

J. W. NOEL.
RAILROAD CROSSING GATE.
APPLICATION FILED FEB. 19, 1909.

928,788.

Patented July 20, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

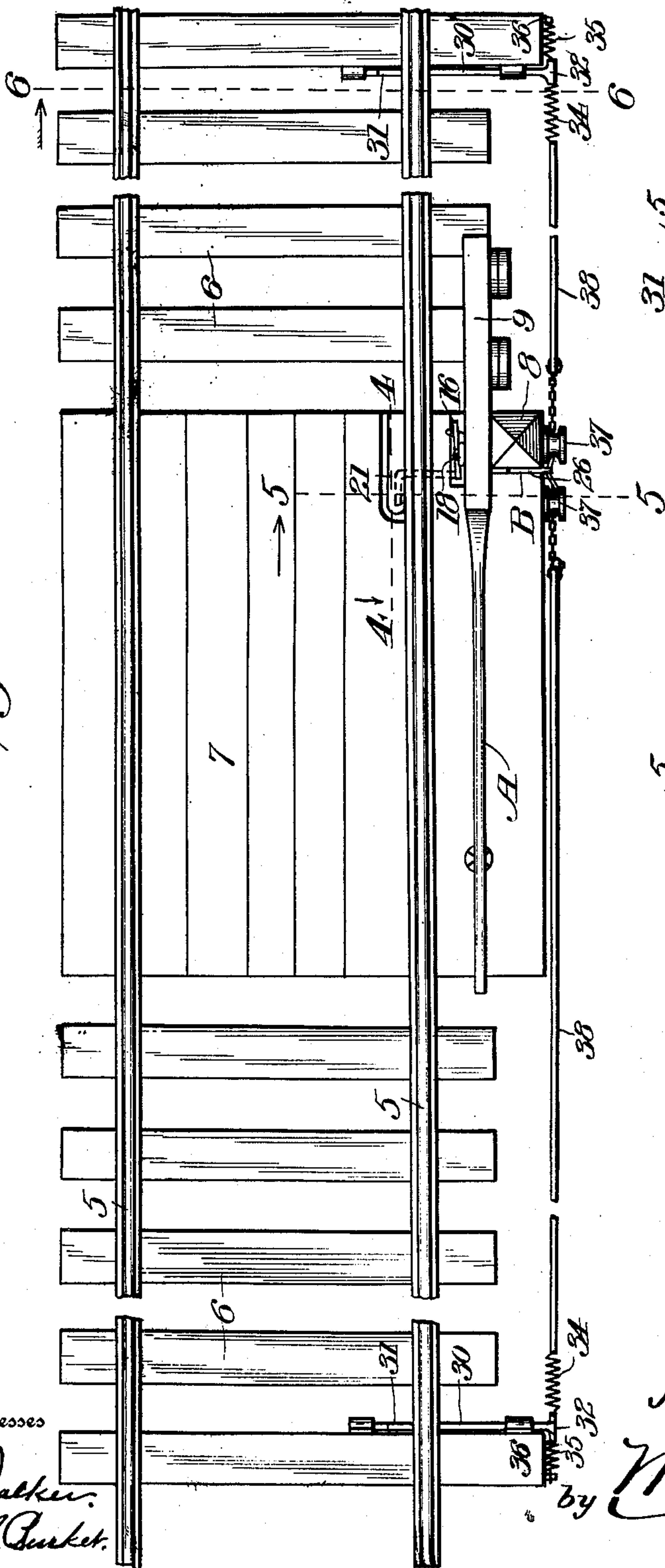
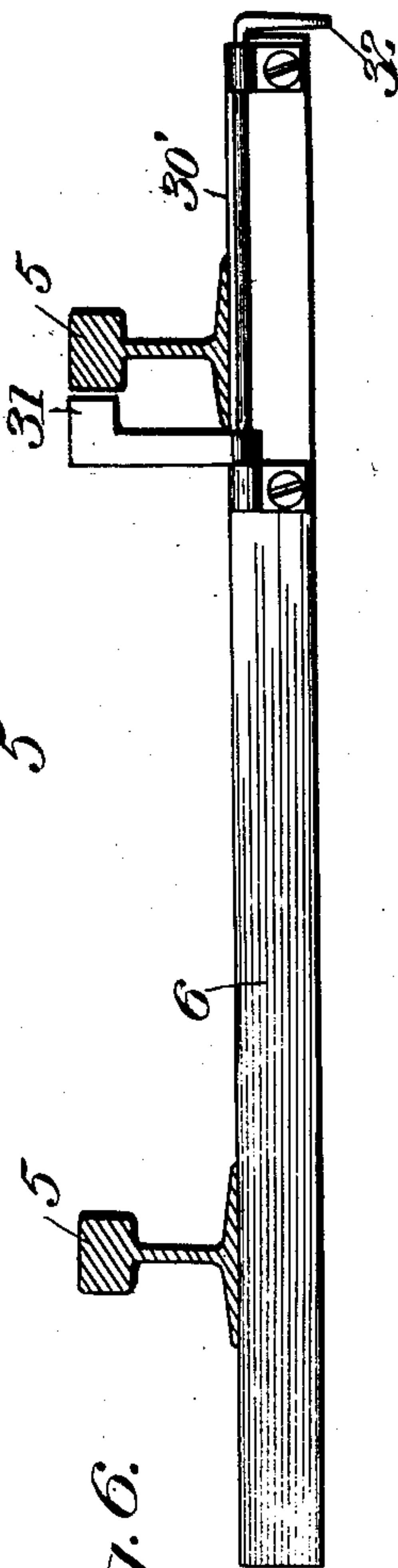


