

Sept. 19. 1933.

C. HALL, JR

1,927,366

ATTACHMENT FOR RISING STEM VALVES FOR DISTANT OPERATION OF SAME

Filed Nov. 13, 1931

3 Sheets-Sheet 1

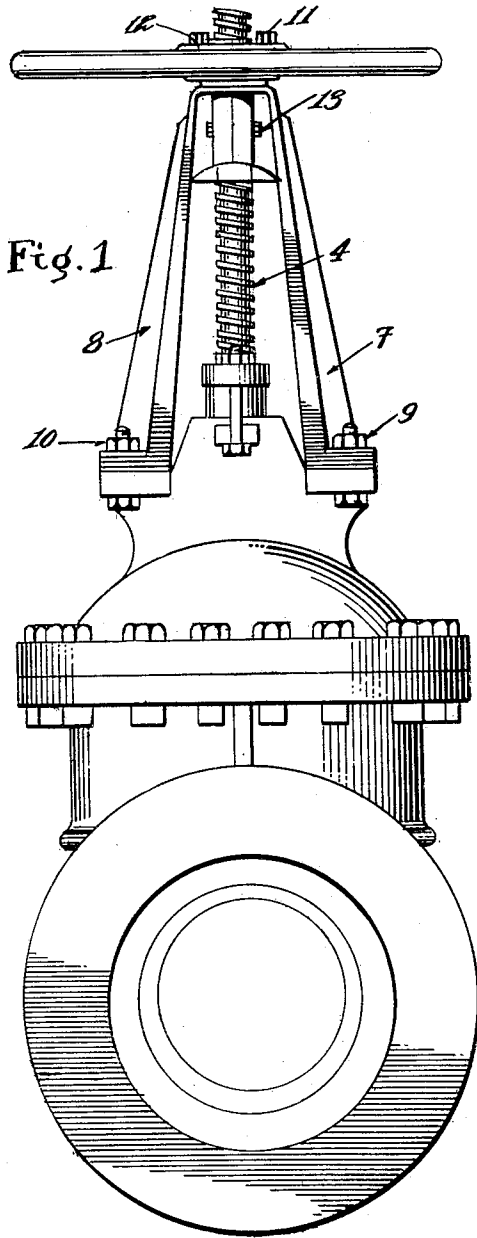
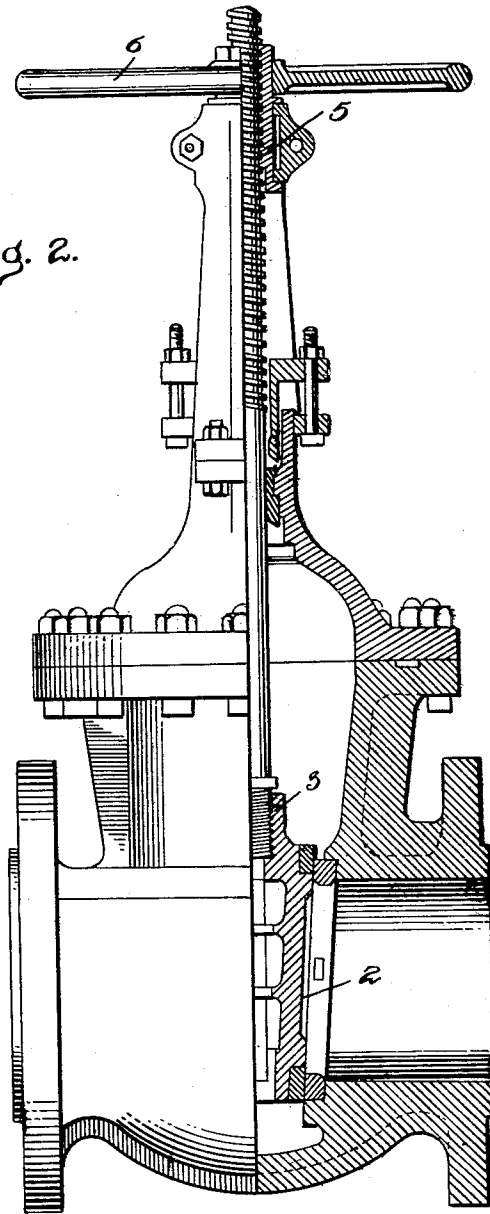


Fig. 2.



