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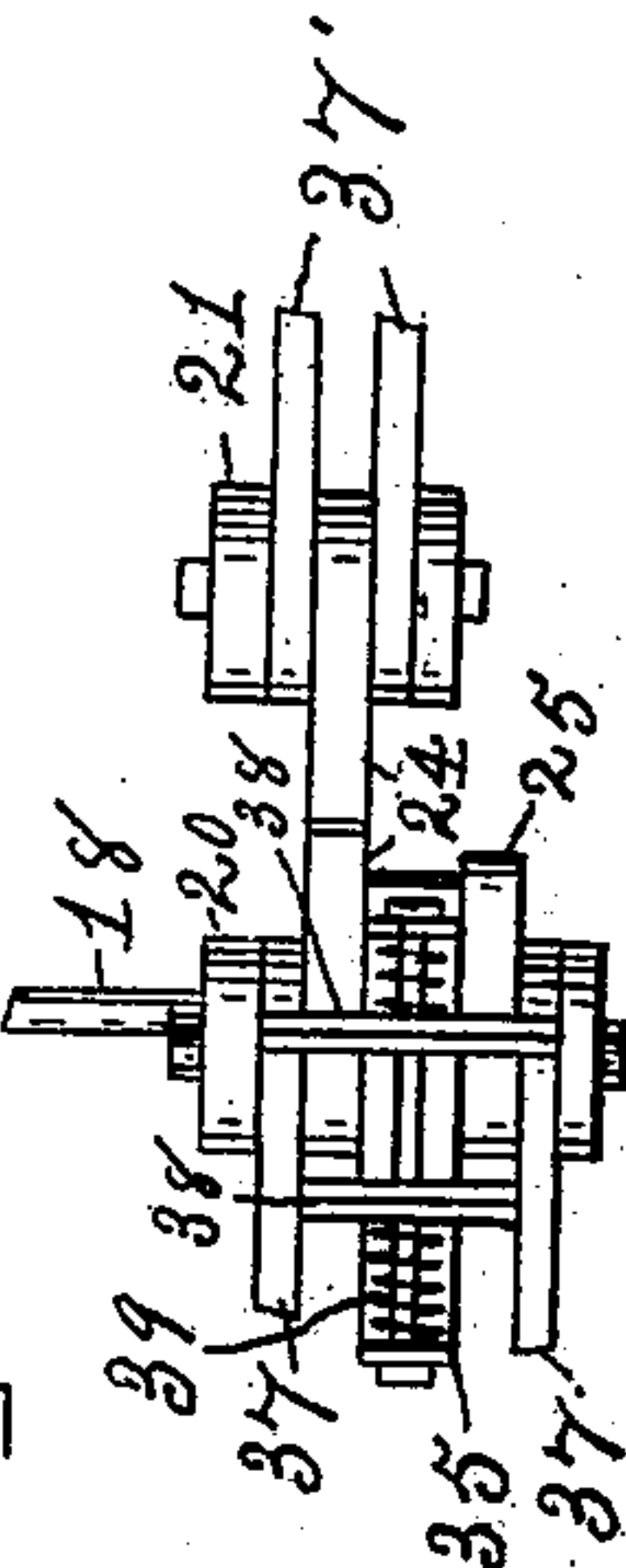
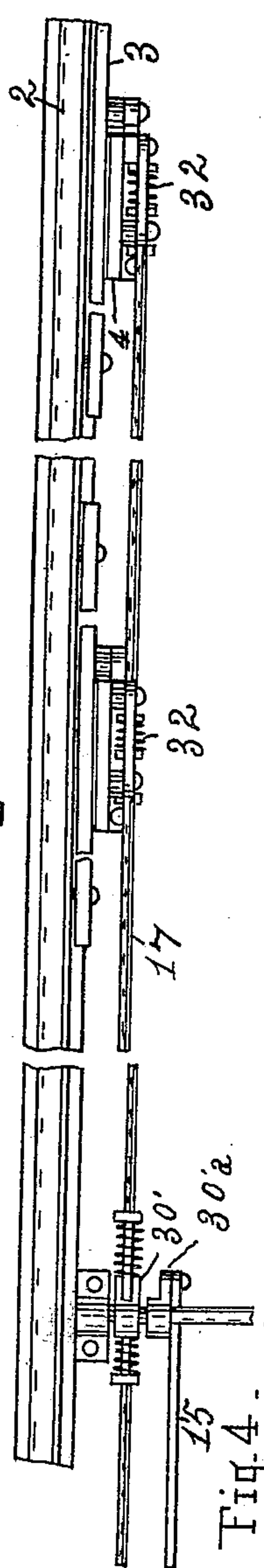
