No. 754,197. PATENTED MAR. 8, 1904.

J. CHAPPUIS.

RAIL SUPPORT.

APPLICATION FILED SEPT. 3, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

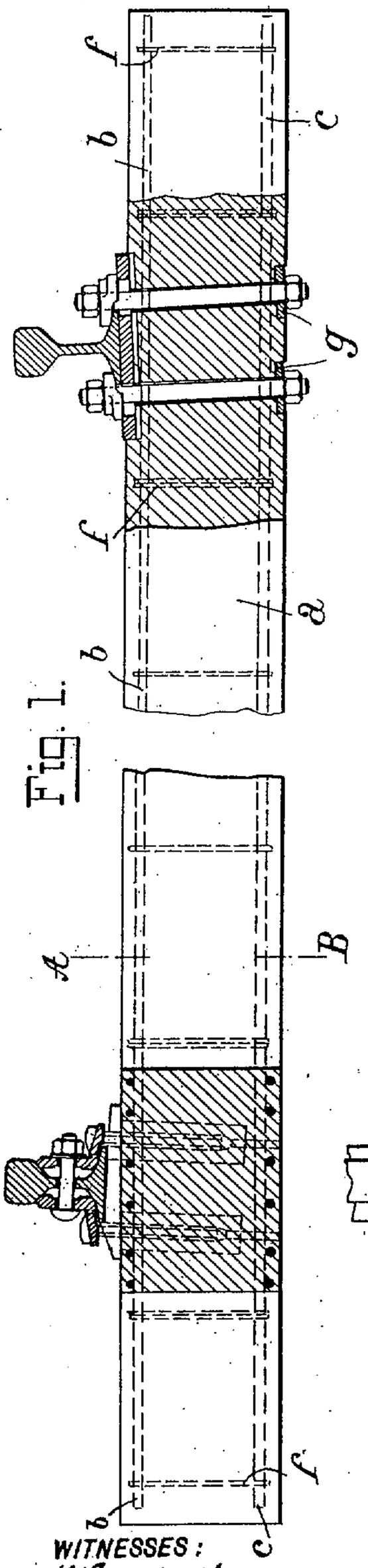

Fig. 1.

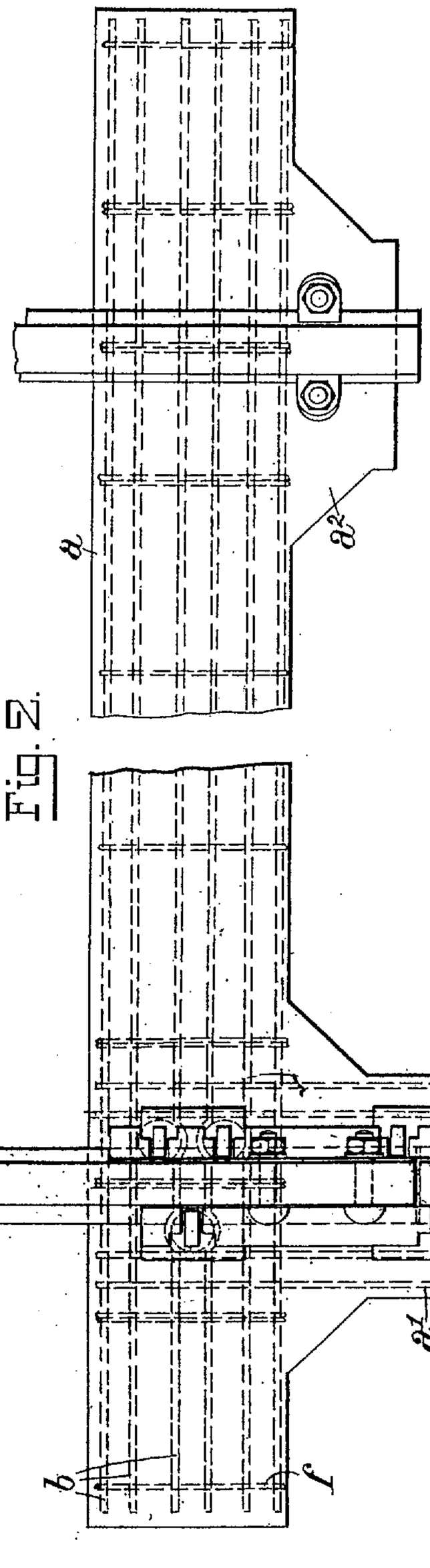

Fig. 2.

