

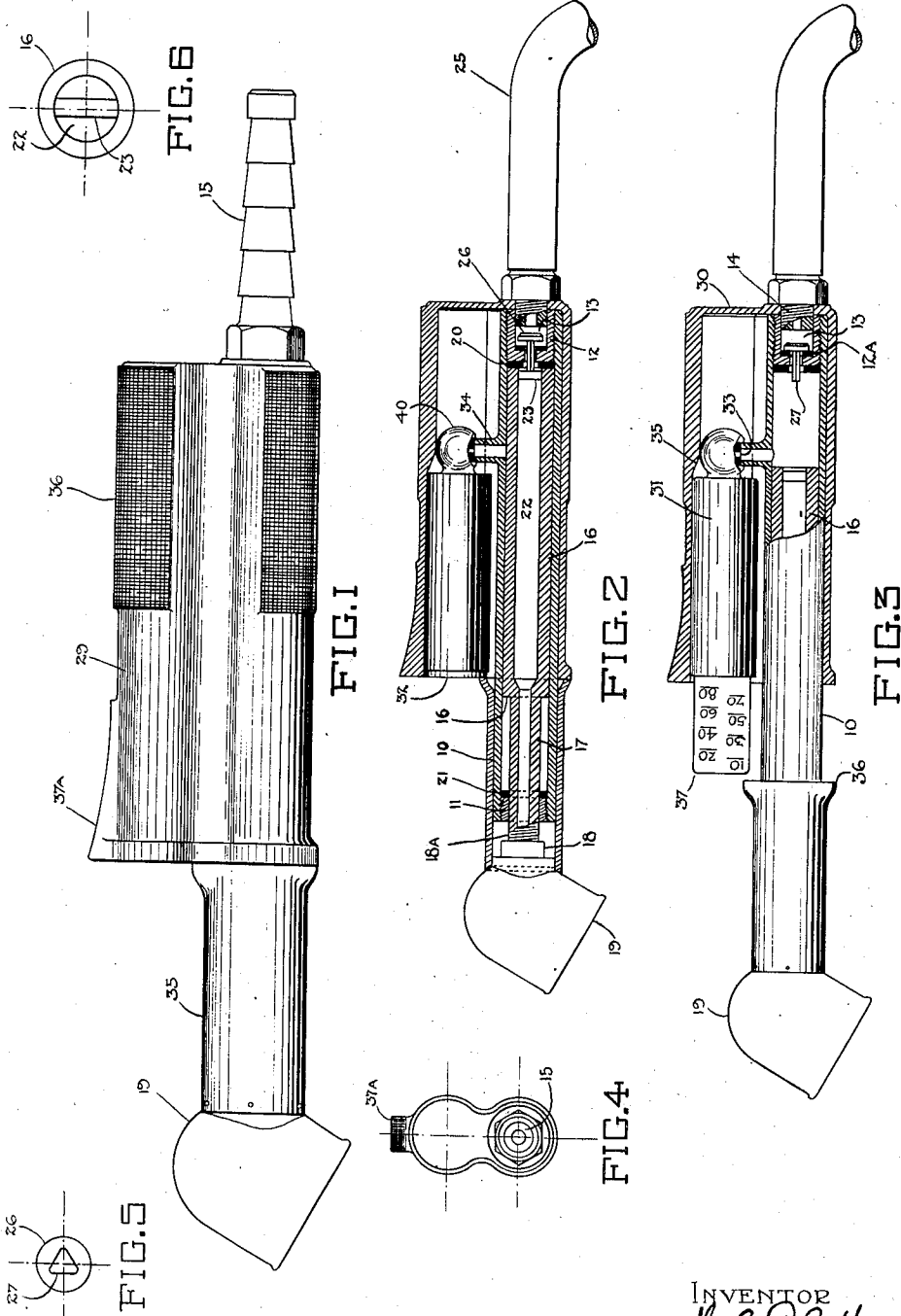
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COMBINED AIR NOZZLE AND GAUGE

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COMBINED AIR NOZZLE AND GAUGE.

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This invention relates to a combined air nozzle and gauge as described in the present specification and illustrated in the accompanying drawings which form part of the same.

The invention consists essentially of the novel features pointed out broadly and specifically in the claims for novelty following a description containing an explanation in detail of an acceptable form of the invention.

The objects of the invention are to combine an air nozzle with a gauge whereby time and inconvenience may be saved when inflating tires; to construct a combined air nozzle and gauge, durable and dependable of construction, and easy and simple of operation; to supply such a device, the design of which will readily adapt it to different sizes of standard pressure indicating gauges of the Schrader type; and generally, to manufacture a useful and economical device, capable of accomplishing the aforesaid purposes.

