

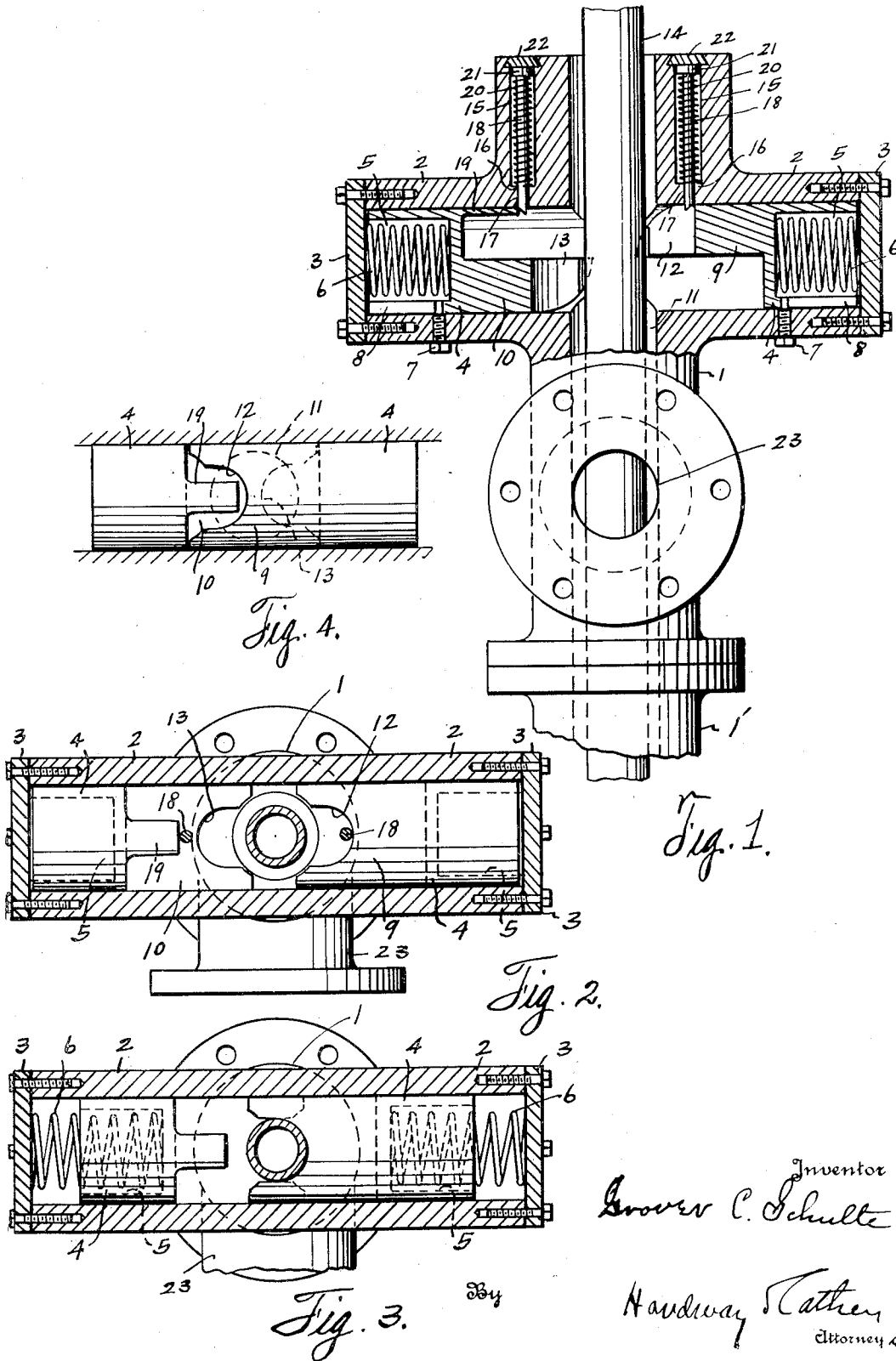
Sept. 19, 1933.

G. C. SCHULTE

1,927,246

FIRE EXTINGUISHER

Filed March 4, 1932



Inventor
Grover C. Schulte

Hardway Stather
Attorney

UNITED STATES PATENT OFFICE

1,927,246

FIRE EXTINGUISHER

Grover C. Schulte, Houston, Tex.

Application March 4, 1932. Serial No. 596,678

2 Claims. (Cl. 137—162)

This invention relates to a fire extinguisher.

An object of the invention is to provide a fire extinguisher for use on oil or gas wells whereby the flow of fluid from the well will be prevented in case of fire, and the flame thus automatically extinguished.

Another object of the invention is to provide a fire extinguisher of the character described for use on oil or gas wells which will be affected by the heat in case of fire to the end that it will be automatically closed to shut off the flow of oil or gas from the well.

Another object of the invention is to provide a fire extinguisher adapted to be attached to the well casing and which is equipped with valves that are shaped to surround the inner pipe or drill stem, in case said inner pipe is in the well, and which will completely close the casing in case the inner pipe is not in the well when the fire occurs.

