

No. 712,896.

Patented Nov. 4, 1902.

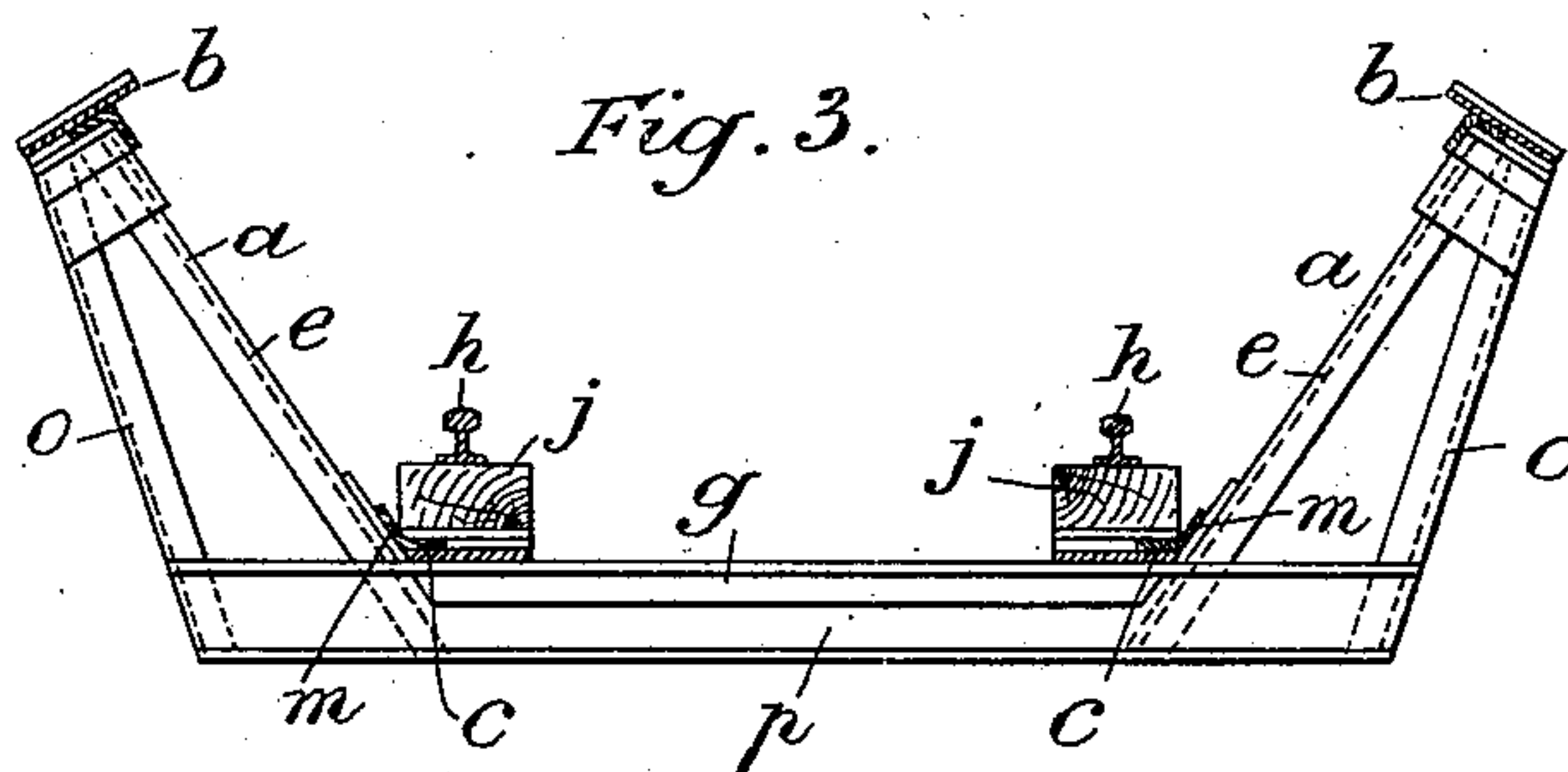
