

No. 728,583.

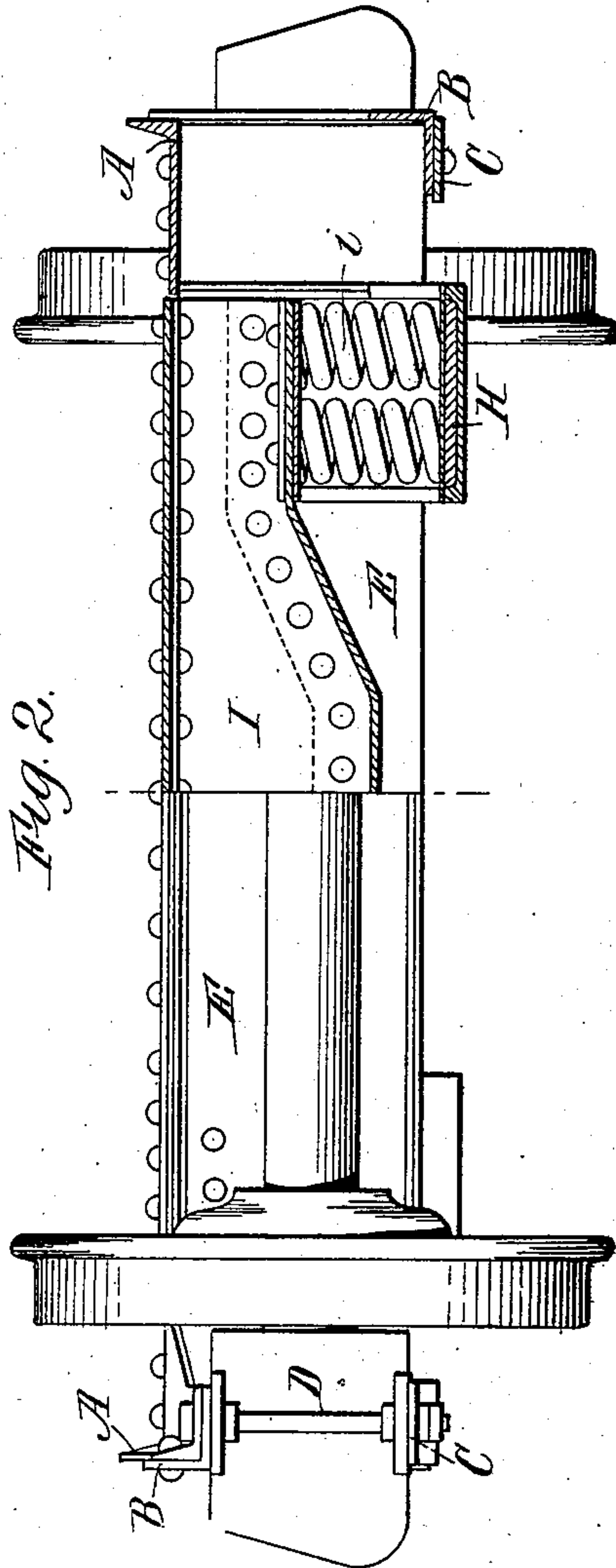
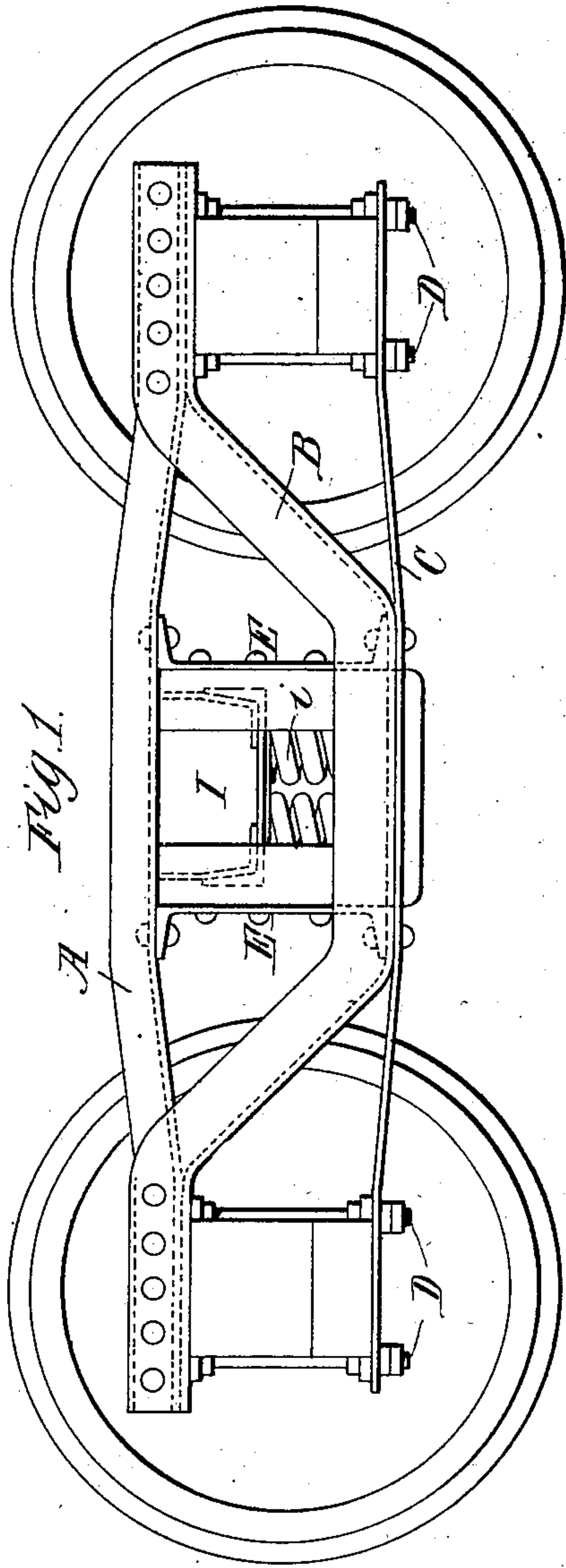
PATENTED MAY 19, 1903.

