Jan. 3, 1928.

H. SCHLESINGER

1,654,836

SAFETY DEVICE FOR DRY CLEANING ESTABLISHMENTS OR THE LIKE

Filed Nov. 17, 1924

Fig. 2.

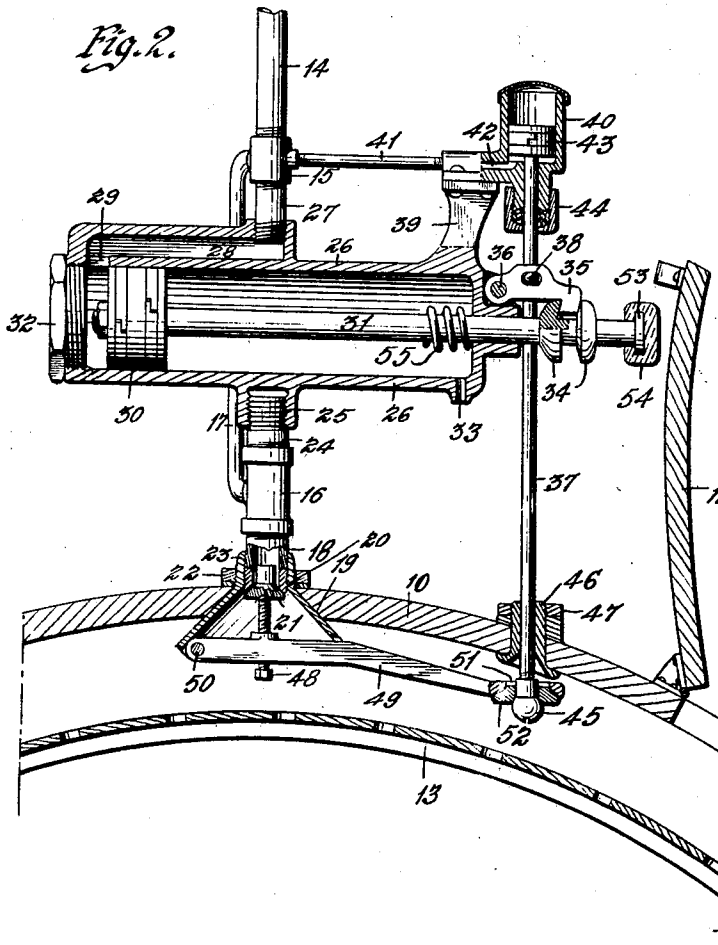
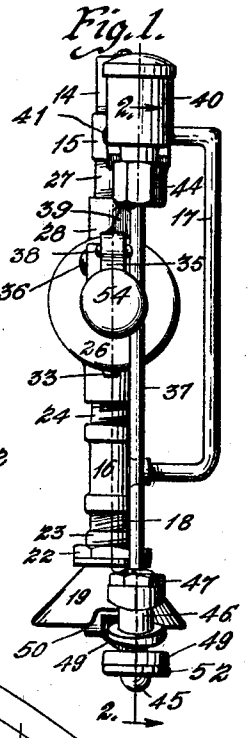


Fig. 1.



Witness

Inventor

Harry Schlesinger

by Bair & Freeman Attorneys

Patented Jan. 3, 1928. 1,654,836

UNITED STATES PATENT OFFICE.

HARRY SCHLESINGER, OF DES MOINES, IOWA, ASSIGNOR TO SCHLESCO-SHURE MANUFACTURING COMPANY, OF DES MOINES, IOWA, A CORPORATION OF IOWA.

SAFETY DEVICE FOR DRY-CLEANING ESTABLISHMENTS OR THE LIKE.

Application filed November 17, 1924. Serial No. 750,507.

The object of my invention is to provide a safety device adapted to be used in a dry cleaning establishment or in plants wherein explosive fluids are used.

Still a further object is to provide parts that will automatically operate by steam pressure when a fire caused by an explosion occurs within a tumbler or a washing machine, used in cleaning plants, whereby the steam will be ejected into the machine and the door for the machine automatically closed.

Still a further object is to provide a supply pipe for live steam arranged with a piston member normally held inoperative until the fusible link is destroyed at which time the piston operates for moving the door of the washing machine to closed position in case it is blown open at the time an explosion or fire takes place.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my safety device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 is a front view of my improved safety device, and

Figure 2 is a sectional view taken on the line 2—2 of Figure 1 showing the device installed upon a dry cleaning plant washing machine.

