

Jan. 12, 1937.

P. J. CORBETT

2,067,705

ALARM SYSTEM

Filed April 19, 1934

2 Sheets-Sheet 1

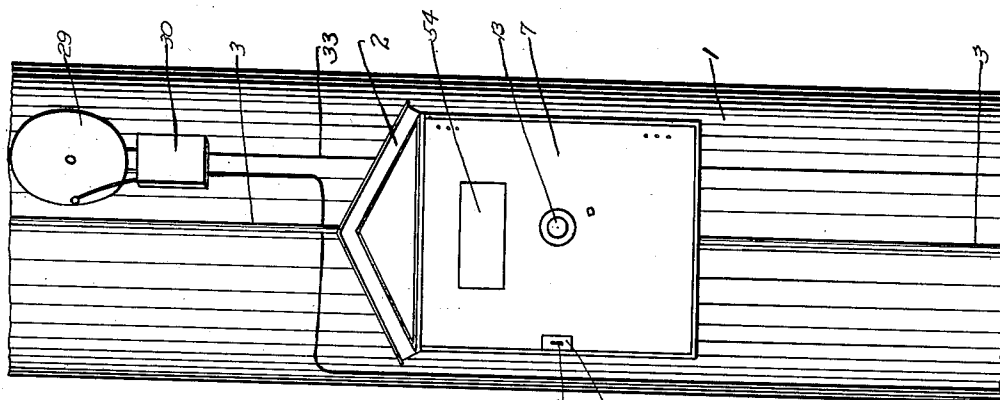


Fig. II.

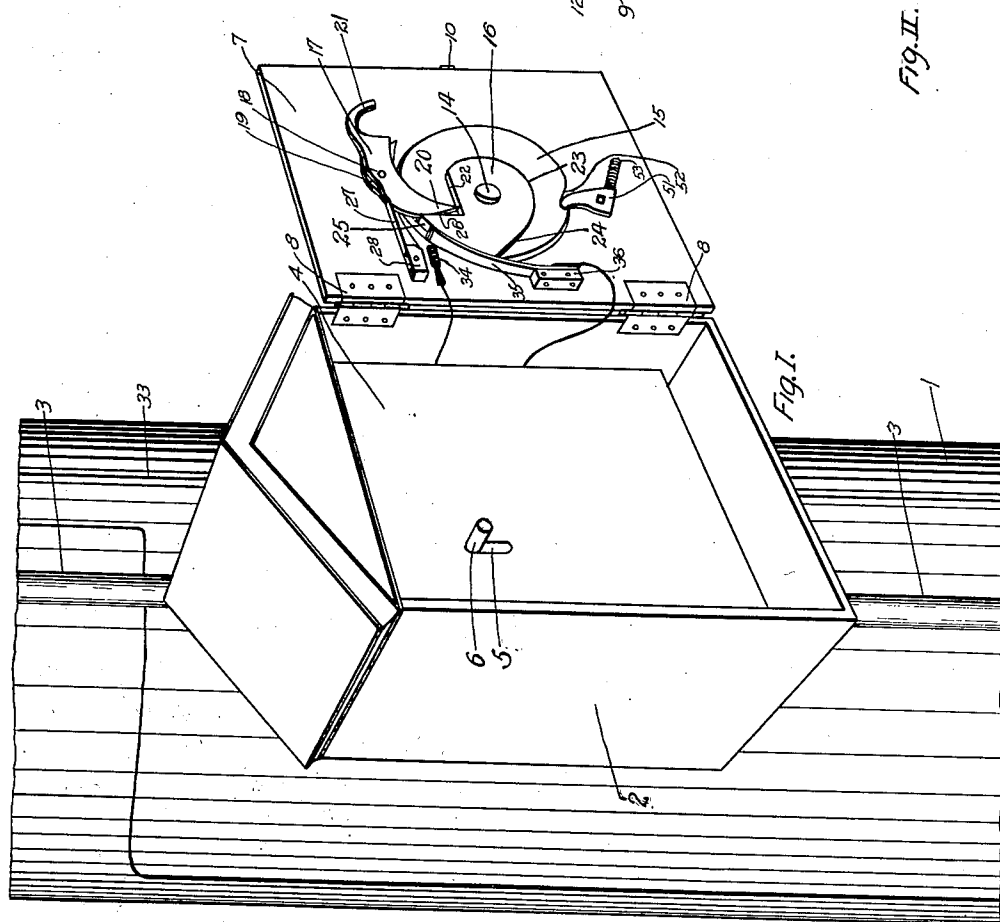


Fig. I.

