Jan. 25, 1955 A. STEGMAN 2,700,360

DEVICE FOR DETECTING UNAUTHORIZED OPENING OF DRAWERS

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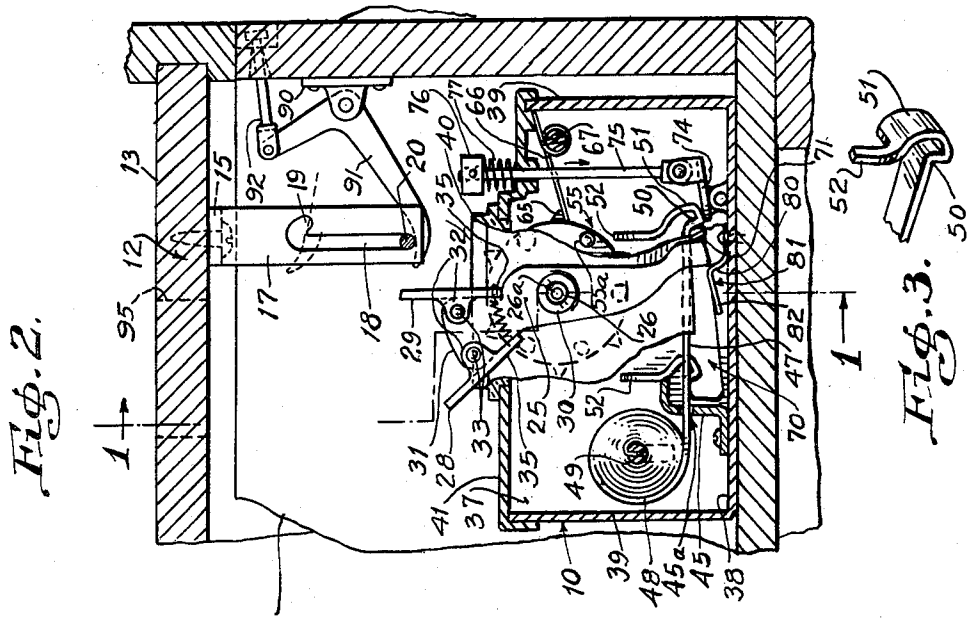


Fig. 2.

Fig. 3.

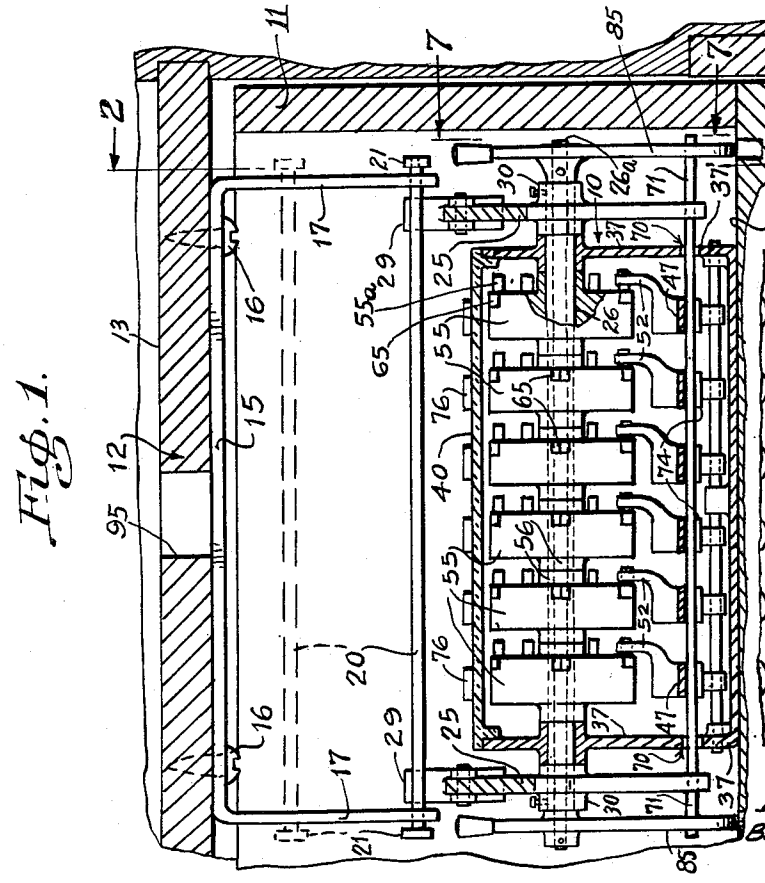


Fig. 1.

