July 18, 1939. S. T. MARTIN 2,166,169

TRANSFERENCE APPARATUS

Filed Aug. 24, 1937 3 Sheets-Sheet 1

Fig. 1.

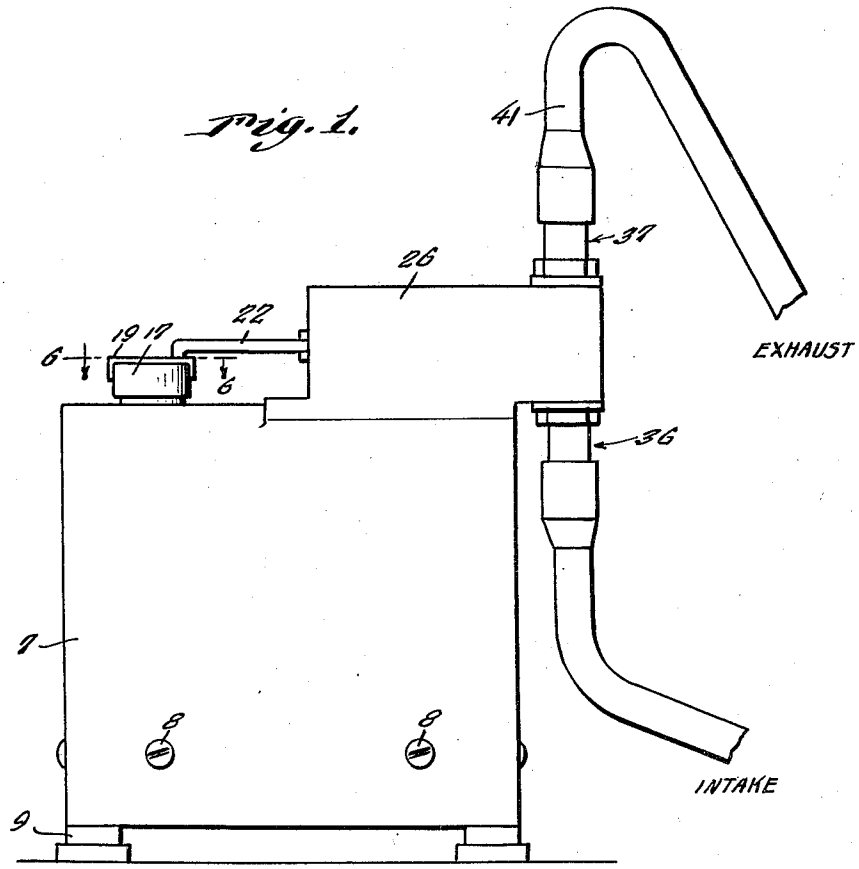


Fig. 6.

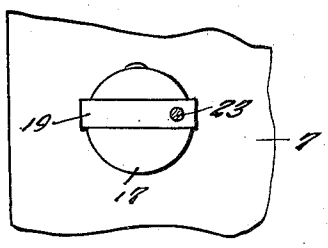
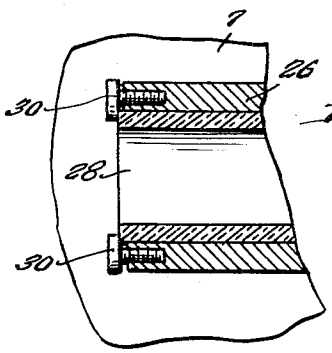


Fig. 5.



