

(No Model.)

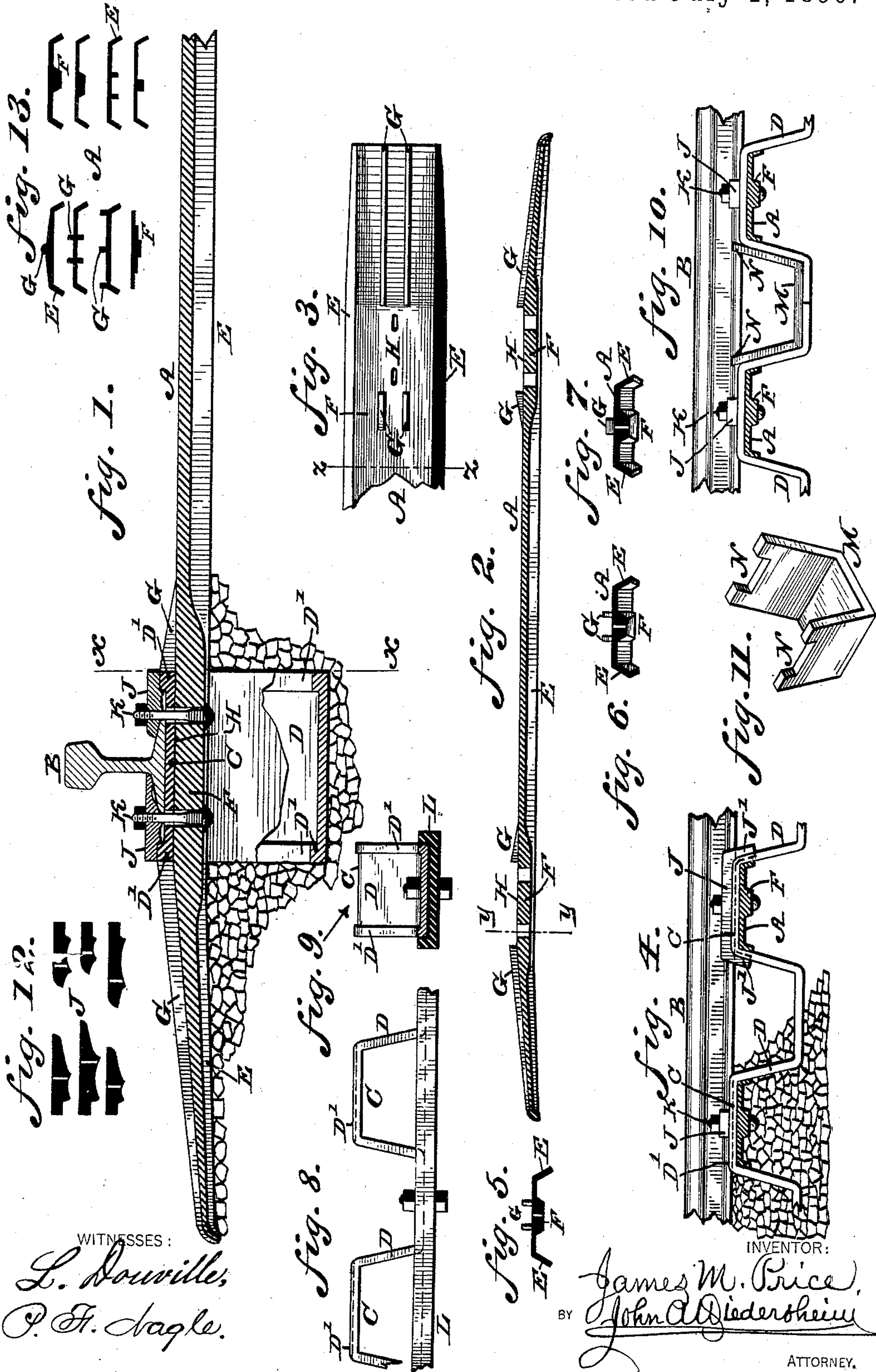
2 Sheets—Sheet 1.