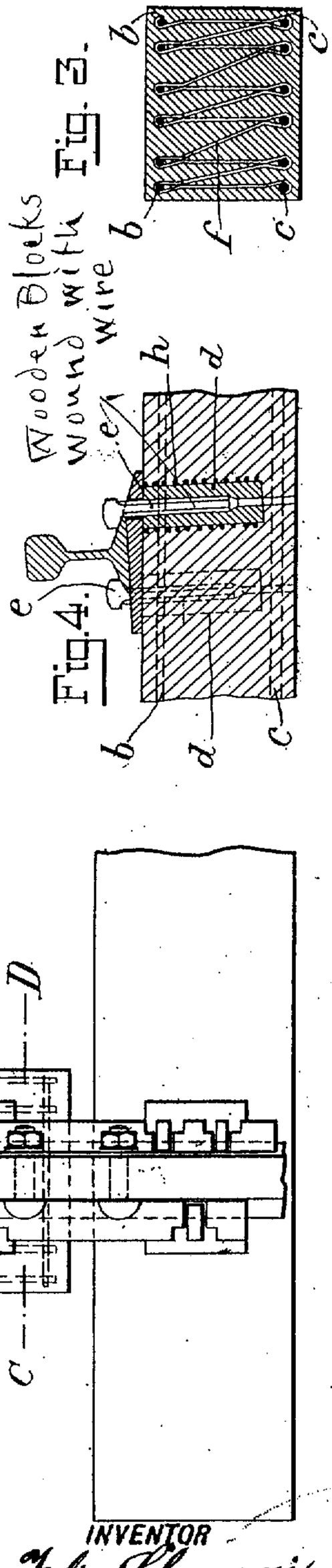

Fig. 4.

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Fig. 6.

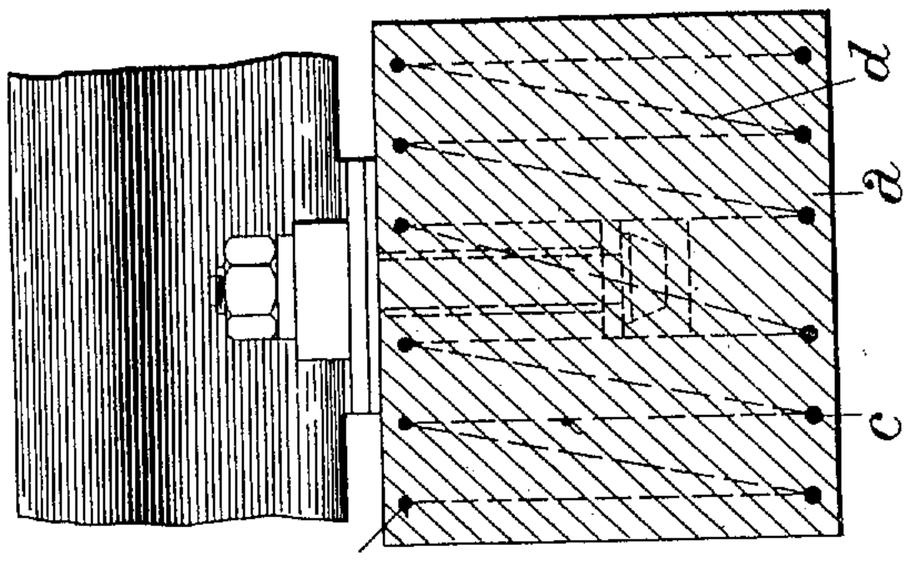

Fig. 7.

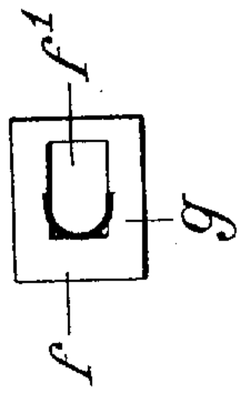

Fig. 5.

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No. 754,197. Patented March 8, 1904.

UNITED STATES PATENT OFFICE.

JULIEN CHAPPUIS, OF BIENNE, SWITZERLAND.

RAIL-SUPPORT.

SPECIFICATION forming part of Letters Patent No. 754,197, dated March 8, 1904.

Application filed September 3, 1903. Serial No. 171,770. (No model.)

To all whom it may concern:

Be it known that I, JULIEN CHAPPUIS, engineer, a citizen of the Republic of Switzerland, residing at Bienne, Switzerland, have invented certain new and useful Improvements in and Relating to Rail-Supports, of which the following is a specification.

The invention relates to improvements in rail-supports, and more particularly to the sleepers or cross-beams bearing the rails.

The invention consists in making the said supports or cross-beams of a suitable structure of armored concrete and of providing the same with suitable devices for connecting and fastening the rails to the said sleepers or supports of armored concrete.

The general structure of the device may vary according to circumstances; but it will as a rule be formed of a solid block of concrete in which suitable iron or steel wires or bars are embedded, so as to distribute the pressure which is transmitted to the device by the rails when a train is passing over the same as far as possible to the whole of the said support and by it to the ground. For this purpose there will be preferably buried or embedded in the block of concrete several longitudinal iron or steel wires or bars intended to act by tension against transverse breaking strains, and several wires or bars are also placed in a transverse and diagonal direction in the block of concrete with a view of transmitting the transverse strains into a longitudinal strain on the concrete mass. The solid block of concrete is provided with suitable depressions and projections to form two bases receiving the chairs or rail, and suitable wires may be buried in or adjacent to the portions of the said block where the said depressions or projections are made, so as to suitably consolidate the same. The said solid block of concrete is further provided with suitable holes and cavities into which the screw-bolts and keys may be located which are intended to fasten the rails to the sleeper or support.

