June 1, 1926. 1,586,844

A. V. RIGBY

VALVE

Filed March 24, 1921 3 Sheets-Sheet 1

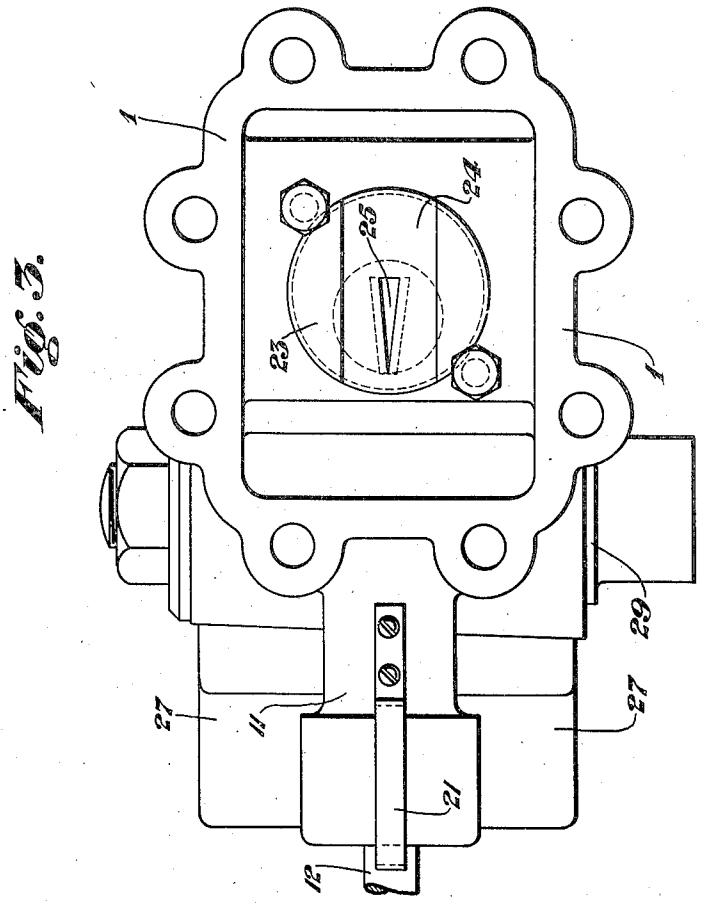


Fig. 3.

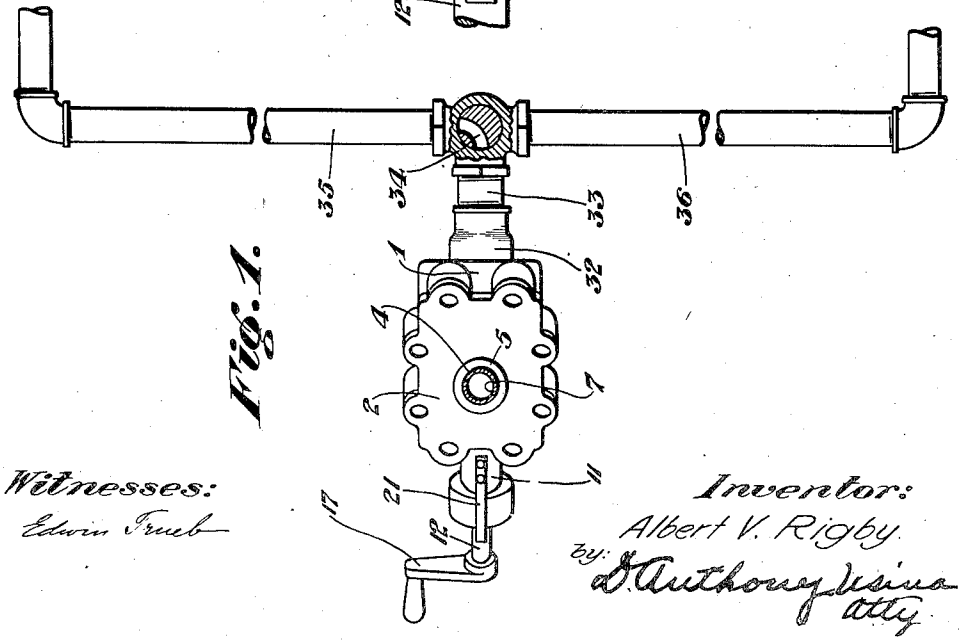


Fig. 1.

