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G. C. PECK

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RADIATOR TESTING DEVICE

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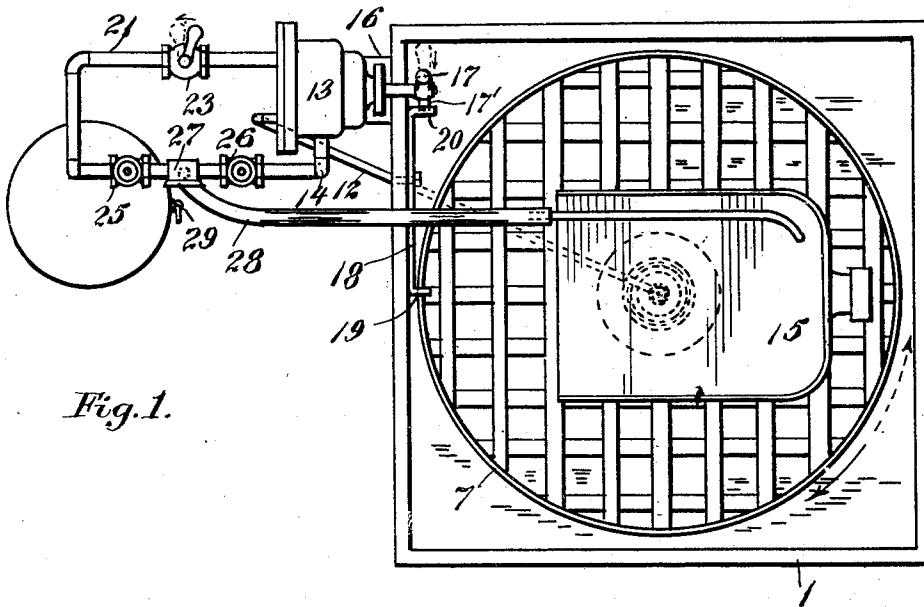


Fig. 1.

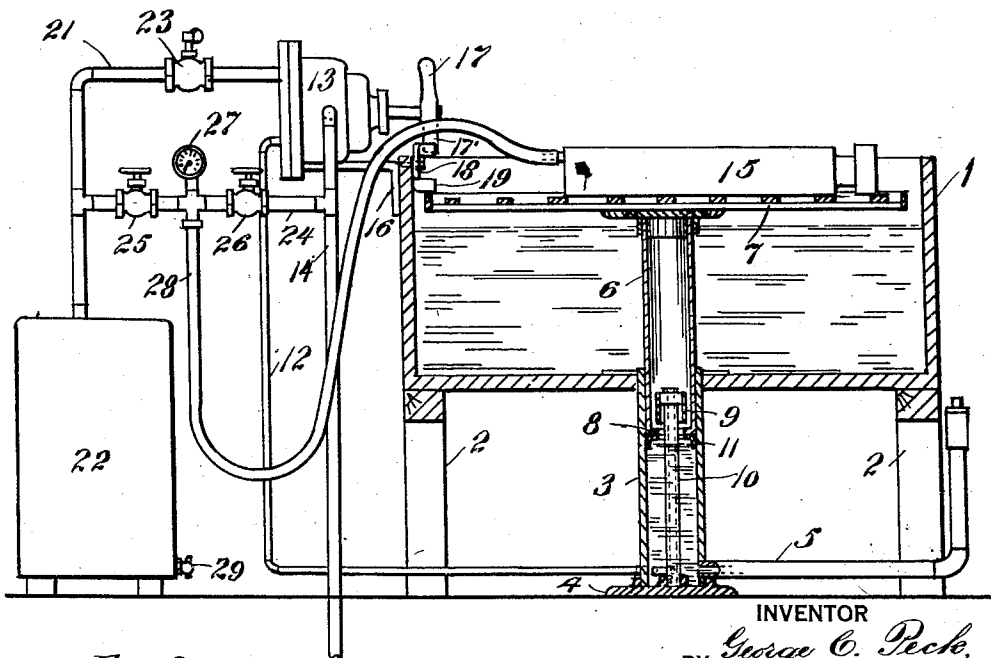


Fig. 2.

INVENTOR
George C. Peck,
BY *N. M. Plaisted,*
ATTORNEY.

UNITED STATES PATENT OFFICE

GEORGE C. PECK, OF GRANITE CITY, ILLINOIS

RADIATOR-TESTING DEVICE

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This invention relates to certain new and useful improvements in radiator testing devices, the peculiarities of which will be hereinafter fully described and claimed.

