

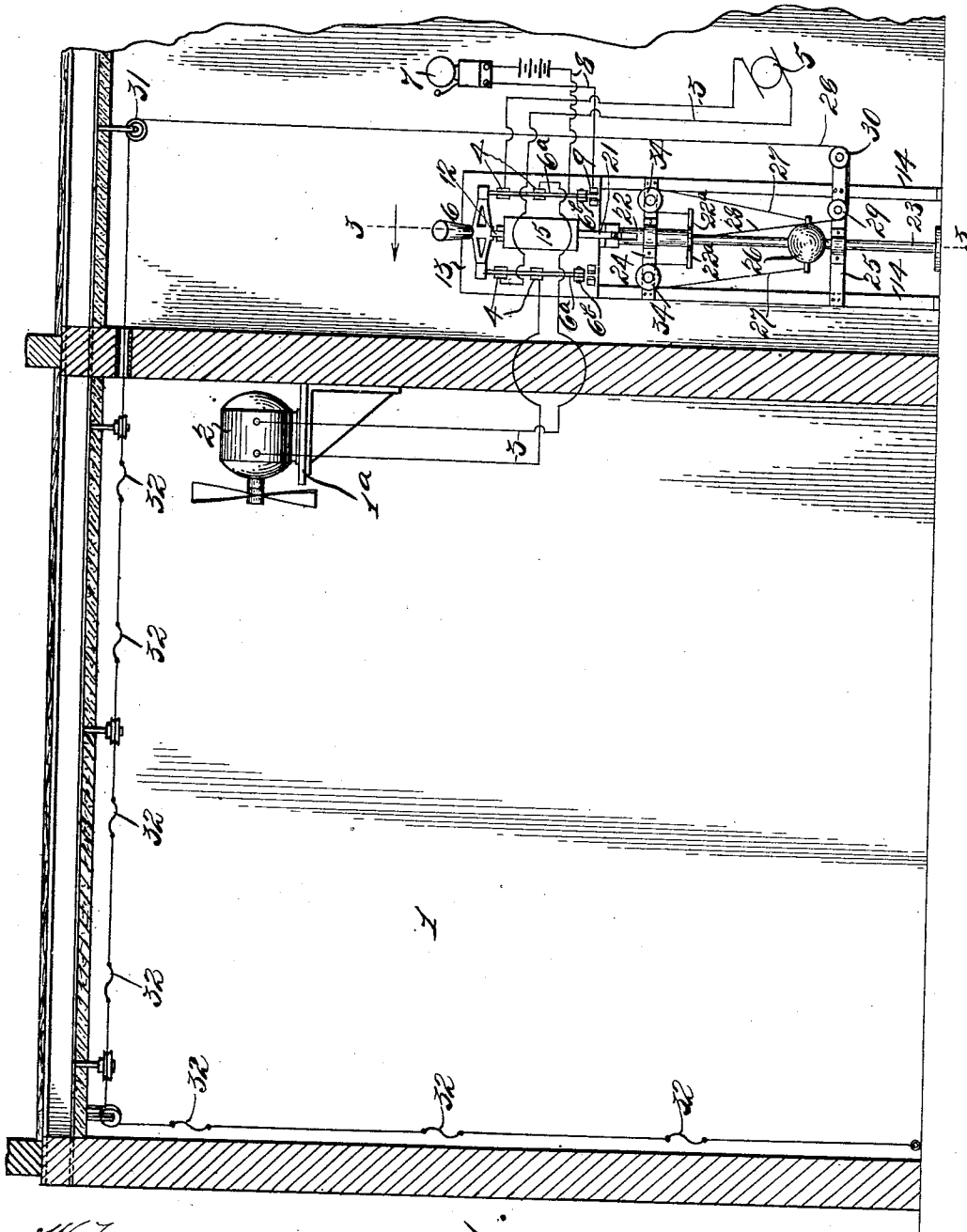
W. H. TUCKER & W. F. WADDELL.
THROW-OUT SWITCH.

APPLICATION FILED MAR. 10, 1909.

Patented Oct. 18, 1910.

2 SHEETS—SHEET 1.

973,322.



Witnesses
C. A. Jarvis
C. T. Neal

Fig. 1.

Inventors
Wilson H. Tucker
William F. Waddell
by Emerson R. Howell
Attorney.

