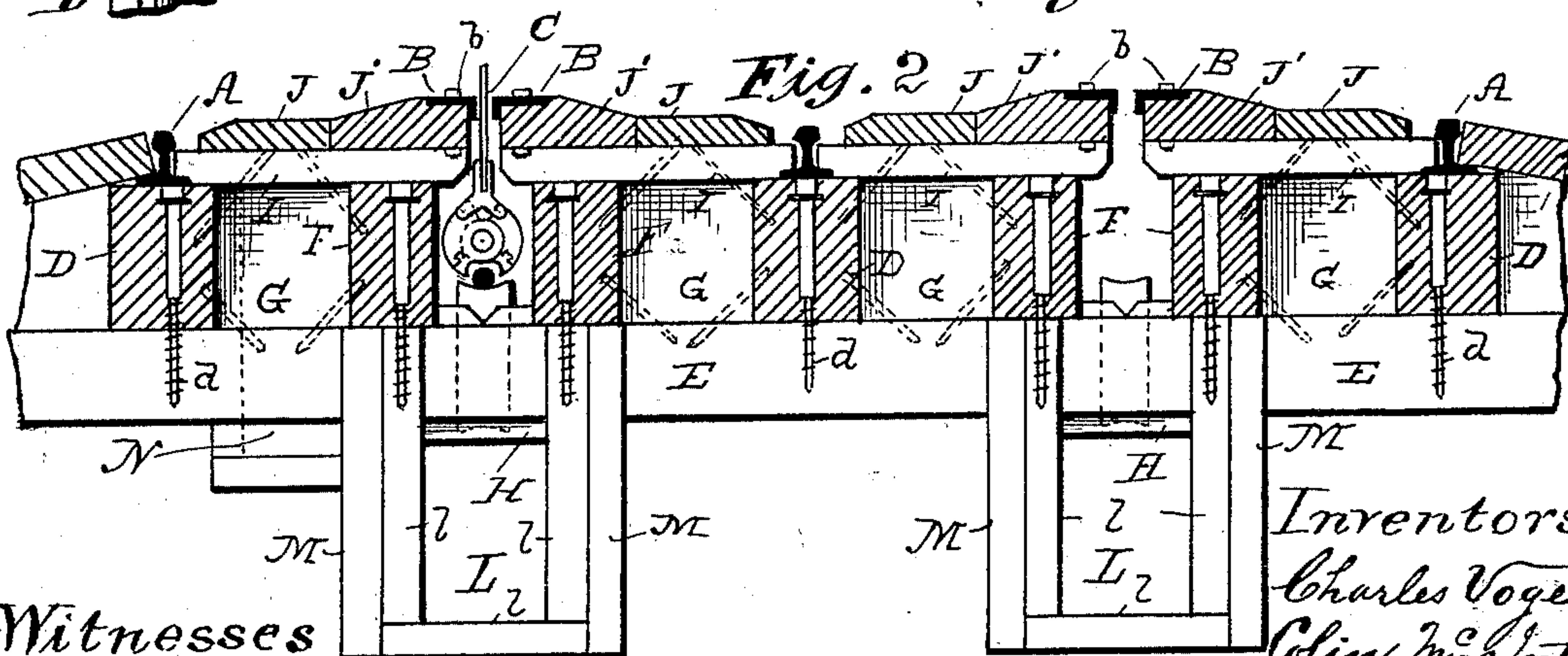
