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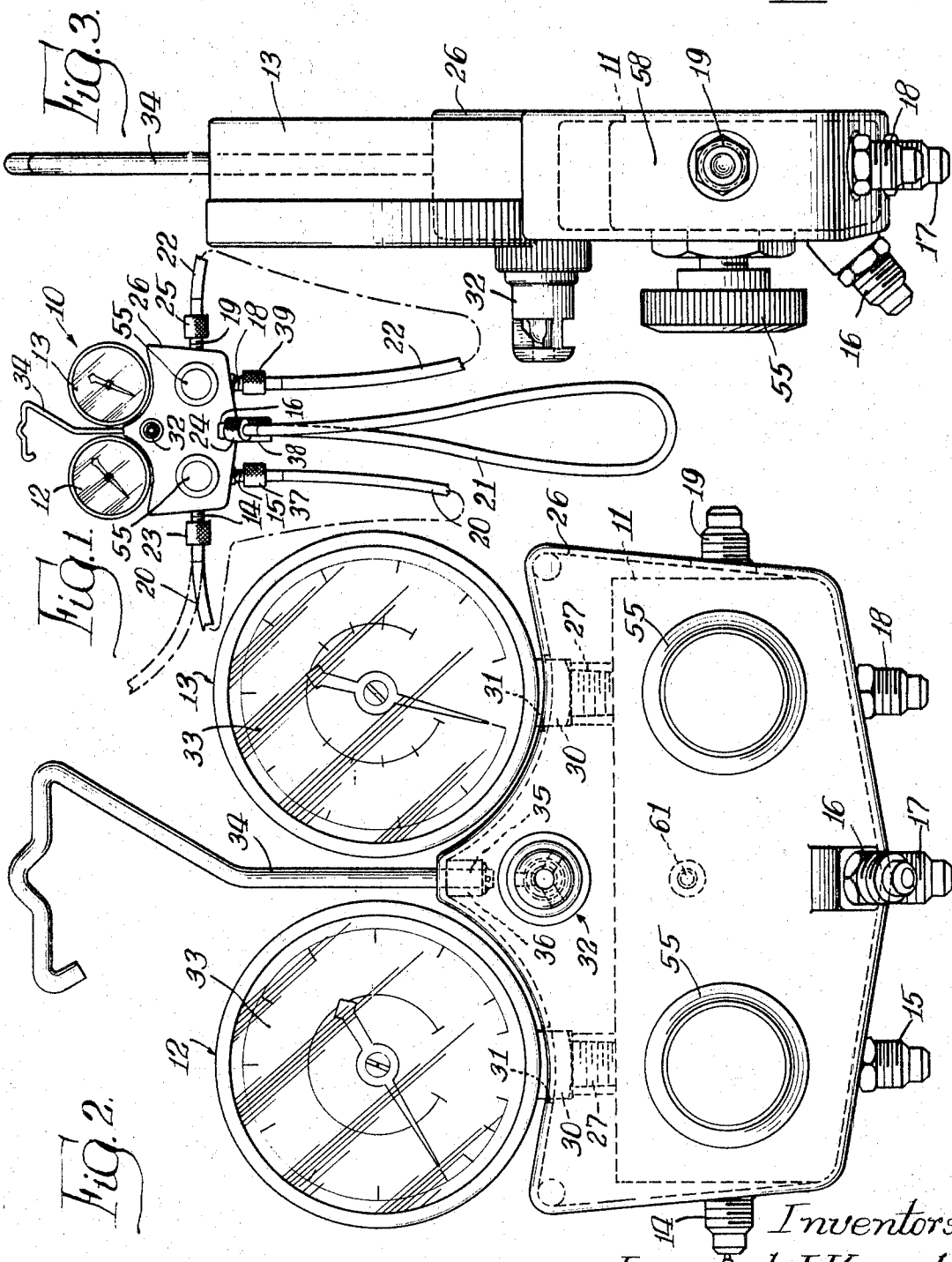
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3,438,260

