

2 Sheets—Sheet 1.

No. 376,845.

Patented Jan. 24, 1888.

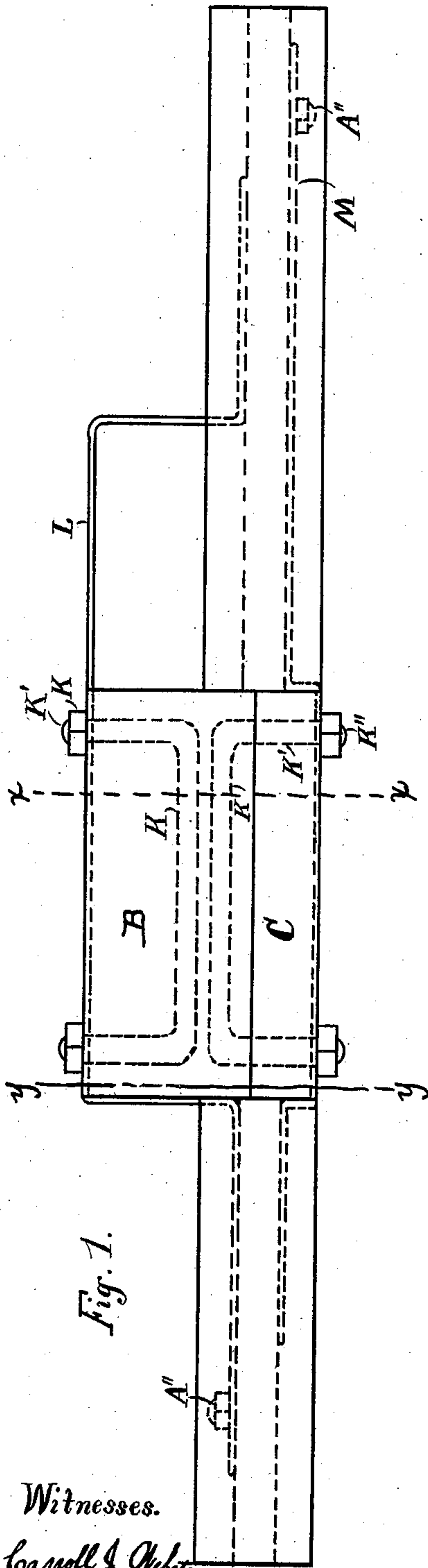


Fig. 1.

Witnesses.

