

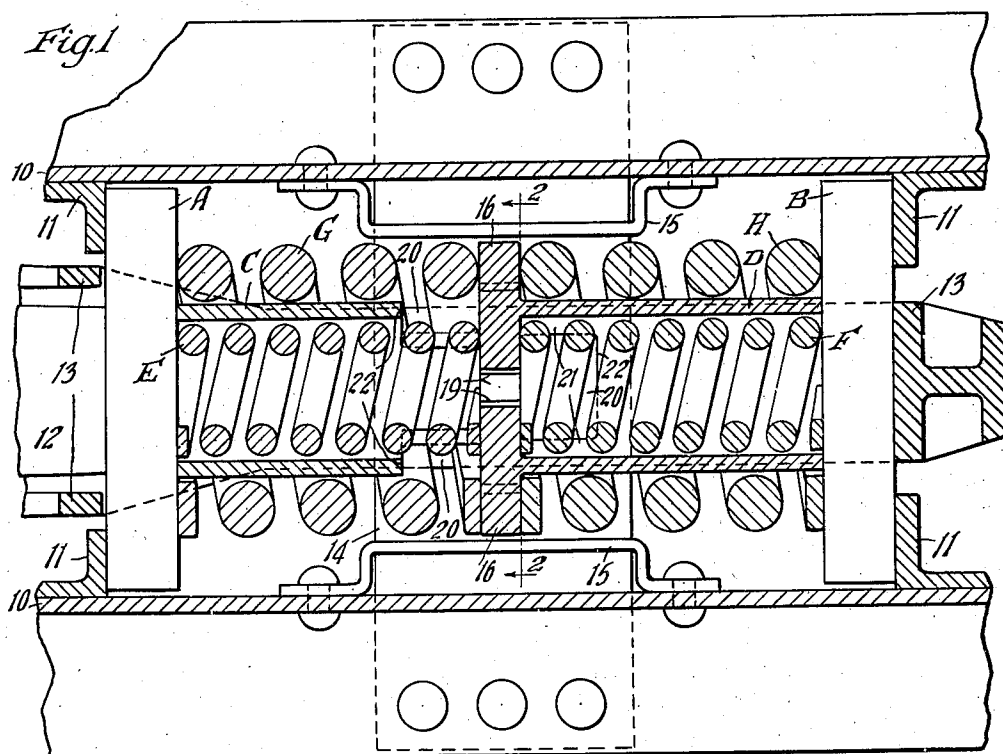
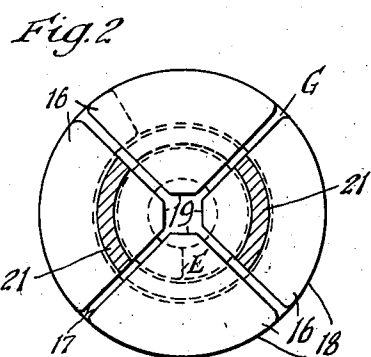
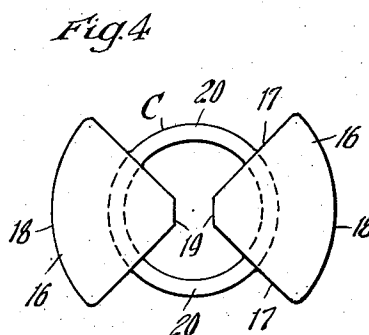
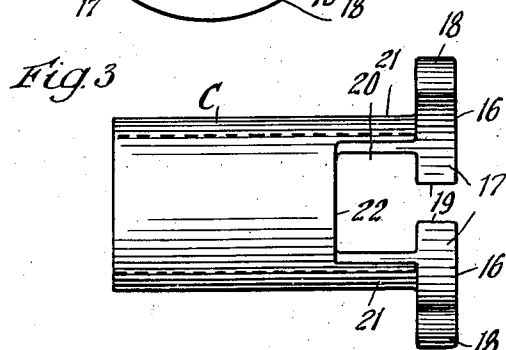
March 5, 1946.

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2,395,972

SHOCK ABSORBING MECHANISM

Filed Feb. 12, 1944



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UNITED STATES PATENT OFFICE

2,395,972

SHOCK ABSORBING MECHANISM

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Application February 12, 1944, Serial No. 522,070

4 Claims. (Cl. 213—45)

This invention relates to improvements in shock absorbing mechanisms adapted for draft riggings of railway cars.

