

G. A. OWEN.

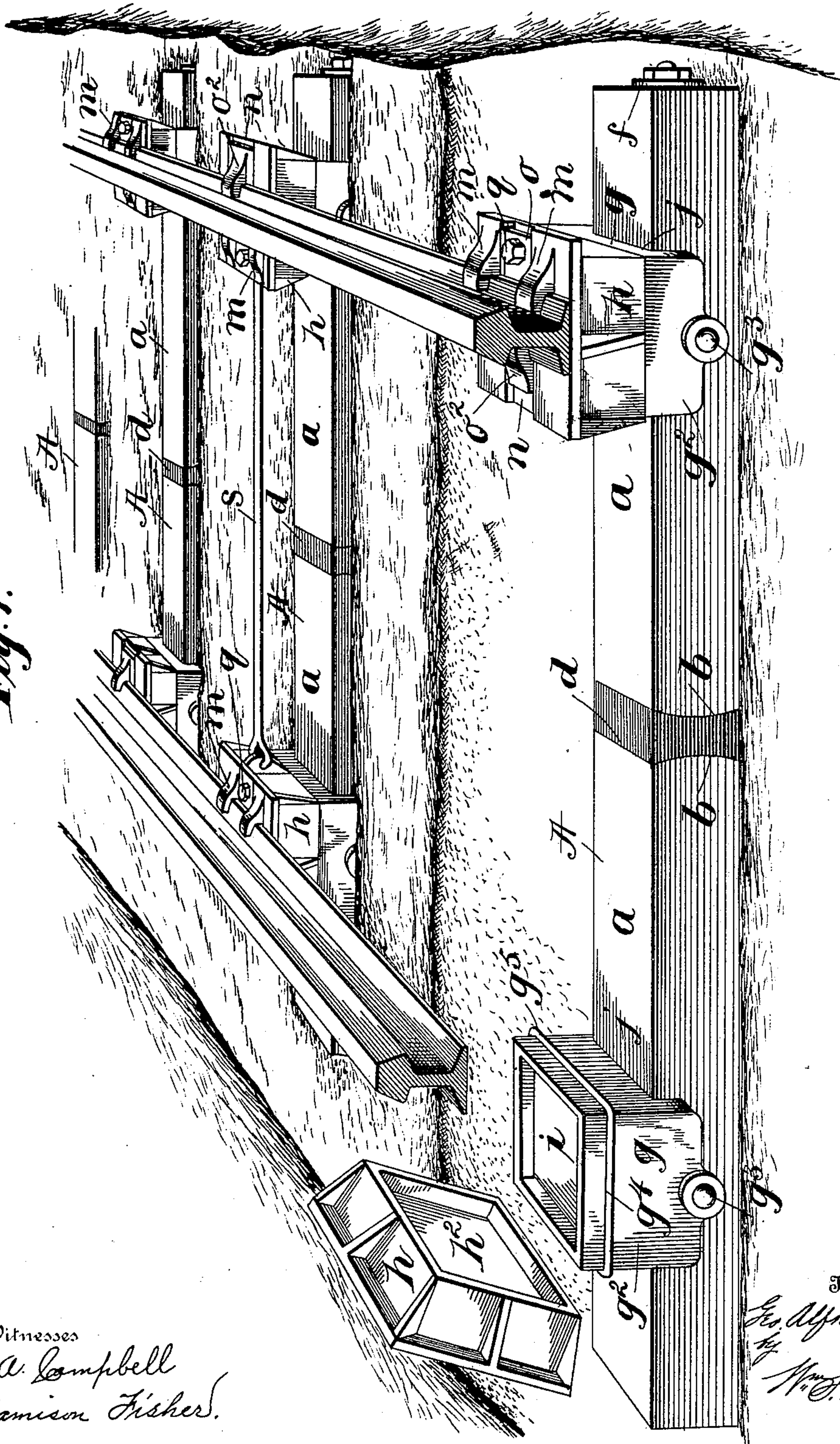
RAILWAY SLEEPER AND RAIL SUPPORT AND CONNECTION.