FLUID-TEST APPARATUS

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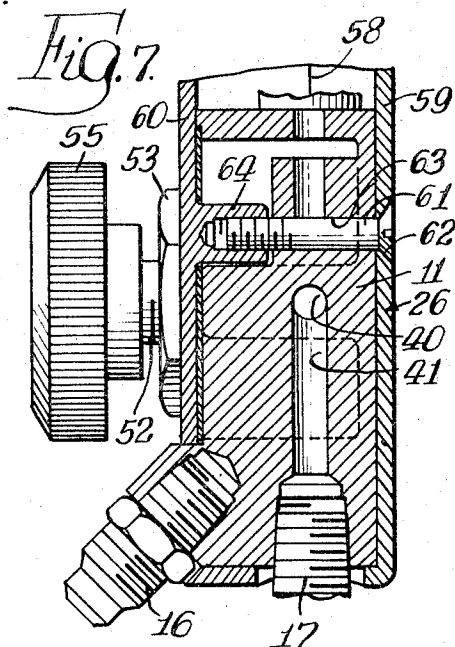
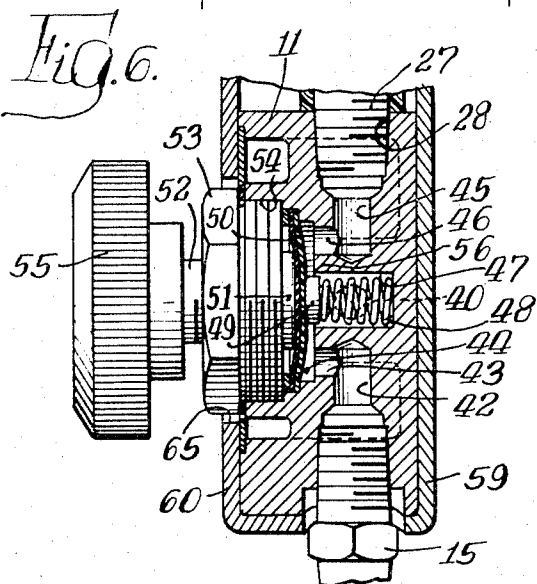
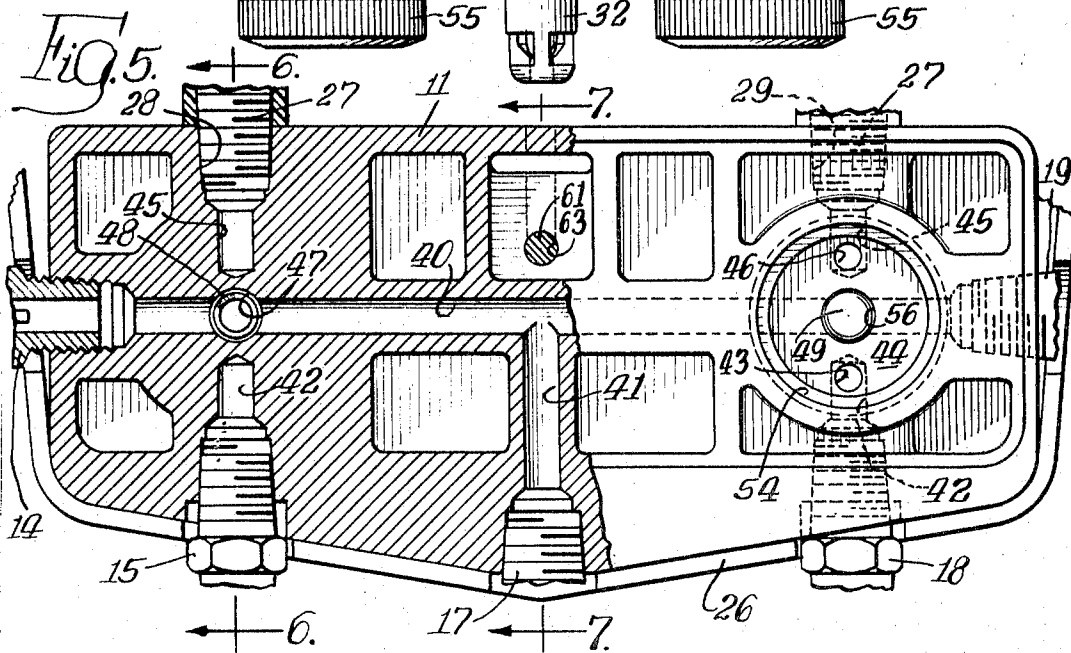
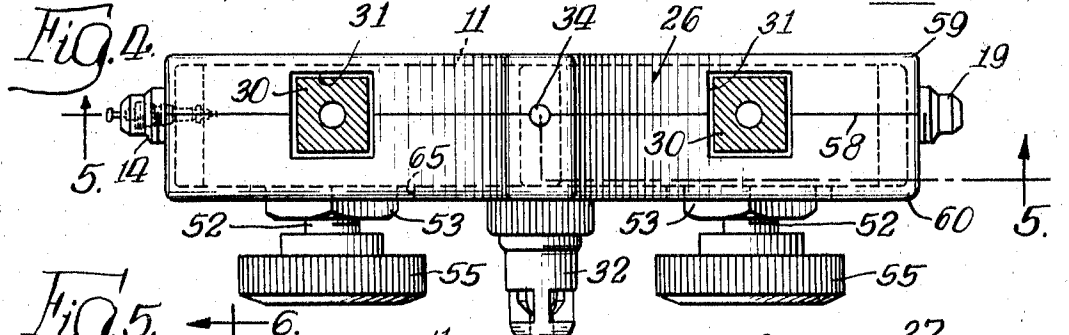
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FLUID-TEST APPARATUS