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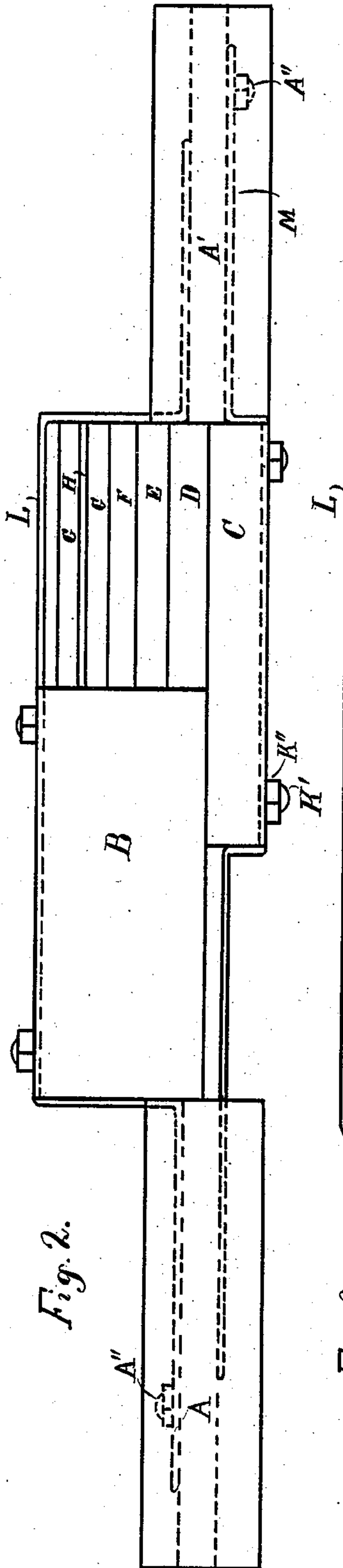
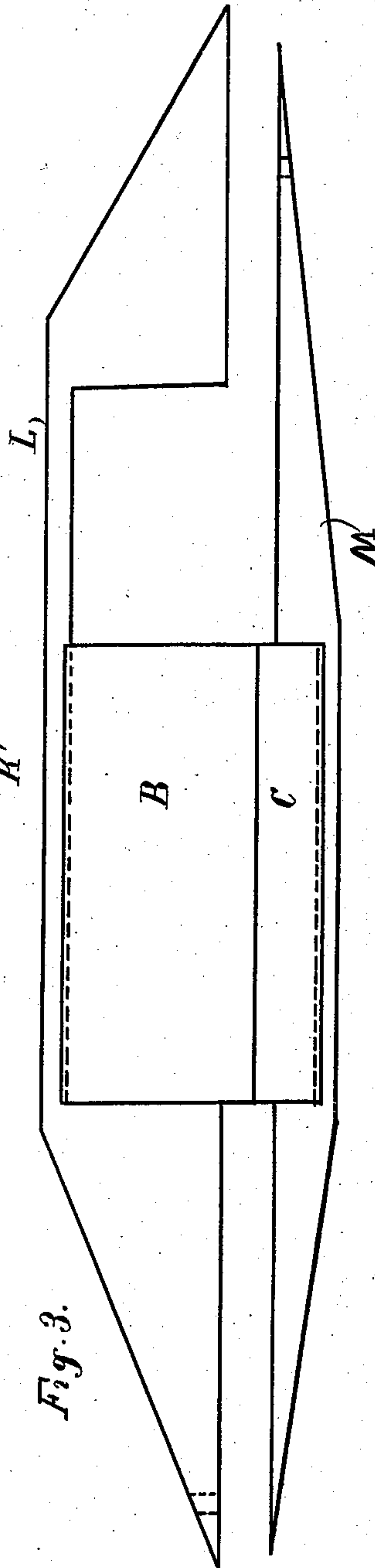


Fig. 2.



