Oct. 11, 1955 H. E. TUCKER 2,720,319

CUSHIONS FOR DRAFT GEARS

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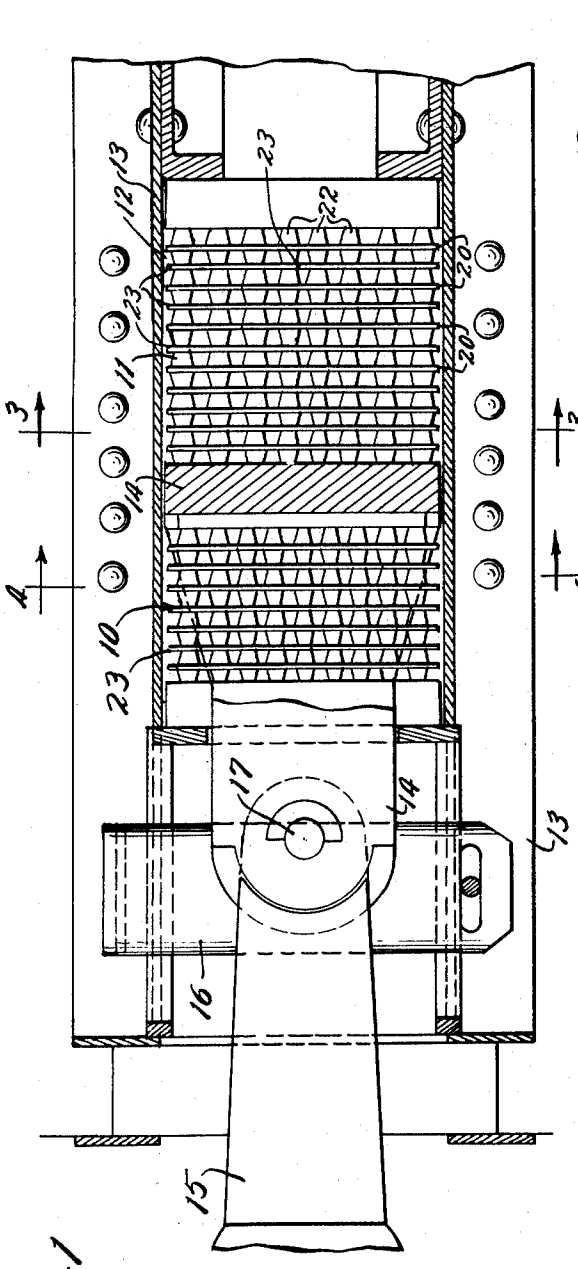