Fig. 6.



Witnesses

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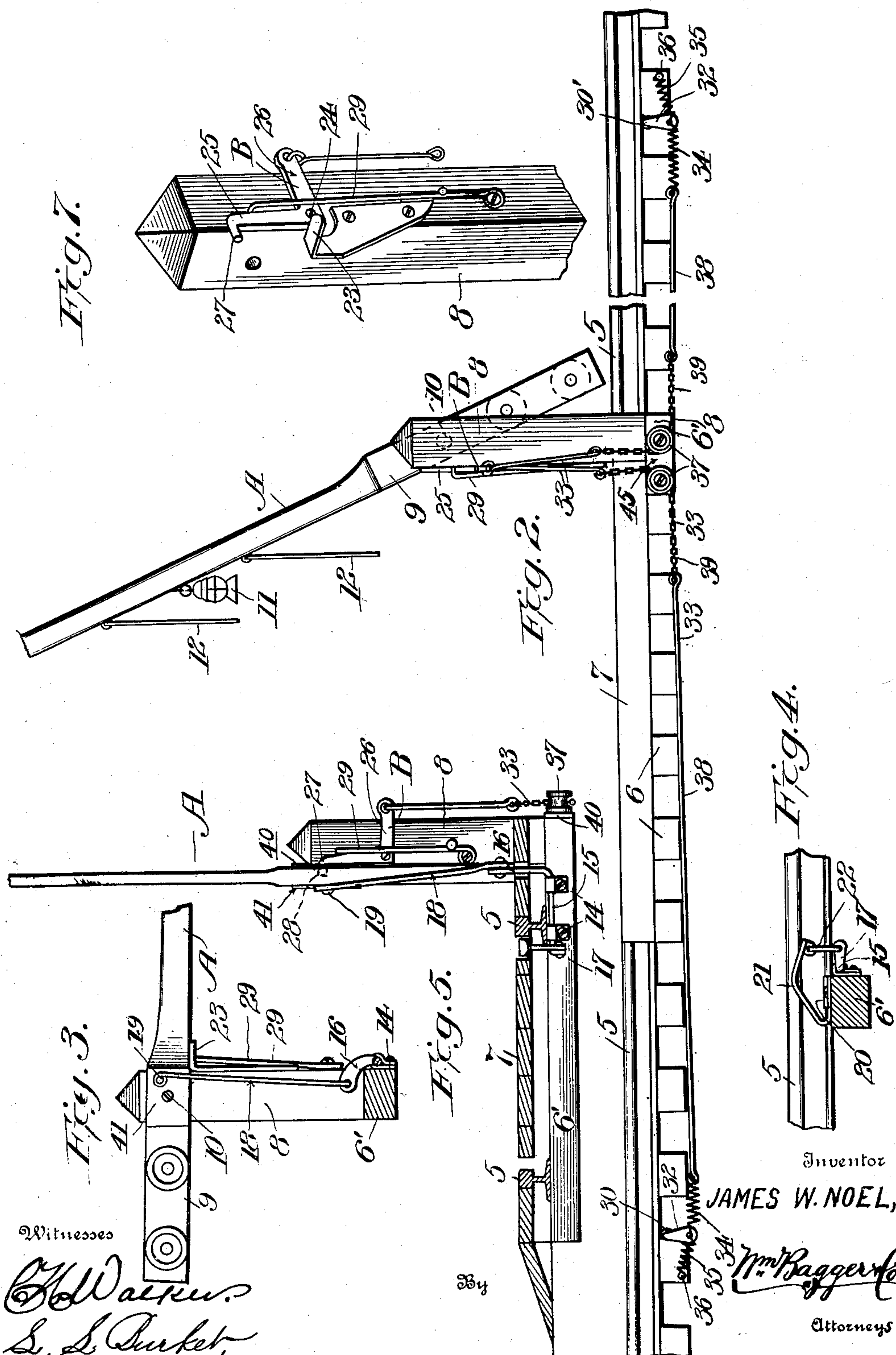
Attorneys