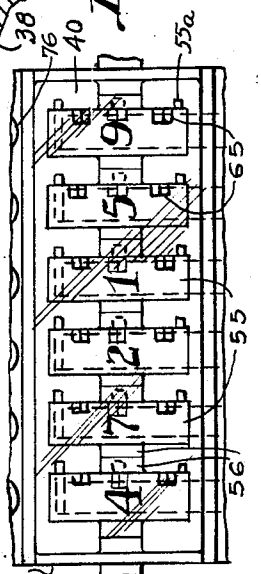


Fig. 4.

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DEVICE FOR DETECTING UNAUTHORIZED OPENING OF DRAWERS

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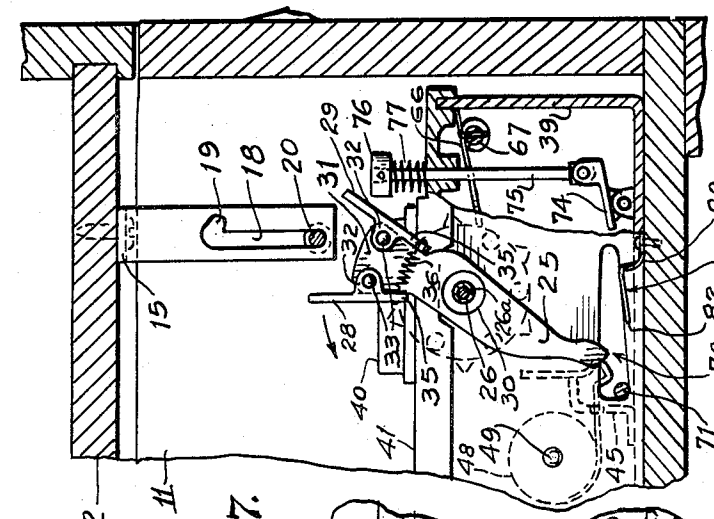


Fig. 6.

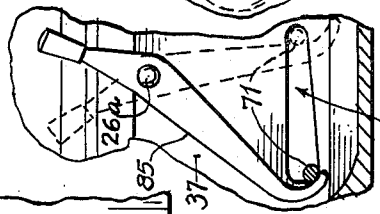


Fig. 7.

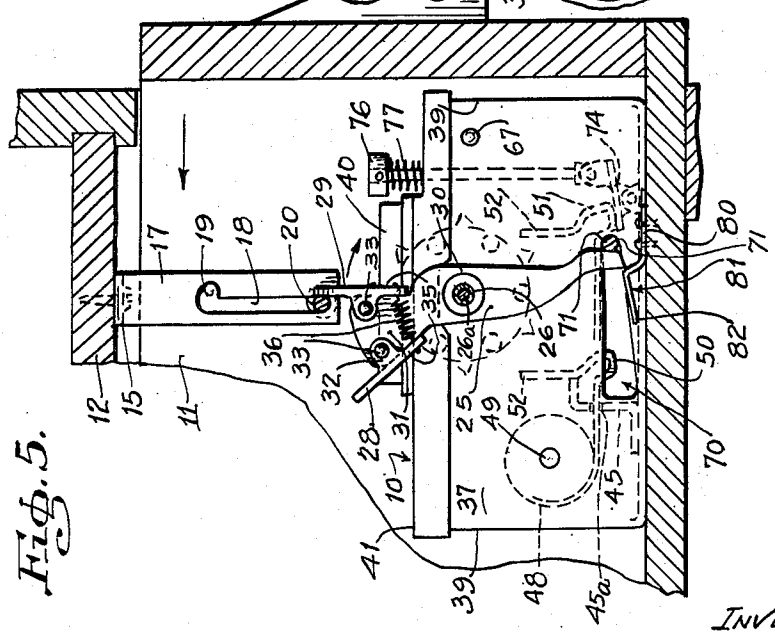


Fig. 5.