H. R. KEITHLEY.
RAILWAY CAR TRUCK.

APPLICATION FILED FEB. 25, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses,
E. A. Volk
R. W. Rimmer.

H. R. Keithley Inventor,
By Wilhelm Rimmer
Attorneys.

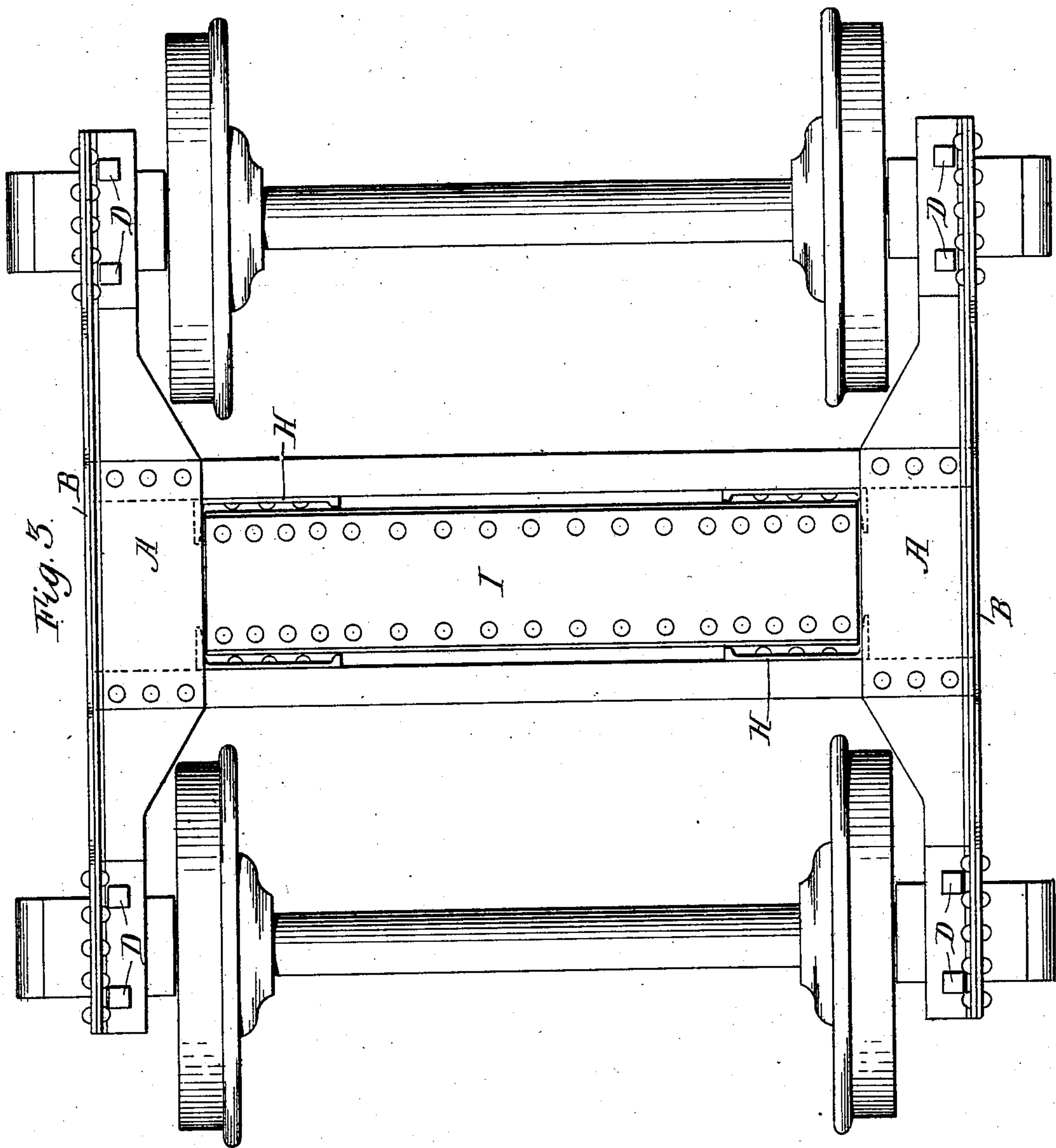
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3 SHEETS—SHEET 2.



