

(No Model.)

W. S. ADAMS.  
FOLDING GATE FOR CAR PLATFORMS.

No. 507,092.

Patented Oct. 24, 1893.

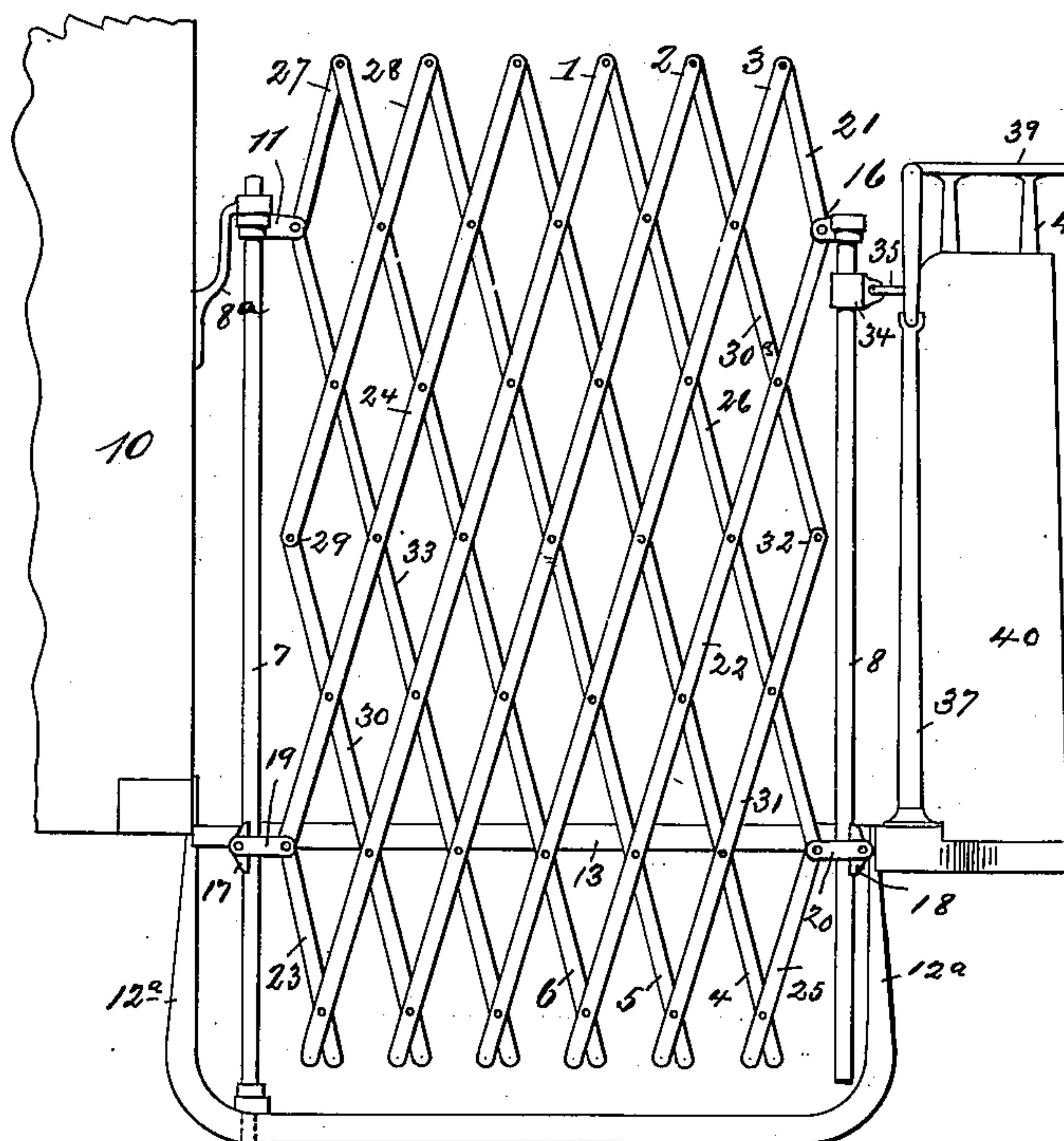


Fig. 1.