Witnesses:
Edwin Trueb

Inventor:
Albert V. Rigby.
by: D. Anthony Jr. Atty

June 1, 1926. 1,586,844

A. V. RIGBY

VALVE

Filed March 24, 1921 3 Sheets-Sheet 2

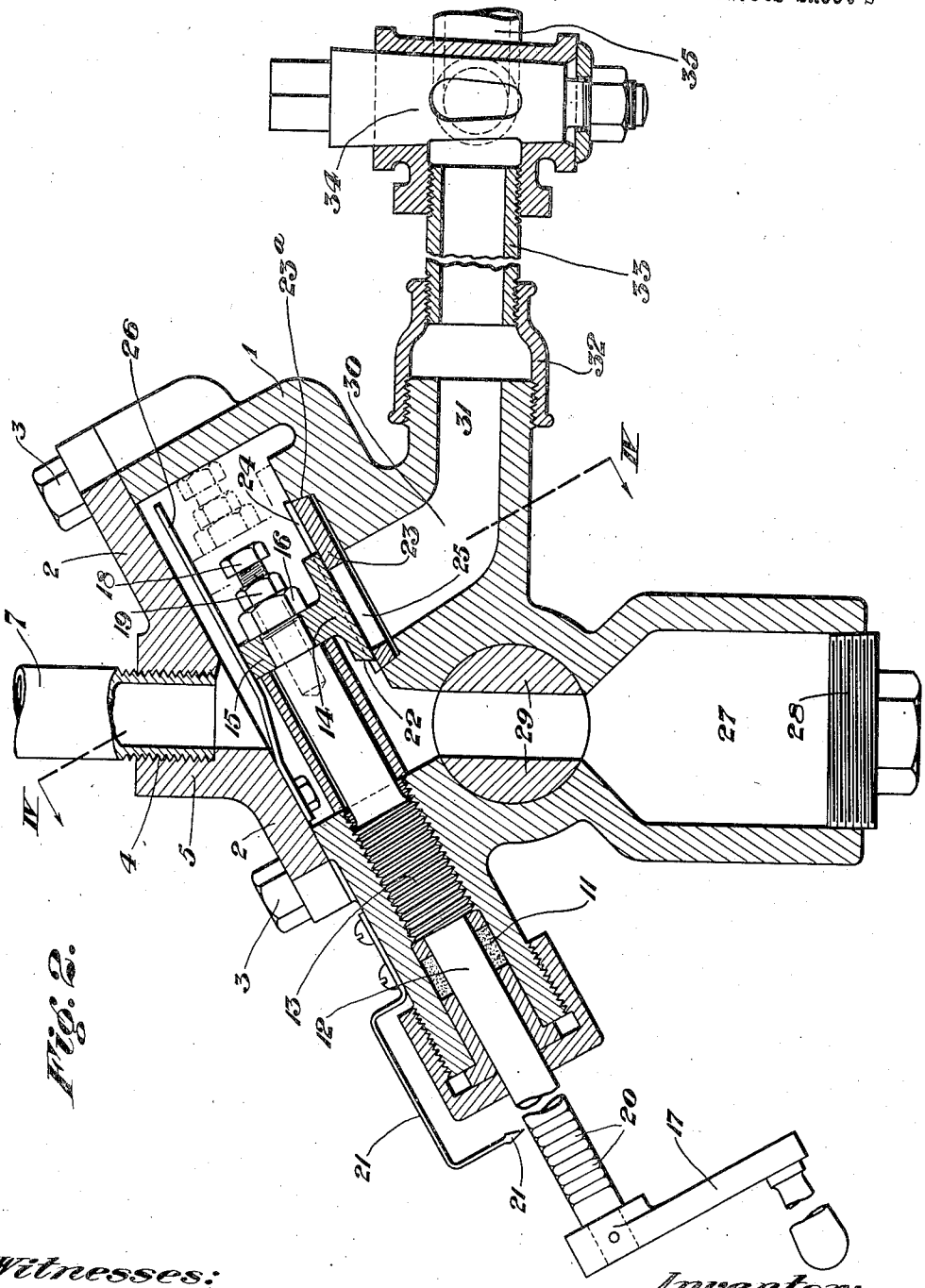


Fig. 2.

Witnesses:
Edwin Trueb

