ABSTRACT OF THE DISCLOSURE

In abstract, this invention relates to cable operated dry powder fire extinguishing apparatus used to put out fires such as occurring in restaurants using deep fryers. The device of this invention primarily relates to a novel cam operated shutoff device to close the fuel gas line in the event of a fire. It also relates to the use of this device to produce a novel overall cable apparatus wherein a cooking oil fire melts a fusible link secured to a spring loaded hammer block retaining steel cable to thereby actuate by a hammer like blow a valve on a tank of dry powder fire extinguishing chemicals to disperse said chemicals onto the oil fire. The overall cable apparatus of this invention includes a separate secondary spring loaded cable engaging with the first cable containing said fusible link, so that operation of the fusible link first cable means as by melting of the link, in turn operates the secondary cable having the novel cam means located at its end and cooperating with the cooking gas shutoff valve.

This invention is illustrated in the accompanying drawing in which;

FIG. 1 is a side elevation view of a conventional dry powder fire extinguishing system, partly in section and also broken away in part, and showing the novel cam shutoff means on the fuel gas line and the manner of actuating said cam means with simultaneous release of dry powder fire extinguishing chemicals upon the fire.

FIG. 2 is a view similar to that of FIG. 1 but showing the system or apparatus in the actuated state with the dry powder fire extinguishing chemicals issuing from the tank and with the gas valve in the closed or shutoff position.

FIG. 3 is a rear view of the cam mechanism disposed on a yoke secured to the gas shutoff valve with the spring loaded valve plunger pressed down or in the valve open position, and

FIG. 4 is a detail view of a modification of the cam mechanism wherein a leaf spring is used as the rubbering plate disposed on the top of the shutoff plunger pin.

In the event of fire at the deep fryer of a restaurant or other food catering place, the conventional cable operated fire fighting equipment dispenses chemicals onto the fire but no provision is made to shut off the fuel gas used for cooking. Such a condition is hazardous in the event of fire. This invention provides an improved apparatus wherein the fire extinguishing chemicals are dispensed simultaneously with the shutting off of the cooking gas valve.

The invention embraces a novel cam mechanism and a cable system to which this cam is secured.

The gas valve used on the cooking gas line is of the conventional spring loaded reciprocal plunger type wherein in normal position the spring of the valve seats the valve in the closed position. Thus in order to open the valve it is necessary to apply a force upon the plunger sufficient to overcome the coil spring of the valve.

Turning to the drawing, a tank 10 of dry powder fire extinguishing chemicals under suitable nitrogen gas pressure is removably secured by a strap (not shown) to a stand having a rear U-shaped upright support 11 one of whose side walls is 12. A conventional dry powder fire extinguishing system is shown wherein a cable 13 secured to a fusible link located suitably above the cooking oil is lead over a pulley and secured to a weight 14. A rod 15 is secured to a spring 16 which is secured to a lever (not shown) used to apply suitable tension to spring 16. Release of tension on cable 13 by a parting of the fusible link causes the weight 14 to hammer the lever 17 which is thereby released from engagement with lever 18. Release of lever 18 causes it to trip lever 20 on the tank valve to permit the dry chemicals to be propelled by conduit 21 upon the fire.

As stated above the first or fusible link cable 13 system is conventional or known in the prior art.

The improvement of this invention or secondary cable system is added to the prior art to produce a dual effect system, namely to dispense the chemicals upon the fire and to shut off the fuel gas line.

According to this invention, a novel substantially U-shaped cam 30 is provided. The cam 30 has a front leg 31 having a transverse aperture 32 to receive a cable 33 and a top threaded aperture in the center of leg 31 from its top edge and communicating with transverse aperture 32.

The cable 33 is disposed through the transverse aperture 32 and a threaded bolt 34 is firmly threaded into the top threaded aperture of leg 31 so that the inner end of the bolt shank seizingly engages the cable 33.