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2 Sheets-Sheet 2

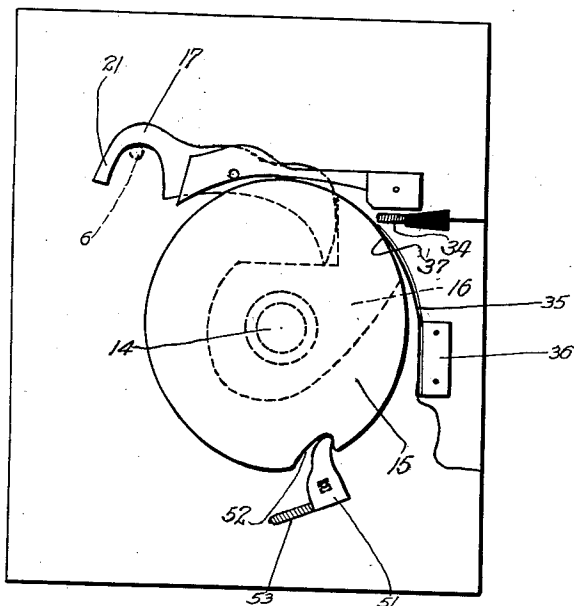


Fig. III.

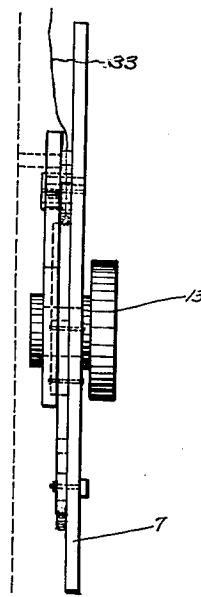


Fig. IV.

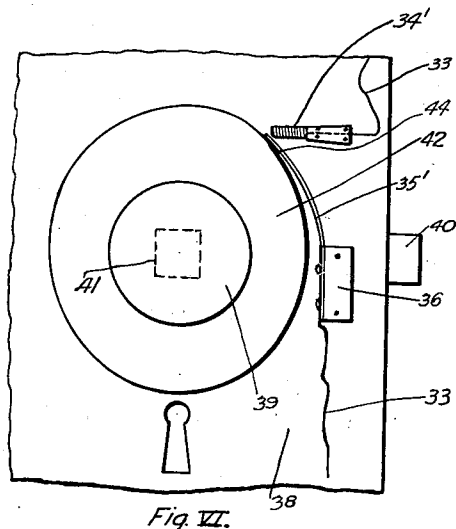


Fig. VI.

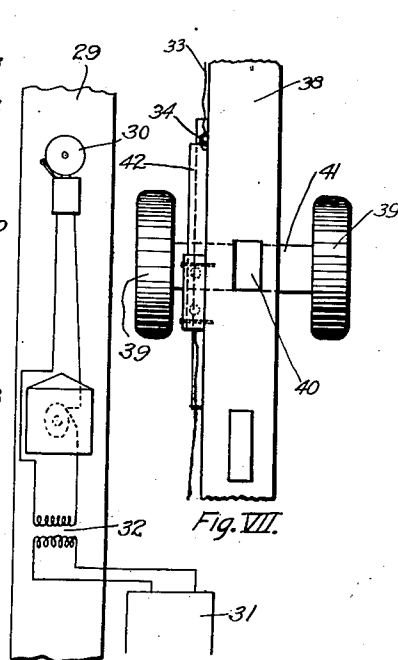


Fig. VII.

Fig. V.

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2,067,705

ALARM SYSTEM

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Application April 19, 1934, Serial No. 721,365

2 Claims. (Cl. 177—373)

This invention relates to signal devices for attachment to doors and other movable objects, particularly to that class of signal devices adaptable for use with doors of fire alarm signal sending stations.

It is the main purpose of this invention to provide a device for attachment to a fire alarm signal sending station which will aid materially in deterring the sending in of false alarms.

It is well known that an appalling number of false alarms are transmitted to the fire stations of various municipalities causing needless journeys of the fire companies. This unneeded calling out of a city's fire extinguishing equipment is a waste of money and moreover its worst faults are the danger of a delay in getting to an actual fire and the danger of accidents due to the high rate of speed at which the vehicles travel.

