

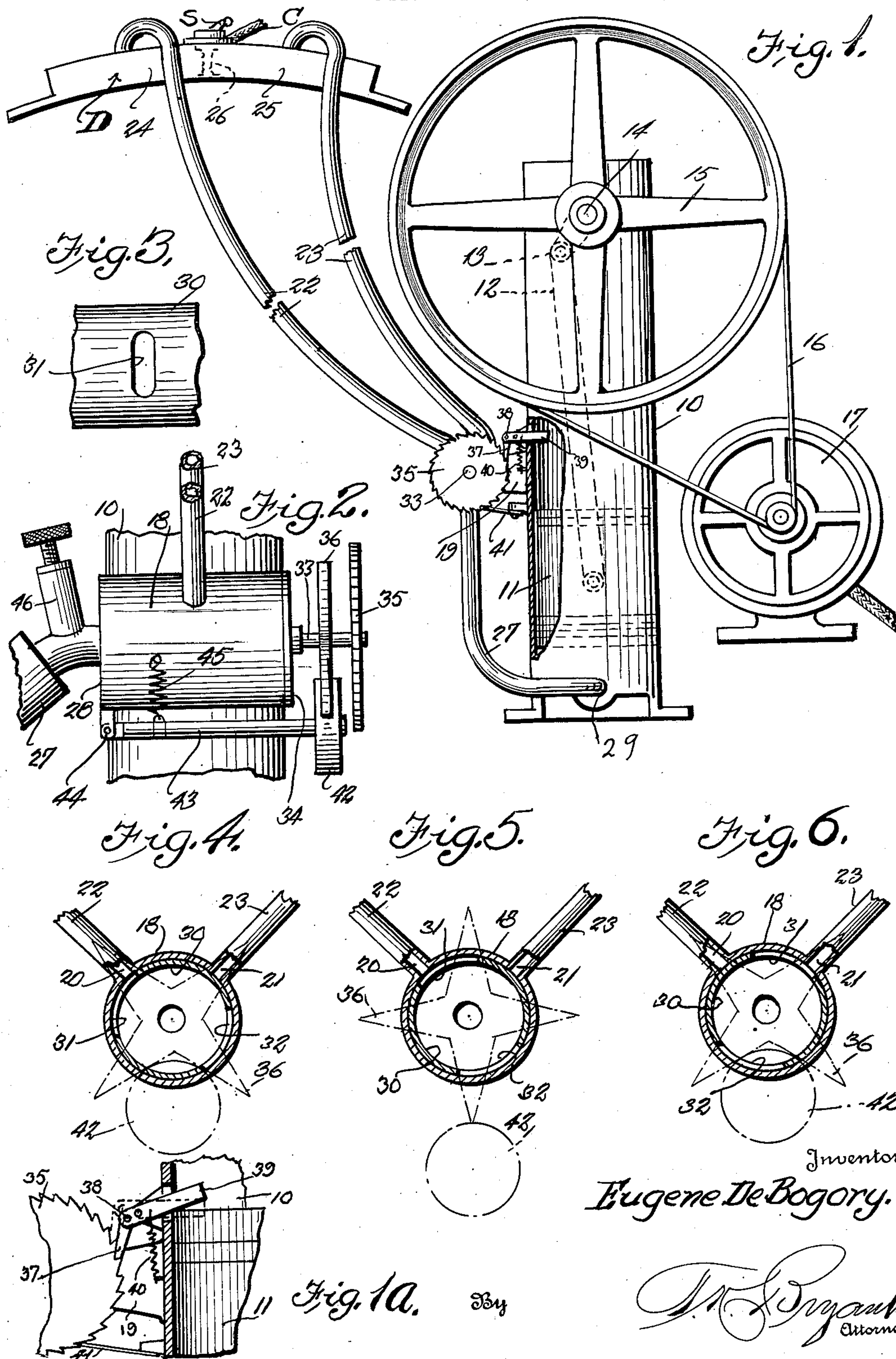
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PULSATOR FOR RECEPTORS OR DEPURATORS

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PULSATOR FOR RECEPTORS OR
DEPURATORS

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10 Claims. (Cl. 128—38)

This invention relates to certain new and useful improvements in pulsators for receptors or depurators.