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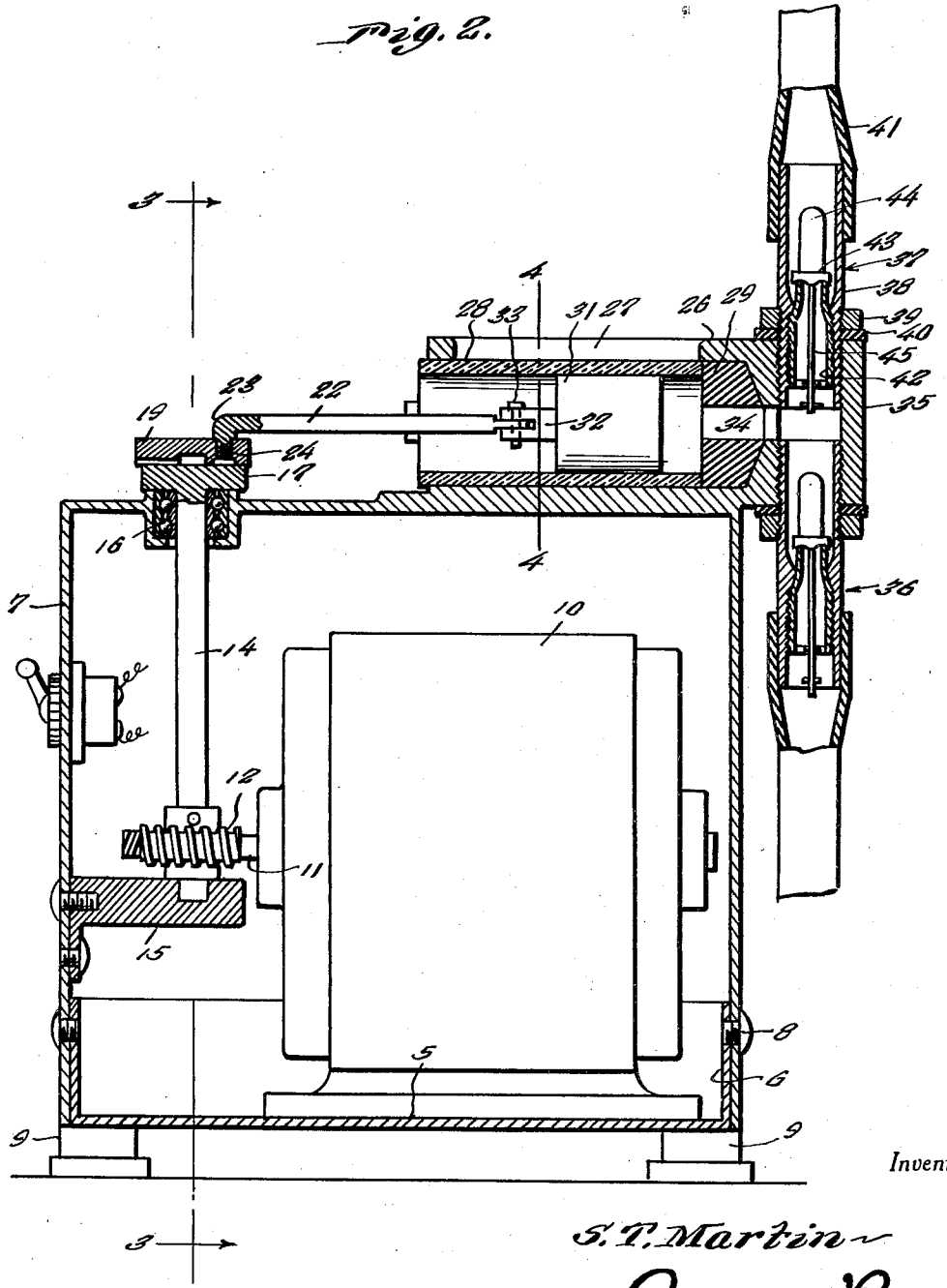
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July 18, 1939. S. T. MARTIN 2,166,169

TRANSFERENCE APPARATUS

Filed Aug. 24, 1937 3 Sheets-Sheet 2

Fig. 2.



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July 18, 1939. S. T. MARTIN 2,166,169

TRANSFERENCE APPARATUS

Filed Aug. 24, 1937 3 Sheets-Sheet 3

Fig. 3.

