

(No Model.)

2 Sheets—Sheet 1.

H. C. HODGES.
CAR CONSTRUCTION.

No. 420,200.

Patented Jan. 28, 1890.

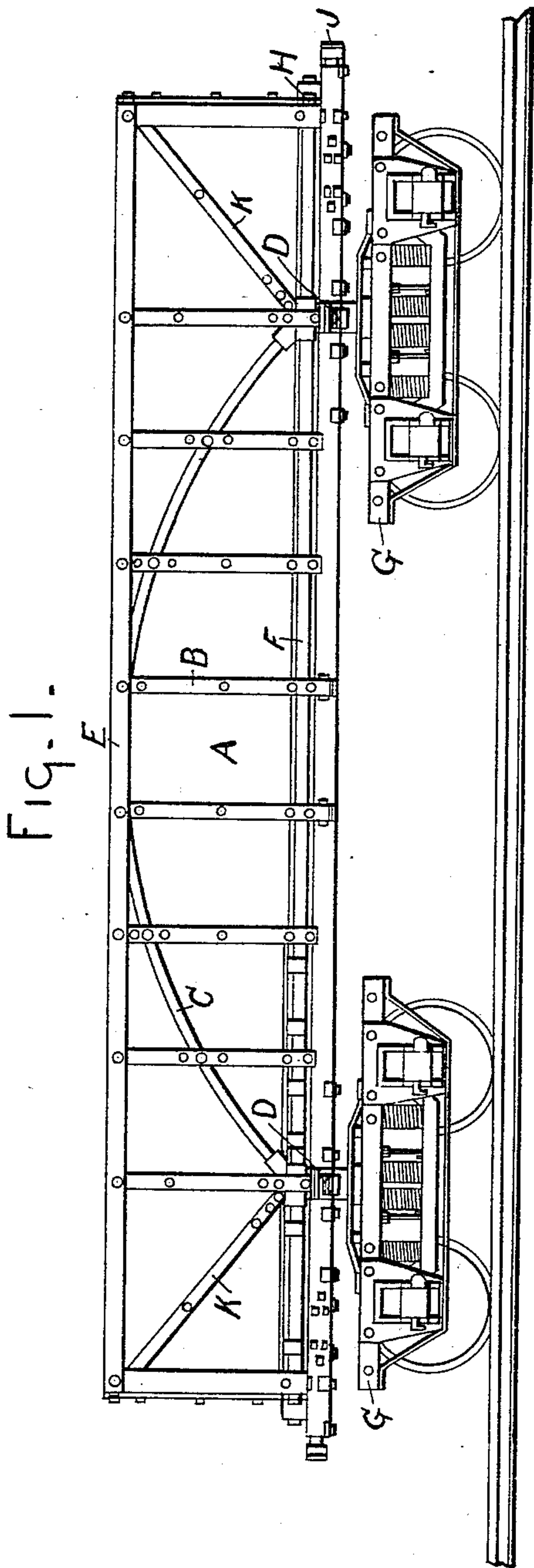
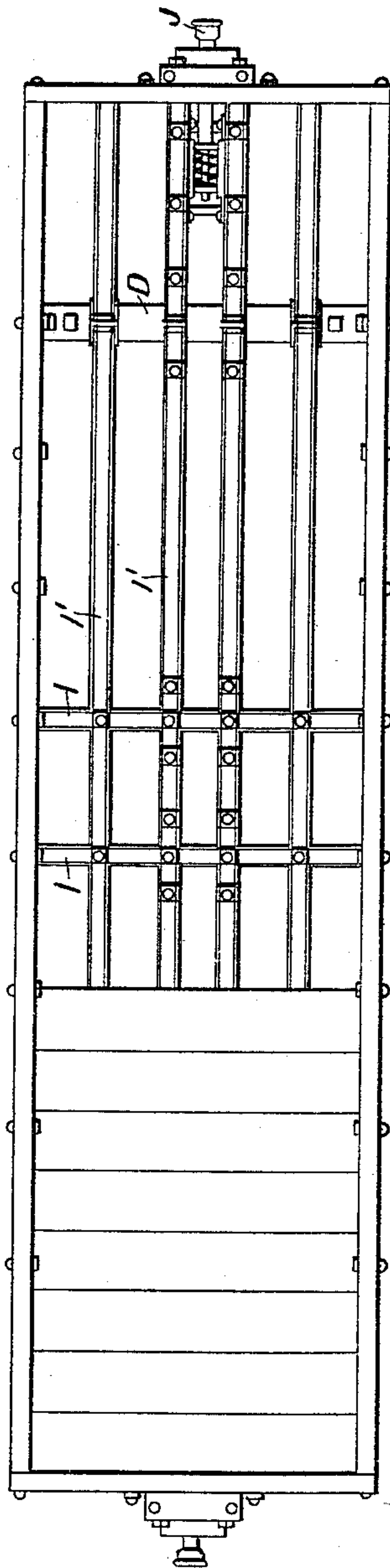


Fig. 2.



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2 Sheets—Sheet 2.

