H. A. MEINHARDT.

RESILIENT TIRE.

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1,022,689.

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Fig. 1.

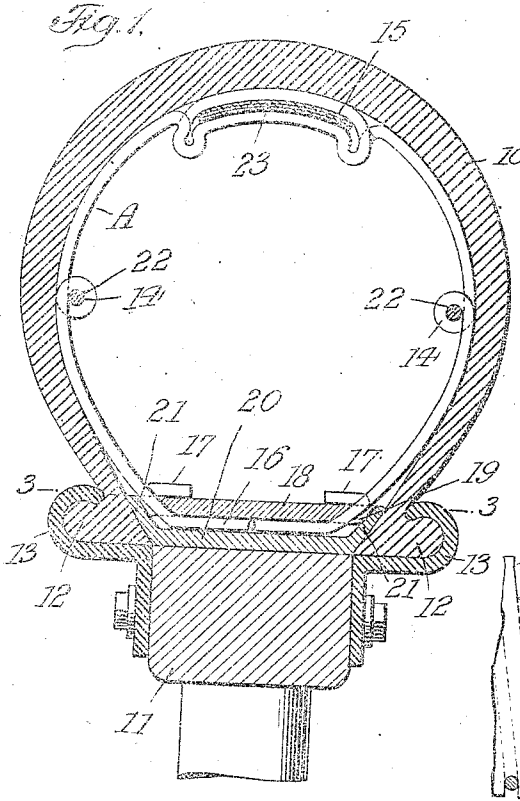


Fig. 4.

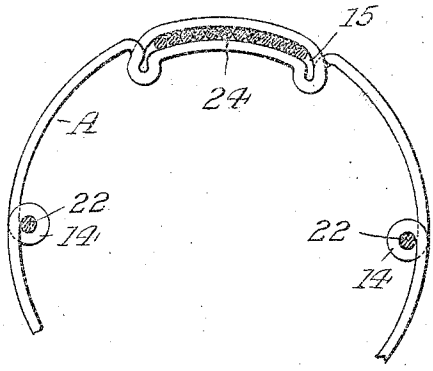
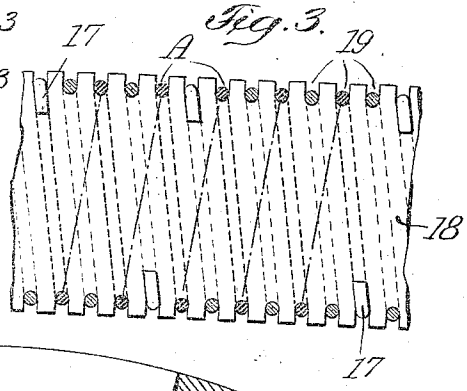


Fig. 3.



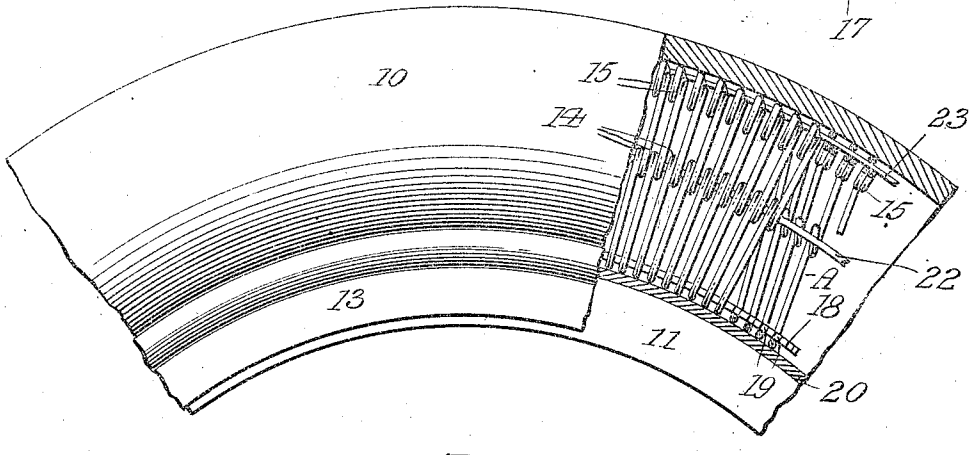


Fig. 2.

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RESILIENT TIRE.

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To all whom it may concern:

Be it known that I, HANS A. MEINHARDT, a citizen of Germany, residing at Pittsfield, county of Berkshire, and State of Massachusetts, have invented a new and Improved Resilient Tire, of which the following is a specification.

