

March 6, 1951

E. E. CYPHERT
FIRE EXTINGUISHER

2,544,137

Filed Aug. 20, 1947

2 Sheets-Sheet 1

Fig. 1.

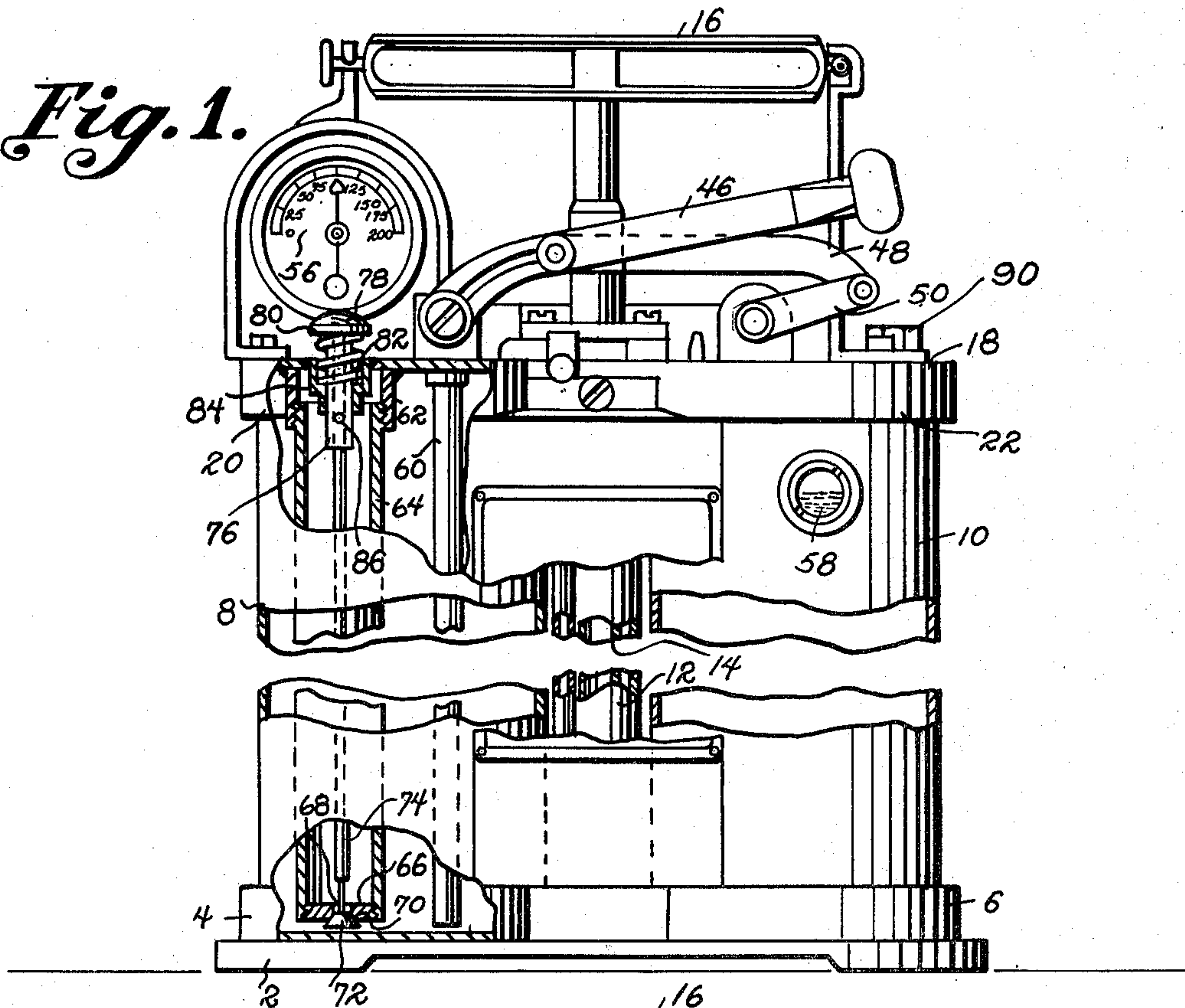
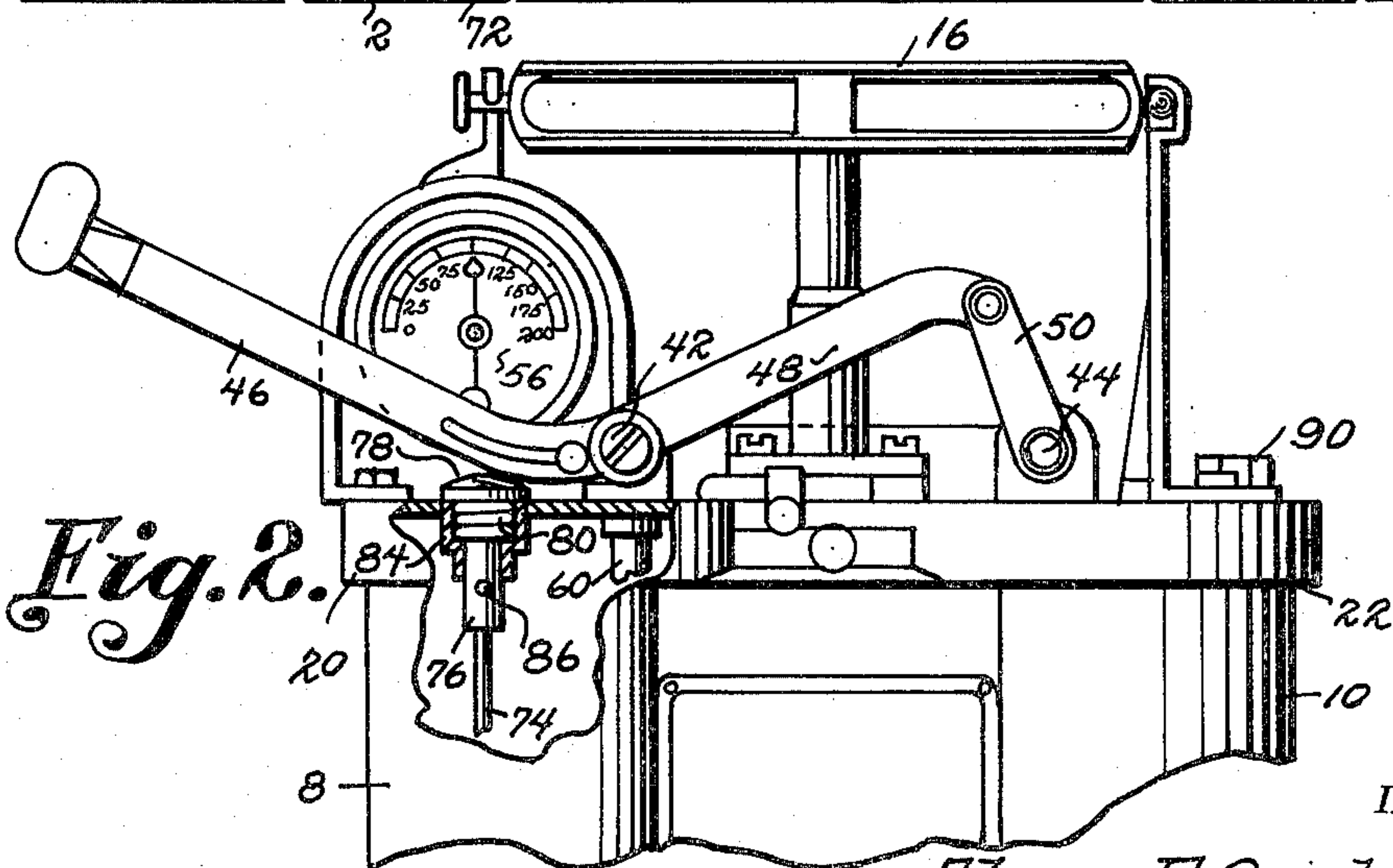


Fig. 2.