(Application filed Jan. 28, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses
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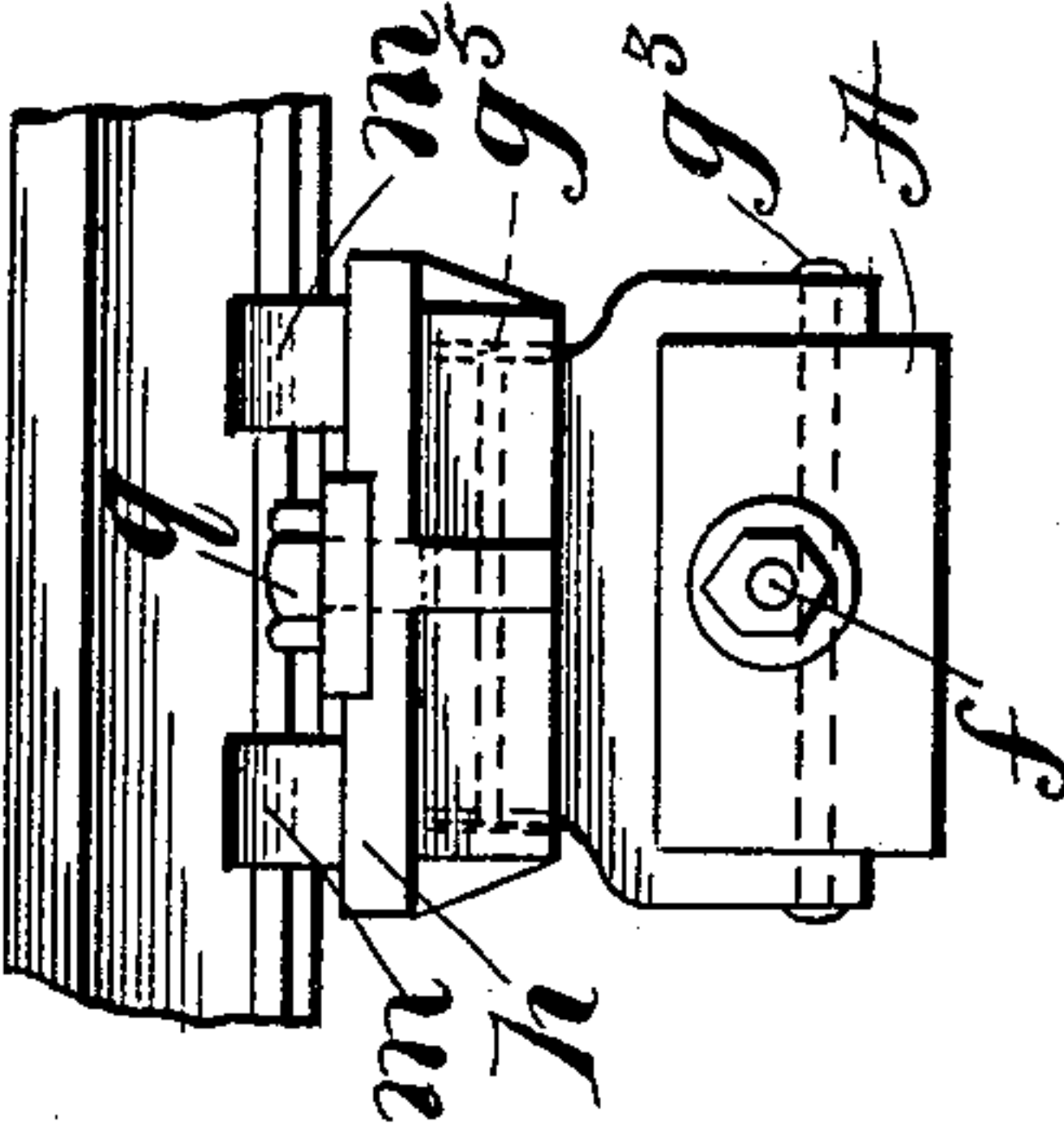