The pulsator disclosed herein is especially designed for use in connection with a receptor of the general character disclosed in application filed by Eugene De Bogory on May 10, 1933 for improvements in Receptors, Serial No. 671,351 and while the receptor in said application discloses a single internal chamber or compartment, it is intended that the receptor or depurator in the present application shall be divided into two or more compartments with the pulsating mechanism associated with the several compartments for sequentially effecting pulsations there-through.

It is a further object of the invention to provide a pulsator of the foregoing character embodying a rotary valve through which air is exhausted for the creation of partial vacuum during operation of the pulsator pump and having means associated with the valve structure whereby the opening of one port in the valve structure will be simultaneous with the closing of another valve port and accomplished with such abruptness that choking action on the pulsometer pump will be eliminated.

With the above and other objects in view that will become apparent as the nature of the invention is better understood, the same consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawing and claimed.

In the drawing:—

Figure 1 is a side elevational view, partly broken away and shown in section of a pulsometer pump having flexible air line connections with a receptor or depurator and illustrating the valve operating mechanism;

Figure 1a is an enlarged detail sectional view; Figure 2 is a fragmentary side elevational view of the valve structure;

Figure 3 is a fragmentary plan view of the rotary cylindrical valve showing the circumferentially extending slotted port opening therein; and

Figures 4, 5 and 6 show cross-sectional views of the valve casing and show sequential positions of the rotary cylindrical valve relative to the air line connections with the valve casing and illustrating by dotted lines the star wheel and associated tensioned disks to effect substantially simultaneous forming of communication with one air line and the closing of communication with another air line.

Referring more in detail to the accompanying drawing, the pulsometer pump comprises a cylinder 10 having a piston 11 reciprocating therein, the piston rod 12 connected to the piston having a link connection 13 with a cross shaft 14 journaled transversely of the upper end of the

cylinder 10. A balance or fly wheel 15 is fixed to the cross shaft 14 exteriorly of the pump casing 10 and has a belt connection 16 with an electric motor 17 or other source of energy.

A cylindrical valve casing 18 is supported upon the pump casing 10 exteriorly thereof by means of the bracket 19 or other support as shown in Figure 1 and said valve casing 18 has a pair of inlet ports 20 and 21 circumferentially spaced substantially 90° as shown in Figs. 4 to 6. The inlet ports 20 and 21 have flexible pipe or air line connections 22 and 23 with a depurator D illustrated in Figure 1. This depurator is of the general character disclosed in the application hereinbefore referred to except that the same is divided into a pair of compartments 24 and 25 by a central partition 26 and said depurator further includes an electric resistance element in communication with the conductor C and under control of the switch S. The connection between the valve casing 18 and the pulsator pump casing 10 includes a conduit 27 extending from the end wall 28 of the valve casing 18 and communicating with the lower end of the pump casing 10 below the piston 11 as shown at 29 in Figure 1.

A cylindrical valve 30 is rotatably mounted in the valve casing 18 and is provided with a pair of diametrically opposite circumferentially extending valve openings 31 and 32 that move into registry with the inlet openings 20 and 21 of the valve casing 18. A stem 33 carried by the cylindrical valve 30 is journaled in the end wall 34 of the valve casing 18 and extends outwardly of the casing to fixedly support adjacent its end a ratchet wheel 35 and said shaft 33 has a four pointed wheel 36 fixed thereto intermediate the valve casing 18 and ratchet wheel 35.