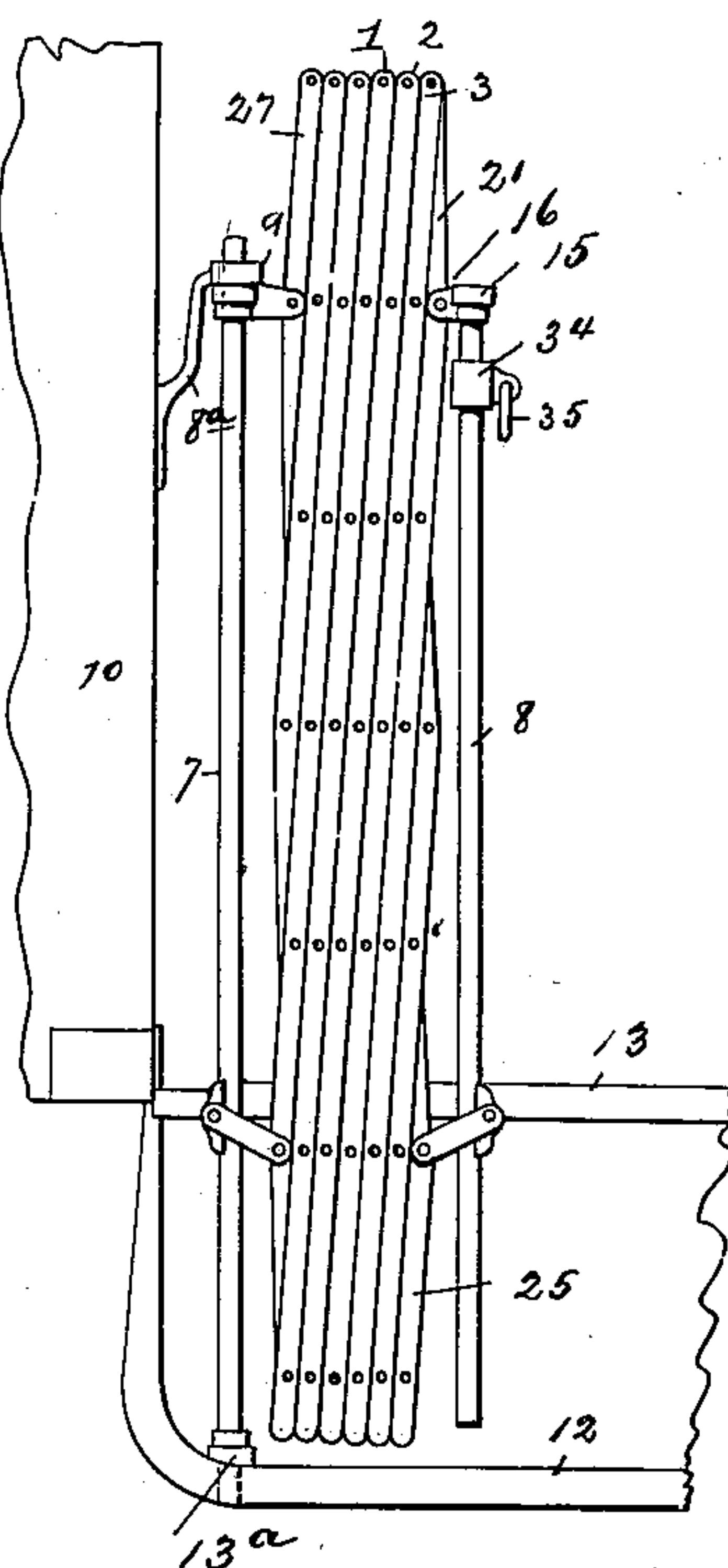


Fig. 3.