Inventor:
Albert V. Rigby
by: Anthony Lesina
Atty

June 1, 1926.

A. V. RIGBY

1,586,844

VALVE

Filed March 24, 1921

3 Sheets-Sheet 3

Fig. 4.

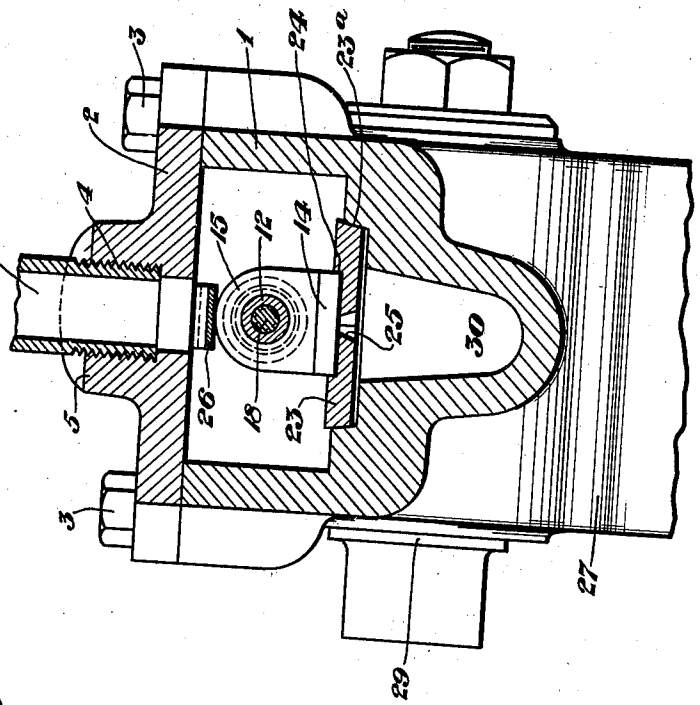
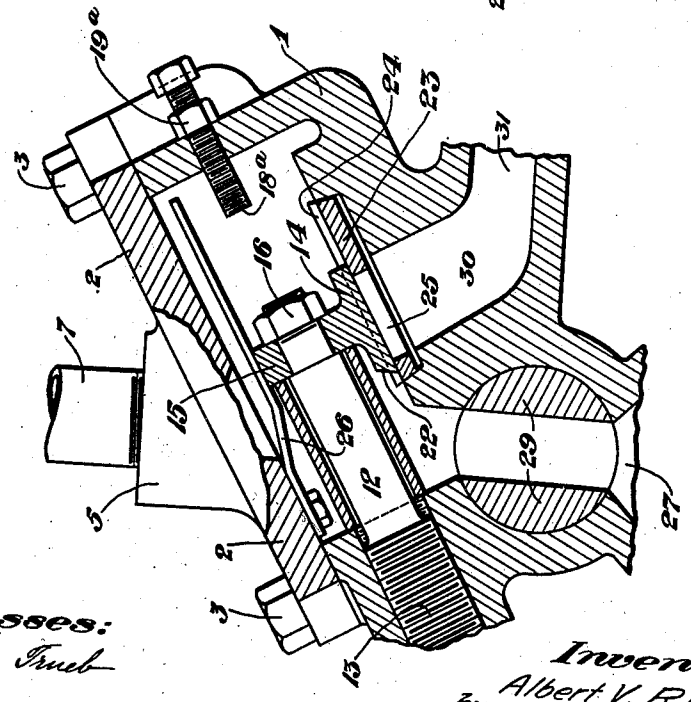


Fig. 5.