The means for rotating the cylindrical valve 30 includes a pawl 37 engaged with the ratchet wheel 35 and pivotally mounted as at 38 as shown in Figure 1 upon a bracket exteriorly of the pulsometer pump casing 10, the other lever end 39 of the pawl extending into the pump casing 10 through a slotted opening and in position to be engaged by the upper end of the reciprocating piston 11. A coil spring 40 associated with the lever end 39 of the pawl 37 positions the lever end 39 in its downward position for engagement by the piston 11 and also effects ratcheting movement of the pawl 37 over the ratchet wheel 35; to prevent retrograde movement or rotation of the ratchet wheel 35 and cylindrical valve 30, there is provided a sectioned dog 41 supported on the pump casing 10 and engaged with the ratchet wheel 35 as shown in Figure 1.

During reciprocatory movement of the piston 11, the ratchet wheel 35 and cylindrical valve 30 are rotated in a step by step movement and this rotation of the valve shaft 33 also rotates the star wheel 36. With the cylindrical valve 30 in the

position shown in Figure 4, the port 31 in the valve registers with the inlet opening 20 in the valve casing 13 that is in communication with the pipe or air line 22 to the section 24 of the depurator D. The step by step rotation of the cylindrical valve moves the valve opening 31 in a like manner into registry with the inlet 20 while the inlet 21 is closed and when the cylindrical valve reaches the position as illustrated in Figure 5, the inlet 20 is still open and the inlet 21 is closed. To eliminate choking of the pump piston 11, it is desired to move the cylindrical valve 30 in a quick or abrupt manner from the position shown in Figure 5 to that shown in Figure 6 so that with the closing of the inlet 20 the inlet 21 is substantially simultaneously opened and placed in communication with the valve port 31. To accomplish this abrupt or quick rotary movement of the cylindrical valve 30, one of the legs of star wheel 36 has moved into contact with the disk 42 as shown in Figures 2, 4 and 5 to reach the position shown in Figure 5, the next movement of the ratchet wheel 35 positioning the leg of the star wheel 36 beyond the dead center with the disk riding over a side of the leg of the star wheel for the abrupt rotation of the latter, the shaft 33 and the cylindrical valve 30 carried thereby. The disk 32 is carried by one end of an arm 43 that is pivotally mounted at its other end as at 44 upon a bracket projecting outwardly of the valve casing 13 and said arm 43 is tensioned as at 45 for normally influencing the disk 42 in a direction toward the star wheel 36. It will therefore be understood that the tensioned disk 42 effects a sudden or abrupt rotation of the star wheel and cylindrical valve to substantially effect simultaneous closing of the port of the inlet 20 and the opening of the inlet 21, the cylindrical valve moving from the position shown in Fig. 5 to that shown in Fig. 6 to accomplish this operation.

As shown in Figure 2, the conduit 27 extending between the valve casing 13 and the lower end of the pulsometer pump casing 10 is provided with a compensating valve 46 that may be adjusted to regulate the degree of vacuum or suction created in the compartments 24 and 25 of the depurator D.

From the above detailed description of the invention, it is believed that the construction and operation thereof will at once be apparent, it being noted that operation of the piston 11 creates suction pulsation through the valve casing 13, air lines 22 and 23 and in the compartments 24 and 25 of the depurator, which pulsation is similar to a massage treatment, the tissues of the flesh registering with the active compartment, being drawn into the compartment by the pulsating action of the pump and then released, the other compartment of the depurator sequentially becoming active when the initially active compartment is at rest. The depurator is disclosed as being provided with two separate compartments, but it is to be understood that the same may embody any number of compartments desired and the valve structure modified to provide a pulsating air line connection with each compartment.

While there is herein shown and described the preferred embodiment of the invention, it is nevertheless to be understood that minor changes may be made therein without departing from the spirit and scope of the invention as claimed.