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DEVICE FOR DETECTING UNAUTHORIZED OPENING OF DRAWERS

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5 Claims. (Cl. 116—76)

This invention relates to a device for detecting the unauthorized opening of drawers.

More specifically, the present inention pvertains to a mechanism which is interiorly attachable to a slidable drawer, said mechanism comprising a set of movable indicators, individually adjustable to pre-set, indicated positions, which positions will be changed if the drawer is moved to an open position; thus enabling a person authorized to use the drawer to detect any unauthorized opening thereof.

If desired, the device may be adjusted to an inoperative condition wherein it will not be affected by opening and closing the drawer in which it is installed, and it is one of the objects of the invention to provide an improved means for effecting such an adjustment.

The device may be so designed as to be used on trunks, suitcases and doors to detect their unauthorized opening.

Other objects, advantages and features of invention will hereinafter appear.

Referring to the accompanying drawings, illustrative of a preferred embodiment of the invention,

Fig. 1 is a vertical midsection of the device, except that some parts near the plane of section are shown in elevation, the sectioned portion of the view being on line 1—1 of Fig. 2. This view includes a fragment of the drawer in which the device is mounted.

Fig. 2 is a vertical section on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary perspective view of one of the strikers which act upon and moves the pre-set indicators, thus indicating that the drawer has been opened.

Fig. 4 is a fragmentary plan view looking down through the glass cover shown in Fig. 1.

Fig. 5 is also a fragmentary vertical section on line 2—2 of Fig. 1, with the drawer partially open, with parts positioned differently from Fig. 2.

Fig. 6 is a reproduction of Fig. 5 except that different operative position is shown, and parts positioned differently.

Fig. 7 is a fragmentary view, partly in section and partly in elevation, illustrating the operation of the resetting lever.

Referring in detail to the drawing, the device is shown contained in a casing **10** which, in turn is mounted inside one of the lower corner portions of a drawer **11** forming a part of a desk or piece of furniture **12** having a wall portion **13** overlying said drawer. Said wall **13** has secured to its lower side a strap metal bar **15** which is of an inverted U-shape, two screws **16**, one near each end of the central run of said bar, being shown as the securing means.

The downwardly directed end arms **17** of said bar **15** are each longitudinally slotted with a slot **18** which is hook shaped at its upper end, thus providing each slot with a downwardly directed upper end portion **19**. A horizontal rod **20**, with a head **21** at each end, has its end portions vertically slidable in said slots. Owing to the closed character of the slot and the fact that the headed rod ends are wider than the slot the rod will not become detached from the slotted arms **17** although it may be vertically adjusted along said arms so as to rest either in the lower end of the body portion of the slot or in the lower end of the hook-forming portion **19** of the slot.

When said rod **20** is adjusted to its down position, as shown in full lines in the views where it appears, it is in an operative relation to a pair of elongated rockable

members **25** which rock with a tubular shaft **26** to an end portion of which each of them is secured at about its midlength. Said tubular shaft **26** is turnably carried by the casing walls mentioned later, and affords a bearing for a longer inner shaft **26***a*. During their rocking movements said members **25** at all times extend upwardly and downwardly, so that a pair of swingable operating plates **28** and **29** carried by the upper end portion of each of them are positioned to be acted upon by the aforesaid rod **20** when the drawer is opened and closed, assuming that said rod is adjusted to its down position.

Said swingable operating plate **28** is spring and stop controlled in such a manner that if it strikes the rod **20** during the opening movement of the drawer (see Fig. 6), it will rock the member **25**, but during the following closing movement of the drawer will glide under said rod without swinging said member **25**; and the plate **29** is so stop and spring controlled that (see Fig. 5), when the drawer is opened it will rock the member **25**, but will glide under said rod during the following closing movement of the drawer.