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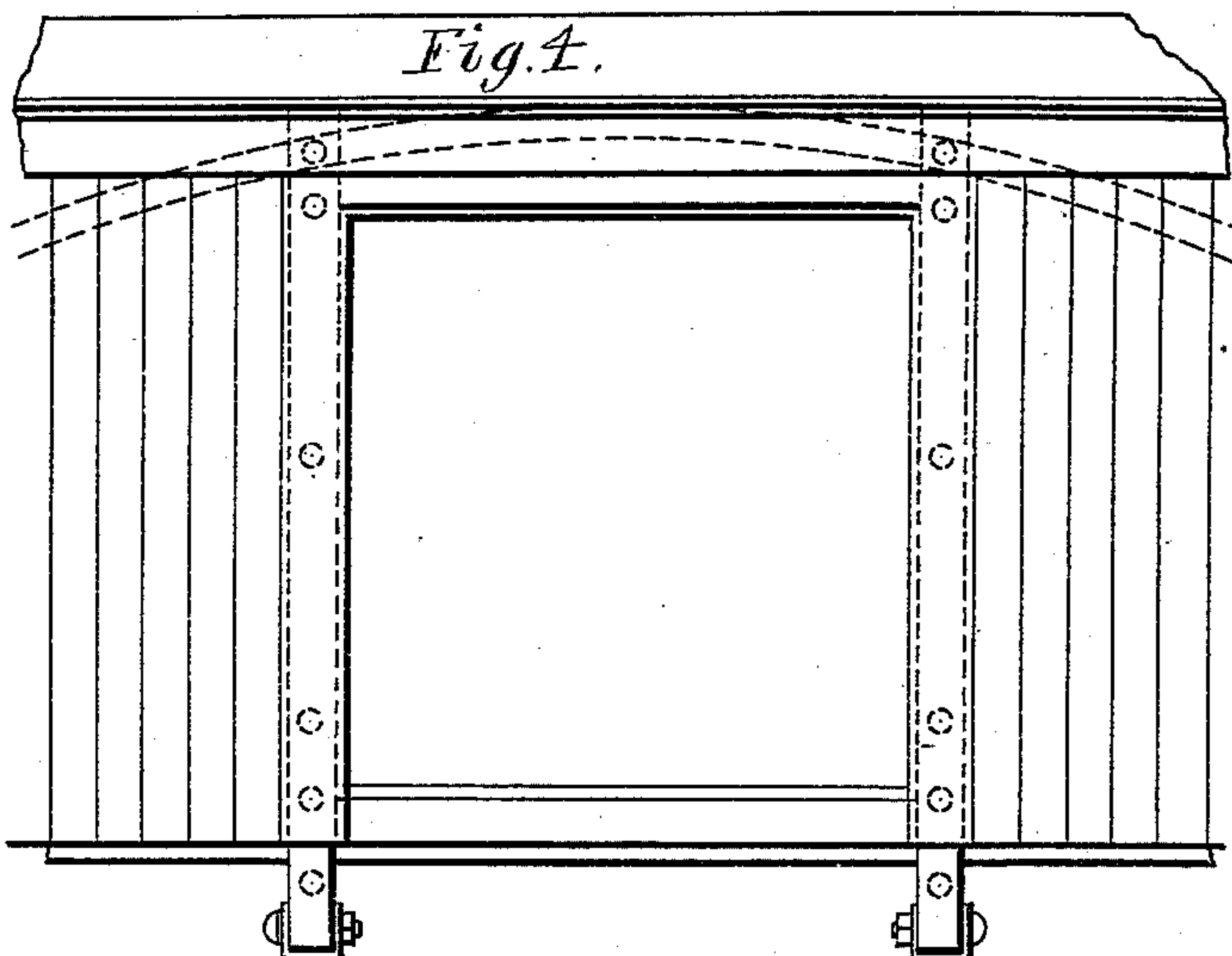
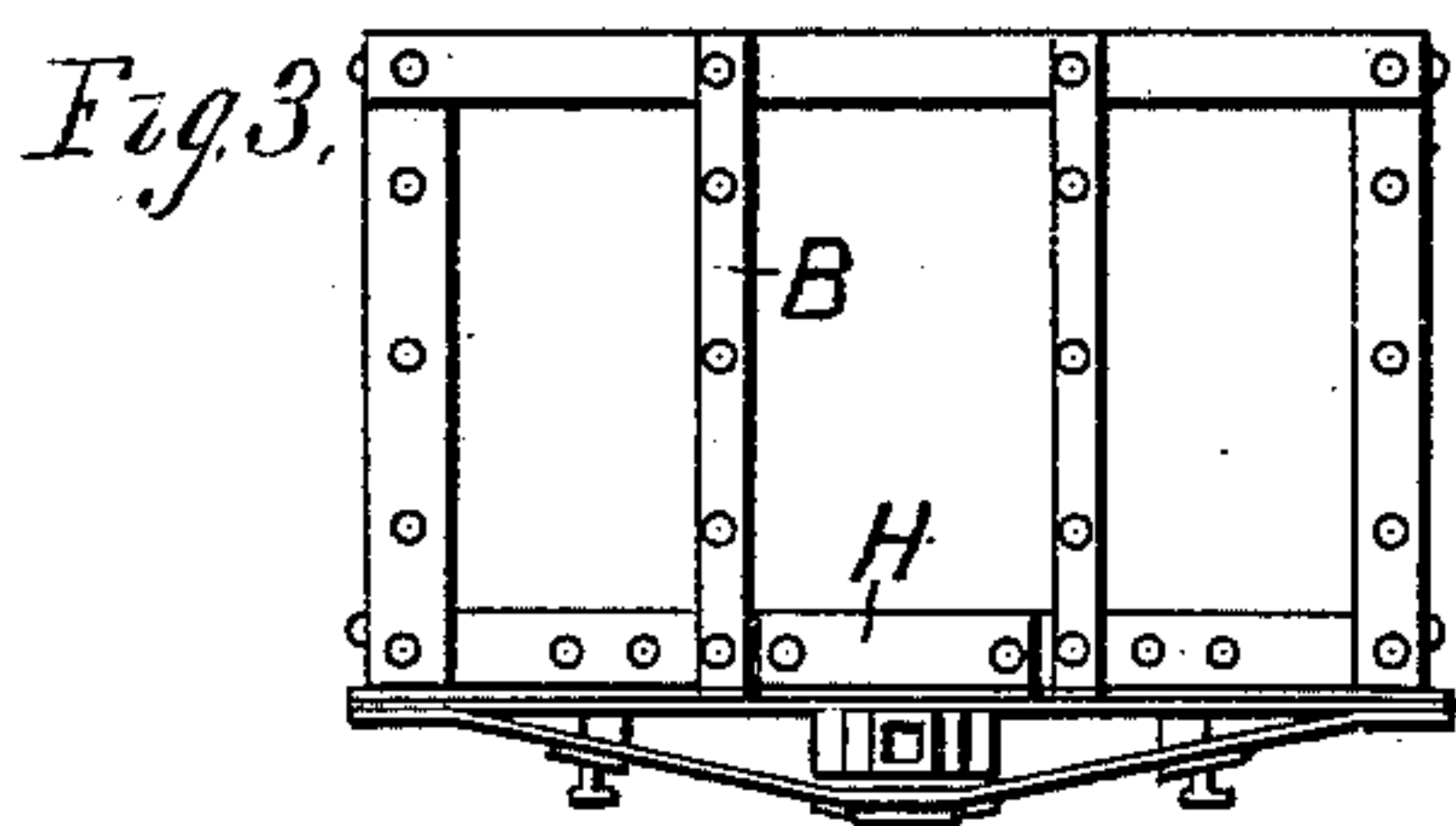


Fig. 5.

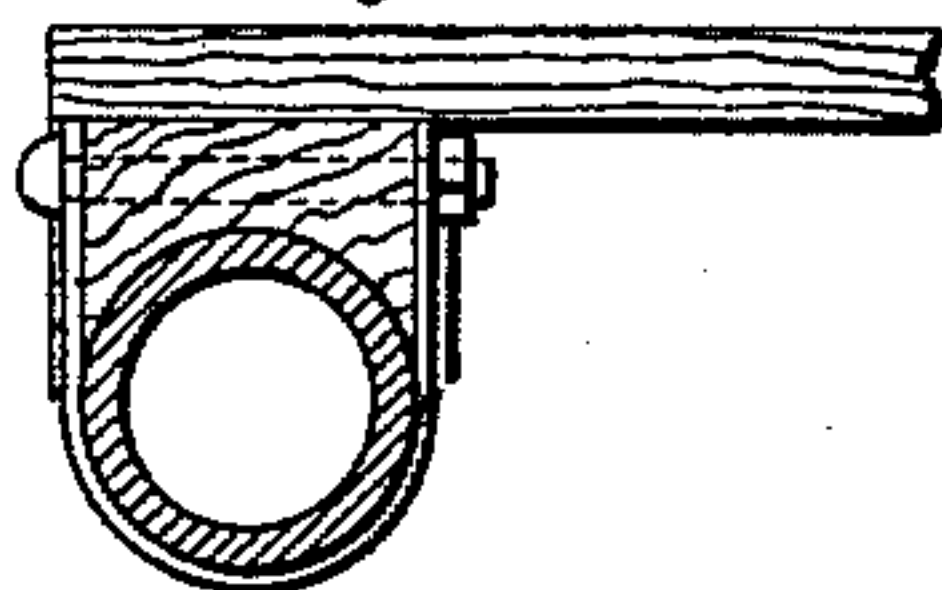


Fig. 6.