Fig-1

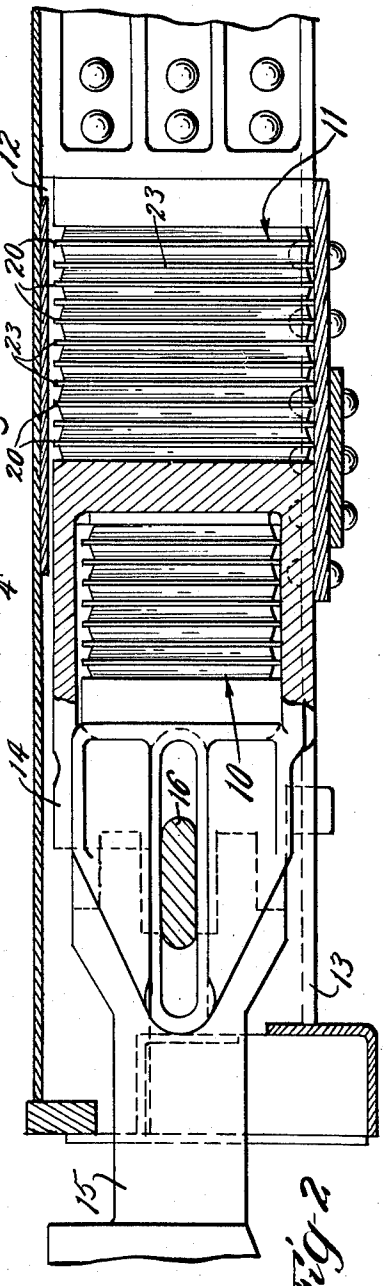


Fig-2

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Fig-3

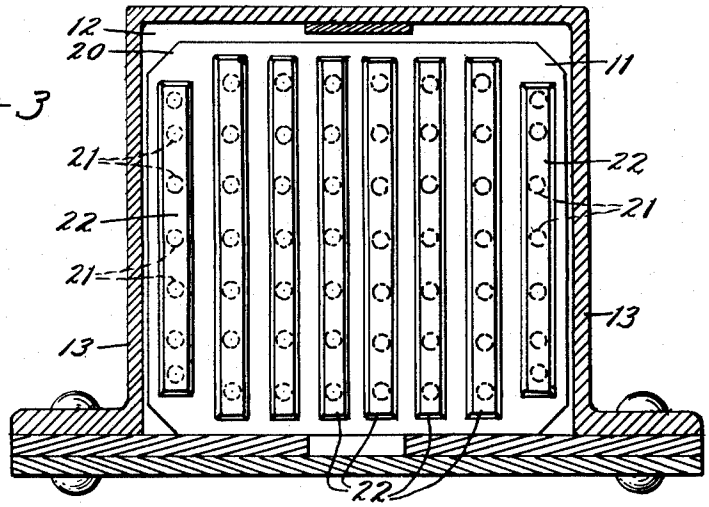


Fig-4

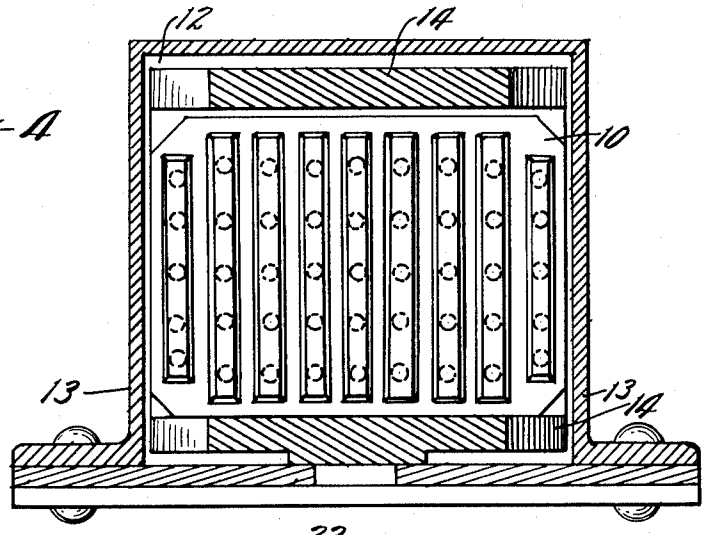
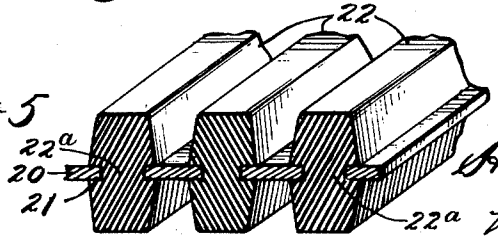


Fig-5



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CUSHIONS FOR DRAFT GEARS

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Application April 30, 1951, Serial No. 223,746

1 Claim. (Cl. 213—44)

This invention relates to railway draft gears of the type having resilient elements made of rubber blocks on a mounting or supporting plate of steel. In certain prior art types, the rubber is in the form of oval rings or bars, rectangular in cross section, secured on opposite sides of a steel plate. A number of such resilient elements are assembled in a group with alternate spacer plates, which serve as inactive elements, and follower blocks are provided at the ends of the group.

Under draft or buff stresses, the rubber rings are compressed, and likewise the air surrounded by them, some of which air is expressed past the spacer plates. Upon release, the rubber expands, creating a partial vacuum, which is filled with air entering past the spacer plates under atmospheric pressure. That entering air is generally laden with dust and dirt, which gets between the working surfaces and causes wear.

