Jan. 19, 1937. R. D. MAY 2,068,061

PNEUMATIC ANTIVIBRATION BELT

Filed Jan. 14, 1936

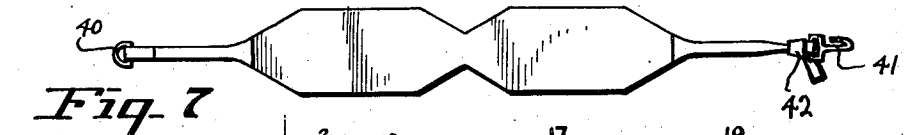


Fig. 7

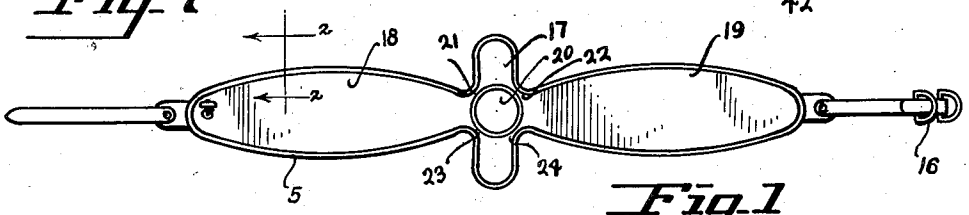


Fig. 1

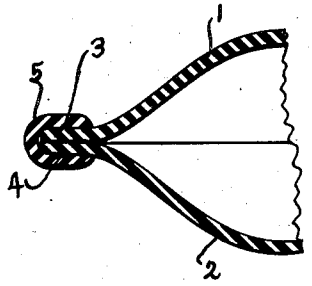


Fig. 2

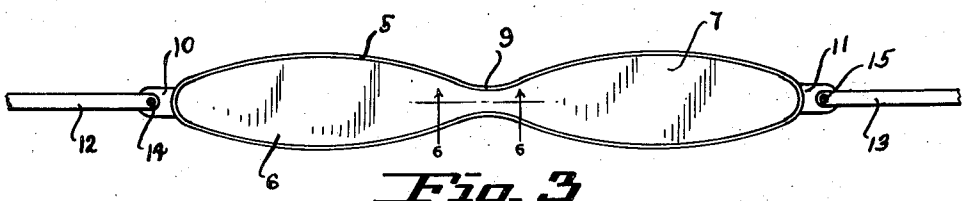


Fig. 3

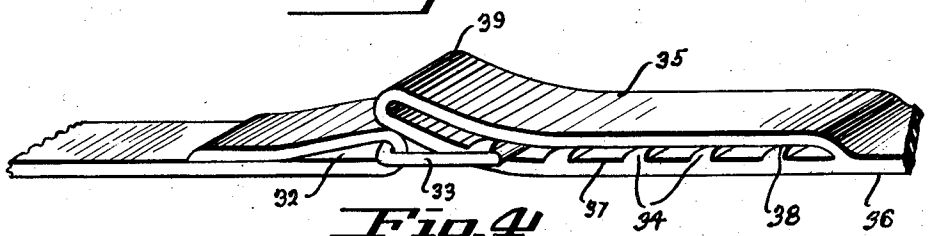


Fig. 4

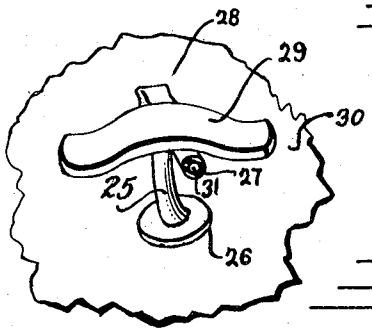


Fig. 5

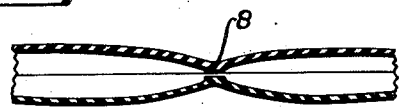


Fig. 6

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PNEUMATIC ANTIVIBRATION BELT

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2 Claims. (Cl. 2—25)

The invention is primarily intended for use of truck, bus and locomotive drivers. The purpose and object of my invention is to provide a pneumatic belt that may be worn by workmen employed in industries where their bodies are subjected to undue vibration. My device is a pneumatic anti-vibration belt and is worn around the central portion of the body and maintains the muscles and other portions of the body immediately adjacent where the belt is worn in a state of equilibrium and one that is substantially free from vibration caused by the character of the work in which the wearer of the belt is engaged.