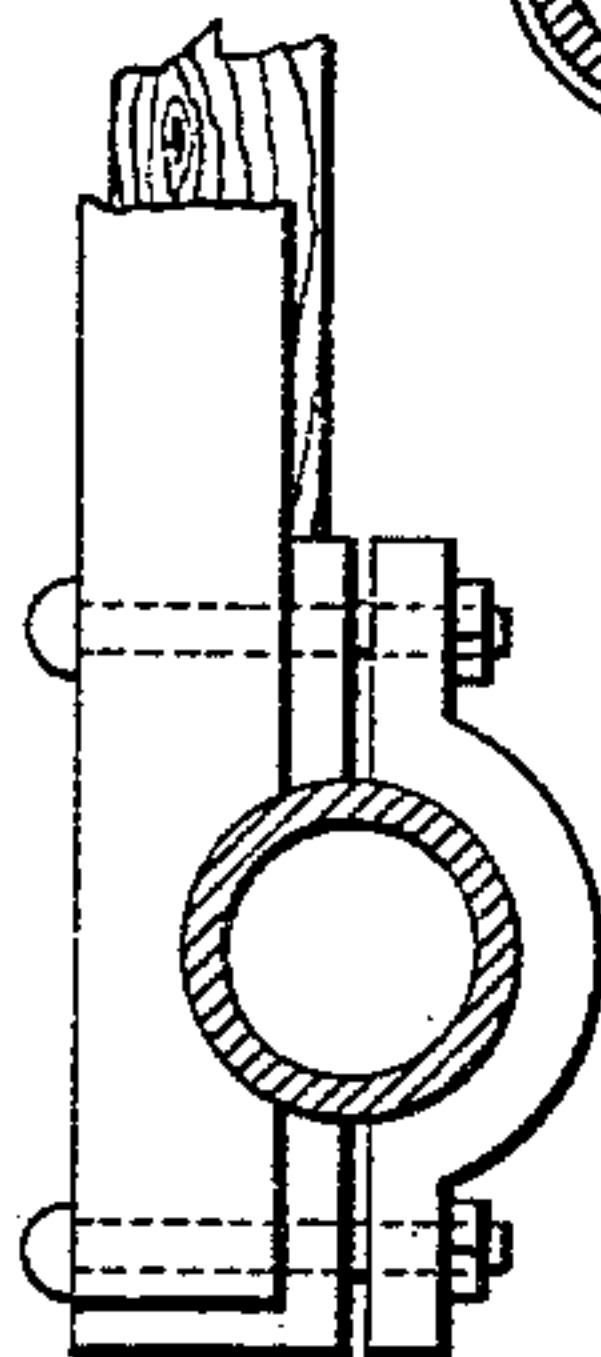


Fig. 7.

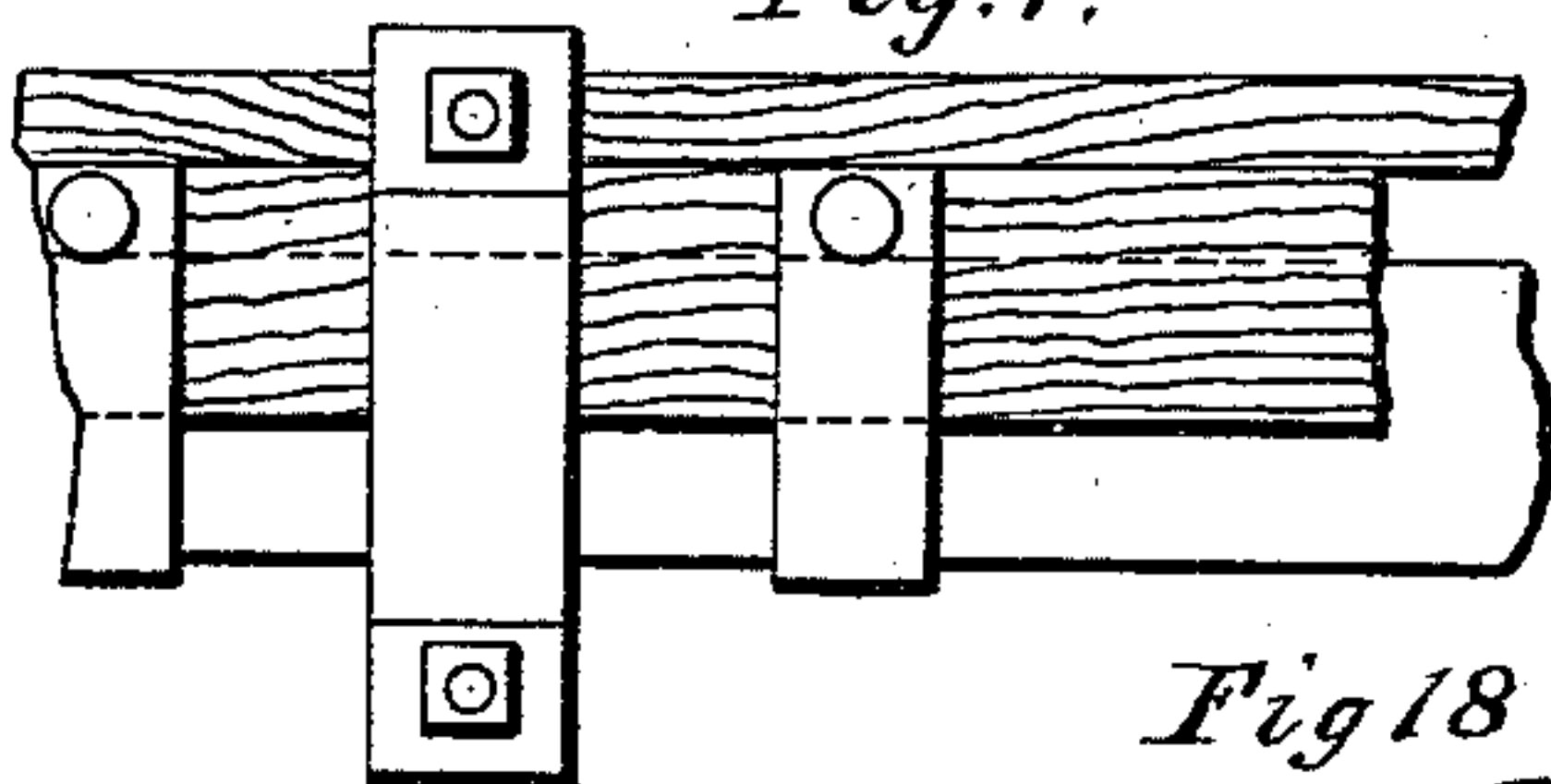


Fig. 8.

