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D. H. SCOTT

BUFFER OR BUMPER FOR AMUSEMENT VEHICLES OR CARS

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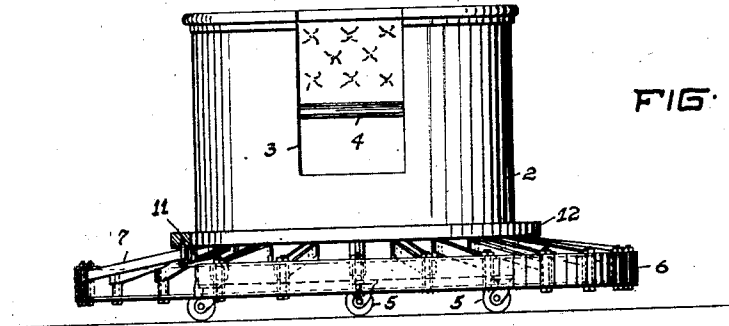


FIG. 1.

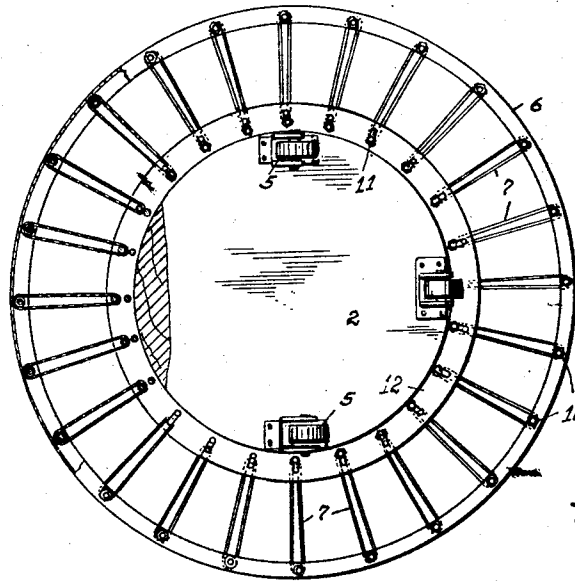


FIG. 2

FIG. 4

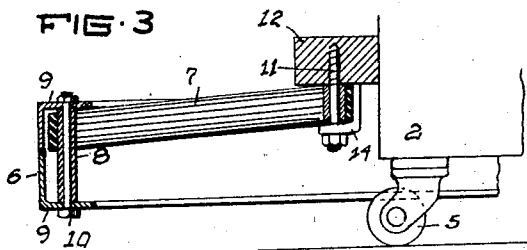
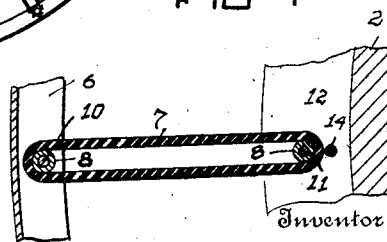


FIG. 3



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## UNITED STATES PATENT OFFICE.

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## BUFFER OR BUMPER FOR AMUSEMENT VEHICLES OR CARS.

Application filed January 14, 1928. Serial No. 246,661.

The present invention pertains to an improvement in a buffer or bumper for amusement vehicles or cars, such for example, as are caused to travel in confined spaces or over fixed areas with similar cars and which are especially designed to rotate and roll in an erratic manner and come in forcible contact frequently. The invention is also an improvement in the buffer construction shown and described in the Letters Patent to C. F. Stillman, No. 1,420,065, dated June 20, 1922. In that particular device an annular buffer member is supported by a series of coiled springs. The present buffer is constructed to avoid certain objections and difficulties arising from the use of coil springs, all as hereinafter shown and described and more particularly pointed out in the claims.

In the accompanying drawings, Fig. 1 is a side elevation of an amusement car embodying my improvement, and Fig. 2 is a bottom view, partly in section, of the part shown in Fig. 1. Fig. 3 is a sectional view on a larger scale, of a portion of the device, and Fig. 4 is a horizontal section of the same parts.