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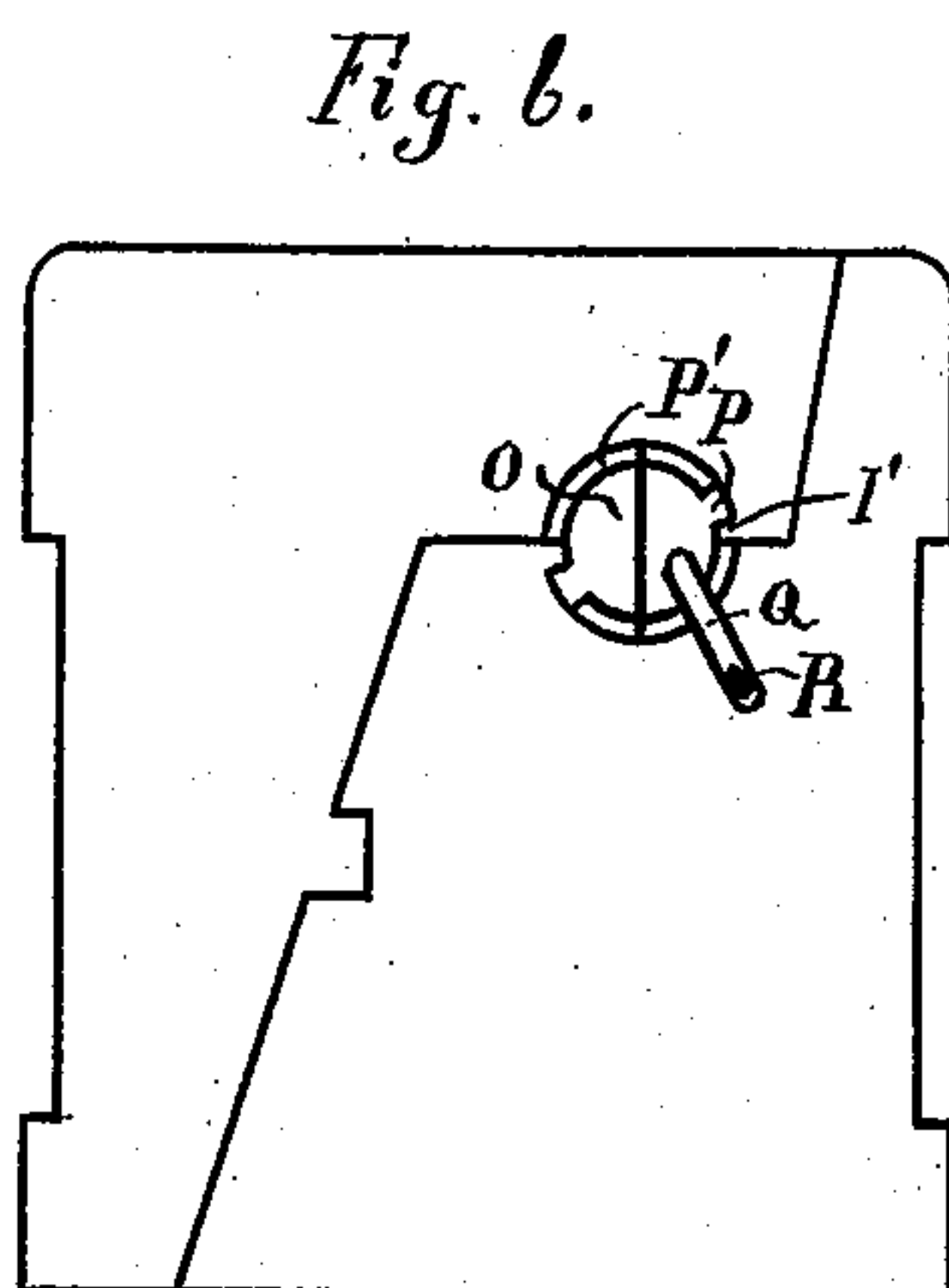