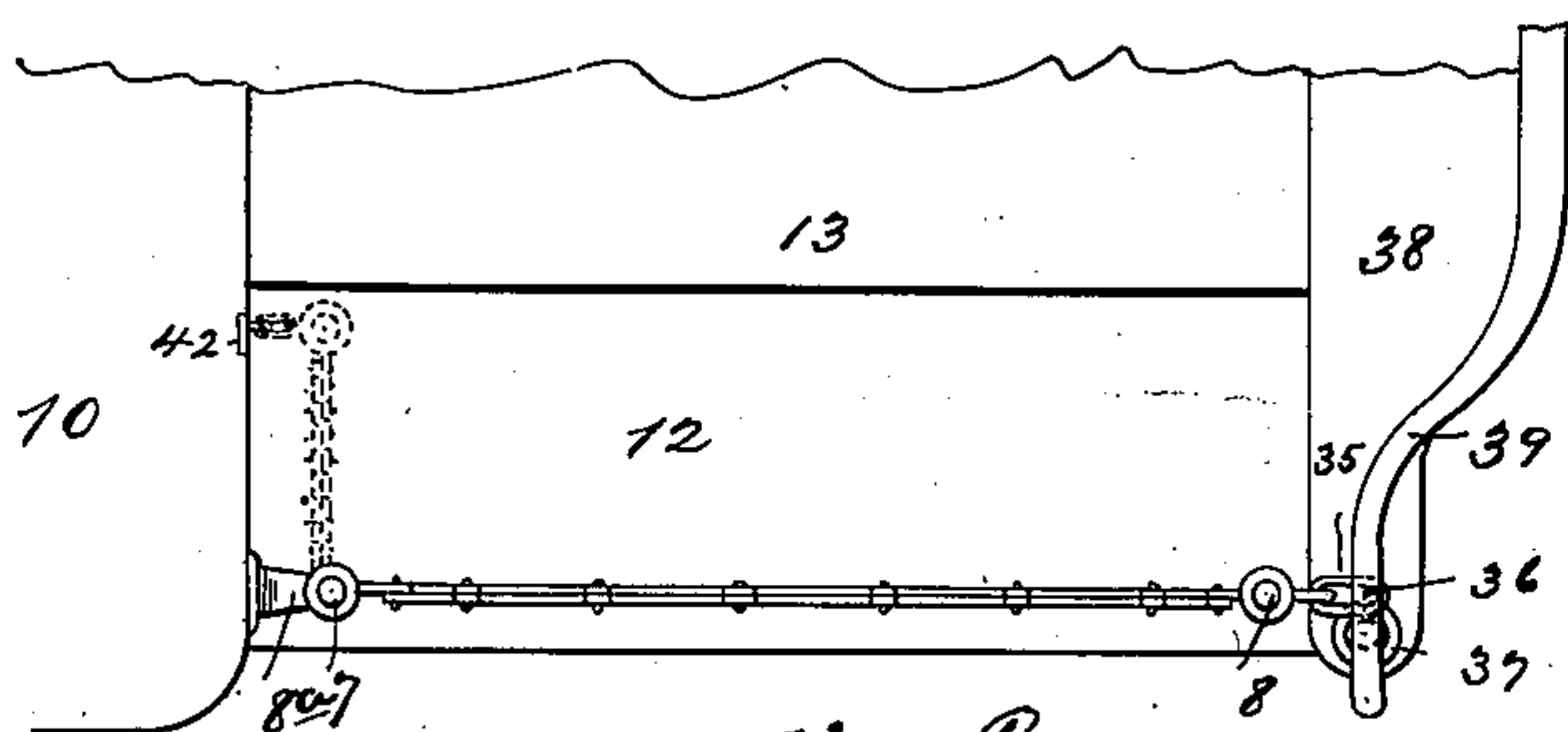


Fig. 2.

