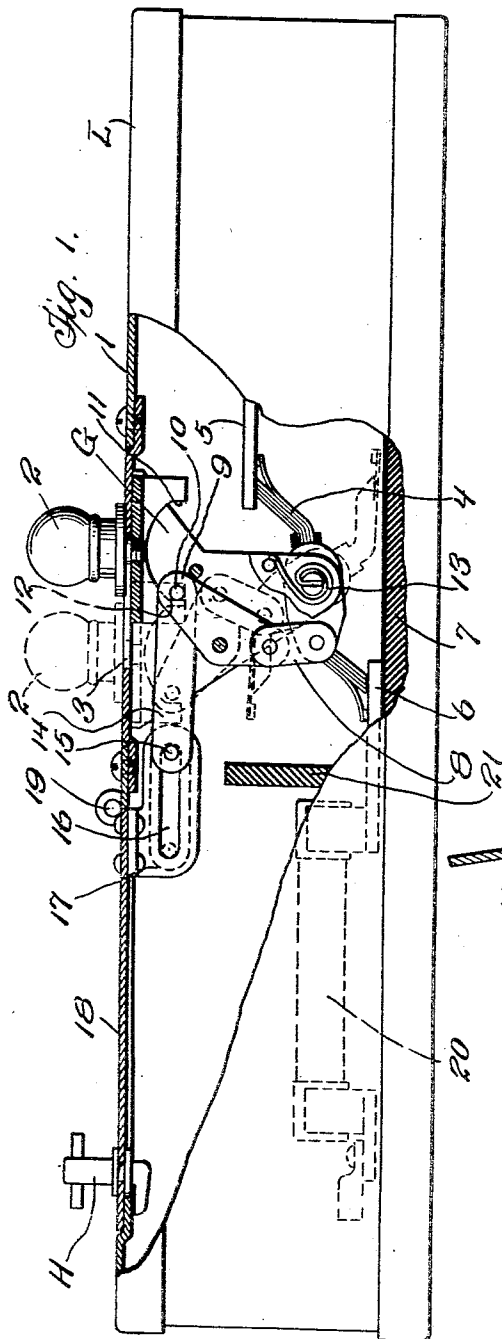
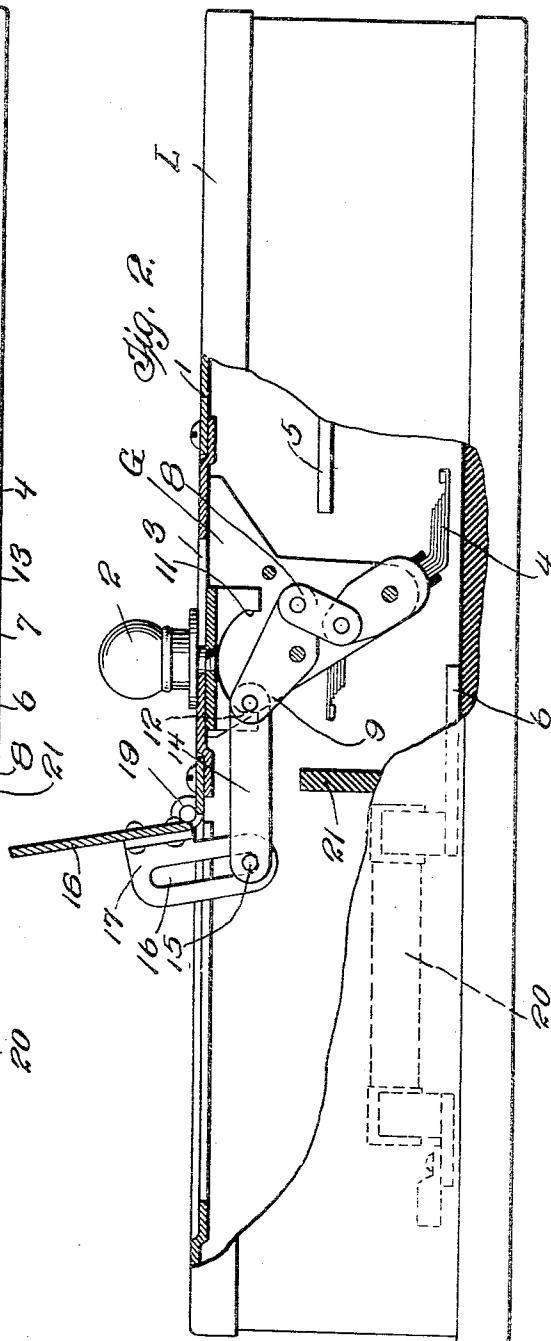


1,292,807.

