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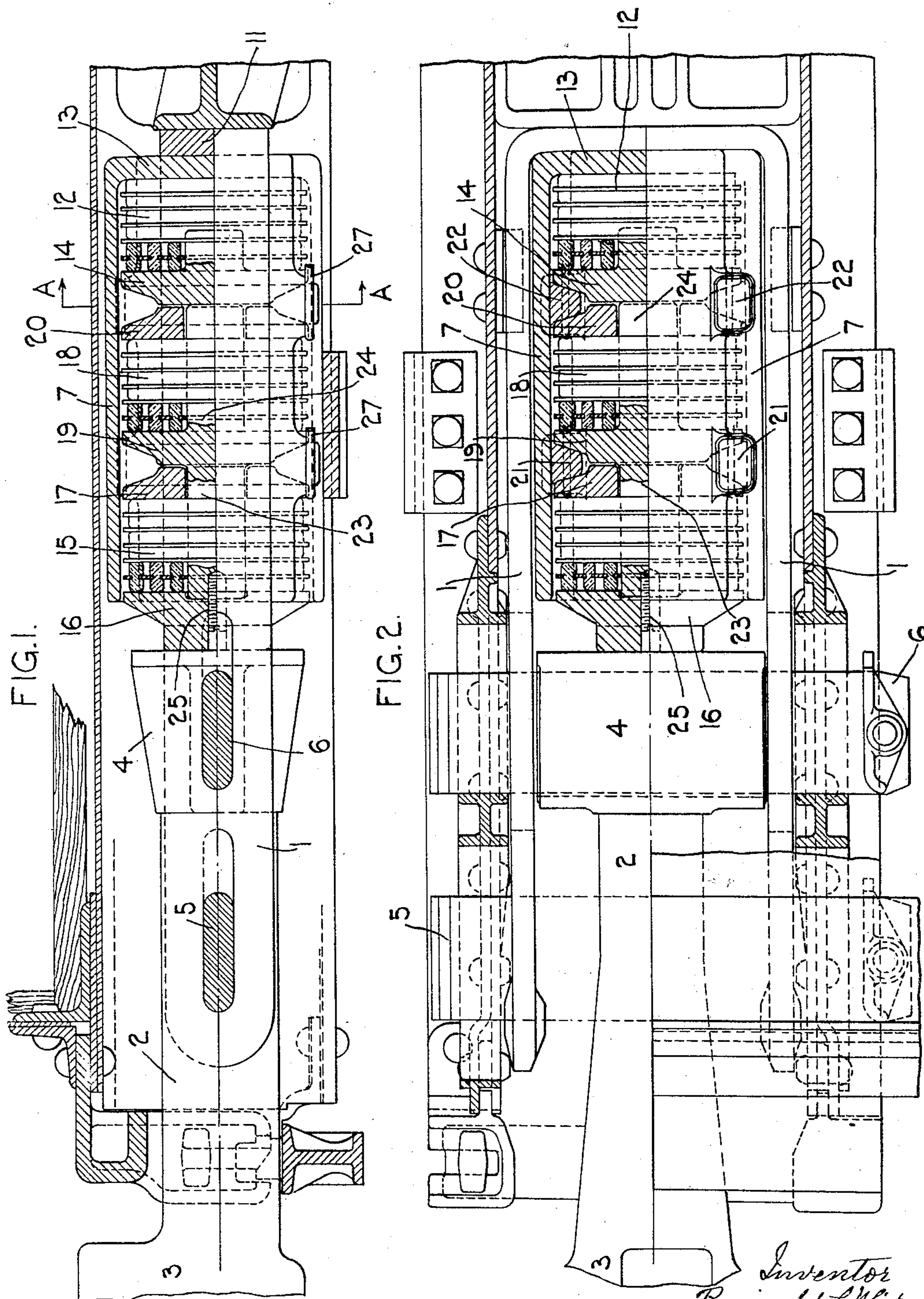
R. L. WHITMORE

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CENTRAL BUFFING AND DRAWGEAR FOR RAILWAY VEHICLES

Filed Jan. 25, 1930

2 Sheets-Sheet 1



Inventor
Reginald L. Whitmore
by Herbert W. Jenner
Attorney.