As shown in FIG. 3, the swingable cam 34 is disposed by means of a bolt pin 35 to a U-shaped rigid metal housing 36 and also in between the spaced-apart arms 37 of an integral yoke bracket 38. The bracket 38 is provided with a horizontal base 39 having an aperture 40 therein. The aperture 40 is seated onto the stem of a conventional shut off valve 41 and secured thereto by threaded nut 42.

The cam 30 is provided with a smooth beveled corner 43 at the base of its rear leg 44. A feature of this invention is the provision of a longitudinal alignment plate 50 freely and swungly secured between the yoke arms 37 of bracket 38 by pin 51.

As shown in the drawing, the bevel cam edge 43 slides on the top surface of the alignment plate 50 and plate 50 slides on the plunger rod 53 of the valve 41. Thus the provision of the plate 50 prevents a cam 30 rubbing action directly on the valve plunger rod 53 thereby preventing dislocation or misalignment of the rod 53 relative to its valve aperture.

The plate 50 also serves functions as a wear plate and may be discarded when worn without need to replace the valve 41.

In lieu of a relatively thick rigid plate 50 a thin leaf spring 55 may be used. Such a leaf spring 55 is biased upwardly against the rear leg 44 of the cam 30 and is secured in the bracket 38 by use of a through-cavity housing the bracket 38 (FIG. 4) in which a threaded bolt 56 is disposed through a suitable aperture in the leaf spring 55.

As shown in FIGS. 1 and 2, the cable 33 is disposed in rigid pipes 57 about pulleys or wheels 58 at the elbows 59 which pipes 57 are connected to support stand 11. The cable 33 is lead over suitable pulleys 58 to suitably engage lever 18.

Thus the operation of lever 18 by the first cable 13 causes the spring 19 to pull or activate cable 33 so that the cam 30 is swung from its position shown in FIG. 1 to its position shown in FIG. 2 by rubbing of cam surface 43 on the plate 50. This cam movement permits valve rod 53 to be pushed upwardly by the coil spring 41 thereby shutting off the gas supply to the deep fat fryer having the cooking oil therein.

We claim:
1. A cable cam device adapted for operating a spring loaded plunger type gas shutoff valve comprising an in-
integral substantially U-shaped cam having a front leg, base and rear leg, and having an exterior bevel cam surface at the juncture of said base and said rear leg, said front leg having an aperture adjacent its end adapted to receive an operating cable and having means to seizing securely said cable in said aperture; an integral yoke bracket having a pair of apertured spaced-apart arms and a base having an aperture adapted to be seated and removably secured on said valve; and movable wear plate means secured at one end to said bracket intermediate the yoke arms thereof and disposed at its free end beneath the bevel surface of said cam and on the plunger of said valve and a pivot pin disposed through a suitably positioned aperture in the base of said cam and through said spaced-apart arms of said yoke whereby upward movement of the end of the front leg of said cam causes the bevel surface of the cam to depressing slide on said wear plate means to cause the plunger of said valve to be depressed to effect a shutting off of the gas.

2. The cam device of claim 1 comprising a rigid housing having an apertured top wall and a pair of spaced-apart side walls respectively secured to said pair of yoke arms of said bracket, pipe means secured to said top wall around the aperture thereof, and a metal cam operating cable disposed in said pipe means and secured at one end to said front leg of said cam.

3. The device of claim 1 wherein the wear plate means is a relatively thick rigid plate for rugged use with large size valves.

4. The device of claim 1 wherein the wear plate is a suitable leaf spring for use with small valves.

5. The device of claim 2 comprising an upright stand adapted to receive a tank of dry powder fire extinguishing chemicals and a fire extinguishing cable apparatus system having a fusible link cable and spring loaded trip lever means for actuating said tank, said pipe means secured to said upright stand; said cable secured at one end to said cam and secured at the other end to said trip lever whereby operation of said trip lever means by fire operation of said fusible link cable causes said trip lever means to operate said cam operating cable to turn off the gas valve.