April 19, 1932. A. MOEBES ET AL 1,854,556

INNER TUBE TESTER

Filed Oct. 10, 1927

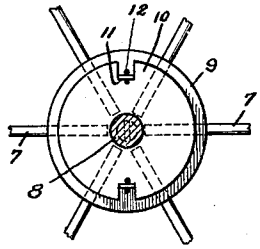

Fig. 3.

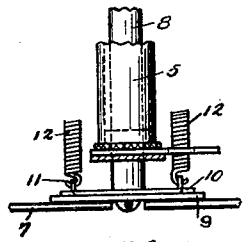

Fig. 2.

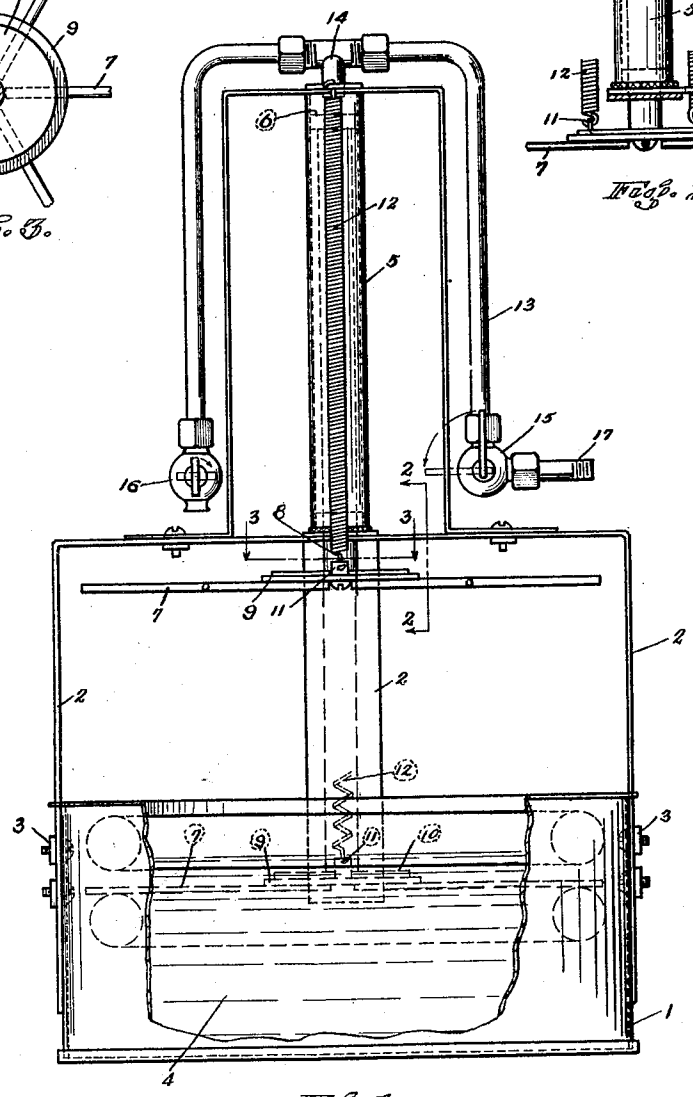

Fig. 1.

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INNER TUBE TESTER

Application filed October 10, 1927. Serial No. 225,327.

Our invention relates to improvements in inner tube testers, and it consists in the combinations, constructions, and arrangements hereinafter described and claimed.

An object of our invention is to provide an inner tube tester which is pneumatically controlled, and which makes use of means for moving the inner tube into a body of water, this means extending clear of the tank when in operative position, for permitting an inner tube to be quickly disposed beneath the means in preparation for testing the tube.

A further object of our invention is to provide a device of the type described which is extremely simple in construction and which is durable and efficient for the purpose intended.

Other objects and advantages will appear in the following specification, and the novel features of our invention will be particularly pointed out in the appended claims.

