(No Model.)

G. TRUESDELL.

CONSTRUCTION OF RAILWAYS.

No. 450,984. Patented Apr. 21, 1891.

Fig. 1.

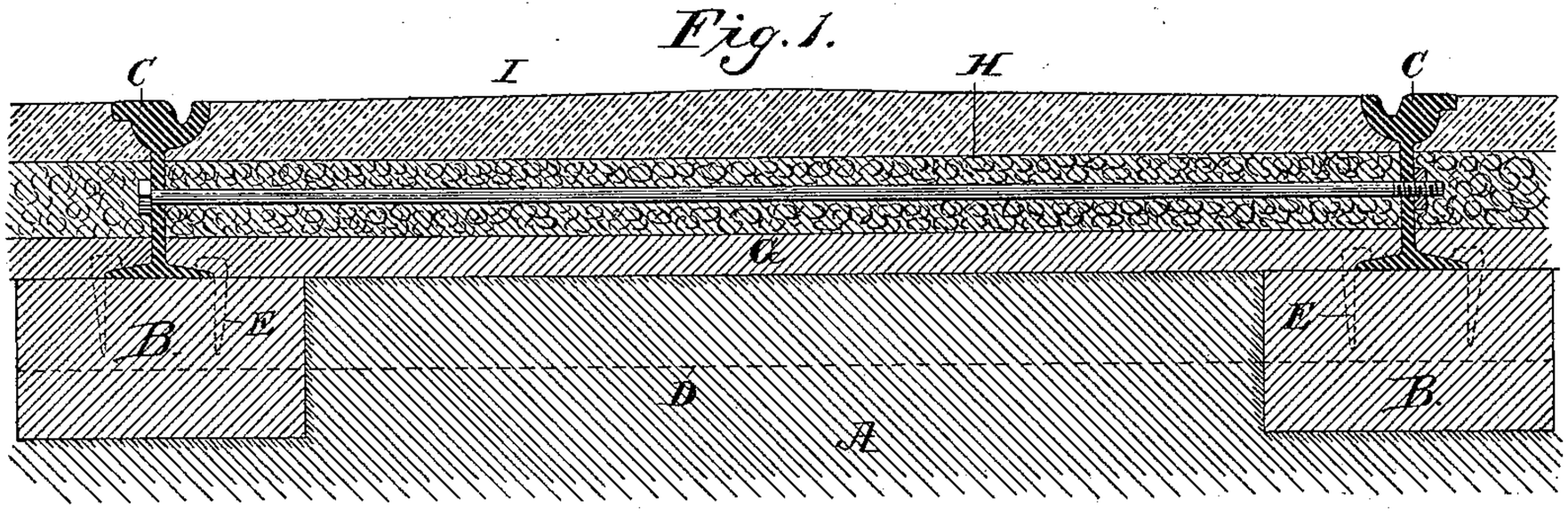


Fig. 2.