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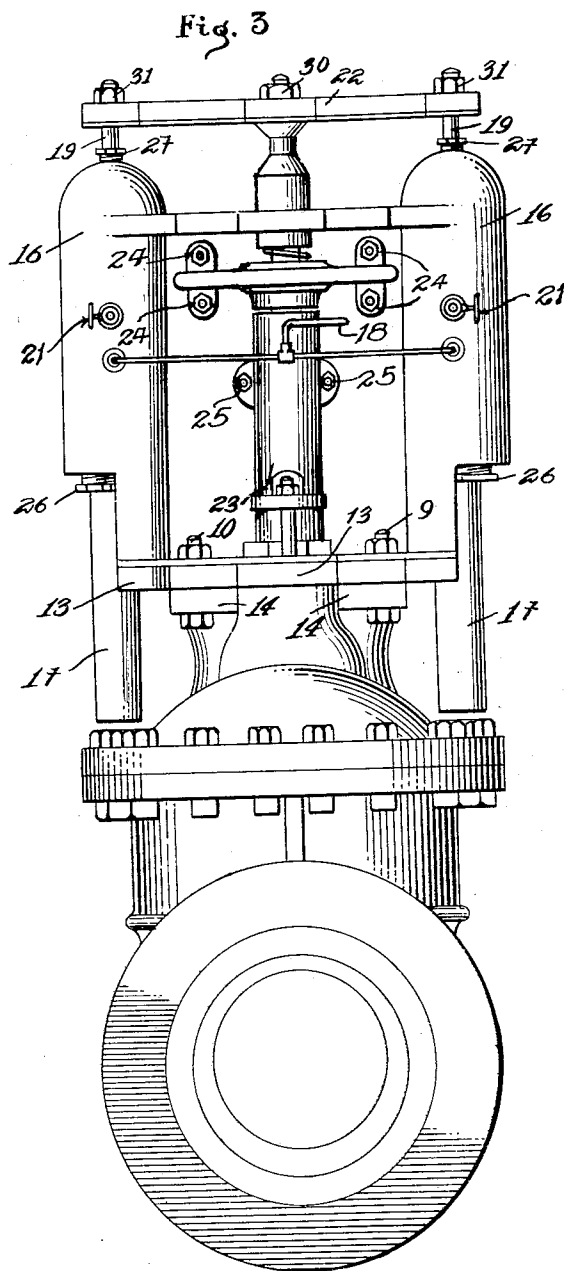
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

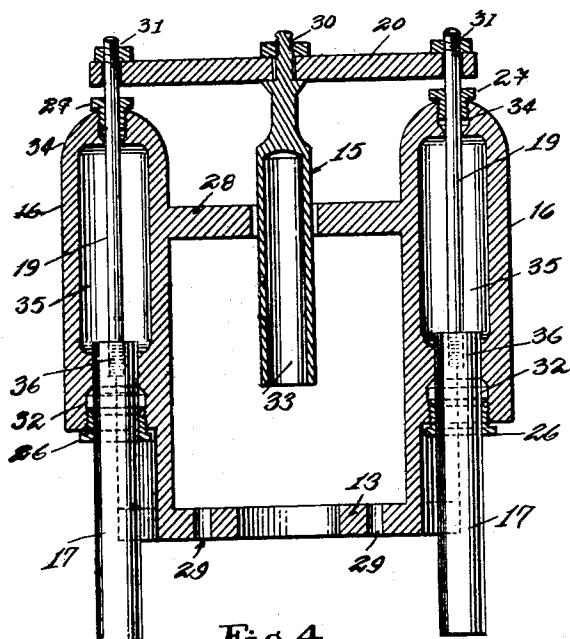


Fig. 4.

Fig. 5.