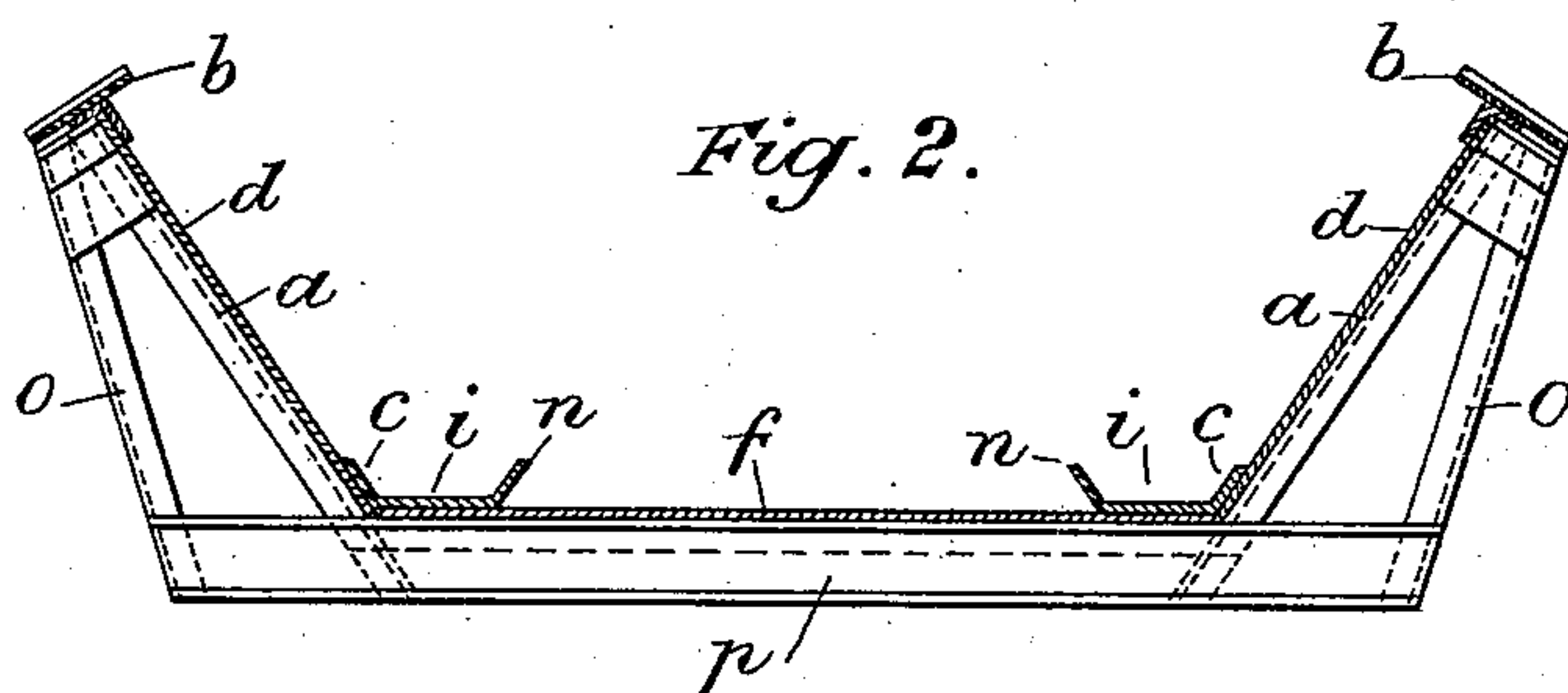
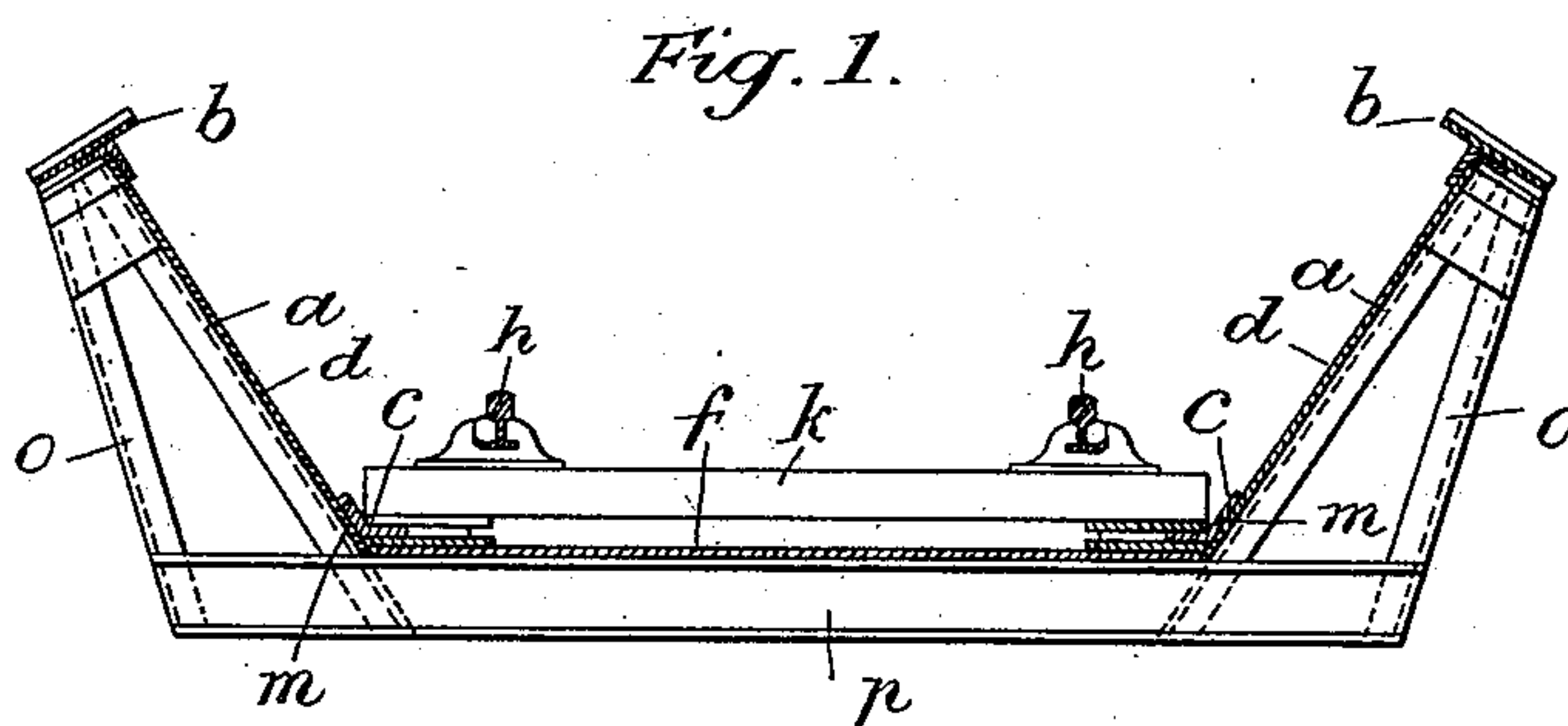
G. BARKER.

