Jan. 15, 1929. 1,698,998

P. W. REITTINGER

MOLASSES GATE

Filed March 4, 1927

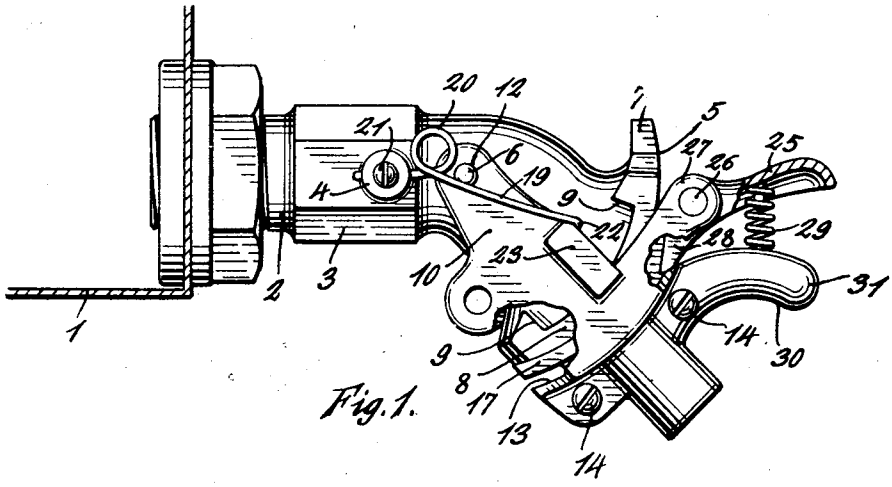


Fig. 1.

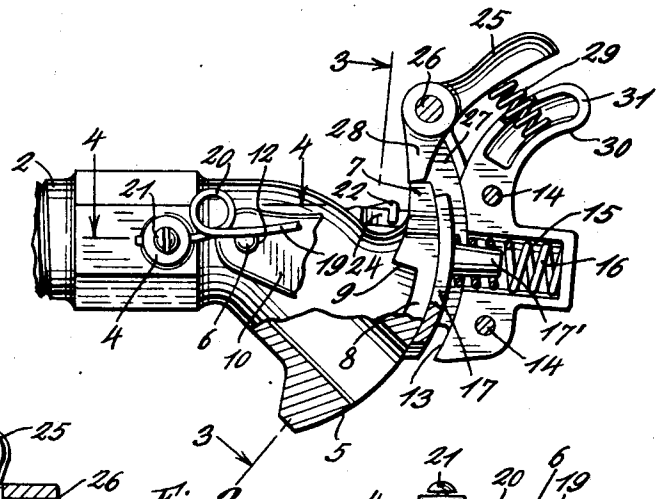


Fig. 2.

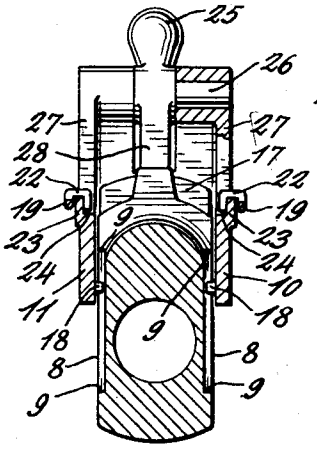


Fig. 3.

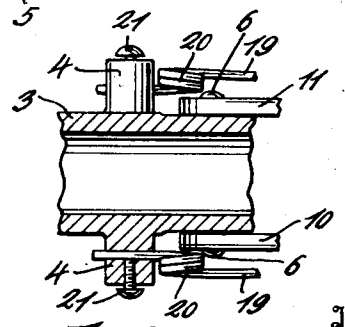


Fig. 4.

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MOLASSES GATE.

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This invention relates to improvements in the construction of molasses gates of the type employed in dispensing heavy liquids, such as syrups or lubricating oils.

Valves of the type referred to comprise a body member having an opening extending entending entirely through it from one end to the other. One end of this member has an arcuate curved surface through which the delivery end of the opening extends. An arcuate gate is pivotally connected to the body member so as to be rotated about the center of the arcuate surface. This gate member is moved into such a position as to cover the opening when the valve is inoperative and can be rotated about its pivot so as to entirely uncover the opening. Valves of this type are in extensive use but are nearly always constructed in such a manner that they must be manually closed. It is the object of this invention to produce an improved valve of this type which shall have resilient means for automatically bringing the parts to closed position and which shall, in addition, be provided with a catch that will hold the valve in open position as long as may be desired.

The above and other objects which may become apparent as the description proceeds are attained by means of a construction and arrangement of parts which will now be described in detail, reference for this purpose being had to the accompanying drawing, in which the preferred embodiment of the invention has been illustrated and in which:

Figure 1 is a side elevation of my improved gate with parts broken away so as to better disclose the construction;

Figure 2 is a view similar to that shown in Figure 1 but with the parts in open or inoperative position, portions being shown in section and parts being broken away and removed for the purpose of better disclosing the construction;

Figure 3 is a section taken on line 3—3, Figure 2, and

Figure 4 is a section taken on line 4—4, Figure 2.

