

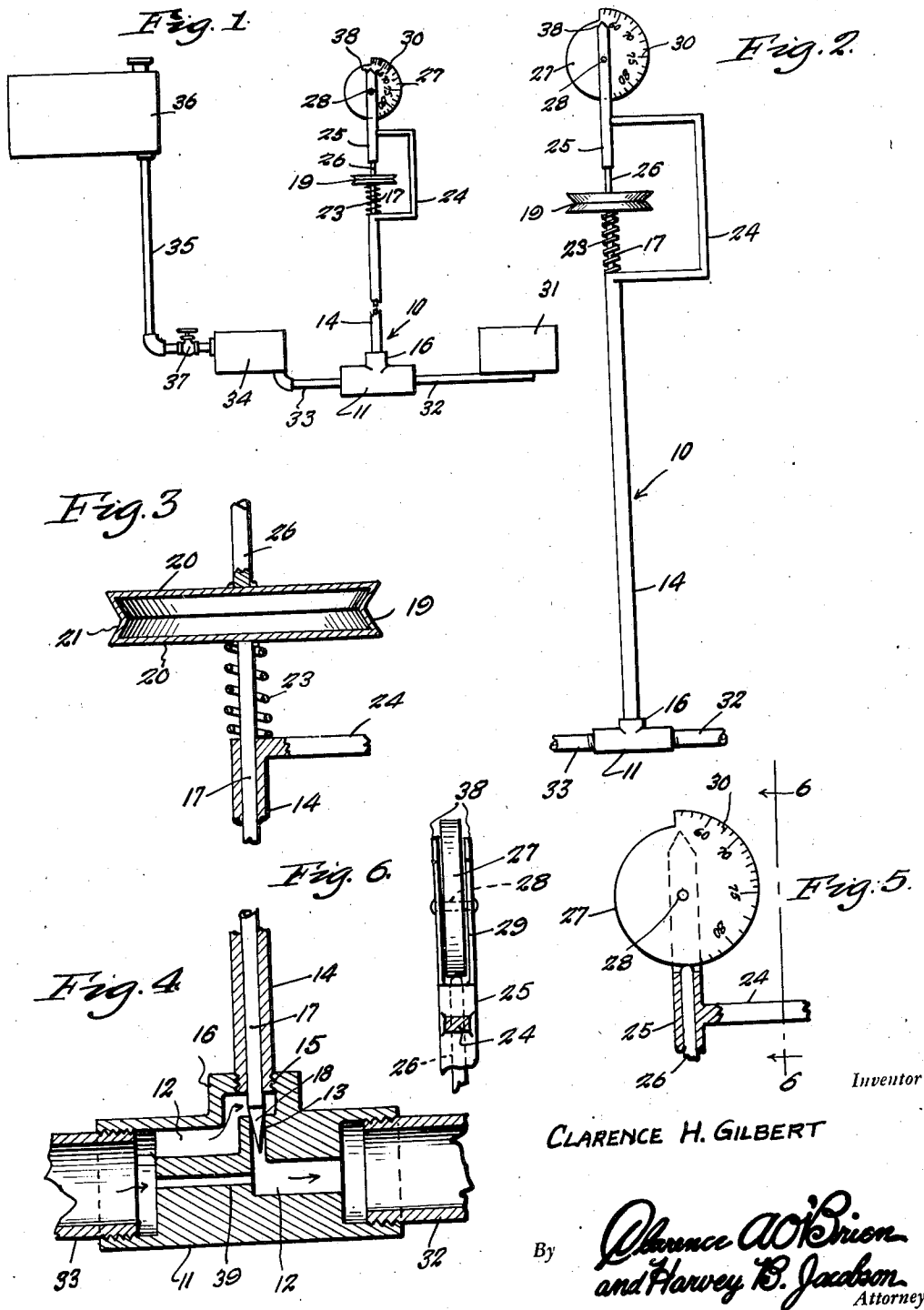
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CONTROL VALVE

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CONTROL VALVE

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3 Claims. (Cl. 236—99)

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This invention relates to new and useful improvements and structural refinements in control valves, more specifically, to a control valve such as may be conveniently and effectively employed in association with oil burners, or the like, and the principal object of the invention is to provide a device of the character herein described, which will automatically cut off the supply of fuel to the burner, when the air surrounding the latter reaches a predetermined degree of temperature.

A further object of the invention is to provide a control valve which is primarily intended for use in association with kerosene or oil stoves in house trailers, or the like.

Another object of the invention is to provide a control valve which is simple in construction and operation, and which cannot easily become damaged.

An additional object of the invention is to provide a control valve which may be readily disassembled for purposes of cleaning, inspection or repair.

A still further object of the invention is to provide a control valve which will readily lend itself to economical manufacture.

With the above more important objects in view, and such other objects as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the invention, illustrating the same in use.

Figure 2 is a side elevation on an enlarged scale, of the invention per se.