H. F. KRANTZ.
SAFETY PANEL BOX.
APPLICATION FILED MAR. 31, 1917.

Patented Jan. 28, 1919.
3 SHEETS—SHEET 1.



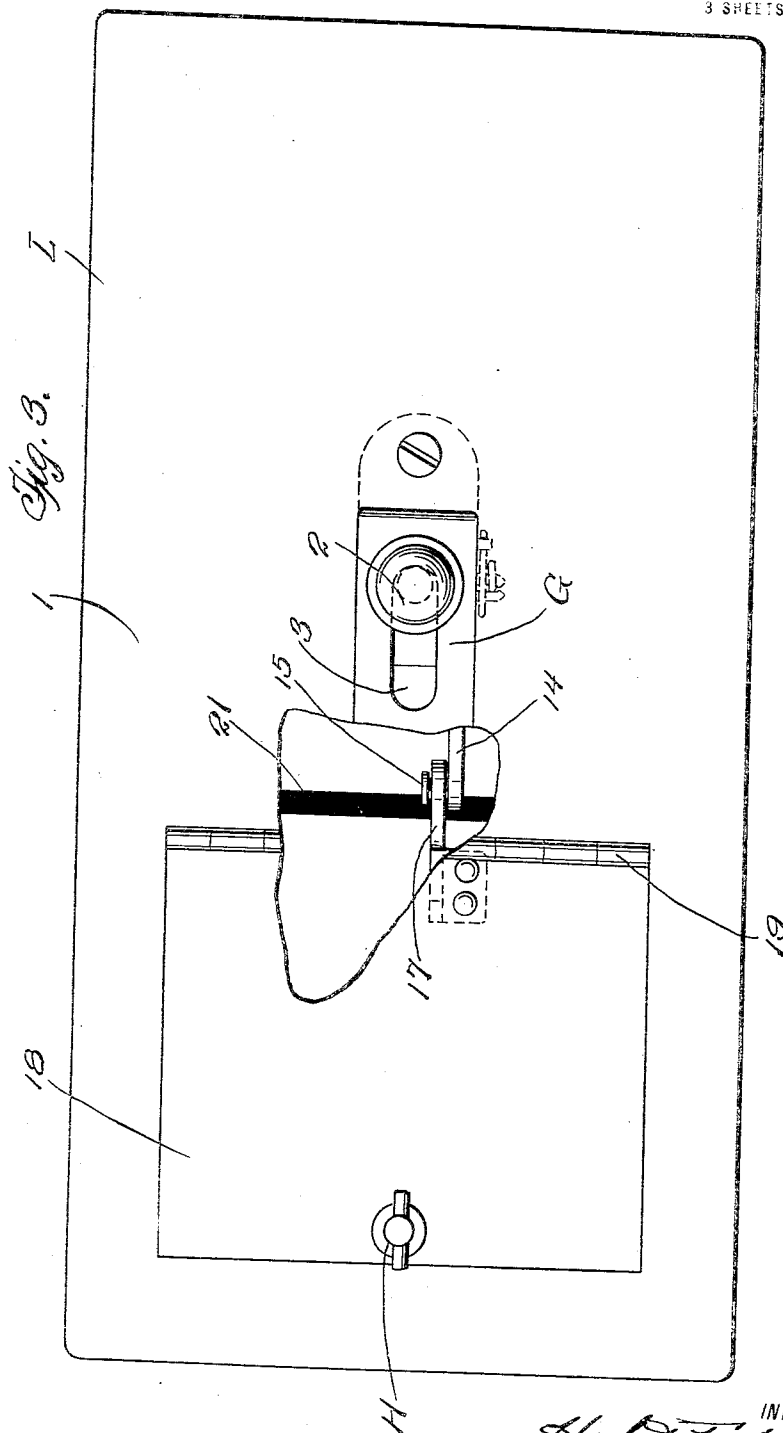
Inventor
Hubert F. Krantz
By *his Attorney*
L. Sanford Hande