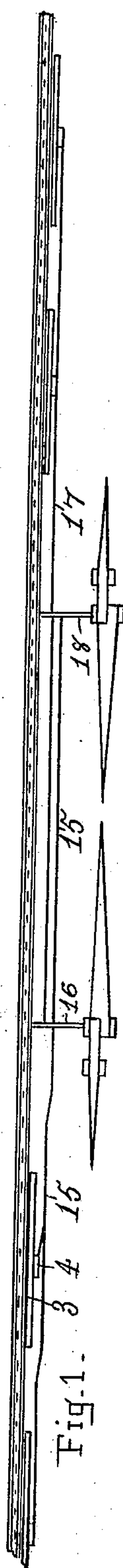
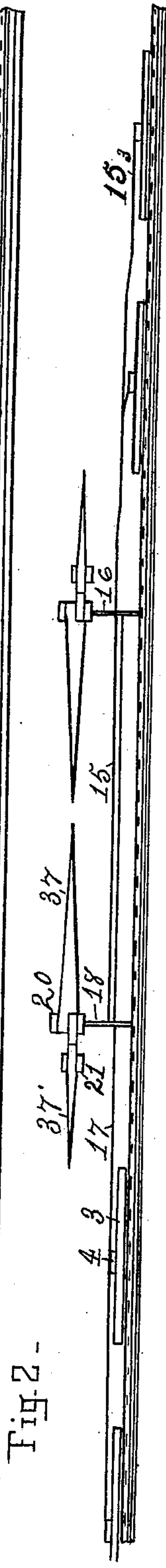
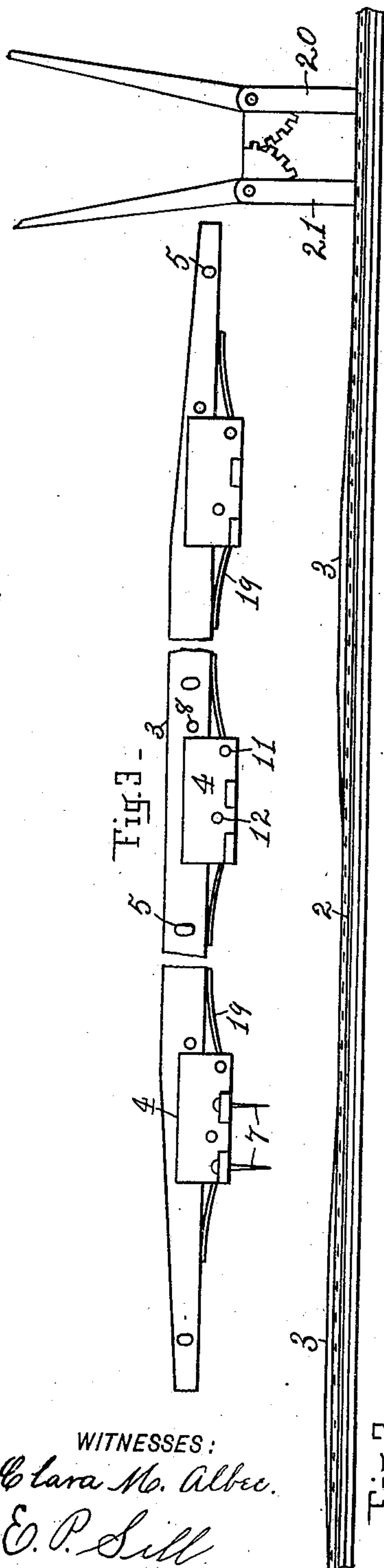
Patented Nov. 4, 1902.

