

(No Model.)

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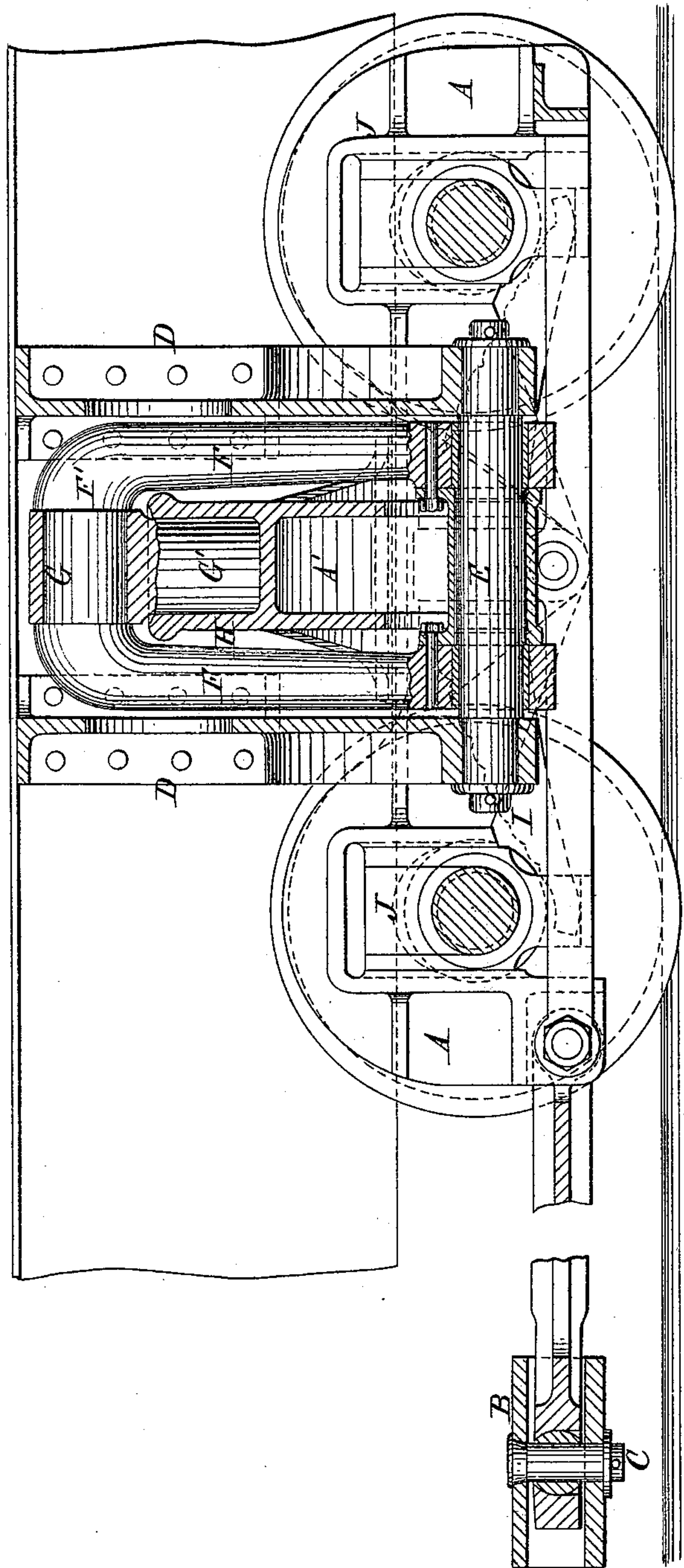
T. ENGLISH.

CAR TRUCK.

No. 372,608.

Patented Nov. 1, 1887.

FIG. 1.



Witnesses.

Geo. H. Rea.

Robert Bennett.

Inventor.

Thomas English.

By James L. Norris.

Atty.

(No Model.)

8 Sheets—Sheet 2.

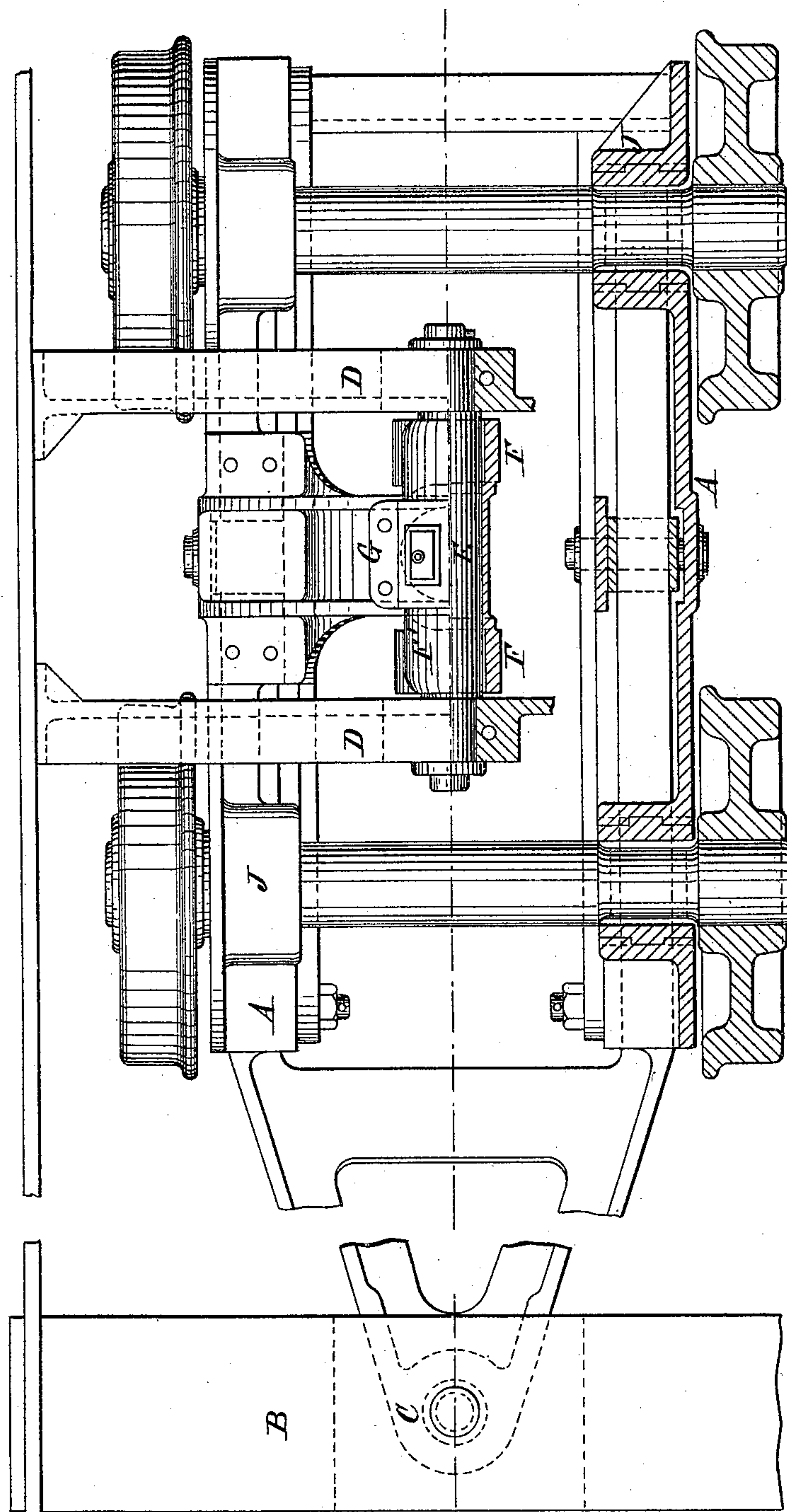
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FIG. 2.



