Oct. 4, 1960 J. J. BOYLE ET AL 2,955,282

ALARM SYSTEM

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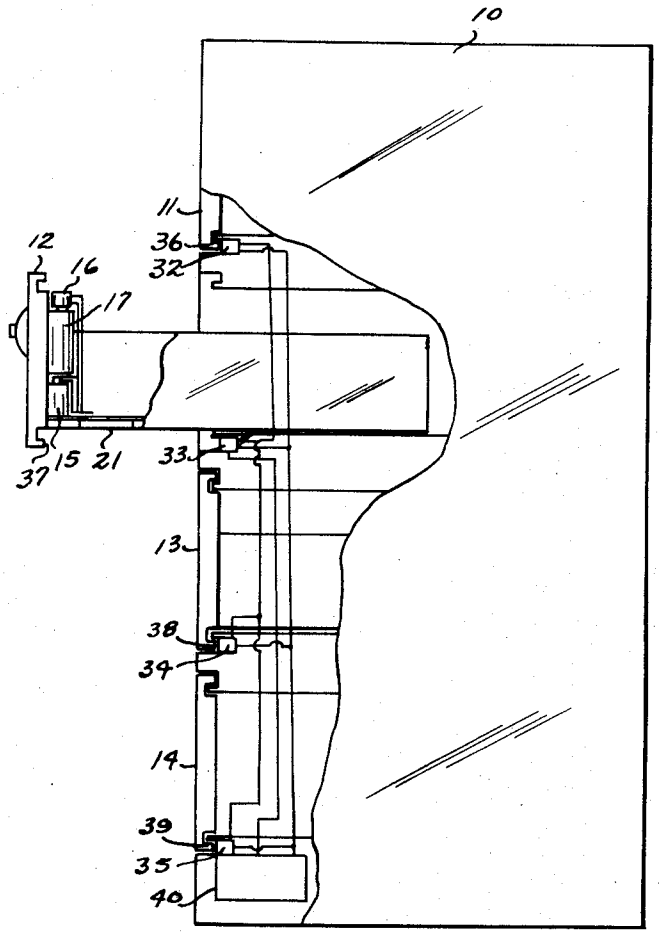


Fig-1

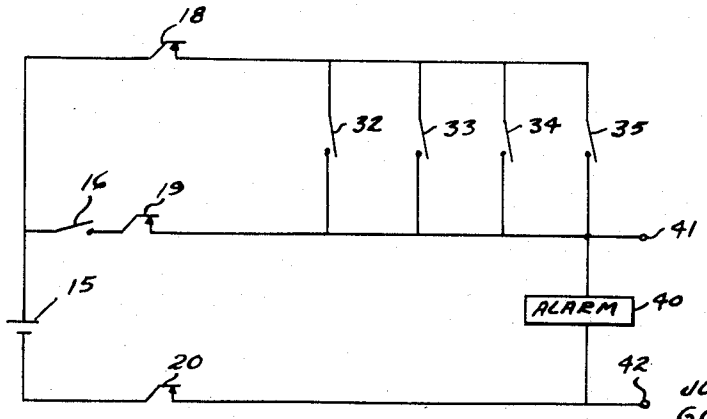


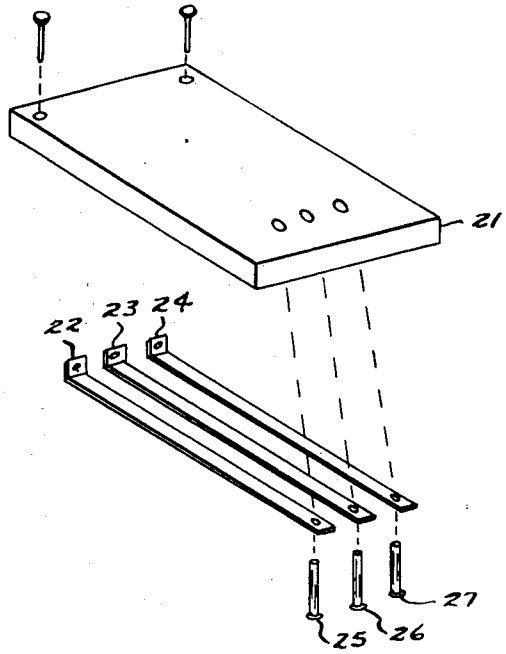
Fig-2

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ALARM SYSTEM

Filed Sept. 19, 1957 2 Sheets-Sheet 2



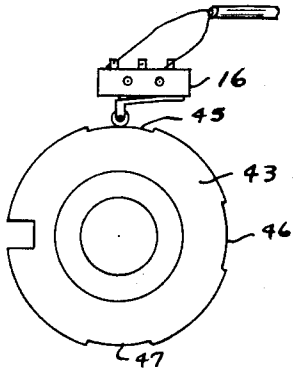


Fig-3

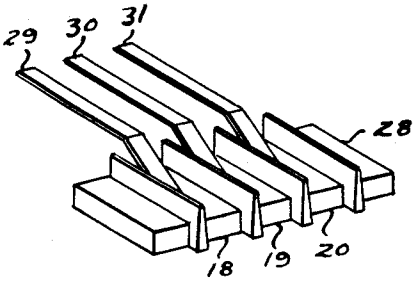


Fig-4

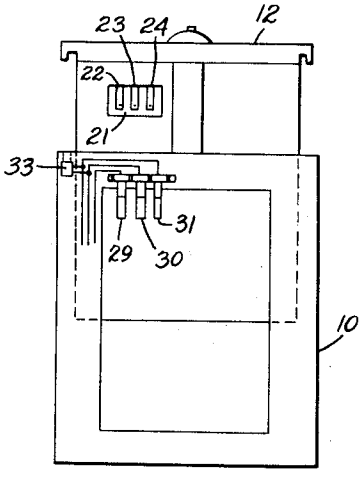


Fig-5

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ALARM SYSTEM

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2 Claims. (Cl. 340—274)

(Granted under Title 35, U.S. Code (1952), sec. 266)

The invention described herein may be manufactured and used by or for the United States Government for governmental purposes without payment to us of any royalty thereon.