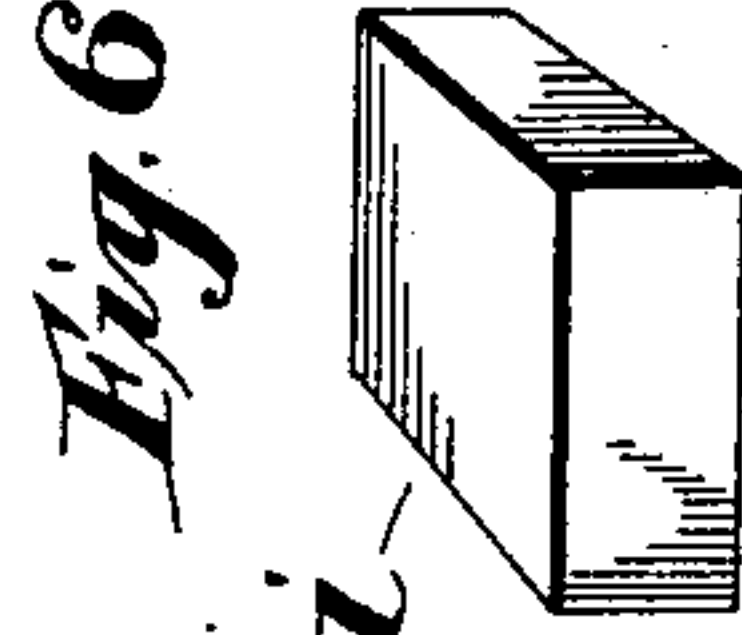
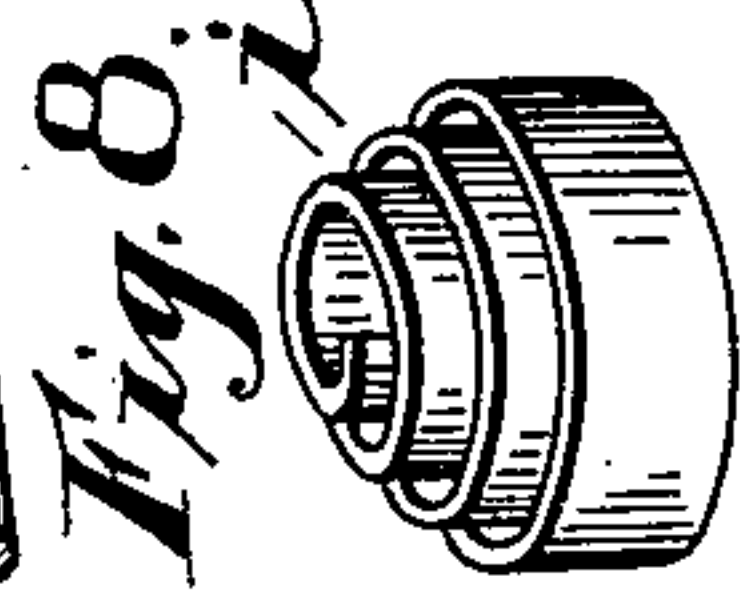
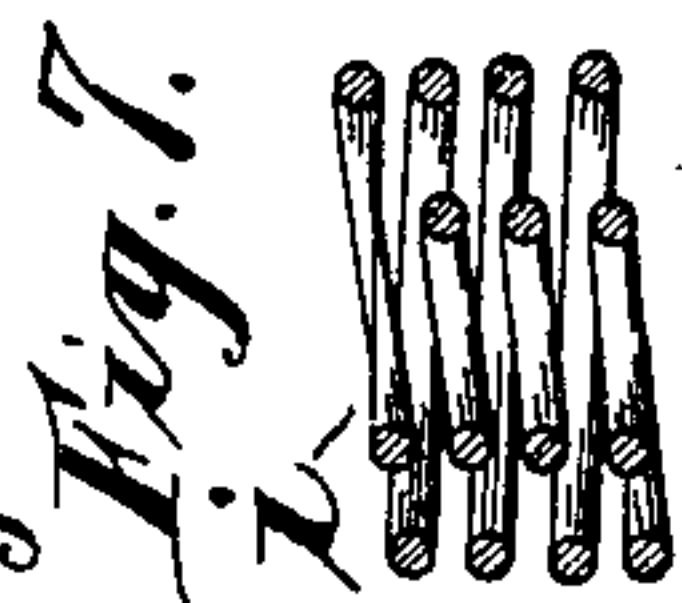
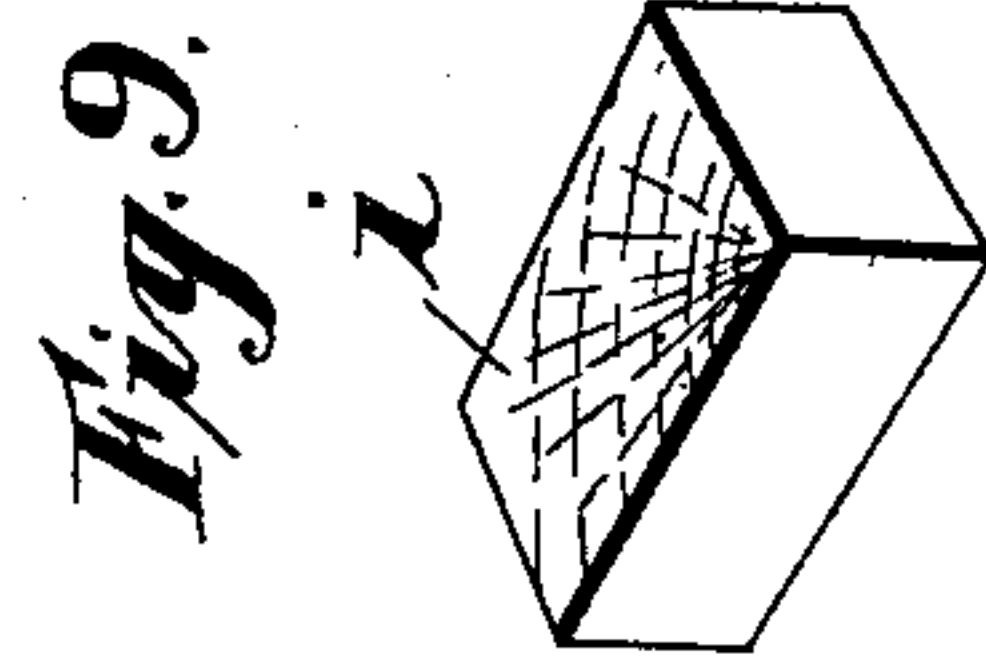