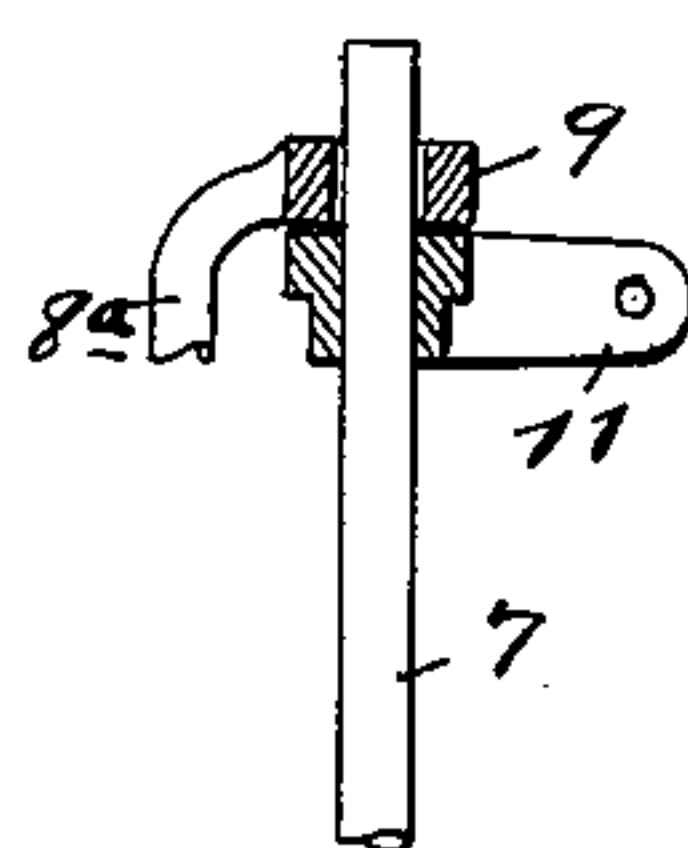
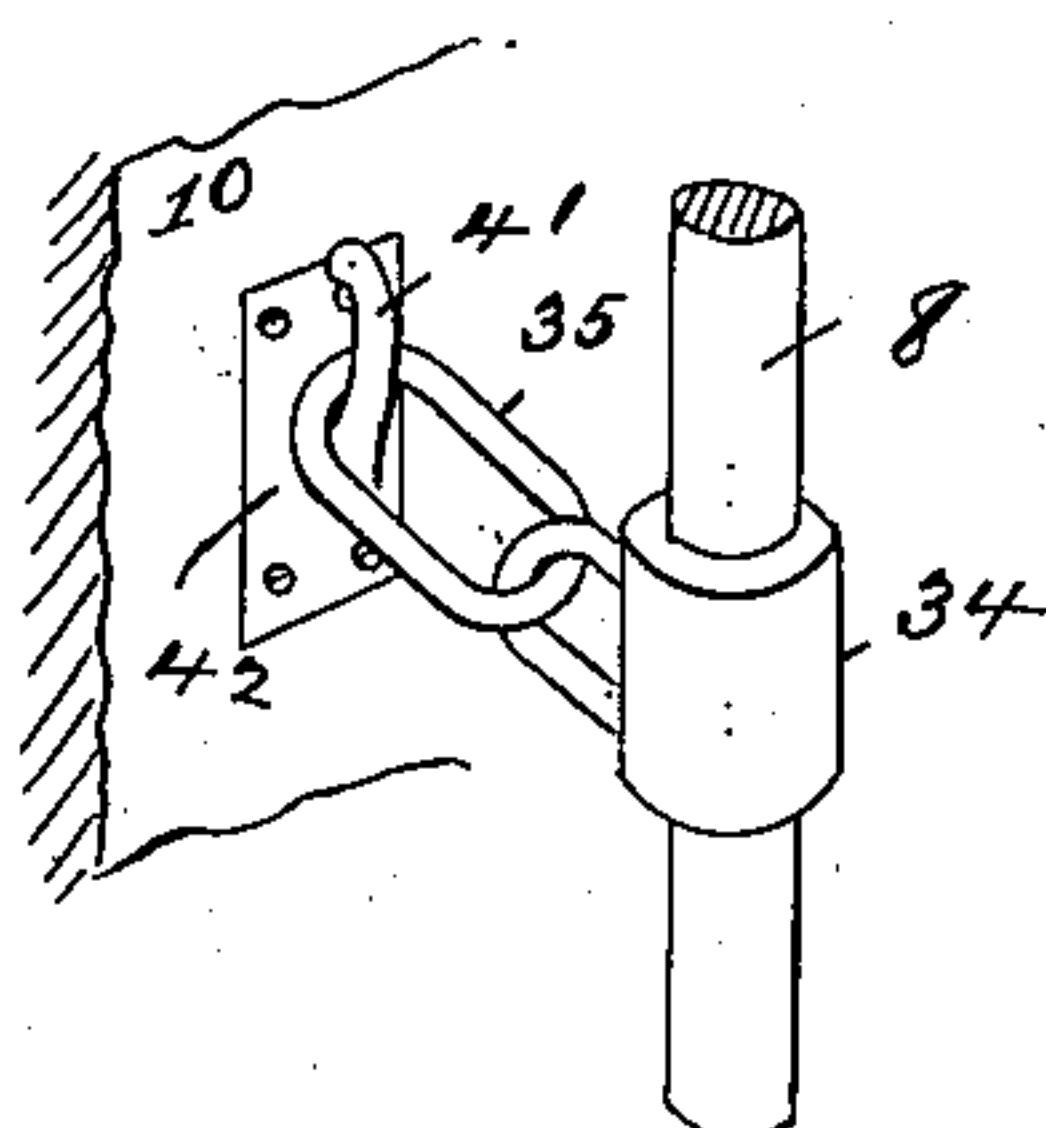