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UNITED STATES PATENT OFFICE.

JAMES W. NOEL, OF CLAYTON, INDIANA.

RAILROAD-CROSSING GATE.

No. 928,788.

Specification of Letters Patent.

Patented July 20, 1909.

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To all whom it may concern:

Be it known that I, JAMES W. NOEL, a citizen of the United States, residing at Clayton, in the county of Hendricks and State of Indiana, have invented certain new and useful Improvements in Railroad-Crossing Gates, of which the following is a specification.

This invention relates to gates for railroad crossings; and it has for its object to provide a gate of simple, improved and efficient construction, which will be operated automatically by passing trains; mechanism being provided whereby said gate is moved to an obstructing position when a train approaches from any direction, and whereby said gate will be restored to a non-obstructing position when the train reaches the crossing at which the gate is located.

Further objects of the invention are to simplify and improve the construction and operation of this class of devices.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists of the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention; it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

In the drawings—Figure 1 is a top plan view showing a portion of a railroad track, a road crossing the same and the improved gate located adjacent thereto. Fig. 2 is a side elevation of the same. Fig. 3 is a side elevation of the gate as seen from the opposite side. Fig. 4 is a vertical sectional detail view taken longitudinally of the track on the plane indicated by the line 4—4 in Fig. 1. Fig. 5 is a transverse sectional view taken on the plane indicated by the line 5—5 in Fig. 1. Fig. 6 is a transverse sectional view taken on the plane indicated by the line 6—6 in Fig. 1. Fig. 7 is a perspective detail view showing a portion of the gate-supporting post and related parts.

Corresponding parts in the several figures are denoted by like characters of reference.

The railroad track comprises the rails

5, 5, which are supported in the usual manner upon cross-ties 6, 6. The track, as well as the road 7, crossing the same, may be of any suitable conventional construction.

Firmly supported in a suitable position adjacent to the track and to the crossing is a post or upright 8, upon which the gate 9, is pivotally supported as by means of a pin or bolt 10, near the upper end of the post; said gate being in the nature of a bar or lever having an arm A, of suitable length to extend a sufficient distance across the road or crossing 7 to efficiently obstruct said road when the arm A is in an obstructed, that is to say, in an approximately horizontal position. In the drawing the gate arm A has been shown equipped with a lantern 11, and with rods 12, loosely suspended therefrom in such a manner as to be conspicuously visible to any one approaching the railroad track either by night or by day; it is to be understood, however, that no limitation is made to the form of gate herein illustrated, but that any suitable and appropriate form and construction of gate may be adapted for use in connection with my invention.