OVERHEAD RAILWAY, ELEVATED TRACK, BRIDGE, &c.

(Application filed Sept. 4, 1902.)

(No Model.)

4 Sheets—Sheet 1.



WITNESSES:

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Fig. 4.

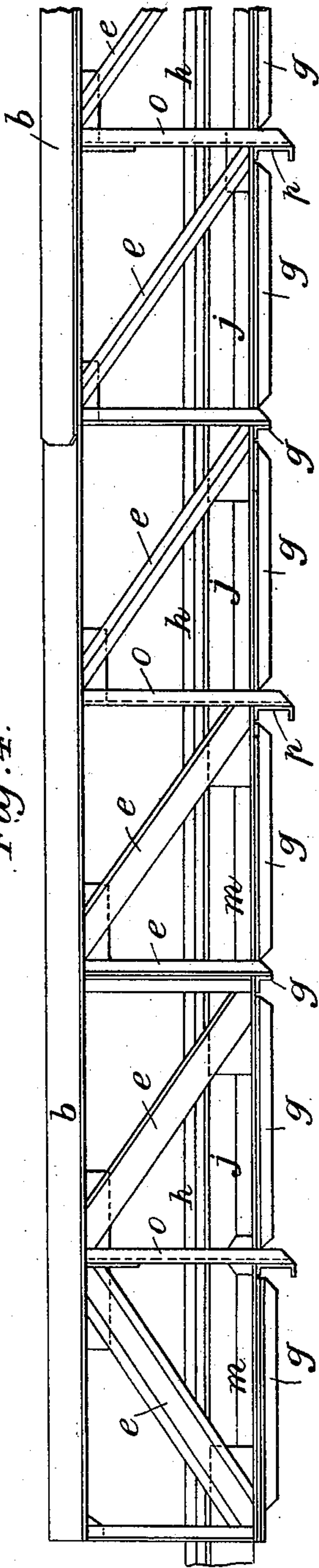
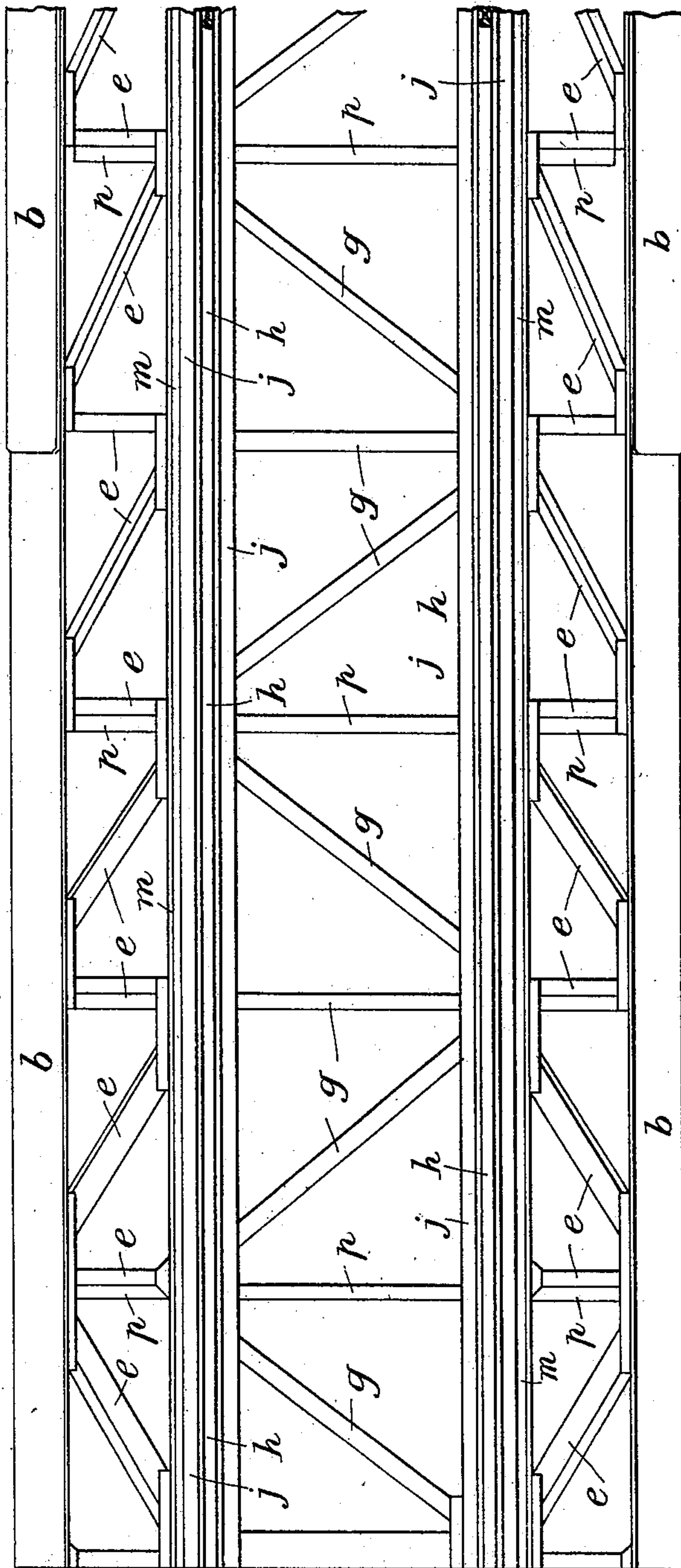


Fig. 5.