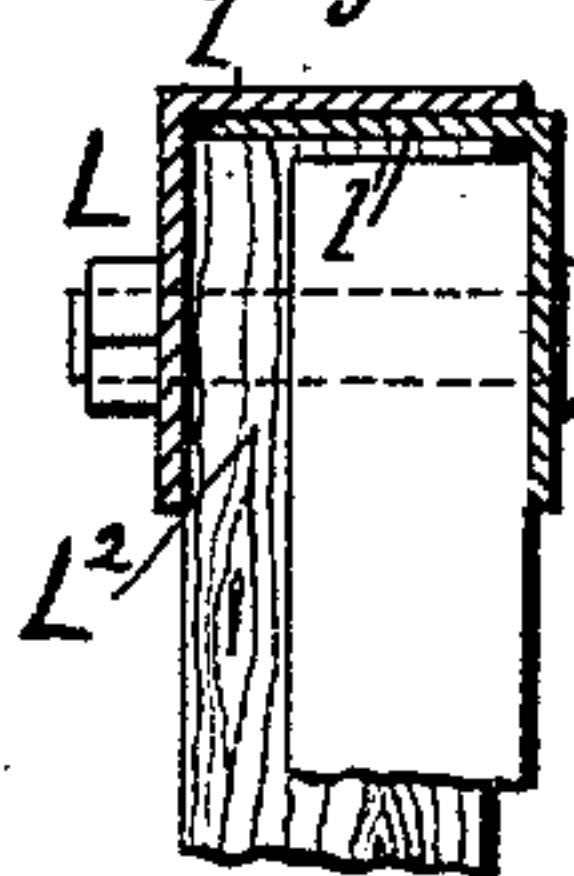


Fig. 9.

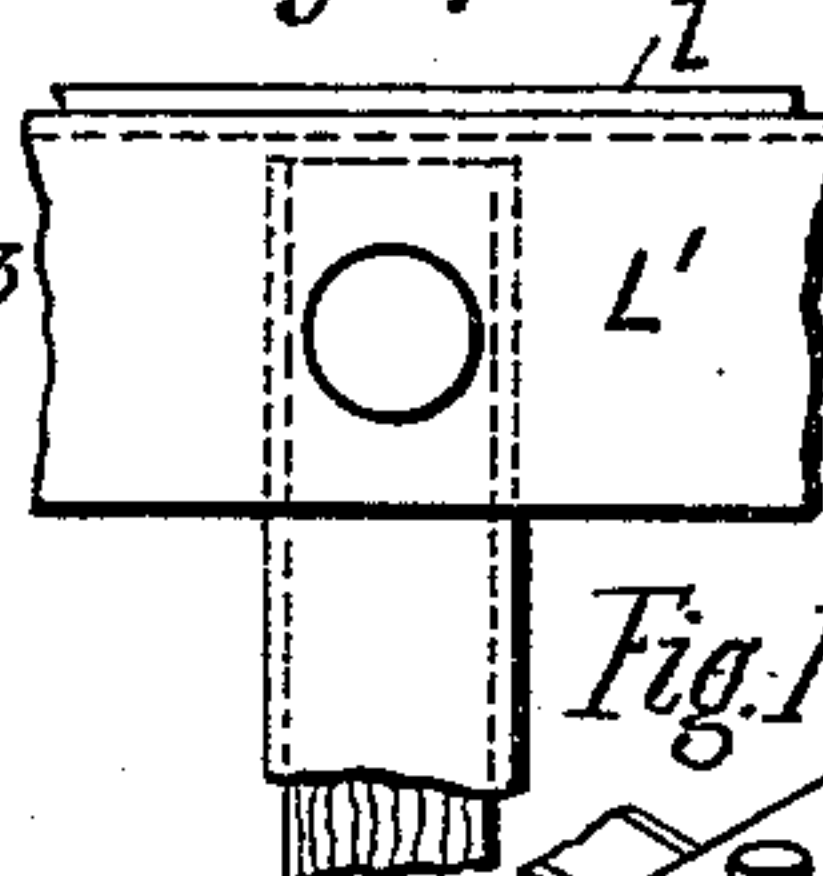


Fig. 10.

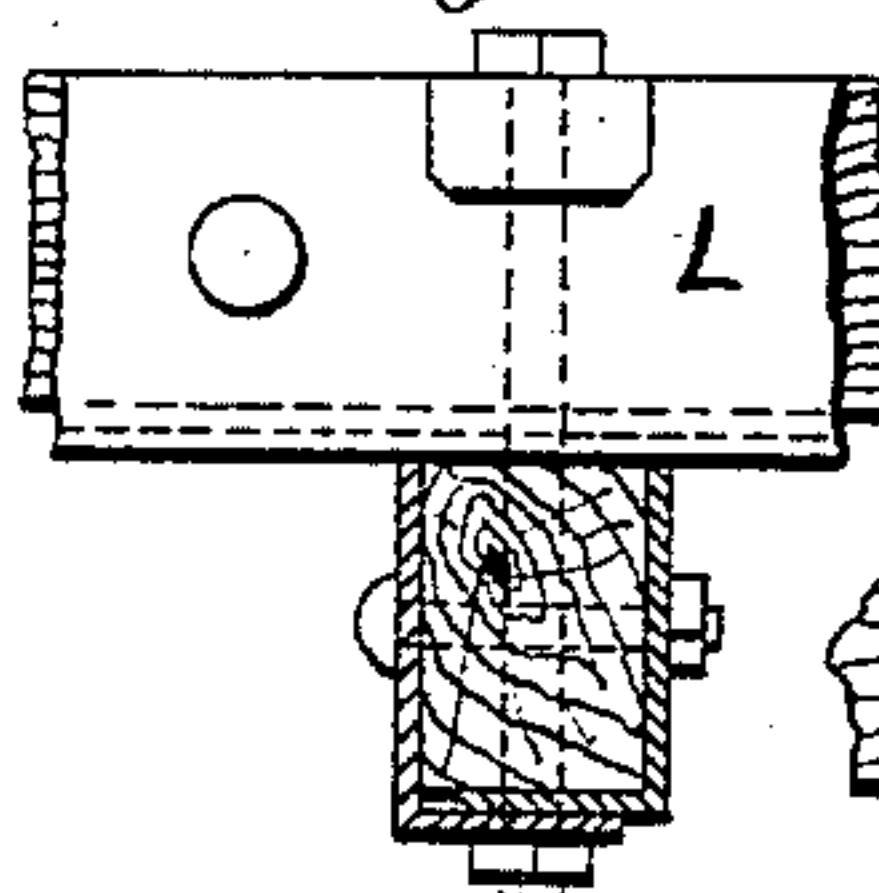


Fig. 11.

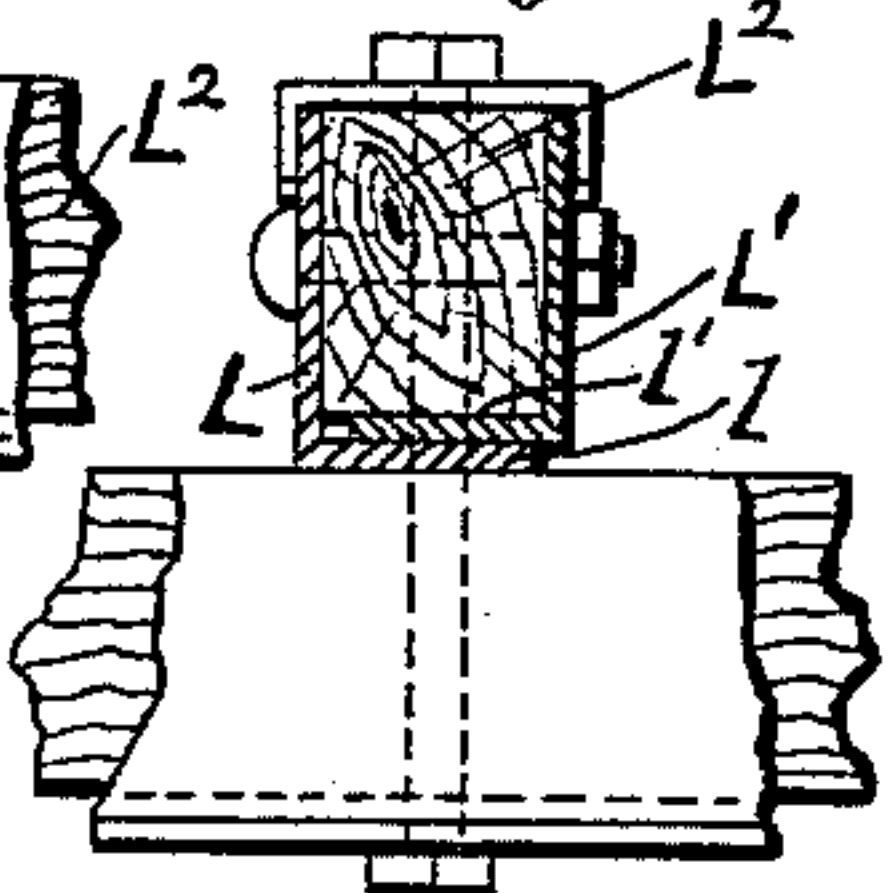


Fig. 12.