A cross-tie 6', has been shown adjacent to the gate supporting post 8, the latter being erected and supported upon one end of said cross-tie which makes a very efficient foundation for the gate post. The cross-tie 6' is provided with brackets 14, constituting bearings for a rock-shaft 15, which extends transversely below the rail 5, which is nearest adjacent to the gate-supporting post or upright. The rock-shaft 15 is provided at the ends thereof with cranks 16 and 17, the former of which is connected by a link or rod 18, with a pin or stud 19, which is secured upon the face of the gate-bar a short distance from the fulcrum of the latter, which will thus be turned upon its fulcrum when the shaft 15 is rocked or oscillated in its bearings. Suitably supported upon the cross-tie 6', as by means of a clip 20, is an operating member which consists of a flat spring 21, which is bent or curved upwardly and longitudinally of the railroad track, said spring being located adjacent to the inner side of one of the rails 5, in such a manner as to lie in the path of the wheel flanges of rolling stock passing over the track. The free end of the spring 21, is connected by a link or rod 22, with the crank 17 of the rock-shaft 15, which latter, under the impulse of the

tension of the spring 21, will be turned or rocked in a proper direction to swing; or move the gate-bar or lever to an obstructing position with reference to the railroad-crossing. The gate-supporting post 8, is provided with a bracket 23, which projects in the path of the gate-bar, to support the latter, and to prevent it from swinging beyond an approximately horizontal position.

Pivotaly mounted upon the gate supporting post, near the upper end of the latter, is a bell-crank lever B, the fulcrum pin 24, of which extends into the post 8 approximately at right angles to the fulcrum pin of the gate-bar. The bell-crank lever B, has an upward extending approximately vertical arm 25, and a laterally extending approximately horizontal arm 26, the former of which has a terminal laterally extending spur 27, adapted to engage a socket or recess 28 in the side of the gate-bar for the purpose of sustaining the latter in an approximately vertical or non-obstructing position; a spring 29, suitably mounted and supported upon the gate-post engages the bell-crank lever for the purpose of pressing the upward extending arm 25 in the direction of the gate-bar so as to cause the spur 27, to enter into the recess 28 when the gate-bar moves or swings to a non-obstructing position.

Supported in suitable bearings upon two of the cross-ties 6, at suitable distances from the sides of the crossing are two rock-shafts 30, 30', each provided at what may be described at its inner end with an arm or crank 31, that extends upwardly adjacent to the inner side of one of the rails 5, so as to lie in the path of the wheel flanges of rolling stock passing over the track. The outer ends of the rock-shafts are provided with downward extending arms or cranks 32, which are connected with the lateral arm 26, of the bell-crank lever B, by suitably guided flexible members 33, including springs 34, the tension of which is counteracted by springs 35 of approximately equal strength which connect the downward extending arms or cranks 32 with pins or studs 36, which are securely fixed upon the cross-ties supporting the rock-shafts 30, 30'. By this arrangement of springs 34 and 35, the rock-shafts will be normally sustained in such a position that the cranks or arms 31, will be maintained approximately vertical so that they will not fail to be acted upon by the wheel-flanges of passing rolling stock; said springs will also serve to restore the rock-shafts to their initial or normal position after having been displaced by the action of the wheel-flanges as aforesaid. Suitably arranged pulleys 37 serve to guide the flexible connecting elements 33 which latter have been shown to include links or rods 38, and sections of chain 39, as well as the springs 34, of which mention has been made above.

It will be understood, however, that the construction and arrangement of these parts may be changed and modified in any manner that may be found desirable. It will further be understood that a protecting casing is to be provided for the working parts of the device in order to protect the same from the elements and from interference by mischievous and meddlesome persons. The pulleys 37 have been shown mounted upon a metallic bracket 45, supported upon one end of the cross-tie 6'; this being considered to be an efficient and convenient construction.