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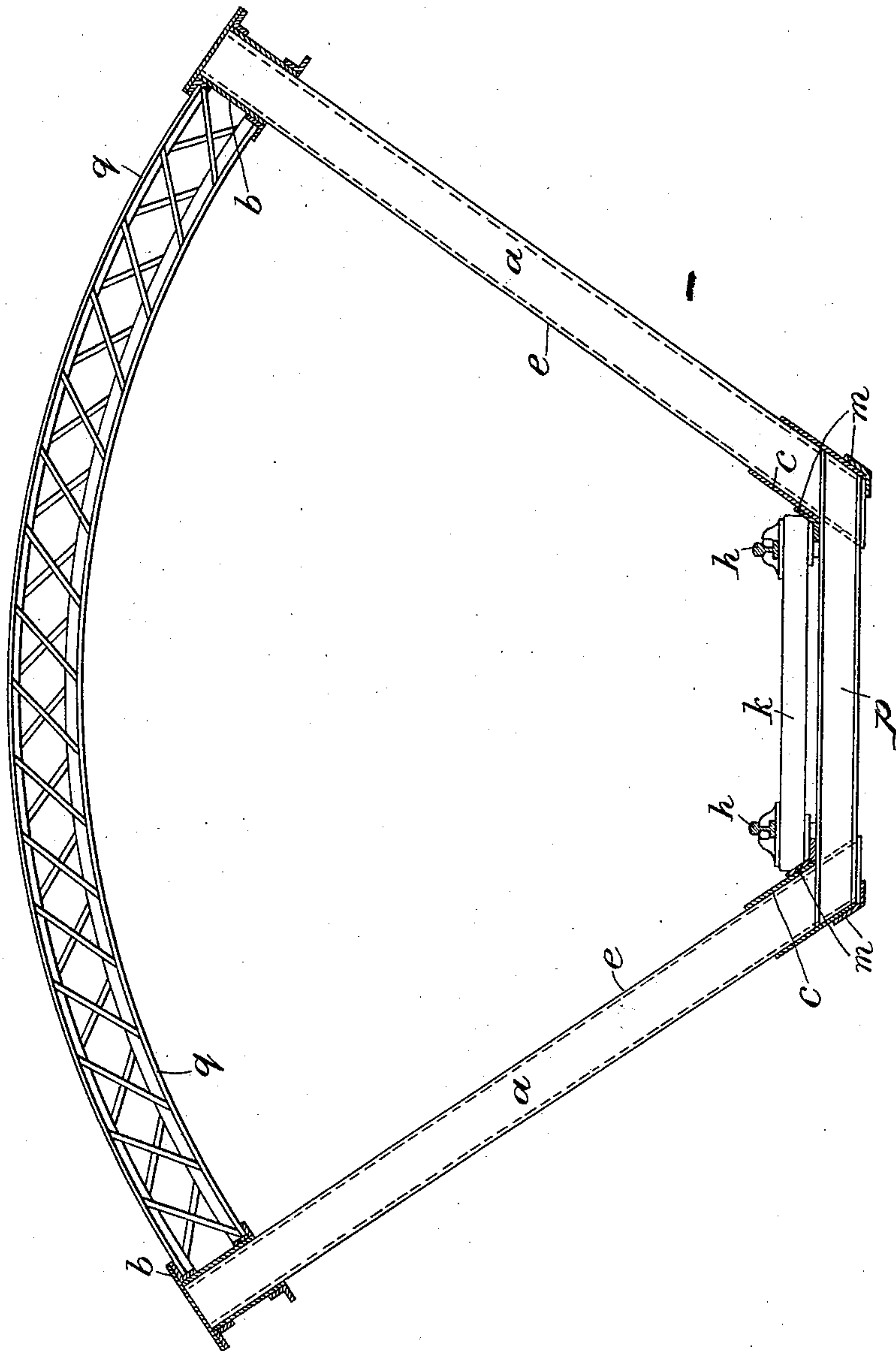
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Fig. 6.



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Fig. 7.

