Aug. 5, 1924. 1,504,119

O. H. HANSEN

TIRE PRESSURE DEVICE

Filed July 20, 1922

Fig. 1.

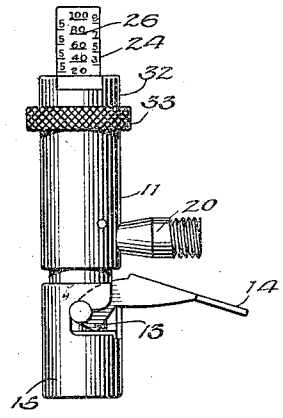


Fig. 2.

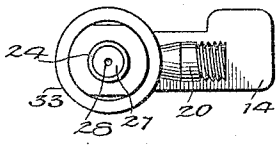


Fig. 3.

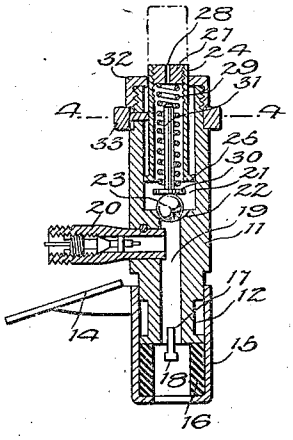
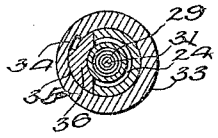


Fig. 4.



WITNESSES

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Patented Aug. 5, 1924. 1,504,119

UNITED STATES PATENT OFFICE.

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TIRE-PRESSURE DEVICE.

Application filed July 20, 1922. Serial No. 576,325.

To all whom it may concern:

Be it known that I, OSWALD H. HANSEN, a citizen of Norway, and a resident of the city of New York, Elmhurst, borough of Queens, in the county of Queens and State of New York, have invented a new and Improved Tire-Pressure Device, of which the following is a full, clear, and exact description.

This invention relates to pressure gages for tires and has for an object to provide an improved construction wherein the parts may be set for the desired pressure and will not produce an indication until after that pressure has been reached.

Another object of the invention is to provide a tire gage which may be readily applied or removed and which is designed to be interposed in the inflating pipe, the arrangement being such that a signal will be given when the inflating air has produced the desired pressure in the tire.

A still further object is to provide a very simple and strong construction of gage which may be readily set to co-operate at widely different ranges.

In the accompanying drawing—

Figure 1 is a side elevation of a pressure gage disclosing an embodiment of the invention.

Figure 2 is a top plan view of the structure shown in Figure 1.

Figure 3 is a longitudinal vertical section through Figure 1.

Figure 4 is a transverse sectional view through Figure 3 approximately on line 4—4.

Referring to the accompanying drawing by numerals, 11 indicates a casing which is provided at its lower end with a groove 12 for receiving the ends 13 of a disengaging lever 14 which lever is pivotally connected with the sleeve 15 carrying the packing tube 16. The casing 11 carries a spider 17 having a depending section 18 for engaging the pin of the valve and depressing the same so that the pressure in the chamber 19 will be the same as that in the tire at all times. A valve 20 of any desired construction is connected with the casing 11 and discharges therein, said valve permitting the air to pass freely into the chamber 19 but preventing any air from escaping therefrom. The air supply hose is designed to be connected with the valve 20 and as the air is forced into the chamber 19, the air will also be forced therefrom into the tire for inflating the same.

The chamber 19 opens into an upper chamber 21, a suitable valve seat 22 being arranged at the point of merging of these two chambers and normally the valve member 23 is resting on said seat and closing the end of chamber 19, said valve member being shown as a ball. A tubular indicating member 24 is positioned so that one end will always remain in the chamber 21, said end having a flange 25 of a size to have a sliding fit with the walls of this chamber though not permitting an appreciable escape of air. The tubular indicating member 24 is provided with a number of graduations 26 thereon which may be readily seen whenever said tubular member is moved partially out of the chamber 21. This tubular member is internally threaded for part of its distance so as to accommodate the externally threaded plug 27, said plug having a small aperture 28. A compression spring 29 is arranged in the member 24 and bears at one end against the plug 27 and at the opposite end against the enlargement 30 of the rod 31 which rod extends into the spring as indicated in Figure 3. This arrangement causes the spring to act to hold the ball valve 23 in a closed position, the action of the spring being in proportion to the distance the plug 27 is from the valve 23. The casing 11 is externally threaded at the end in which the chamber 21 is located whereby the cap 32 may be arranged as shown particularly in Figure 3 so as to guide the indicating member 24 and also to guide and hold in place a clamping ring 33. This ring is provided with a circular bore except at the point 34 where it is flared outwardly and forms a cam surface co-acting with the cam surface 35 of the clamping plate 36, fitted into a suitable slot in the casing 11.