Witnesses,
E. A. Volk
R. W. Gunser.

H. R. Keithley Inventor,
By Wilhelm H. H. H.
Attorneys.

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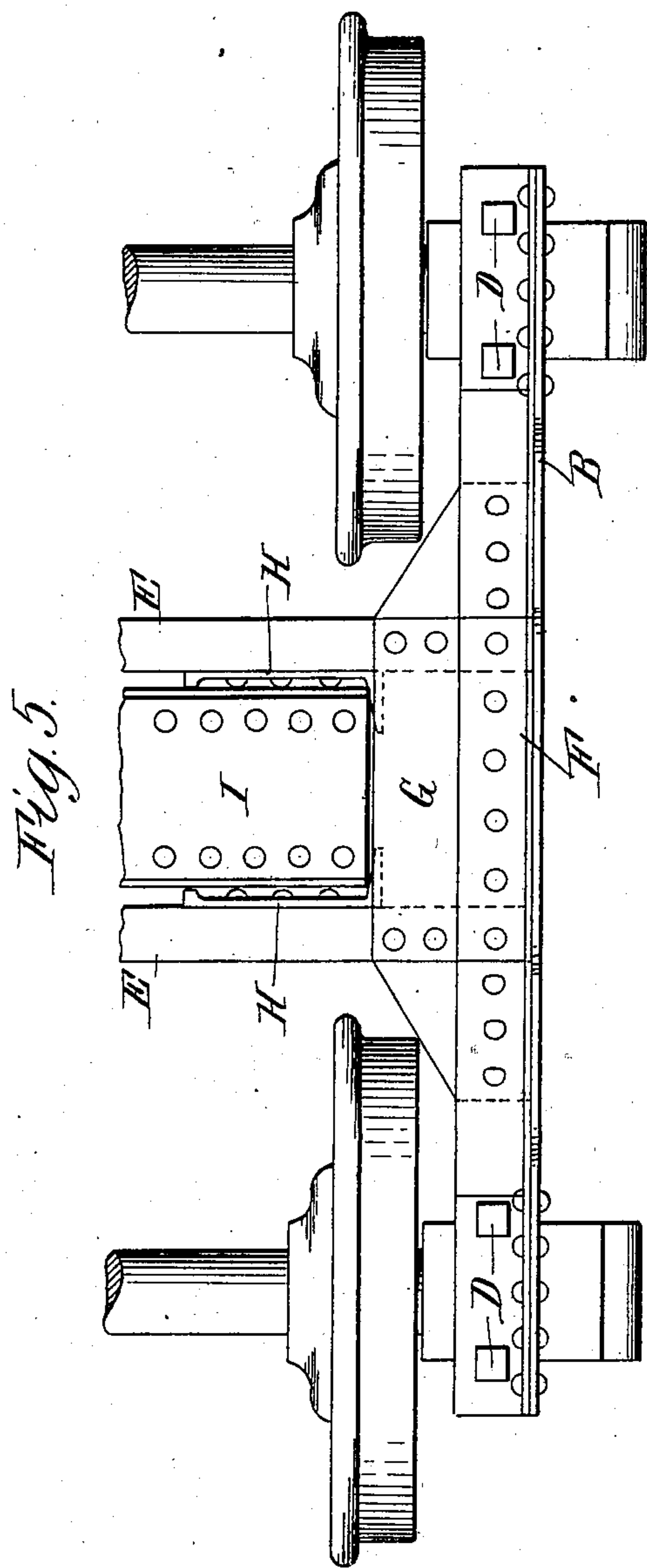
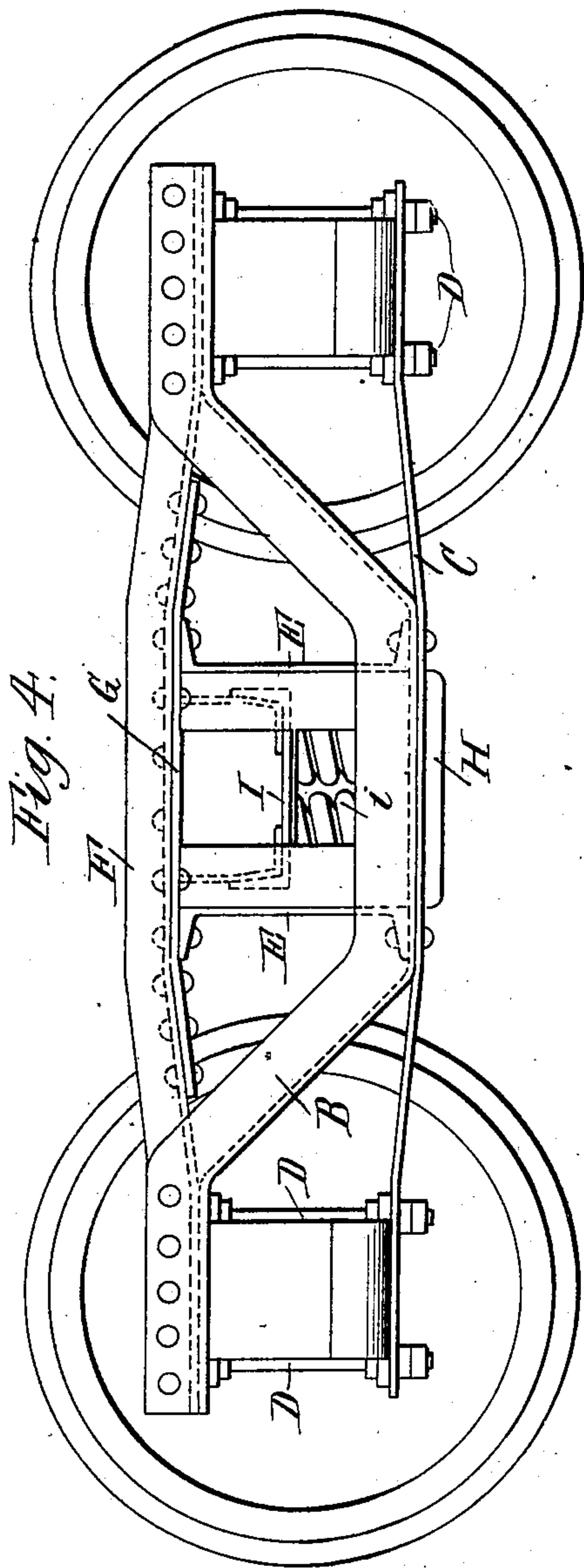
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3 SHEETS—SHEET 3.



Witnesses,
E. A. Volk.
R. W. Pinner

H. R. Keithley Inventor,
By Wilhelm Hornum.
Attorneys.

UNITED STATES PATENT OFFICE.

HERBERT R. KEITHLEY, OF BUFFALO, NEW YORK.

RAILWAY-CAR TRUCK.

SPECIFICATION forming part of Letters Patent No. 728,583, dated May 19, 1903.

Application filed February 25, 1903. Serial No. 144,973. (No model.)

To all whom it may concern:

Be it known that I, HERBERT R. KEITHLEY, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Railway-Car Trucks, of which the following is a specification.

