No. 607,221. Patented July 12, 1898.

W. G. CURTIS.

JOINING RAILWAY BARS.

(Application filed Jan. 13, 1898.)

(No Model.)

Fig. I.

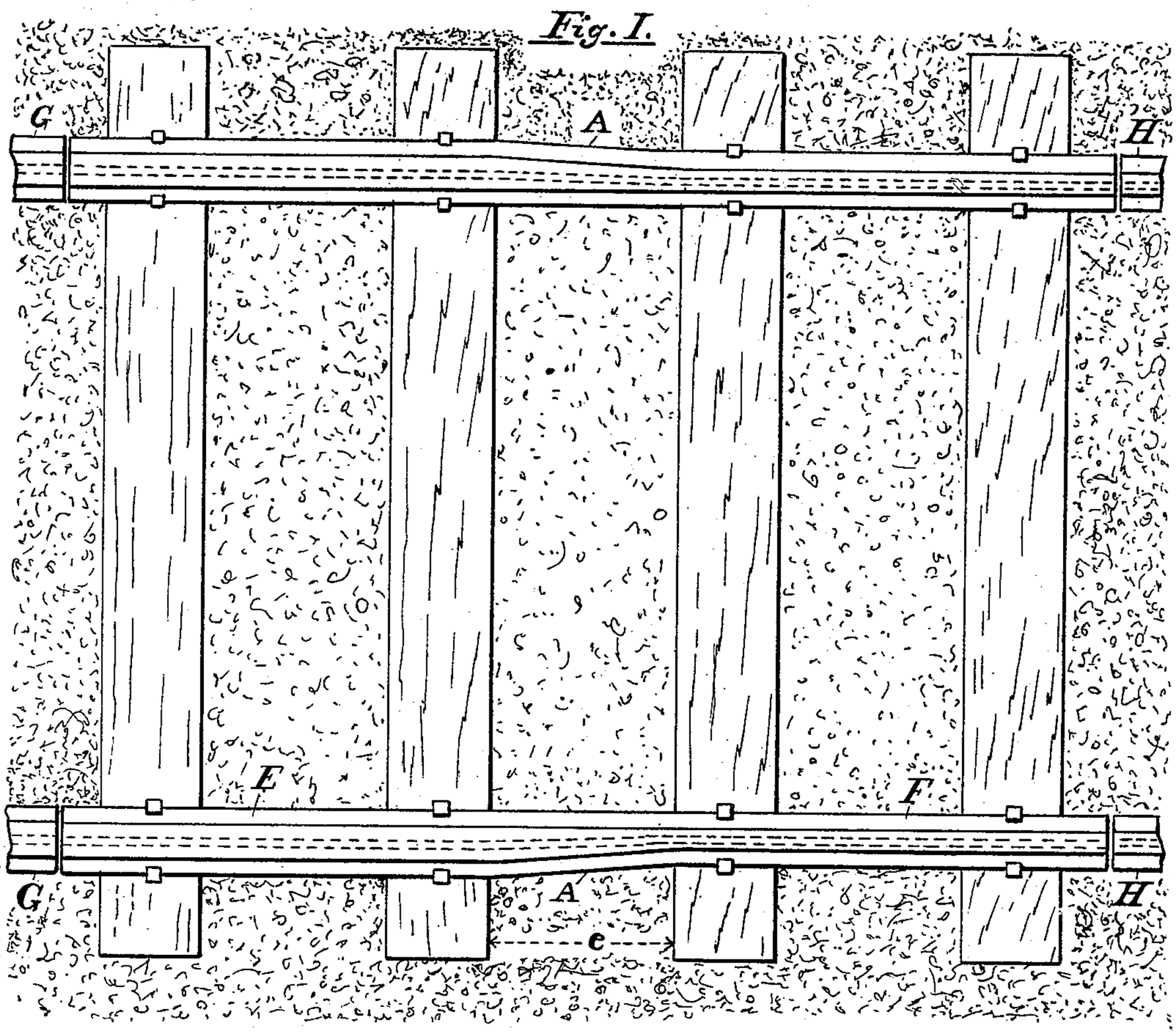

Fig. II.