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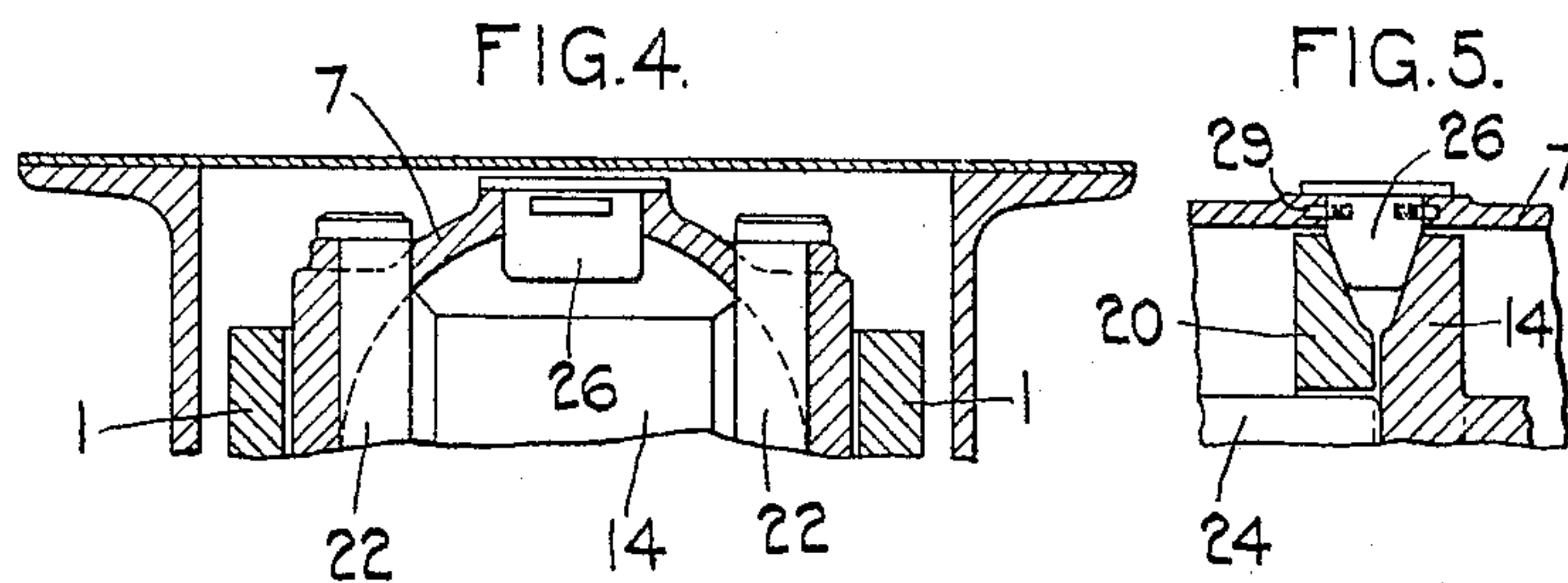
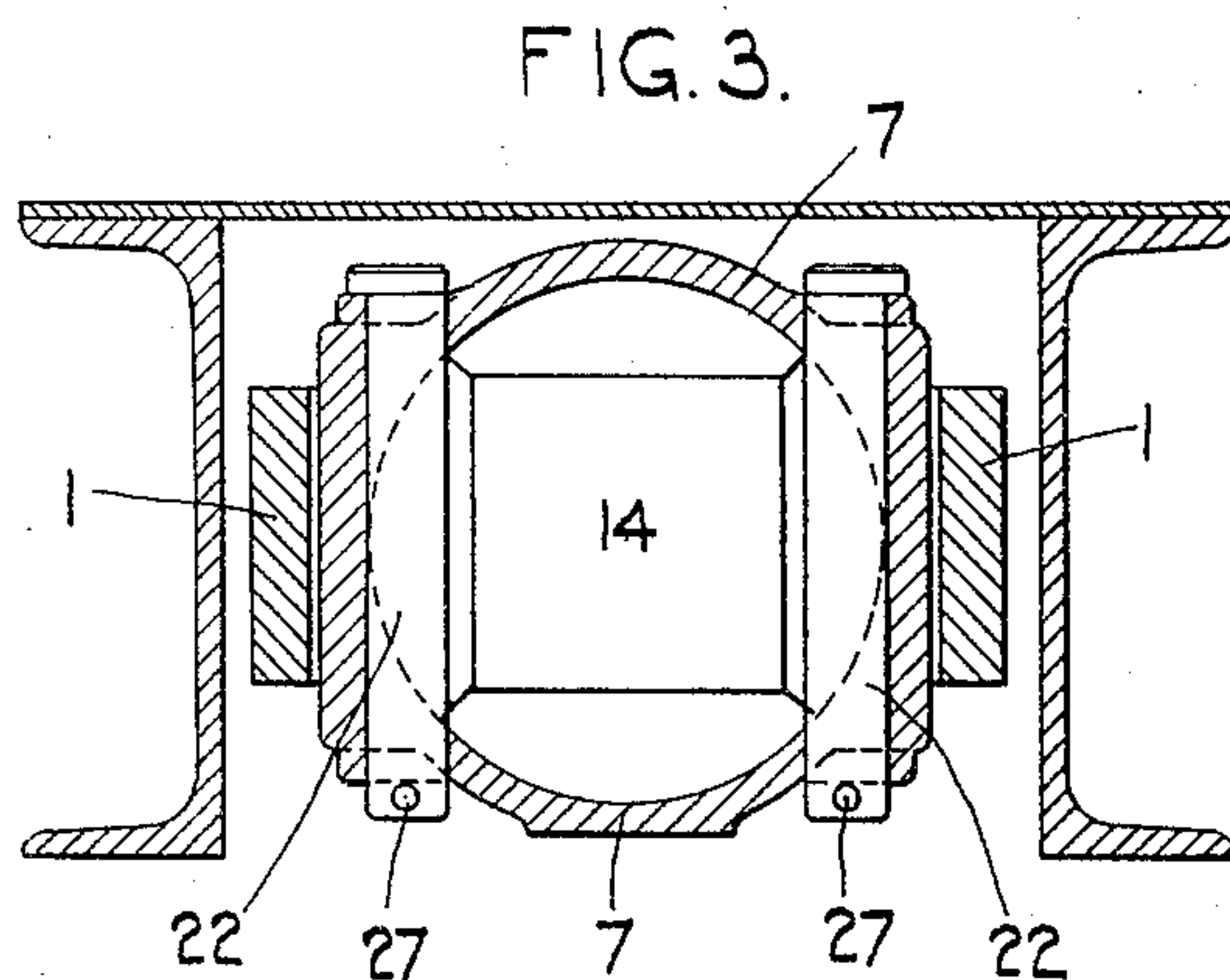
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Inventor
Reginald L. Whitmore
by Herbert H. Jenner
Attorney.