In the drawings, Figure 1 is a side elevation view of the device complete;

Figure 2 is a sectional side view of the device showing the position of its working parts when the tire is being inflated, parts being shown in elevation;

Figure 3 is a sectional side view of the device showing the position of its working parts when the gauge is recording the air pressure in the tire, parts being shown in elevation;

Figure 4 is an end view of Figure 1;

Figure 5 is an end view of the valve closing the supply from the air tank;

Figure 6 is an end view of the piston showing the bridge which opens valve 26.

Like numerals of reference indicate corresponding parts in the various figures.

Referring to the drawings, 10 is a sleeve or tube having the plugs 11 and 12 threaded into the ends thereof; the plug 12 has a central cavity 13 tapped to receive the threaded end 14 of the nozzle 15.

16 is a piston sliding in the sleeve 10 and having the reduced front portion 17 sliding in a central hole in the plug 11; the reduced portion 17 is threaded at 18^a to receive the tapped boss 18 of a suitable air chuck 19 such, for instance, as the chuck sold on the market as the Schrader air chuck.

The piston 16 is free to move within the sleeve 10 between two determined positions;

one position being assumed when the large end of the piston bears against the washer 20 which is suitably secured to or retained against the inner face of the plug 12, and the other position being assumed when the shoulder formed by the reduced portion 17 of the piston bears against the washer 21 secured to the inner face of the plug 11.

The piston is provided with the central opening or passage 22 extending there-through by means of which the air entering the nozzle 15 through the tube 25 is conveyed to the chuck 19 and finally into the tire tube which is being inflated.

26 is a valve sliding in the plug 12; the valve is closed when forced down upon the washer 12^a in the plug 12 by the action of the air pressure in the nozzle 15 which communicates with the air supply through the tube 25; when the chuck 19 and therefore the piston 16 are forced in, the bridge 23 across the opening 22 of the piston engages the end of the shank 27 of the valve 26 and opens same to admit the air into said opening. The shank 27 is here shown as being of triangular cross-section to allow a clearance between the plug and the shank and admit the air into said opening 22.

29 is a cover or casing having the end wall 30 perforated to admit the threaded end 14 of the air nozzle 15, said end wall abutting against the edge of the sleeve 10 and therefore being retained between said sleeve and the nozzle 15.

The cover 29 is formed substantially as shown, having the upper portion 30 formed to enclose the cylindrical pressure indicating gauge 31; the cover is open as at 32 to allow the gauge to function. The gauge used in this invention is one known as "Schrader's", having the usual inlet 33 communicating with the inside of the sleeve 10 through a suitable passage in the neck 34 formed in said sleeve. The cover is formed with the projection 35 adapted to be engaged by the usual dome 40 in the Schrader gauge, therefore releasably locking the gauge in its operative position with the neck 34. The cover is preferably provided with the serrated portions 36 and the thumb rest 37^a to form means of firmly gripping the device in one hand.

35 is a sleeve rigidly carried by the chuck and having the shoulder or lip 36 formed to engage the piston or graduated portion 37 of the gauge 31, as will be explained later.

As will be clearly seen in Figures 2 and 3, the gauge opens into the sleeve 10 when the piston 16 is in the position shown in Figure 3, whereas the piston 16 when in the position shown in Figure 2, closes off all communication between the gauge and the inside of the sleeve. Therefore, when the piston 16 is in the position shown in Figure 2, the valve 26 is open, allowing the air to flow from the supply through the valve, into the passage 22, into the chuck 19 and into the valve stem of the tire which is being inflated, the passage into the air gauge being closed off; when the piston is in the position shown in Figure 3, the valve 26 is closed by the air pressure from the air supply, while the gauge is now in direct communication with the inside of the sleeve through the passage in the neck 34 and therefore in direct communication with the air chuck and the tire, the gauge now operating to indicate the air pressure in the tire.

It will be noted that as the piston is rotatable in the sleeve, the air chuck can be applied upon the tire valve for any position of the wheel, without having to change the position of the hand holding the device.

Operation: The device is gripped in one hand with the thumb resting upon the rest 37 and the chuck applied to or upon the tire valve stem in the usual way, the device being then pushed towards the tire so as to force the piston 16 into the sleeve 10, that is, the piston now being in the position shown in Figure 2. As the piston is forced into the sleeve 10, the sleeve 35 moves therewith, the shoulder 36 engaging the portion 37 of the gauge and forcing the same into the barrel, or in other words, to the zero mark. The valve 26 is now open by the engagement of the end of its shank with the bridge 23, the air therefore flowing through the valve, the passage 22, through the chuck 19 and into the tire.