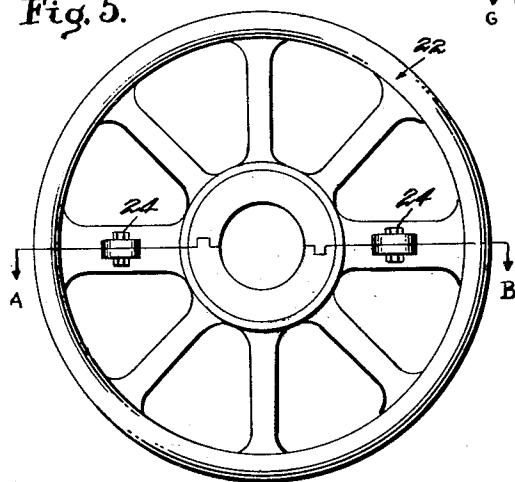
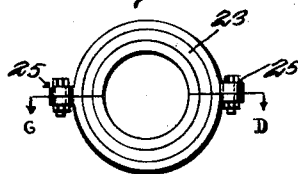


Fig. 6.



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UNITED STATES PATENT OFFICE

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ATTACHMENT FOR RISING STEM VALVES
FOR DISTANT OPERATION OF SAME

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Application November 13, 1931, Serial No. 574,855,
and in Mexico October 14, 1931

6 Claims. (Cl. 137—139)

This invention refers to a special attachment to be used on valves of the "rising stem" type, a type which will be explained in the following description.

5 The object of the invention is an attachment which will make it possible to close such a valve from any desired distance, whereby a greater security is obtained in case of controlling inflammable substances as for instance petroleum, kerosene, gasoline, gases etc. etc. during fire, when it will be impossible to close said valve with the hands.

The invention is illustrated in the accompanying drawings, in which:

15 Fig. 1 shows the valve of the "rising stem" type as actually in use.

Fig. 2 shows the same valve, the left side in lateral view and the right side in lateral vertical cross section.

20 Fig. 3 shows the "rising stem" valve with the attachment put in place, in closed position and with the tools for opening the valve in proper place for starting the operation of opening.

Fig. 4 is a vertical cross section of the attachment.

25 Fig. 5 shows the hand wheel which serves for opening the valve.

Fig. 6 shows the collar which serves as a support for the hand wheel.

30 In all the figures of the drawings, the same reference numerals indicate the same parts.

The valves of the "rising stem" type generally consist of the following parts: the stem 1 which opens or closes the valve gate 2 and which is secured to the upper part of the said gate by thread or otherwise. Its upward and downward movements are effected by means of the thread 4 of the stem 1 which connects with the mechanism 5 of the hand wheel 6 in such a manner that, for instance, when opening the valve, the said stem will rise together with the gate 2, and in case of closing the valve the said stem will descend together with the gate. This does not happen in valves of other kinds, as for instance the "non-rising stem" type valves, in which the stem 1 does not rise or descend, as the thread 4 is placed at the lower end of the stem and the gate will rise or descend by turning the said stem 1.

35 In Fig. 3 is shown a valve of the "rising stem" type provided with the controlling attachment according to the present invention. The valve is shown as being closed by said attachment which consists of two cylinders 16 in which operate two pistons 17 by means of pressure by water, vapor, air, gas or any other fluid element which shall

be injected from a distant point by a pump and through the pipe line 18.

In order to place the attachment for distant control on a valve of the "rising stem" type, the following parts of the valve must be taken off: 5, 6, 7, 8, 9, 10, 11, 12 and 13, leaving the threaded end 4 of the stem entirely free. In this manner the said stem 1 which shall open or close the gate of the valve, may operate as a piston by compression for closing and by tension for opening the valve.

The attachment is placed on the valve in the following manner: (see Fig. 3).

The base 13 of the attachment is supported on the rims 14 of the valve and fixed thereto by means of nuts and bolts 10 and 9. The threaded end 4 of the stem 1 is introduced into the tube 15 as it is shown in Fig. 3 and the tube 18 is prolonged to a point where the pump is located which will operate the attachment.

