

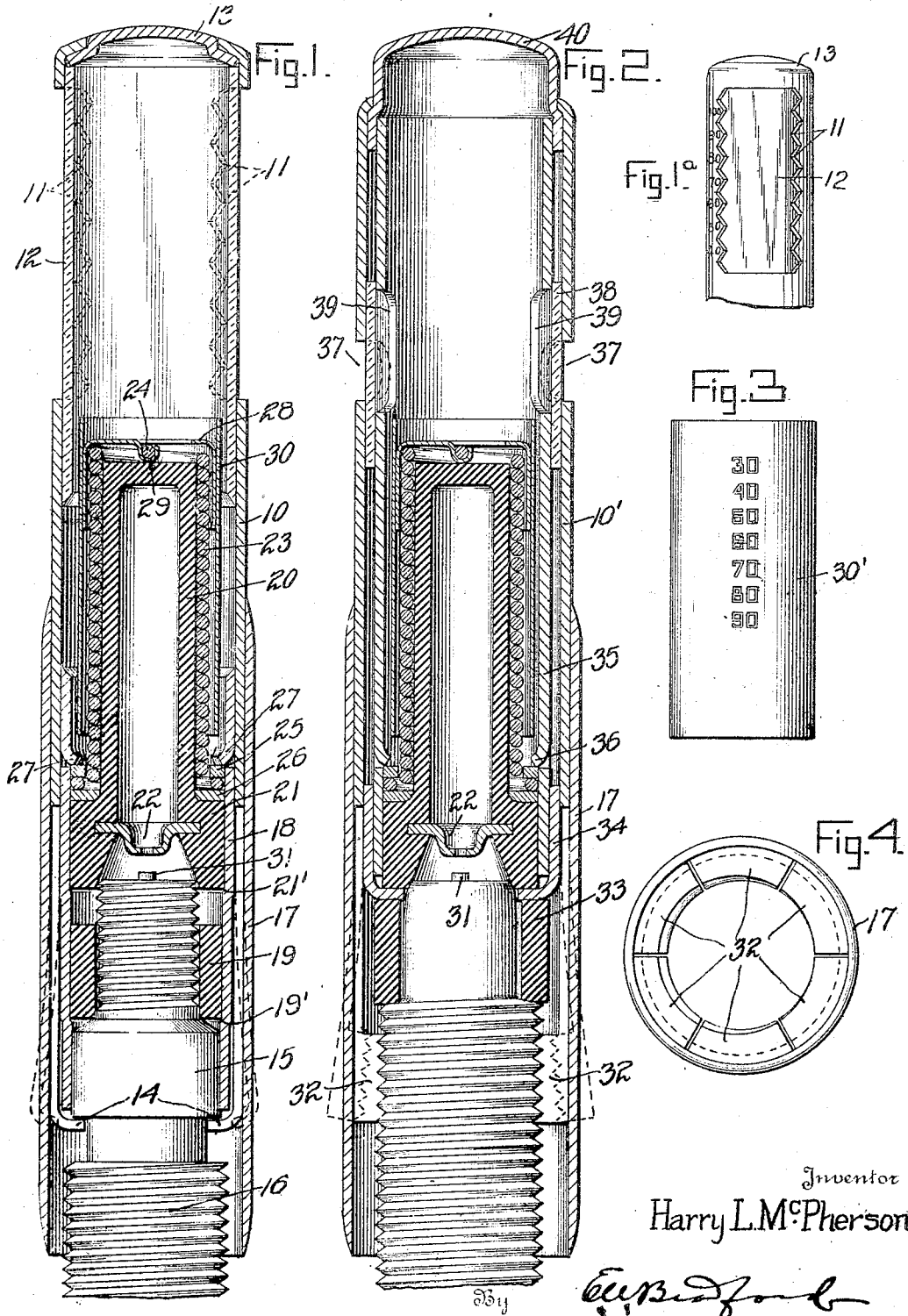
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H. L. McPHERSON

COMBINED DUST CAP AND TIRE GAUGE

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Inventor
Harry L. McPherson

Curry

Attorney

UNITED STATES PATENT OFFICE.

HARRY L. McPHERSON, OF MEMPHIS, TENNESSEE, ASSIGNOR OF ONE-HALF TO PAUL L. MITCHELL, OF MEMPHIS, TENNESSEE.