While I have specifically mentioned vehicle drivers I do not wish to be limited in the application of my belt to the driver of vehicles as the same may be used with comfort and satisfaction by others than that of vehicle drivers with equal facility.

I have herein shown and described some modifications of the construction to better illustrate and disclose the anti-vibration belt that is to be worn by men and women with equal facility. The character of the belt to be worn is somewhat dependent upon the character of the work in which the wearer is employed. Also the character of belts selected is somewhat dependent upon the physical structure of the wearer.

A further object of my invention consists in providing a belt that may be quickly applied and one that may be removed with equal facility by the wearer.

A still further object of my invention consists in so constructing the same that the pneumatic pressure developed and to be maintained within the belt may be made to meet the requirements of the wearer of the same at the will of the wearer.

A still further object of my invention consists in so constructing the same that it will be light in weight, one that will have a long and useful life and one that may have a minimum of first cost and one that may be worn beneath the outer garments of the wearer, when so desired.

With these and incidental objects in view, the invention consists in certain novel features of construction and combination of parts, the essential elements of which are set forth in the appended claims, and a preferred form of embodiment of which is hereinafter shown with reference to the drawing which accompanies and forms a part of this specification.

In the drawing:

Fig. 1 is a plan view of one of my new anti-vibration belts.

Fig. 2 is a fragmentary sectional end view of one of the edges of the belt. This view is made to illustrate the reinforced peripheral edge of the belt. This view is taken on line 2—2 of Fig. 1, looking in the direction indicated.

Fig. 3 is a plan view of a modified form of belt.

Fig. 4 is a fragmentary, perspective side view of the meeting edges of the belt straps made to illustrate a take-up to adapt the girth of the belt to that of the wearer.

Fig. 5 is a perspective, top plan view of a portion of a body of the belt and illustrates the valve for inflating and deflating the belt and illustrates a tab beneath which the valve stem may be inserted to maintain the pneumatic pressure of the belt at the desired pressure.

Fig. 6 is a fragmentary, sectional side view of the belt made to illustrate the communication disposed between the respective compartments of the belt. This view is taken on line 6—6 of Fig. 3, looking in the direction indicated.

Fig. 7 is a plan view of a still further modified form of belt.

Like reference characters refer to like parts throughout the several views.

I make my anti-vibration belt in its simplest form a pair of sides 1 and 2. The peripheral edge of the sides is secured together, as illustrated at 3 and 4 and the meeting surfaces of the peripheral edges are fastened together by cement, glue or by vulcanizing the surfaces together when the sides are made of live rubber.

I may desire to place a reinforcing strip 5 along the edges to reinforce the same and to increase the life of the belt. In its simplest form the belt is comprised of two cells having relatively broad faces, as illustrated at 6 and 7 with a communicating passageway 8 extending across the respective cells in order that a uniform pressure may be maintained within the respective cells and also to permit a free communication of air from one cell to the other. The two cells are relatively broad on their sides. The central portion of the belt is restricted between the two sides as illustrated at 9 to give greater comfort to the wearer. Pads 10 and 11 are disposed at either end of the body structure and belt straps 12 and 13 are secured to the respective pads 10 and 11 that are formed integral with the body structure of the belt. I preferably secure the belt straps 12 and 13 to the pads 10 and 11 about any suitable rivets 14 and 15. The rivets 14 are made relatively large in order that a hinging action will be developed between the belt straps and the respective pads. The terminal end of one of the straps is preferably circular. Any

suitable fastening 16, as buckles, are placed adjacent the end of the straps in order that the belt may be comfortably fitted to the body of the wearer.