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5 Claims

ABSTRACT OF THE DISCLOSURE

A fluid-test apparatus including a manifold having a plurality of flexible hoses connected thereto and means on the manifold for releasably closing the distal ends of the hoses and releasably retaining the hoses in a looped configuration. The manifold further includes gauge means thereon for indicating a condition of the fluid in the passage in the manifold connected to the hoses. In one form of the invention a housing is provided for enclosing the manifold and a lamp is provided on the housing for illuminating the gauges when desired. The housing includes shoulder structure for positioning the gauges suitably to be illuminated by the lamp means.

This invention relates to fluid testing equipment and in particular to fluid gauge equipment.

At times it is desirable to temporarily connect suitable gauges to a fluid pressure system to ascertain conditions of the fluid therein such as the pressures thereof. The present invention comprehends an improved fluid gauge means for readily removably connecting a plurality of gauges to fluid pressure systems, arranged for improved facilitated use thereof.

Thus, a principal object of the present invention is the provision of a new and improved fluid-test equipment.

Another object of the invention is the provision of such a fluid-test equipment having new and improved means for facilitated connection thereof to a fluid system to be tested.

A further object of the invention is the provision of such fluid-test equipment having new and improved means for maintaining the equipment in compact arrangement precluding undesirable entry of foreign matter and the like into the equipment when not in use.

Still another object of the invention is the provision of such fluid-test equipment having new and improved means for maintaining flexible hoses in association therewith.

A yet further object of the invention is the provision of such fluid-test equipment having new and improved means for illuminating indicating means provided therewith.

Another object of the invention is the provision of such fluid-test equipment having new and improved means for accurately arranging the indicating means for desired illumination thereof by the illuminating means.

Yet another object of the invention is the provision of such a fluid-test apparatus having new and improved cover means for carrying the illuminating means and accurately positioning the indicating means for illumination by the illuminating means.