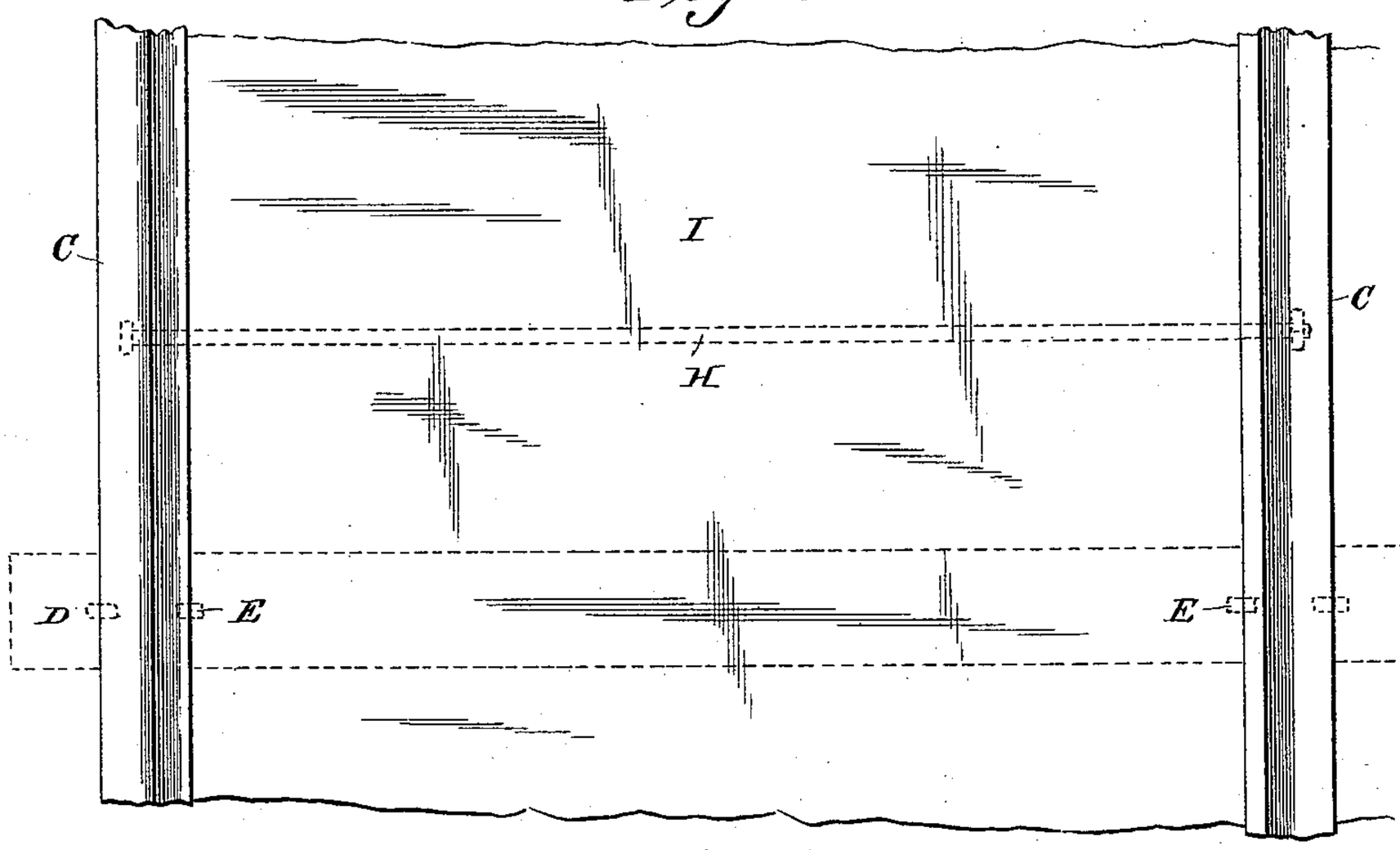
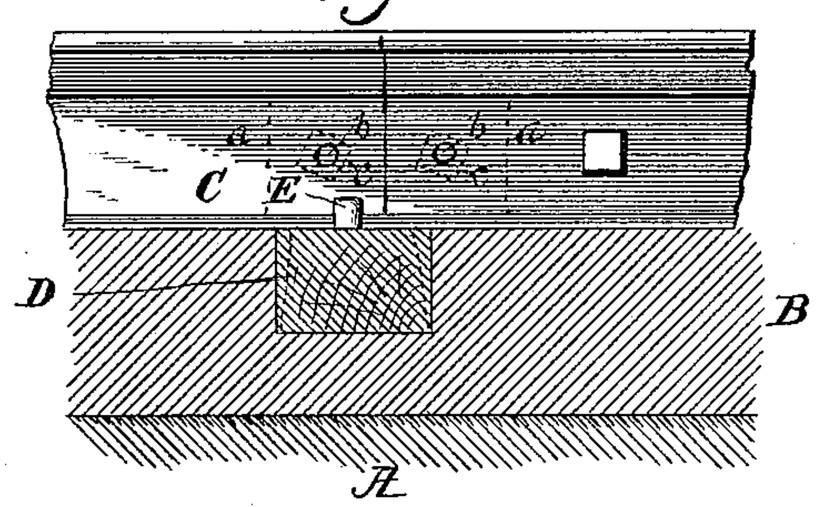


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE TRUESDELL, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR OF FIVE-EIGHTHS TO HENRY L. CRANFORD AND WILLIAM C. McINTIRE, BOTH OF SAME PLACE.

CONSTRUCTION OF RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 450,984, dated April 21, 1891.

Application filed December 8, 1890. Serial No. 373,956. (No model.)

To all whom it may concern:

Be it known that I, GEORGE TRUESDELL, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in the Construction of Railways; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in street-railways, and particularly to the method of constructing the same.

The usual method of laying street-railways consists in embedding in the roadway at suitable distances apart ordinary wooden cross-ties and securing the rails thereto by spiking and locking the said rails in proper parallelism by means of ordinary iron tie-rods and nuts. Railways thus constructed very soon wear out or become irregular, owing to the fact that the wooden ties settle unevenly and soon go to decay, thus rendering the rails uneven both horizontally and laterally, which necessarily induces to constant hammering or jarring of the same by the cars passing over them. The cars also ride uncomfortably and are frequently derailed, owing to this unevenness, and the whole structure soon becomes dilapidated and needs repair.