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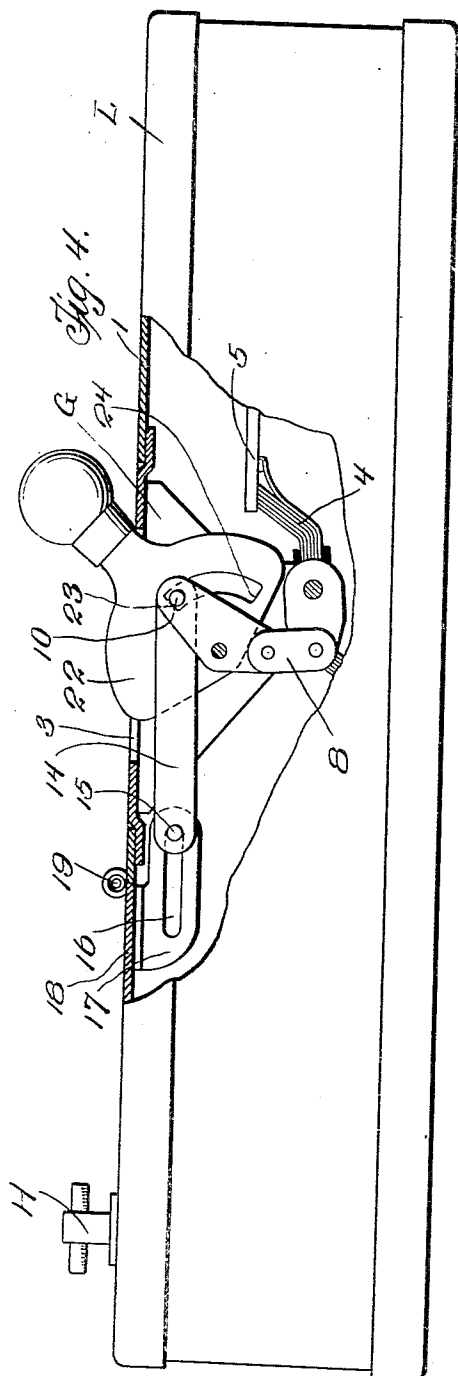
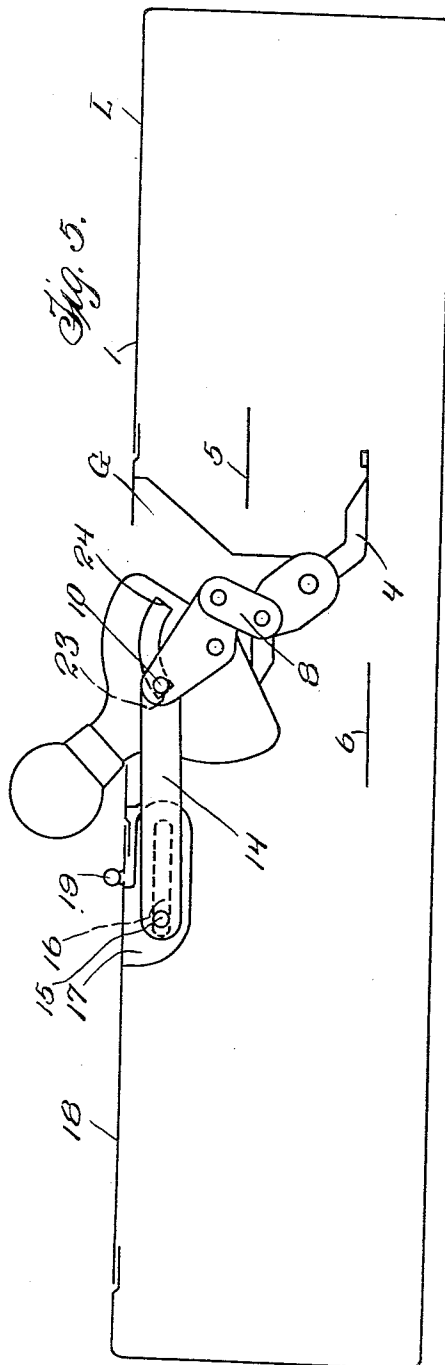


INVENTOR
H. F. Krantz
BY
L. H. Foster
ATTORNEY

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3 SHEETS—SHEET 3.



INVENTOR
Hubert F. Krantz
BY
L. Sanford Handley
ATTORNEY

UNITED STATES PATENT OFFICE.

HUBERT F. KRANTZ, OF BROOKLYN, NEW YORK, ASSIGNOR TO KRANTZ MANUFACTURING COMPANY, INC., OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

SAFETY PANEL-BOX.

1,292,807.

Specification of Letters Patent.

Patented Jan. 28, 1919.

Application filed March 31, 1917. Serial No. 158,956.

To all whom it may concern:

Be it known that I, HUBERT F. KRANTZ, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Safety Panel-Boxes, of which the following is a specification.

This invention relates to a safety panel box.