This invention relates to a resilient tire of novel construction, which is of superior strength, and distributes the pressure over an extended section thereof, so that the resiliency of a large portion of the tire is utilized for obtaining smooth running.

In the accompanying drawing: Figure 1 is a cross section of a tire embodying my invention; Fig. 2 a longitudinal section partly in side view of a portion thereof; Fig. 3 a section on line 3—3, Fig. 1, with the case tube omitted, and Fig. 4 a detail of a modification of the core.

The case tube 10 of the tire is held in suitable manner to the wheel rim 11, it being shown to be provided with flanges 12 engaged by clamp rings 13 that are bolted to the rim. Within case tube 10 are fitted a plurality of springs A of like construction, each spring comprising a suitable number of convolutes that lie closely against the inner face of the case tube. Springs A are so disposed that the convolutes of each spring are intercoiled with the convolutes of the two adjoining springs, or in other words, each spring is overlapped at its ends by the two flanking springs. In this way the resilient core of the tire is greatly reinforced and weak spots between the springs are prevented, while furthermore any one spring can be replaced without discarding the other springs.

As more fully shown in Fig. 1, the springs are so shaped that each coil thereof is provided with an eye 14 at its right and left side, or about midway between wheel rim and tread. At the tread, the coil is provided with an additional oblong seat or eye 15 which may be formed by doubling the coil partly upon itself. Thus with the construction shown, the wire extends say from the right eye 14 first below the opening 15, then above the same, then again below the opening and then to the left eye 14, but it is obvious that this peculiar arrangement may be modified without departing from the spirit of my invention.

At its inner portion, each coil is flattened as at 16, while a hook 17 is formed at each end of each of the springs. These hooks are adapted to be projected over the beveled edges of a stiff metal ring 18 which is encompassed by the coils and fits closely against the inner flattened sections 16 thereof. The edges of this ring are notched as at 19 to seat the coils and properly space the same. Intermediate ring 18 and the wheel rim, there is arranged a second stiff metal ring 20 which extends over the flattened sections 16 and is provided with outwardly extending diverging flanges 21 that project between springs A and case tube 10.

Through each set of alined eyes 14 of the several spring coils is threaded a common wire binder 22, the ends of which are connected in suitable manner, so that each wire is endless. Thus when two eyes are formed on each coil, two binding wires are employed, the number of such wires changing with the number of eyes.

Within the openings 15 of the several spring coils, is accommodated a further resilient binder which is also endless and thus connects the various spring coils at the tread. This binder is in Fig. 1 shown to consist of a steel band 23 formed of a suitable number of superposed layers while in Fig. 4 it is shown to be composed of a convoluted wire band 24, the coils of which are arranged side by side. In both cases the ends of the binder are of course secured to the body thereof, so as to prevent spreading.

In assembling the parts, springs A are fitted over ring 18, intercoiled with each other in the manner previously described, and then connected to the ring by hooks 17. Next ring 20, is slipped into ring 18 and its edges are turned outwardly to form the diverging flanges 21, thereby interlocking the parts. Binders 22, 23 are now threaded through openings 14, 15 and the ends of each binder 22 are connected with each other while the ends of binder 23 are secured to the body thereof after which the device is in condition to be fitted into the case tube.

It will be seen that in use, the road pressure will flatten the spring convolutes as well as the binder 23 at the tread. But as this binder as well as the auxiliary binders 22 are endless and cannot change their peripheral length, they will in yielding, transmit the strain to a large group of additional wire coils located to the right and left of

the tread. In this way the resiliency of a large plurality of coils is constantly utilized, so that undue strain is prevented and an easy running insured.

I claim:

1. A resilient tire comprising a case tube, and a series of inclosed spiral coils placed endwise of each other to collectively form a sectional spiral core, the end convolutes of each coil entering the end convolutes of the flanking coils.

2. A resilient tire comprising a case tube, a series of inclosed spiral coils placed endwise of each other to collectively form a sectional spiral core, the end convolutes of each coil having hooks and entering the end convolutes of the flanking coils, and a metal ring encompassed by the core and engaged by the hooks.

3. A resilient tire comprising a plurality of intercoiled springs having eyes and hooks, endless binders engaging said eyes, and a ring encompassed by the springs and engaged by the hooks.

4. A resilient tire comprising a plurality of intercoiled springs having eyes, endless binders engaging said eyes, an inner notched ring encompassed by the springs, a case tube, and an outer flanged ring between the case tube and springs.

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