Witnesses:
Edwin Trueb

Inventor:
Albert V. Rigby.
by: Anthony Liana
Atty.

Patented June 1, 1926. 1,586,844

UNITED STATES PATENT OFFICE.

ALBERT V. RIGBY, OF SHARON, PENNSYLVANIA.

VALVE.

Application filed March 24, 1921. Serial No. 455,179.

This invention relates to valves and more particularly to inlet valves for liquid fuel burners of the type set forth in Letters Patent No. 1,283,907, granted to me November 5, 1918.

Referring now to the drawings forming part of this specification, Figure 1 is a top plan showing my valve operatively connected to suitable burner pipes.

Figure 2 is an enlarged vertical sectional elevation through the valve and burner pipes of Figure 1.

Figure 3 is an enlarged top plan of the valve body having the cover plate and valve removed.

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

Figure 5 is a partial sectional elevation of a slightly modified form of valve.

The present device includes a valve casing 1, which defines a substantially rectangular chamber open at its top, and provided with a removable cover plate 2 secured in place by screws or other suitable fastenings 3. In the normal position of the device, the valve casing assumes a position at an angle of about 30 degrees to the horizontal, and the top thereof is pierced by a vertical opening or passage 4 constituting an inlet, said opening being defined by an upstanding nipple 5. A fuel pipe 7 is connected with the inlet 4. The lower end of the valve casing 1 is provided with a stuffing box 11, through which extends a rotatable endwise movable valve stem 12 having a threaded intermediate portion 13 fitting a threaded opening in the lower end wall of the valve casing. The inner end of the valve stem carries the valve 14, which is provided with an intermediate upstanding ear 15, pierced by the inner end of the valve stem and secured thereto by a suitable nut 16. The rear end of the valve stem projects externally of the stuffing box and is provided with a crank handle 17 whereby the valve stem may be conveniently rotated. By reason of the threaded engagement between the valve stem and the valve casing, the valve stem is given an endwise movement in either direction by a proper manipulation of the crank handle 17.

The inner end of the valve stem 12 is provided with a threaded aperture, in which is threaded a set screw 18 having a jam nut 19 thereon for locking it in set position. The screw 18 is adapted to limit the forward movement of the valve stem 12 and valve 14 since it will strike the forward side of the casing 1. The set screw 18 may be adjusted to various positions as found necessary in practice.

The outer projecting end portion of the valve stem is provided with a scale 20 cooperating with a pointer 21 carried by the valve casing, whereby the position of the valve may be readily determined, although the valve itself is entirely concealed from view within the casing.

The valve 14 is in the form of a substantially rectangular plate, and its rear end is beveled to form a knife edge 22.

The valve seat for the valve 14 is in the form of a disk or round plate 23 having its edge beveled inwardly and downwardly, and fitted within a seat or recess 23ª formed in the bottom of the casing 1 and provided with beveled side walls to form a tight fit with the edge of the disk 23. The upper face of the disk 23 is provided with a longitudinal recess or slot 24 forming a guideway for the valve 14 which has a slidable fit within the recess 24.

A triangular longitudinally disposed aperture or port 25 is formed in the disk 23 and the longitudinal side walls of the port are undercut, so that the port flares downwardly to give an effective clearance to the liquid fuel when passing downwardly through the port.

A flat spring member 26 is secured to the underside of the cover or top 2 of the casing 1 and is offset so as to resiliently bear against the top face of the lug 15 of valve 14, thus firmly holding it in the guide slot 24.

The bottom of the valve casing is provided with a downward extension constituting a trap or receptacle 27 having a removable closure plug 28 at its lower end, and provided at its upper end with a suitable valve, such as a turning plug 29, whereby communication is had between the interior of the valve casing and the trap 27.