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Fig. 3.

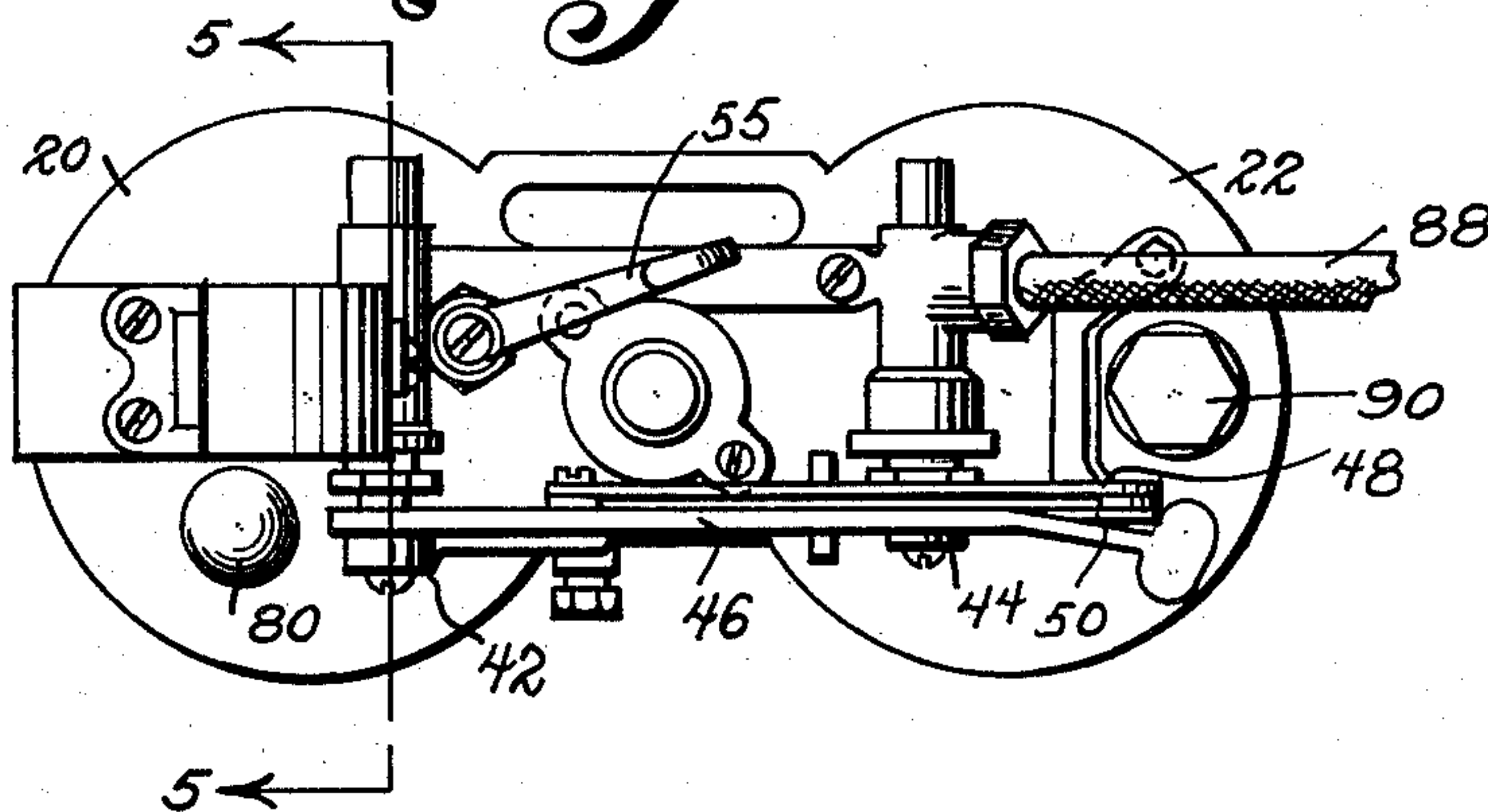


Fig. 4.