This invention relates to a railway-car truck of the diamond type built up of commercial rolled shapes and plates, and is more particularly directed to improvements in truck-frames similar to that described in my application for United States Letters Patent, Serial No. 135,485, filed December 17, 1902, whereby a strong and desirable truck-frame is constructed of fewer and simpler parts.

In the accompanying drawings, consisting of three sheets, Figure 1 is a side elevation of a truck embodying the invention. Fig. 2 is a view thereof, one half in end elevation and the other half in central vertical section. Fig. 3 is a plan view thereof. Fig. 4 is a side elevation of a truck, showing a slightly-different construction. Fig. 5 is a plan view of one half of the truck shown in Fig. 4.

Like letters of reference refer to like parts in the several figures.

The truck-frame is composed of two trussed side frames which are attached at their opposite ends to the axle-boxes and are rigidly connected together between their ends by a transverse transom. Each side frame, as in the truck described in my said application, is composed of upper and lower or compression and tension chords A and B, rigidly connected together and to the tops of the axle-boxes at their ends, and a bottom tie-bar C, connected at its ends to the bottoms of the axle-boxes and at its center to the central portion of the tension-chord. The lower chord B is formed of a flanged bar, preferably an angle-bar, arranged with a flange projecting laterally inward and a vertical portion or flange which projects upwardly from the outer edge of the lateral flange. The end portions of the lower chord are horizontal and rest on the tops of the axle-boxes, and the central portion thereof is depressed between the axle-boxes, as usual. The upper chord A is in the form of a flanged bar arranged, like the lower chord, with a portion or flange projecting laterally inward and a vertical por-

tion or flange which projects upwardly from the outer edge of the lateral flange. The vertical portions of the horizontal ends of the chords stand side by side and are preferably riveted or bolted together, while the lateral flanges thereof are superposed and are connected to each other and to the axle-boxes by the usual anchoring-bolts D. The upper chord is preferably made from an ordinary rolled channel-bar by shearing off one of its flanges and portions of its web, so that an angle is produced, the lateral and vertical flanges of which are respectively formed by the web and one flange of the channel. In forming the angle A the central portion of the lateral flange is made broad or substantially the full width of the web of the channel, while the end portions, which are secured to the end portions of the lower chord, are narrower or about the width of the lateral flange of the lower chord. The lateral flange of the upper-chord angle preferably increases in width gradually from its end portions to its central portions, as clearly shown in Fig. 3. The ends of the bottom tie-bar C are connected to the bottoms of the axle-boxes by the anchoring-bolts D, while its central portion lies beneath and is riveted or bolted to the central portion of the lateral flange of the lower chord.

The side frame just described differs essentially from the side frames of the truck described in my said application in the arrangement of the upper and lower chords with the vertical flanges or portions at the outer edges of the lateral flanges that is substantially in the vertical plane of the outer face of the side frame and in the particular shape of the lateral flange of the upper chord. The purpose of this arrangement will appear hereinafter.

The transverse transom which connects the two side frames together consists of two separated flanged beams E, preferably channel-beams, arranged with their webs vertical and their flanges projecting horizontally outward or away from each other. The ends of the transom-channels extend in between the lateral flanges of the upper and lower chords, resting upon the latter, and are riveted or bolted to said lateral flanges. Thus by the described arrangement of the lower chords

their inwardly-projecting flanges afford in themselves horizontal supports for the transom-beams to rest upon and obviate the employment of additional parts, such as the short Z-bars shown in my said application. Furthermore, as the horizontal supporting-flanges of the transom-beams are on a horizontal plane below the plane of the top edges of the vertical flanges or portions of the lower chords transom-beams of considerably-greater depth of web, and consequently of much greater carrying capacity, can be used, while the top of the truck-frame is even lower than in a truck having shallow transom-beams resting on raised supports on the lower chords. The central portions of the lateral flanges of the upper chords of the side frames are wide and afford ample space for several rivets to connect them with the top flanges of the transom-beams, and as the vertical flanges or portions of the upper chords are located at the extreme outer longitudinal edges thereof they are far removed from the neutral axes of the chords and are disposed to the best advantage to resist bending moments in a horizontal or lateral direction due to side thrusts on the side frames of the truck in rounding curves. This arrangement of the upper chords gives the necessary strength and gusset-plates between the upper chords and transom are not necessary.