Each said member **25** consists of an elongated plate having a hub **30** which is fixed to the tubular rock shaft **26** and having a broadened part or head **31** at its upper end, each plate (**28** or **29**) having a pair of ears **32** which straddle an edge portion of said head and are pivoted thereto by a pin **33**. Each of the plates of each said pair of operating plates has a heel portion **35** which at times abuts the adjacent part of the head **31** to limit the outswing of the plate, and a tension spring **36** connects the heel portions of each of said pair so as normally to maintain said heel portions abutting said heads.

The aforesaid sheet metal casing **10** has end walls **37** which afford bearings for said rock shaft **26**, said walls **37** upstanding from the floor **38** of said casing, which also has end walls **39**. The box like structure thus provided has its otherwise open top closed by a transparent cover **40**, in combination with a lid **41**.

In the lower part of each end wall **37** of the casing **10** is a nearly horizontal slot **70** and in these slots are slidably mounted the end portions of a laterally movable rod **71** normally held in a forwardly adjusted position by the lower end portion of the aforesaid two rockable members **25**. Normally the downwardly directed heel **50** of each aforesaid spring arm **47** is hooked over said rod **71** and thus is held against retraction, the spring arm of which said heel is a part. Each said spring arm is releasable from this position by means of a treadle **74** pivotally mounted upon the floor of the casing **10** and manually operable by means of a vertical rod **75** the upper end of which projects slidably through the cover member of the casing and carries an operating key **76**, the rod normally being held at the upper limit of its movement by a compression spring **77** under said key.

A weak leaf spring **80** is positioned in the path of the lower end of each of the aforesaid rockable members **25**, each of these springs having a latching shoulder **81** at times to prevent the rearward swing of the member **25** with which it is associated. Also each of these springs has a rearwardly directed inclined end portion **82** up over which the lower end of the adjacent rockable member may glide in moving to its latched position.

Said springs **80** are strong enough to withstand the retracting force of the spring coil **48**, but are not so strong as to hinder opening and closing the drawer causing the rod **20** to act upon and rock the rockable member **25**.

A horizontal, angular as to cross section, bearing bar **45** is shown secured to the floor **38** extending lengthwise thereof, and said bearing bar is provided with a slotted part **45***a* to hold a horizontal series of spring arms **47** in alinement. Said bearing bar upstands sufficiently from the floor to guide and support, spaced above said floor, said series of arms **47**, each of which is an extension of a spring coil **48** constructed like a coiled clock spring and anchored to a shaft **49** supported by the casing **10**. Each of said spring arms **47** extends slidably through said slot **45***a* and is thus supported in a substantially horizontal position. The free end portion of each of these spring arms is best shown in Fig. 2, from which view it will be seen that the free end portion of the arm is slightly down-

bent at 50 and is then upbent with a run 51 furnished at one side of the arm with an upwardly directed finger 52.

Upon the aforesaid shaft 26 is mounted a row of peripherally indexed wheels 55 provided with abutting hub portions 56 which equally space apart the body portions of said wheels.

In order to cause said wheels 55 to stop at various definite positions after having been given spinning movements, as described later, each wheel is provided with a series of peripherally projecting, circumferentially spaced apart, pointed lugs 65, see Fig. 2 (six of these being shown on each wheel), and a leaf spring 66 is provided to co-operate with each wheel. A part of each said spring 66 is coiled around a mounting rod 67, and its downwardly inclined free end portion is operatively related to said lugs 65.

Each of said wheels 55 carries a series of circumferentially spaced apart, laterally projecting pins 55*a* upon which the aforesaid upwardly directed spring fingers 52 act to spin said wheels 55 in the manner later described.