A particular object of the invention is to provide improved and positively operating means for rendering the panel box safe and uniformly efficient even in the hands of an inexperienced operator.

A more specific object is to provide a panel box in which the switch mechanism is mounted in a stationary position within the box, and in which a simple and efficient means is provided, and operatively associated with the switch mechanism and with the door of the box, for positively insuring an "off" position of the switch mechanism whenever the door is open.

A further and more detailed object is to provide improved means extending between the door and the switch mechanism whereby an opening movement of the door will positively operate the switch mechanism into "off" position and will positively prevent any operation of the switch mechanism into the "on" position, and to arrange said means so as not to interfere with the normal operation of the switch mechanism into the "on" position when the door is closed.

A further object is to provide improved switch operating means peculiarly adapted to coöperate with the other features of the invention.

Other objects and aims of the invention, more or less specific than those referred to above, will be in part obvious and in part pointed out in the course of the following description of the elements, combinations, arrangements of parts and applications of principles, constituting the invention; and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawings which are to be taken as part of this specification, and in which I have shown merely a preferred form of embodiment of the invention;

Figure 1 is a longitudinal vertical sectional view taken through a panel box constructed in accordance with this invention, parts of the box being illustrated in eleva-

tion, the switch mechanism being shown in the "on" position in full lines, and in the "off" position in dotted lines.

Fig. 2 is a similar view illustrating the switch mechanism as having been moved into the "off" position by an opening movement of the door.

Fig. 3 is a top plan view of the structure shown in Fig. 1, a part of the top wall of the box being broken away for better disclosing the connection between the switch mechanism and the door.

Fig. 4 is a view similar to that shown in Fig. 1, illustrating a slightly modified form of the switch mechanism, and

Fig. 5 is a diagrammatic view illustrating the parts of Fig. 4 in the "off" position.

Referring to the drawings for describing in detail the structure which is illustrated therein, and referring first to Figs. 1 to 3, the reference character L indicates the panel box generally. This may be made up of any suitable material, either sheet metal or otherwise, according to preference. In the drawing, it is shown to be made of sheet metal.

The switch mechanism G is arranged within the box, being preferably fixed to the upper wall 1 of the box and having a handle 2 projecting through the opening 3 formed through said upper wall.

The switch mechanism illustrated comprises a swinging contact blade 4 adapted to be swung by the handle 2 for moving its opposite ends into and out of electrical engagement with the stationary contact members 5 and 6, which contacts are within the box, being preferably carried upon a suitable base of insulating material.

The connections for swinging the blade 4 are shown to comprise a toggle 8, one member of which is formed with an upwardly extending arm 9 carrying a pin 10. The pin 10 stands in the path of movement of opposing shoulders 11 and 12 directly connected with the handle 2. A sliding movement of the handle along the opening or slot 3 will bring one or the other of the shoulders 11 and 12 into engagement with the pin 10 in accordance with direction of movement of the handle.

As shown by the full lines in Fig. 1, the shoulder 12 has just moved so as to "straighten" the toggle and thus lock the blade in "on" position. Movement of the handle into the position shown by the dotted

lines will bring the shoulder 11 against the pin and will "break" the toggle and allow the spring 13 instantly to throw the blade 4 into full "off" position.

5 The connections between the switch mechanism and the door are as follows:

A link 14 is connected by its inner end to the pin 10. A stud 15 is fixed to the outer end of the link and extends laterally therefrom into sliding engagement through a slot 16 formed longitudinally in a bracket 17 which is fixed rigidly to the under surface of the door 18. The direction of the length of the slot is substantially toward the pin 10 when the door is closed, and the length of the slot is such that the pin 10 and the remainder of the switch mechanism may be operated without interference into "on" and "off" position at all times so long as the door stands closed, the stud 16 simply traveling back and forth along the slot.

When the switch mechanism is in the "on" position, the stud 15 stands directly at the inner end of the slot and the disposition of the slot with respect to the hinge 19 of the door is such that any appreciable opening movement of the door will exert a pull upon the link 14 and will thereby immediately break the toggle and allow the spring 13 to snap the blade 4 into the "off" position. After the toggle is broken, the stud 15 will be free to travel along the slot 16 to permit the blade to move into the "off" position.

When the door is in its fully opened position, as in Fig. 2, the slot 16 is somewhat inclined with respect to the vertical, so that the stud 15 will readily travel lengthwise of the slot to permit closing movement of the door without necessarily effecting an operation of the switch mechanism.