75 The main portion of the attachment is composed of two cylinders 16 which are held together by the brace 28, and the base 13 is connected to the rims 14 of the valve proper.

Inside the cylinders 16 are expansion chambers 80 35 which receive the pressure of the water, vapor, gas, air or any other fluid element which may be used for the operation of the attachment and which by expansion will operate the pistons 17.

The rods 19 are connected to the rear portion 85 of the pistons 17 by means of thread 36 and to the bridge portion 20 by means of thread 31 and nuts. This bridge portion 20 communicates movement to the tubular element 15 which is connected to the bridge by means of thread and 90 nuts 30.

The cylinders 16 are provided with stuffing boxes 26 in order to pack the pistons properly and they are also provided with packings 32. In the upper part of the cylinders 16 are provided 95 stuffing boxes for the rods 19. These stuffing boxes are indicated by 34.

The attachment described will only close the valve, and for opening same two implements are required, namely the hand wheel 22 shown in 100 Fig. 5 and the collar 23 shown in Fig. 6.

The hand wheel is composed of two halves which are secured together by their rims and by means of screws 24. This hand wheel is provided with a central bore with inside thread corresponding to the thread of the stem of the valve. The collar 23 which serves as a support for the hand wheel is also made of two halves united at their rims and by means of screws 25.

When it is desired to open the valve, after it 110

has been closed by the attachment, the valve 21 on each cylinder must be opened to let the fluid element escape, whereafter the collar in two pieces is placed around the stem 1 resting on the stuffing box of the valve, and thereafter the hand wheel is placed in the same manner on top of the collar, so that the valve may be opened by simply turning the hand wheel.

The hand wheel 22 has to be removed in order to leave the valve in position to be operated by the attachment. In this connection however it is to be noted that the valve member and the stem will not go back to a closed position upon removal of the hand wheel due to their own weight because the packing of the stem is so tight that it takes considerable force to bring the stem down.

Having thus described my invention, what I claim is:

1. An attachment for closing the gate of a valve of the "rising stem" type from a distance comprising fluid pressure operating and supporting means mounted on the casing of the valve, and a tubular member supported by said fluid pressure operating and supporting means and adapted to be lowered upon the introduction of a fluid pressure medium into said means over and into engagement with the upper free end of the stem of the valve for forcing said stem and with it the gate of said valve into a closed position.

2. An attachment for opening a valve of the "rising stem" type after it has been closed by the attachment as claimed in claim 1, including a collar and a hand wheel, each of which are composed of two halves which are placed around the stem of the valve, the hand wheel having a central inner thread which corresponds to the thread of the stem, and the collar resting on the casing of the valve and supporting the hand wheel.

3. An attachment for closing a valve of the "rising stem" type as claimed in claim 1, wherein the fluid pressure operating and supporting means including a pair of cylinders arranged on opposite sides of the valve stem, pistons operating in said cylinders, rods connected to said pistons and projecting upwardly from said cylinders, and a bridge element connecting said rods and having tubular members secured thereto.

4. An attachment for valves of the "rising stem" type comprising a base adapted to be placed on the casing of the valve, two cylinders supported on the base on opposite sides of the stem, a piston in each cylinder, a rod connected to the upper end of each piston and projecting through and upwardly from the cylinder, a bridge element connecting the upper projecting ends of the rod, a tubular member secured to said bridge element and projecting in a downward direction and enclosing the upper free end of the valve stem, and a pipe adapted for conducting fluid under pressure to said cylinders.

5. An attachment as claimed in claim 4, including a valve controlled air outlet on each cylinder, and manually operable means for raising said valve stem after the opening of the air outlet valves.

6. An attachment for closing from a distance a valve of the "rising stem" type as claimed in claim 4, a hand wheel composed of two halves which are secured together around the stem of the valve and which is provided with a central bore with inside thread corresponding to the thread of the stem, and a collar composed of two halves which are also secured together around the stem of the valve beneath the hand wheel, resting on the valve casing and serving as a support for the said hand wheel.

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