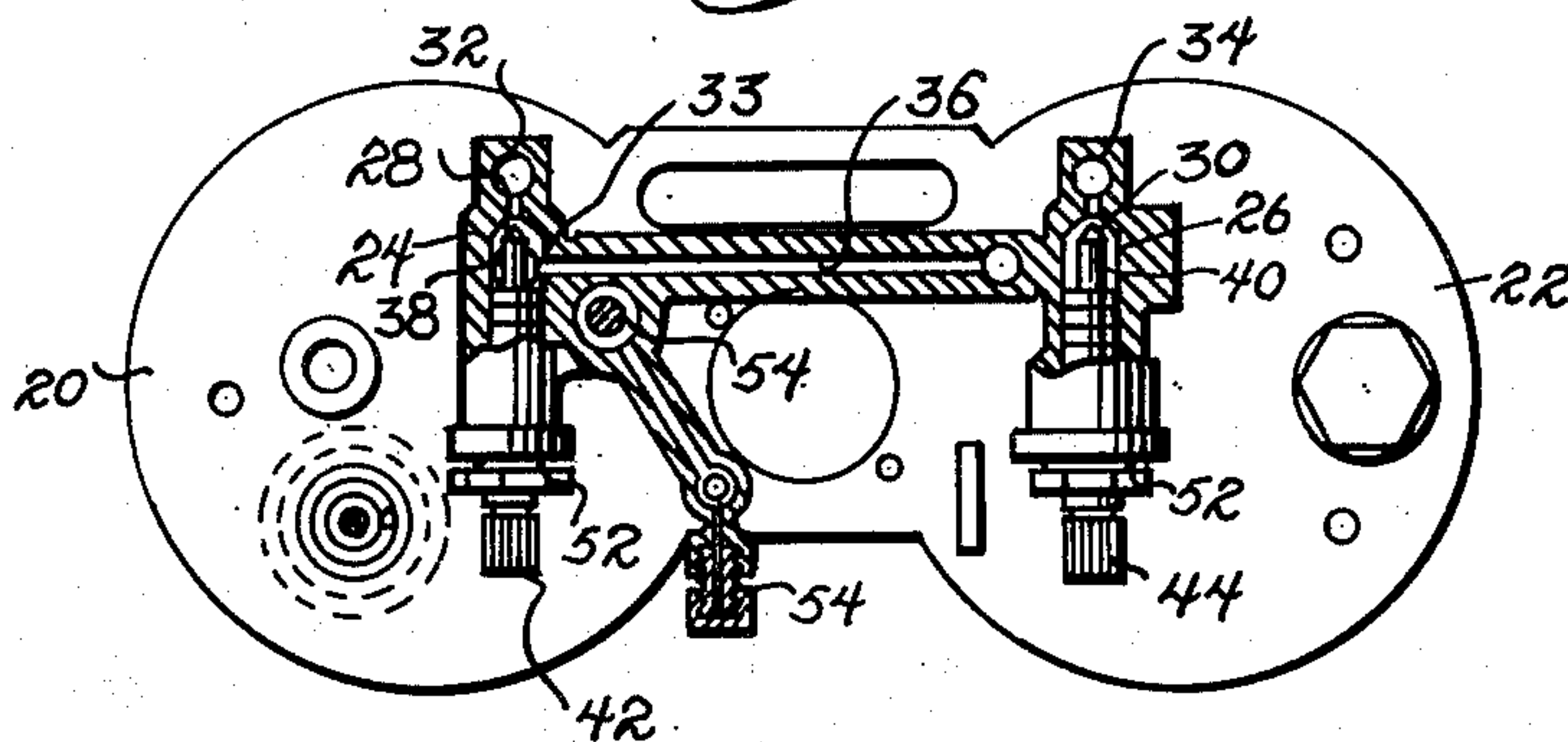


Fig. 6.

