

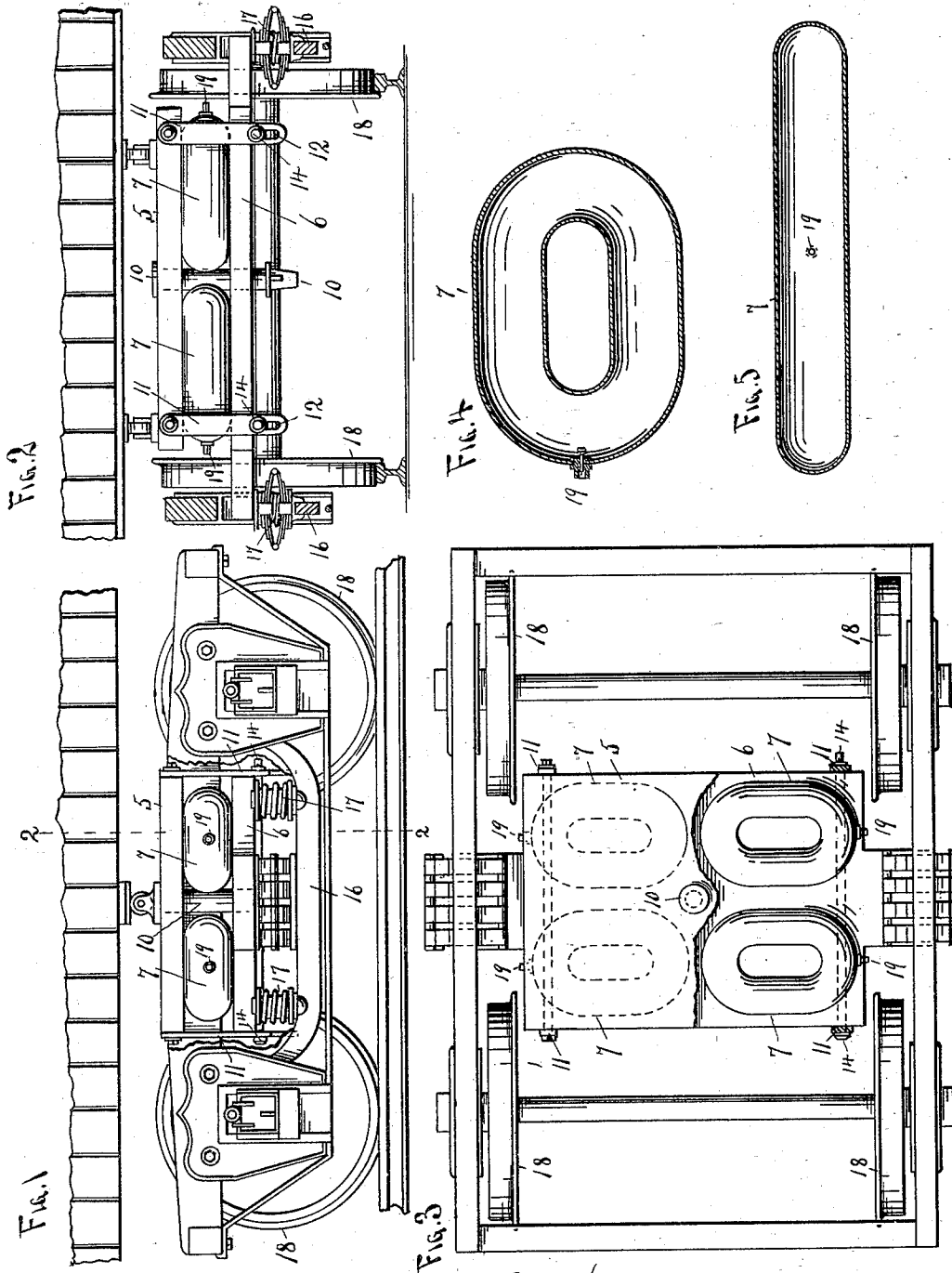
No. 691,862.

Patented Jan. 28, 1902.

P. HERPOLSHEIMER.
PNEUMATIC CAR SPRING.

(Application filed Mar. 28, 1901.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

PAUL HERPOLSHEIMER, OF SEWARD, NEBRASKA.

