Jan. 28, 1947. J. B. PARKER 2,415,034

PRESSURE CONTROLLED SWITCH

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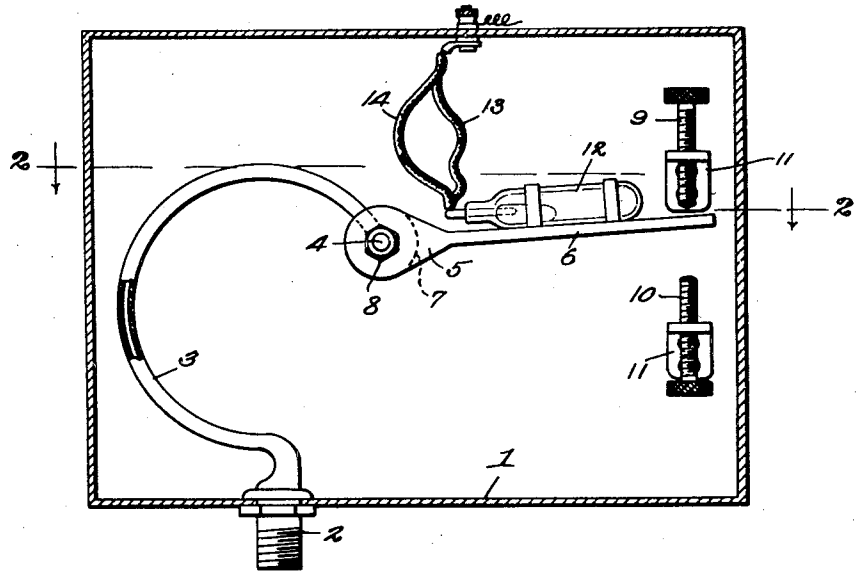


Fig. 1.

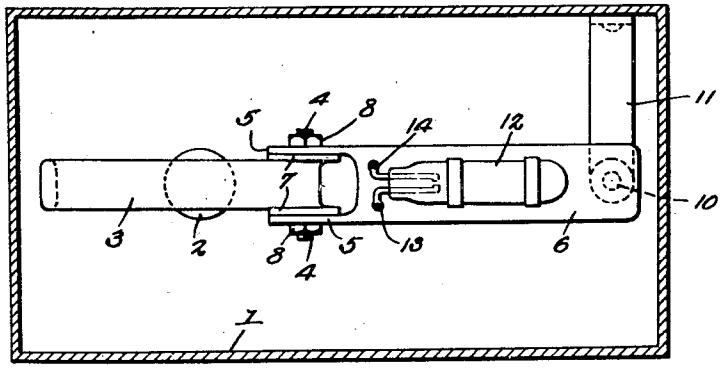


Fig. 2.

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PRESSURE CONTROLLED SWITCH

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2 Claims. (Cl. 200—81.8)

1

This invention relates to a switch designed to be actuated by variations in pressures directed thereto, one of the objects being to provide a switch which when shifted in either of two directions, acts successively to close and to open an electric circuit or vice versa.

A further object is to provide a switch of the mercury type which is positioned for actuation by a Bourdon tube and has means positioned for cooperation therewith whereby the reversing of the switch upon the completion of each expansion or contraction of the tube, can be advanced or delayed, as desired in the control of the circuit by the switch thus minutely adjusted.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

In the accompanying drawing the preferred form of the invention has been shown.

In said drawing

Figure 1 is a side elevation of the switch.

Figure 2 is a top plan view thereof.

Referring to the figures by characters of reference, 1 designates a holding structure which can be in the form of a box or the like and secured to one wall of this structure is the open end 2 of a Bourdon tube 3 the free or closed end of which has laterally extended studs 4. The forked end 5 of a plate 6 straddles the free end of the Bourdon tube and is pivotally mounted on the studs 4 and interposed between the sides of the forked end are friction washers 7. By means of nuts 8 engaging the studs 4, frictional engagement between the fork and the washers and between the washers and the sides of the Bourdon tube can be regulated.

The free end of the plate 6 is supported between opposed stop screws 9 and 10, carried by spaced brackets 11 or the like.

A mercury switch has been indicated at 12 and is mounted on and movable with the plate 6. Separate leads 13 and 14 of an electric circuit are extended to this switch so that the circuit will be closed when the switch is tilted in one direction and opened when the switch is tilted in the opposite direction.

It is to be understood that the structure herein described can be controlled by gas pressure, steam pressure, water pressure, or anything else intended to control an electric circuit. When pressure in the Bourdon tube rises above a predetermined degree, said tube will act to shift plate 6 until it comes against the adjustable stop 9 whereupon continued expansion or movement of the Bourdon tube will cause the forked end of the plate to continue its movement while the other or free end thereof is restrained. Obviously this will change the position of the plate 6 relative to the Bourdon tube with the result that the switch, which had first been in one position, will be tilted to another position. The switch and its supporting plate 6 will maintain substantially these positions as pressure in the Bourdon tube is reduced and the plate moved away from the stop 9. Thus if the circuit has been open as a result of movement of plate 6 against stop 9, it will remain open during the movement of the plate 6 and switch 12 toward the stop 10. When this plate contacts the stop 10 the Bourdon tube can continue to move the forked end of the plate in the same general direction until the switch is tilted to close the circuit.

2

By means of the adjustable stops 9 and 10, a very delicate and accurate control of the switch can be effected.

Because of the friction means employed in the connection between plate 6 and the Bourdon tube, said plate and the switch thereon will of course be held against movement relative to the Bourdon tube unless the plate is brought against one or the other of the stops and subjected to a force sufficient to overcome the frictional engagement of the members.

What is claimed is:

1. A pressure controlled device of the class described including a Bourdon tube, a support pivotally connected to the free end thereof and supported solely thereby, friction means for retarding relative pivotal movement of the tube and support, a mercury switch carried by the support, and means in the path of one end of the support for limiting the movement of said end independently of the movement of the support at the point of connection between its other end and the tube.

2. A pressure controlled device of the class described including a switch support, opposed adjustable stops between which one end of the support is extended, a mercury switch carried by the support, a Bourdon tube carrying said support and connected to the other end thereof, said tube constituting means for moving said support in either of two directions against one of the stops, thereby to shift the support relative to the tube, and means for retarding relative movement of the support and Bourdon tube.

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