The amusement vehicle or car with which the buffer is used, is usually constructed with a round body 2 having an entrance 3 and seats 4 therein. Also this body is customarily mounted upon casters 5 to permit it to roll over a stationary and movable surface with an irregular rolling movement in every direction. In some instances a rotating floor is used adjacent an inclined stationary floor to produce irregular revolving movements of the car, and a number of such cars are thereby operated and brought forcibly together at frequent intervals, sometimes in a direct line and at other times with glancing impact. The rate of travel is sometimes slow and then again very rapid, so that a considerable shock is experienced by the occupants of the car, which shock must be absorbed resiliently to protect the occupants of the car and the load itself. The buffer, therefore, must be of sturdy construction to withstand the blows and must also be so constructed that a considerable degree of resiliency will be present, and the resilient means must be of such character that a free and wide scope of movement of the buffer may be obtained without injury to such means or without

unduly shortening the life and effectiveness thereof. To that end, I provide a buffer ring 6 made of angle iron or a channel iron and support said ring in spaced relation to the base portion of car 2 by means of a series of endless rubber bands 7 in lieu of using coil springs as shown in the Stillman patent. The rubber bands are normally under stress and tension, one end being looped around a bushing 8 which is secured loosely between the horizontal flanges 9—9 of ring 6 by means of a bolt 10, and the opposite end of rubber band 7 being looped in a similar way around a bushing 8' on bolt or screw 11 suspended or projected downwardly from a wooden sill 12 on body 2, and this end of band 7 is also held against disconnection by an angular fitting 14 sleeved over and held by said bolt 11. The mode of attaching each rubber band 7 is the same radially at all places in the car, and the number of such bands used may vary according to the size of the car and the buffer ring. The bands which I use correspond in thickness to the average inner tube of a vehicle tire, and the tension and strength of such bands is such that a relatively heavy buffer ring 6 may be supported in a horizontal position opposite the base of car 2 a few inches above and apart from the floor over which the car travels. Moreover a rubber band such as I have described is capable of permitting the buffer ring to surrender or yield, under severe shock, in substantial degree, without undue strain, stretch or jeopardy to the rubber bands, the elastic limits of the band greatly exceeding that of any coiled wire spring which must operate within the same confining limits. Accordingly the rubber bands are more effective, safer to use, and more durable than springs. Also, varying degrees of tension may be obtained for any given operating unit by merely using bands of greater thickness or of width, all without change in the buffer or car or the distance between the buffer ring and car body. The rubber bands 7 are therefore so supported that they may be readily attached to and detached from the car body.

In operation when the buffer ring meets an obstruction or is brought into forcible contact with another similar buffer the ring is forced toward the body at one side and

obviously the opposite side of the ring moves away from the body, thereby stretching the rubber bands on that side. If the portion of contact is so severe that lateral movement of the ring is an extreme one, the rubber bands 5 7 will buckle freely at one side of the body where the ring is engaged, and the rubber bands at the opposite side of the body will be stretched in substantial degree but not 10 to their extreme elastic limits, a large factor of safety within such limits being present in the band itself, as originally designed. The rubber bands are therefore more effective and have greater durability and a longer 15 life and also more economical to make and use than coil springs. The rubber bands also permit a greater freedom of movement of the buffer ring and a freer buckle in themselves without possible injury to them- 20 selves during action than wire springs, and the action of each rubber band is more solid and requires no lubrication as compared with springs.

What I claim, is:

25 1. A buffer or bumper for amusement cars of the type described, comprising a buffer ring, together with a series of rubber bands secured to said ring and to the car body and supporting the ring resiliently in spaced 30 relation to the body and apart from the floor supporting body.

2. An amusement vehicle or car of the type described, having a buffer ring supported in spaced relation to the car body by

means of a series of radially extending bands 35 made of rubber.

3. An amusement vehicle or car of the type described, mounted upon rolling supports, having a separate buffer ring encircling a spaced portion and suspended there- 40 from in spaced concentric position in respect thereto by means of a series of radially extending rubber bands, said bands being endless bands and secured at their opposite looped ends to said ring and to the vehicle 45 body, respectively.

4. An amusement vehicle or car of the type described, having a buffer ring encircling its base portion and spaced apart there- 50 from, said ring being of channel formation and having removable bolts extending through its channel portion, and a series of endless rubber bands secured to the base portion of said body and looped at their 55 outer ends around said bolts.

5. An amusement vehicle or car of the type described, having a separate buffer ring encircling its base portion and supported and spaced apart therefrom by means of 60 endless rubber bands secured at one end to said ring extending radially inward toward said body, and said body having members to which the inner loop ends of said bands are connected.

In testimony whereof I affix my signa- 65 ture.

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