The principal object of this invention is to prevent that difficulty with former devices. Generally speaking, this is accomplished by making the rubber in separate bars arranged alongside and spaced from each other by open spaces.

In the drawings:

Fig. 1 is a plan section through the mid portion of the car sills showing the draft gear arrangement;

Fig. 2 is a vertical section on the center line of the car through the same arrangement;

Figs. 3 and 4 are cross sections on the lines 3—3 and 4—4 of Fig. 1; and

Fig. 5 is a perspective view of a portion of one of the resilient elements, with the section being taken through a row of plugs connecting the bars on opposite sides of the mounting plate.

In these drawings, a draft cushion, generally indicated by **10**, and a buff cushion, generally indicated by **11**, each made of a group of resilient elements, are shown in a conventional draft gear pocket **12** between sills **13** and cooperating with a draft yoke **14** connected with a coupler shank **15** by a key **16** and a pivot pin **17**.

The cushion **10** is of less capacity than the cushion **11**, because the draft stresses are lower than the buff stresses. Each cushion is made up of a plurality of units embodying the present invention, and, while they are shown of different sizes and grouped in different numbers, the resilient elements are substantially the same in both.

Each element is made up of a plate **20** of relatively incompressible material—preferably, steel; 3/16" S. A. E. 1010 is satisfactory.

It is provided with rows of aligned spaced openings **21** and bars **22**, frusto-pyramidal in cross section, overlying each of the rows of openings on each side of the plate, and are connected by plugs **22***a*. The bars and the plugs are of resilient material, such as a rubber composition of suitable durometer hardness—for example, 58 to 62. The connection between the bars and the plugs, or one bar and the plugs, is effected by vulcanizing, which may or may not also make the bars fast to the steel plate.

In making up the groups forming the cushions **10** and **11**, resilient elements are arranged alternately with spacer plates **23**, also of relatively incompressible material—preferably steel.

In this particular embodiment, the draft group **10** is composed of four resilient elements and three 3/16" spacers, 12 5/8" x 9", and each buffing group **11** is composed of six resilient elements and five 3/16" spacers, 12 5/8" x 11 3/4".

Each resilient element for the draft group **10** includes seven long bars of rubber and two short ones, one at each side, as shown in Fig. 4. Each resilient element for the buffing group or cushion **11** has six long bars and two short ones, as shown in Fig. 3.

Each of the resilient elements has bars spaced 1 1/16" on centers and 27/32" from the margin of each supporting plate. The overall height of the bars is 1 13/16" in inactive condition, and is intended to compress to 1 9/64" under load. The plugs **22***a* are placed 1 5/8" on centers in the rows. Dimensions are illustrative only.

In operation, it will be seen that under draft or buff stress the rubber bars are compressed without forming a high pressure air body between them, which would force air to escape along the spacer plates. Also, upon release, there is no such vacuum as would work dust laden air between the rubber bars and the spacer plates.

Furthermore, since the bars are all vertical, any dirt or foreign matter that finds its way into the unit will fall out by gravity and therefore have no opportunity to find its way into the working surfaces of the gear to cause wear.

I claim:

A draft gear adapted to be operatively connected to a coupler and mounted in a center sill pocket of a railway car or the like, said draft gear comprising a spring unit, means for transmitting coupler forces to the spring unit for energy absorption thereby, said spring unit comprising a plurality of spaced vertical mounting plates, each such plate having mounted on opposite sides of its working face a plurality of spaced, relatively straight, vertical rubber bars, the bars on one side of each mounting plate being discrete with respect to the other bars on said one side, but integrally joined with the opposed bars on the opposite side of said plate through openings provided in said plate, and a spacer plate between each two adjacent mounting plates, said laterally spaced vertical bars permitting dirt and other foreign material to fall by gravity away from the working surfaces of the unit, and said bars terminating a substantial distance from the bottom of the mounting plates whereby an air-bellows effect is avoided that would blow said dirt and foreign material back into said working surfaces when the gear is operated.

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