This invention relates to an electrical alarm system for safes or other drawer type cabinets.

One object of the invention is to provide an alarm system for indicating the tampering with drawers or locks of a cabinet.

Another object is to provide a device for indicating if a drawer of a safe has been left open or if the combination has not been completely cleared.

These and other objects will be best understood from the following description when read in conjunction with the accompanying drawing in which:

Fig. 1 is a view of a safe partially cut away to show how the alarm system is applied thereto.

Fig. 2 is a circuit schematic of the alarm system of Fig. 1.

Fig. 3 shows one of the lock discs together with a switch which is controlled thereby.

Fig. 4 is an exploded view of the sliding contact switches of Fig. 1.

Fig. 5 is a schematic view of the bottom of the drawer containing the power supply which shows the approximate location of the sliding contact switches.

Referring more particularly to Fig. 1, reference numeral **10** refers to the safe to which the invention is applied. The safe illustrated has four drawers **11**, **12**, **13** and **14**. Drawer **12** has a power supply **15** located therein. A sensitive switch **16** which may be a snap action switch or any other type of fast acting switch is located adjacent the lock **17** and is controlled by the disc in the combination lock which is last to clear when the lock combination is cleared. Switch **16** is located adjacent to this disc **43** in the manner shown in Fig. 3. A notch **45** is provided in the disc **43** and this notch controls the operation of switch **16**. A plurality of false notches such as shown at **46** and **47** may be provided in the disc **43** if desired to avoid the possibility of giving away one of the numbers of the combination. Switch **16** is connected to the electrical circuit as shown in Fig. 2. Three sliding contact switches **18**, **19** and **20** are provided to transfer the electrical energy from the drawer to the stationary portion of the safe. These contacts also serve the purpose of opening the alarm circuit when drawer **12** is open. These switches are shown in the exploded view of Fig. 4. A member **21** is located on the bottom of drawer **12** as shown in Fig. 1 and has contact strips **22**, **23** and **24** located on the bottom thereof. Electrical contact is made to these strips by means of electrical connectors **25**, **26** and **27**. A member **28** is located adjacent to drawer **12** on the stationary portion of the safe and has spring contact members **29**, **30** and **31** which make contact with strips **22**, **23** and **24** to connect the portion of the circuit within

the drawer to the rest of the circuit in the manner shown in Fig. 2. A plurality of sensitive switches **32**, **33**, **34** and **35** which may also be snap action or other type of fast acting switches are located adjacent to the drawers on the stationary portion of the safe so as to contact fire seal ridges **36**, **37**, **38** and **39** which operate these switches to open the circuit when the drawers are closed. If one of the drawers is left open the corresponding switch will be closed thereby closing the circuit between power supply **15** and an alarm **40** as can be seen from Fig. 2. Alarm **40** will be operated if any one of the switches **16**, **32**, **33**, **34** or **35** is closed. A pair of leads **41** and **42** are provided so that a second alarm located at some remote point, such as a central control board, may be connected thereto. It is obvious that three pole switches could be used for switches **16**, **32**, **33**, **34** and **35** and a separate circuit to the remote alarm could be provided. The alarm system of this invention is a positive type system. An alarm is provided by this system at all times except when either the safe is completely closed and the lock is completely cleared or when the drawer containing the power supply is open a sufficient amount to break the circuit between the power supply and the alarm. There is no other switch provided in the circuit for breaking the circuit except the switches **16**, **32**, **33**, **34** and **35**.

There is thus provided a device for indicating when anyone is tampering with the lock or drawers on a safe or for indicating if a drawer has inadvertently been left open or if the combination has not been completely cleared.

While one specific embodiment has been described, it is obvious that numerous changes may be made without departing from the general principles and scope of the invention.

We claim:

1. A device for indicating when any one of a plurality of safe drawers, which are at least substantially closed, is not completely closed or when the lock combination of the safe is not completely cleared, comprising: a power supply located within the drawer having the lock thereon, means mounted adjacent said lock for sensing when said lock is not completely cleared, an alarm located within said safe on the stationary portion thereof, a plurality of sliding contact switches mounted on said drawer and located in the circuit between said power supply and said alarm for opening the circuit when the drawer is fully open and for connecting said sensing means and said power supply to said alarm when said drawer is partially closed or completely closed, means adjacent to each of the drawers of said safe for sensing when the fire seals are not tightly closed, said sensing means being a plurality of sensitive snap-action switches connected in parallel and having their first poles connected to said power supply and their second pole connected to said alarm for closing the circuit when a drawer is left open or when the combination is not completely cleared.

2. A device for indicating when any one of a plurality of safe drawers, which are at least substantially closed, is not completely closed or when the lock combination of the safe is not completely cleared, comprising: an indicating device, a power supply located within one of said drawers, means mounted adjacent said lock for sensing when said lock is not completely cleared, means adjacent to each of the drawers of said safe for sensing when the fire seals are not tightly closed, said sensing means being a plurality of sensitive snap-action switches connected in parallel and having their first poles con-

nected to said power supply and their second pole connected to said alarm for closing the circuit when a drawer is left open or when the combination is not completely cleared, and a plurality of sliding contact switches mounted on the drawer containing said power supply and connected in the circuit between said power supply and said indicating device for opening the circuit when the drawer containing the power supply is fully open and for connecting said power supply to said indicating device through said sensing means when the drawer is partially closed or completely closed.

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