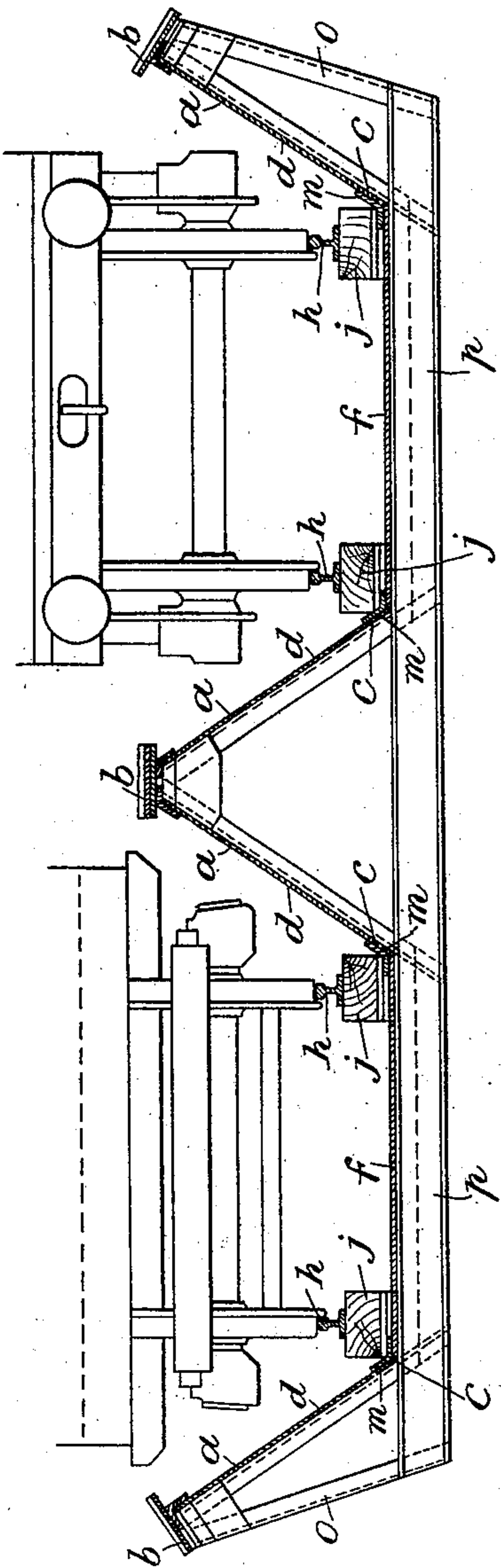


Fig. 8.