UNITED STATES PATENT OFFICE

REGINALD LAWRENCE WHITMORE, OF LONDON, ENGLAND

CENTRAL BUFFING AND DRAWGEAR FOR RAILWAY VEHICLES

Application filed January 25, 1930, Serial No. 423,434, and in Great Britain May 14, 1929.

This invention relates to central buffing and draw gear of the kind in which buffing and draw springs are embraced by a yoke that, by a cotter and slot connection with the coupler head shank, is pulled outwardly when drawing and relatively to which the coupler head and shank can move inwardly when buffing.

According to the invention buffing and draw springs are located within a suitable housing embraced by the limbs of the yoke, the closed end of said housing bearing against the end of the yoke and the springs being arranged within said housing and bearing at one end against the said closed end thereof and at the other end against a pressure plate that can slide in said casing and which is moved inwardly by the follower head against which bears the shank of the coupler head.

Preferably the buffing and draw springs are India-rubber springs of the well known kind comprising units each consisting of concentric rings or frames of India-rubber moulded on to opposite sides of a metal plate, the several units constituting a spring being arranged in column form with metal dividing plates between the spring units of the column. The invention is not, however, restricted to the use of India-rubber springs as in some cases steel springs may be employed or a combination of India-rubber springs and steel springs.

With advantage the buffing and draw springs are so associated with compression plates and abutments that they are compressed in parallel, or first in series to a predetermined extent and then in parallel, or first in series, then singly, and finally in parallel.

Figs. 1 and 2 of the accompanying drawings show in sectional elevation and in sectional plan, respectively, a construction of central buffing and draw gear embodying the invention.

Fig. 3 is a transverse section corresponding to the line A A of Fig. 1.

Figs 4 and 5 are views in planes at right angles to each other illustrating a modification.

In the buffing and draw gear shown in Figs. 1, 2 and 3, the yoke 1 is of the ordinary construction and is connected in usual manner to the shank 2 of the coupler head 3 and to the follower head 4 by means of sliding cotters 5 and 6 respectively.

Embraced by the limbs of said yoke is a housing 7 having a cylindrical boring within which are arranged three sets of India-rubber springs of the type hereinbefore mentioned located one behind the other. The inner spring 12 is arranged between the closed end 13 of the housing 7, which bears against the end 11 of the yoke, and a bearing plate 14 arranged to slide in the housing. The front spring 15 is located between a front compression plate 16 that abuts against the follower head 4, and a bearing plate 17 mounted to slide in the housing 7. The intermediate spring 18 is located between two intermediate plates 19 and 20 mounted to slide in the housing. The bearing plate 17 for the inner end of the front spring 15 and the compression plate 19 for the front end of the intermediate spring 18 normally bear against the opposite sides of stops in the form of cotters 21 passed through holes formed therefor in the wall of the housing 7. The compression plate 14 for the front end of the rear spring 12 and the bearing plate 20 for the rear end of the intermediate spring 18 in like manner bear normally against the opposite faces of other similar stop cotters 22 mounted in like manner in the housing.

In order to effect compression of the three springs 15, 18 and 12 in parallel, in the spring arrangement being described by way of example, the compression plate 19 for the front end of the intermediate spring 18 is formed or provided on its front face with an axial pin or long boss 23 that projects through the bearing plate 17 and the front spring 15 and the inner end of which bears against the compression plate 16 for the front spring 15. A similar pin or long boss 24 projecting axially from the rear face of the said compression plate 19 passes through the said intermediate spring 18 and the bearing plate 20 and bears against the compression plate 14 for the front end of the rear spring. To fa-

cilitate assembly the front compression plate 16 is formed with a tapped axial hole through which an assembly stud 25 is screwed into a tapped axial hole formed therefor in the front end of the axial pin or long boss 23 that bears against the said compression plate. Preferably, as shown, the front end of said axial pin or boss 23 fits into a recess provided to receive it in the rear face of the front compression plate 16. It will be understood that the assembly stud 25 holds the front spring 15 in any required condition of initial compression during assembly of the parts.

Each of the three springs 15, 18 and 12 may comprise any appropriate number of spring units and instead of three springs one or two or a greater number than three may be employed. In the example under notice each spring comprises three units of the concentric India-rubber ring type.