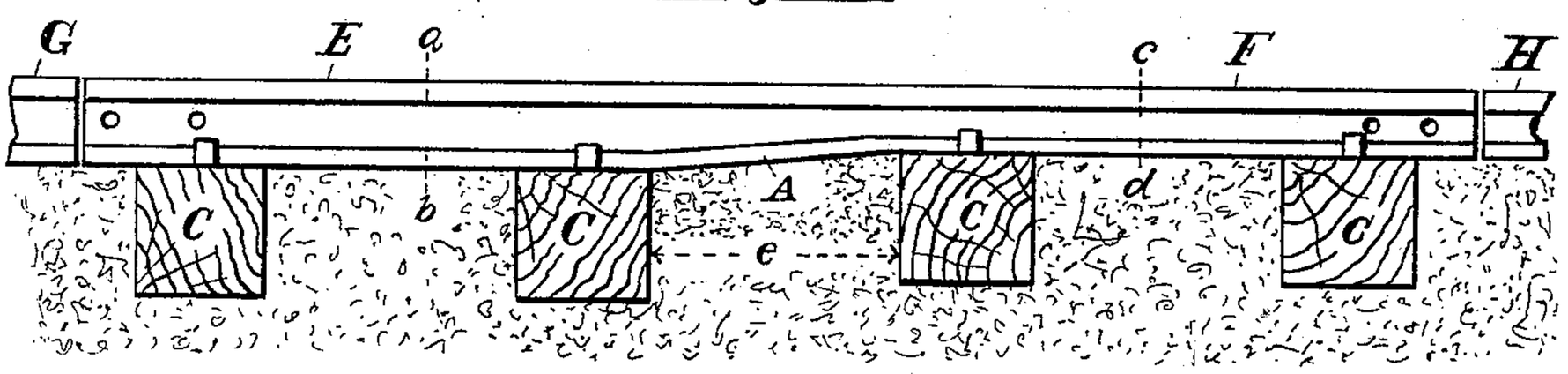

Fig. III.

Fig. IV.

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JOINING RAILWAY-BARS.

SPECIFICATION forming part of Letters Patent No. 607,221, dated July 12, 1898.

Application filed January 13, 1898. Serial No. 666,507. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. CURTIS, a citizen of the United States, residing at San Francisco, county of San Francisco, and State of California, have invented certain new and useful Improvements in Joining Railway-Bars; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to joining railway rails or bars of different dimensions and weight and to a more secure and perfect manner of forming junctions where such rails or bars join and connect with each other.

My improvement consists in interposing between the ends of two adjoining rails of different sections a special rail or bar so tapered that one end will conform to the adjoining connecting-rail and the other end to the other adjoining rail.

The objects of my invention are to secure a continuous smooth way through the junctions; to attain strength, both laterally and vertically, not possible when rails of different section are joined by abutting one against the other; to avoid the use of step or special chairs where the rails are joined, and to secure an endurance equal to that in other portions of the rails or other parts of the permanent way. To the attainment of these objects I construct rail-junctions as shown in the drawings herewith, forming a part of this specification.

Referring to the drawings, Figure I is a plan view of a portion of the permanent way, including junctions of rails of different size constructed according to my invention. Fig. II is a side elevation of Fig. I. Fig. III is a transverse section of the larger rail on the line *a b*, and Fig. IV is a similar section on the line *c d*, both in Fig. II.

Like letters of reference are applied to corresponding parts.

On all railroads it is usual to have in use rails of different sections. This is due to difference in weight, manufacture, or other causes. Such different sections must be efficiently connected where they join each other; also, the main lines of principal railways, being subjected to the whole service or traffic, are provided with rails of heavy section, while branch and feeding lines that connect with the main one, being adapted for lighter traffic of less volume, are equipped with rails of smaller section. The junctions where these rails of different section are joined if separated in the joints are a source of danger and expense, requiring frequent renewals and special fittings, such as step or offset chairs; also, special fish-plates or angle-plates that are subjected to great strain, because these furnish the continued strength of the rails through the junctions.

To carry out my invention, a rail or a portion of a rail, preferably of the larger section, is reduced at one end by heating and forging and formed to the section of the smaller rail by the use of dies, by planing, or by other process, a straight portion at each end resulting, which conforms to the section of the adjoining rail, such straight portions merging one into the other at such intermediate portion as may be desired.

It is not essential in my invention that my so-called "taper-rail" be made from other rails. It may be made from any sufficient piece of metal by various processes, such as welding or planing, where only a few taper-rails are to be used, or die-forging, where many are required. For example: E is the larger end, adapted to connect with the rail G, and F the smaller end, adapted to connect with the rail H. These ends merge one into the other at the so-called "tapered" portion A. This tapered portion A may be of any convenient length, and for special cases the taper may extend from one end to the other or be shortened to such limits as the method of welding may permit, the result being the same so long as the rails are integrally welded or joined together.

In common practice the junction or tapered portion is made from fifteen to twenty inches in length, extending the distance *e*, as shown in the drawings, where the scale is approximately one-twelfth of a working example chosen for illustration. This permits uniform spacing of the ties C and does not require fittings other than are common to the sections E and F.

My improvement is applicable to double-headed rails or those of any section that have a top and side bearing for wheels.

Having described the nature and objects of my improvement and the manner of applying the same, I claim as my invention—

1. A rail-junction for railway-rails laid in line with other rails of different cross-section, consisting of a bar for intermediate use, having the cross-section of one line of rails at one end and the cross-section of the other line of rails at the other end, said bar having an intermediate portion formed on an incline on its bottom and outer side, making a gradual transition from the cross-section of one end portion to the cross-section of the other end portion, substantially as specified.

2. A rail-junction for railway-rails of different cross-sections, consisting of a bar adapted to be interposed between said rails, having the cross-section of one rail at one end and the cross-section of the other rail at the other end, said bar being formed on straight lines perpendicular to said sections on the top and inner side, and having an intermediate portion formed on an incline on its bottom and outer side, making a gradual transition from the cross-section of one end portion to the cross-section of the other end portion on the bottom and outside thereof, substantially as specified.

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