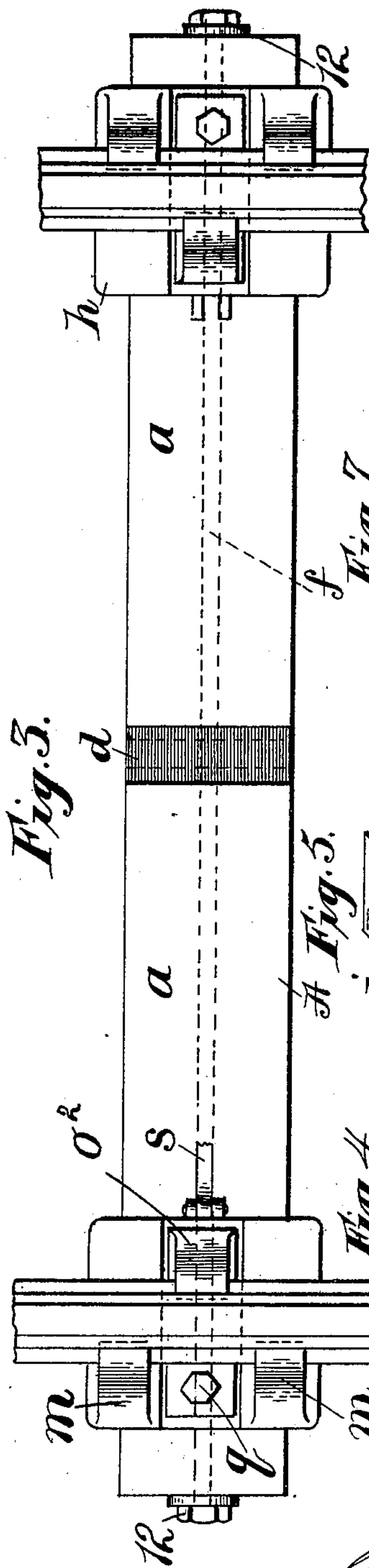
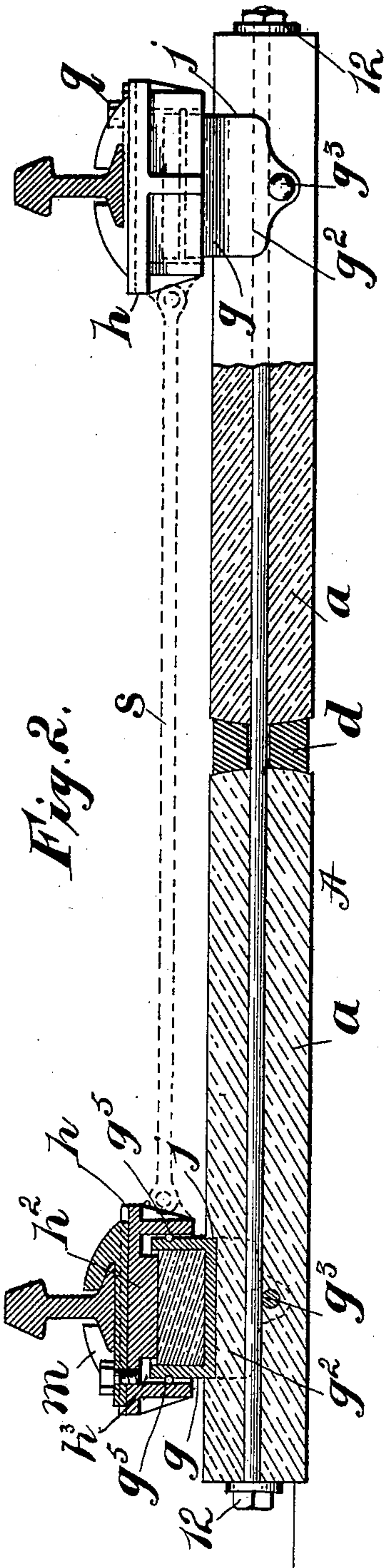
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RAILWAY SLEEPER AND RAIL SUPPORT AND CONNECTION.