Witnesses

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(No Model.)

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8 Sheets—Sheet 3.

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FIG. 3.

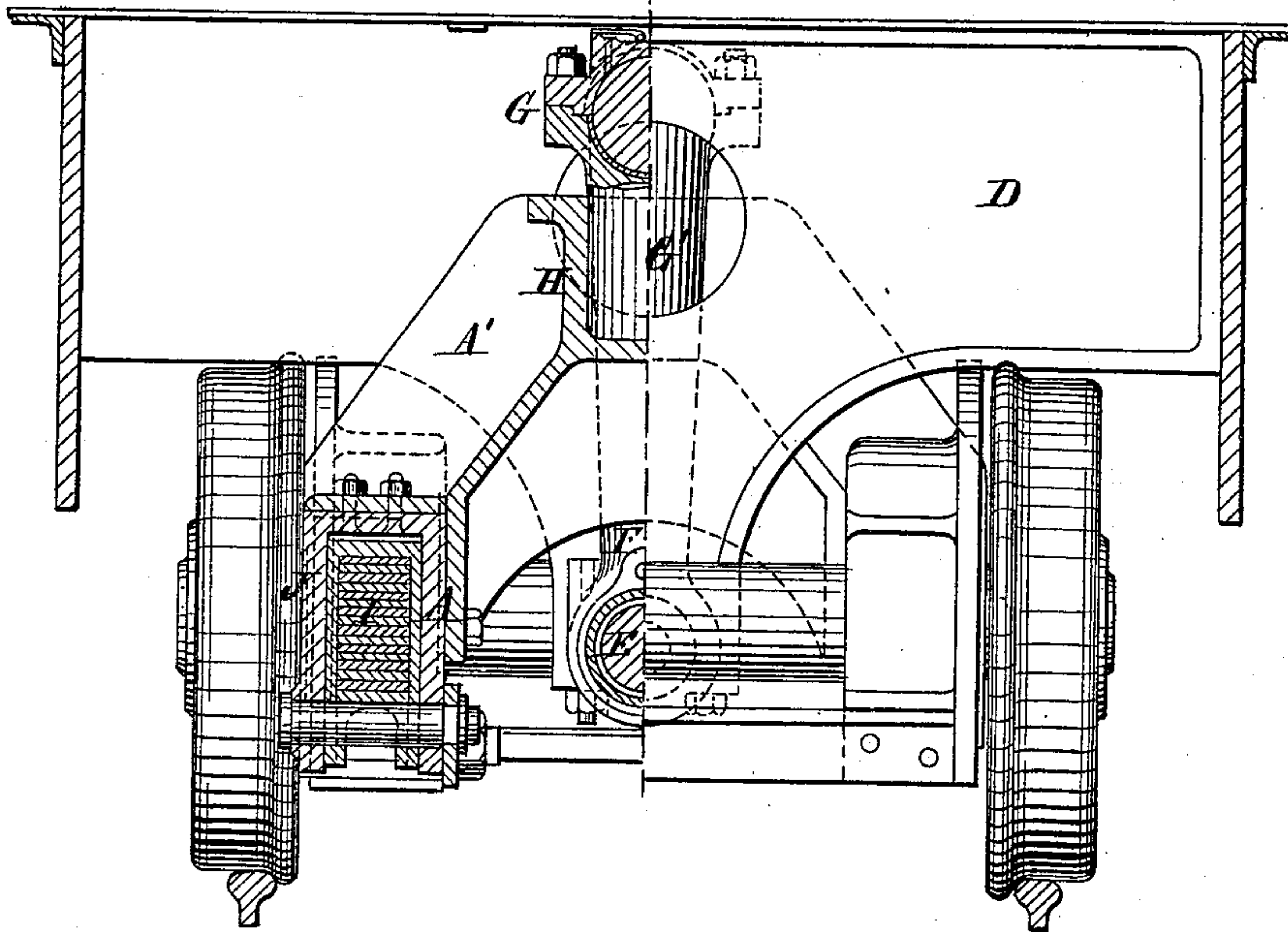
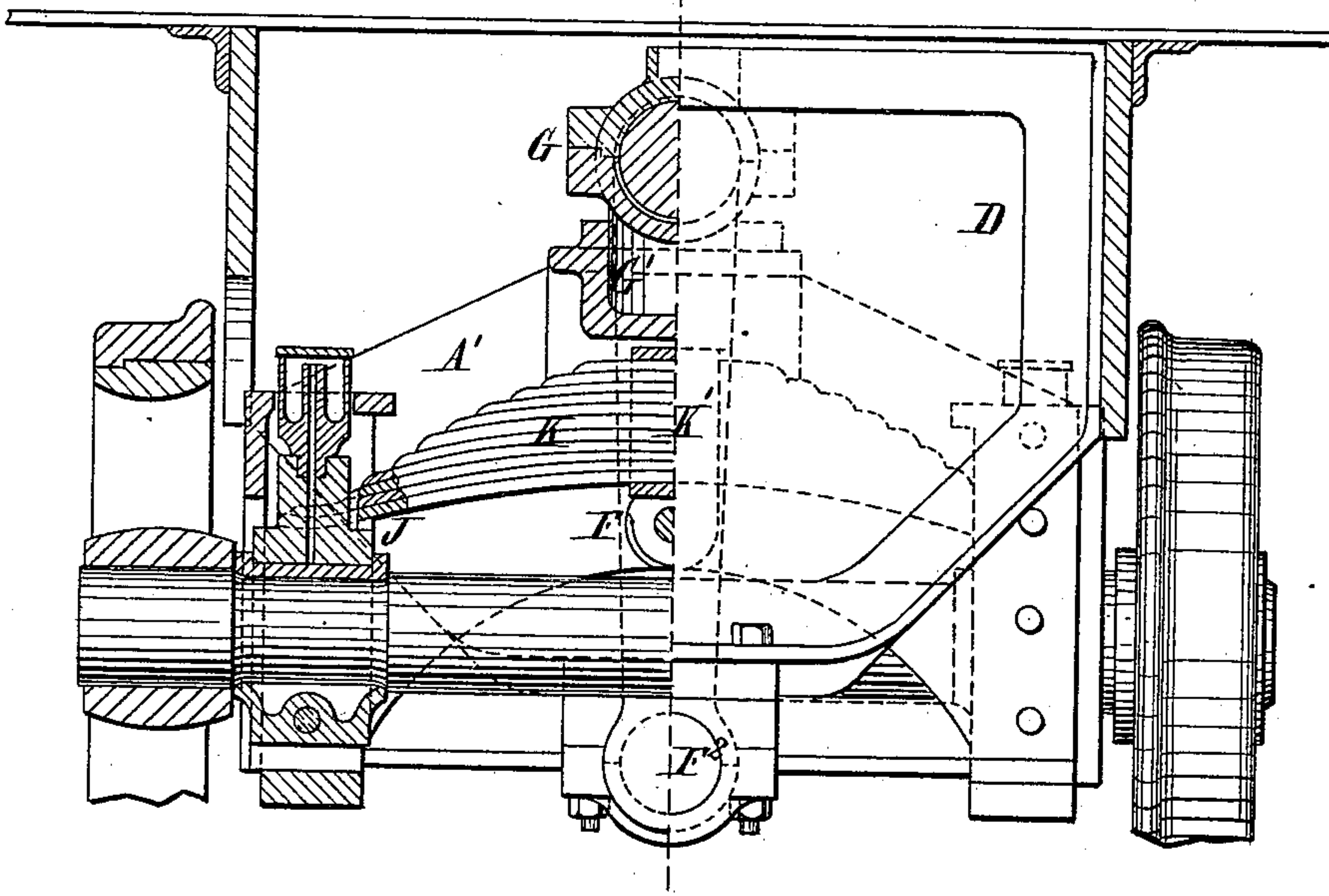


FIG. 6.



Witnesses:

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Robert Everett.

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Thomas English

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Atty.

(No Model.)