Fig. 4.

Fig. 5.



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# UNITED STATES PATENT OFFICE.

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## FOLDING GATE FOR CAR-PLATFORMS.

SPECIFICATION forming part of Letters Patent No. 507,092, dated October 24, 1893.

Application filed July 15, 1893. Serial No. 480,568. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER S. ADAMS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Folding Gates for Car-Platforms, of which the following is a specification.

My invention has relation to the lazy-tong form of folding and extension gates adapted for use upon street and other car platforms; and it has for its objects, besides that of economy, lightness of structure, strength and durability, the additional feature of being adapted for use upon car platforms where the inner part of the steps leading to the platform extends to some distance within the skin of the car, the gate being adapted to close the platform and prevent ingress or egress therefrom at the side upon which the gate is located, and when closed to be swung up against the side of the car and be out of the way so as not to interfere with ingress or egress of the passengers to or from the platform of the car.

My invention accordingly consists of the particular structure and combinations hereinafter set forth and more particularly pointed out in the claims.

In the drawings—Figure 1 is a front elevation of a portion of a car and its platform showing the gate extended or opened, and in position to prevent egress from the platform at that side of the car; and Fig. 2, a plan view of Fig. 1; Fig. 3, a side elevation of a portion of the car platform and step showing the gate in its folded position ready to be swung against the side of the car as shown in dotted lines in Fig. 2; Fig. 4, a side elevation partly in section of the detached parts of the gate in their interior structure; and Fig. 5, an enlarged view, detached, of the hook-plate and the engaging link for holding the gate in its folded position against the side of the car as shown in Fig. 2.

Similar numerals of reference refer to like parts throughout the several views.

The gate comprises a series of levers united in lazy-tong fashion, of which 1, 2 and 3 are the outer main diagonals and 4, 5 and 6 the inner main diagonals, all of which are piv-

otally secured together, or interfulcrumed, by suitable pins or bolts.

The upper portion of the gate is secured to its sustaining rods or posts in a manner that will permit of the collapse of the members of the gate, the point of support of the upper portion of the gate being fixed, the lower, vibrational.