J. M. PRICE.

RAILWAY SUPPORT AND CROSS TIE.

No. 431,172.

Patented July 1, 1890.



WITNESSES:
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INVENTOR:
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2 Sheets—Sheet 2.

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fig. 14.

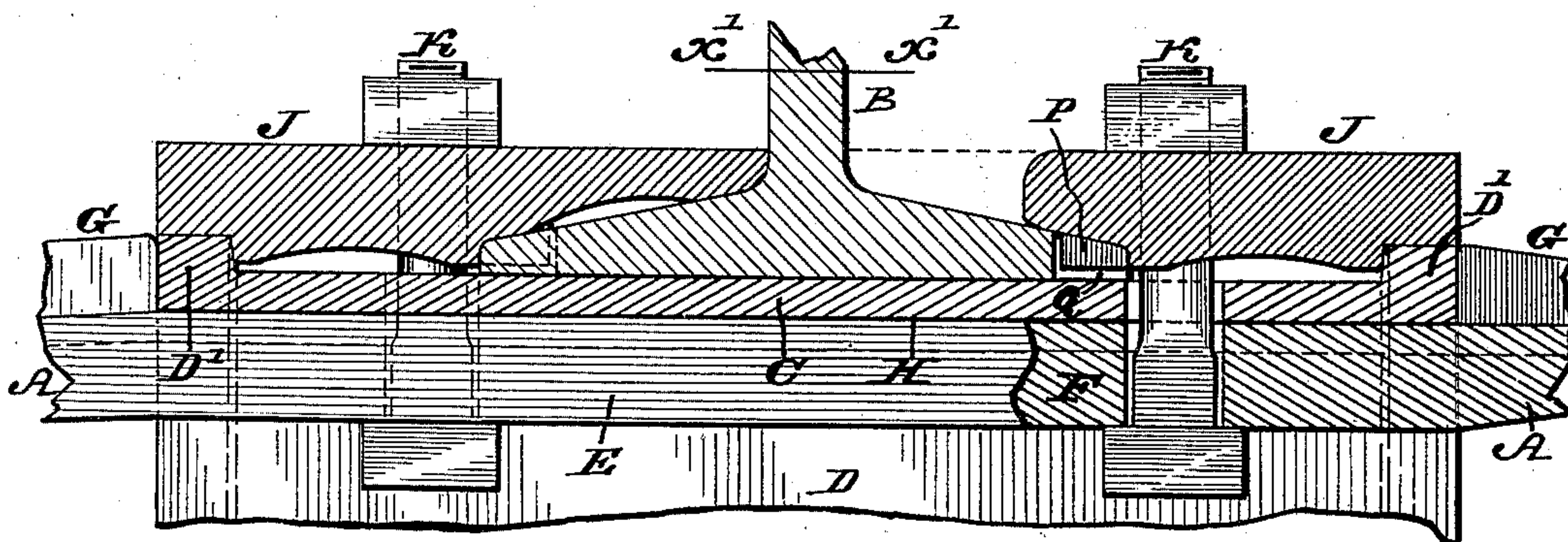
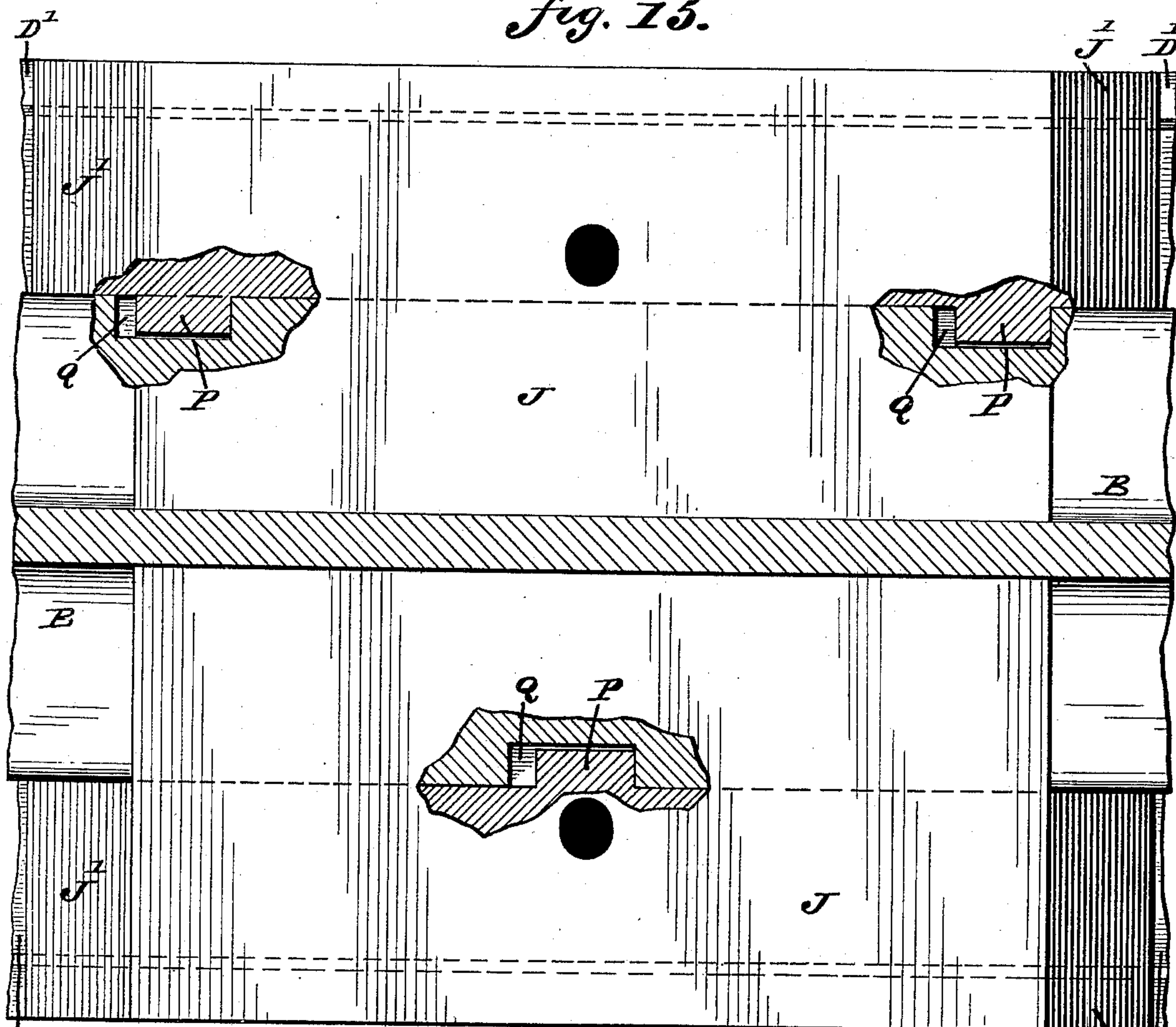