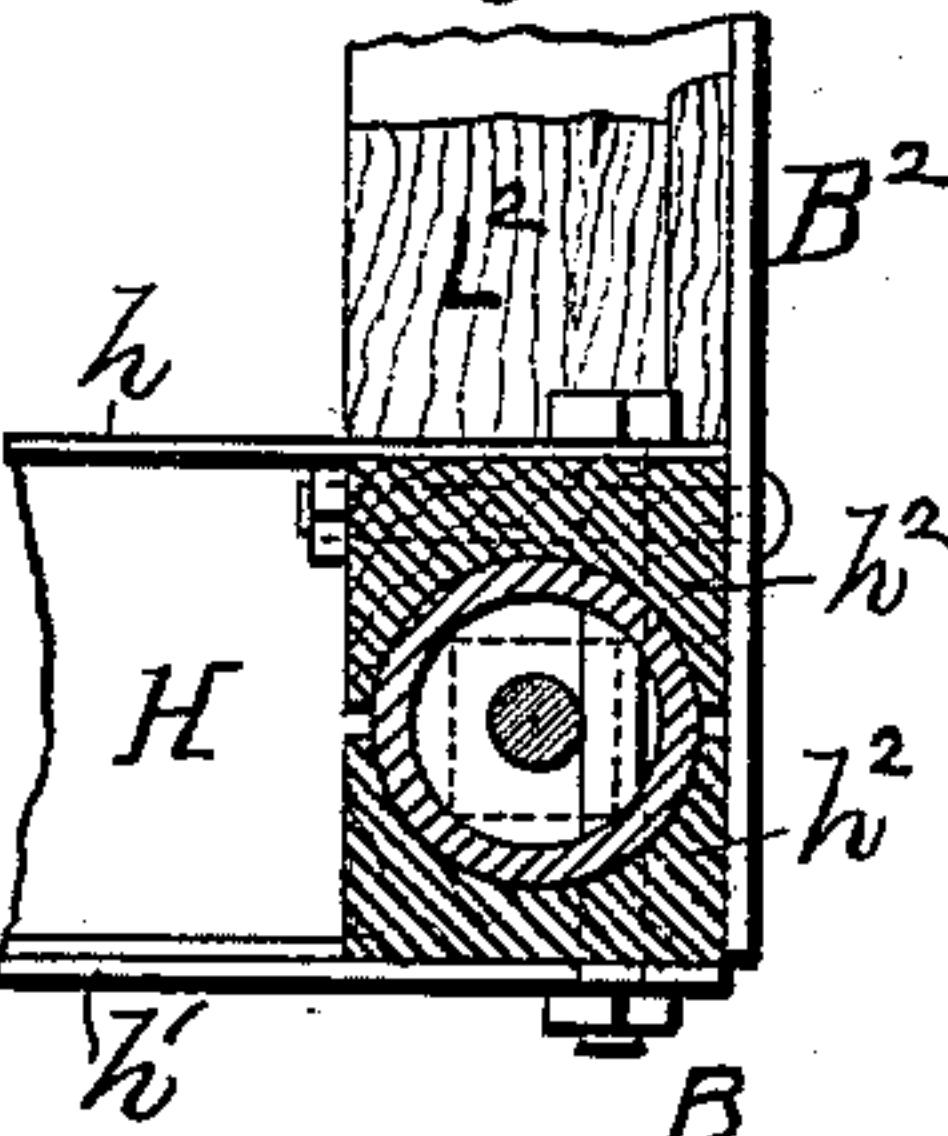


Fig. 13.

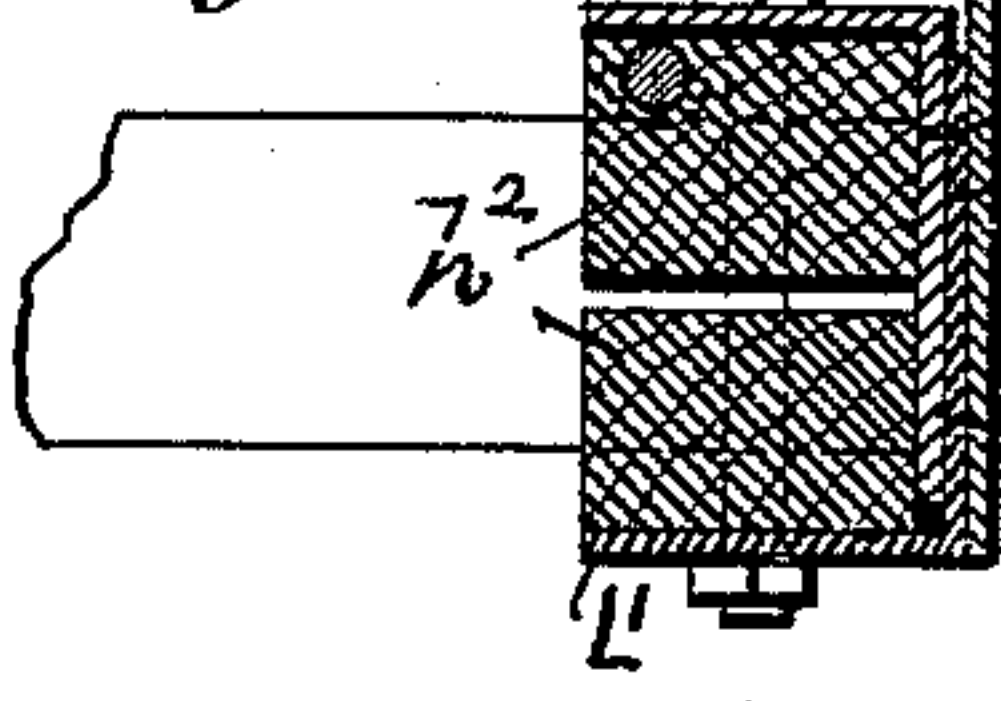


Fig. 14.