In the embodiment of my invention as illustrated in the accompanying drawings, I have used the reference numeral 10 to indicate generally a washing machine of the cylindrical type, which is provided with a door opening 11 and a hinged door member 12 therefor.

In the drawings, I have shown the door member in raised position.

Received within the washing machine 10 is a tumbler 13 in which the clothes to be drycleaned or washed are inserted. It may be here mentioned that in a great many cases, due to friction or the possibility of sulphur from matches remaining within the clothes, explosions or fires take place within the washing machine due to the fact that gasoline and such other fluids are used in dry cleaning establishments.

In order to promptly extinguish the fire in case one occurs and to close the door of the washing machine which helps smother the fire, I provide the mechanism that I will now describe in detail.

A supply pipe 14 is in communication with a steam boiler (not shown) which pipe is connected to a four-way fitting 15. A T-fitting 16 is spaced somewhat from the four-way fitting 15 and the fitting 15 and fitting 16 are brought into communication with each other by a by-pass pipe 17.

The fitting 16 is connected to a pipe 18 screw-threaded to an inverted funnel-shaped member 19. A valve seat 20 is screw-threaded into the neck of the funnel-shaped member 19 and has a seat thereon adapted to have a valve member 21 rest thereagainst.

The valve seat 20 abuts against the lower or bottom edge of the pipe 18. The funnel-shaped member 19 is extended into the washing machine through the body portion thereof and is retained in position by a collar 22 which coacts with the screw-threaded neck 23 on the funnel-shaped member 19. The neck 23 is both interiorly and exteriorly screw-threaded.

A pipe 24 is screw-threaded into a hub 25 on a cylinder 26. The cylinder 26 is also in communication with the four-way fitting 15 through the medium of a short pipe 27.

There is no communication between the pipe 24 and the interior of the cylinder 26.

A by-pass or passageway 28 is formed in the cylinder 26 so that live steam from the pipe 14 may pass therein.

The cylinder 26 is in communication with the passageway 28 as at 29. A piston 30 is slidably mounted within the cylinder 26 and is mounted upon a piston rod 31.

Access into the interior of the cylinder 26 may be had through the end plug 32. The cylinder 26 is provided with a discharge port 33, the purpose of which will be hereinafter more fully set forth.

The piston rod 31 has one end project through the end wall of the cylinder 26 and has a groove collar 34 thereon which coacts with a locking pawl 35 as will hereinafter be more fully set forth. The locking pawl 35 is capable of pivotal movement upon the pivot member 36 and is loosely connected to a control rod 37 by means of a slot and pin connection 38, all of which are clearly shown in Figure 2 of the drawings.

The cylinder 26 has a supporting leg 39 thereon upon which is mounted and rigidly

fixed a small cylinder 40. The cylinder 40 is in communication with the pipe line 14 by means of a small pipe 41 screw-threaded at one end into the four-way fitting 15 and at its other end is in communication with a passageway 42.

The control rod 37 extends into the cylinder 40 and has a piston 43 screwed to its upper end above the passageway 42. A stuffing or packing nut 44 extends around the control rod 37 for forming a steam-tight joint.

The lower end of the control rod 37 is screw-threaded and has a head 45 mounted thereon which is positioned within the washing machine 10 itself.

A sleeve 46 extends into the washing machine and it is in this sleeve that the control rod 37 is capable of its vertical movement. The sleeve 46 is retained in position by a collar 47 coacting with the screw-threads on the sleeve 46.

The valve member 21 is held in position by means of an adjusting screw 48 mounted in the lever 49. The lever 49 is mounted upon a pivot bolt 50 anchored to the funnel 19, as clearly shown in Figure 2 of the drawings.

The lever 49 has an enlarged opening 51 formed in its outer free end in which is received a fusible washer or the like 52. The washer 52 coacts with the head 45 on the control rod 37. The opening 51 in the lever 49 is of greater diameter than the diameter of the head 45 so as to permit the lever 49 to be dropped downwardly and the control rod 37 to be moved upwardly when the fusible washer 52 is destroyed.

It will be noted that there is a short distance between the head 45 and the lower edge of the sleeve 46 and it is this distance that the control rod 37 moves upwardly. The control rod 37 is moved upwardly by the steam passing through the pipe 41, through the port 42 into the cylinder 40. The fusible link is of sufficient strength to resist the steam pressure pushing the piston 43 upwardly within the cylinder 40.