When it is desired to ascertain the pressure in the tire, the device is allowed to automatically move back under the action of the back pressure from the tire tube by releasing the chuck in position upon the stem, the piston 16 therefore sliding outwardly in the sleeve 10, the valve 26 closing under the pressure from the air supply, the passage into the neck 34 and the gauge 31 opening, and the gauge recording the pressure in the tire, all as clearly shown in Figure 3.

If the pressure in the tire is not that required, the device is again pushed towards the tire until the piston 16 and the graduated portion 37 of the gauge 31 are in the position shown in Figure 2.

What I claim is:

1. A device of the kind described comprising a sleeve having an air inlet and an opening in the wall thereof, an air pressure indi-

cating gauge mounted adjacent said sleeve and operatively connecting with said opening, a valve closing said inlet, a hollow piston slidable in said sleeve adapted to close said opening and open said valve when telescoped within said sleeve, and an air chuck carried by said piston.

2. A device of the kind described comprising a sleeve having an air inlet and an opening in the wall thereof, an air pressure indicating gauge mounted adjacent said sleeve and communicating with said opening, a valve closing said inlet, a hollow piston slidable in said sleeve, means adapted for limiting the inward and outward sliding-motion of said piston, said piston being adapted to clear said opening when in its outermost position within said sleeve, and an air chuck carried by said piston.

3. A device of the kind described comprising a sleeve having an air inlet and an opening in the wall thereof, an air pressure indicating gauge mounted adjacent said sleeve and operatively connected with said opening, a valve closing said inlet and having a stem projecting into said sleeve, a hollow piston slidable in said sleeve and having a bridge member adjacent one end engaging said valve stem when said piston is telescoped within said sleeve, and an air chuck carried by said piston.

4. A device of the kind described comprising a sleeve having an air inlet and an opening in the wall thereof, an air pressure indicating gauge adjacent said sleeve and communicating with said opening, a casing mounted upon said sleeve and formed to hold said gauge, a valve closing said inlet, a hollow piston slidable in said sleeve adapted to open said valve and close said opening when telescoped within said sleeve, and an air chuck carried by said piston.

5. A device of the kind described comprising a sleeve having an air inlet nozzle and an opening in the wall thereof, a valve in said sleeve adjacent said nozzle adapted to close when air is admitted through said nozzle, an air pressure indicating gauge adjacent said sleeve and communicating with said opening, a piston slidable in said sleeve and having a continuous central passage therethrough and adapted to close said opening when telescoped within said sleeve, means carried by said piston adapted for opening said valve when said piston is telescoped within said sleeve, and an air chuck carried by said piston.

6. A device of the kind described comprising a sleeve having an air inlet and an opening in the wall thereof, an air pressure indicating gauge adjacent said sleeve and communicating with said opening, a valve closing said inlet, means for holding said gauge adjacently of said sleeve, a hollow piston slidable within said sleeve adapted for clos-

ing said opening and opening said valve when in its innermost position within said sleeve, means for limiting the sliding motion of said piston, an air chuck carried by
 5 said piston, and means movable with said piston engaging the gauge piston when said first-mentioned piston is moved within said sleeve to open said valve.

7. A device of the kind described comprising a sleeve having an opening in the wall thereof and a plug forming an air inlet, an
 10 air pressure indicating gauge adjacent said sleeve and communicating with said opening, means for holding said gauge adjacently of said sleeve, an inlet nozzle carried
 15 by said plug, a valve slidable in said plug and adapted to close said air inlet when air is admitted into said nozzle, a piston slidable within said sleeve and having a central
 20 continuous passage therethrough and being adapted to close said opening and open said valve when abutting said plug, means adapted for limiting the outward motion of
 25 said piston, and an air chuck operatively connected to said piston.

8. A device of the kind described comprising a sleeve having an air inlet and an opening in the side wall thereof, an inlet nozzle
 30 communicating with said air inlet, a valve adapted to close said inlet when air is ad-

mitted into said nozzle, a piston slidable within said sleeve and having a continuous air passage therethrough in the axis thereof, means for limiting the outermost and innermost positions of said piston, said piston
 35 being adapted to alternately close said opening and open said valve when moved inwardly within said sleeve and to clear said opening and disengage said valve when
 40 moved outwardly within said sleeve, an air chuck operatively connected to the outer end of said piston, and means movable with said piston engaging the gauge piston when
 45 said first-mentioned piston is moved within said sleeve to open said valve.

9. A device of the kind described comprising a sleeve of circular cross-section having an air inlet and an opening in the wall thereof, an air pressure indicating gauge
 50 mounted adjacent said sleeve and operatively connecting with said opening, a valve closing said inlet, a tubular piston slidable and rotatable in said sleeve adapted to close
 55 said opening and open said valve when telescoped within said sleeve, and an air chuck operatively connected to said piston.

Signed at the city of Toronto, this 27th day of August, 1926.

MAITLAND STORM PLATT.