The construction and arrangement are such that in buffing the front spring 15 is directly compressed by inward movement of the follower head 4 and at the same time the two other springs 18 and 12 are compressed in parallel therewith by movement of their front compression plates 19 and 14 through the before-mentioned axial pins or bosses 23 and 24. In drawings, the three springs 15, 18 and 12 are in like manner compressed in parallel, the stop cotters 21 and 22, that move with the yoke, carrying with them the bearing plates 17 and 20 the movement of which effects the compression of the front and intermediate springs 15 and 18 respectively.

With advantage the stop cotters 21 and 22 are of the truncated conical cross section shown as by making them of such a cross-section the compression and bearing plates that abut against the inclined opposite sides thereof may be made of gradually increasing thickness towards their axes in order to give them strength and stiffness. Preferably that face of each of the said compression or bearing plates which abuts against the stop cotters is of truncated pyramidal formation to provide faces of substantial area that bear against the stop cotters, see Fig. 3. The stop cotters may, as shown, be located vertically one towards each side of the spring housing 7 and if desired, in order to balance the stresses, short additional stop members may be passed through slots formed in the top and bottom walls of the housing. Figs. 4 and 5 illustrate stop members 26 in association with the stop cotters 22. The stop cotters 21 and 22 are provided with heads and are retained in place as by split pins 27. The stop members 26 may, as shown in Fig. 5, be held in place as by spring pressed keys 29.

Although India-rubber springs have been referred to comprising concentric rings or frames of India-rubber it is within the invention to employ India-rubber springs comprising any appropriate arrangement of continu-

ous or interrupted bars of India-rubber moulded on to metal plates.

As will be appreciated, the invention provides satisfactory arrangements of India-rubber buffing and draw springs in central buffing and draw gear of the character mentioned and variations in constructive details may be made without departure from the invention. The India-rubber moulded on to the metal plates may be in the form of concentric rings, rectangular frames, oval ended frames or concentric frames.

What I claim is:—

1. In central buffing and draw gear of the type set forth, a draw bar yoke, a casing embraced by said yoke, a draw rod connected to said yoke, a follower head on said draw rod, three sets of India-rubber springs located one behind the other in said casing, a compression plate for the front end of the intermediate set of springs mounted to slide in said casing, a compression plate for the intermediate set of springs mounted to slide in said casing, cotters removably mounted in said casing between the said two compression plates constituting abutments therefor, a compression plate for the front end of the intermediate set of springs mounted to slide in said casing, a compression plate for the rear end of the front spring mounted to slide in said casing, cotters removably mounted in said casing between the said two last mentioned compression plates to constitute abutments therefor and a front compression plate between said follower head and the front set of springs.

2. In central buffing and draw gear of the type set forth, a draw bar yoke, a casing embraced by said yoke, a draw rod connected to said yoke, a follower head on said draw rod, three sets of India-rubber springs located one behind the other in said casing, a compression plate for the front end of the intermediate set of springs mounted to slide in said casing, a rearwardly extending axial boss on such plate in abutment with first-mentioned compression plate, a forwardly extending axial boss on such front compression plate for the front end of the intermediate set of springs engaging the follower head, a compression plate for the rear end of the front spring mounted to slide in said casing and on said second axial boss, cotters removably mounted in said casing between the said two last mentioned compression plates constituting abutments therefor and a front compression plate between said follower head and the front set of springs, the arrangement being such that all three sets of springs are compressed in parallel when either buffing or drawing.

3. In central buffing and draw gear of the kind set forth, a draw bar yoke, a casing embraced by said yoke, three sets of India-rubber springs arranged tandemwise within said

casing, a compression plate endways movable in said casing for each of said sets of springs, rigid members positively spacing alternate compression plates, and cotters
5 forming abutments for said compression plates, removably carried by said casing to effect compression of said three sets of springs in parallel when either buffing or drawing.

10 In testimony whereof I affix my signature.
REGINALD LAWRENCE WHITMORE.

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