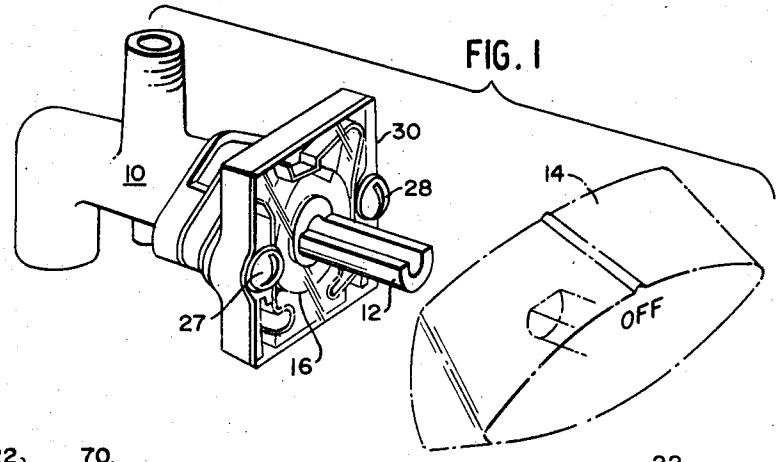
March 24, 1970 K. J. BATCHELLER 3,502,835

MOMENTARY ELECTRIC SWITCH FOR GAS RANGE BURNER

Filed Nov. 16, 1967

FIG. 1



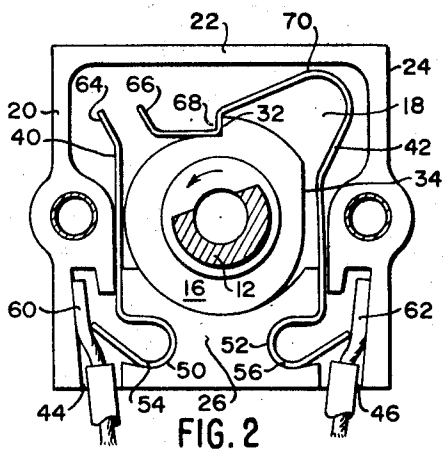


FIG. 2

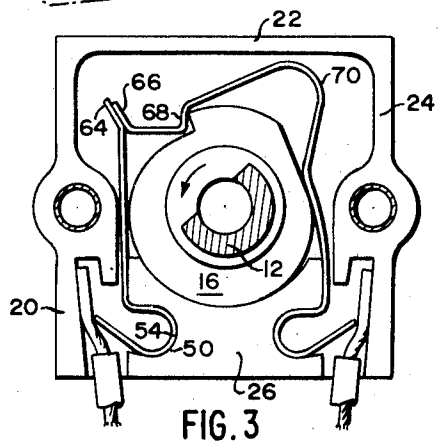


FIG. 3

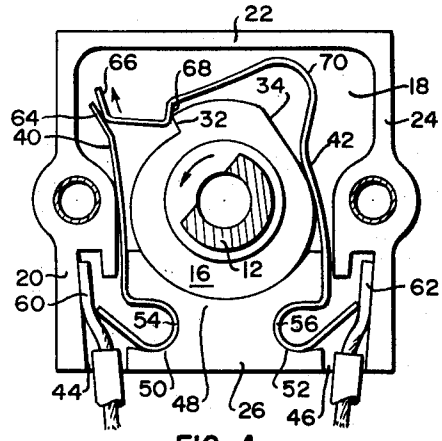


FIG. 4

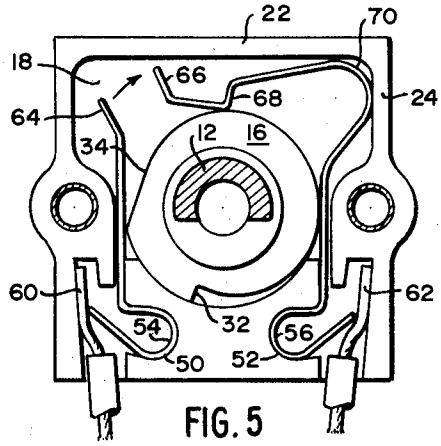


FIG. 5

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United States Patent Office 3,502,835 Patented Mar. 24, 1970

3,502,835

MOMENTARY ELECTRIC SWITCH FOR GAS RANGE BURNER

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Filed Nov. 16, 1967, Ser. No. 683,588
Int. Cl. H01h 3/32, 3/42
U.S. Cl. 200—154 1 Claim

ABSTRACT OF THE DISCLOSURE

An electric switch is made with two resilient contact elements which are pressed together momentarily by a cam disk when the disk is turned in one direction but not when the disk is turned in the reverse direction. The disk is mounted on the shaft of a gas valve which opens when the shaft is turned part of a revolution in one direction, and is closed when the shaft is turned back in the other direction.

This invention relates to an electric switch which closes momentarily when a shaft associated with it is turned through a considerable angle in one direction but does not close when the shaft is turned back to its starting position. The switch is designed particularly for use in connection with a valve by which gas is turned on and off for a range burner. The ordinary practice for gas burners which are subject to intermittent use is to provide a small pilot flame which ignites the gas flow when it is turned on. Pilot lights steadily consume gas for no other purpose and are also apt to go out as for example when there is an interruption in the supply of gas from the mains. Electric devices are available which are capable of producing a series of rapid sparks between electrodes when a circuit including the electrodes is closed. The sparking device can be made to provide a brief burst of sparks or a longer series of sparks, say, for a substantial fraction of a second, in response to a momentary closing of the circuit containing the spark-producing device. For this purpose a switch is provided which closes momentarily when a shaft is turned through part of a revolution in a direction to open a gas valve, but does not close at all when the shaft is turned back to its starting position.