I claim:—

1. In apparatus of the character described, a pulsometer pump, a valve structure associated therewith and including a cylindrical casing and

a rotatable cylindrical valve therein, said casing having a pair of circumferentially spaced inlets and said valve having a slotted port for sequential registry with the inlets, means forming communication between the valve casing and pump and means interposed between the valve and pump to effect operation of the valve, said latter means including pawl and ratchet mechanism and means for effecting abrupt rotary movement of the valve when the port therein is in a position for movement to close one inlet and open another inlet to the valve casing whereby choking of the pulsometer pump is eliminated.

2. In apparatus of the character described, a pulsometer pump, a valve structure associated therewith and including a cylindrical casing and a rotatable cylindrical valve therein, said casing having a pair of circumferentially spaced inlets and said valve having a slotted port for sequential registry with the inlets, means forming communication between the valve casing and pump and means interposed between the valve and pump to effect operation of the valve, said latter means including pawl and ratchet mechanism and means for effecting abrupt rotary movement of the valve when the port therein is in a position for movement to close one inlet and open another inlet to the valve casing whereby choking of the pulsometer pump is eliminated, the last named means including a star wheel rotatable with the cylindrical valve and a tensioned disk working over the points of the star wheel.

3. In apparatus of the character described, a pulsometer pump, a valve structure associated therewith and including a cylindrical casing and a rotatable cylindrical valve therein, said casing having a pair of circumferentially spaced inlets and said valve having a slotted port for sequential registry with the inlets, means forming communication between the valve casing and pump to effect operation of the valve, said latter means including pawl and ratchet mechanism and means for effecting abrupt rotary movement of the valve when the port therein is in a position for movement to close one inlet and open another inlet to the valve casing whereby choking of the pulsometer pump is eliminated, in combination with a depurator divided into compartments and an air line connection between the respective compartments and inlets of the valve casing.

4. In apparatus of the character described, a pulsometer pump, a valve structure associated therewith and including a cylindrical casing and a rotatable cylindrical valve therein, said casing having a pair of circumferentially spaced inlets and said valve having a slotted port for sequential registry with the inlets, means forming communication between the valve casing and pump and means interposed between the valve and pump to effect operation of the valve, said latter means including pawl and ratchet mechanism and means for effecting abrupt rotary movement of the valve when the port therein is in a position for movement to close one inlet and open another inlet to the valve casing whereby choking of the pulsometer pump is eliminated, the last named means including a star wheel rotatable with the cylindrical valve and a tensioned disk working over the points of the star wheel, in combination with a depurator divided into compartments and an air line connection between the respective compartments and inlets of the valve casing.

5. In apparatus of the character described, a

pulsometer pump, a valve structure in communication with the pump and including a cylindrical casing and a rotatable cylindrical valve therein, a valve stem carried by the valve and projecting exteriorly of the valve casing, a ratchet wheel fixed to the projecting end of the valve stem, a tensioned pawl carried by the pulsometer pump, said pawl engaged with the ratchet wheel and having a lever end operated by the pulsometer pump for effecting rotation of the ratchet wheel and valve in a step by step movement, the valve casing having spaced inlets, a port in the valve sequentially registering with the inlets and means for effecting abrupt rotary movement of the valve when the latter by a subsequent movement closes one inlet and opens another inlet whereby choking of the pulsometer pump is eliminated.

6. In apparatus of the character described, a pulsometer pump, a valve structure in communication with the pump and including a cylindrical casing and a rotatable cylindrical valve therein, a valve stem carried by the valve and projecting exteriorly of the valve casing, a ratchet wheel fixed to the projecting end of the valve stem, a tensioned pawl carried by the pulsometer pump, said pawl engaged with the ratchet wheel and having a lever and operated by the pulsometer pump for effecting rotation of the ratchet wheel and valve in a step by step movement, the valve casing having spaced inlets, a port in the valve sequentially registering with the inlets and means for effecting abrupt rotary movement of the valve when the latter by a subsequent movement closes one inlet and opens another inlet whereby choking of the pulsometer pump is eliminated, the last named means including a star wheel rotatable with the valve and a tensioned disk cooperating with the star wheel to effect said abrupt rotary movement of the valve.