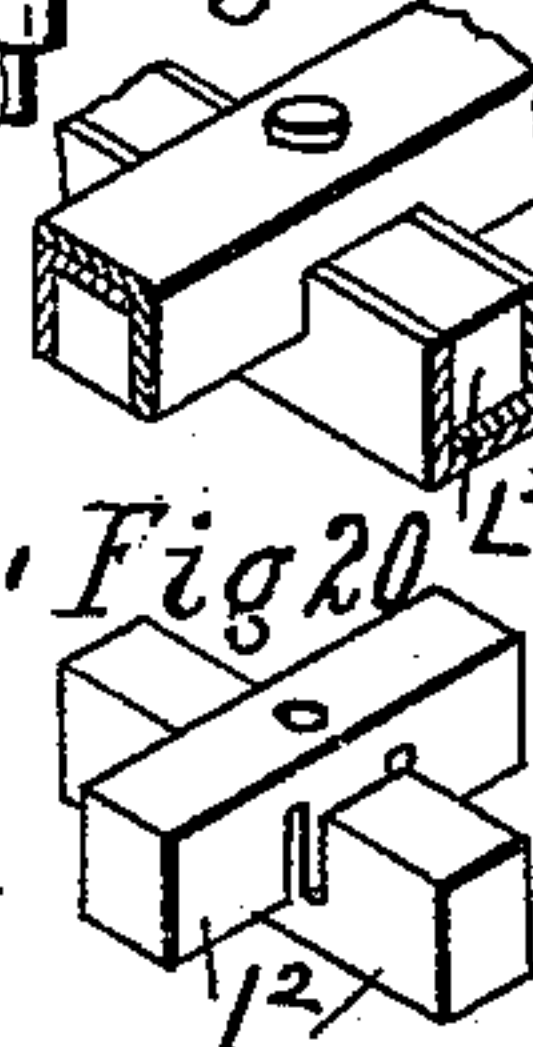


Fig. 15.

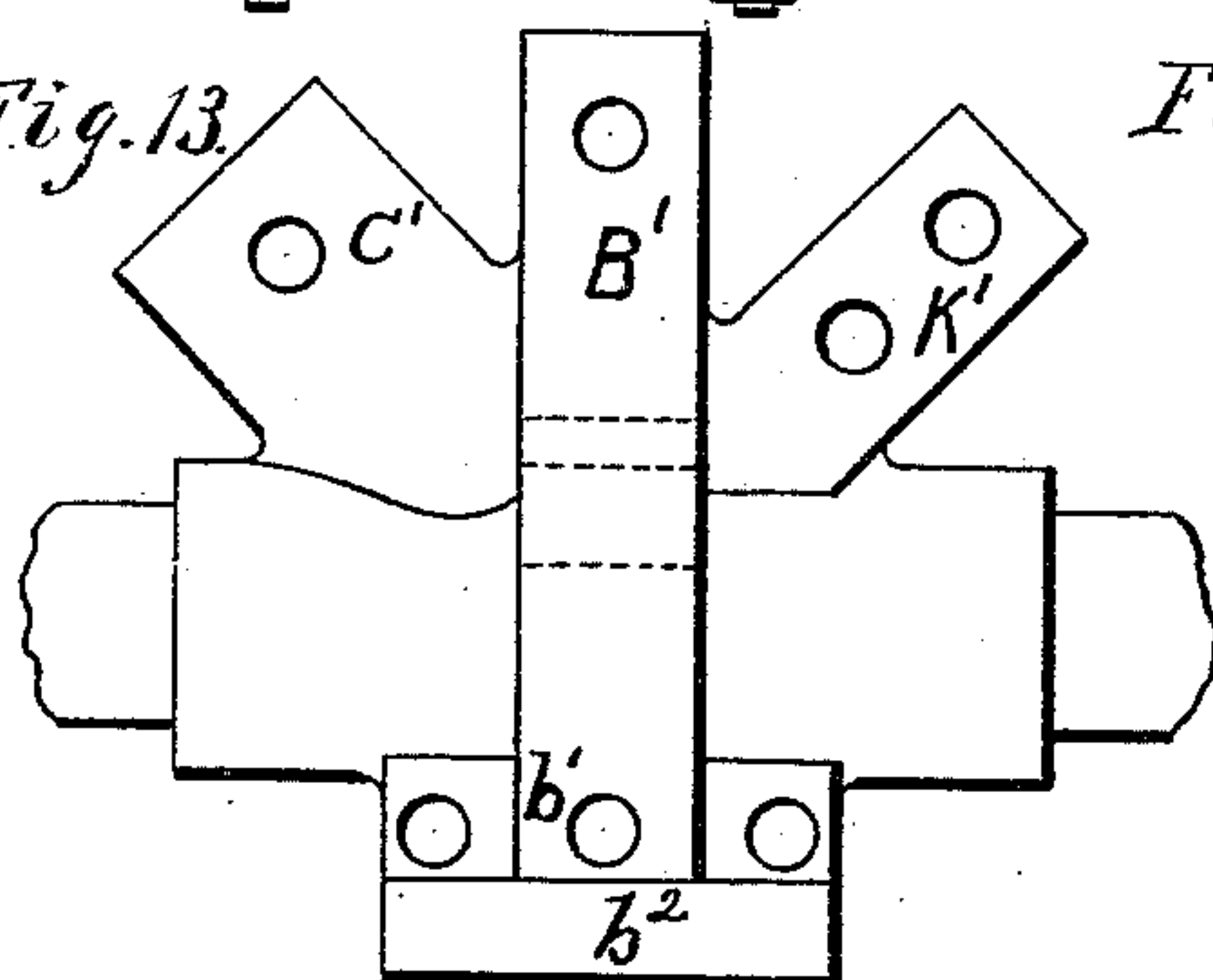


Fig. 16.