Other objects and advantages of the invention will be apparent from the following description taken in connection with the accompanying drawing wherein:

FIGURE 1 is a front elevation of a fluid-test equipment embodying the invention;

FIGURE 2 is an enlarged front elevation thereof with the hoses removed;

FIGURE 3 is a side elevation thereof;

FIGURE 4 is a top plan view thereof with the gauges removed;

FIGURE 5 is a vertical section taken substantially along the line 5—5 of FIGURE 4;

FIGURE 6 is a fragmentary enlarged transverse section taken substantially along the line 6—6 of FIGURE 5; and

FIGURE 7 is a fragmentary enlarged transverse section taken substantially along the line 7—7 of FIGURE 5.

In the exemplary embodiment of the invention as disclosed in the drawing, a fluid-test equipment generally designated 10 is shown to comprise a manifold 11 provided with a pair of indicating gauges 12 and 13 and having a plurality of projecting fittings 14, 15, 16, 17, 18 and 19. A plurality of flexible hoses 20, 21 and 22 are associated with the equipment 10 for facilitated connection of the equipment to a fluid system to be tested (not shown), the hoses having suitable end fittings 23, 24 and 25 for connection to suitable threaded fittings (not shown) of the system to be tested.

Referring now more specifically to FIGURES 2 and 3, the manifold 11 is provided with a cover 26 which encloses the manifold and through which the various fittings 14 through 19 extend. Each of gauges 12 and 13 is provided with a threaded connecting portion 27 adapted to be received in suitable threaded openings 28 and 29 in the manifold. The gauges further are provided with square shoulder portions 30 at the upper end of the threaded connectors 27 adapted to be received in suitable corresponding square openings 31 in the cover 26.

The cover 26 is further provided with an illuminating means herein comprising a battery operated lamp 32 on the front of the cover arranged to illuminate the dials 33 of the gauges 12 and 13, respectively. The equipment 10 is arranged to be hung on a suitable support such as a horizontal pipe (not shown) by means of a hanger 34 having a lower end 35 secured to a block 36 within the cover 26.

More specifically, hose 20 includes a second end fitting 37 connected to fitting 15, hose 21 includes a second end fitting 38 connected to fitting 17, and hose 22 includes a second end fitting 39 connected to fitting 18. As best seen in FIGURE 5, the illustrated manifold is provided with a cross bore 40 and fitting 17 is connected to an inlet bore 41 communicating with cross bore 40. Fitting 15 communicates with an inlet bore 42. As shown in FIGURE 6, bore 42 includes a turned end portion 43 opening into a valve chamber 44. Fitting 27 of the gauge 12 communicates with an internal bore 45 having a turned end 46 communicating with the valve chamber 44, and passage 40 intersects a forwardly opening passage 47 which also opens into the valve chamber 44. A helical spring 48 is mounted in the passage 47 for biasing a presser member 49 against a flexible diaphragm 50 which is urged against the presser member 49 by a presser member 51 carried on a shaft 52 threaded to a connector 53 which is in turn threaded into an opening 54 in the front of the manifold 11. A suitable handle 55 is mounted on the forward end of the threaded member 52 for adjustably positioning the presser member 51 for selectively closing the diaphragm 50 across the front opening 56 of the passage 47 and thereby precluding communication between the passages 42 and 45 with cross passage 40.

A similar structure is provided for controlling fluid delivered through fitting 18 relative to fitting 27 of gauge 13.

In the illustrated embodiment, fitting 14 comprises a check valve fitting which may be of the conventional Schroeder tire valve type as shown in FIGURE 4, permitting fluid flow only unidirectionally therethrough into the cross passage 40. Fittings 16 and 19 may be blind fittings, that is, fittings having no passage therethrough,

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thus serving solely as means for connecting the hose end fittings, such as fittings 24 and 25 thereto when hoses 21 and 22 are not in use. Fitting 14 may be utilized for connecting fitting 23 of hose 20 thereto when the hose 20 is not in use, but also may be used for introducing fluid into cross passage 40 as a fourth inlet thereto when desired.