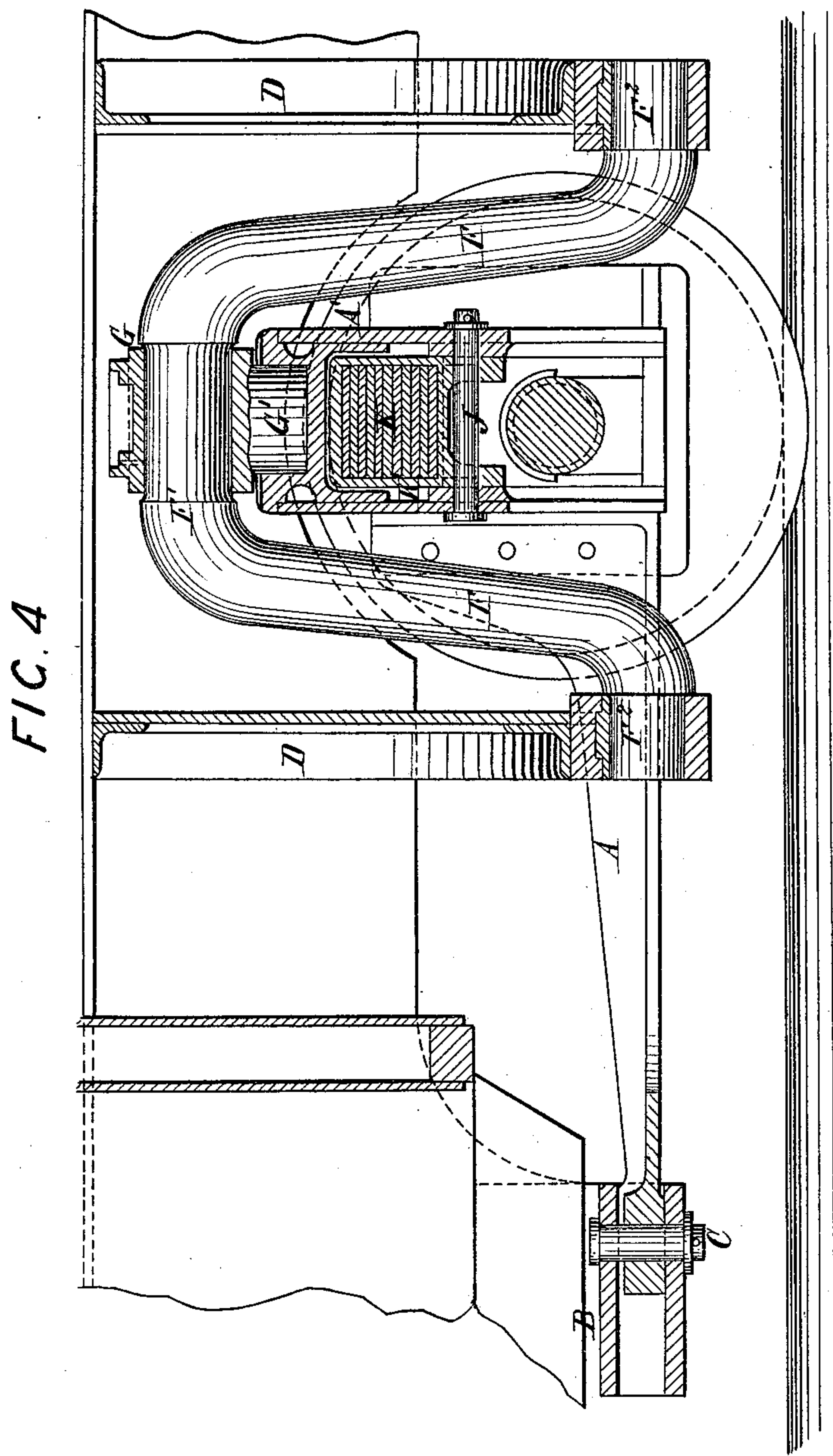
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Patented Nov. 1, 1887.



Witnesses:

Edw. Rea