Our invention is illustrated in the accompanying drawings forming a part of this application, in which:

Figure 1 is a side elevation of the device, a portion of the tank being broken away;

Figure 2 is a section along the line 2—2 of Figure 1; and

Figure 3 is a section along the line 3—3 of Figure 1.

In carrying out our invention we provide a tank 1 having a tube submerging superstructure supported by a frame work 2, the latter being secured to the tank by bolts 3, or other suitable fastening means. The tank is large enough to hold an inflated tube and a sufficient quantity of water 4 is kept in the tank for entirely covering the tube when the latter is moved down into the body of water.

The superstructure comprises three uprights which are spaced apart from each other, so that one-half of the area of the tank is clear and will receive an inflated tube without the necessity of having to bend a tube out of shape, or of moving any of the tube submerging apparatus. It is obvious that any number of uprights 2 may be provided, or that a solid piece of metal may be substituted for the uprights without departing from the spirit and scope of our invention.

The superstructure 2 carries a cylinder 5 that is preferably centrally disposed with respect to the tank 1, a piston 6 is slidably disposed in the cylinder and is connected to a spider 7 by means of a piston rod 8. Air, when admitted into the cylinder, will force the piston rod 8 and spider 7 downwardly into the dotted line position shown in Figure 1.

In the present form of the device we have shown the spider as comprising arms which extend radially from a disc 9. Directly above the disc 9 there is mounted a second disc 10 that has ears 11 struck upwardly therefrom, these ears being provided with openings for receiving the ends of the coiled springs 12. The upper ends of the springs are connected to the top of the superstructure 2. Figures 2 and 3 clearly show how the spider is connected to the piston rod and how the arms of the spider project radially from the disc 9.

An air pipe 13 communicates with the cylinder 5 at 14 and is provided with an inlet valve 15, and an exhaust valve 16. The pipe 13 may be connected to a source of air or fluid at the point 17.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood.

It is essential in testing the inner tubes that the entire tube be submerged at the same time, in order that all leaks may be noticed. Since the advent of the balloon tire it takes considerable force to submerge an inflated balloon tube in a body of water.

It is for this reason that air was resorted to so that sufficient power could be applied to the inner tube in order to force it beneath the surface of the water. The spider 7 is normally held in the full line position shown in Figure 1 by the springs 12. The inner tube to be tested is moved into the space made by the uprights of the superstructure and is placed upon the body of the water 4. The valve 15 is now opened and will quickly force the spider 7 downwardly, the spider carrying with it the inner tube. The valve may be closed when the tube is entirely submerged and then the operator can detect the various places where leaks are occurring in the tube.

After these places have been marked the valve 16 is opened and valve 15 is closed if this has not been done before and the springs, together with the force exerted by the buoyancy of the inner tube, will move the spider 7 upwardly, leaving a free space through which the tube can be removed from the device. This operation consumes very little time and is practically the only method of entirely submerging an inner tube. The old method of submerging the tube by hand takes about nine operations. This device does it in one operation.

Although we have shown and described one embodiment of our invention, it is to be understood that the same is susceptible of various changes and we reserve the right to employ such changes as may come within the scope of the appended claims.

We claim:

1. An inner tube tester comprising a tank for holding water, a cylinder disposed above said tank, a superstructure for supporting said cylinder and having a space large enough to permit an inner tube to be placed upon a body of water without moving any of the operating parts of the tester, a piston mounted in said cylinder, a spider operatively connected to said piston, and means for controlling the flow of fluid into and out of said cylinder.

2. An inner tube tester comprising a tank for holding water, a superstructure carried by said tank, and providing an opening extending at least 180 degrees around the top of the tank, a cylinder carried by said superstructure, a piston mounted in said cylinder, a spider operatively connected to said piston, means for lifting said spider clear of the tank for permitting an inner tube to be moved beneath the spider and through the opening afforded by the superstructure, and manually controlled pneumatic means for admitting fluid to and from the cylinder.

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