for opening or closing) a corresponding movement of all the gates will thereby be obtained to occur at the same moment. The shafts D should be carried up to a sufficient height to give ample clearance beneath the endless chain G for the passage of trains beneath said chain. A shield, H, is fixed over each sprocket-wheel F for the



purpose of protecting the teeth of said wheels from an accumulation of ice.

Instead of the four gates B, as shown in the drawings, two or any other number of adjacent gates, when provided with my improvements, may be connected together in a similar manner, to operate with equal facility.

I claim as my invention--

1. The combination, with a gate, B, adapted to swing in a vertical plane and provided with a segmental bevel-gear, *e*, and a segmental spur-gear, *e'*, as herein described, of the driving-shaft *c*, provided with a pinion, C, adapted to engage in gear with the segmental spur-gear *e'*, and the vertical shaft D, provided with a bevel-pinion, *d'*, adapted to engage with the segmental bevel-gear *e*, a sprocket-wheel, F, and the endless chain G, whereby the gate-operating mechanism is connected with like mechanisms to operate one or more similar gates, substantially as herein specified.

2. The combination, with two or more gates, B, arranged to swing in vertical planes—each of said gates being provided with the following parts, to wit: a segmental bevel-gear, *e*, and segmental spur-gear *e'*, a driving-shaft, *c*, having a pinion, C, secured thereto, a vertical shaft, D, provided with a bevel-pinion, *d'*, and sprocket-wheel F—of an overhead endless chain, G, which engages with all of said sprocket-wheels and connects the operating mechanisms of said gates in such manner that all the gates may be simultaneously operated by means of any one of the driving-shafts *c*, as herein specified.

ROBERT C. BLACKALL.

Witnesses:

WM. H. LOW,  
S. B. BREWER.