As shown in Fig. 2, there is provided a device for adjusting the overhead bar 20. This device comprises a supporting bracket 90 positioned internally of the front side of the drawer, a bell crank 91 having an upper and a lower arm, the angular portion of said member 91 being swingably connected to said bracket. There is also provided a slidable push bar 92 having a front end portion projecting forwardly of the drawer. Said rod 92 has its rear end pivotally connected to the upper end of the upper arm of said bell crank. Said rod 92 is normally held in a retracted position by means of a coiled compression spring 93. Also a fingerhole 95 is provided in the furniture 12 above the front part of the recess for the drawer to afford manual access to the bar 20, if that becomes necessary.

With the parts in the position shown in Fig. 2, if it is desired to close the drawer with the rockable member 25 in the position shown, the rod 92 will be pulled out, thus raising the rod 20 out of the path of the plates 29, for example, to the mid-height position shown in dotted lines. Then the drawer may be closed without disturbing the pre-set condition, already described, as shown in Figs. 2 and 5.

In the operation of the drawer it is so adjusted as to afford access to the two levers 85 which are mechanically united by a shaft 26*a* (within sleeve shaft 26), to which they are rigidly secured so as to swing together, the operator will swing said levers to the dotted line position of Fig. 7, thus causing the rod 71 to move to the forward, set position shown in dotted lines in said view, and shown in full lines in Fig. 5, so that said rod 71 is at the front end of each slot 70, in which position it maintains the spring arms 47, together with their fingers 57 in the forward position, doing this in opposition to the coiled springs 48.

Now, in order to release the desired selected spring arms 47 the operator will depress the desired proper keys 76, thus causing the treadles 74 to raise and release the shoulders 50 (see Fig. 3), from the rod 71. Upon this operation being performed the fingers 52 of the released spring will, in their rearward movements strike against the pins 55*a* and spin the wheel 55 associated with each released spring arm 47, so that the remaining, undisturbed wheels 55 will remain undisturbed in the positions they were in when the drawer is closed. The numbers displayed by these undisturbed wheels will be recorded, and the operating bar 20 will then be adjusted in its down position.

If, with the indicating wheels 55 in the position which has just been described, the drawer is opened and closed by some unauthorized person, the overhead bar 20 will act upon the plates or arms 29 of the undisturbed wheels 55 (along with acting upon the other wheels 55), and will thus force the lower end portions of the rockable members 25 rearwardly over the weak springs 81, whereupon the bar 71, till then engaged by the shoulders 50 (see Fig. 3), will release the spring arms 47, whereupon the aforesaid fingers 52 will spin only the wheels (considered the "set" wheels), which were not released as aforesaid. Therefore the aforesaid wheels which were not allowed to spin (of which a record was made), will be disarranged and will present random numbers, rather than the recorded numbers, thus clearly indicating that the drawer has been opened by some unauthorized person.

In Fig. 4 is shown a code number consisting of numerals 4, 7, 2, 1, 5 and 9. These code numbers will be used in the presetting and recording proceedings which have been mentioned. The glass cover section 40 is removable, thus providing for manually presetting the selected wheels 55 so that the desired numerals will appear on their upper sides.

I claim:

1. In a device of the kind described, a casing attached interiorly to a conventional slidable drawer, a horizontal turnable shaft mounted in said casing upwardly spaced from the bottom thereof, a series of peripherally indexed wheels turnably mounted on said shaft, each of said wheels being provided with a peripheral series of lateral operating projections, a pair of rockable members one mounted on one end portion of said shaft and the other on the opposite end portion thereof to rock about said shaft as an axis, said series of wheels being located between said rockable members, a laterally movable horizontal rod carried by said casing subjacent to said series of wheels, and extending parallel to the axis about which said wheels turn, each end portion of said rod being in the path of the lower part of the rockable member at its side of the structure and between said rockable member and the front end of the drawer, the upper part of said rockable member consisting of a pair of upwardly directed arms which are spaced apart from front to rear in relation to the drawer, a horizontal operating rod carried by the article of furniture of which said drawer forms a part, said operating rod normally being in the path of the said arms of said rockable members to rock them when the drawer is operated, a forwardly and rearwardly extending substantially horizontal longitudinally reciprocatory arm located below each of said wheels, each of said reciprocatory arms carrying at its front end an upwardly projecting finger positioned to act upon the aforesaid operating projections of the wheel thereabove when such arm moves rearwardly, a common mounting means for said reciprocatory arms carried by the casing, spring means mounted in the casing tending to react each of said reciprocatory arms thus to cause its finger to act as aforesaid upon a lateral projection of the wheel with which the arm is associated and spin the wheel to a different undeterminate position; each of said reciprocatory arms carrying subjacent to its said finger a heel which in the forward position of the arm is latched by the aforesaid rod which is located below the wheels, a spring catch carried by the casing in a co-operative relation to the last mentioned rod to prevent its premature retraction by the aforesaid spring retracted arms, and key operable means operatively connected with each spring retracted arm to release its said heel carrying end from the last recited rod.