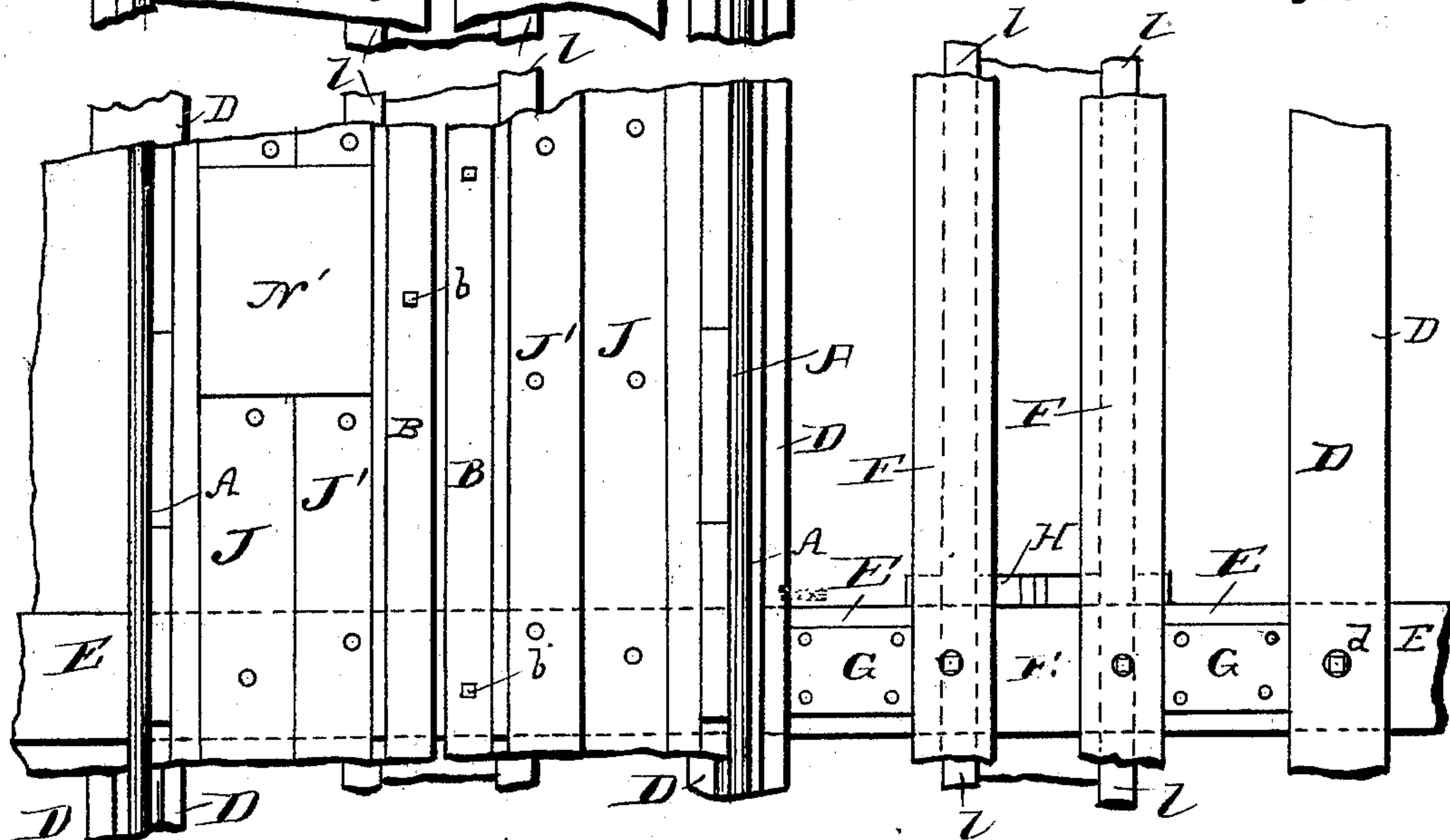