7. In apparatus of the character described, a pulsometer pump, a valve structure in communication with the pump and including a cylindrical casing and a rotatable cylindrical valve therein, a valve stem carried by the valve and projecting exteriorly of the valve casing, a ratchet wheel fixed to the projecting end of the valve stem, a tensioned pawl carried by the pulsometer pump, said pawl engaged with the ratchet wheel and having a lever end operated by the pulsometer pump for effecting rotation of the ratchet wheel and valve in a step by step movement, the valve casing having spaced inlets, a port in the valve sequentially registering with the inlets and means for effecting abrupt rotary movement of the valve when the latter by a subsequent movement closes one inlet and opens another inlet whereby choking of the pulsometer pump is eliminated, the last named means including a star wheel rotatable with the valve, a tensioned arm pivotally mounted exteriorly of the valve casing and a disk carried by the tensioned arm cooperating with the star wheel to effect said abrupt rotary movement of the valve.

8. In apparatus of the character described, a pulsometer pump, a valve structure in communication with the pump and including a cylindrical casing and a rotatable cylindrical valve therein, a valve stem carried by the valve and projecting exteriorly of the valve casing, a ratchet wheel fixed to the projecting end of the valve stem, a

tensioned pawl carried by the pulsometer pump, said pawl engaged with the ratchet wheel and having a lever end operated by the pulsometer pump for effecting rotation of the ratchet wheel and valve in a step by step movement, the valve casing having spaced inlets, a port in the valve sequentially registering with the inlets and means for effecting abrupt rotary movement of the valve when the latter by a subsequent movement closes one inlet and opens another inlet whereby choking of the pulsometer pump is eliminated, in combination with a depurator having separate compartments therein and air line connections between the respective compartments and the inlets to the valve casing.

9. In apparatus of the character described, a pulsometer pump, a valve structure in communication with the pump and including a cylindrical casing and a rotatable cylindrical valve therein, a valve stem carried by the valve and projecting exteriorly of the valve casing, a ratchet wheel fixed to the projecting end of the valve stem, a tensioned pawl carried by the pulsometer pump, said pawl engaged with the ratchet wheel and having a lever and operated by the pulsometer pump for effecting rotation of the ratchet wheel and valve in a step by step movement, the valve casing having spaced inlets, a port in the valve sequentially registering with the inlets and means for effecting abrupt rotary movement of the valve when the latter by a subsequent movement closes one inlet and opens another inlet whereby choking of the pulsometer pump is eliminated, the last named means including a star wheel rotatable with the valve and a tensioned disk cooperating with the star wheel to effect said abrupt rotary movement of the valve, in combination with a depurator having separate compartments therein and air line connections between the respective compartments and the inlets to the valve casing.

10. In apparatus of the character described, a pulsometer pump, a valve structure in communication with the pump and including a cylindrical casing and a rotatable cylindrical valve therein, a valve stem carried by the valve and projecting exteriorly of the valve casing, a ratchet wheel fixed to the projecting end of the valve stem, a tensioned pawl carried by the pulsometer pump, said pawl engaged with the ratchet wheel and having a lever end operated by the pulsometer pump for effecting rotation of the ratchet wheel and valve in a step by step movement, the valve casing having spaced inlets, a port in the valve sequentially registering with the inlets and means for effecting abrupt rotary movement of the valve when the latter by a subsequent movement closes one inlet and opens another inlet whereby choking of the pulsometer pump is eliminated, the last named means including a star wheel rotatable with the valve, a tensioned arm pivotally mounted exteriorly of the valve casing and a disk carried by the tensioned arm cooperating with the star wheel to effect said abrupt rotary movement of the valve, in combination with a depurator having separate compartments therein and air line connections between the respective compartments and the inlets to the valve casing.

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