

J. E. EMERSON.
INDICATOR GAGE.
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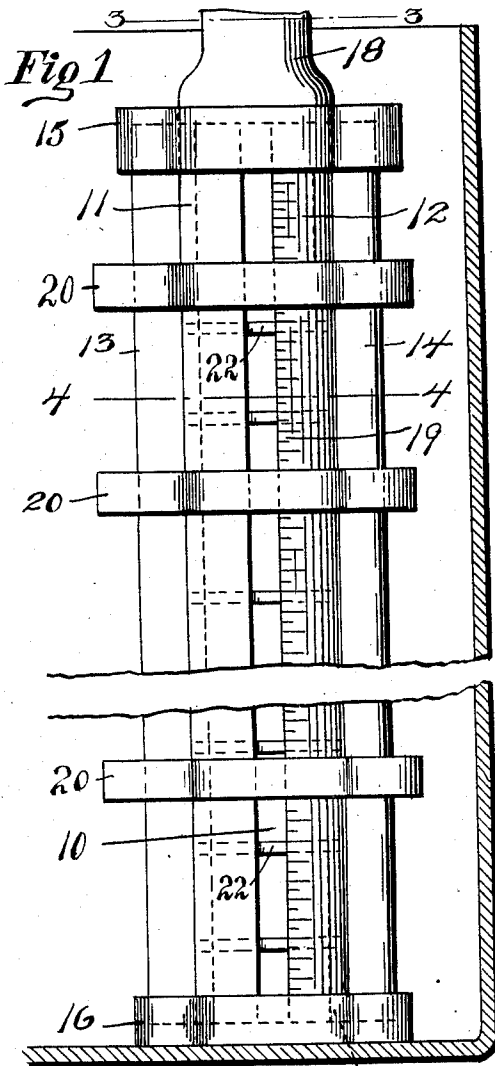


Fig. 3.

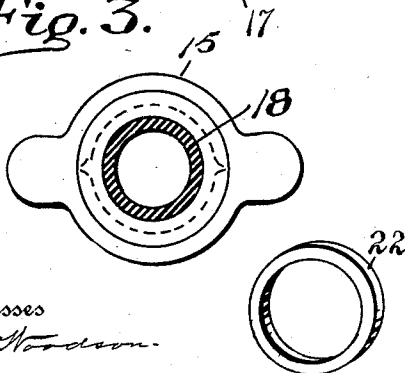


Fig. 5

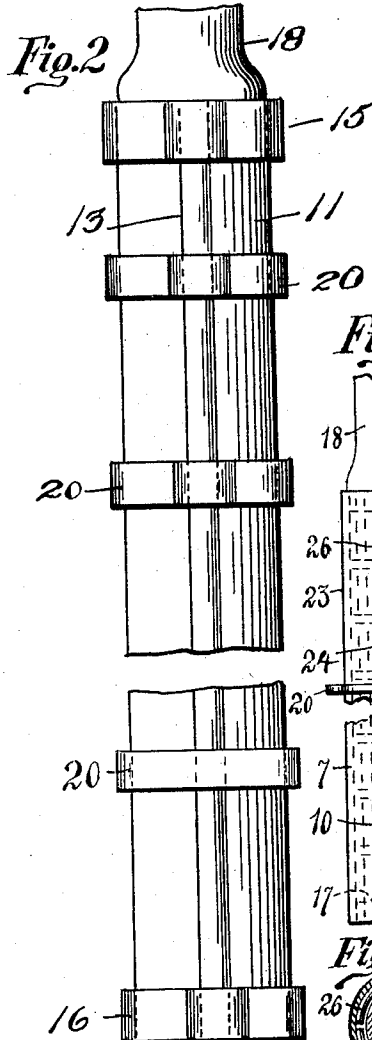


Fig. 4.

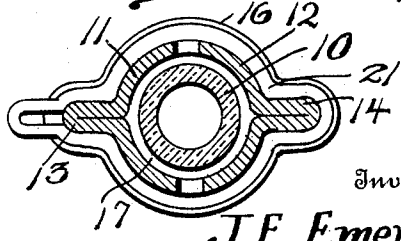


Fig. 6

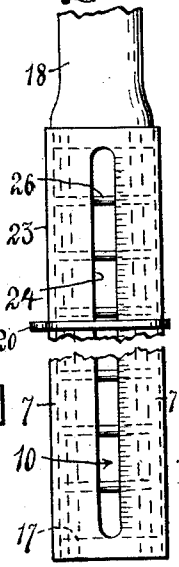


Fig. 7



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INDICATOR-GAGE.