(Application filed Jan. 26, 1900.)

(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

GEORGE ALFRED OWEN, OF SPRINGFIELD, MASSACHUSETTS.

RAILWAY-SLEEPER AND RAIL SUPPORT AND CONNECTION.

SPECIFICATION forming part of Letters Patent No. 680,272, dated August 13, 1901.

Application filed January 26, 1900. Serial No. 2,927. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ALFRED OWEN, a citizen of the United States of America, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Railway-Sleepers and Rail Supports and Connections, of which the following is a full, clear, and exact description.

10 This invention relates to improvements in sleepers or ties for railways and to means whereby the rails are secured to the ties.

The objects of the invention are to produce a tie of improved construction, whereby the same may be constructed in large part of hardened plastic material—such as burnt clay, terra-cotta, hardened fiber, or the like—to construct a tie whereby it is saved from destructive effect by the concussions coming thereupon by the wheels of heavy trains thereon, and which will serve to minimize the reverberations consequent upon the passing of the train thereover, one which will not be deteriorated by the action of time, weather, or destructive insects, and one which is of such simple and inexpensive construction that it will be available and acceptable.

Another object of the invention is to devise an improved and simplified connection whereby the rail is confined upon a rail-support.

Further advantageous results are acquired under the exercise of this invention, as will hereinafter appear.

35 The invention consists in a two-part sleeper having a tie-bar and having an interposed section with curved surfaces, whereby the end sections of the sleeper may have independent deflecting movement.

40 The invention furthermore consists in a sleeper having for the rail-support telescoping cases with interposed cushions which may be of any character or construction and of any suitable material capable of permitting compression within a reasonable degree of the one case-section relative to the other.

45 The invention furthermore consists in the combination, with a sleeper, of casing-sections having means whereby they are united to or confined upon the sleeper and having means whereby the rails are therewith connected.

50 The invention furthermore consists in the

combinations and arrangements of parts and constructions of certain of the parts, all substantially as will hereinafter fully appear and be set forth in the claims.

Reference is to be had to the accompanying drawings, in which exemplifications of my invention are illustrated, and in which—

Figure 1 is a perspective view illustrating a portion of a railway, showing the improved sleepers, rail-supports, and connections and other equipments comprised in this invention. Fig. 2 is substantially a central section crosswise of the car-track rails and through the rail-supports and through the length of the sleeper. Fig. 3 is a plan view of Fig. 2. Fig. 4 is an elevation taken at the end of the sleeper and showing the rail-supports and connecting devices. Figs. 5, 6, 7, 8, and 9 are perspective views of various forms of cushions which may be interposed in the casings therefor and located between the rail and the sleeper, the particular character of these cushions being hereinafter more definitely stated.