2. In a device of the kind described, mounting means attached interiorly to a conventional slidable drawer; a horizontal shaft carried by said mounting means, a series of peripherally indexed wheels mounted on said shaft and rotatable thereon independently of each other, an overhead horizontal rod carried by the piece of furniture in which the drawer slides, said rod being located in the upper part of the space within the drawer and being manually vertically adjustable from a lower to a higher position and vice versa, and a mechanism carried by the aforesaid mounting means and operated by said rod only in its lower adjusted position to spin the aforesaid wheels to random rotational positions when the drawer is opened and closed, said mechanism comprising a pair of rockable members, one mounted on one end portion of said shaft and the other on the opposite end portion thereof to rock about said shaft as an axis, said series of wheels being located between said rockable members, a pair of arms swingably carried by the upper end portion of at least one of said rockable members, each of the arms of said pair being forwardly and rearwardly swingable in relation to the rockable member carrying them, spring means connected to the arms of said pair to restore the arms to normal position after being swung, stop means carried by said rockable members in a position to arrest the swing of said arms when they reach their normal positions; a releasable manually settable, spring actuated means mounted in the aforesaid casing in an operative relation to said wheels, when released to spin them to indefinite positions, and releasing means operable by said swingable members to release said releasing means when the drawer is opened.

3. The subject matter of claim 2, and said manually settable means being manually operable so to adjust said spring actuated means that selected indexed wheels of said series will not have their rotational positions disturbed by opening and closing the drawer.

4. The subject matter of claim 2, and the means whereby the article of furniture carries said rod comprising two horizontally spaced apart arms in each of which is a vertical slot slidably containing an end portion of said arm, each said slot having a downwardly directed upper end portion to support said rod in its upper position.

5. In a device of the kind described, mounting means attached interiorly to a conventional slidable drawer, a horizontal sleeve shaft carried by said mounting means, a series of peripherally indexed wheels turnably mounted on said shaft, each of said wheels being provided with a peripheral series of operating projections, an upwardly and downwardly extending rockable member secured to each end portion of said shaft to rock with said shaft, said series of wheels being located between said rockable members, a laterally movable horizontal rod carried by said casing subjacent to said series of wheels and extending parallel to the axis about which said wheels turn, each end portion of said rod being in the path of the lower part of the rockable member at its side of the structure and between said rockable member and the front end of the drawer, a pair of arms swingably carried by the upper end portion of at least one of said rockable members, each of the arms of said pair being

forwardly and rearwardly swingable in relation to the rockable member carrying them, spring means connected to the arms of said pair to restore the arms to normal positions after being swung, stop means carried by said rockable member in a position to arrest the swing of said arms when they reach their said normal positions, a horizontal operating rod carried by the article of furniture of which the drawer forms a part, said rod being normally in the path of the aforesaid swingable arms carried by a said rockable member to rock the rocking members when the drawer is given an opening and a closing movement, a spring retracted means mounted within the drawer and operatively connected with said indexed wheels at times to spin them to random positions, said spring retracted means being released by said rockable members when the drawer is opened and closed, an inside shaft turnably contained within the aforesaid sleeve shaft and having its end portions projecting from the ends of the latter, and a manually operable lever carried by each said projecting shaft portion, said levers being operable to restore said spring retracted means to normal position.

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