From the foregoing description taken in connection with the drawings herewith annexed, the operation and advantages of the invention will be readily understood. When a train approaches a crossing from either side, one of the rock-shafts 30 and 30' will be actuated by the wheel-flanges contacting with the arm or crank 31, at the inner end of such rock-shaft the resultant motion being transmitted by the flexible element 33, to the bell-crank lever B, which normally supports the gate-bar in an approximately vertical non-obstructing position. By the rocking or the bell-crank lever the spur 27 is disengaged from the recess or socket 28 and the gate-bar will now be swung or moved to an approximately horizontal obstructing position under the impulse of the tension of the spring 21, which is connected with the rock-shaft 15, so as to actuate the latter. As a further result of this operation, the body of the spring or operating member 21 is moved in an upward direction causing it to occupy a position more nearly in the plane of the upper side of the head of the rail than heretofore, so that it will be engaged and acted upon with certainty by the wheel flanges of the train when the latter reaches the crossing. The spring 21, being depressed by contact with the wheel-flanges will serve to rock or oscillate the rock-shaft 15 in the proper direction to swing or move the gate-bar back to its original or initial non-obstructing position, and when this position is attained by the gate-bar, the bell-crank lever B, will be rocked under the impulse of the spring 29, sufficiently to cause the spur 27 to enter into engagement with the recess 28, thus securing the gate in a non-obstructing position.

The gate has been shown equipped with metallic plates 40 and 41, the former of which is adjacent to the supporting post 8, while the latter is secured upon the outer face of the gate bar. The plate 40 is provided with an aperture which constitutes the recess or socket 28, to be engaged by the spur 27, and the latter, when the gate bar swings upon its fulcrum will slide freely over the plate 40 without injury to the latter or to the gate-bar. The metallic washer plates 40 and 41 also afford suitable bearings for the

fulcrum pin 10, and the pin or spur 19 will likewise be firmly supported by the plate 41.

It will be seen that this improved gate is equipped with means whereby it is locked 5 securely in a non-obstructing position; it is actuated automatically by passing trains to move the gate to an obstructing position before a train approaching from each side reaches a crossing, the length of the time 10 being obviously governed by the distance from the crossing at which the rock-shafts 30 and 31' are supported. The construction is simple, and thoroughly efficient for the purposes for which it is provided.

15 Having thus described the invention, what is claimed is:

1. In a railroad gate, a post, a gate-bar pivotally supported upon the post and having a recess in one side, a bell-crank lever 20 pivoted upon the post and having a spur adapted to engage the recess in the gate-bar to secure the latter in a non-obstructing position, and means for actuating the bell-crank.

2. In a railroad gate, a post, a gate-bar 25 pivotally supported upon the post and having a recess in one side, a rock-shaft supported transversely of the railroad track and having cranks adjacent to the ends thereof, a link connecting one of the cranks with the 30 gate-bar, a spring supported adjacent to one of the track rails and curved in the path of the wheel flanges of passing rolling stock, a link connecting the free end of the spring with a crank of the rock-shaft, a bell crank 35 pivoted upon the gate supporting post and having a spur adapted to engage the recess in the side of the gate-bar, and means for actuating the bell-crank.

3. In a railroad gate, a post, a gate-bar 40 pivotally supported upon the post and having metallic facing plates, one of said plates being provided with an aperture constituting a recess, a bell-crank pivoted upon the post and having a spur adapted to engage 45 the recess, a spring secured upon the post

and engaging the bell-crank to move the spur of the latter into engagement with the recess, and means for actuating the bell-crank.

4. In a railroad gate, a post, a gate-bar 50 pivotally supported upon the gate-post, means for securing the gate-bar in a non-obstructing position, said means including a spring actuated bell-crank having a spur adapted to engage a recess in the side of the 55 gate-bar, means for moving the gate bar to an obstructing position including a spring disposed in the path of the wheel-flanges of approaching trains, a rock-shaft having cranks at the ends thereof and links connect- 60 ing said cranks with the spring and with the gate-bar, and means for operating the bell-crank to release the gate-bar from a non-obstructing position.

5. In a railroad gate, a post, a gate-bar 65 pivotally supported upon the post, and having a recess in one side, a spring actuated bell-crank pivoted upon the post and having a spur adapted to engage the recess to secure the gate in a non-obstructing position, and 70 means for operating the bell-crank to release the gate, said means including rock-shafts supported at a distance from the gate supporting post, arms at the inner ends of said rock-shafts projecting in the path of the 75 wheel-flanges of passing rolling stock, cranks at the opposite ends of said rock-shafts, suitably guided flexible elements connecting said cranks with the bell-crank lever, said flexible elements including springs, and counter- 80 springs connected with the cranks and serving to maintain the rock-shafts in a predetermined position.

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

JAMES W. NOEL.

Witnesses:

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L. D. JOHNSON.