Similar characters of reference indicate corresponding parts in all of the views.

In the description following the railway tie or sleeper will be uniformly referred to as a "sleeper," whereby confusion may not arise between this part and ties or tie-rods combined and included in these railway appliances.

In the drawings, A A represent the sleepers, each thereof constructed in two parts *a* of approximately half the length of the sleeper as a whole, these being advantageously made of the same material as that from which bricks are composed, or they may be made of any of the compositions from which imitations or substitutions for stone are composed, or hardened fibrous material, or any substance of a durable character, which may be while in a plastic shape molded into the form shown and rendered or permitted to become hard. Each of the end sections has its inner end rounded or of convex form, as shown at *b*, which rounded ends fit or lie against the concaved opposite sides of an interposed sleeper-section *d*, which may be of any suitable material, but preferably of cast-iron. Each sleeper-section and also the interposed section *d* is penetrated by the tie-rod *f*, pass-

ing from end to end of the sleeper, this tie-rod receiving at its opposite ends the nuts 12. By this means a substantially longitudinally rigid sleeper is produced and yet one which
 5 has capabilities for independent end deflections or elasticity, the curved surfaces of the interposed section d permitting, as one end portion of the sleeper has a more or less deflecting movement, it to be without effect to
 10 distort or warp the other end section.

Each rail-support which is provided, interposed between the rail-base and the sleeper, is composed of telescoping cases or boxes g h , the upper one capable of having a slight
 15 though sufficient degree of movement or play over the other and an inclosed and interposed cushion i , of what, for the purposes of this invention, is an elastic or compressible material, although the elasticity is occasioned
 20 only under comparatively heavy stresses. The lower case in section g is constructed in the form of a rectangular box having a bottom and vertical sides, and provided at its opposite ends with the depending flanges g^2
 25 to overlie the opposite sides of the sleeper, the said depending flanges being provided with the perforations through which the bolts or rivets g^3 are passed, these bolts or rivets crosswise penetrating the sleeper in a line
 30 not coincident with the line of the tie-rods f . The base portion of the box or casing g is set within a depression j , formed within the top of the sleeper, this engagement, in addition to the confinement constituted by the cross
 35 bolt or rivet g^3 , rendering the anchorage of the casing-section g upon the sleeper most stable and immovable. The said casing g is provided with a surrounding groove g^4 , in which is fitted a band of elastic rubber to constitute
 40 a packing between the outer wall of this casing-section and the casing-section h , which overlies and has a telescoping movement relative thereto. The cushion i is fitted within
 45 the lower casing-section, and the upper casing-section, which is also in the form of a rectangular box with a top wall, has the inner portion of said top wall in bearing against the top of the cushion. The upper wall of the
 50 box h is constructed with a depending central portion h^2 , surrounded by a groove or rabbet h^3 , within which the upper edge of the lower box or casing may protrude without bottoming, said depending portion h^2 forming
 55 the bearing portion which receives the support directly against the cushion.

The upper casing h has its top formed at its one side with the pair of integrally-cast hook-lugs m m , between which is the depression n , formed within the top of the said casing and
 60 extending from edge to edge, as shown. The said hook-lugs m m overlie the base-flange at one side of the rail, and for the engagement of the other said base-flange of the rail is provided a hook-ended bar o , which lies in the
 65 aforesaid depression n , sunk below the base of the rail, its hook o^2 having a clamping engagement with the base-flange of the rail.

The bolt q confines this hook-ended bar in place by passing through a perforation in said bar and with a screw engagement into the top
 70 of the casing-section h . In constructing the railway with the rail connections substantially as described, the alternate upper casing-sections h will be so reversed as to bring
 75 the integral double hooks m m first at the outer side of the rail-base for one sleeper and at the inner side of the rail-base for the next sleeper, and so on throughout the railway.

Some or all of the casing-sections h are tied together by the external tie-rods s , which have
 80 eye and lug connections of any suitable form of connections with such casing-sections, such provision being more especially desirable at curved portions of the railway, and they tend
 85 to prevent spreading or displacement of the track-rails under the lateral forces or any forces which may be brought thereagainst by the car-wheels or otherwise.