Many devices have been applied to fire alarm sending stations to act as deterrents to cut down the number of or entirely eliminate the sending of false alarms. But most of these devices have proved unsatisfactory for one reason or another.

Heretofore it has been proposed to provide a fire alarm signal sending station with an apparatus which clamps a type of handcuff on the arm of the person sending in the signal to hold him at the station until the fire department arrives. Then one of the men can release him.

Such a system, though capable of warding off tricksters, practical jokesters and others desiring to send in false alarms, has numerous disadvantages. It may cause a person to neglect to send in true alarms. If the weather is stormy or cold, a person strapped to the sending station is subjected to a great deal of discomfort or even punishment for doing a meritorious act. Also the operator of the alarm may place himself in jeopardy from the flames or burning embers coming from the fire. And even in cases where these elements of discomfort and danger are lacking, this system causes inconvenience and most certainly is distasteful to anyone sending in an alarm for good cause.

I am aware, also, that heretofore devices have been designed for incorporation with a fire alarm sending station to provide a means of attracting attention to the sender of the alarm. These, of course are meant to scare off tricksters and others endeavoring or attempting to send in alarms without cause. The devices heretofore available to my knowledge have proved unsatisfactory either because they necessitate the complete re-vamping of the alarm sending mechanisms to which they are attached or because their con-

structions are cumbersome and provided with a number of mechanical parts which need attention or become inoperative even when not used.

The embodiment of my invention is simple, practical, economical, reliable and adaptable without necessitating a change in construction of the sending station to which it may be attached.

Briefly, it is a general object of this invention to provide a simple, effective and economical alarm system for use on fire alarms, bank vaults, doors and wherever such a system may be needed.

Briefly, it is a further object of the present invention to provide an economical device for attaching to existing fire alarm systems to effect a local signal.

It is, also an object of this invention to provide a local alarm device for fire alarm systems which is positive in action and which has but few parts so as to reduce to a minimum the danger of its becoming inoperative.

It is a particular object of this invention to provide an electrical signal system operated by a switch throwing cam connected to a revolving member which is an integral part of the apparatus or object to which the signal system is attached.

These and other objects of this invention will be apparent from the following description and appended claims.

This invention in a preferred form is shown in the accompanying drawings and hereinafter more fully described.

On the drawings:

Figure I is a perspective view of a fire alarm box with the door thereof opened showing an embodiment of the operating part of my invention attached thereto;

Figure II is a front elevation of a fire alarm box attached to a pole showing one position for the local signal device of my invention;

Figure III is a front elevation of a fire alarm box with the door thereof removed to show the parts for operating the local alarm system;

Figure IV is an end elevation of the door of the fire alarm box with an embodiment of my invention attached thereto;

Figure V is a wiring diagram;

Figure VI shows an adaptation of the invention to an ordinary door of which a fragmentary view is shown; and

Figure VII is a fragmentary end elevation of the door and mechanism of Figure VI.

As shown on the drawings:

Figures I and II show an ordinary pole I, of

the type commonly used by telephone and power companies, to which a fire alarm signal sending box or station, 2, is attached. The conduit for carrying the wires of the fire alarm system is shown by the reference numeral 3.

The fire alarm box 2 itself does not form a part of my invention and therefore will be described only so far as to show the parts thereof which cooperate with the apparatus of my invention to obtain the ends and purposes pointed out above.

The usual fire alarm box 2 is a rectangular prism as shown in Figures I and II, and is provided with an inner door 4, which together with the top, bottom, sides and back of the box inclose the sending mechanism of the fire alarm system. The door 4 is locked and access to the sending mechanism of the fire alarm can be had only by persons such as firemen and officials of the municipality who are provided with keys for opening door 4.

The door 4 is provided with an elongated slot 5, through which the knob or hook 6 projects. The door 4 is spaced inwardly from the edge of the box and in the usual construction of such sending stations an outer door 7, hinged to the edge of the side of the box 2, as shown at 8, is provided. The outer door 7 has lock 9 with bolt 10 whose purpose it is to keep the door closed.