For a more complete understanding of the invention reference may be had to be following description thereof and to the drawing, of which:

FIGURE 1 is a perspective view of a gas valve with an electric switch connected to it for operation thereby; and

FIGURES 2–5 are elevational views of the switch, showing the parts in various positions of operation.

An electric switch embodying the invention is shown in connection with a valve **10** of the stopcock type such as is often used on gas ranges to control the flow of gas to the burners. The valve is operated by a stem or shaft **12** on which a suitable handle **14** can be mounted. The shaft **12** extends axially through a disk **16** to turn the disk on its axis when the shaft **12** is turned.

The disk is housed in a shallow casing **18** having side walls **20, 22, 24, 26** of uniform height. The casing has a square exterior shape as shown on the drawing. The walls **20** and **24** are widened at their mid points to receive screws **27, 28** by which a cover plate **30** is removably attached to the casing. As indicated in FIGURE 1, this cover plate may be transparent.

The disk **16**, as shown, is approximately circular in shape and is of insulating material, at least at its periphery. Its thickness is silghtly less than the height of the casing walls. Its periphery includes a notch forming a radial shoulder **32** and a flat **34** about a quadrant away from the shoulder.

Within the casing are two conductors **40, 42** at least one of which is preferably a flexible strip of Phosphor bronze for resilience and current-carrying efficiency. As shown, both conductors are strips of metal bent to shape and arranged edgewise to the bottom of the casing, the width of the strips being slightly less than the height of the casing walls. The wall **26** of the casing is interrupted at **44** and **46** for the admission of connecting wires, but it also has an interior extension **48** with recesses **50** and **52** in which are fitted end portions **54** and **56** of the conductors **40** and **42** respectively. The end portion **54** of the conductor **40** is curved to fit into the recess **50** but has a straight terminal extending across the gap **44** so that when a connecting wire **60** is thrust through the gap **44** into the casing it flexes the end portion **54** of the conductor **40** and is gripped thereby. In like manner the curved end portion **56** of the conductor **42** has a terminal projecting across the gap **46** to be engaged by a connecting wire **62** when the wire is thrust through the gap **46**. The free end portion **64** of the conductor **40** is located in the path of the free end portion contact area **66** of the conductor **42**. Near the end portion **66** of the conductor **42** is a shoulder **68** which may be formed by reversely bending the conductor as shown. Between the shoulder **68** and the fixed end portion **56** of this conductor is an intermediate portion **70** which is in the form of an open loop so formed as to cause the portion of the conductor **42** adjacent to the shoulder **68** to press resiliently against the periphery of the disk **16** so that when the disk **16** is turned clockwise to an angular position a little beyond that shown in FIGURE 2, the shoulder **68** snaps into position to be engaged by the shoulder **32** of the disk when the latter is turned in the counterclockwise direction which, in this case, is the direction for turning on the gas, i.e., opening the gas valve. By means not shown on the drawing, the counterclockwise rotation is limited to the position shown in FIGURE 5, this being slightly more than a half-turn from the starting or "off" position.

When the disk **16** is turned counterclockwise from the "off" position, the shoulders **32** and **68** become engaged. Further movement of the disk in that direction flexes the conductor so that its end portion **66** moves to the left into rubbing contact with the end portion **64** of the conductor **40**. If, as shown, the disk is approximately circular in shape, the flat **34** is arranged to permit free flexing of the conductor **42** when the shoulder **32** pushes the end portion **66** of the conductor into contact with the conductor **40** to close the switch momentarily. The end portions **64** and **66** are so arranged that as the rotation of the disk continues, the contact area **66** is cammed outward from the disk so that the shoulder **68** rides over the shoulder **32**, breaking the contact between the conductors **40** and **42** as indicated in FIGURE 4. The conductor **42** then snaps back to the position shown in FIGURE 5 but still presses against the periphery of the disk **16**.

When the disk is thereafter turned clockwise to turn off the gas, i.e., close the gas valve, the conductor **42** is not flexed toward the left and no closing of the switch results.

I claim:

1. An electric switch comprising a housing, a disk rotatably mounted in said housing, said disk having a peripheral notch forming a radial shoulder, first and second conductors in said housing each consisting of a strip of resilient metal bent to shape, each said conductor having one end secured to said housing and the other end free, the first said conductor having a contact area at its free end, a reverse bend near said free end forming a shoulder normally bearing on the shoulder on the

disk, and a loop connecting said reversely bent portion with the secured end whereby said loop is flexed when the disk is rotated in the direction to advance said shoulders, the free end portion of said second conductor being located in the path of the contact area of the first conductor, camming means for disengagement of the shoulder on the first conductor and the shoulder on the disk, said camming means pushing said contact area of the first conductor outward from said free end of the second conductor, said loop unflexing and retracting said contact area of the first conductor away from said free end of the second conductor when the shoulder on the first conductor is disengaged from the shoulder on the disk by said camming means.

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U.S. Cl. X.R.

200—61.86 68, 153