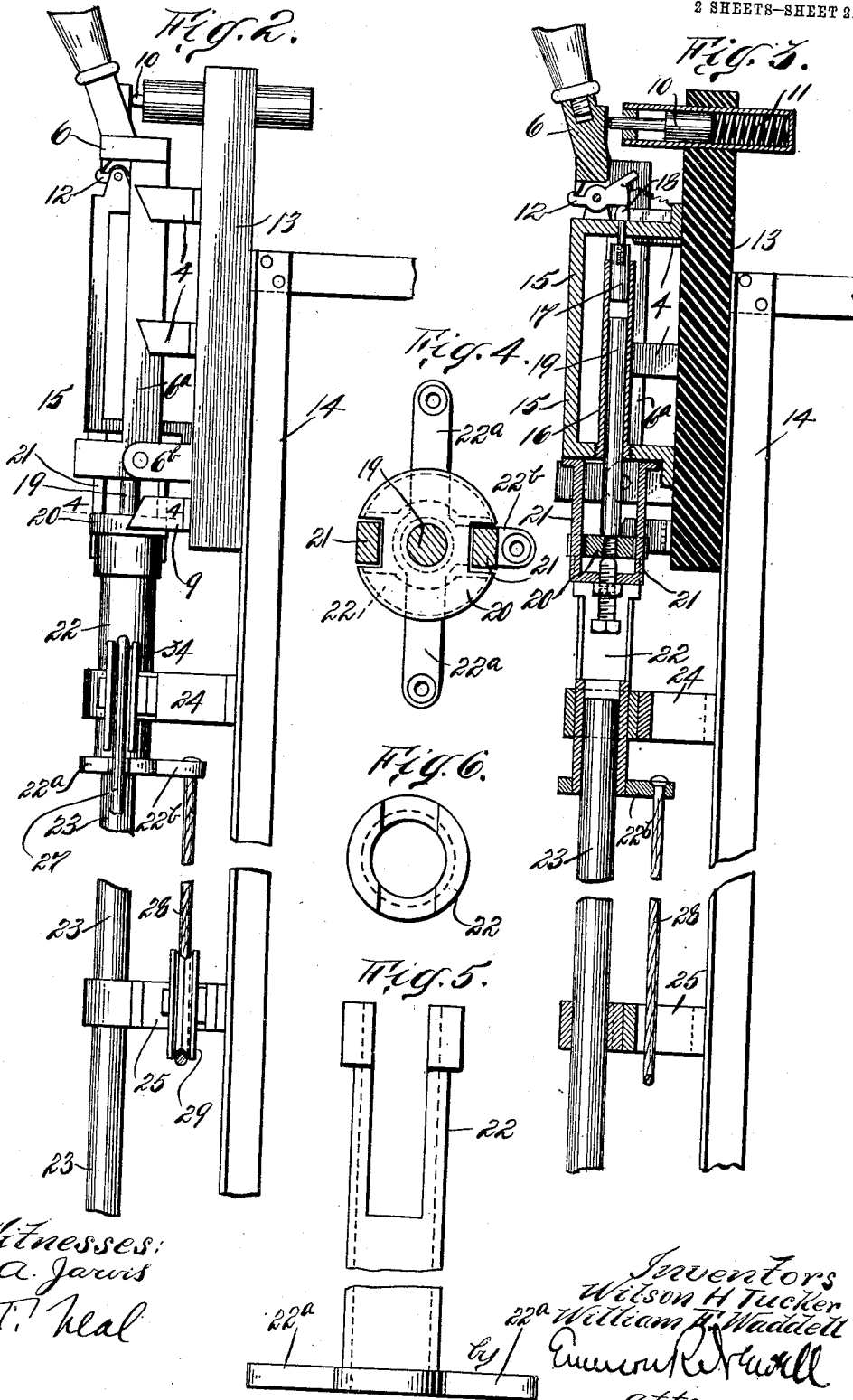
W. H. TUCKER & W. F. WADDELL.
THROW-OUT SWITCH.

APPLICATION FILED MAR. 10, 1909.

Patented Oct. 18, 1910.

2 SHEETS—SHEET 2.

973,322.



Witnesses:
C. A. Jarvis
C. T. Neal

Inventors
Wilson H. Tucker
William F. Waddell
by *Amos R. Wall*
attorney.

UNITED STATES PATENT OFFICE.

WILSON H. TUCKER AND WILLIAM F. WADDELL, OF NEW YORK, N. Y.

THROW-OUT SWITCH.

973,322.

Specification of Letters Patent.

Patented Oct. 18, 1910.