Where extremely heavy work is encountered by the wearer and where frequent and intensive vibrations are encountered I may desire to make my belt as shown in Fig. 1. When so made the central portion 17 may be made of a greater width than that of the adjacent cell bodies 18 and 19 and the central portion 20 is provided so that the outwardly extending enlargements adjacent the end may be made cellular and made to communicate with the main body cells through relatively small passageways 21, 22, 23 and 24 that are disposed therearound.

The elongated central pad is made to engage the spinal column of the wearer and to support the same, whereas, the adjacent broader pads 18 and 19 are made to engage immediately above the hips and at the small of the back.

Air is admitted into the interior of the belt by a hollow tube 25. The tube 25 is made of live rubber or other highly resilient flexible material and a pad 26 is provided through which the tube 25 passes. The inflation of the belt is accomplished by inserting the end 27 of the tube in the mouth of the one inflating the same and when the desired air pressure is developed in the air cells of the belt the tube is then folded over and on itself as illustrated at 28 and tucked beneath the resilient flexible rubber pad 29 that is secured upon its respective end to the body 30 of the belt. The folding and tucking of the tube beneath the rubber pad 29 closes the passageway 31 of the tube and maintains the air pressure within the air cells of the belt at desired pressure.

Where the wearer of the belt desires to adjust the belt from time to time by the use of one hand only or with a minimum of effort the fastening ends of the belt may be made as illustrated in Fig. 4. When so made a loop is formed in one end of the belt section and a metal link 33 is placed within the loop 32. Locking lugs 34 extend transversely of the belt and the end 35 of the belt is folded over on itself and secured or formed integral with the main end section 36 so that the inner surface 37 of the folded over section rests upon and engages the outer end 38 of the edge of the lugs. By exerting a pulling pressure to the end 39 of the loop the link 33 may be made to engage behind the desired one of the lugs to fit the belt to the body of the wearer and to place the desired tension within the belt structure. The link 33 may be disengaged from the lug by exerting an outward pressure upon the link 33.

The simplest form of device may be made as illustrated in Fig. 7. When so made the side walls of the body of the belt and the fastening ends are made from sheet rubber. I place a ring 40 on one of the belt straps and a hook 41 on the other one of the straps. I place a knot 42 on the strap to secure the hook to the ring 40.

While the form of mechanism herein shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the embodiment herein shown and described, as it is susceptible of embodiment in various forms, all coming within the scope of the claims which follow.

What I claim is:

1. In a device of the class described, the combination of a pair of sheets of elastic material secured together at their peripheral edges to form an air tight compartmented belt, a reinforcing band disposed about the peripheral edge and cemented thereto, one or more restrictions disposed across the belt to form compartments, a communicating passageway communicating the cells to each other, a pad disposed at the opposite ends of the belt like structure, belt straps hingedly secured to the respective end pads, a hollow tube secured to one of the sheets and communicating interiorly of the belt, an elastic rubber pad secured to the sheet and adjacent the rubber tube and positioned to receive the rubber tube thereunder and to place the tube under such compression as to close the tubular passageway disposed within the tube when the tube is folded and tucked under the rubber pad.

2. In a device of the class described, the combination of a belt formed into compartments with an air tight cell formed within each of the compartments, a communicating passageway connecting each of the cells, belt straps disposed at each end of the compartmented belts, instrumentalities associated with the belt straps for connecting the belt straps together, a filler tube secured to the side wall of the belt body and adapted for the free passage of air into and out of the belt and a tube receiving pad secured to the belt body and arranged to receive the folded tube therebeneath and for tensioning the pad to restrict the flow of air through the tube at normal inflating pressures when tucked beneath the pad.

RAY D. MAY.