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(No Model.)

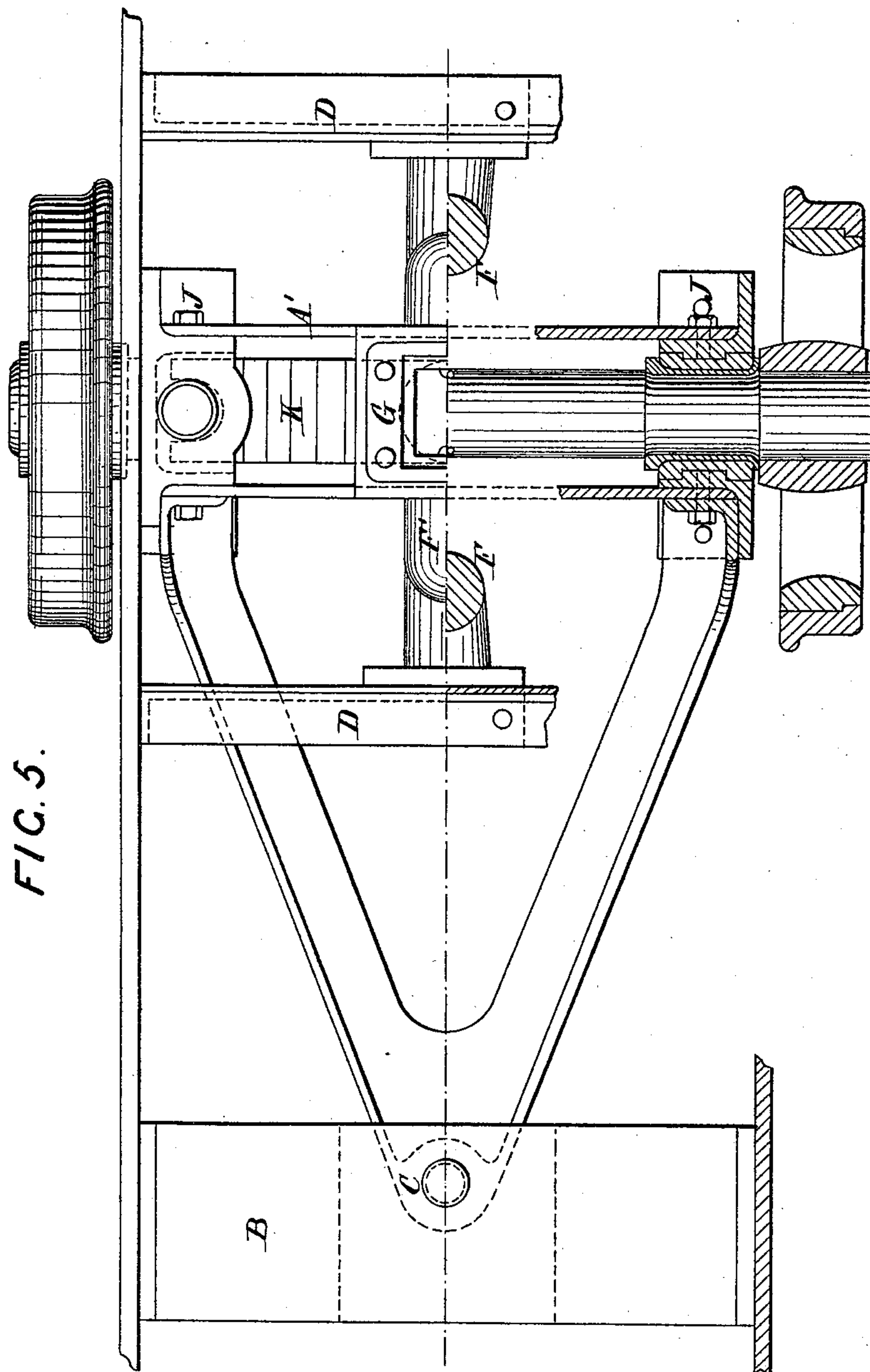
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Patented Nov. 1, 1887.