Leading from the aperture or port controlled by the valve 14 is an outlet passage 30, terminating in a substantially horizontal nipple 31, to which a reducing nipple 32 is connected. A short pipe 33 is connected to the reducing nipple 32 and has a T-shaped three-way valve 34 connected to its forward end. Pipes 35—36 are connected to each of the side ports of the three-way valve

34 and lead to suitable fuel burners (not shown).

In Figure 5 I have shown the mechanism for limiting the forward movement of the valve 14 consisting of a set screw 18ª mounted in a suitably threaded aperture in the front wall of the casing 1 and having a jam or lock nut 19ª threaded thereon adapted to be screwed against the casing 1. This modified construction serves the same purpose as the set screw 18 and nut 19 described before, that is, it may be adjusted to different positions to limit the forward movement of the valve stem 12 and valve 14. However, it has the added advantage of permitting the adjustment of the screw 18ª without necessitating the removal of the cover 2 of the casing.

In the operation of the device, the liquid fuel is admitted through the pipe 7 into the valve casing 1, the valve 29 and the trap 27, of course, being closed, whereby the liquid fuel will fill the valve casing 1 and flow downwardly through the V-shaped port 25 into the passage 30, from which it will flow through the nipple 32, pipe 33, three-way valve 34, to pipes 35—36 and then to the burners.

By proper manipulation of the crank handle 17, the valve 14 may be moved endwise across the port 25 so as to vary the size of the port and thereby conveniently and effectually control the amount of fuel admitted to the burners.

Tar or other heavy liquid fuels, for which the present valve has been especially designed, of course, contains solid matter which ordinarily soon clogs up the burners. According to the present invention, the widest part of the triangular opening 25 is of a width less than the greatest width of the discharge ports of the burners, wherefore such solid particles as may pass through the port 25 will, of course, pass through the discharge nozzle. Such solid particles as may lodge in or lie across the port 25 may be conveniently removed therefrom by manipulation of the valve stem 12, so as to slide the valve 14 back and forth across the port 25, the knife edge 22 at the rear end of the valve 14 operating to cut such solid particles and wipe the same downwardly and rearwardly across the disk 23 and into the trap 27.

The set screw 18 may be adjusted to limit the forward movement of the valve 14 to its most efficient position and be locked in place, therefore eliminating the necessity of gaging the position of the valve each time it is moved.

The spring 26 serves to resiliently hold the valve 14 in position within the guide slot 24 and keeps it seated tightly over the port 25.

I claim:—

1. A valve comprising a casing provided with inlet and outlet passages, a one-piece disk shaped valve seat mounted in said casing over the outlet passage and having a substantially triangular outlet port therein, a valve stem in screw threaded engagement with said casing, a slide valve carried by said valve stem, said slide valve being slidably mounted in a suitable guideway in said valve seat, and a set screw mounted in the forward end of said valve stem adapted to be adjusted to various positions, and to strike the forward wall of said casing thereby limiting the forward movement of said valve.

2. A valve comprising a casing provided with inlet and outlet passages, said outlet passage being counterbored to form a recess having beveled side walls, a one piece disk shaped seat having a beveled side wall forced into said recess so as to form a tight and self retaining fit with the side walls thereof, said seat being provided with a substantially triangular outlet port, a slide valve slidably mounted in a suitable guideway in said disk shaped valve seat, a spring secured to said casing and adapted to apply a downward pressure against said valve to hold said valve in said guideway, and adjustable means for limiting the forward movement of said valve.

3. A valve comprising a casing provided with inlet and outlet passages, said outlet passage being counterbored to form a recess having beveled side walls, a flat one-piece disk-shaped seat having a beveled side wall, said seat being forced into said recess so as to form a tight and self-retaining fit with the side walls of said recess, said seat being provided with a substantially triangular outlet port, and a slide valve slidably mounted in a suitable guideway in said disk-shaped valve seat and adapted to control the flow through said triangular outlet port.

In testimony whereof I have hereunto signed my name.

ALBERT V. RIGBY.