5 The main objects of my invention are to provide operative means for submerging a supporting table with a radiator or similar device thereon, subjecting said device to air pressure to test for any leaks, and raising
10 it to make repairs; secondly, to rotate said table for convenient access to the leaks in said radiator; thirdly, to cut off automatically at a certain elevation the air pressure lifting said table; fourthly, to avoid carelessly test-
15 ing the radiator above a certain testing pressure; fifthly, to vary the indicated testing pressure as desired; sixthly, to provide a water seal for the lifting air; and seventhly, to provide effective construction for carrying
20 out the above objects.

In the accompanying drawing in which like reference numerals indicate corresponding parts,

25 Fig. 1 represents a plan view of a tub and operating means exemplifying my invention; and

Fig. 2, a central vertical section of said tub and lifting means, and side elevation of adjacent parts of my construction.

30 The numeral 1 designates a tub for water, suitably supported at a convenient height above the floor by legs 2. In the bottom of said tub is mounted a cylinder 3 upon a flanged base 4 on the floor. This cylinder
35 contains a suitable amount of water conveniently supplied through a pipe 5, to seal the lower end of a plunger 6 mounted in said cylinder and extending upward in said tub. On the top of said plunger is mounted a table
40 7, preferably of lattice construction to facilitate submerging.

This table is preferably rotatably mounted on the top of said plunger and is disposed above the water level at and near the limit
45 of stroke of said plunger. An automatic trip device for locating the desired elevation of said table will be later described, but a safety limit stop is preferably provided for said plunger consisting of an intumed lip 8
50 on the bottom of said plunger that is adapted

to engage a sleeve 9 as a limit stop. This sleeve or other stop is mounted on the upper end of a pipe 10 the lower end of which is supported in said base 4 or otherwise and extends above the water seal. The usual
55 leather cup 11 is secured to the bottom of said plunger and guards its sliding joint in said cylinder.

Said pipe 10 communicates by an air pipe 12 with a three-way valve 13 which is supplied by air under pressure from a main air
60 line 14 connected to a suitable source of compressed air. When said valve 13 admits air to the centrally disposed pipe 10, the air pressure upon the water seal reacts on said
65 plunger and raises it above the water level in the tub. Release of said air pressure by said valve 13 allows the plunger and table to descend below the water and submerge an automobile radiator or other similar device
70 15 temporarily located on said table.

Said valve 13 is supported on a bracket 16 from the side of the tub, or otherwise adjacent thereto, so that a lever handle 17 on
75 said valve, extends over said tub. A trip device for operating said handle automatically preferably consists of a lever 18 fulcrumed on the inside of the tub near the top and having one end 19 disposed in the path of the rising
80 table to be engaged thereby while the other end 20 is then engaged with said handle 17, preferably by means of an extension 17' opposite the handle so as to close the valve 13 against air pressure.

The compressed air admitted to said plunger maintains it and the table at the desired
85 elevation till the handle 17 is operated to release position which will allow the table to submerge. The weight of the heavier end 19 of said trip lever or other means causes
90 said end to descend to a lower position when the table descends, ready to be raised as above described when the table rises again by operating the handle 17 to the dotted position Fig. 1.
95

The said three-way valve 13 is also connected by a pipe 21 to an air storage tank 22 through a valve 23 in said pipe. Said main
100 pipe 14 and pipe 21 are cross connected by a pipe 24 having valves 25 and 26 between

which is located an air pressure gauge 27 on the interposed portion of this pipe 24. A flexible hose connection 28 communicates with the interposed portion of the pipe 24 and the pressure gauge thereon, while the other end of said hose is connected to the radiator 15 or other device being tested on said table. The valves at the sides of the pressure gauge thus cut off the compressed air from the hose when desired and admit it for testing.

Such storage tank is supplied with air through said valve 23 or otherwise, to a pressure of not over 10 lbs. as indicated on the pressure gauge when valve 25 is opened. About 8 lbs. air pressure in said tank 22 is the desired working pressure for testing an automobile radiator, and this pressure is admitted to the radiator when under water where any leaks are readily observed by air bubbles issuing therefrom. Valve 25 is then closed and the testing air is shut off while the table with the radiator thereon is raised by throwing the handle 17 and admitting air to said plunger as above described. The table being rotatable affords convenient access for repairing the leaks, and it is again submerged for further testing, by again opening valve 25 after releasing valve 13.

When the pressure in said tank falls below 8 lbs. by repeated use, the valve 26 is "cracked" to admit air from the main line and restore the desired pressure as indicated by the pressure gauge. Any water of condensation accumulating in said storage tank may be drained therefrom by a drain cock 29 in the bottom thereof. It is evident from the above description that the storage tank may be charged to the desired pressure either from the three-way valve 13 or the test valve 26 controlling the high pressure from the main air line 14, which is ordinarily about 75 lbs.