Figure 3 is a cross-sectional view of a thermostat used in the invention, and showing the attachment thereof to the adjacent structure.

Figure 4 is a cross-sectional view of the valve body.

Figure 5 is an elevational view of a cam used in the invention, and

Figure 6 is a further elevational view of the cam, the same being substantially in the plane of the line 6—6 of Figure 5.

Like characters of reference are used to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the invention embodies in its construction a control valve designated generally by the reference character 10, the same consisting of a valve body 11, provided with a main passage 12, as is best shown in Figure 4. The body 11 is con-

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figured substantially as shown and the passage 12 is angulated in a suitable manner to provide a seat 13.

A tube 14 is externally threaded at one end thereof as at 15, and is secured in a protuberance 16 provided on the body 11. The tube 14 constitutes a jacket for a slidable needle 17, one end of which is formed with a pointed extremity 18, adapted to engage the seat 13. It will be noted that the engagement of the needle with the seat will effectively prevent the flow of liquid through the main passage 12.

The remaining end of the needle 17 projects from the tube 14 and is secured to one side of an expansible thermostat 19. This thermostat assumes the form of a pair of spaced parallel discs 20, connected together by a V-shaped circumferential wall 21, and a compression spring 23 is interposed between the thermostat and the adjacent end of the tube 14, as illustrated in the accompanying drawings.

A U-shaped yoke 24 is secured at one end thereof to the tube 14, the remaining end of this yoke carrying a sleeve 25. It will be noted that the sleeve 25 is axially aligned with the tube 14 and a pin 26 is slidably positioned in the sleeve, as will be clearly apparent from the accompanying drawings.

One end of the pin 26 is secured to the thermostat 19, while its remaining end bears against the marginal edge of a cam 27. This cam is rotatably mounted upon a pin 28 and is positioned in a transversely extending slot 29 provided in the free end of the sleeve 25. The cam 27 may be inscribed with suitable graduations 30, these conforming to various degrees of temperature at which the cutting-off action of the valve is to be effected.

When the invention is placed in use, the body 11 is connected at one end to a stove or burner 31 by means of a pipe or conduit 32. The remaining end of the body 11 is connected by a further pipe 33 to a float valve 34 of conventional design, the position of the latter being clearly apparent from the accompanying Figure 1. The float valve 34 is, in turn, connected by a suitable conduit 35 to a fuel tank 36, and a shut-off valve 37 is interposed into the length of the conduit 35, for obvious reasons.

The aforementioned spring 23 will normally disengage the needle 17 from the seat 13, so that fuel may flow from the tank 36 to the stove 31. As the temperature of the surrounding atmosphere rises, the thermostat 19 will expand accordingly and urge the needle 17 against the seat

13, thereby shutting off the supply of fuel passing through the passage 12, as aforesaid.

The temperature at which this shutting-off action takes place may be set at a predetermined degree by simply rotating the cam 30, so as to correspondingly increase or decrease the resiliency of the spring 23 by sliding the pin 26 together with the needle 17 and the associated thermostat 19. If desired, the free extremity of the sleeve 25 may terminate in a suitable pointer 38, against which the graduations 39 may be conveniently read.

It should be also noted that the body 11 may be provided with a relatively small bypass 39, such as may be used for supplying fuel to a pilot light, when the main passage 12 through the body 11 is closed.

It is believed that the advantages and use of the invention will be clearly understood from the foregoing disclosure and accordingly, further description thereof at this point is considered unnecessary.

While in the foregoing there has been shown and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What I claim as my invention is:

1. A control valve comprising in combination, a body provided with a main passage and a relatively small bypass, a seat in said main passage, a tube secured at one end thereof to said body, a needle slidably positioned in said tube and engageable with said seat, one end of said needle projecting from the remaining end of said tube, an expansible thermostat including a pair of spaced parallel discs, one of said discs being secured to the projecting end of said needle, a com-

pression spring between said last-mentioned disc and the adjacent end of said tube, a U-shaped yoke secured at one end thereof to said tube, a sleeve mounted on the remaining end of said yoke, said tube and said sleeve being axially aligned, a pin slidably positioned in one end of said sleeve and secured at one end thereof to the remaining of said discs, the remaining end of said sleeve being formed with a transversely extending slot, and a graduated cam rotatably mounted in said slot and engaging the remaining end of said pin.

2. The device as defined in claim 1, in which the end of said sleeve adjacent said cam is provided with a pointed extremity, said extremity constituting an indicator.

3. In association with a valve including a flow regulating needle, an automatic control mechanism comprising a substantially U-shaped yoke, a tube and a sleeve mounted at the ends of said yoke in axial alignment, said needle being slidable in said tube and projecting therefrom, a pin slidable in said sleeve, a thermostat interposed between the projecting end of said needle and the adjacent end of said pin, a compression spring between said tube and said thermostat, and a cam rotatable on said sleeve and engaging said pin.

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