COMBINED DUST CAP AND TIRE GAUGE.

Application filed February 1, 1922. Serial No. 533,413.

To all whom it may concern:

Be it known that I, HARRY L. McPHERSON, a citizen of the United States, residing at Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful Improvements in Combined Dust Caps and Tire Gauges, of which the following is a specification.

My said invention relates to a combined dust cap and tire gauge and it is an object of the invention to provide a construction in which the ordinary dust cap shall be replaced by one of special construction containing a gauge which indicates continuously the pressure of air in the tire, or in a varied form at the momentary pleasure of the user.

Referring to the accompanying drawings which are made a part hereof and on which similar reference characters indicate similar parts,

Figure 1 is a vertical section of a form of my device,

Figure 1^a is a view at right angles to Figure 1 of the upper end of the device illustrating the graduations on the casing,

Figure 2 a similar view of a modification,

Figure 3 a detail of an indicating device, and

Figure 4 a bottom plan of a clamping means used in my device.

In the drawings 10 indicates an outer casing containing the several parts and cut away at opposite sides adjacent its upper end to form opposed openings through which the gauge may be viewed. These openings have serrated edges indicated at 11 and are closed by means of a transparent tube of glass or celluloid 12. At its upper end the casing is closed by a cap 13.

At its lower end the casing is slitted and the ends of the segments so formed are bent as at 14 to engage under a shoulder on a reduced portion 15 of the valve stem 16. The bent ends of the split segments are forced into place by a sleeve 17 slidable on the outer casing and which may be raised to permit the segments to spring out, they being preferably resilient and normally occupying the position indicated by the dotted lines in Figure 1. Within the casing 10 at its lower end is a sleeve 18 which extends upward above the top of the valve stem and down-

ward to engage closely about the reduced portion 15 of the valve stem above the shoulder. This sleeve contains a gasket 19 resting on a shoulder 19' and engaging closely about the neck of the valve so as to act as a brace and re-enforcement and to reduce vibration and prevent escape of air. In the casing is a rubber cap or bag 20 having its lower end adjacent the valve thickened to form an outwardly extending flange 21 (essentially a gasket to prevent escape of air) closely engaging the sleeve 18 and resting on a shoulder 21' thereon. This thickened portion carries a perforated valve opener 22 here shown in the shape of a disk, but which may be formed as a narrow bar, or any other suitable form.

The body of the bag is surrounded by a closely wound coil spring 23 having at its upper end a bent portion 24 extending transversely of the top of the inverted bag. The lower end of the spring is held between two washers 25 and 26, the lowest convolution of the coil being made extra large for this purpose. The washers are held between the flange 21 and inwardly bent lugs 27 on the sleeve 18. Adjacent the upper end of the rubber bag is an inverted cup 28 having a stamped out tongue 29 bent to engage underneath the transverse bar 24 at the end of the coil spring. A sleeve 30 for indicating various pressures in the tire, is frictionally carried by the cup 28 so that it may be adjusted in assembling the device. It may, however, have a driving fit therewith or be fixed thereto in any convenient manner. Numerals on the outer casing opposite the points 11 provide means for reading the pressure according to the level of the upper end of sleeve 30.

If the parts are arranged as here shown with a clearance between the valve opener 22 and the upper end of the valve stem 16 it is necessary in operation to force the device downward to a limited degree whereupon the valve will be opened and air will escape into the rubber bag being confined in the sleeve 18 by the gaskets 19 and 21. The air will expand the rubber bag thereby also expanding the coiled spring and moving the cup 28 and sleeve 30 upward. The serrations are intended to facilitate reading of the graduations indicating the pressure. If desired

the valve opener may be set lower down so as to hold the valve open at all times when the device is in position on a valve stem. One purpose of the sleeve 18 is to render the device incapable of application to ordinary valve stems, the inner diameter of the sleeve being less than the outer diameter of such stems. In this manner theft is discouraged, the caps being applicable only to specially formed valve stems.

In the modified form of Figure 2 the rubber bag and adjacent parts are substantially similar to those of Figure 1. The outer casing 10' is split at its lower end but instead of having its segments bent inwardly to engage a groove in the valve stem they carry threaded segments 32 for engagement with the threads of the valve stem, the whole forming a nut by means of which the device may be adjusted on the stem. Sleeve 17 similar to that of Figure 1 serves for locking and releasing the split segments.