In the fire alarm box shown the lock 9 is provided with a keyhole 12. In such constructions as this, the key is kept handy to the signal station, so that anyone desiring to make a call for the fire companies can do so. However, in most modern constructions, the lock 9 is operated by a knob projecting from the door, the knob being usually located within a glass fronted compartment. As will later be explained, the knob type lock should not be used with my invention and, therefore, the key type lock should be adopted. This is, however, the only alteration to the fire alarm box that is necessary.

In the fire alarm sending stations, described in the foregoing paragraphs, the person sending in the alarm opens the outer door by means of the knob or the key, as the case may be, and pulls down the hook 6 projecting through the inner door. This pulling down of the hook starts the sending mechanism and causes the alarm to sound in the fire houses or central station. The hook upon being released returns to its normal position shown in Figure I.

In accordance with the improvement of my invention, it is not necessary to open the outer door to send in the alarm, as a knob 13 is provided on the outer door 7 which is mounted on a pintle 14 which is journaled in the door 7. At the inner end of the pintle 14 are mounted a pair of concentric cams 15 and 16. The cams 15 and 16 and the knob 13 are fixedly attached to the pintle 14 so that revolving the knob causes the cams to revolve also. The knob may be fastened with a set screw and the cams attached to the pintle by means of feathers or keys. In the preferred form, the cams are made of metal and formed integral with the pintle or axle 14 and the knob 13 fastened thereto by means of a set screw in the well known manner.

For effecting the sending of the fire alarm, a lever 17 is pivoted, as at 18, to the door 7. The lever 17 is spaced from the door 7 by a block 19 so that one end 20 thereof rests upon the cam 16. The other end 21 of the lever is provided with a recessed portion which rests upon the hook 6 when the door 7 is closed.

The cam 16, as clearly seen in Figures I and III, is provided with a flat edge 22, against which the end 20 of the lever 17 normally rests. From the end of the flat edge 22, the contour of the cam continues to 23 as a circular arc for approximately 180°, next to 24, as an arc of uniformly increasing radius for about 90°, and at 25, as a short circular arc, with a radius equal to the greatest radius of the preceding section and a flat face 26 at right angles to the face 22 completes the cam surface.

As the knob 13 is turned, the cam 16 turns therewith (the cam, as shown in Figure I turns in a counter-clockwise direction) and the end 21 of the lever 17 rides successively on the edges 22, 23, 24 and 25 of the cam. It will be seen from an inspection of Figures I and III that as the cam is turned through an arc of 270°, there is no appreciable movement of the lever 17. But, as the lever hits edge 24, the end 20 of the lever gradually rises with a consequent lowering of the recessed end 21 of the lever. The maximum lowering of the end 21 occurs when the end 20 starts to ride on face 25 of the cam and continues while the cam is turned through an arc of approximately 45°.

The cam 16 is so designed that as the end 20 of the lever 17 is riding on face 25 thereof the other end 21 of the lever will have depressed the hook 6 to the lower end of slot 5 thereby sending in the fire alarm signal.

It will be noted that the signal is not sent in until the cam is turned through an arc of over 300°. This is a feature of the present invention and its importance will be appreciated when viewed in connection with the hereinafter described local alarm system.

When the lever 17 reaches the limit of the face 25 of the cam, the end 20 is free to drop to surface 22 and it is caused to do so by the spring 27, attached at 28 to the door 7, which presses against it. The face 26 of the cam abutting against lever 17 prevents the cam from being turned in the direction opposite to that just described.

In connection with the operating mechanism for the fire alarm signal, I provide a local alarm which, in the embodiment shown in Figure II and illustrated diagrammatically in Figure V, comprises a bell 29 operated in the usual manner by an electromagnet 30. The bell is connected to a source of current 31 which may be a battery or an outside supply. In the latter case the usual transformer 32 is provided in the line to reduce the voltage.

The wiring 33 of the local signal system is led into the box 2 and a terminal 34 is provided which is attached to the door 7 adjacent to the cam 15. This terminal is preferably in the form of a copper coil spring.

The other end of the wiring, 33, is connected to a leaf spring 35 attached at 36 to the door 7. These parts are so located on the door 7 that when the knob 13 and cams 15 and 16 are in normal position, the spring 35 lies along the edge of the cam 15 and is spaced a slight distance from the terminal 34.