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To all whom it may concern:

Be it known that I, JEROME E. EMERSON, citizen of the United States, residing at Lockport, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Indicator-Gages, of which the following is a specification.

This invention relates to improvements in implements for determining the depth of liquid in containers of various kinds, but is designed more particularly for use in ascertaining the stage of gasoline or other liquid fuel in the tanks of automobiles and similar vehicles, and has for one of its objects to improve and simplify the construction and increase the efficiency and utility of devices of this character.

Another object of the invention is to provide a device of this character whereby the operator is enabled to determine whether or not the tank is full and likewise to determine the stage of the liquid at any point less than its full capacity.

With these and other objects in view the invention consists in certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims; and, in the drawings illustrative of the preferred embodiment of the invention, Figure 1 is a front elevation of the improved device applied; Fig. 2 is an edge view of the same; Fig. 3 is a plan view enlarged, with the hose or flexible member in transverse section on the line 3—3 of Fig. 1; Fig. 4 is a transverse section enlarged on the line 4—4 of Fig. 1; Fig. 5 is a perspective view of one of the inner indicator rings; Fig. 6 is a side elevation, illustrating a modification in the construction; Fig. 7 is a transverse section on the line 7—7 of Fig. 6.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The improved device comprises in general a tubular member of transparent material, such as glass, supported by a suitable casing and provided with a plurality of indicators adjustable relative to the casing and tube and located either externally of the casing, or between the casing and tube, or with one set of the indicators externally of the casing and one set between the casing and tube. The indicators which are em-

ployed between the casing and tube are of rubber or like yieldable material and thus serve the two-fold purpose of indicators and as guards and cushions to the tube, to prevent its fracture. The tubular member is open at both ends and adapted to be closed at the upper end temporarily in any suitable manner, but preferably by compressing a section of hose of rubber or like material which is attached to the upper end of the tube, and extends between the tube and casing members, and thus cutting off the air pressure at the upper end and producing an implement in which the liquid will be sustained by the ordinary air pressure from below.

The improved implement is designed to be inserted into the receptacle with the upper end of the tube left open so that the liquid within the receptacle will rise into the tube to a point even with the stage of the liquid in the receptacle. Then by closing the upper end of the tube, as for instance by compressing the section of hose, the liquid within the tube will remain therein when the tube is removed from the tank, and thus indicates the height of the liquid within the receptacle.

Located upon the casing of the implement are a plurality of metal indicators, which are adjustable and adapted to be connected fixedly to the casing at points corresponding to the divisional parts of the liquid in the tank, as for instance gallons and fractions of gallons. The indicators which are located within the casing and around the tube are adjustable in the same manner.

The transparent tube is represented as a whole at 10 and is inclosed in a casing formed in two semi-cylindrical parts 11—12 with their confronting edges spaced apart to provide openings or slots through which the transparent tube can be observed. The semi-cylindrical members are each formed from a single strip of sheet metal bent into the required shape, the member 11 having a radial web 13, while the member 12 is provided with a similar radial web 14. The webs thus strengthen and stiffen the casing without materially increasing the expense or weight. Fitting over the opposite ends of the casing members 11—12 are end members 15—16 having recesses in their confronting faces into which the upper and lower ends of the casing members engage. The members 11—12, together with their webs 13—14

will be permanently secured to the members 15—16, as for instance by soldering or brazing. The member 16 is provided with a central aperture through which the tubular member 10 extends and is surrounded within the member 16 with a yieldable packing of rubber, leather or the like, and indicated at 17. Fitting around the tube 10 at its opposite end, or within the holding member 15, is a section of hose, or the like, 18 and extended to any desired point. By this means the packing 17 and the hose 18 serve to protect the relatively fragile tubular member 10 and prevent it from becoming accidentally displaced or broken. One of the frame members, for instance the member 12, is provided with a series of graduations 19 to determine the height of the liquid within the tube, as hereafter explained. Surrounding the frame members 11—12 and their webs 13—14 are a plurality of metal indicator members, represented conventionally at 20 and are adjustable upon the casing to the desired points and "pinched" or otherwise securely connected to the frame members. The indicators 20 will be located upon the casing at points corresponding to the divisible quantities of liquid, as for instance gallons and fractions of gallons, and any required number may be employed.