While upper chords of the form described are at the present time deemed preferable, as the number of the parts and weight of the truck-frame is reduced without lessening the strength thereof, a very strong, desirable, and simple truck-frame is produced by the construction shown in Figs. 4 and 5, which is similar to that above described, except that instead of making the upper chords in the manner stated they consist of ordinary straight angle-bars F, arranged in the same manner as the angles A, but connected to the upper flanges of the transom-beams by gusset-plates G. The latter are arranged between the upper chords of the side frames and the top of the transom. The longitudinal outer edge portions of the gusset-plates are located beneath and riveted or bolted to the lateral flanges of the upper-chord angles, while their central portions, which are of greater width than their end portions, rest upon and are riveted or bolted to the top flanges of the transom-beams. The upper chord and gusset-plate thus arranged constitute a compound flanged metal section similar in shape and function to the upper chord formed as shown in Figs. 1 and 3 and having its vertical flange located at its outer edge, as in the case of the other construction. With the vertical flange of the upper chord located at the outer edge of the lateral flange a flanged gusset-plate, as shown in my said application, is not necessary.

H represents U-shaped stirrups for the bolster-springs. They are located between the transom-beams inside of the side frames and

are preferably constructed as fully described in my said application.

I represents a bolster which is arranged between the transom-beams and supported, as usual, by the bolster-springs *i*, carried by the stirrups. Any suitable form of bolster may be employed.

I claim as my invention—

1. In a railway-truck of the diamond type, the combination of trussed side frames each comprising a tension-chord having a lateral flange and a vertical portion, and a compression-chord having a lateral flange and a vertical portion projecting upwardly from the outer edge of said lateral flange, a transom connecting said side frames, the lateral flanges of said tension and compression chords being secured to the transom, and the end portions of said lateral flanges being rigidly secured to the axle-boxes, substantially as set forth.

2. In a railway-car truck of the diamond type, the combination of trussed side frames each comprising a tension-chord having a lateral flange and a vertical portion, and a compression-chord having a lateral flange and a vertical portion projecting upwardly from the outer edge of said lateral flange, a transom connecting said side frames, the lateral flanges of said tension and compression chords being rigidly secured to the transom and to the axle-boxes, and the vertical portions of said tension and compression members being riveted together at their ends, substantially as set forth.

3. In a railway-car truck of the diamond type, the combination of trussed side frames each comprising tension and compression chords, the ends of which are rigidly secured to the axle-boxes, the compression-chord having a lateral flange and a vertical portion projecting upwardly from the outer edge of said lateral flange, a transom connecting said side frames, and substantially horizontal gusset-plates secured to the top of said transom and to said lateral flanges of the compression-chords of the side frames, substantially as set forth.

4. In a railway-car truck of the diamond type, the combination of trussed side frames each comprising tension and compression chords, the ends of which are rigidly secured to the axle-boxes, the tension-chord having a lateral flange and a vertical portion projecting upwardly from the outer edge of said lateral flange, and a transom which rests at its ends on said lateral flanges of the tension-chords of the side frames and is secured to the latter and to said compression-chords, substantially as set forth.

5. In a railway-car truck of the diamond type, the combination of trussed side frames each comprising tension and compression chords formed by flanged bars each having a lateral flange and a vertical portion projecting upwardly from the outer edge of said lateral flange, the ends of said chords being rigidly secured to the axle-boxes, a transom con-

necting said side frames and which rests at its ends on and is secured to said lateral flanges of the tension-chords of the side frames, and gusset-plates secured to the top of said transom and to said lateral flanges of the compression-chords of the side frames, substantially as set forth.

6. In a railway-car truck of the diamond type, the combination of trussed side frames each comprising tension and compression chords formed by angle-bars each having an inwardly-projecting lateral flange and a vertical flange projecting upwardly from the outer edge of the lateral flange, the ends of said chords being rigidly secured to the axle-boxes, a transom connecting said side frames

and consisting of flanged beams having their ends extending between said lateral flanges of the tension and compression chords of the side frames and resting on the lateral flanges of said tension-chords, and gusset-plates secured to the top flanges of said transom-beams and to said lateral flanges of the compression-chords of the side frames, substantially as set forth.

Witness my hand this 23d day of February, 1903.

HERBERT R. KEITHLEY.

Witnesses:

TAYLOR E. BROWN,
CARL H. CRAWFORD.