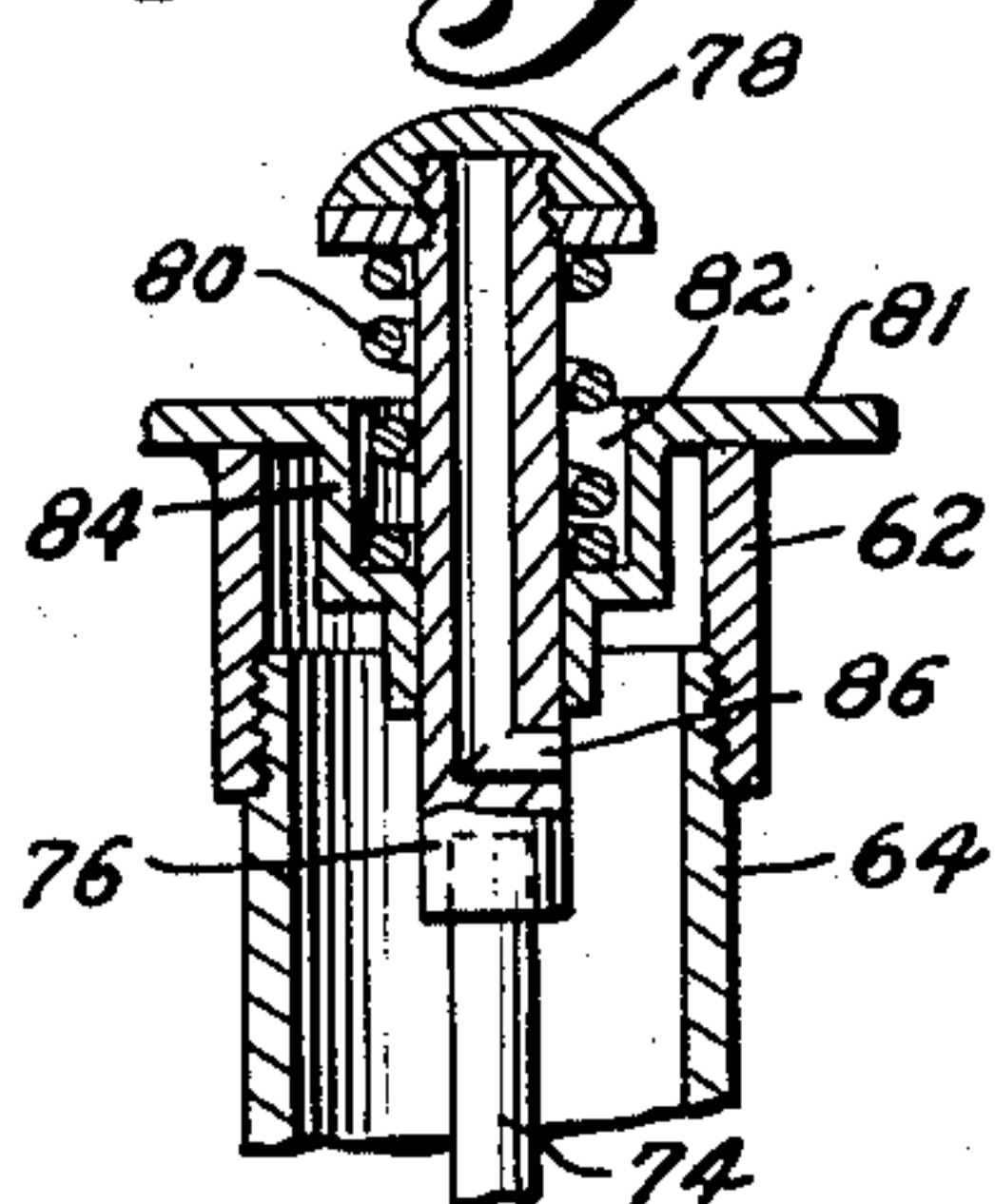