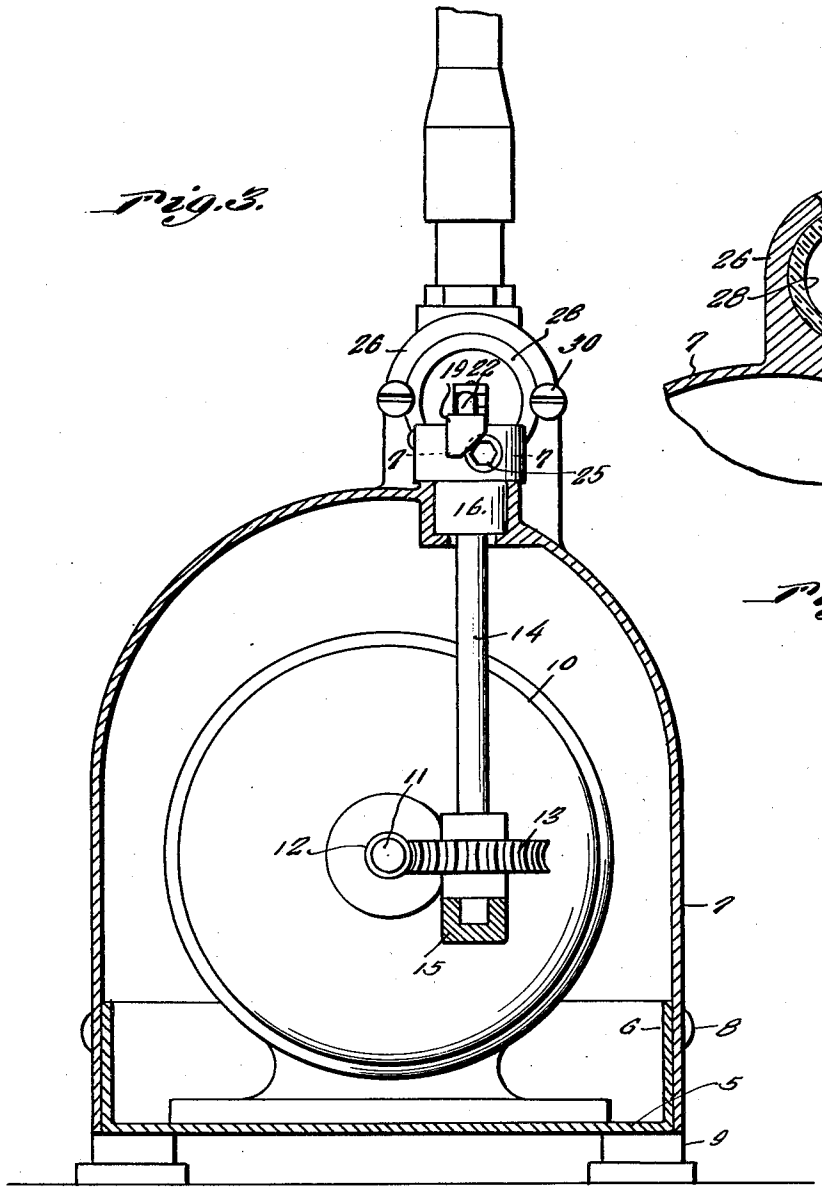
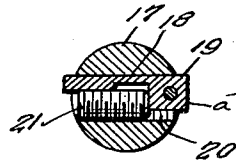


Fig. 4.

Fig. 7.



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Patented July 18, 1939

2,166,169

UNITED STATES PATENT OFFICE

2,166,169

TRANSFERENCE APPARATUS

Sterling Talmage Martin, Charleston, W. Va.

Application August 24, 1937, Serial No. 160,698

2 Claims. (Cl. 103—153)

This invention appertains to new and useful improvements in transference means especially adapted for use in laboratory work and more especially in blood testing.

The principal object of the present invention is to provide a machine of the character stated whereby blood or other substance can be drawn from a source and discharged in measured quantities into vials or other containers.

Another important object of the invention is to provide a machine of the character stated which will be much more rapid in operation than the hand types now in general use and much more accurate.

Other important objects and advantages of the invention will become apparent to the reader of the following specification.

In the drawings:—

Figure 1 represents a side elevational view of the machine.

Figure 2 is a vertical sectional view.

Figure 3 is a transverse section on the line 3—3 of Figure 2.

Figure 4 is a sectional view on the line 4—4 of Figure 2.

Figure 5 is a fragmentary longitudinal sectional view through one end of the cylinder.

Figure 6 is a horizontal sectional view taken substantially on the line 6—6 of Figure 1.

Figure 7 is a horizontal sectional view taken substantially on the line 7—7 of Figure 3.