At the upper end of the valve stem is a rubber gasket 33 filling the space between the valve stem and a cup-like member 34 fitted closely within the casing 10' and having its lower end engaging the upper end of the gasket 33 and fitting closely between the bag and the gasket. A sleeve 35 fits within the cap 34 and has inwardly bent lugs at 36 for holding the coiled spring in position as in Figure 1.

At the upper end the casing 10' is cut away to leave sighting openings at 37 through which the indicator sleeve 30' may be viewed. This sleeve has a series of numerals (Fig. 3) providing readings for the air pressure. The openings 37 are closed by a transparent ring 38 preferably of celluloid through which the numerals may be viewed. The sleeve 35 extends upward substantially to the top of the outer casing and has elongated openings at 39 registering with the openings at 37. The cap 40 serves to close the device at the top.

In the operation of the modified form the top 35 with its contained parts is forced down inside the casing 10' causing the valve opener 22 to depress the valve stem 31. If preferred I may so locate the valve opener that it will hold the valve constantly open when operatively positioned. It will be seen that the valve stem of Figure 2 is of conventional type whereas the stem of Figure 1 is of modified form.

It will be obvious to those skilled in the art that my device may be modified in various ways without departing from the spirit of the invention, the true scope of which is indicated in the appended claims.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent, is:

1. A tire pressure gauge comprising a casing having longitudinal openings at its up-

per end with serrated edges, a transparent sleeve concentric with said casing, and pressure-indicating means movable lengthwise of the casing, substantially as set forth.

2. A tire pressure gauge comprising a telescopic casing, an expansible pressure indicating member within said casing, a valve opener within the casing and normally spaced from the valve stem of a tire and means whereby the parts of said telescopic casing may be moved relatively to bring the valve opener into engagement with the valve stem, substantially as set forth.

3. A device of the character described comprising an extensible telescopic casing slitted at one end to provide inwardly bent fingers, means to compress the said fingers about the valve stem, a sleeve within the casing adjacent the lower end thereof, and means between the sleeve and the valve stem to prevent escape of air from the casing, substantially as set forth.

4. In a tire pressure gauge, a casing, an expansible member therein adapted to receive air from a tire, a coil spring surrounding the upper portion of said member and having a part extending transversely across the end thereof, a cap inclosing the upper end of the coil spring and having a tongue engaging the said transverse part of the spring, substantially as set forth.

5. In a tire pressure gauge, an outer casing, a sleeve therein, an expansible member within said sleeve adapted to receive air from the tire, said sleeve having projections bent inwardly to hold said expansible member in position, substantially as set forth.

6. In a tire pressure gauge, a casing, an expansible member therein adapted to receive air from a tire, a pressure-indicating sleeve frictionally mounted on said expansible member and permitting adjustment longitudinally of said expansible member, substantially as set forth.

7. In combination with a tire valve stem having a reduced portion formed in its length, a casing having means for slidably engaging the reduced portion of the valve stem, substantially as set forth.

8. In combination with a tire valve stem having a reduced portion formed in its length, a casing having means for slidably engaging the reduced portion of the valve stem, and a device in the casing adapted to indicate the tire pressure upon sliding said means along the said reduced portion, substantially as set forth.

9. A tire pressure gauge comprising a casing having relatively movable parts, and a pressure indicating device carried by one of said parts and movable into and out of engagement with a valve stem, substantially as set forth.

10. A tire gauge, comprising an outer casing, a rubber gasket in the casing thick-

ened at its lower end adjacent the valve to prevent escape of air, and a disk-shaped perforated valve opener carried on the gasket at its lower end, substantially as set forth.

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11. A tire gauge, comprising an outer casing, a sleeve in the casing, an elastic bag having a base fitting closely within the sleeve and the bag extending upwardly in the cap, a coil spring surrounding the body of the bag and having at its upper end a bent portion extending across the top of the bag the lower end of said spring being held

in place between two washers, said washers being held in place between the rubber 15 gasket and inwardly bent lugs on the sleeve, substantially as set forth.

In witness whereof, I have hereunto set my hand and seal at Memphis, Tennessee, this 28th day of January, A. D. nineteen 20 hundred and twenty-two.

HARRY L. McPHERSON. [L. S.]

Witnesses:

JOHN W. FARLEY,
F. M. BAILEY.