The housing 26 is split along a dividing line 58 to define a rearward portion 59 and a forward portion 60 which are secured together about the manifold body 11 by means of a suitable screw 61 which passes through an opening 62 in the rear portion 59, a suitable bore 63 in the manifold body 11, and into a suitable boss 64 projecting rearward from the front portion 60 of the cover. As shown in FIGURE 6, the front portion 60 of the cover is provided with suitable openings 65 through which the fittings 53 project from the manifold body 11.

Thus, the fluid-test equipment 10 provides an improved simplified and economical gauge equipment for facilitated determination of fluid conditions of systems, such as fluid pressure therein. The hoses 20, 21 and 22 are normally prevented from having foreign material collect therein during storage by the connection of the free ends thereof to the fittings 14, 16 and 19 carried by the manifold body itself, while the hose ends are readily available for connection to suitable fittings (not shown) of the fluid system to be tested. As shown in FIGURE 1, the arrangement of the fittings 14, 16 and 19 permits the hoses to extend downwardly substantially directly below the manifold in the looped arrangement for facilitated utilization of the test equipment 10. More specifically, the blind fitting 16 extends angularly to the direction forwardly away from the front face 60 of the manifold cover and the fittings 14 and 19 extend perpendicularly to the forward direction, or parallel thereto, as shown in FIGURES 2 and 3. The fluid-test equipment 10 provides for facilitated control of the testing operation by means of the respective hose connections and diaphragm valves 50 which control the flow of the pressure fluid from the hoses 20 and 22 relative to the cross passage 40. Further, the fitting 14 provides for an additional fluid inlet when desired so that four connections may be had to the cross passage 40. The cover 26 automatically positions the gauges 12 and 13 to be in position for receiving illumination from the lamp 32. The lamp 32 may be of any conventional construction permitting selective operation thereof as desired. The hanger 34 permits the entire equipment to be hung on a suitable support for facilitating connection of the hoses to the system to be tested.

While we have shown and described one embodiment of our invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention.

We claim:

1. Fluid-test apparatus comprising: a manifold having a passage therethrough defining a front face; a first flexible hose having first and second ends; means connect-

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ing said first end of said first hose to said manifold in fluid flow communication with said passage; means connecting said first end of said second hose to said manifold in a fluid flow communication with said passage; a pair of blind fittings threaded directly into said manifold for releasably closing said second ends of said hoses and releasably retaining said hoses in a loop configuration with said second ends immediately juxtaposed to said manifold, at least one of said blind fittings extending forwardly and downwardly at an angle to the direction forwardly away from said front face; and means on said manifold for indicating a condition of fluid in said passage delivered thereto selectively through said hoses.

2. The fluid-test apparatus of claim 1 further including means retained in association with said manifold for selectively illuminating said indicating means.

3. The fluid test apparatus of claim 1 wherein at least one of said blind fittings extends perpendicularly to the direction forwardly away from said front face.

4. Fluid-test apparatus comprising:

a manifold having a passage therethrough;

a first flexible hose having first and second ends;

a second flexible hose having first and second ends;

means connecting said first end of said first hose to said manifold in fluid flow communication with said passage;

means connecting said first end of said second hose to said manifold in fluid flow communication with said passage;

means on said manifold for releasably closing said second ends of said hoses and releasably retaining said hoses in a loop configuration with said second ends juxtaposed to said manifold; and

means on said manifold for indicating a condition of fluid in said passage delivered thereto selectively through said hoses, said releasable closing and retaining means comprising at least one check valve means permitting fluid flow solely into said passage.

5. The fluid-test apparatus of claim 4 further including means carried by said manifold for controlling flow of fluid between said hoses and said indicating means.

References Cited

UNITED STATES PATENTS

818,822	4/1906	Fernald	73—431
2,212,466	8/1940	Bradford	73—420 XR
2,238,958	4/1941	Wells	73—420 XR
2,969,086	1/1961	Gstalter et al.	73—146.8 XR
3,272,008	9/1966	Lamperti	73—146.3
3,118,463	1/1964	Lacart	137—343

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