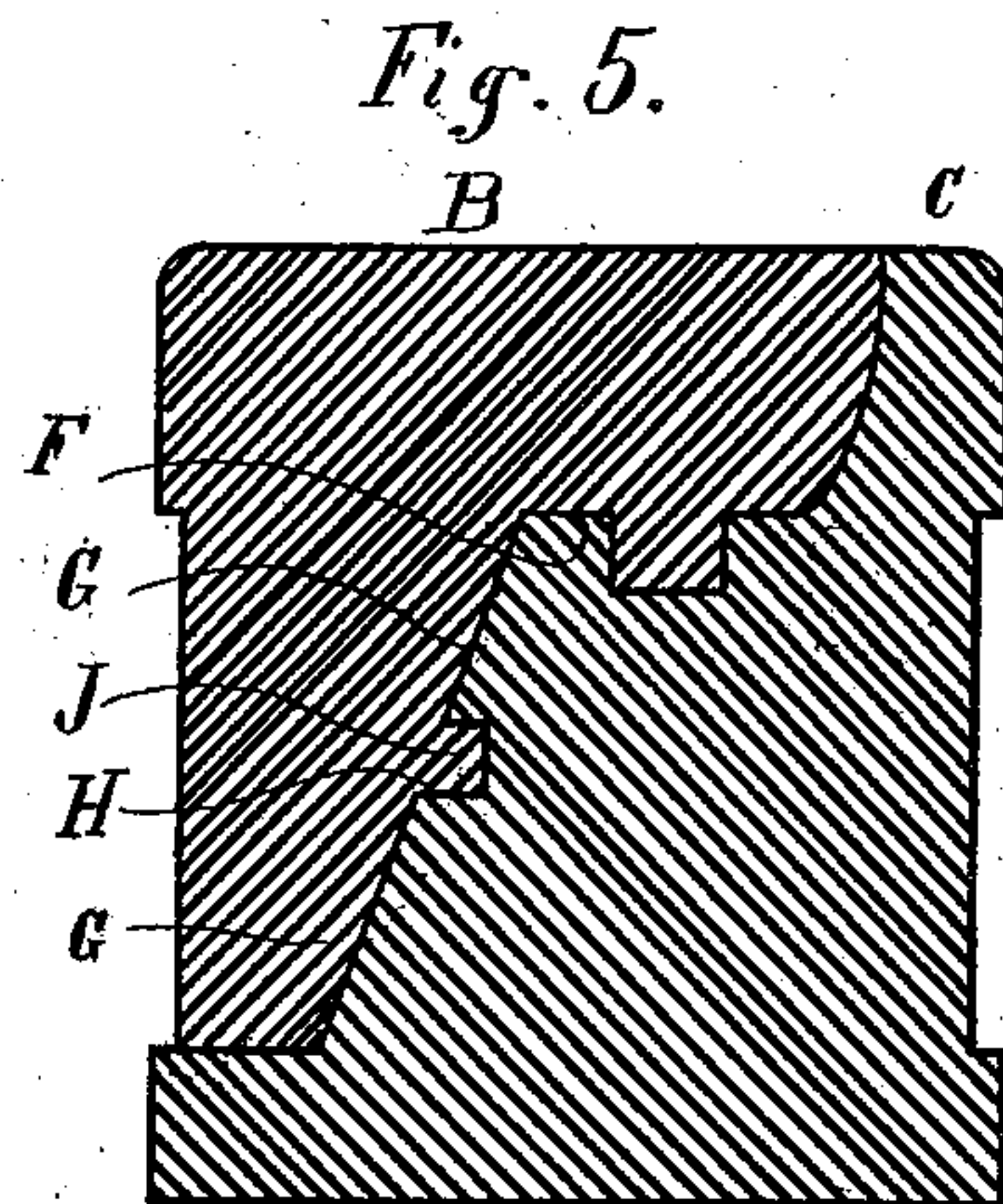
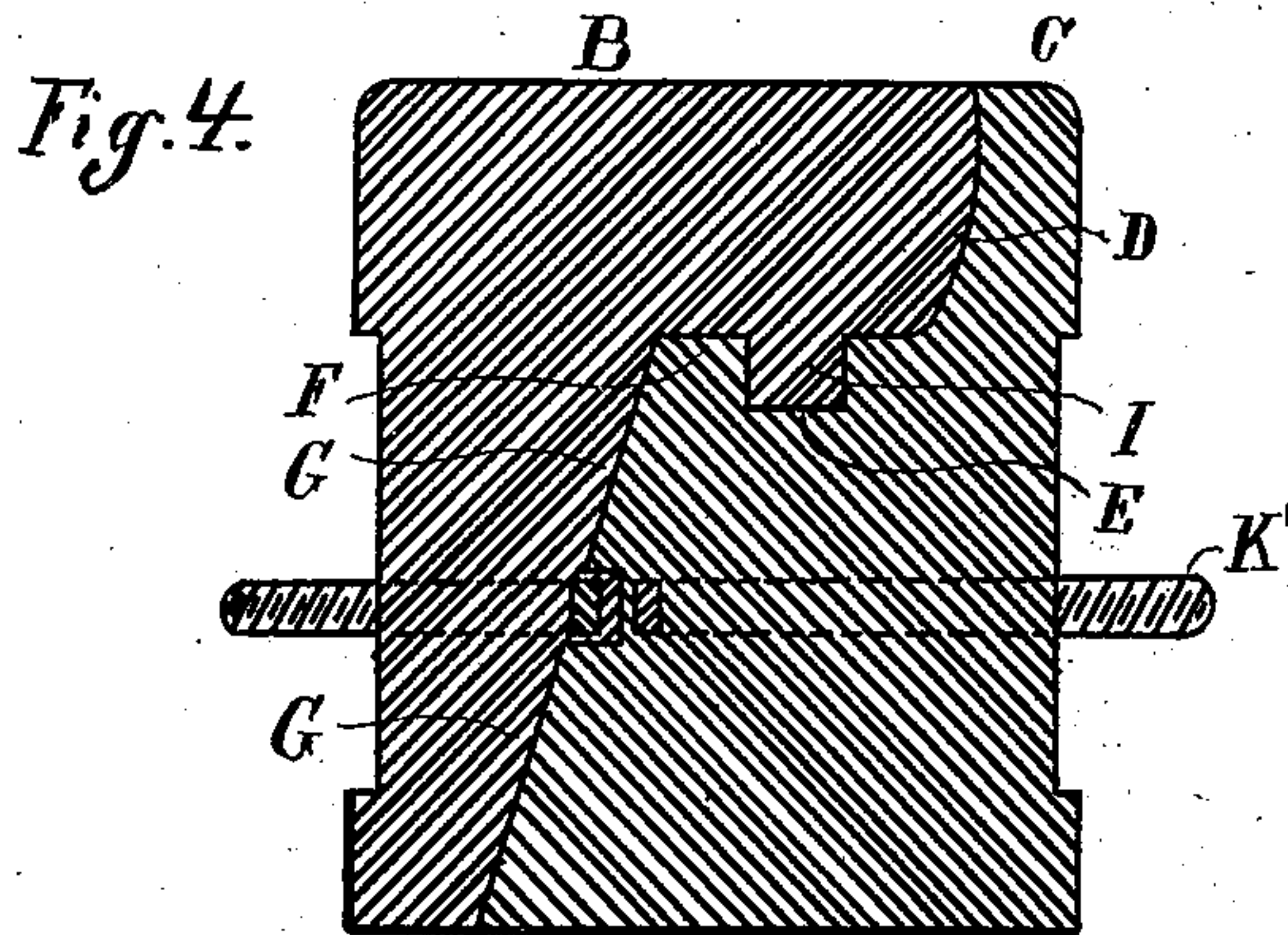
(No Model.)