Application filed March 10, 1909. Serial No. 482,456.

To all whom it may concern:

Be it known that we, WILSON H. TUCKER and WILLIAM F. WADDELL, citizens of the United States, residing at 37 Madison avenue and 229 West Twentieth street, New York city, New York, respectively, have invented certain new and useful Improvements in Throw-Out Switches, of which the following is a clear, full, and exact description.

Our invention relates to an improved means for automatically throwing out a switch controlling an electric circuit, and is more particularly adapted for places in which it is desirable to break the circuit by an increase of temperature.

Although our invention is not confined to the particular use in which we prefer to show and describe it, nevertheless for the purposes of description we have shown it as applied to a cut-out switch controlling a circuit operating a fan.

In cold storage compartments for preserving furs and other articles, fans are often used to keep up a circulation of fresh air. When a fire occurs in a compartment, the continued operation of the fan tends to increase the blaze and oftentimes the fire gains such headway before it can be stopped as to cause considerable damage. It is for the purpose more particularly of breaking the circuit which controls such a fan automatically whenever the temperature of the compartment rises by reason of a fire, that our invention is particularly designed.

Our invention will be more particularly defined in the claims.

In the drawings which show a preferred embodiment thereof, Figure 1 is a sectional view of a cold storage compartment having our invention applied thereto; Fig. 2 is a side elevation of the cut-out switch; Fig. 3 is a vertical section of the parts in a position similar to Fig. 2; Fig. 4 is a horizontal section taken through 4—4 of Fig. 2 with some of the parts removed; Fig. 5 is a detached view of the striker in elevation; and Fig. 6 is a view of the top end of the striker.

Referring to Fig. 1, the cold storage compartment is indicated as a whole by 1. The fan mounted on any convenient bracket 1^a is indicated at 2, and the electric circuits leading to said fan are shown at 3, connected to dynamo 5. The circuit 3 is provided with the usual contacts 4 adapted to be bridged by the switch bar 6, whereby said circuit is

broken or closed. An alarm bell 7 may also be provided equipped with a separate circuit 8, one branch of which leads to a contact 9, and the other branch to a projection on the switch, whereby when said switch is thrown open the circuit 8 may be closed to sound the alarm and indicate the breaking of the main circuit.

The switch which we have shown is of the usual cut out type operated by an overload, and our improvement is preferably shown as combined with this form, although it will be understood that other switches may be used if desirable. The switch bar 6 is of the double break type having the two knife blades 6^a, 6^b pivoted at 6^b and bridging the contacts 4 of the circuit 3. The different parts of the switch and the contacts are preferably mounted upon an insulating plate 13, which is in turn supported from any suitable framework such as 14. At the upper part of the plate 13 is a plunger 10 actuated by spring 11 and bearing against the handle 6 of the switch member tending normally to throw it away from the contacts 4. Between the blades 6^a of the switch and secured to the insulating plate 13 is mounted a box shaped frame 15, and pivotally mounted on the top of the frame is a latch 12 which engages a pointed portion of the switch 6 to normally hold it in position against said contacts. Within the frame 15 is fixed vertically a tubular sleeve 16 having a pin 17 slidable in its upper end. The pin 17 extends through the upper side of the frame 15 and is provided with a head 18 engaging the under portion of the latch 12, said head being shouldered to hold the pin 17 in place. Below the sliding pin 17 is a sliding core 19 adapted to impinge against the lower end of the pin 17 whenever said core 19 is thrown upwardly. In the usual form of these switches, 19 is the core of a solenoid which is operated by a series current of electricity to throw it upwardly, but as we operate the core 19 independently of any solenoid, we have not shown the same. At the lower end of the core 19 is secured a base portion or button 20 having two oppositely located slots at its periphery through which pass the side arms of a stationary hanger 21 secured to the frame 15. Through the bottom of the hanger 21 is preferably mounted a stud screw which serves as an adjustable abutment for the base portion 20 of the core 19.