One object of the invention is to provide a spring shock absorbing mechanism, including relatively movable pressure transmitting members and springs compressible in tandem by relative movement of said members, wherein high spring capacity is obtained by locating spring members both interiorly and exteriorly of said pressure transmitting members.

Another and more specific object of the invention is to provide a shock absorbing mechanism for railway draft riggings, including front and rear followers, front and rear spring casings having intermediate follower means formed integral therewith, front and rear inner springs within the casings, and front and rear outer springs surrounding the casings, wherein the front springs are compressible between the front follower of the rigging and the intermediate follower of the rear casing, and the rear springs are compressible between the rear follower of the rigging and the intermediate follower of the front casing, thereby producing compression in tandem of said springs with resultant high shock absorbing capacity.

Other objects of the invention will more clearly appear from the description and claims hereinafter following.

In the drawing forming a part of this specification, Figure 1 is a longitudinal horizontal sectional view through a portion of the underframe structure of a railway car, illustrating my improvements in connection therewith. Figure 2 is a transverse vertical sectional view, corresponding substantially to the line 2—2 of Figure 1. Figure 3 is a side elevational view of the front spring casing illustrated in Figure 1, looking upwardly in said figure. Figure 4 is an end elevational view of Figure 3, looking from right to left in said figure.

In said drawing, 10—10 indicates the usual channel-shaped center sills of a railway car underframe, having spaced front and rear stop lugs 11—11 on the inner sides thereof. The inner end of the shank of the usual coupler is indicated by 12, to which is operatively connected a hooded vertical yoke 13. The usual saddle plate 14 for the yoke is secured to the underneath side of the sills 10—10, and draft gear guide plates 15—15 are provided on the inner sides of the sills 10—10.

My improved shock absorbing mechanism comprises broadly front and rear main followers A and B; front and rear, pressure transmitting spring casings C and D; front and rear inner springs E and F; and front and rear outer springs G and H.

The front and rear follower blocks A and B are of identical design, each block being in the

form of a rectangular, relatively heavy plate. The followers A and B are disposed within the yoke 13 at the front and rear ends thereof and cooperate respectively with the front and rear stop lugs 11—11 and 11—11.

The front and rear, pressure transmitting spring casings C and D are identical, each casing being in the form of a tubular shell of substantially cylindrical cross section, open at the outer and inner ends. At the inner end, each casing is provided with two diametrically opposite flanges or wings 16—16 of fan-shaped outline, having outwardly diverging side edges 17—17 radial to the longitudinal central axis of the shell and a curved outer edge 18 concentric to said axis. Each flange or wing 16 projects both inwardly and outwardly from the side wall of the casing, and the opposed flanges of each casing provide intermediate follower means integral with said casing. At the inner ends thereof, the opposed flanges 16—16 are spaced apart slightly, as shown in Figure 4, and have substantially straight opposed edges 19—19. Between the flanges or wings 16—16, the opposed side wall portions of the casing are cut away, or recessed, providing longitudinally extending, diametrically opposite slots 20—20 and diametrically opposite arms 21—21 extending lengthwise of the casing. The slots 20—20 of each casing are of a width to accommodate the arms 21—21 and wings 16—16 of the other casing for lengthwise sliding movement, the transverse inner end walls 22—22 of the slots of said casings providing a stop for limiting relative movement of the casings toward each other.

The casings C and D are reversely arranged end for end and have the arms 21—21 thereof intermeshed, the casing C being turned about its axis through an angle of 90 degrees with respect to the casing D. The casings C and D have their open outer ends bearing respectively on the front and rear followers A and B, and the intermediate follower members or wings 16—16 of said casings are guided between the draft gear guide plates 15—15 of the center sills of the car.

The inner springs E and F are disposed respectively within the front and rear casings C and D, the spring E having its front end bearing on the follower A and its rear end on the inwardly projecting portions of the wings or followers 16—16 of the rear casing D, and the spring F having its rear end bearing on the rear follower B and its front end on the inwardly projecting portions of the wings or followers 16—16 of the front casing C.

The outer springs G and H, which are heavier than the springs E and F, are disposed at the front and rear ends of the mechanism, respectively, the spring G surrounding the front casing C, with its front end bearing on the front follower A and its rear end bearing on the outer

portions of the wings or follower members 16—16 of the rear casing D, and the spring H surrounding the rear casing D, with its rear end bearing on the rear follower B and its front end bearing on the wings or follower members 16—16 of the front casing C.