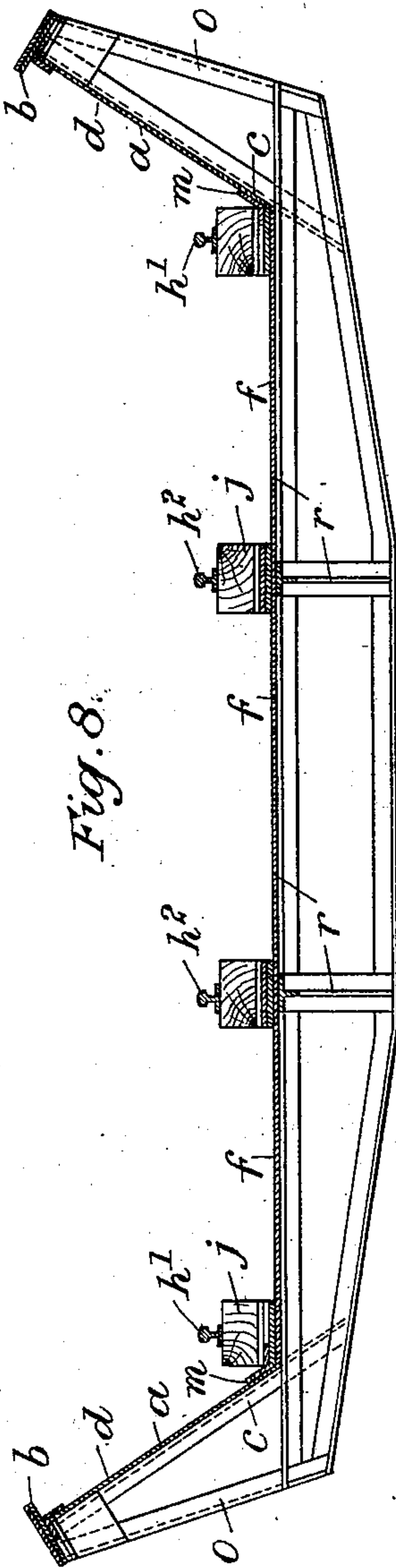
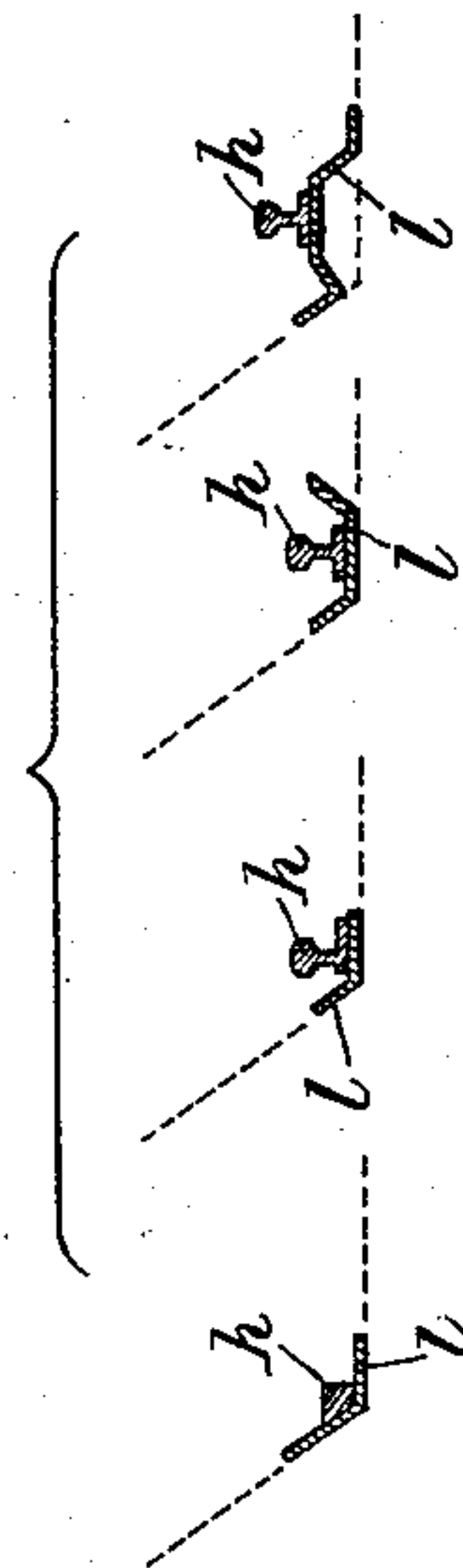


