

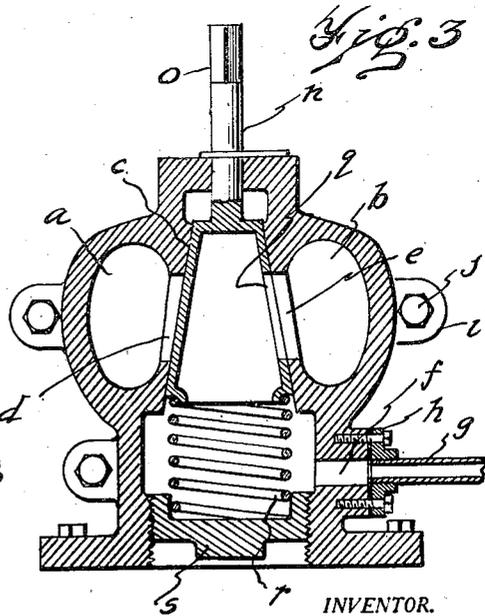
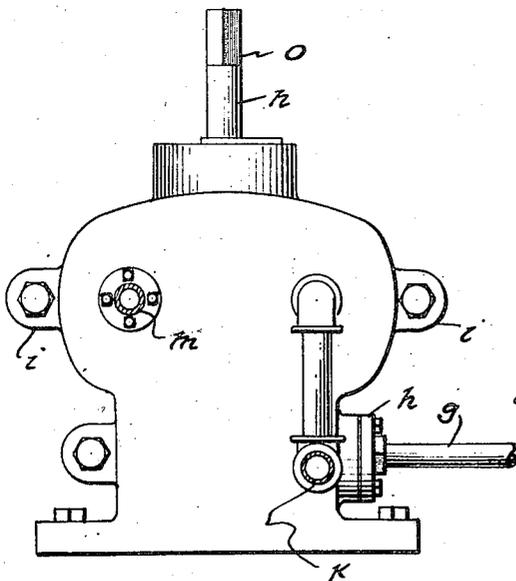
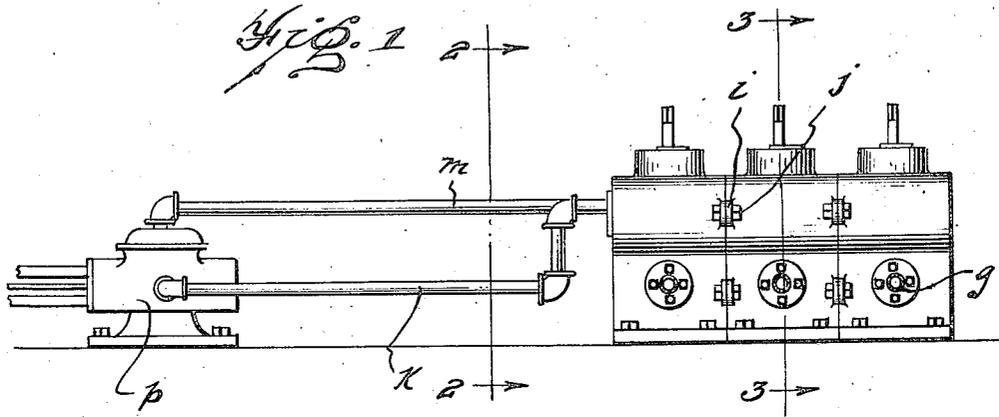
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1,459,150

A. D. GASTON

FLUID DISTRIBUTING MANIFOLD

Filed Dec. 9, 1921



INVENTOR.

BY *Audley D. Gaston*  
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# UNITED STATES PATENT OFFICE.

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## FLUID-DISTRIBUTING MANIFOLD.

Application filed December 9, 1921. Serial No. 521,209.

*To all whom it may concern:*

Be it known that I, AUDLEY D. GASTON, a citizen of the United States, residing at Sarnia, in the county of Lambton and Province of Ontario, Canada, have invented certain new and useful Improvements in Fluid-Distributing Manifolds, of which the following is a specification.

This invention relates to fluid distributing manifolds and has for its object a manifold which is especially designed for use in connection with the distributing of liquids. A manifold of this type would probably be preeminently useful in and about an oil refinery or similar liquid handling manufactory where it is desirable to take fluids alternately from one reservoir and distribute them to another reservoir or designated place. It is especially adapted for a situation of this kind where the paths of the liquids are repeatedly changed. In ordinary practice liquids of this kind are only handled by the use of a great number of valves and valve gear located at various inconvenient places.

It is the object of the present invention to afford a manifold construction located at a single place which can be easily and conveniently operated to change the paths of the liquids through any number of selectable channels.

The manifold may be easily diminished or increased in its capacity for handling units by reason of its sectional character, as will be presently explained.

In the drawings,—

Fig. 1 is a side elevation of the manifold showing three sections.

Fig. 2 is an end elevation of the manifold, taken on the line 2—2 of Fig. 1.

Fig. 3 is a section on the line 3—3 of Fig. 1.

The manifold is preferably made up of a plurality of sections although the entire manifold might be cast en bloc, if so desired. However, by making the manifold in sections it is possible to add one or more center sections or subtract one or more center sections so as to alter the capacity of the manifold to meet with the needs of the situation. The end sections have closed ends while the center sections have ends that are open, that is, the intake and the exhaust passage sections *b* and *a* respectively are open so that the open face of the intervening section may be bolted to the

open face of the next section with a suitably interposed gasket to make the connection fluid-tight. The intake passage and the exhaust passage are simply horizontal cored-out sections of passages on opposite sides of the manifold section. In the center of the manifold is a cored-out space forming the valve and distributing chamber *c*. This has suitable ports *d* and *e* communicating with the exhaust and the intake passages respectively. At the lower end of this valve chamber the passage-way *f* leads to the side of the section where a pipe *g* may be clamped to the section by the coupling *h* and a suitably interposed gasket.