It is desirable in operating automobiles for the operator to know at what stage the gasoline or other liquid fuel will stand in the tank when the latter is full, and with one of the improved implements this fact can be readily determined by locating the upper member 20 at the point at which the liquid stands when the tank is full. This indicator then remains at this position so long as the implement is employed for this particular tank. The other indicators 20 are also adjustable, as before stated, to indicate the quantity of the liquid at points less than its full capacity. The members 20 are each constructed preferably from a single strip of metal bent around the casing members and adapted to be "pinched" by a suitable implement upon the casing member with sufficient firmness to render them practically immovable, or with sufficient tenacity to prevent accidental displacement. A plurality of outer or inner indicator devices are also employed in the improved implement, and are also adjustable longitudinally of the glass tube and located at points indicative of the gallons or fractions of gallons within the tank. These inner rings, represented at 22, may be made of any suitable material, but are preferably of rubber and located around the glass tube and within the casing members 11—12, and are thus movable upon the tube to any required point and extend transversely of the observation slots through which they are observable, as shown in Fig. 1. In an automobile tank containing fifteen

gallons, fifteen of the rings will be employed one for each gallon and spaced apart to correspond with the stage of the liquid in the tank. In a tank containing a greater or lesser number it will be obvious that a greater or lesser number of the indicating rings will be employed and located at any required point.

The improved implement is simple in construction, can be inexpensively manufactured of any suitable material, but the casing and outer indicator members are preferably of metal, the members 17—18 and the inner indicator members of rubber or like material, and the tube 10 of glass or other transparent substance or compound.

In Figs. 6 and 7 a slight modification in the construction is shown consisting in forming the casing members 13—14 in one piece, as shown at 23, with longitudinal slots 24—25 and inclosing the glass tube 10, and provided with a packing member 17 at the lower end and the section of hose 18 at the upper end arranged in the same manner and operating for the same purpose as similar parts shown in the remaining figures of the drawing. Located within the casing 23 at suitable intervals are resilient divided rings 26, preferably of metal, and located between the casing 23 and the tube 10, but not in contact with the latter. The resiliency of the rings retains them in sufficient frictional contact with the inner surface of the casing 23 to retain them in position against accidental displacement, but permitting them to be moved longitudinally of the tube when required. By this means the rings may be adjusted upon the tube in the same manner as the similar rings 22 are adjusted in the structure shown in Fig. 1 and for the same purpose. This slight modified arrangement may be employed under certain circumstances, but does not constitute a departure from the principle of the invention. If required the frictionally applied indicators 20 may be employed upon the modification shown in Figs. 6 and 7, as shown.

Having thus described the invention, what is claimed as new is:

1. An implement of the class described comprising a casing formed in two parts divided longitudinally with their confronting edges spaced apart, a tubular member of transparent material open at the ends and located within said casing, a compressible tubular member connected to said transparent tubular members at one end, and a plurality of indicators adjustable relative to said casing longitudinally of said tubular member.

2. An implement of the class described comprising a casing formed in two parts divided longitudinally with their confronting edges spaced apart, a tubular member of transparent material open at the ends and

located within said casing, a yieldable packing between said tube and casing members at one end, a section of hose between said casing members and tube at the other ends, and clamp members secured to said casing members at the ends and uniting the same to the tubular member.

3. An implement of the class described comprising a casing formed in two parts divided longitudinally with their confronting edges spaced apart, a tubular member of transparent material open at the ends and located within said casing, a yieldable packing between said tube and casing members at one end, a section of hose between said casing members and tube at the other ends, clamp members secured to said casing members at the ends and uniting the same to the tubular member, and a plurality of indicators adjustable upon said casing members.

4. An implement of the class described comprising a casing formed in two parts divided longitudinally with their confronting edges spaced apart, lateral webs upon said casing members, a tubular member of transparent material open at its ends and located within said casing, a section of hose connected to said tubular member, and clamp members secured to said casing members at the ends and uniting the same to the tubular member.

5. An implement of the class described comprising a casing formed in two parts divided longitudinally with their confront-

ing edges spaced apart, lateral webs upon said casing members, a tubular member of transparent material open at its ends and located within said casing, a section of hose connected to said tubular member, clamp members secured to said casing members at the ends and uniting the same to the tubular member, and a plurality of indicators adjustable upon said casing members.

6. An implement of the class described comprising a casing formed in two parts divided longitudinally with their confronting edges spaced apart, a tubular member of transparent material open at its ends and located within said casing, and a plurality of combined indicator and packing bands between said casing members and tube and adjustable relative to the same.

7. In an implement of the class described, a tube of transparent material open at its ends, a casing inclosing said tube and provided with longitudinal observation slots, a plurality of indicator bands of yieldable material encircling said tube and adjustable thereon within said casing and visible through said slots, and a plurality of indicators adjustable upon said casing and extending transversely of said slots.

In testimony whereof, I affix my signature in presence of two witnesses.

JEROME E. EMERSON. [L. s.]

Witnesses:

J. EVERETT EMERSON,
FRED D. EMERSON.