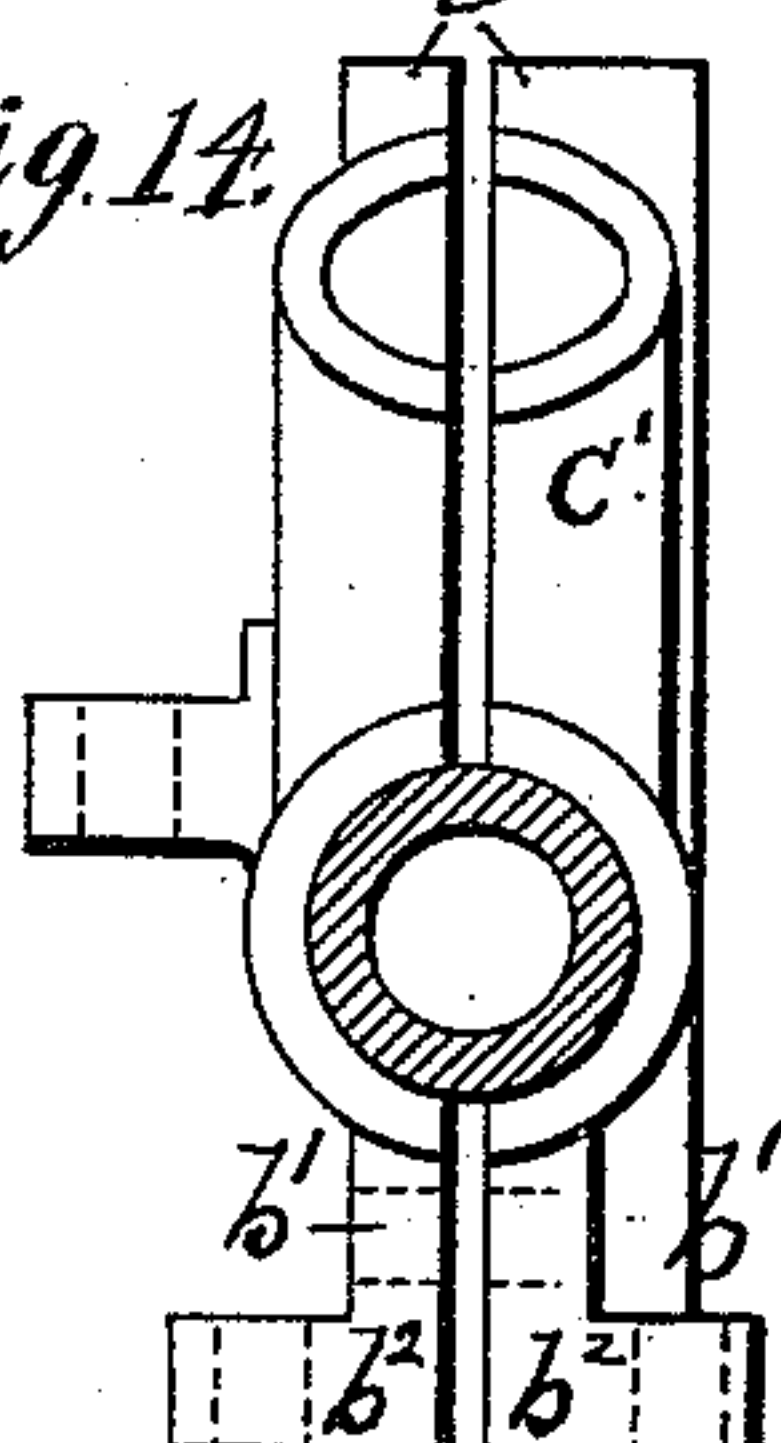


Fig. 17.

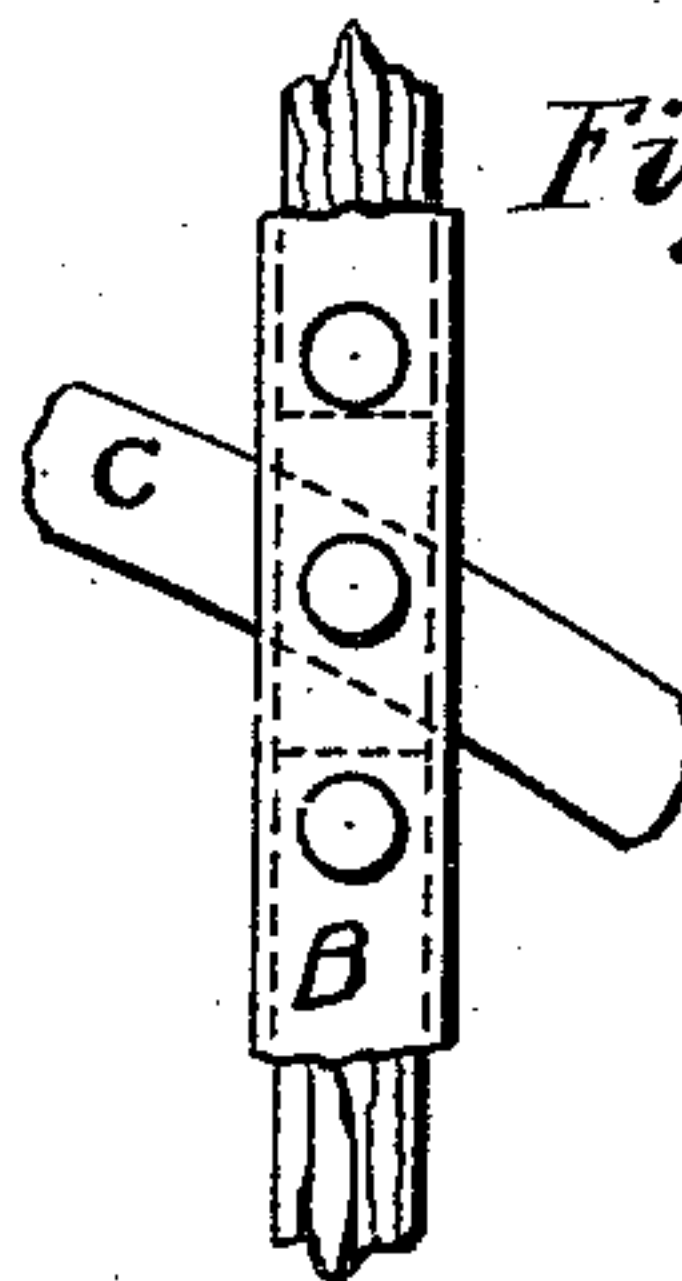


Fig. 18.

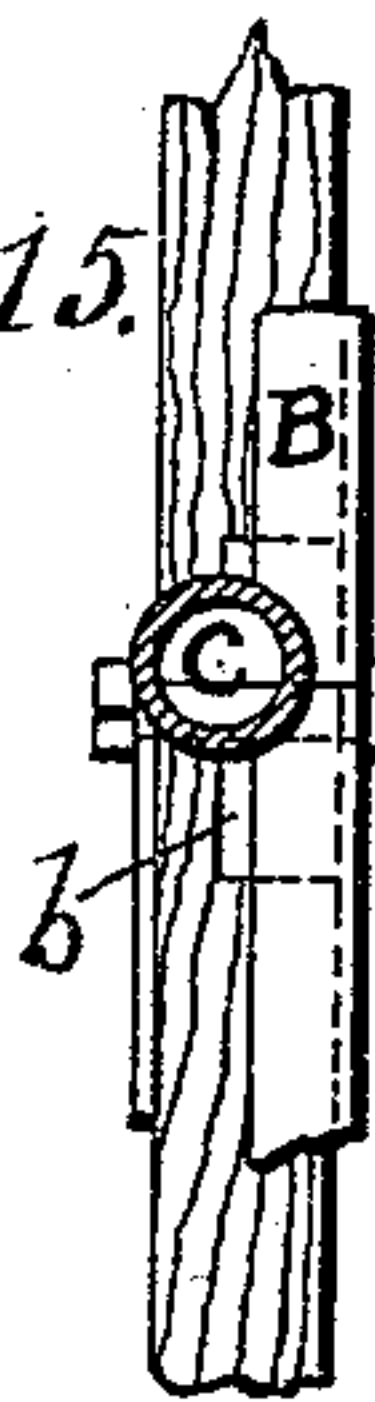
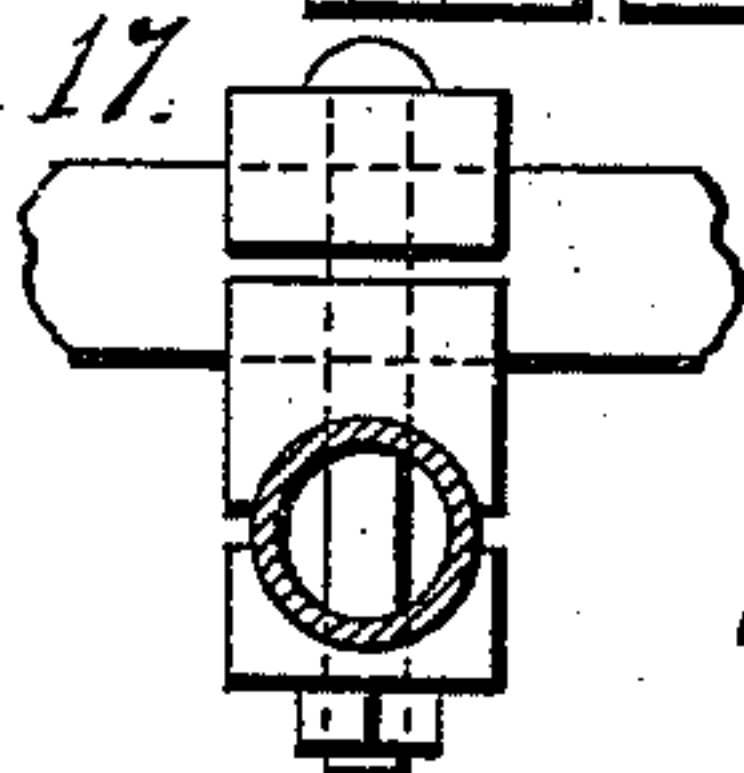


Fig. 19.