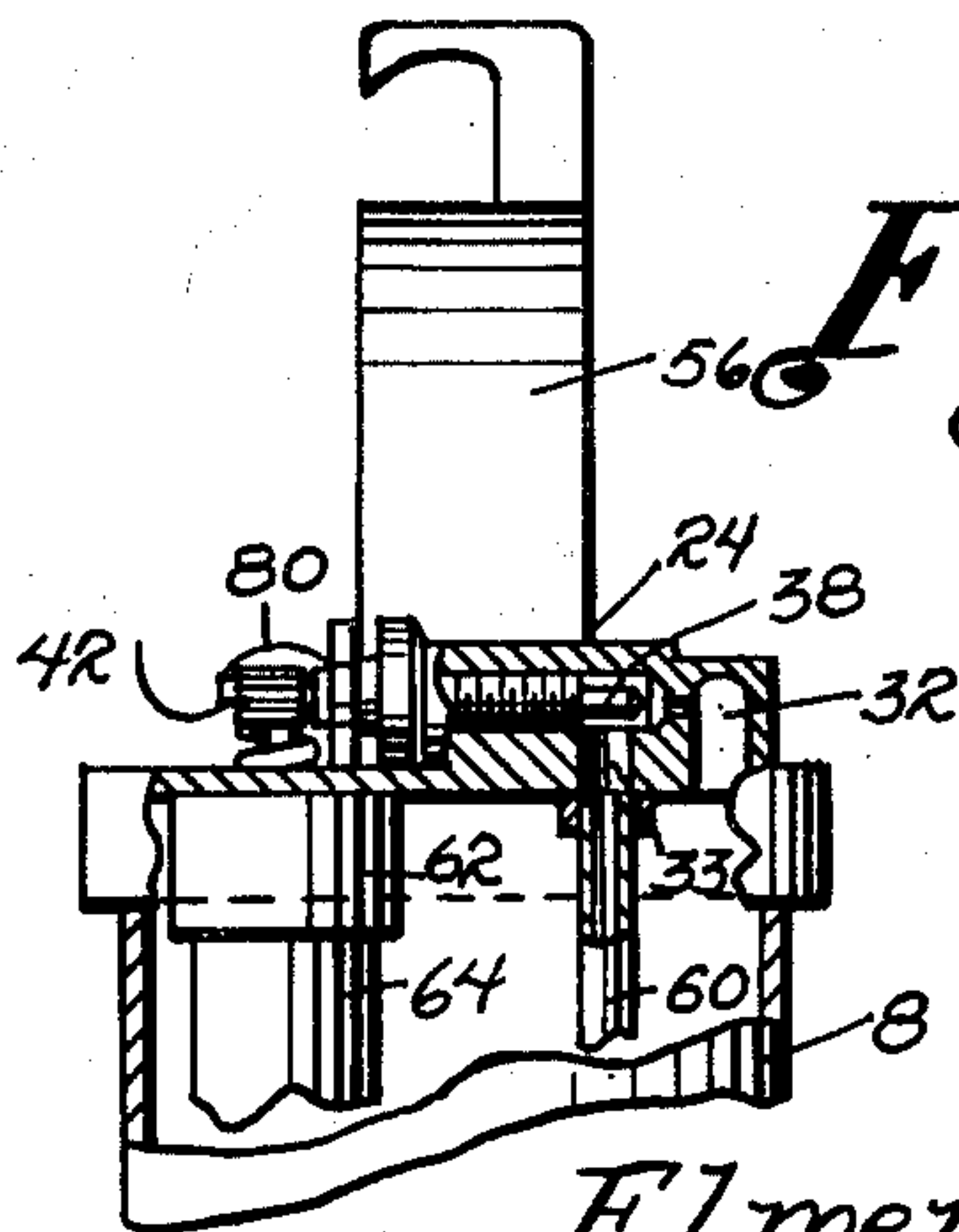