Below the hanger 21 are two supporting brackets 24 and 25 fixed to the framework 14. Through said brackets extends a stationary guide rod 23 upon which is slidably mounted a movable member or striker 22. This striker is preferably in the form shown in Figs. 5 and 6 consisting of a sleeve for surrounding the rod 23 having two lateral arms 22^a and a rearwardly extending arm 22^b at its base. The upper portion of the striker is slotted as shown in Figs. 5 and 6 to surround the hanger 21 and bring its upper end against the base portion or button 20 of the core 19 for imparting an upward movement thereto. Also slidably mounted on the rod 23 below the striker is a gravity device or weight 26 (see Fig. 1). This weight is connected by means of cables 27 passing over pulleys 34 to the opposite side arms at the base of the striker. From this it will be seen that as the weight falls, the striker tends to move upwardly and in striking the lower end of core 19 imparts an upward movement thereto, which in turn impinges against the pin 17 to release the latch 12 and thus permit the switch to be thrown out by plunger 10.

Referring to Fig. 1 it will be seen that a cable 29 is connected to the rear arm 22^b of the striker 22 and passing downwardly around pulleys 29 and 30 leads upwardly again and around pulley 31 to the interior of the compartment 1. It is understood that this cable 28 within the compartment 1 has various connections covering as by a network the entire interior walls and ceiling of the compartment, and interspersed throughout these connections are heat fuses 32 which at a given temperature will melt and release the cable 28, which in turn releases the striker 22 to actuation by the weight 26.

It is obvious from the above description that should any portion of the cold storage compartment 1 become overheated by a fire, that the adjacent fuse will melt and allow the throw-off devices of our improvement to act and cut out the switch to thereby stop the operation of the fan automatically, and also close the alarm circuit to automatically give an alarm when the switch is unlatched.

What we claim is:

1. In an automatic cut-out switch in combination, a switch bar, contact terminals of an electric circuit, and tension means tending to normally separate said switch bar from said terminals, a latch for retaining said switch bar in contact with said terminals, and thermally controlled means independent of said circuit for unlatching said switch bar comprising latch-disengaging means, a fuse wire or cable anchored at one end and at the other end maintaining said latch-disengaging means inactive, and a latch-engaging member, separate from said switch bar, latch-disengaging means and

wire, and adapted to be actuated by said latch-disengaging means to unlatch said latch.

2. In an automatic cut-out switch in combination, a switch bar, contact terminals of an electric circuit and tension means tending to normally separate said switch bar from said terminals, a latch for retaining said switch bar in contact with said terminals, and thermally-controlled means for unlatching said switch bar comprising a latch-engaging member, a movable member adapted to strike against said latch-engaging member for giving movement thereto, a gravity member connected to said movable member for operating the same, and a fuse wire or cable anchored at one end and at the other end tending to pull said movable member downwardly against the action of said gravity member, said wire or cable being separate and distinct from said gravity member.

3. In an automatic cut-out switch in combination, a switch bar, contact terminals of an electric circuit and tension means tending to normally separate said switch bar from said terminals, a latch for retaining said switch bar in contact with said terminals, and thermally-controlled means for unlatching said switch bar comprising an impinging core having a base portion, a stationary guiding sleeve for said core and an adjustable abutment against which said base portion normally rests, a slidable member adapted to strike against said base portion for giving movement to said core, a gravity-member connected to said movable member operating the same, said gravity member being held in suspension by cables, said cables and connections having dispersed throughout their length one or more fuses.

4. In an automatic cut-out switch in combination, a switch bar, contact terminals of an electric circuit and tension means tending to normally separate said switch bar from said terminals, a latch for retaining said switch bar in contact with said terminals, and thermally-controlled means for unlatching said switch bar comprising a vertical guide sleeve arranged below said latch, and an impinging core slidable therein, provided with a button at its lower end and an adjustable abutment for supporting said button and core, a stationary guide rod arranged vertically in line with said core, and a striker slidably mounted thereon adapted to strike against said core button, a weighted member also slidably mounted in said rod below said sleeve and connected by cables and overhead pulleys to said sleeve operating the same upwardly, said cables and connections having dispersed throughout their length one or more heat fuses.

5. In an automatic cut-out switch in combination, a switch bar, contact terminals of

an electric circuit and tension means tending
to normally separate said switch bar from
said terminals, a latch for retaining said
switch bar in contact with said terminals,
5 and thermally controlled means for unlatch-
ing said switch bar comprising an imping-
ing core having a base portion, a stationary
guiding sleeve for said core, a movable mem-
ber adapted to strike against said base por-
10 tion for giving movement to said core, and a
gravity-member connected to said movable

member operating the same, said cables and
connections having dispersed throughout
their length one or more fuses.

Signed at New York this 8th day of 15
March 1909.

WILSON H. TUCKER.
WILLIAM F. WADDELL.

Witnesses:

F. JAEGER,
WALTER L. TITUS.