fig. 15.



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JAMES M. PRICE, OF PHILADELPHIA, PENNSYLVANIA.

RAILWAY SUPPORT AND CROSS-TIE.

SPECIFICATION forming part of Letters Patent No. 431,172, dated July 1, 1890.

Application filed June 21, 1889. Serial No. 315,055. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. PRICE, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Railway Supports and Cross-Ties, which improvement is fully set forth in the following specification and accompanying drawings.

10 My invention relates to improvements in railway-supports having metallic stringers and ties; and it consists in the combination of a series of two or more truncated pyramids, with bases and summits lying in two planes
15 parallel the one to the other, and with bases continuous between these pyramidal shapes or sections, with metallic cross-ties underlying the heads of said stringers and firmly attached thereto by suitable fastenings, as herein set forth and claimed. This stringer supports upon its heads the rail between elevated
20 ridges or edges running longitudinally of the stringer, which stretches as to its length beneath the rail, while the cross-tie attached to it lies transversely to the track, and by ridges or elevations upon its surface maintains the track at gage distance, thoroughly preventing the spreading of the rails. The heads of the stringer may be made in number equal
25 to or less or greater than the number per rail of the wooden cross-ties now used, according as the heads and feet of the stringer are lengthened or shortened or the angle of the sides of the truncated pyramids composing it shall approach more or less nearly to a line vertical to their adjacent base by decrease
30 or increase of the obtuse angle between base and side.

40 The object of the invention is to obtain great strength and elasticity with but moderate use of metal.

Figure 1 represents a longitudinal vertical section of a portion of a railway support and cross-tie embodying my invention. Fig. 2
45 represents a longitudinal vertical section of a cross-tie on a reduced scale. Fig. 3 represents a top view of a portion of the tie shown in Fig. 2. Fig. 4 represents a transverse vertical section on line $x x$, Fig. 1. Fig. 5 represents a vertical section on line $y y$, Fig. 2.
50 Fig. 6 represents a vertical section on line $z z$, Fig. 3. Fig. 7 represents a section of a

modification of the part shown in Fig. 6. Fig. 8 represents a side elevation of a portion of a stringer and the base therefor. Fig. 9 represents a transverse vertical section of the parts shown in Fig. 8. Fig. 10 represents a partial side elevation and partial vertical section of the adjacent stringers and fastenings therefor. Fig. 11 represents a perspective view of the fastening device shown in Fig. 10. Fig. 12 represents vertical sections of various cheek-pieces that may be employed. Fig. 13 represents vertical sections of various cross-ties embodying my invention. Fig. 14 represents a view of portion of Fig. 1 on an enlarged scale. Fig. 15 represents a horizontal section on line $x' x'$, Fig. 14, with section broken away.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a metallic cross-tie, between which and the rail B are the heads C of a metallic stringer D, which is of the form of a series of truncated folds or pyramids or convolutions with raised sides D'.

The aforesaid parts, as herein described and shown, are also described and shown in another application made by me for Letters Patent for improvements in supports for railroad-rails, filed December 3, 1888, Serial No. 292,486.

The cross-tie has sloping or inclined ends, and also depending or drooping sides E, forms of which latter are shown in Figs. 5 and 13, and is thickened on its under side at the portion F below the heads of the stringer, and is furthermore formed with ribs G at the side of the seats H, which receive the heads of the stringers.

J designates the cheek-pieces which embrace the base of the rail and rest upon the heads of the stringers, and are held in position by means of bolts K, which pass through said cheek-pieces, the heads of the stringers, and the contiguous portions of the cross-ties. Some of the cheek-pieces have depending sides or flanges J', which embrace the slanting side of the stringer, as most clearly shown in Fig. 4.

Proper ballast is employed, the same being embraced by the sides or flanges E of the cross-ties, which, in conjunction with the

stringers, provide strong and ample anchorage for the track and support it against vertical, longitudinal, and lateral strain.

The stringers rest upon grooved or channeled stretchers L, underlying and embracing the feet of the same, and bolted or otherwise secured thereto, (see Figs. 8 and 9,) said stretchers being serviceable in soft places and on high embankments where additional precaution may be desired.

Interposed between the ends of adjacent stringers is a fastening-piece M, which is of the form of an inverted truncated pyramid, so as to conform to the shape of the slanting sides of the stringer D, its upper ends having shoulders N, which embrace the base of the rail. (See Figs. 10 and 11.)

In Figs. 14 and 15 I show means for preventing creeping of the rail, while, however, providing for expansion and contraction thereof, the same consisting of tongues P in the cheek-pieces, the same entering lengthened grooves or recesses Q in the rail. Each tongue and groove may be one, two, or more in number, as desired, to be used near the middle of each rail.