The posts are shown at 7 and 8, the stationary post 7 being supported in its upper portion by means of a bracket 8<sup>a</sup>, having an eye 9, through which the post 8 passes, the bracket 8<sup>a</sup> being secured to the car 10. From the post 7, at the upper portion thereof, extends a fixed lug 11. The lower portion of the post 7 passes through an aperture in the step 12 leading from the platform 13 (the step being hung by the side plates 12<sup>a</sup>) and is supported so as to swing in its bearings (which are the brackets 8<sup>a</sup> and the step 12) by means of a sleeve 13<sup>a</sup> fast to the post 7. The outer or swing post 14, to which the outer portion of the upper end of the gate is secured, carries thereon a cap 15 fast thereto, from which extends a lug 16. At any desirable point on the length of the posts 7 and 8 are fixedly secured small trunnions 17 and 18 to which are pivotally secured links 19, 20. These links support the levers of the gate so that the entire system of levers forming the gate can be moved up or down. The outer main diagonals 1, 2, 3 are supported at the top by the short link 21 and are connected with the bottom of the inner diagonal 6 by the lever 22, and a short link or half lever 23 connects the bottom of the lever 1 with the post 7, and a cross lever 24 unites the inner diagonal 4 with the link 19. The link 20 is connected with the inner diagonal 4 by the short lever 25, and the outer diagonal 1 is connected to the link 20 by means of the diagonal 26. To the fixed lug on the post 7 is secured the short lever 27 which is secured to the upper portion of the inner diagonal 6, and the inner diagonal 5 is connected at the top to the cross lever 28 which is in turn fulcrumed at 29 to another cross lever 30 which in its turn is fulcrumed to the lower portion of the outer diagonal 2. In the same way the outer diagonal 2 is connected to the inner diagonal 5 by



means of the two half diagonals 30<sup>a</sup>, 31, fulcrumed together at 32, and the fixed lug 11 is connected with one of the outer diagonals, as 3, by the diagonal 33 in the same manner as the fixed lug 16 is secured to the inner diagonal 6.

Each and every lever forming part of the collapsible or extensible portion of the gate is interfulcrumed, that is to say, fulcrumed upon themselves.

The upper portion of the series of levers is pivotally secured to fixed lugs which are in turn secured to the supporting posts at both sides, and at the bottom to links pivotally secured in a fixed position upon the same supporting posts, so that the collapse or extension of the levers of the gate can be had without causing the supporting points of the lower portion of the gate to move upon the side posts. This I consider to be a marked improvement over the old mode of causing these supporting points to take the shape of sleeves which ride up and down upon the supporting posts.

Another important feature of this construction lies in the mode of connecting the levers together, and in the connection of the levers at the top and bottom of the gate.

By reference to Fig. 1 it will be seen that the gate is primarily supported at the top upon the inner and outer diagonals 3 and 6, and thus by means of short links 21, 27 pivotally secured upon the fixed lugs 11 and 16. This results in a much higher and stiffer gate than could be had were the main diagonals hung directly from the fixed lugs or pivot points 11 and 16 instead of being pivotally supported upon the short levers 21, 27, which also strengthens the union of the levers, while the diagonals 22, 33 serve to suspend the other non-enumerated levers of the series directly from the same pivotal points. Furthermore I am enabled to include into the system a greater number of levers, by which I get a greater extension of the gate, and thereby close a wider passageway without sacrificing or increasing any of the space allowed for the gate when folded as shown in Fig. 3.

To secure the gate in either the extended or collapsed position I have fixed to the post 8 a sleeve 34, to which is secured a link 35, and this link is adapted to be passed over the stud 36 shown in dotted lines in Fig. 2, which stud is formed upon the top of the dasher post 37 upon the buffer beam 38, to which the dasher 40 and hand rail 39 are secured, the hand rail being supported upon the dasher 40 by the posts 41 in the usual way.