Witnesses.

Geo. H. Rea.

Robert Emmett.

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James L. Norris.

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(No Model.)

8 Sheets—Sheet 6.

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CAR TRUCK.

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FIG. 7.

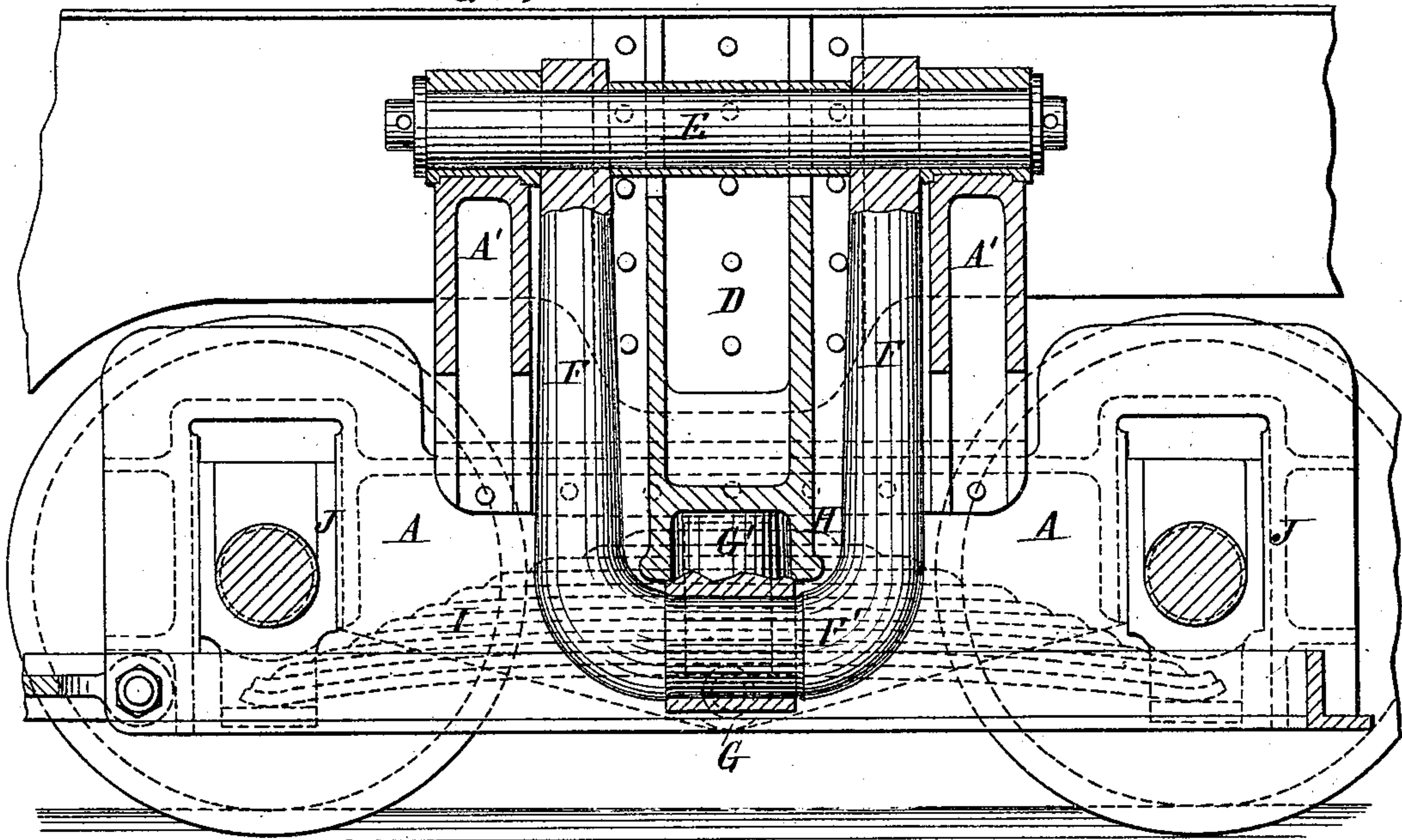
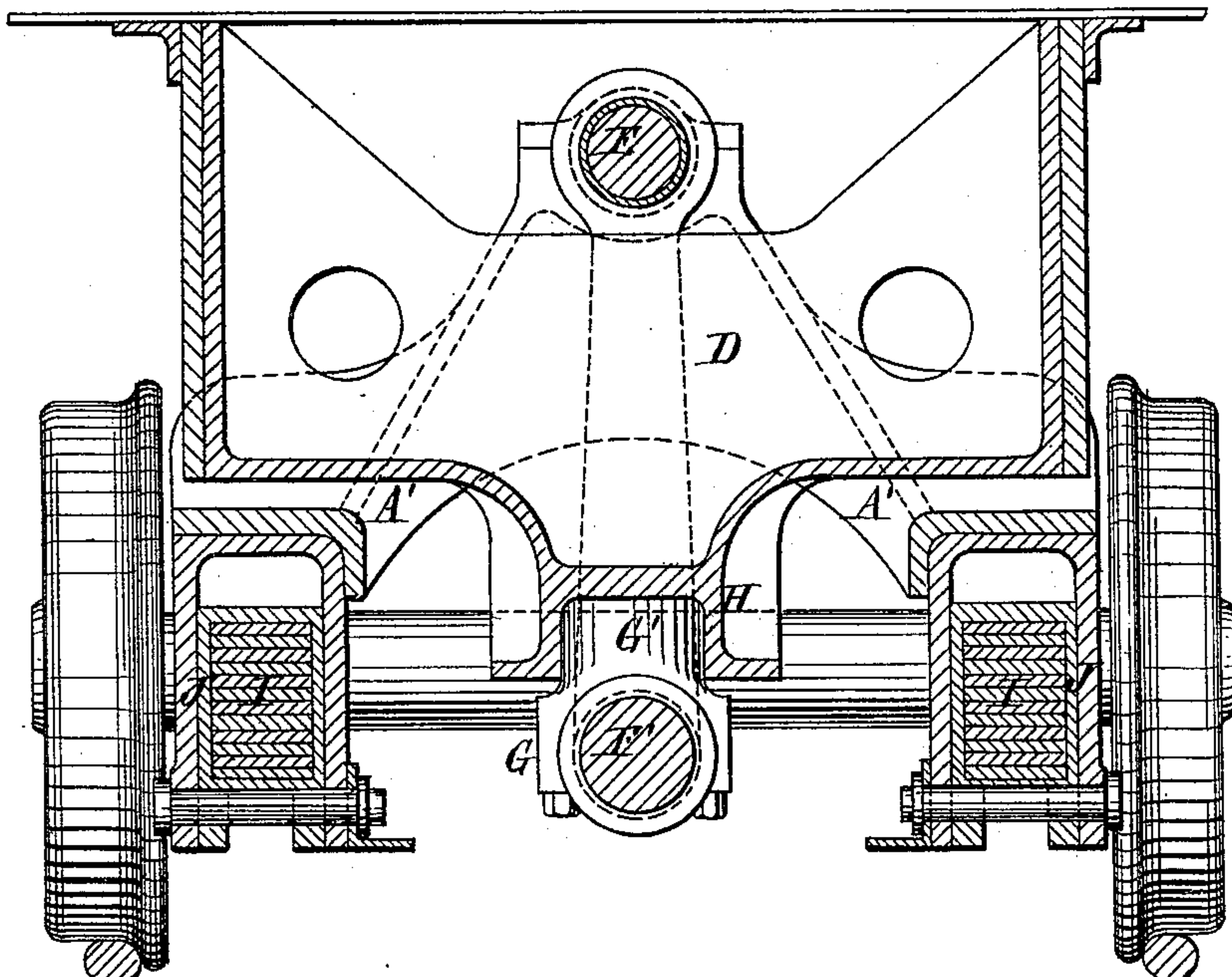