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

1. A metallic cross-tie with its ends bent down below its central plane and ridged or corrugated above and below longitudinally, with mid-rib thickened under the part of its upper surface, which furnishes a bed for the stringer crossing it, substantially as described.

2. A metallic cross-tie formed with one or more thin ridges rising above the surface near its ends; which droop or decline from its central level, these elevations inclosing a flattened seat or bed, a stringer having a head resting on said seat, the cross-tie being strengthened at that spot by an underlying mid-rib thickened there and tapering out to the ends of the cross-tie, said parts being combined substantially as described.

3. A metallic cross-tie with ends drooping outside the track strengthened by a mid-rib below the rail and by thin ridges of metal at its edge in the middle above and below, which intermit above to make a flat bed, a stringer having a head resting on said bed, and a rail supported on said stringer, said parts being combined substantially as described.

4. An undulating metallic stringer with flat heads or summits resting upon a thin metallic cross-tie with ends strengthened by a ridge or ridges above them and outside the stringers and by a mid-rib below thickened under the stringer, in combination with said cross-tie underlying it, the rail itself resting on its upper surface, and the cheek-pieces, bolts, and nuts, fastening the whole together, substantially as described.

5. A series of cheek-pieces resting upon the outer edge of the stringer and the flange of the rail, each furnished with a foot or slanting projection dipping below that edge and

the upper surface of the flange and thus constituting a wedge between them to keep the rail in its place, said parts being combined substantially as described.

6. A series of cheek-pieces with inside face or edge bearing upon the flange of the rail vertically or extended also to the web of the rail, and with feet varying in width, so that the cheek-pieces may be made in pairs, adjusting themselves to the flange of the rail upon a curve, the base of the rail and the feet of the pair of cheek-pieces occupying and filling the depressed center of the head of the stringer, substantially as described.

7. A cheek-piece covering the entire edge of the head of the stringer and overlapping its sides between the ridges on these and the edge of the flange, substantially as described.

8. A cheek-piece covering the entire edge of the head of the stringer, overlapping its sides and engaging by one or more vertical ridges on its under side with a notch or notches in the edge of the flange of the rail and about midway of the rail, to prohibit creeping and prevent dangerous movement of the rail by expansion or contraction, substantially as described.

9. A fastening for the adjacent ends of two stringers, made of metal, in outline like an inverted truncated pyramid, with shoulders engaging the rail, its base resting upon the depressed center of the end of each stringer, substantially as described.

10. An undulating stringer having elevated edges forming a groove on the central portion, in combination with a rail resting in said groove, and a cross-tie having depending sides, the head of said stringer resting on said cross-tie, substantially as described.

11. A horizontal metallic stretcher with central depression just so wide as to contain the feet of the metallic stringer to which it is bolted, in combination with the cross-tie, stringer, rail, cheek-pieces, and bolts, substantially as described.

12. A metallic stringer with elevated edges running lengthwise under the rails, in flattened pyramidal corrugations, in combination with the rail and cheek-pieces herein described sitting on it, and with a transverse metallic cross-tie with dropping ends attached beneath to the stringer, ribbed longitudinally in places and strengthened by a thickened mid-rib under the stringer, and with a metallic channeled stretcher embracing the feet of the stringer with the necessary bolts and nuts which bind all parts together, substantially as described.

13. The combination of an undulating stringer with heads having raised sides, a cross-tie with ribs forming a seat for said heads, a rail resting on said stringer, cheek-pieces resting on the raised sides of the head and on the base of the rail, and fastening-bolts passing through the cheek-pieces, stringer, and cross-tie, substantially as described.

14. A metallic stringer with edges elevated

above the center, its folds running longitudi-
nally with the rail which it supports up and
down through the ballast, in combination with
a thin metallic cross-tie supporting its heads
5 or summits, with ends dropping outside the
rails and ridged and ribbed above and below
in places to add strength thereto, and cheek-

pieces of the order stated, substantially as
described.

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Witnesses:

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