Fig. 5.



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UNITED STATES PATENT OFFICE

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FIRE EXTINGUISHER

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8 Claims. (Cl. 169—31)

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My present invention relates to an improved fire extinguisher of the type embodying an air cylinder and a liquid chemical cylinder with valve apparatus and controls therefor so that in case of need the air under pressure may be introduced to the chemical outlet valve to discharge the same under pressure and is an improvement over the structure described and claimed in Patent No. 1,782,083.

It has been found that while the extinguisher of that patent is wholly satisfactory in its construction and operation, occasions arise from the use of certain chemicals where noxious and toxic gases may be formed when the air discharged chemical is subject to the heat of fire, and for that reason I have added to the patent a structure whereby an inhibitor for such gases is injected into the air and gas stream to neutralize the gases without affecting the operation or the ability of the structure to extinguish fires.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention according to the best mode I have thus far devised, but it will be understood that various changes and alterations may be made in the exemplified structure within the scope of the appended claims.

In the drawings:

Fig. 1 is a front elevational view of the improved extinguisher with parts broken away for clarity of observation.

Fig. 2 is a similar view with the valve actuating lever in valve opening position.

Fig. 3 is a top plan view.

Fig. 4 is a horizontal sectional view through the valve structure.

Fig. 5 is a sectional view at line 5—5 of Fig. 3.

Fig. 6 is an enlarged detailed sectional view of the filling mechanism of the inhibitor.

Referring now to the drawings I have illustrated the device of my invention embodied in the fire extinguisher including the base 2 having spaced sockets 4 and 6 for the air cylinder 8 and the chemical cylinder 10.

A pump cylinder 12 is located between the cylinders 8 and 10 and is actuated by pump rod 14 having handle 16.

The cover 18 has sockets 20 and 22 on the air and chemical cylinders in air-tight relation and on this cover is provided the valve apparatus comprising the valve casings 24 and 26 having valve seats 28 and 30 and ports 32 and 34 communicating respectively with the air and gas cylinders, and passage 36 connecting these ports.

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Needle valves 38 and 40 control the valve ports and the ends of the valve stems 42 and 44 are secured in lever 46 and link 48 pivotally connected by link 50 so that the valves are simultaneously opened or closed as the lever is moved to its selected positions. Packing glands 52 seal the valve stems, and the valve 54 having lever 55 permits the charging of the air cylinder from another source such as a filling station compressor.

The pressure gauge 56 shows readily the air pressure in the air cylinder and the window 58 in the chemical cylinder shows the level of the contents.

According to my invention I provide a tube 60 depending from the cover and aligned with the additional port 33 within the air cylinder and spaced from the bottom thereof.

Also in the air cylinder I provide a collar 62 threaded to receive the tube 64 having its lower end closed by disk 66 formed with a central port 68 tapered at 70 to seat the tapered valve 72 on valve rod 74. The upper end of the rod has a hollow plunger 76 the open end of which is closed with a cap 78 urged upwardly to valve closing position by spring 80 seated in the recess 82 of collar 84.

The cap of the plunger is located in the path of movement of the lever 46 as it is swung to valve opening position and as it bears on the cap and rod against the spring tension the valve is opened allowing the gas inhibitor in the tube 64 to discharge through port 68 to mix with the compressed air and vent through tube 60 to discharge the chemical in conventional fashion.

When the inhibitor is exhausted the tube may be refilled by removing cap 78 and pouring the fresh supply through the hollow plunger to pass through port 86 into the tube 64. Hose 88 directs the mixture as desired and plug 90 permits the refilling of the chemical cylinder 10.

The present device operates in the same manner as described in my above mentioned patent and the addition of the inhibitor tube 64 does not affect the operation.