The position of the gate, while extended to close the passageway to the platform, and prevent ingress or egress from the step 12 to the platform 13, is shown in Fig. 2, and in that figure is also shown the position of the gate when folded as shown in Fig. 3, and swung inwardly to prevent the platform and step being used. While in this position it is

kept from swinging outwardly again and extending itself, by means of a pin or stud 41 carried by the stud plate 42, which is secured to any convenient part of the car 10, as shown in Fig. 2. To this stud the link 35 is secured by passing it over the same, as shown in Fig. 5.

The posts 7, 8 need not of necessity be any longer than a trifle more than the distance between the upper and lower pivotal point of the gate, and instead of supporting the lower portion of the post 7 in the sleeve 13<sup>a</sup> upon the step 12 it can be supported in a bracket (similar to 8) which can be fixed to the step side plates, thus saving the cost of the extra length of metal for the posts, and making the structure lighter.

Having described my invention, I claim—

1. In a folding gate, the combination with two posts, one pivotally set in a fixed position, the other movable, of a series of interfulcrumed levers pivotally secured to both posts at the top, and below to the side posts by linked connections, said links having a fixed point of movement upon said posts, substantially as described.

2. In a folding gate the combination with two posts, one of which is mounted to rotate in bearings about a fixed point, the other post being movable to, or from, or about said point, and a series of interfulcrumed levers pivotally secured to both posts by suitable linked connections, some of the levers being directly connected to the posts by short links, whereby the total height of the gate is greater than the distance between its pivotal support upon the posts, substantially as described.

3. The combination in a folding gate of two posts, one movable in bearings in a fixed point, the other movable to, from or about the other post, upper supporting lugs 11 and 16, and lower supporting links 19 and 20, and main diagonals connected together with the upper fixed lugs and lower swinging links by levers having a shorter radius of movement than the main levers, substantially as described.

4. The combination in a folding gate, of the post 7 pivotally supported in bearings, and the post 8 adapted to move to, from and about the post 7, the main diagonals 1, 2, 3 interfulcrumed with the main diagonals 4, 5, 6, the lugs 11, 16 fixedly secured to the posts 7 and 8, the short levers 21, 27 connecting the outer main diagonal 3 with the post 8 and the inner diagonal 6 with the post 7, secondary levers 22, 33 pivotally secured to the lugs 11, 16 and hanging the main levers from the top of both of the side posts, and a swinging link connection between the lower portion of the series of levers and the posts 7, 8, said swinging links making an articulated union of the system of levers with said posts, substantially as described.

5. The combination with the post 7 supported in proper bearings, and the post 8, with a series of interfulcrumed levers having a direct fulcrum to the upper portions of both



posts, and an articulated and fulcrumed connection to the same posts below the first named fulcral points, substantially as described.

5 6. The combination with the posts 7 set to rotate in bearings, and the posts 8, and the main levers 1, 2, 3, 4, 5, 6, of the levers 28, 30, 30<sup>a</sup>, 31 interfulcrumed with the main levers and fulcrumed to each other in pairs, the swinging links 19, 20 secured to the posts 7,  
10 8, the fixed lugs 11 and 16 likewise secured to the posts above the swinging links, and short levers 21, 27, 23, 25 connecting the main levers with the fixed lugs 11 and 16 and swinging links 19, 20, substantially as described.

15 7. The combination of the post 7 set to move in suitable bearings, the post 8, the main levers 1, 2, 3, 4, 5, 6, fixed lugs 11 and 16 on the upper portions of, said post connected with the

main levers by the short levers 21, 27, swinging links 19, 20 secured to the post below the 20 fixed lugs 11, 16, a lever 26 extending between the upper portion of the main lever 1 and the swinging link 20, another central lever 24 extending between the upper portion of the main lever 4 and the swinging link 19, and 25 short levers 23, 25 extending between the swinging links 19 and 20, all the levers being interfulcrumed, substantially as described.

Signed at Philadelphia, in the county of Philadelphia and State of Pennsylvania, this 30 13th day of July, 1893.

WALTER S. ADAMS.

Witnesses:

HENRY C. ESLING,  
CHARLES MCQUILKIN.