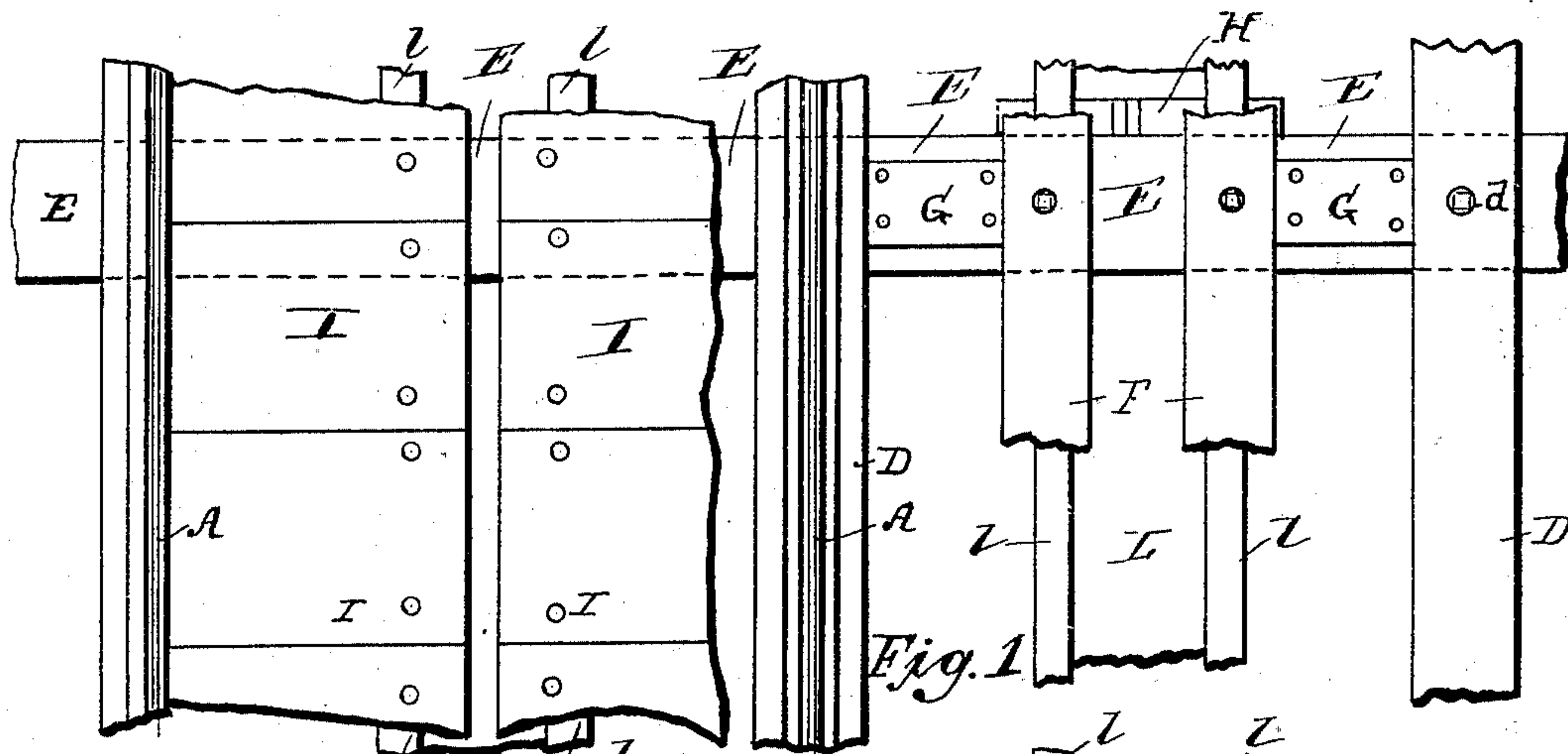