2 Sheets—Sheet 2.

D. M. ARMITAGE.
EXPANSION JOINT AND RAIL COUPLING.

No. 376,845.

Patented Jan. 24, 1888.



Witnesses.

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UNITED STATES PATENT OFFICE.

DAVID MARKS ARMITAGE, OF DEERFIELD, MICHIGAN, ASSIGNOR OF
ONE-TENTH TO DANIEL F. GRISWOLD, OF SAME PLACE.

EXPANSION-JOINT AND RAIL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 376,845, dated January 24, 1888.

Application filed October 27, 1887. Serial No. 253,557. (No model.)

To all whom it may concern:

Be it known that I, DAVID MARKS ARMITAGE, a citizen of the United States, residing at Deerfield, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in an Expansion-Joint and Rail-Coupling; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to an expansion-joint and rail-coupling, and has for its object to provide for the expansion and contraction of metal when coupled in sections, so that at the point of juncture there shall be a continuity, thereby obviating the usual space between joints.

The invention is illustrated as applied to a railroad-track where it is desired to provide for a continuous track irrespective of the expansion or contraction of the rails caused by the varying temperature of the atmosphere.

It is well understood that in laying railroad-track there must be an allowance made at the point of juncture of each rail for the varying length of the same, caused by contraction and expansion, thereby leaving a space between the ends of the rails equal to the maximum expansion of the same. This open space between the rails causes an impact of the wheels of the train with the ends of the rails that not only causes a disagreeable jar, but tends to granulate and split the ends of the rails, rendering their removal and the substitution of new ones necessary, and at the same time has a damaging effect upon the wheels of the train. This is entirely obviated by the expansion-joint illustrated in the drawings, which are simply diagrammatic of some of the preferred forms in which the joint as well as the couplings for the rails may be constructed, wherein are shown a two-part joint capable of longitudinal movement one upon the other, these parts being so connected with the rails as to permit of this movement in harmony with the rails, by which means there are at all times continuous rails for the tread of the wheels.

In the drawings, Figure 1 is a top view of two rails connected by an expansion-joint with the two sections in a normal position. Fig. 2 is a like view with the rails contracted and the sections of joints moved longitudinally. Fig. 3 is a view of the expansion-joint in a normal position and with a modified form of rail-coupling, the rails being omitted the better to illustrate these parts. Fig. 4 is a cross-sectional elevation of the expansion-joint on lines X X, Fig. 1. Fig. 5 is a like view on lines Y Y, Fig. 1, and also showing a modified form of the sections. Fig. 6 is an end view of still another modification in the construction of the expansion-joint.

Like letters of reference indicate like parts throughout the several views.

A and A' represent the rails, fastened in the usual manner to the ties, with an intermediate space between the ends equal to the length of expansion-joint to be used. The joint is then inserted and connected to the rails in a manner as hereinafter set forth.