FIG. 8.



Witnesses.

Edw. Rea.

Robert Everett.

Inventor.

Thomas English.

By James L. Norris.
Atty.

(No Model.)

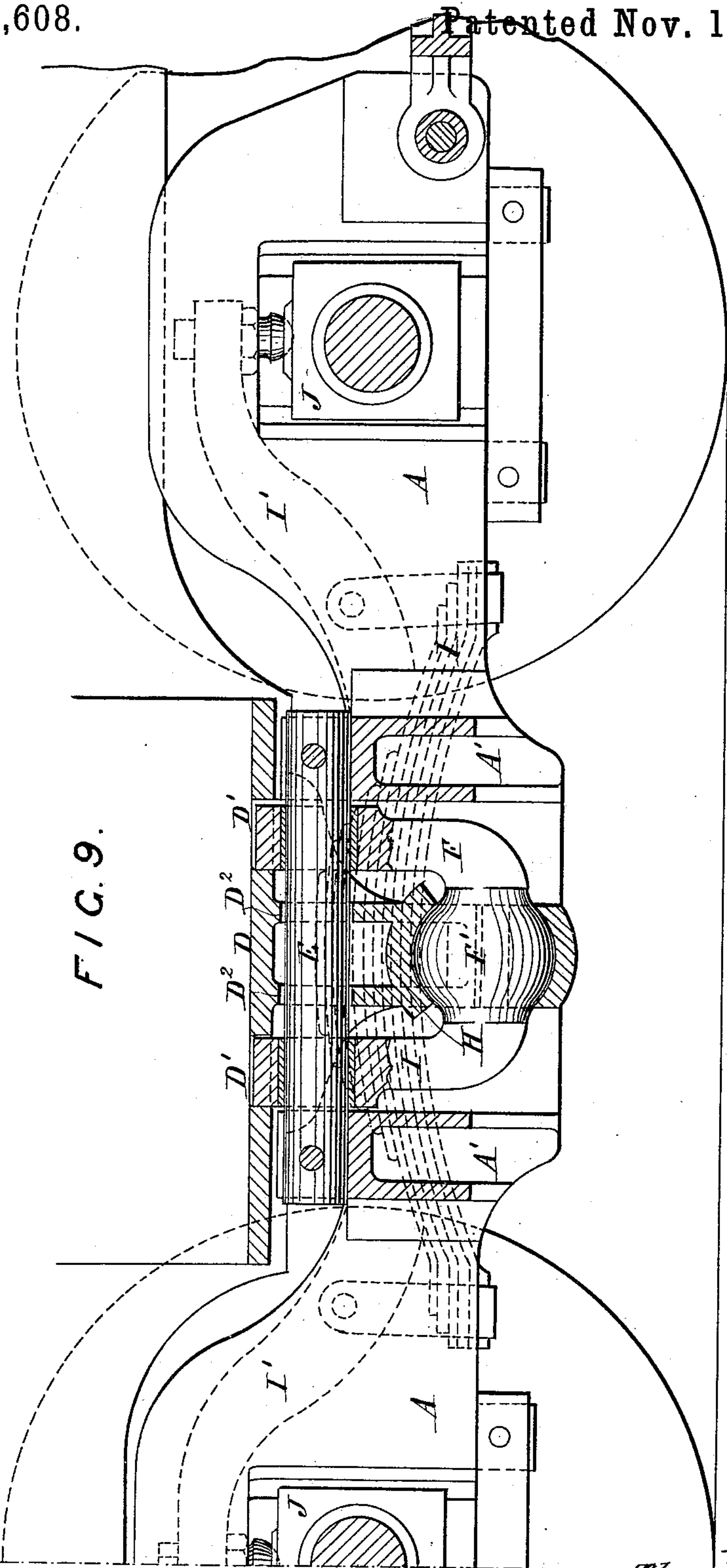
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T. ENGLISH.