The cam 15 is almost circular except that the radius of the arc indicated at 37, in Figure III is slightly less than the radius of the remainder. In the normal inoperative position of the parts the spring 35 lies in this depression but as soon as the cam is turned the spring is forced outwardly against the terminal 34. The terminal 34 is of spring construction to prevent a binding 75

of the parts. It will be seen that any slight turning of the cam 16 will cause the springs 34 and 35 to contact closing the circuit and ringing the signal 29.

5 A tooth 51 is pivotally attached to the door 7, adjacent to the cam 15 and is receivable in a cut 52 in the outer edge of the cam. The tooth 51 is pressed by a spring 53 to force it against the edge of the cam and into the cut 52. The purpose of this tooth 51 is to cause slightly added pressure to be necessary in starting to revolve the knob 13. Therefore, when one revolution of the knob 13 is made the click of tooth 51 entering recess 52 and the slight opposition to further turning of the knob indicate to the operator that the distant alarm is being sent in.

The operation of the double signal apparatus of my invention is apparent from the foregoing description. The person desiring to send in an alarm turns the knob 13 in a clockwise direction according to instructions 54 on the door 7. The cams 15 and 16 are thereby revolved, the cam 15 closing the local alarm circuit the instant the knob is turned from normal position and the cam 16 closing the distant alarm circuit when an almost complete revolution of the knob has been made.

Figures VI and VII show a modification of my invention as applied to an ordinary door. In these views the reference numeral 38 indicates a door. The door is provided with the usual knobs 39 for operating the catch 40 in the usual way. 41 is an axle on which the knobs turn, and mounted on this member 41 is a cam 42 similar in every detail to the cam 15, previously described. The cam is fastened to the member 41 so as to rotate therewith. This may be accomplished by having an axle with a rectangular cross section fitting through a cam with a rectangular opening for receiving it.

The terminals of a signal system similar to that indicated by the numerals 29—33 may be attached to the door. One terminal 34' lies adjacent but spaced from a recess 44 in the cam 42. The other terminal is a spring leaf 35' which rests on and, due to its own resiliency pushes against the cam 42 with its end in the recess 44. Any movement of the door knob causes the cam to push the spring 35' outwardly against the terminal 34' thus sounding the alarm.

My invention, as shown by the examples described above, is a simplified mechanism for sounding an alarm to scare off intruders and tricksters. It can readily be applied to existing alarm stations and doors. The local alarm can be a bell, horn or light and may be located at the operating station or in any nearby place, as a busy street intersection, in a building, or in a police station. It therefore has greater adapt-

ability than any similar devices heretofore used for similar purposes. It is simple to operate and economical and practical to install.

The embodiments of the invention described above and illustrated in the drawings are not to be taken as limitations of my invention, the scope of which is particularly pointed out hereinafter in the claims:

I claim as my invention:

1. An attachment for a fire alarm box of the type having a movable hook for releasing the alarm sending mechanism and an exterior door, which comprises a rotatable member extending through the door, said rotatable member having a handle thereon exterior of the box, a cam having cam surfaces on said rotatable member, a lever attached to the door of the alarm box contacting another of said cam surfaces and adjacent said hook in the normal closed position of the door so that said cam moves said lever to operate said hook to release the alarm mechanism as said handle is turned upon a relatively short turning thereof and a local electrical alarm having a switch adjacent another of said cam surfaces which is closed thereby when said rotatable member is turned, the first said surface upon which said lever rides having a raised portion at the end of a relatively long turning arc for moving said lever to operate the hook, and second surface having a relatively short portion during which said switch is not operated and a relatively long portion during which said switch is operated, and means for maintaining said cam in normal position so that the switch is not operated and the lever does not operate the hook.

2. In combination with a fire alarm sending station including a box having a door thereon and having a hook therein for releasing the alarm mechanism, an electrical local alarm circuit having an alarm device in the vicinity of said box and a switch within said box, a rotatable member extending through the door of said box having a handle thereon exterior of the box, a lever mounted on the door of the box in a position to contact the alarm sending hook, a pair of cams fixedly mounted on said rotatable member to turn therewith, said cams having cam surfaces upon which the switch and levers, respectively, ride, one of said cams having a cam surface lying adjacent to the switch and being so proportioned as to contact and close said switch immediately upon the turning of said handle and said other cam having a cam surface located adjacent to said lever when the door of the alarm box is in normal closed position and being so proportioned as to cause said lever to pull the alarm hook when said handle has been rotated through approximately 300°.

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