The object of my invention is to overcome all these disadvantages and to produce a road having a perfectly solid foundation, very durable, and perfectly smooth and comfortable.

In order that those skilled may fully understand the construction of my improved road and the method employed in building the same, I will proceed to describe the construction, referring by letters to the accompanying drawings, in which--

Figure 1 represents a cross-section of a road embodying the features of my invention. Fig. 2 is a top or plan view, and Fig. 3 is a detail view showing a portion of a rail in elevation and the foundation and cross-tie in section.

Similar letters indicate like parts in the several figures.

A represents an ordinary street or roadway, in which is formed channels or grooves about one foot wide and twelve inches deep and in which is placed cement or concrete B to form continuous parallel foundations for supporting the iron rails C. These cement or concrete foundations are in perfect parallelism, and at stated intervals of about fifteen feet or wherever desired cross-ties D, of timber, are embedded in the cement while it is in a plastic condition. These ties D may bridge the two foundation-strips B, as illustrated in dotted lines at Figs. 1 and 2, or short sections or blocks may be embedded in each of the cement strips. They may be rectangular in cross-section or slightly dovetailed, as illustrated at Fig. 3, and serve as a means of holding the rails C in position (through the medium of spikes E) while the road is in process of construction, and they serve, when properly incorporated in the cement, as cushions for the rails.

When the foundations B B have been accurately laid according to grade and the rails C located thereon, the ordinary fish-plates *a*, bolts *b*, and nuts *c*, employed in connecting the ends of abutting rails, and the ordinary tie-rods F are secured in position to secure accurate and perfect gage, a layer of cement G from three to six inches thick is then laid between the rail and outside the same, so as to envelop the foot of the rails, as clearly shown at Fig. 1. This layer of cement may, if thought desirable, extend laterally only to the edges of the foundation-strips B, and when it has sufficiently "set" a layer of ordinary concrete "binder" H is placed over the previously-laid cement and between and outside of the rails, and a top surface of asphaltum I is then laid upon the binder H about level with the top surface of the rails.

The foundation or road-bed A is preferably composed of broken stone, such as is customarily used in building ordinary sheet asphalt pavements.

From the construction described and illustrated it will be seen that the timber ties are concealed or completely sealed within a casing of cement or concrete, and are thus thoroughly protected from the action of the elements, and it will also be seen that the rails

themselves, as well as all tie-rods, bolts, nuts, and spikes, are thoroughly embedded in the cement, binder, and asphalt, so that it becomes impossible for any change in the relation of the several parts to take place, and it is likewise impossible for the rails to change in their parallel relation, and consequently the established gage of the road is absolutely maintained at all times.

I prefer to build my improved road concurrently with the construction of the carriage-way, so as to secure uniformity of appearance in the latter; but it will be understood that I may employ the cement or concrete, binder, and asphalt simply between and each side of the tracks or rails; or, if desired, for economy's sake, the holding composite material may be simply used adjacent to the rails and a distance each side only sufficient to secure a suitable degree of strength. In some instances it may be desirable to employ railroad-chairs upon the wooden ties or blocks; or they may be embedded in the concrete or cement.

I may of course vary the details of construction in many particulars without departing from the spirit of my invention, the gist of which rests in the idea of furnishing a longitudinally-constructed foundation of cement or analogous material to support the rails and tying or locking them in position by the surrounding concrete and asphalt materials. It will also be understood that I do not wish to limit myself to the employment of the several layers of material superimposed upon the foundation-strips B, as in many instances it may be desirable to surround the rails with an ordinary earth road-bed or suitable paving material other than concrete or asphalt.

It will of course be understood that in building the road I employ in the usual manner the ordinary fish-plates for connecting or tying the rails together, and consequently all bolts and nuts used in this connection are held in fixed relations by the surrounding cementing material.

What I claim as new, and desire to secure by Letters Patent, is—

1. The longitudinal supporting-strips of concrete or cement B, with the rails C laid thereon, in combination with a secondary layer of cement G, inclosing the foot of the rail and securing the same in position, substantially as hereinbefore set forth.

2. The combination and arrangements of the supports B, rails C, cement layer G, binder H, and asphalt surface I, substantially as hereinbefore set forth.

3. The concrete or cement supports or stringers B, having embedded in their upper surfaces ties or blocks D, in combination with the rails C and securing-spikes E, substantially as hereinbefore set forth.

4. In combination with the rails C and supports B, the tie-rods and bolts surrounded and embedded in a mass of binder or concrete H, substantially as and for the purpose set forth.

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

GEORGE TRUESDELL.

Witnesses:

JACOB SCHARF,

S. G. CHASE.