Referring to the drawings wherein like numerals designate like parts, it can be seen that numeral 5 denotes a base having the upstanding walls 6 which are overlapped by the lower portion of the hood 7, the hood being secured to the wall 6 by rivets or other securing means such as screws 8.

Feet or short legs 9 are provided for the base 5 and upon the base 5 is mounted the electric motor 10. The motor 10 has its armature shaft 11 equipped with the worm 12 which meshes with the gear 13 carried by the vertical shaft 14. The vertical shaft 14 has its lower end journaled in the horizontal bracket 15 while its upper end is disposed through the top of the hood 7 and through the bearing assembly 16. A disk 17 is provided at the upper end of the shaft 14 and this disk has a diametrically disposed channelway 18 opening through the top thereof and in this is slidable the block 19. The block 19 has one end portion reduced. One side of the grooveway 18 is provided with threads 20. These threads are meshed by the threads of the adjusting screw 21 which is feedable inwardly of the disk 17 to act against the head *a* of the block 19.

The foregoing forms a means whereby the throw of the pitman 22 can be readily adjusted. The pitman 22 is provided with the downwardly disposed shank 23 disposed into a vertical opening in the block 19 and a set screw 24 prevents displacement of the shank 23 from the block 19. As is shown in Figure 3, the outer end of the screw 21 is provided with the wrench receiving socket 25.

Mounted upon the top of the hood 7 is the hollow shell construction 26 having the window 27 in the top thereof. This window 27 is afforded to permit inspection of the interior of the transparent cylinder 28 which is received by the shell 27 and which at one end abuts the cushion block 29.

Headed screws 30 are driven into the shell 26 at one end thereof so that the heads thereof abut the cylinder 28 to prevent displacement thereof from the shell 26.

The piston 31 operates in the cylinder 28 and has the shank 32 pivotally connected as at 33 to the aforementioned pitman 22.

The remaining end of the shell 26 and the cushion block 29 are provided with registering openings 34 which communicate the interior of the cylinder 28 with the head structure 35. The head structure 35 is provided with a transversely extending bore threaded at each of its end portions to receive the intake and exhaust valves generally referred to by numerals 36—37. Each of these valves consists of a tubular shell 38 threadedly disposed into the threaded portion of the head 35 and held in place by a jam nut 39 and washer 40. The outer end portion of this shell 38 is adapted to have either the intake or exhaust hose 41 disposed thereover as substantially shown in Figure 2.

Inside of each of these tubes 38 is threadedly disposed a tubular seat structure 42 one end of which is reduced to serve as a seat for the valve element 43. Each of these valve elements is provided with a weight formation 44. Furthermore, each of these valve elements 44 is provided with a guide stem 45 slidably disposed through the end of the seat structure 42 opposite from the end engaged by the valve element 43.

Thus it can be seen, that when the pitman is properly adjusted at the disk 17, operation of the piston 31 will suck blood or solution into the cylinder 28 and upon the return stroke the fluid will be forced out through the exhaust valve 37 to the desired point of discharge.

While the foregoing specification sets forth

the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having described the invention what is claimed as new is:

1. A fluid transference machine comprising a supporting structure, a horizontally arranged cylinder on the top of the said structure and having an opening in its top, the outer end of the cylinder extending beyond the supporting structure and said end having a vertically arranged bore therein and a port connecting the central part of the bore with the interior of the cylinder, a resilient member in the outer end of the bore of the cylinder and having a port therein registering with the first-mentioned port, a shell of transparent material in the cylinder having one end abutting the resilient member, a piston in the shell, means for reciprocating the piston, upper and lower tubular members vertically arranged and connected with the outer end of the cylinder and in communication with the bore in said outer end of the cylinder and an upwardly opening valve member in each of said tubular members.

2. In a device of the class described, a cylinder having a head part provided with a vertically arranged bore, tubular members having their ends threaded in the ends of the bore, a valve body threaded in each tubular member, the upper end of each valve body being reduced and forming a valve seat, a weighted valve member engaging each seat, a stem connected with each valve member and passing through the valve body, means for slidably supporting each stem in each body, a piston in the cylinder and means for reciprocating the same.

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