(No Model.)

C. VOGEL & C. MCINTOSH.  
SUBWAY FOR CABLE RAILWAYS.

No. 509,833.

Patented Nov. 28, 1893.



Witnesses

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# UNITED STATES PATENT OFFICE.

CHARLES VOGEL, OF SAN ANSELMO, CALIFORNIA, AND COLIN MCINTOSH, OF TACOMA, WASHINGTON, ASSIGNORS TO THE VOGEL CABLE CONSTRUCTION COMPANY OF COLORADO.

## SUBWAY FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 509,833, dated November 28, 1893.

Application filed February 28, 1889. Serial No. 301,289. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES VOGEL, of San Anselmo, Marin county, State of California, and COLIN MCINTOSH, of Tacoma, Pierce  
5 county, Washington Territory, have jointly invented a new and useful Improvement in Cable or Electric Street-Railways, of which the following is a specification.

Our improvement relates to the track, road-  
10 bed and subway of those railways wherein the actuating mechanism, as a cable or electric conductor, is located below the surface of the roadway and it consists in a novel method of constructing the roadbed and subway of  
15 wood which greatly simplifies and largely reduces the cost of the construction while maintaining a degree of efficiency favorably comparing with structures of the same kind made wholly or in part of metal, masonry, &c.

20 In the accompanying drawings forming a part of this specification, Figure 1, is a plan of the roadbed and subway, portions being removed to exhibit parts below. Fig. 2, is a transverse sectional elevation of the roadbed  
25 and subway.

Both figures illustrate a double track of three rails, as for instance where two separate roads pass for a distance side by side having separate cables moving in the same direction but in separate tubes, three rails will  
30 serve as well as four until the point is reached where the roads diverge.

In both figures the same letters of reference are used to indicate the same parts.

35 A, A, A are the track rails; B, B the slot irons which form the channel in which the shank C, of the grips passes.

D, D, D, are longitudinal stringers upon which the rails rest. These stringers are  
40 bolted by the bolts *d*, to the transverse ties E, which ties extend under and support all the stringers which may be in one connected structure, that is to say, if it be a three rail track the ties should be long enough to take  
45 the stringers of the three rails but if it be simply a single two rail track or if there be two single two rail tracks side by side, then it will only be necessary to extend the ties a trifle beyond the stringers of each separate

track. F, F, are stringers, also resting upon 50 and being bolted to the ties E, and form in part the walls of the subway.

G, G are wooden chucks spiked to each tie and to the stringers D and F; they occur at each tie.

H, H, are wooden chucks spiked to one side of each tie extending a little above and a little below, so that if these chucks and the  
55 chucks G, be cut uniformly to lengths suited, they will serve to space the timbers apart with 60 great accuracy and but little labor.

On the top of the stringers D and F, short planks I, are spiked, the grain running at right angles to the track. One end of these  
65 planks will be beveled to fit the flanges of the track rails and the other end may be beveled as shown to give plenty of room for the grip within the subway. On top of these transverse planks will be spiked the longitudinal  
70 planks J J', beveled on the surface about as shown in Fig. 2, to permit water drainage away from the slot. The planks next to the slot will be somewhat thicker than those next to the rails so that the slot irons resting upon  
75 them will be an inch or two higher than the rails. The planks J' are grooved out to receive the slot irons B, which are fastened thereto by the bolts *b*; sufficient space is left between the edges of the planks J and the rails to allow the wheel flanges of the car to  
80 pass.

The drainageway L, is made of planks *l, l, l*, nailed together, which forming a three sided box, is fastened to the hangers M, M, which  
85 are spiked to the ties.

The pulley pockets N, that is the chambers at the side of the subway which give access to the cable carrying pulleys are formed by boxing in a proper space between the slot and rail stringers and supplying a cover N'.  
90

It will be observed that the drainageway is so separated from the main structure as not to take any of the strains due to the traffic passing over the road and also since the wooden chucks H are made to extend a trifle  
95 down between the sides of the drain, there is no opportunity for the sides being forced in by any pressure upon the surrounding earth.



We do not broadly claim a subway and road-bed for cable railways made wholly or partly of wood. We confine our claims to the particular method of construction herein specified.

5 What we claim as our invention, and desire to secure by Letters Patent, is as follows:

1. A track bed and subway for street railways, having underground operating mechanism, consisting essentially of rail stringers  
10 D, subway wall stringers F, ties E upon which the stringers rest and are securely fastened, and suitable surface planking laid upon said stringers and between the track rails and slot  
15 for the passage of the grip, said planking having slot irons B fitted and secured thereto to form the sides of the slot, the whole arranged

in the manner substantially as and for the purpose set forth.

2. The improved track bed and subway for cable or electric street railways as herein described consisting essentially of the wooden longitudinal rail and slot stringers D and F, ties E chucks G and H, drainageway L paving planks I and J, J', slot irons B and rails A the whole arranged and operating substantially as and for the purpose herein set forth. 25

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Witnesses:

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