On the sides of the manifold sections where the open faces abut a plurality of ears *i* are provided through which may be passed bolts *j* to permit the clamping of the section together with the aid of nuts.

In one end section suitable fixtures are provided to couple the intake pipe *k* and the delivery pipe *m* to the pump *p*.

Located within the valve chamber is the valve by which the two ports leading from the exhaust and intake passages to the distributing chamber may be controlled. I do not limit myself to any particular form of valve or any number of valves to effect this control between the exhaust manifold and the distributing chamber and the intake manifold and the distributing chamber. It will be obvious that various valve arrangements can be substituted for that shown and accomplish the same purpose, or for that matter, instead of one valve two valves may be used. I have illustrated a rotary conical valve which has an upwardly-extending stem *n* provided with a wrench-hold *o*. This valve is hollow in its center and provided with a single orifice *q* which may be alternately caused to register with either port *d* and *e* or may be placed in a central position where it registers with neither port. The lower end of this valve is hollow. It is desirable to use an expansion spring *r* in connection with this valve to cause it to fit tightly to its seat. The valve may be easily disassembled by simply removing the cap nut *s* which screws into the bottom of the section. This cap nut may also be screwed in farther or out farther to adjust the pressure of the spring *r* upon the valve.

I believe that the usefulness of this mani-

fold will be evident from the above description. A single valve can be turned to connect the center distributing space and the pipe *g* with either the exhaust or intake passage, or for that matter, the valve may be turned so that the central distributing space and pipe *g* is completely cut off from either the exhaust or intake passage. Inasmuch as each exhaust and intake passage passes along the entire manifold, it will be evident that by a suitable control of the valves the fluid, for instance, can be drawn from any desired number or selection of pipes *g*, taken through the intake passage and the pipe *k* to the pump, and then delivered from the pipe through the discharge pipe *m* into the exhaust manifold and distributed to one or more manifold sections and with the valves properly arranged to one or more selected pipes *g*. These pipes *g* may be connected with any liquid reservoir or any place where the fluid is being delivered, such as tank cars or similar places.

It will be evident that any number of sections may be bolted together and hence a great variety of reservoirs and liquid-dispensing or using devices may come within the control of this single manifold and by the operation of the single pump. It simply requires the manipulation of the valves to close off the sections that are not desired in the operation and to see that the valves are properly turned to take liquid from one or more pipes and deliver it to one or more other selected pipes to effect the desired operation.

I desire it to be understood that considerable modification could be made of the specific structure here described without departing from the spirit of the invention which is comprehended in the general arrangement.

What I claim is:

1. A fluid distributing manifold, comprising a plurality of sections having intercommunicating exhaust passage sections and intake passage sections forming common intake and exhaust passages through the manifold, each section provided with a separate distributing space having ports communicating with each exhaust passage and intake passage, and means for controlling such ports.

2. A fluid distributing manifold, comprising a plurality of sections provided with intercommunicating exhaust passage sections and intercommunicating intake passage sections forming a separate exhaust passage and a separate intake passage throughout the length of the manifold, the said sections provided each with a distributing chamber having each a port connection with each intake passage and exhaust passage, and valves for controlling such ports and arranged so that each distributing chamber may communicate with one passage-way while the

other passage-way is cut off or both passage-ways may be cut off from the distributing chamber.

3. In a fluid distributing manifold, the combination of a plurality of detachable sections that may be bolted together, each section provided with an exhaust passage-way section and an intake passage-way section, the passage-way sections when the sections are bolted together arranged to intercommunicate to form a common intake passage-way and a common exhaust passage-way throughout the length of the manifold, each of the said sections being provided with a separate distributing chamber having a port connection with each passage-way, and means for controlling these ports to connect the distributing chamber of any one section to either passage-way or close it to both passageways.

4. In a fluid distributing manifold, the combination of a plurality of castings forming manifold sections, each provided with two cored-out passage-way sections on opposite sides of the manifold section with an intervening cored-out central distributing chamber having a passage-way leading to the exterior of the section, the said sections arranged to abut together end to end to bring the passage-way sections into intercommunication to form at one side a common intake passage-way through the manifold and at the other side a common exhaust passage-way through the manifold, the said central distributing chamber having ports communicating in each section with each passage-way, and means for controlling said ports to connect the distributing chamber with either passage-way or cut the distributing chamber off from both passage-ways.

5. In a fluid distributing manifold, the combination of a plurality of separate castings or sections having each two separate passage-way sections on opposite sides and having a central distributing chamber having a port connection with each passage-way, the said sections being boltable together and provided with open faces where the sections are to meet whereby the exhaust passage-way sections and the intake passage-way sections abut end to end to make a common exhaust passage-way through the manifold and a common intake passage-way through the manifold, each manifold section being provided with separate distributing chambers having a passage-way leading to the exterior of the section, said sections having ports placing the said central distributing chambers in communication with each passage-way, and valves for controlling such ports to permit the distributing chamber to be connected with either passage-way or cut off from both passage-ways.

In testimony whereof I affix my signature.  
AUDLEY D. GASTON.