In other words when the operating lever 46 is moved to start the discharge of the chemical, the inhibitor control valve 72 is moved to allow the liquid in the inhibitor tube to flow into the air chamber, the air pressure carries the fluid up through the pickup tube 60 through the passage 36 in the top casting and down into the liquid chamber.

The chemical charge for this device will be a two package charge furnished with complete

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filling instructions. The inhibitor charge will be poured in through the inhibitor tube. The vaporizing liquid will be poured into the chemical chamber.

After the machine is charged the operation of the device will be the same as above described by simply pulling up the operating lever the machine will start to discharge.

In this specific type of the inhibitor used or the effects gained by the inhibitor do not have any relation with regard to the application as described, in other words the application is for automatic chemical inhibitor and not for the inhibitor itself. However, if for instance the inhibitor tube is filled with ammonium hydroxide and this material is brought into contact with vaporizing liquid when the machine is placed in operation the ammonium hydroxide will neutralize any hydrochloric acid or other decomposition products which might be formed in the device.

Thus the gases as set forth in the objects of the invention will be neutralized without effecting the operation of the device.

From the above description of the extinguisher and the inhibitor injecting device of my invention it will be apparent that the discharge of the inhibiting matter may be accomplished simply and with existing apparatus including the valve control lever so that if necessary, pressure on the pivoted lever will open the inhibitor valve and the air under pressure will pick up the inhibitor and mix it with the air and chemical mixture.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a fire extinguisher having valved air and chemical cylinders, a head for the cylinders and an actuating lever for the valves, the improvement comprising an inhibitor container in the air cylinder, a valve for the container, and a valve rod in the container extending through the head and in the path of movement of the lever when moved to valve opening position.

2. In a fire extinguisher having valved air and chemical cylinders, a head for the cylinders and an actuating lever for the valves, the improvement comprising an inhibitor container in the air cylinder, a spring-pressed valve for the container, and a valve rod in the container extending through the head and in the path of movement of the lever when moved to valve opening position.

3. In a fire extinguisher having valved air and chemical cylinders, a head for the cylinders and an actuating lever for the valves, the improvement comprising an inhibitor container in the air cylinder, a valve for the container, and a valve rod in the container extending through the head and in the path of movement of the lever when moved to valve opening position, and means for charging the container through the valve rod.

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4. In a fire extinguisher having valved air and chemical cylinders, a head for the cylinders and an actuating lever for the valves, the improvement comprising an inhibitor container in the air cylinder, a pick up tube in the cylinder in communication with the air cylinder valve, a valve for the container, and a valve rod in the container extending through the head and in the path of movement of the lever when moved to valve opening position.

5. In a fire extinguisher having valved air and chemical cylinders, a head for the cylinders and an actuating lever for the valves, the improvement comprising an inhibitor container in the air cylinder, a spring-pressed valve for the container, and a valve rod in the container extending through the head and in the path of movement of the lever when moved to valve opening position, and means for charging the container through the valve rod.

6. In a fire extinguisher having valved air and chemical cylinders, a head for the cylinders and an actuating lever for the valves, the improvement comprising an inhibitor container in the air cylinder, a pick up tube in the cylinder in communication with the air cylinder valve, a spring-pressed valve for the container, and a valve rod in the container extending through the head and in the path of movement of the lever when moved to valve opening position, and means for charging the container through the valve rod.

7. In a fire extinguisher having valved air and chemical cylinders, a head for the cylinders and an actuating lever for the valves, the improvement comprising an inhibitor container in the air cylinder, a valve for the container, and a valve rod having a plunger and cap in the container extending through the head and in the path of movement of the lever when moved to valve opening position.

8. In a fire extinguisher having valved air and chemical cylinders, a head for the cylinders and an actuating lever for the valves, the improvement comprising an inhibitor container in the air cylinder, a spring-pressed valve for the container, and a valve rod having a plunger and cap in the container extending through the head and in the path of movement of the lever when moved to valve opening position.

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