E. C. RADICK.
RAILWAY CROSSING GATE.

(Application filed Mar. 10, 1902.)

(No Model.)

2 Sheets—Sheet I.



WITNESSES:
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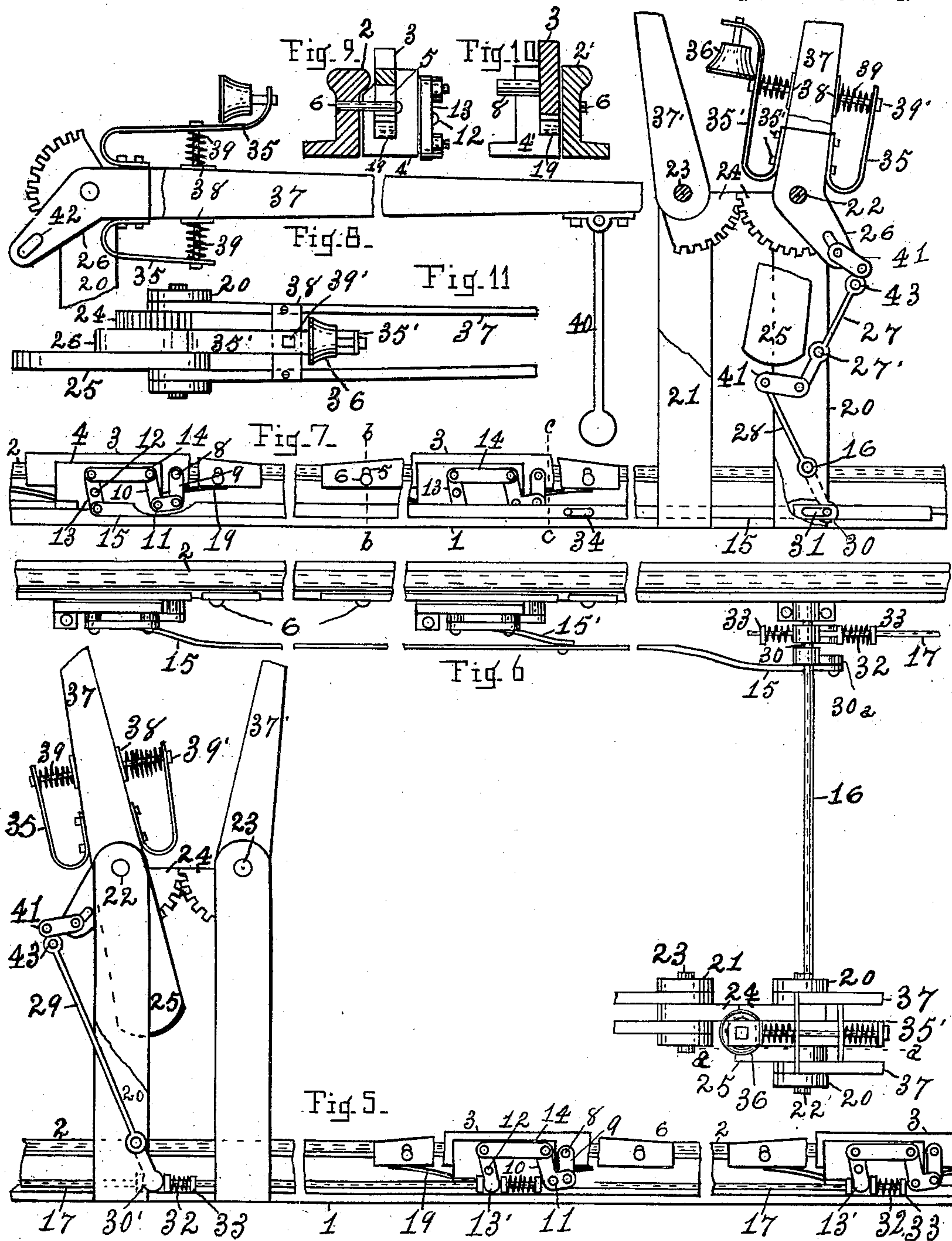
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UNITED STATES PATENT OFFICE.

EMIL C. RADICK, OF MENASHA, WISCONSIN.

RAILWAY-CROSSING GATE.

SPECIFICATION forming part of Letters Patent No. 712,849, dated November 4, 1902.

Application filed March 10, 1902. Serial No. 97,482. (No model.)

To all whom it may concern:

Be it known that I, EMIL C. RADICK, a citizen of the United States, residing at Menasha, in the county of Winnebago and State of Wisconsin, have invented a new and useful Improvement in Railway-Crossing Gates, of which the following is a specification.