CAR TRUCK.

No. 372,608.

Patented Nov. 1, 1887.



Witnesses.
E. H. Rea.
Robert G. Smith.

Inventor.
By Thomas English
James L. Norris
Att'y.

(No Model.)

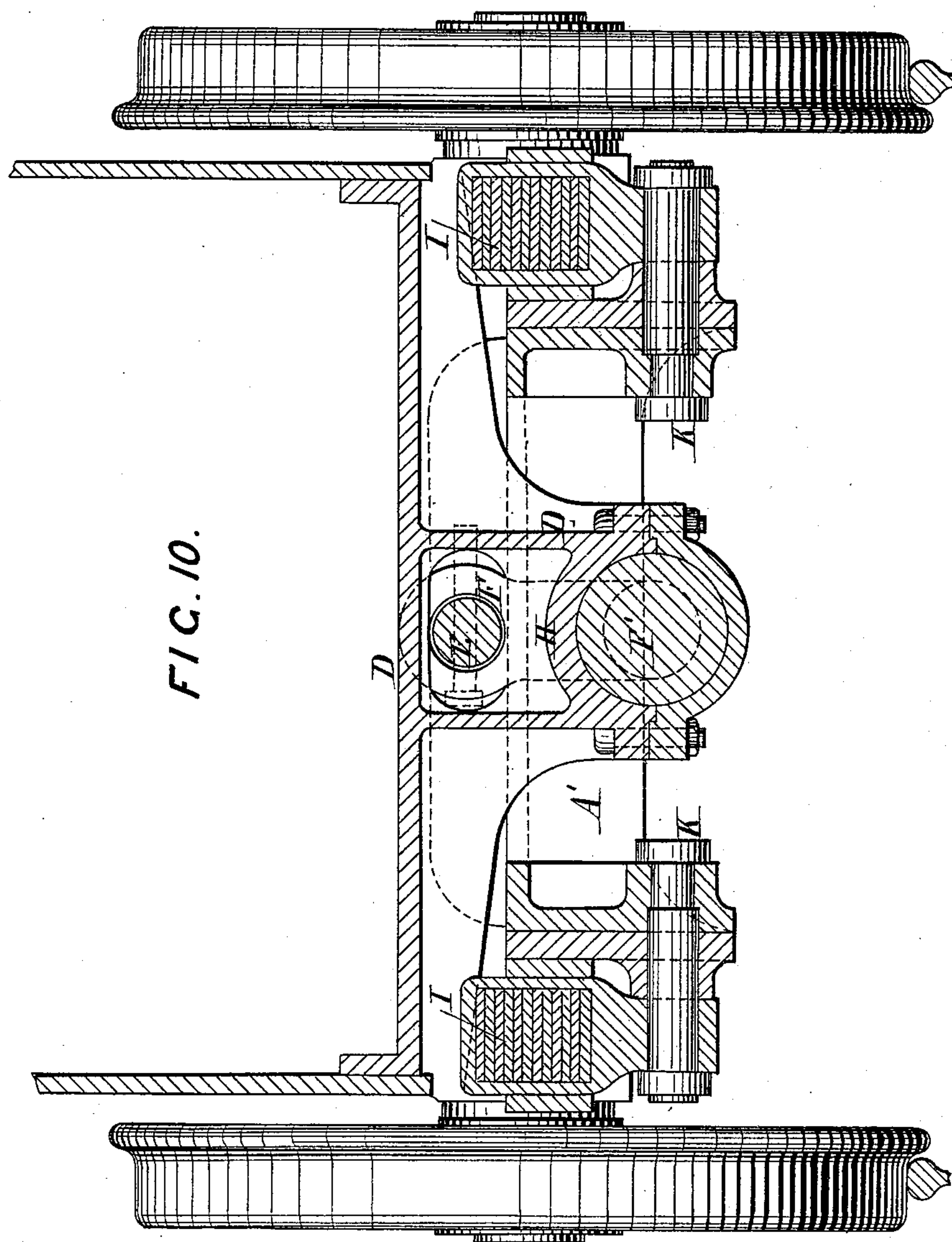
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CAR TRUCK.

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Patented Nov. 1, 1887.



Witnesses.

Geo. W. Rea.

Robert Everett

Inventor:

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Atty.

UNITED STATES PATENT OFFICE.

THOMAS ENGLISH, OF HAWLEY, NEAR DARTFORD, COUNTY OF KENT,
ENGLAND.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 372,603, dated November 1, 1887.

Application filed April 13, 1887. Serial No. 234,726. (No model.) Patented in England February 15, 1886, No. 2,209; in France November 25, 1886, No. 179,896; in Belgium November 27, 1886, No. 75,401, and in Germany December 3, 1886, No. 39,773.

To all whom it may concern:

Be it known that I, THOMAS ENGLISH, a citizen of England, residing at Hawley, near Dartford, in the county of Kent, England, have invented new and useful Improvements in Bogie-Trucks for Locomotives and the Rolling-Stock of Railways, (for which I have obtained a patent in Great Britain, dated February 15, 1886, No. 2,209, and Belgium, dated November 27, 1886, No. 75,401; France, dated November 25, 1886, No. 179,896, and Germany, dated December 3, 1886, No. 39,773,) of which the following is a specification.