With the above and other objects in view the invention has particular relation to certain novel features of construction, operation and arrangement of parts, an example of which is given in this specification and illustrated in the accompanying drawing wherein:—

Figure 1 shows a side elevation of the fire extinguisher partly in section.

Figure 2 shows a transverse sectional view thereof, showing the extinguisher valves in open position.

Figure 3 shows a transverse sectional view thereof showing the valves in closed position about the pipe, and

Figure 4 shows a transverse, fragmentary sectional view, showing the valves in completely closed position.

Referring now more particularly to the drawing wherein like numerals of reference designate similar parts in each of the figures the numeral 1 designates the tubular body of the extinguisher which may be connected in any manner suitable, to the upper end of the well casing 1' and which is arranged in alignment with said casing. The body 1 has the oppositely arranged cylinders 2, 2 preferably formed integrally therewith and whose outer ends are closed in any preferred manner as by the end caps 3, 3 which may be bolted thereto.

Within these cylinders are the plungers 4, 4 whose outer ends are formed with the sockets 5, 5 therein and in these sockets are located suitable resilient members such strong coil springs 6, 6 whose inner ends are seated against the inner

ends of the sockets and whose outer ends are seated against the end plates 3, 3.

The plungers 4, 4 may be held against turning in their respective cylinders by means of the set bolts 7, 7 which are threaded through the cylinder walls and whose inner ends project into the key ways 8, 8 provided in said plungers.

Projecting inwardly from the respective plungers 4, 4 are the upper and lower valves 9, 10 arranged to overlap when in fully closed position, so as to completely close the passageway 11 through the body 1 as shown in Figure 4. The inner ends of these valves are provided with the arcuate notches 12, 13 so that said valves will fit closely around an inner pipe or drill stem 14 in case said inner pipe be in the well when the fire occurs.

In the upper end of the body there are the deep vertical sockets 15, 15 whose lower ends are reduced forming the inside annular shoulders 16, 16 and the reduced bearings 17, 17 beneath said shoulders.

There are the triggers 18, 18 whose lower ends work through the bearings 17 and one of which is in engagement with the inner end of the inwardly projecting finger 19 of one of the plungers 4 and the other of which engages in the notch 12 of the valve 9, said triggers operating normally to hold the plungers retracted. Coil springs 20, 20 surround the triggers 18, 18 and at one end are seated on the shoulders 16 and at their other ends against the stops 21, 21 carried by said triggers. These triggers are maintained in engagement with the finger 19 and the valve 9 respectively, and the springs 20 are held under compression, by the fusible plugs 22, 22 which are dovetailed into the upper end of the body 1 and against which the outer ends of said triggers abut.

In case the fluid flowing from the well becomes ignited the plugs 22 will be melted and the triggers released and thereupon the springs 20 will operate to withdraw the triggers from engagement with the finger 19 and the valve 9 respectively and the inner ends of the triggers are beveled inwardly, as shown, to facilitate such withdrawal. The springs 6, 6 which have been maintained under compression will thereupon operate to immediately force the plungers 4, 4 inwardly. If the pipe 14 is in the well the valves will fit closely around said pipe the notches 12 and 13 being shaped to closely surround said inner pipe and the space between the casing and the inner pipe will thereby be completely closed to prevent the escape of fluid from the well. If there be no inner pipe 14 in the well the springs

6, 6 will force said valves into further overlapping position as shown in Figure 4 to completely close the passageway 11 through the body 1 to cut off the escape of fluid from the well. When the escape of said fluid has been cut off the fire will be automatically extinguished.

Beneath the cylinders 2, 2 the body 1 is provided with a lateral outlet 23 forming a pipe connection to which a flow line may be connected for relieving the fluid from the well when the valves 9, 10 are closed.

The drawing and description disclose what is now considered to be a preferred form of the invention by way of illustration only while the broad principle of the invention is defined by the appended claims.

What I claim is:—

1. A fire extinguisher comprising a body adapted to be attached to a well casing and having a passageway therethrough, cylinders on said body, plungers in the cylinders whose confronting ends are formed into valve means arranged to open and close said passageway, yieldable means normally tending to move said plungers and valve means inwardly to close said passageway, the upper end of said body having deep vertical sockets whose lower ends are reduced forming shoulders,

triggers working through said sockets whose lower ends are engageable with said respective valve means and whose upper ends are formed with enlarged stops, coil springs around said triggers in said sockets between said shoulders and stops and fusible plugs counter sunk into the upper end of the body against which the outer ends of the triggers abut.

2. A fire extinguisher comprising a body adapted to be attached to a well casing and having a passageway therethrough, cylinders on said body, plungers in the cylinders whose confronting ends are formed into valves arranged to open and close said passageway, yieldable means normally tending to move said plungers and valves inwardly to close said passageway, the upper end of said body having deep vertical sockets, triggers working through said sockets whose lower ends are engageable with said respective valves, each trigger and the wall of the corresponding socket having abutments, coil springs around said triggers in said sockets between said abutments and fusible plugs counter sunk into the upper end of the body against which the outer ends of the triggers abut.

GROVER C. SCHULTE.

30

105

35

110

40

115

45

120

50

125

55

130

60

135

65

140

70

145

75

150