In the drawing reference numeral 1 indicates the oil container or tank to which my improved molasses gate is applied. My improved gate valve consists of a body portion 2 which has an intermediate part 3 of hexagonal outer surface from the two opposite sides of which lugs 4 project. The outer end of the body member has a curved surface 5 which is concentric with the center of the lugs 6. This curved surface may have as great an angular extension as may be found necessary and terminates in an upwardly extending lug 7. The sides of the curved surface 5 project outwardly to both sides of the body member so as to form outwardly extending flanges 8, which are provided near each end with a shoulder 9. These shoulders serve as stops in a manner which will be hereinafter more fully described. Pivotally connected to the lugs 6 are two members 10 and 11 which are substantially duplicates with the exception that one is the right and the other is the left. These members have arms that are provided with openings 12 that receive the lugs 6 and have their free ends provided with a curved surface 13. These two members are held together by means of screws 14 so as to form an oscillatable substantially unitary member. Each of these oscillatable members are provided with a semicylindrical recess 15 (Fig. 2) within which is located the compression spring 16. The plate 17 is provided on one side with a concave surface which has the same radius of curvature as the surface 5. The convex side of this plate is provided with an outwardly projecting lug 17′ which fits inside of the coil spring 16. This plate is forced against the surface 5 by the action of the spring and will slide along the same when the parts 10 and 11 are oscillated about the pivots 6. Lugs 18 are provided on the inner surfaces of members 10 and 11, and these form stops which are adapted to engage the shoulders 9 for the purpose of limiting the movement of the parts 10 and 11 about their axis of rotation. The stops 18 and shoulders 9 are so located with respect to the size of the plate 17 that the latter can be moved from the closed position shown in Figure 1 to the open position shown in Figure 2.

In order that this valve shall be self-closing, I have provided two springs 19, one of which is located on each side. These springs are provided intermediate thin ends with one or more coils 20. One end of each spring extends through an opening in the lug 4, to which it is held by means of a clamping screw 21. The other end of each spring is provided with a hook 22, which engages with the wall 23 of the side member with which it is associated. By reference to Figure 3 it will be seen that members 10 and 11 are provided with recesses 24 on their inner surfaces. The object of these recesses is to provide room

for the ends 22 of the spring. The springs 19 are made of such strength that they will move the parts to closed position (Fig. 1) unless they are held in open position either by the operator or by some locking means. It is evident that where a large amount of liquid is to be withdrawn from the tank or barrel, that this will require considerable time and therefore the operator's time will be consumed for a considerable period merely for the purpose of holding the valve open. In order to make it unnecessary for the operator to hold the valve, I have provided the latter with an automatic catch which will hold the valve open as long as may be desired and which can be readily made inoperative so as to permit the springs 19 to close the valve whenever this is desired.

My locking means consists of an arm 25 which is pivoted at 26. This arm is located between the parallel extensions 27 that are integral with sides 10 and 11. This arm is provided at one end with a pawl 28 and is acted upon by a compression spring 29 that tends to move it to the position shown in Figure 1, in which position it is inoperative. When the valve is open the operator exerts a downward pressure on the arm 25 and compresses the spring 29, thereby projecting the pawl member 28 into the path of the lug 7. The tension of the spring 19 will produce a force that prevents the spring 29 from moving the pawl 28 into inoperative position, and the parts therefore remain in the position shown in Figure 2. When the operator desires to close the valve, he merely exerts sufficient force on the under surface 30 of the arm 31 to raise the parts slightly against the action of the springs 19. As soon as the sides 10 and 11 have been raised through a very small angle, the spring 29 will move the arm 25 and pawl 28 into the position shown in Figure 1 and this will permit the springs 19 to function to close the valve.

From the above it will be apparent that I have produced a molasses gate which is self-closing and which is also provided with means for holding it in open position. The means for holding it in open position being so constructed that it is normally inoperative and will return to its normal position whenever the pressure due to the closing springs is removed. It is apparent that when the valve constructed in the manner described, is employed, it may be locked in open position and will remain in this position as long as necessary and which can then be quickly and easily moved to closed or inoperative position.

Having now described my invention, what I claim as new is:

1. In a device of the class described, having a body member provided with an opening extending therethrough, one end of said body member having an arcuate surface, a gate member pivotally connected to the body member so as to oscillate about the center of curvature of said arcuate surface, said gate member being adapted to be moved into position for closing said opening and into a position in which the opening is uncovered, and means comprising a spring for normally holding said gate in closing position, a pawl pivoted to the upper portion of the gate so as to be movable about an axis parallel with the axis about which the gate moves, a spring having one end in engagement with the pawl above its pivot point and the other end in engagement with the gate, said spring being under compression, the lower end of the pawl being adapted to engage the upper portion of the body member to hold the gate in open position.

2. A molasses gate comprising a body member having an opening extending therethrough, one end of said member having a curved surface forming a segment of a cylinder, a gate pivoted so as to be movable about an axis concentric with the center of the curved surface, the upper end of said gate having two spaced projections, a pawl pivoted between the projections, a compression spring between the gate and the upper end of the pawl, the lower end of the pawl being adapted to engage the body member to hold the gate in open position and means comprising a spring for normally holding the gate in closed position.

In testimony whereof I affix my signature.

PAUL W. REITTINGER.