Fig. 9.



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UNITED STATES PATENT OFFICE.

GERALD BARKER, OF WESTMINSTER, ENGLAND.

OVERHEAD RAILWAY, ELEVATED TRACK, BRIDGE, &c.

SPECIFICATION forming part of Letters Patent No. 712,896, dated November 4, 1902.

Application filed September 4, 1902. Serial No. 122,112. (No model.)

To all whom it may concern:

Be it known that I, GERALD BARKER, civil engineer, a subject of the King of Great Britain and Ireland, residing at 1 Victoria street, in the city of Westminster, England, have invented certain new and useful Improvements in Overhead Railways, Elevated Tracks, and Bridges for the Passage of Vehicles, of which the following is a specification.

My invention has for its object to provide overhead railways, elevated tracks, and bridges for the passage of vehicles, which railway tracks and bridges combine the advantages of structures with main girders under the track and of structures with main girders which rise above the track, being safer and capable of being constructed at lower levels than the former and cheaper and more compact than the latter, and they occupy less space and offer less obstruction to light than do structures as hitherto made for such purposes.

I will describe my invention with reference to the accompanying drawings, wherein—

Figure 1 is a transverse section of an arrangement according to my invention with a track for railway-vehicles; and Fig. 2 is a similar view of a like construction, but with a track for ordinary vehicles. Fig. 3 is a transverse section, Fig. 4 a side elevation, and Fig. 5 a plan of a modification, showing a track for railway-vehicles. Fig. 6 is a transverse section showing a construction in which overhead stiffeners or braces are used. Fig. 7 is a transverse section of a construction for a double track, and Fig. 8 is a similar view of a modified construction with a double track. Fig. 9 illustrates some forms of tracks or sleepers and rails which may be used in constructions in accordance with my invention.

Corresponding parts are marked with the same letters of reference in the several figures.