My invention relates to improved means whereby a bogie-truck is caused to tend to return to its central position relatively to the rigid wheel-base of the locomotive or other vehicle after being shifted laterally when passing over a curve. For this purpose the bogie is connected to the vehicle as I will describe, referring to the accompanying drawings.

Figures 1 to 3 show one arrangement adapted for a four-wheel bogie. Fig. 1 shows a longitudinal section, Fig. 2 a half plan and half sectional plan, and Fig. 3 a half end view and half transverse section. The framing *a* of the bogie is jointed to a radius-frame, B, which is pivoted to a perch-pin, C, in the axial line of the vehicle, such pin being, by preference, situated equidistant from the center of the rigid wheel-base and the center of the bogie-wheel base. DD are two transverse frames projecting down from the body of the engine or vehicle and carrying at their lower ends a strong horizontal shaft, E, lying in the axial line of the vehicle, on which is mounted the U-shaped link F in such manner that its eyes are capable of sliding to and fro to a slight extent along the shaft E. On the loop F' of the link is mounted an eye, G, having a vertical stud or pivot, G', which takes a bearing in a socket, H, in a transverse beam, A', forming part of the bogie-frame A, which rests on springs I, carried by the axle-boxes J, that work in horn-plates in the bogie-frame.

The action of the above-described arrangement is as follows: The transverse frames DD transmit the load of the vehicle, through the shaft E, link F, and stud G', to the transverse

frame A' of the bogie, from which it is again transmitted, through the springs I, to the axle-boxes J. When running on a straight road, the axis of the shaft E and that of the bearing G both lie in one and the same vertical plane in the axial line of the vehicle, the bogie having thus a central position relatively to the vehicle. When, owing to the vehicle passing onto a curve, the bogie-frame is made to move laterally (more or less) out of its central position, it follows that the bearing G, carrying the bend of the link F, also moves out of the axial plane of the vehicle, and consequently the link is made to assume a more or less inclined position. In order to enable it to do so, either the springs I must be compressed to a certain extent by the downward motion of the loop of the link, or the lower ends of the link, and with them the body of the vehicle, must rise to an extent equal to the versed sine of the angle through which the link is deflected from the vertical, or both these actions will take place simultaneously. It will be seen that while the bogie is in the shifted position there will be a tendency to bring the link F back into its vertical position, either by the downward pressure exerted upon the shaft E by the frames D or by the upward pressure exerted by the springs I upon the bearer A' and stud G', or by both combined, which will tend to bring the bogie to its central position. As the lateral movement of the bearing G will take place in a circular arc whose center is at C, the link F requires to have a corresponding amount of longitudinal play upon the shaft E, as before described, in order to allow of such motion.

Figs. 4 to 6 show a similar arrangement to that above described applied to a two-wheeled bogie. Fig. 4 shows a longitudinal section, Fig. 5 a part plan and part sectional plan, and Fig. 6 a part end view and part transverse section. In this arrangement the link F, instead of being mounted on a pin carried by the transverse frames D, has trunnions F² formed on its ends, that are carried in bearings on the frames D, and the transverse frame A', that supports the pivot or stud G', is attached to the loop K' of a transverse spring, K, the ends of which bear upon the axle-boxes J of the wheels.

The construction and mode of action are otherwise the same as previously described, and need, therefore, not be further referred to.

Fig. 7 shows a longitudinal section, and Fig. 8 a part cross-section, of a modified arrangement for four-wheel bogies, in which the link F is arranged in an inverted position, the two ends being fitted by eyes on the shaft E, which in this case is carried by two transverse frames, A' A', of the bogie A, the body of the vehicle being provided with a transverse frame, D, carrying the socket by which it rests upon the stud or swivel G', whose eye G is carried by the loop of the link in such a manner that the latter can slide longitudinally with a small amount of play therein. The transverse frames A' A' are bolted to the side frames, A, of the bogie, that rests upon the middles of the springs I, the ends of which are carried by the axle-boxes J, as in the first-described arrangement. The action is precisely the same as with the other arrangements.

Figs. 9 and 10 show, respectively, a longitudinal section and transverse section of a modification of the last-described arrangement, in which the eye G, with stud G', is dispensed with, the link F, suspended by pin E from the transverse frame A', being formed with a spherical enlargement, F', on which the transverse frame D rests with a spherical socket, H, whereby the link is enabled to turn both on its horizontal longitudinal axis and upon the vertical axis of the socket.

The transverse frame A' is fixed to the bogie-frame A, and both are connected to the middle of the springs I by bolts K, the springs being carried at their ends by frames I', that bear with their ends upon the axle-boxes J.

The transverse frame D is fixed to the body of the vehicle, and has two slots, D', into which

the eyes of the link F project, and other slots, D², through which the pin E of the link passes. With this arrangement the eyes of the link F are made capable of sliding longitudinally upon the pin E, in order to allow for the varying relative position of the transverse frames A' and D in a longitudinal direction due to the radial motion of the former upon its connecting-pin.

Having thus described the nature of my invention and the best means I know of carrying the same into practical effect, I claim—

1. In a bogie-truck, a central link of U shape free to swing transversely of the bogie, and having its lower extremity jointed to the body of the vehicle, while its upper extremity is jointed to a frame supported by a spring or springs on the axle-boxes, substantially as herein described.

2. In a bogie-frame, the U-shaped link F, with spherical boss F', carried by a pin, E, mounted on a transverse frame, A', connected to the bogie-frame A, said link F operating in combination with a spherical socket, H, on a transverse frame, D, connected to the body of the engine, substantially as herein described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 11th day of March, A. D. 1887.

THOS. ENGLISH.

Witnesses:

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Patent Agent, 28 Southampton Buildings, London, W. C.

JNO. P. M. MILLARD,
Clerk to Messrs. Abel & Imray, Consulting Engineers & Patent Agents, 28 Southampton Buildings, London, W. C.