My invention relates to the class of railway-crossing gates that are operated by the passing train, the mechanism for which is illustrated in the following drawings, in which—

Figure 1 is a plan showing a section of a railroad-track, a carriage-driveway crossing said track, and four gates upon each side of said track, two principal gates for the street-crossing and two smaller ones for the sidewalk-crossings, and also showing supplemental rails along each side of the track which are to be engaged by the passing train for closing said gates, the gates being shown in a closed position across the driveway and sidewalks. Fig. 2 is an elevation, upon a larger scale than Fig. 1, of the inside of a railroad-track and two gates at the left-hand side of the carriage-driveway, it also showing the top part of two supplemental rails upon the left-hand side of the driveway. Fig. 3 is a side elevation of the supplemental rail and showing the chairs in which it is supported, with springs arranged under said rails for holding the greater part of its tread normally an inch or more higher than the tread of the track-rails. Fig. 4 is a plan of the gates at the right-hand side of the driveway and showing one rail of the track. Fig. 5 is a side elevation of Fig. 4. Fig. 6 is a plan of the gates at the left-hand side of the driveway and showing one rail of the track. Fig. 7 is a side elevation of Fig. 6, partly in section. Fig. 8 is a side elevation of one of the principal gates, in a closed position, beyond the line *a a* of Fig. 6. Fig. 9 is a transverse section of the main and supplemental rails as seen in looking to the right from the line *b b* of Fig. 7 and showing the chair for supporting the supplemental rail. Fig. 10 is a transverse section of a modified form of the main-track rail as seen in looking to the left from the line *c c* of Fig. 7 and showing

the supplemental rail and its support-chair. Fig. 11 is a top view of one of the principal gates as shown in Fig. 8, with its counterweight attached, the gate being in a closed position.

Fig. 1 is upon a small scale and attempts to show only the position of the principal parts. Fig. 2 is upon a larger scale than Fig. 1, and Figs. 3, 4, 5, 6, 7, and 8 upon a larger scale than Fig. 2, and Figs. 9 and 10 are upon a still larger scale.

Similar numerals indicate like parts in the several views.

The surface of the ground above which the track-rails 2 of a railway are placed and from which surface the posts for supporting the crossing-gates project is indicated by the numeral 1. Supplemental rails 3, having slots 5, are secured to and alongside of the rails 2, with bolts 6 through said slots. Chairs 4 or 4' are secured to a suitable support with spikes 7. Extending out from the rails 3 are bolts 8, upon each of which a link 9 is mounted, and upon a bolt or pin 11 of the chair the angle-lever 10 is mounted. 12 is a bolt or pin in each chair upon which a lever 13 or 13' is pivoted, and its upper end is connected with the upper end of the angle-lever 10 by means of a link 14, the opposite end of the angle-lever being connected to the lower end of the link 9. From the lower end of the lever 13, which is farthest from the crossing at its left, a rod 15 extends to the shaft 16 at the left and also to the shaft 18 at the right of the crossing, and from the lever 13', which is farthest from the crossing at its right, a rod 17 extends to the shaft 18 at the right and also to the shaft 16 at the left of the crossing.

It should be observed that my gate-operating mechanism appears to a person facing the track the same upon whichever side of the track he may be standing as it is shown in Fig. 1, and it may also be noted that from whichever direction a train approaches the crossing its action in depressing the supplemental rails will be to move the rods 15 and 17 toward the left, for the reason that, as the mechanism is shown in the drawings, the act of depressing the supplemental rails by the passing train in acting upon the aforesaid le-

vers, angle-levers, and links between said supplemental rails and the rods 15 and 17 will produce that result.

The shafts 16 and 18 are journaled in suitable journal-boxes, (one only being shown alongside of the rail 2,) and they transmit the action of the mechanism alongside of the rails 2 to the gates for closing and opening the same.

The supplemental rails are rectangular in cross-section and from about three feet from each end are slanted off for the easy mounting of the wheels of the train, their position being alongside of the rails 2 and their top normally an inch or two above the top of the track-rails. They are preferably placed outside of the track-rails; but should the wheel-treads be too narrow for engaging the supplemental rails they may be placed inside of the track-rails to be engaged by the wheel-flange. They are provided with springs 19, which should be sufficient in number and resiliency for returning the rails after depression and holding them at the highest limit of their movement. The several levers, angle-levers, and rods before mentioned, as well as the mechanism upon the gates, are represented in their normal position, as when the gates are open and corresponding with said highest limit of movement of the supplemental rail.