In operation when it is desired to inflate a tire at any desired pressure, the clamping ring 33 is rotated for releasing the clamping plate 36 and then the indicating member 24 is manually adjusted to the desired pressure. For instance, in Figure 1 member 24 has been adjusted to indicate twenty pounds pressure. If the parts were adjusted in this manner, the ring 33 would then be rotated for causing the plate 36 to rigidly clamp member 24 against movement. When the parts are clamped rigidly in the position

shown in Figure 3, the spring 29 will hold the valve 23 seated until pressure is exerted thereon slightly in excess of twenty pounds whereupon it will become unseated and the air will pass around the valve into chamber 21, through member 24 and finally out the aperture 28 in plug 27. Air escaping in this manner would produce a noise and would thereby notify the operator that the desired pressure had been secured. When this occurs, the pressure is taken off and the device is removed from the valve of the tire.

In case eighty pounds pressure was desired, ring 33 would be rotated for releasing the plate 36 and member 24 would then be moved manually downwardly until the line below the graduation 80 would appear parallel with the top of the cap 32 and then the parts would be again tightened. The inward movement of the member 24 causes the spring 29 to be brought under greater tension and, consequently, will cause the same to prevent the valve 23 from becoming unseated until the desired pressure has been secured. It will thus be noted that the device is not primarily for finding out how much pressure there is in an already inflated tire but to determine whether a tire has been inflated to a given point.

If the device should be applied to a tire inflated to a greater extent than the number of pounds indicated on the member 24, the air will escape from the tire and unseat the valve 23 in the same manner as above described. If the device was not removed from the tire the air would continue to escape until pressure had been reduced to that indicated by the particular position of the member 24.

What I claim is:—

1. In a safety valve of the character described, a tubular casing presenting a chamber at one end, a tubular indicating member positioned in said chamber and provided with a flange engaging the walls of the chamber, said indicating member projecting through the end of the tubular casing, a plug arranged in the outer end of said indicating member provided with an aperture, said indicating member having graduations on the exterior surface thereof adapted to be brought to view outside the casing as the indicating member is moved outwardly, a spring associated with the indicating member and positioned to have its tension varied by varying the position of the indicating member, a valve normally held seated by said spring, and a locking member for locking said indicating member in different adjusted positions, said valve being adapted to be opened by a greater pressure than provided by said spring whereby air will pass through the aperture of said plug to produce a signal.

2. In a safety valve, a tubular casing formed with a chamber in one end, a valve arranged at one end of said chamber, a spring acting to hold said valve closed, a lockable indicating member movable toward and from said valve, said indicating member being capable of movement through one end of said casing, said indicating member acting on said spring for varying the tension thereof as it is moved toward and from the valve, means for effecting the locking of said tubular member, said means comprising a clamping plate for locking the indicating member in a given position, and a partly rotatable manually actuated member acting as a cam for moving the locking plate to a locked position.

3. In a pressure gage of the character described, a tubular casing provided with a chamber at one end, a valve member closing the entrance to said chamber at one end, a spring acting on said valve member for holding the same closed, a tubular indicating member extending into said chamber from one end of the casing, said indicating member surrounding said spring and being movable toward and from said valve member for varying the tension of said spring, said indicating member having graduations on the exterior surface whereby the amount of the tubular member projecting beyond the casing may be observed, and an apertured plug carried by said tubular member and acting on said spring for causing the same to be brought under tension without moving the tubular member.

4. In a pressure gage of the character described, a valve, a spring for holding said valve to its seat, an indicating member movable toward and from said valve for varying the tension of said spring, means for locking said indicating member in an adjusted position, said means comprising a locking plate movable transversely of said indicating member, said locking plate having a cam surface, and a ring formed with a cam surface co-acting with the cam surface on the plate for moving the plate so that it will press against said indicating member when the ring is moved in one direction and will release the pressure on the plate when moved in the opposite direction.

OSWALD H. HANSEN.