Another function of the water seal in said plunger is to retard the up and down movement of the plunger by the flow of the water through the reduced opening in the bottom of the plunger formed by the inturned lip 8. The annular opening left around the air pipe 10 being substantially smaller than the hollow plunger, the water will flow slowly through said opening and lessen the speed of ascent and descent of the table and radiator carried by the plunger.

The table is removable from the plunger so as to make it convenient for cleaning dirt from the tub. The packing at the joint where the stem of the top casting enters the plunger prevents the air escaping in operation, while allowing the table to rotate as before described.

I claim:

1. A radiator testing device comprising a tub for water, a movable table mounted therein for supporting a radiator to be tested, air-operated means for raising and lowering said table, water sealing means co-

operating with said air-operated means, and air pressure devices adapted to supply testing air to said radiator, substantially as described.

2. A testing device comprising a tub for water, a vertical movable table mounted therein for supporting a radiator for testing, means for submerging and raising said table, air pressure devices adapted to supply testing air to said radiator, and a trip operated by the rising table to control said means and limit its upward movement, substantially as described.

3. A testing device comprising a tub for water, a vertically movable table mounted therein, a vertically operative plunger supporting said table, air pressure pipes communicating with said plunger, a valve in said pipes controlling said plunger, and a trip device operated by the rising table adapted to close said valve and limit the rise of said table, substantially as described.

4. A testing device comprising a tub for water, a vertically movable table mounted therein, an air-operated plunger supporting said table, an air valve having a lever handle controlling said plunger, a trip lever fulcrumed on the side of said tub, having one end in the path of the rising table and the other end adapted to engage said valve handle and close it at a predetermined elevation of said table, substantially as described.

5. A testing device comprising a tub for water, a vertically movable table mounted therein, an air-operated plunger supporting said table, an air valve having a lever handle provided with an opposite projection and controlling said plunger, and a trip lever fulcrumed on the side of said tub having one end in the path of the rising table and the other end adapted to engage said projection and close said valve at a predetermined elevation of said table, substantially as described.

6. A testing device comprising a tub, a submergible table for testing a radiator mounted thereon, means to operate said table, an air storage tank, air pressure pipes and gauge adapted to supply an indicated air pressure to said tank, a flexible hose connection to said radiator communicating with said tank, and means to increase the indicated pressure in said tank, substantially as described.

7. A testing device comprising a tub, a submergible table for testing a radiator mounted thereon, an air-operated plunger supporting said table, an air storage tank and flexible hose and pressure gauge communicating an indicated air pressure to said radiator, a main air line, a three-way valve supplied by said line, and pipe connections from said valve to the storage tank and plunger respectively, substantially as described.

8. A testing device comprising a tub for water, a cylinder mounted in the bottom of said tub and containing a water seal, a plunger in said cylinder extending into said tub, a submergible table on said plunger, an
5 air pipe in said cylinder extending above the water seal, a three-way valve, a main air pipe to supply air pressure to said valve, a pipe from said valve to the air pipe in
10 said cylinder means to limit the rise of said plunger forming a safety limit stop, and air pipes under regulated air pressure connecting said valve and the radiator being tested on said table, substantially as de-
15 scribed.

9. A testing device comprising a tub for water, a cylinder mounted in the bottom of said tub and containing a water seal, a
20 plunger in said cylinder extending into said tub and having an inturned lip at the bottom, a submergible table on said plunger, an air pipe in said cylinder extending above the water seal and having at the top a safety
25 limit stop adapted to engage said plunger lip, a three-way valve, a main air pipe to supply pressure to said valve, a pipe from said valve to the air pipe in said cylinder, and air pipes under regulated air pressure
30 connecting said valve and the radiator being tested on said table, substantially as described.

10. A testing device comprising a tub for water, a cylinder mounted in the bottom thereof, a plunger in said cylinder extending
35 into said tub, a submergible table rotatably mounted on said plunger for supporting a radiator to be tested, means to operate said plunger, and air pressure devices having flexible connection to the radiator supported
40 on said rotary table, substantially as described.

11. A testing device comprising a tub for water, a cylinder mounted in the bottom thereof, a hollow plunger in said cylinder extending
45 into said tub,—the bottom end of said plunger being reduced in size, means to supply a water seal to said cylinder, an air pipe mounted in said cylinder extending above the water seal through the reduced
50 end of said plunger, and means to supply and release air pressure to said pipe,—the up and down movement of said plunger being retarded by the flow of the water seal through said reduced opening, substantially
55 as described.

In testimony whereof I have affixed my signature.

GEORGE C. PECK.