In the gate-posts 20 and 21 upon shafts 22 and 23, respectively, the principal or driveway gates and sidewalk-gates are mounted, the two gates being operated simultaneously by means of gear-segments 24, one segment being secured upon each shaft of each pair of gates. Upon each of the shafts 22 is also secured a counterbalancing-weight 25 for holding said gates open and assisting in said opening. Mounted loosely upon each shaft 22 is a crank-arm 26, which is connected with the shaft 18 of the principal gates at the right of the crossing by means of the link 41 and lever 29, and upon said gates at the left of the crossing it is connected with the shaft 16 by means of the links 41, the lever 27, which is pivoted at the point 27', and the lever 28, which is mounted upon shaft 16. Upon the shafts 16 and 18 are also mounted short levers or crank-arms 30 and 30', respectively, for transmitting the movement of the rods 15 and 17 to the gate-closing mechanism, which is carried upon the gate-posts.

The rod 15 is provided with a slot 31 at the point of its connection with the crank-arm 30 and with a slot 34 at the point of its connection with the link 15', said link connecting the rod 15 with the lever 13 of any chair which is between the left-hand gate and the chair which is first encountered by a train approaching the gates from the left. The rod 17 is provided with springs 32 and stops 33. The purpose of the slot 34 is to allow the depression of the farthest one of the series of supplemental rails at the left of the crossing without its affecting the mechanism immediately connected with the supplemental rails

between the farthest one and the crossing, and the purpose of the springs 32 and stops 33 is to allow the depression of the farthest one of the supplemental rails and all intermediate ones at the right of the crossing without an immediate effect upon the gate until the springs have time to act upon the gates.

The principal gates are formed of two wood gate members 37, one of which is secured to the gear-segment and the other to the counterweight, the two members coming together at their outer ends, and at a short distance from their inner ends plates 38 are secured across them. Upon opposite edges of the crank-arms 26 springs 35 or 35' are secured with bolts 35'', one spring 35' being applied to one of the principal gates of the crossing and having a bell 36 for sounding an alarm at the first movement of the crank-arm 26 by a passing train. A spring 39 is arranged between the outer leaf of each spring 35 or 35' and one of the plates 38, a bolt 39' passing through the aforesaid outer leaf of the spring, the two plates 38, and between the two wood gate members 37. The gate members being secured upon the shaft 22 and the crank-arms 26 mounted loosely thereon, the action of the sudden depression of the supplemental rails is transmitted to the gate members only through the springs thereon, so that their closing movement is gradual and any sudden shock thereto is avoided.

The sidewalk-gates are formed of two wood gate members 37', which are secured upon opposite sides of the gear-segment upon its shaft 23.

A weighted rod 40 is suspended so as to swing freely from each principal gate for assisting in the final downward movement and also for stopping the gate when it has reached a horizontal position. A slot 42 is provided in the outer end of each crank-arm 26 and bolt-holes 43 in each of the levers 27 and 29 for adjusting the amount of the opening movement of the gates.

Parts are broken away for showing other parts beyond them, as follows: In Fig. 5 the lower part of one of the principal gate-posts, in Fig. 7 the upper part of one of both principal and sidewalk gate-posts, the lower part of the weight 25, and of the gate member 37, and in Fig. 8 the lower part of gate member 37.

Changes in the arrangement of levers for conveying the vertical movement of the supplemental rails to the crank-arms 26 may be made without departing from the principles of my invention.

The first of the supplemental rails should be placed at a considerable distance from the gates at each side of the crossing, so that an alarm may be sounded and ample time given for teams to clear the crossing before the gates close. Other supplemental rails should be placed between the two outer ones at such

distances apart as will allow the train to be upon some one rail of the series until the last one of said series has been passed over, so that the gates will remain closed until all danger is passed.

When a train approaches the crossing from the left hand, it will depress the rail 3 and move the rod 15 toward the left, the slots 34 in the rod 15 allowing the rod to thus move without its affecting the levers which are to be acted upon by any of said rails between the first one encountered and the gate until the train arrives at any particular rail, when the lower end of its lever 13 will swing toward the left as far as the bolt in the slot 34 will allow, and thereby hold the rod 15 at the limit of its movement toward the left. This action of the levers 13 will be repeated as each supplemental rail is passed over until the gates are reached.