The outer end of the piston rod 31 is formed with a head 53 around which extends a rubber bumper member 54 which strikes against the door 12.

Having described the embodiment of my invention, I will now describe the operation thereof.

The supply line of live steam is always pressing against the valve member 21 due to the fact that the steam passes through the pipe 14, through the pipe 17 into the pipe 18. The steam is retained in the pipe by the valve member 21 and the lever 49 holding the valve member 21 in its operative or closed position.

The control rod 37 is held in the position shown in Figure 2 of the drawings by the connection of its lower end with the lever 49 through the association of the fusible link 52.

The piston 30 is held in its inoperative position by the pawl 35 connecting with the grooved collar 34, as clearly shown in Figure 2 of the drawings.

When an explosion or fire takes place, then the fusible link or washer is eliminated and destroyed and the valve member 21 drops down due to the fact that the lever 49 is no longer supported, at which time steam will pass into the inverted funnel 19 and be discharged into the washing machine 10.

The releasing of the control rod 37 from the lever 49 will permit the steam passing through the pipe 41 into the cylinder 40 to push the piston 43 upwardly thereby carrying with it the control rod 37. The control rod 37 moving upwardly will in turn cause the locking pawl 35 to be raised upwardly where it will disengage from the grooved collar 34, thereby releasing the means that holds the piston 30 inoperative in the cylinder 26.

The steam passing into the cylinder 26 will force the piston 30 to one limit of its movement at which time the bumper 54 will strike the door 12 for closing it, in case the door is open.

The discharge port 33 in communication with the cylinder 26 permits the air within the cylinder on one side of the piston 30 to be discharged therethrough when the piston is moved.

I have shown a spring 55 upon the piston rod 31 against which the piston 30 abuts when it moves to the position where the piston rod 31 operates for closing the door 12.

It may be here mentioned that the entire operation of the door closing mechanism, the releasing of the steam into the washing machine 10, and the movement of the control rod 37 are all held in inoperative position by the fusible washer 52.

The advantages of my structure reside in the fact that I have a positive automatic means for insuring the discharge of live steam into the various machines in a dry cleaning establishment or the like in case a fire takes place.

Some changes may be made in the arrangement and construction of the various parts of my safety device without departing from the essential features and purposes of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. In a device of the class described, adapted to be used in combination with a washing machine having a door, a safety

device comprising a supply line of live steam, means for normally retaining the steam within the supply line, a fusible element forming a part of said last means, a control rod coacting with said fusible element and means operable by the live steam for moving said control rod upon the destruction of the fusible element, and means rendered operative when the control rod is moved for closing the door of the washing machine.

2. In a device of the class described, adapted to be used in combination with a washing machine having a door, a safety device comprising a supply line of live steam, means for normally retaining the steam within the supply line, a fusible element forming a part of said last means, a control rod coacting with said fusible element and means operable by the live steam for moving said control rod upon the destruction of the fusible element, and means rendered operative when the control rod is moved for closing the door of the washing machine, said last means being operated by the live steam.

3. In a device of the class described, adapted to be used in combination with a washing machine having a door, a safety device comprising a supply line of live steam, means for normally retaining the steam within the supply line, a fusible element forming a part of said last means, a control rod coacting with said fusible element and means operable by the live steam for moving said control rod upon the destruction of the fusible element, a piston rod having a loose connection with said control rod for retaining the piston rod at one limit of its movement against the action of the steam pressure, said loose connection being rendered inoperative upon the movement of said control rod as and for the purposes stated.

4. In a device of the class described, adapted to be used in combination with a washing machine having a door, a safety device comprising a supply line of live steam, means for normally retaining the steam within the supply line, a fusible element forming a part of said last means, a door closing member constrained to move in a direction to contact with the door when open and thereby close the same, means for restraining said door closing member against such movement, said last means being released upon the destruction of the fusible element.

5. A safety device for dry cleaning establishments in combination with a washing machine having a door comprising steam piping secured to and communicating with the interior of the washing machine, whereby steam therefrom may be discharged into the machine, a valve for controlling said steam, a fusible link for causing said valve to remain closed, a door closing arm mounted on said piping constrained to move in a direction to contact with the door when open and thereby close the same, means for restraining said arm against such movement, said means being released and the valve opened upon the destruction of said fusible link.

Des Moines, Iowa, October 22, 1924.

HARRY SCHLESINGER.