It will be understood that the importance of the provision above described for positively preventing an "on" position of the switch mechanism while the door is open, resides in the fact that it prevents access to the fuse 20 or to other elements within the reach of an operator's hand or tool through the doorway while current is in said fuse or other device. The supply of current through the box is transmitted from the contact 5, through the switch blade, to contact 6, and thence to the fuse so that when the switch blade is in the "off" position the current is dead-ended in the contact 5. The fuse and its connections are then harmless and may be freely handled.

The switch mechanism also constitutes an efficient barrier in front of the live contact 5. If desired, a further barrier as 21 may be placed within the box to guard against possible engagement of an operator's hands with the contact 5.

A door retaining latch H may be employed at the free edge of the door for locking the door closed, this latch will also

serve as a handle by means of which the door may be readily manipulated.

The structure shown in Figs. 4 and 5 is the same in all particulars as that shown in the other figures except with regard to the operating handle of the switch mechanism.

The modification shown in these figures is given to illustrate the adaptability of the door control feature of this invention to use in connection with a pivotally mounted handle as 22 instead of a slidably mounted handle as in the previous figures.

A swinging movement of the handle 22 will bring one or the other of the shoulders 23 and 24 into engagement with the pin 10 for swinging the toggle in accordance with the direction of movement of the handle in the same manner as above described with reference to the handle 2.

It will be noted that in any instance an opening movement of the door while the operating handle is in the "on" position will produce a movement of said handle into the "off" position and thereby visually indicate to the operator that a movement of the switch blade has occurred. The close proximity of the operator to the door makes the indication more impressive.

As many changes could be made in this construction without departing from the scope of the following claims, it is intended that all matter contained in the above description, or shown in the accompanying drawings, shall be interpreted as illustrative only and not in the limiting sense.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A safety panel box having a portion of one of its walls pivotally connected to form a door therein, a switch mechanism supported by the mentioned wall adjacent the hinge of said door, said switch mechanism having a part movable into "on" and "off" positions, and also having an operating handle disposed to project through an opening formed in said mentioned wall, and auxiliary operating means for the switch mechanism whereby to operate the switch mechanism by movement of said door, said auxiliary operating means comprising a bracket fixed to the inner surface of the door adjacent the pivot thereof, said bracket having a slot formed therein extending substantially parallel with the surface of the door backwardly beyond the pivot, and a link connecting the movable part of the switch mechanism with said bracket, said link having a stud slidably engaging in the slot of said bracket.

2. A safety panel box having a portion of one of its walls adjacent one end of the box pivotally connected to form a door opening into the interior of the box, the

hinge of the door being disposed at that side of the door nearest to the opposite end of the box, a switch mechanism arranged within the box spaced from the hinge of the door in a direction toward said opposite end of the box, said switch mechanism having a part movable into "on" and "off" positions, and operating means for said switch mechanism whereby to operate the switch mechanism by movement of the door, said operating means comprising a bracket fixed to move with the door and having a part disposed within the box projecting backwardly beyond the hinge of the door in the direction of the switch mechanism, and means connected to the bracket at a point rearward of said hinge and extending into connection with the movable part of the switch mechanism.

3. A safety panel box having a portion of one of its walls adjacent one end of the box pivotally connected to form a door opening into the interior of the box, the hinge of the door being disposed at that side of the door nearest to the opposite end of the box, a switch mechanism arranged within the box spaced from the hinge of the door in a direction toward said opposite end of the box, said switch mechanism having a part movable into "on" and "off" positions, and an operating handle for the switch mechanism projecting outwardly through an opening in said wall, said handle being slidably mounted to slide toward and away

from the hinge of the door and having parts movable therewith to engage the mentioned movable part of the switch mechanism to move said part into "off" and "on" positions, and means operatively associated with the movable part of the switch mechanism and with the operating handle and extending into connection with the door whereby an opening movement of the door will insure an "off" position both of the movable part of the switch mechanism and of said operating handle.

4. A switch mechanism having a switch blade movable into "on" and "off" positions, toggle parts arranged to stand in a "straightened" position when the switch blade is "on" and to permit movement of the switch blade into "off" position when the toggle is broken, a supporting frame for said toggle parts and switch blade, a member slidably carried by said frame having portions to engage one of the toggle parts to "straighten" or "break" the toggle, and an operating handle fixed to said mentioned member projecting through a slot formed in said frame to a point of accessibility beyond the frame.

In testimony whereof I affix my signature in the presence of two witnesses.

HUBERT F. KRANTZ.

Witnesses:

JOHN L. KOLLE,
J. A. NEWTON.