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UNITED STATES PATENT OFFICE.

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CAR CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 420,200, dated January 28, 1890.

Application filed October 15, 1889. Serial No. 327,065. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. HODGES, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Car Construction; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

In the drawings, Figure 1 is a side elevation of a coal-car embodying my invention. Fig. 2 is a plan view of the same without the trucks, and showing parts broken away to illustrate the construction. Fig. 3 is an end view of the same. Fig. 4 is a side elevation of a freight-car, with parts broken away, in which the arch passes over the door. Fig. 5 shows how the floor may be joined to the sill. Fig. 6 shows how the uprights are joined to the sill. Fig. 7 is a side elevation of the features in Figs. 5 and 6. Fig. 8 is a sectional view of the top sill. Fig. 9 is a side view of the same, showing also an upright sheathed on its outer surface by channel metal. Figs. 10 and 11 illustrate in front and side elevation the union of the longitudinal and transverse floor-sills and their construction. Figs. 12 and 13 show side and end elevations of the construction at the corner of the car. Fig. 14 shows a side elevation, and Fig. 15 an end elevation, of the fitting at the junction of the arch with the lower sill. Figs. 16 and 17 are front and end elevations illustrating the joint at the point where the arch crosses an upright. Fig. 18 shows a variation in which the cross floor-sills may be metallic tubing and show the same as united to the longitudinal sills. Figs. 19 and 20 show two cross elements united on a filling-block and notched into it and into each other.

It is the purpose of my invention to produce an improved car construction in which the angle-iron and wood are employed in the formation of the principal elements, and so arranged that lost motion or play due to wear may be quickly taken up and compensated; also, to combining with a car-frame an arch and braces for strengthening the sides; also, to provide certain peculiar features of con-

struction applicable alike in all kinds of frame-work.

To this end, A represents the body of a coal-car or other car.

B represents the uprights.

C is an arch spanning the space between the transoms D of the car.

E is the top sill, and F the bottom sill.

G is the car-truck.

H is the lower end sill.

I represents the cross-girders beneath the longitudinal floor-girders I'.

J is the draw-bar.

K represents braces.

All those elements of the car which partake of the nature of beams—such as the uprights B, upper sill E, floor-girders I I', end sills H, braces K, and the frame-work of the trucks—are each made of two pieces of channel metal L-shaped in cross-section and fastened upon an intermediate filling-timber by through-bolts, whereby they may be slid upon each other and bound by the bolts close to the filling-timber.

Although I would have it understood that I do not limit myself to a filling of timber, for there may be only the metallic filling-blocks at the points of intersection with meeting or crossing elements, the remaining portions being left unfilled.

Thus, in Figs. 8 and 9, L and L' represent the two pieces of channel metal, which embrace a filling-timber L², and L³ is a bolt. It is apparent that the flanges L L' rest against each other and constitute an exceedingly strong web. While tightening the nut on the bolt the pieces L L', of channel metal, may be clamped tightly on the interposed wood, and so take up all wear or looseness of the parts.

Similar letters show similar constructions in Figs. 10, 11, 12, and 18.

In this way I secure the advantage of a U-shaped channel member with a web of double thickness, and at the same time I have the advantage of wood or metal filling-blocks to stiffen, strengthen, and prevent rattling, and finally I am able to compensate for lost motion at any point by tightening-bolts. The arch C is made of metal, preferably an iron or steel pipe bent to the proper shape. At each point where it crosses an upright B it is riveted thereto, substantially as shown in Figs.

15 and 16, there being a filling-block *b* in the upright *B*, shaped to receive the arch, and through which the parts are joined by one or more through-bolts, the arch itself being let
 5 into the edges of the metallic covering of the upright *B*, so as to throw the strains upon the metallic members and not on the bolt or bolts. At the points of intersection of the arch with the longitudinal sills *F* the parts are united
 10 by a fitting, such as shown in Figs. 13 and 14, made in two parts, in which *C'* is made to embrace the end of the arch. *K'* forms a filling-block for the interior of the brace *K*.

b' *B'* form a corresponding filling-block for the upright *B*, and bolt-holes are provided, by
 15 which these elements are bound by bolts to the fitting and the parts clamped on the arch and sill.

*b*² is a ledge, which may or may not be provided at the base of the upright *B* on the said fitting for sustaining the same.

Where there are bolts, such as the vertical bolts shown in Figs. 10 and 11, which pass through the lapping flanges of the angle-irons,
 25 the said bolt-holes through the flanges should be slightly elongated to admit of the adjustment of the two angle-bars toward or from each other on the interposed filling pieces or blocks.

30 At the corner of the car the construction is peculiar. The end of the longitudinal sill *F* is embraced by the angle-bars *h h'*, which constitute the end cross-sill *H*. These are secured to the former upon intermediate metallic filling-blocks *h*². The upright *B*² at the
 35 corner is then made up of an angle-bar, which embraces or may embrace a timber strut or filler *L*². This angle-bar at its lower end embraces the union of the end sill *H* and longitudinal sill *F*, and is bolted through the same,
 40 as shown in Figs. 12 and 18, making a very simple and exceedingly strong structure at this point.

What I claim is—

1. In a car-frame, the combination, with the 45 base-sill, of an upright and diagonal elements—one upon each side of the upright—all converging at the base to a point adjacent to the transom or body-bolster, and united by a two-part fitting adapted to engage all the said 50 meeting parts, substantially as described.

2. In a car-frame, the combination, with the base-sill, arch, brace, and upright, of a two-part fitting adapted to engage all said elements at their intersection, substantially as 55 described.

3. The combination, with the base-sill *F*, of the corner uprights *B*², end sills *H*, and filling-pieces *h*², substantially as described.

4. The combination, with the filling blocks 60 or strips *L*², of the two angle-bars *L L'*, united upon said block or strip by a through bolt or bolts, substantially as described.

5. The combination, with a filling block or strip, of two cross elements, each composed of 65 two angle-bars *L L'*, said cross elements united upon said filling block or strip by a through bolt or bolts passing through all said four elements and the filling-block, substantially as described. 70

6. The combination, with the filling blocks or strips *L*², of the two angle-bars united thereon, and a cross element likewise formed of two angle-bars, also united on said filling block or strip, said bars each notched into the 75 filling-block and into the bars which they cross, and the whole united at the intersection by a through bolt or bolts passing through said four bars and the block, substantially as described. 80

In testimony whereof I sign this specification in the presence of two witnesses.

HENRY C. HODGES.

Witnesses:

W. H. CHAMBERLIN,
 L. A. DOELTZ.