It is obvious that the construction of the above-mentioned solid concrete block and the arrangement of the wires or bars and of the depressions, projections, holes, and cavities in the same is capable of modification in various ways to suit particular requirements and forms of sleepers or supports.

The accompanying drawings show by way of example several forms of execution of the invention.

Figure 1 is an elevation, partly in section, of a sleeper or cross-bar for fished rails, showing at the left-hand side a treenail connection of the rail and at the right-hand side a screw-bolt connection of the same to the sleeper or cross-bar. Said figure shows at the left-hand side a projection a' cut through at the line C D of Fig. 2. Fig. 2 is a plan view of the sleeper or cross-bar shown in Fig. 1. Fig. 3 is a cross-section of the sleeper or cross-bar on the line A B of Fig. 1. Fig. 4 is a similar section to that on the right-hand side of Fig. 1, showing a treenailed fastening instead of a bolted fastening. Fig. 5 is a front elevation of a modified construction of the sleeper with portions broken off to show the inner construction of same. Fig. 6 is a section on the line A B of Fig. 5. Fig. 7 shows separately in top view the plate f and fitting g of Fig. 5.

The body a of the sleeper or cross-bar is of the same size as the usual wooden ones. It is composed of a solid block of concrete or other material molded to shape while in a plastic condition of rectangular, approximately rectangular, or slightly trapezoidal section, the top and bottom of which are provided with longitudinal wires, metallic rods, or bars b and c connected to each other from place to place by means of wire or strip f folded zigzag, as shown in Fig. 3, and passing over and under said wires or bars b and c in the manner shown in said figure. The same armoring is applied to the projection a' of the sleeper or cross-bar of the fished rails as shown at the left-hand side of Figs. 1 and 2. The projection a^2 shown at the right-hand side of said figure is intended to support the rail to the joint when the railway-track is to be constructed with floating joints, while the projection a' supports the joint itself, as shown in Fig. 2. To allow the rails to be connected to this construction of sleeper or cross-bar by means of the usual treenails employed for wooden girders, the girder is provided at certain places

with suitable holes in which are located suitable wooden blocks *d*, Fig. 4, surrounded with wire *h* intended to prevent the said wooden blocks from splitting, and said wire is allied to the concrete in the same manner as the armor of the body of the sleeper itself. Each wooden block is provided with a hole of the usual diameter, and an octagonal treenail is driven into the same.

If the fastening of the rails is to be made by means of screw-bolts, suitable holes are made through the whole girder, and supporting plates or washers *g*, Fig. 1, are combined with the concrete in order to receive the bolts, and suitable wires may be placed in the concrete around the said holes, so as to prevent any disaggregation of the same.

In the construction shown in Figs. 5 to 7 the sleeper *a* is provided with suitable recesses *a'*, intended to receive the bolts *e*, which are provided with T-shaped heads. Each of the said recesses or cavities *a'* is provided, on the one hand, with a metallic plate or washer *f*, having an outcut *f'*, as shown separately in Fig. 7, and, on the other hand, with a fitting *g*, formed of a curved piece of sheet metal, both being suitably incorporated within the concrete forming the sleeper-body.

The plate or washer *f* is intended to support the T-shaped head of the bolt *e*, and the fitting *g* is intended to prevent the bolt *e* from injuring in any manner the concrete walls of the recess *a'*.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. A rail-support, composed of a material molded to shape while in a plastic condition, having embedded therein two sets of longitudinal metallic rods, one set in proximity to its upper surface and one set in proximity to its lower surface, and each set consisting of a plurality of rods arranged parallel and in proximity to each other, throughout the whole width of the support, and wires in zigzag arrangement passing from the upper rods to the lower rods, successively enveloping one rod after the other, substantially as described.

2. A rail-support, composed of a material molded to shape while in a plastic condition, substantially of rectangular shape and provided with projections extending some distance from the body of the support in line with the rail, an upper and a lower set of longitudinal metallic rods embedded in said support and projections of the same, and wires in zigzag arrangement passing from the upper rods to the lower rods, successively enveloping one rod after the other, substantially as described.

3. A rail-support, composed of a material molded to shape while in a plastic condition, provided with holes, spirally-wound wires embedded in the walls forming the holes, and wooden blocks in said holes, substantially as described.

4. In combination, a rail-support, composed of a material molded to shape while in a plastic condition and provided with holes, rails on said support, plates provided with holes embedded in said support and arranged transversely to the holes of the same, bolts passing through the holes of the plates connecting the rails and the plates, and metallic fittings interposed between the rails and transverse plates and surrounding the bolts, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JULIEN CHAPPUIS.

Witnesses:

TH. MURL,

L. H. MUNIER.