PNEUMATIC CAR-SPRING.

SPECIFICATION forming part of Letters Patent No. 691,862, dated January 28, 1902.

Application filed March 28, 1901. Serial No. 53,279. (No model.)

To all whom it may concern:

Be it known that I, PAUL HERPOLSHEIMER, a citizen of the United States, residing at Seward, in the county of Seward and State of Nebraska, have invented a new and useful Pneumatic Car-Spring, of which the following is a specification.

This invention relates to car-springs; and it has for its object to provide a pneumatic car-spring of such form and arrangement that it will have a most efficient operation, while the material of which the inclosing casing is formed will be stretched to a minimum degree and will have consequently a long life, further objects and advantages of the invention being apparent from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a side elevation of a car-truck provided with pneumatic springs constructed and arranged in accordance with the present invention. Fig. 2 is a vertical section taken on line 2 2 of Fig. 1. Fig. 3 is a top plan view of the truck, one of the bolster-plates being broken away to show the form and arrangement of the springs. Fig. 4 is a section showing the shape of one of the springs. Fig. 5 is a longitudinal section of a differently-shaped spring.

Referring now to the drawings, there is shown a truck comprising two bolster-plates 5 and 6, separated vertically by an interspace, and in this interspace and in contact with both bolster-plates are disposed the pneumatic springs. Each of the springs consists of an endless tube 7, which may be in the form of a ring, an ellipse, or of other shape and resting with their side faces in contact with the bolster-plates, so that there is a minimum tendency to lateral rolling. Each spring consists of a casing formed, preferably, of rubber alone or in combination with sustaining materials, such as fabrics, and because of the form of each of these casings the pressure of the upper bolster-plate tends to flatten out the casings, while the tendency to expand the casings is reduced to a minimum. Thus the elasticity of the spring is attained by utilizing almost entirely the elasticity of

the air and not of the rubber of which the casings are formed.

Connecting the bolster-plates 5 and 6 is the usual king-bolt 10, which permits of rotation of the bolster-plates and therewith of the truck, and to prevent rotation of the plates independently brace-plates 11 are bolted fast to the side edges of the plate 5, adjacent to the corners thereof, these plates being shown at 11, and they depend below the plate 6, the plates 11 having longitudinal slots 12 therein, in which are slidably received the bolts 14, which are engaged with the lower plate 6, the ends of the slots when engaged by the bolts 14 acting to limit the movement of the plates 5 and 6 toward and away from each other.

Between the lower bolster-plate 6 and the beams 16 of the car-truck are disposed the usual springs 17 to absorb vibration between the wheels and the lower bolster-plate, the beams being connected with the axle-boxes in the usual manner, and in which boxes are journaled the axles of the wheels 18.

With this construction it will be seen that the truck has springs interposed between the bolster-plates, so that vibration between the truck and car-body is absorbed and other springs for absorbing vibration between the wheels and lower bolster-plate, the result being an extremely easy-running truck.

Each of the casings of the pneumatic springs is provided with a nipple 19 for connection of a pump for supplying air thereto, these nipples of course being provided with the usual inwardly-opening check-valves. (Not shown.)

In practice modifications of the specific construction shown may be made, and any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

In Fig. 5 of the drawings there is shown a shape of spring which is cylindrical with hemispherical ends, it being essential that the outer faces of the rubber be round, so that there will be a minimum tendency to crack. Should corners be used, the rubber would of course soon crack in the corners.

What is claimed is—

1. In a car-truck, the combination with spaced bolster-plates of sustaining-springs

disposed between the plates and lying flat thereon, each spring consisting of an endless hermetically-sealed tube, brace-plates secured to the front and rear edges of the upper bolster-plate and having slots in their lower ends, and bolts passing through the slots and into the front and rear edges of the under bolster-plate, substantially as described.

2. The combination with a car-truck provided with the usual frame-springs of spaced bolster-plates, the under one of which rests upon the springs, pneumatic cushions inter-

posed between the two bolster-plates and occupying a horizontal plane, and brace-plates connecting the front and rear edges of the two bolster-plates and constructed to permit yielding action thereof, and to limit their range of motion, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

PAUL HERPOLSHEIMER.

Witnesses:

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