In the selection of elastic supporting mediums within and between the casing-sections
 90 I do not wish to confine myself or limit my invention to any particular composition or construction of cushion having fitness to the purpose; but I prefer to employ cushions constituted by paper preferably made in blocks
 95 of molded and compressed pulp, as represented in Fig. 6. I may, however, use a block composed of laminations or layers of paper either in sheet form or in several comparatively-thick sections of pulp, and a cushion
 100 so composed is illustrated in Fig. 5. In Fig. 7 a cushion composed of inner and outer spiral springs having the helices reversed is shown as constituting another acceptable
 105 form of cushion. Still another is indicated in Fig. 8, in which a spring is shown as constructed of flat metal coiled into the form of an involute and so twisted that its edge pursues a helical course, this cushion receiving
 110 edgewise the impact of the upper casing-section in its compression over the lower section within which the cushion is contained, and in Fig. 9 the cushion is shown as composed of a block of wood set with its grain substantially in the line of compression.
 115

The equipment of railway construction herein illustrated and described has manifest advantages as fulfilling the objects aimed at as set forth in the initiatory portion of this
 120 specification, and, moreover, it is apparent that by the provision of the packing material g^5 and furthermore because of the tortuous course which moisture would have to pursue from the exterior before it might reach the
 125 interior of the casing-sections the inclosed cushions are protected not only against moisture, but also against the entrance of dirt and other foreign substances which would tend to cause deterioration or imperfect cushioning actions. It is furthermore to be observed
 130 that these sleepers and the rail-supports and connecting devices may be produced more cheaply and maintained longer and at less expense than where wood ties are

provided, and there is nothing comprised in the present construction which destructive insects could attack.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A two-part sleeper having a tie-bar and having an interposed section with curved surfaces whereby the end sections of the sleeper may have independent deflecting movements thereon, substantially as described.

2. A sleeper having rail-supports which consist of telescoping cases with interposed cushions of suitably-elastic material and a packing material between the adjacent walls of the casing-sections for the exclusion of moisture from entrance to the inclosed chamber in which the cushion is contained, substantially as described.

3. A rail-support consisting of upper and lower casing-sections with an interposed cushion, the upper casing-section having its top provided with a depression and at either side thereof near one end the paired hook-lugs $m\ m$, and the bar o located in said depression to be overlaid by the rail-base and having at its other end the hook-lug o^2 and means for confining this hook-bar against displacement, substantially as described.

4. In a railway, the combination with the sleepers having the rail-supports thereon consisting of the upper and lower casing-sections, each case-section having at its top the depression n and the hook-lugs $m\ m$, at one edge of said top, and a bar o located in each of said depressions having the hook-lug o^2 at its end portion to overlaid the base-flange of the rail opposite the portion thereof overlaid by said hook-lugs $m\ m$, and means for confining said bars within said depressions, the paired integral hook-lugs $m\ m$ being alternately arranged outermost, substantially as described and shown.

5. In a rail-support of the character described, the combination with the sleeper of the lower casing-section provided with depending flanges or projections overlying opposite sides of the sleeper, bolts, bars, rods, or rivets passing through said projections and transversely through the sleeper, and an upper casing-section telescoping on the casing-section confined as above, for the support of the rail and an interposed cushion, substantially as described.

6. The combination with a sleeper having end sections $a\ a$ composed of hardened plastic material with rounded ends and the interposed block d having its opposite sides concaved, the tie-rod f longitudinally penetrating the sleeper, of a rail-support consisting of lower upwardly-open case-section g having depending flanges g^2 , the cross-rods passing through said flanges and through the sleeper, and the upper casing-section telescoping over the one g and having in its top the depression n and hook-lugs $m\ m$, the hook-ended bar o located in said depression and engaging the base-flange of the rail, and means for preventing its displacement from within said depression, and a cushion inclosed within the said casing-section, all substantially as shown and described and for the purposes set forth.

7. A railway-sleeper consisting of two end sections of hardened plastic material, as brick, having rounded inner ends and a metallic block interposed between said end sections having opposite concave ends, the tie-bar longitudinally penetrating said end sections and block and means for placing the said end sections and interposed metallic block in compression, substantially as described.

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Witnesses:

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