If a train approaches from the right of the crossing, the depression of the first supplemental rail reached will act to move the rod 17 toward the left, the springs 32 allowing the oscillation of the levers 13' without its affecting the position of the rod 15, the springs 32 being sufficiently stiff and resilient to eventually allow the movement of the rod 17 to be imparted to the crank-arms upon the shafts 16 and 18, and to thereby act upon the crank-arm 26 for closing the gate.

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

1. In a railway-crossing-gate-closing mechanism having gate members secured upon a shaft in a suitable support, the combination with the usual track-rails, of supplemental rails arranged at intervals alongside of said track-rails, and springs for normally holding the upper edge of the principal portion of said supplemental rail a limited distance above the top of said track-rails, a crank-arm loosely mounted upon said gate-shaft having springs arranged to act on said gate members for relieving the gate from sudden shock, and suitable connections between the supplemental rail and said crank-arm for closing said gate when said supplemental rail is depressed by a passing train, substantially as described.

2. In a railway-gate-closing mechanism having gate members secured upon a shaft in a suitable support, the combination with the usual track-rails, of a series of supplemental rails arranged at intervals alongside of said track-rails, and springs arranged under said supplemental rails for normally holding the principal portion of the upper edge of each supplemental rail a limited distance above the top of said track-rails, a bolt projecting from the outer side of each supplemental rail, an angle-lever mounted upon a fixed support outside of each supplemental rail and connected at one end with said bolt, a crank-arm loosely mounted upon the aforesaid shaft of the principal gate members, having springs

arranged for engaging said gate members for relieving the gate of sudden shock, and suitable connections between the aforesaid angle-lever at each supplemental rail and the crank-arm of each principal gate, substantially as described.

3. In a railway-crossing-gate-closing mechanism, having gate members secured upon a shaft in a suitable support, the combination with the usual track-rails of a series of supplemental rails arranged at intervals alongside of said track-rails, and springs for normally holding the principal portion of the upper edge of each supplemental rail a limited distance above the top of said track-rails, a crank-arm loosely mounted upon the shaft of the principal gate having springs arranged for engaging said gate members and relieving the gate of sudden shock, a bell suspended from one of said gate-member springs and suitable connections between the supplemental rails of the series and said crank-arm of said principal gate for oscillating the crank-arm and ringing said bell as the first of the series of supplemental rails is depressed by a passing train, substantially as set forth.

4. In a railway-crossing-gate-closing mechanism, the combination with the rails of a railroad-track of the following elements: a series of supplemental rails arranged for a limited vertical movement alongside of the usual track-rails at intervals, upon both sides of said track, springs arranged under said supplemental rails for holding the principal part of their upper surface, normally, an inch or more above the top of said track-rails, a bolt extending out from the outer side of each supplemental rail, a suitable chair arranged alongside of each supplemental rail near said bolt, an angle-lever mounted for oscillation upon said chair and having one end thereof connected with the aforesaid bolt, crossing-gate members secured upon shafts and mounted for oscillation at each side of said track and upon opposite sides of said crossing in suitable supports; a crank-arm mounted loosely upon the gate-shaft of each principal gate, springs arranged upon each crank-arm for engaging the gate members aforesaid and relieving them of sudden shock, a bell suspended from one gate of the crossing, a weighted rod suspended from each principal gate of the crossing for accelerating its closing movement and limiting the extent thereof, a shaft arranged at right angles with the track from near said track to each principal gate of the crossing, a rod extending alongside of said track upon both sides thereof from a lever upon the chair of each supplemental rail of the series to crank-arms upon said last-named shafts upon both sides of said crossing, the rods upon one side of the crossing at their connections with the levers of the aforesaid chairs excepting that chair which is farthest from the crossing being slotted, and the rods upon the other side at each point of their con-

nection with a lever of a chair, or with a crank-arm being provided with suitable stops and springs for allowing a limited horizontal movement thereof, and suitable connections 5 from the angle-levers of the several chairs to the crank-arms of the last-named shafts and from said shafts to the loosely-mounted crank-arms aforesaid of each principal gate for clos-

ing said gates by the depression of said supplemental rails by a passing train, substantially as described.

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Witnesses:

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H. C. HILTON.