The joint is composed of two sections, B and C, the part C being preferably formed with a broad base, as shown in Fig. 4, nearly equal to the width of the two sections; or, as shown in Fig. 5, the base may be the entire width of the sections. These sections are coupled together by means of tongues and grooves at right angles to each other, as shown, the upper portion of the inner side of section C having a cut-away portion, D, a square groove, E, and a raised portion, F, with an inclined side, G, having a groove, H, intermediate its length. The portion B has a broad upper surface and a tongue, I, upon its inner side which fits into groove E, and upon its inclined side a tongue, J, which fits into groove H. By this means when the parts are coupled, with the tongues on the top and side placed within the grooves E and H, the sections are inseparably joined.

K, (shown in dotted lines, Fig. 1, and in section, Fig. 4,) are rectangular staples having screw-threaded ends K', upon which are screwed nuts K". Each section B and C is provided with a staple, the rear portion of which is let into the inner face of the section, with the ends K' bent at right angles thereto and extending out of the outer side a sufficient distance to allow the rail-couplings to be

placed thereon and be held firmly in place by nuts K".

The rail-couplings consist, preferably, of spring plates or bars L and M, the bar L being attached to the rail A by a bolt, A", passing through the rail and bar. The bar lies in parallel relation with the rail from its point of attachment thereto to the end thereof, at which point it is bent at right angles and into a rectangular frame of somewhat greater length than section B of the joint, to which it is attached by means of the threaded ends K' of the staple, which are inserted into perforations in the bar and held in place by nuts K", the opposite end of the bar or spring-plate bearing frictionally against rail A'. The oppositely-arranged spring or bar M is somewhat similar in construction, differing merely in the width of the rectangular frame, and is attached to section C in the same manner as bar L.

The operation will be apparent. When the rails are at their greatest expansion, sections B and C are closed. When, however, the rails contract, the sections move telescopically, as shown on Fig. 2, at which time section B is held against the end of rail A and section C held against rail A', and the tread of the wheel is upon the sections without jar or impact.

It will be apparent that the construction of the section is capable of various modifications.

In Fig. 5 is shown a form in which the base of section C is of full width and section B resting thereon, or the sections may be wedge shape and lie in reverse order. In fact, the construction of the sections can be varied greatly without departing from the spirit of my invention.

In Fig. 6 is shown a modified form of device for locking the sections together, which consists of forming a cylindrical groove, I', which is cut out of each section, and into which is inserted a cylindrical lock, O, bisected centrally, each half having a lug, P, which fits in a cylindrical cut-away portion, P'. One section of the lock has a fastening device, Q, at right angles thereto, and having a thumb-screw, R, which screws into the section C. To lock the parts in this construction, tongue I is inserted into groove H, the lock O is placed within groove I', which is easily accomplished by first

inserting the lower half with the flat side up and then inserting the upper half with the flat side down, after which the block is given a half-turn and the thumb-screw inserted, the lugs P resting against the shoulder formed by the terminus of the cut-away portion P', by which means the sections are locked from lateral movement.

In Fig. 3 is shown a metal strap or spring-plate formed by casting the same into the desired form.

While I have shown my expansion-joint as especially adaptable for use for railroads, it will be seen that it is equally well adapted for use in bridges, and, in fact, wherever sections of expansible metal are to be coupled.

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

1. An expansion-joint for sections of metal, comprising movable sections having interlocking devices engaged one with the other and connected to move in coaction with the expansion or contraction of the metal, as and for the purpose set forth.

2. An expansion-joint for sections of metal, comprising two portions held from lateral movement by tongues and grooves and connected to the metal sections to move telescopically upon each other, as and for the purpose set forth.

3. In combination with oppositely-disposed rail-sections, an expansion-joint consisting of two movable sections, each section having fastening devices to which are connected spring-plates connected to bear frictionally upon the rail-sections and move in harmony with the expansion or contraction of the rails, as and for the purpose set forth.

4. In combination with an interlocking expansion-joint, a rail-coupling consisting of two spring-plates, each secured to but one rail and having a free end bearing frictionally upon the rail to which the opposite spring-plate is connected, as and for the purpose set forth.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

DAVID MARKS ARMITAGE.

Witnesses:

ADAM C. CLARK,
JAMES E. RAYMER.