According to my invention I make the structure (whether it be a continuous overhead railway or elevated track or a track extending only for a short distance, such as a bridge) of two girders or trusses, with their webs *a* outwardly inclined, so that the distance between their respective upper flanges, booms, or chords *b* is greater than the distance between their respective lower flanges, booms, or chords *c*. The webs of these girders or trusses

(which I call the "inclined" side girders) may be formed of plates *d*, as shown in Figs. 1 and 2, or of compression and tension members *e*, as shown in Figs. 3, 4, and 5, arranged to form triangulated or latticed webs, and I connect and brace together their respective lower flanges, booms, or chords by horizontal plates *f*, as shown in Figs. 1 and 2, or by bars, or by built-up members *g*, as shown in Figs. 3, 4, and 5, capable of resisting tensile compressive and bending stresses, such plates, bars, or built-up members being arranged to form a horizontal web between the lower flanges, booms, or chords of the inclined side girders and are in combination therewith capable of acting as a horizontal girder to resist distortion by unequal loading.

The lines or tracks for the wheels of the vehicles are placed or formed at or near to the inward angles, where the lower flanges, booms, or chords of the inclined side girders are situated. The lower flanges, booms, or chords of the inclined side girders may be so constructed as to form or support the lines or tracks for the wheels of the vehicles. The upper flanges, booms, or chords of the inclined side girders may be so constructed as to form or support guards or guides to prevent canting of the vehicles in addition to acting as parapets. If rails for railway-vehicles *h*, Figs. 1, 3, 4, and 5, or special tracks *i* of any convenient form for ordinary vehicles, Fig. 2, be used, either longitudinal sleepers *j*, Figs. 3, 4, and 5, or cross-sleepers *k*, Fig. 1, may be placed under such rails or special tracks. If the rails or special tracks be not on or above the lower flanges, booms, or chords of the inclined side girders, cross-sleepers, beams, girders, or the like may be so arranged as to carry the rails or special tracks and deliver the weight of loading thereof onto the lower flanges, booms, or chords of the inclined side girders.

When rails *h*, or special tracks *i*, or longitudinal sleepers of steel or iron *l* are used, the whole or any of them may constitute the whole or parts of the lower flanges, booms, or chords of the inclined side girders, as illustrated in various forms in Fig. 9.

One way of forming a railway-track or bridge as described is to use obtuse angle-bars *m*, as in Figs. 1, 3, 4, and 5, or splayed channel-bars *n*, as in Fig. 2, in or for the

lower flanges, booms, or chords of the inclined side girders. The upper flanges, booms, or chords b are supported laterally at intervals by stiffeners o , attached to girders p , which
 5 pass under the tracks, and such stiffeners may form portions of the webs of the inclined side girders. The whole structure forms a splayed trough-shaped overhead railway, elevated track, or bridge with open ends. Brac-
 10 ings or stiffeners q , connecting the upper ends of the inclined side girders and passing over the tops of the vehicles, may be used, as illustrated in Fig. 6, instead of the stiffeners o of Figs. 1 to 5. The said bracings or stiff-
 15 eners q may be used in combination with the stiffeners o , if desired.

The overhead railways, elevated tracks, and bridges constructed in accordance with my invention, as described, can be carried on
 20 supports of any kind suitable to the situation in which the railways, tracks, or bridges are used. Two or more such overhead railways, elevated tracks, or bridges may be constructed side by side or the one over the other,
 25 and in the former case they may be combined to form one structure. Fig. 7 illustrates one arrangement in which two structures, such as are hereinbefore described, are so combined, while Fig. 8 shows a structure, as
 30 hereinbefore described, but wide enough to accommodate two tracks, this latter construction being suitable where there are

junctions, cross-over roads, or the like or where for other reason girders rising between the tracks are undesirable. In Fig. 8
 35 the two inclined side girders have their lower flanges, booms, or chords under or nearly under the outside rails or tracks h' of each line, the inside-rails h^2 being supported by a stiff flooring r between these lower flanges,
 40 booms, or chords. This flooring r may be of any convenient form, providing that it is so arranged or braced as to be capable of acting as a horizontal web between the lower flanges,
 45 booms, or chords of the inclined side girders.

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

An overhead railway, elevated track, or
 50 bridge, having side girders, or trusses, outwardly-inclined from below upward, and connected by a horizontal member, at or near, their lower parts, and with lines, or tracks, for vehicles at or near to the inward angles
 55 formed by the inclined side girders, or trusses, substantially as hereinbefore described.

In testimony whereof I affix my signature in presence of two witnesses.

GERALD BARKER.

Witnesses:

WILLIAM GERALD REYNOLD,
 RUDOLPH CHARLES NICKOL.