The operation of my improved shock absorbing mechanism is as follows: Upon a pulling or draft stroke of the coupler of the draft rigging, the rear follower B is pulled forwardly by the yoke 13, carrying the rear follower casing D therewith, compressing the rear springs F and H between the follower B and the follower members 16—16 of the front casing C, which is held stationary during this action by abutment with the front follower A, which is held against outward movement by the front stop lugs 11—11, and compressing the front springs E and G between the follower members 16—16 of the rear casing D and the stationary front follower A. Upon a buffing force being applied to the coupler, the front follower A is forced rearwardly toward the rear follower B, which is held stationary by the rear stop lugs 11—11, and the front casing C is carried rearwardly with the follower A, compressing the front springs E and G between the front follower and the follower members 16—16 of the rear casing D, which is in abutment with the rear follower B and held stationary thereby, and compressing the rear springs F and H between the follower members 16—16 of the front casing C and the rear follower B.

Compression of the springs is limited by engagement of the winged ends of the arms 21—21 of the casings with the stops 22—22 of said casings, thereby preventing undue compression of said springs.

In release, the expansive action of the springs E, F, G, and H restores all of the parts of the mechanism to the normal position shown in Figure 1.

I have herein shown and described what I now consider the preferred manner of carrying out my invention, but the same is merely illustrative and I contemplate all changes and modifications that come within the scopes of the claims appended hereto.

I claim:

1. In a shock absorbing mechanism, the combination with front and rear main followers movable relatively toward and away from each other; of front and rear pressure transmitting casings bearing on said front and rear main followers respectively; intermediate follower means on said casings, respectively; front and rear compressible shock absorbing means exterior to said front and rear casings respectively, said front shock absorbing means bearing at its front and rear ends on the front main follower and the intermediate follower of said rear casing, and said rear shock absorbing means bearing at its front and rear ends on said intermediate follower of the front casing and said rear main follower; and front and rear compressible shock absorbing means within said casings, said last named front shock absorbing means bearing at its front and rear ends on the front main follower and the intermediate follower means of said rear casing, and said last named rear shock absorbing means bearing at its front and rear ends on said intermediate follower means of the front casing and said rear main follower.

2. In a shock absorbing mechanism, the combi-

nation with front and rear main followers movable relatively toward and away from each other lengthwise of the mechanism; of front and rear pressure transmitting casings, said front casing bearing at its front end on said front main follower, and said rear casing bearing at its rear end on said rear main follower; a front intermediate follower at the rear end of the front casing and rigid therewith; a rear intermediate follower at the front end of the rear casing and rigid therewith; front and rear outer springs surrounding said casings; and front and rear inner springs within said casings, said front outer and inner springs bearing at opposite ends on said front main follower and rear intermediate follower, and said rear outer and inner springs bearing at opposite ends on said front intermediate follower and said rear main follower.

3. In a shock absorbing mechanism, the combination with front and rear main followers movable relatively toward and away from each other lengthwise of the mechanism; of front and rear pressure transmitting casings, said front casing bearing at its front end on said front main follower, and said rear casing bearing at its rear end on said rear main follower; a pair of rearwardly extending arms on said front casing; a pair of forwardly extending arms on said rear casing slidably engaged between the arms of the front casing; front intermediate follower members at the rear ends of the arms of the front casing and rigid therewith; rear intermediate follower members at the front ends of the arms of the rear casing and rigid therewith; front and rear outer springs surrounding said casings; and front and rear inner springs within said casings, said front outer and inner springs bearing at opposite ends on said front main follower and rear intermediate follower members, and said rear outer and inner springs bearing at opposite ends on said front intermediate follower members and said rear main follower.

4. In a shock absorbing mechanism, the combination with front and rear main followers movable relatively toward and away from each other lengthwise of the mechanism; of front and rear pressure transmitting casings, said front casing bearing at its front end on said front main follower, and said rear casing bearing at its rear end on said rear main follower; a pair of rearwardly extending, diametrically opposite arms on said front casing; a pair of forwardly extending, diametrically opposite arms on said rear casing slidably engaged between the arms of said front casing; front intermediate follower members at the rear ends of the arms of the front casing and rigid therewith; rear intermediate follower members at the front ends of the arms of the rear casing and rigid therewith, each of said intermediate follower members comprising a transversely disposed, fan-shaped plate, projecting laterally inwardly and outwardly from the corresponding arm; front and rear outer springs surrounding said casings; and front and rear inner springs within said casings, said front outer and inner springs bearing at opposite ends on said front main follower and rear intermediate follower members, and said rear outer and inner springs bearing at opposite ends on said front intermediate follower members and said rear main follower.

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