June 26, 1962 R. J. CHARLES 3,041,594

BABY GUARD

Filed Dec. 26, 1957 3 Sheets-Sheet 1

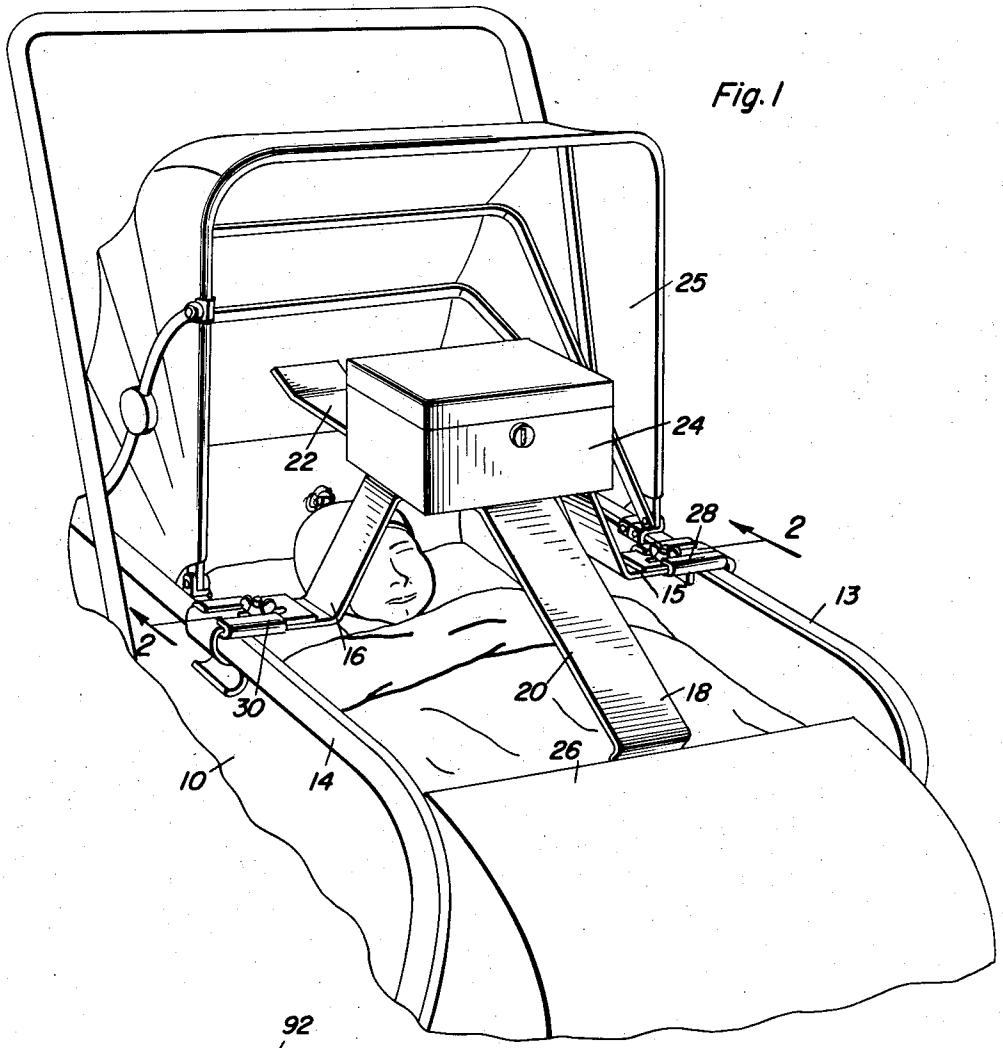


Fig. 1

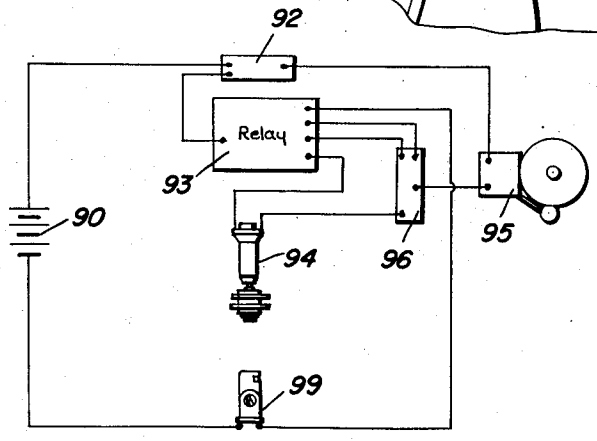


Fig. 8

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June 26, 1962 R. J. CHARLES 3,041,594

BABY GUARD

Filed Dec. 26, 1957 3 Sheets-Sheet 2

Fig. 2

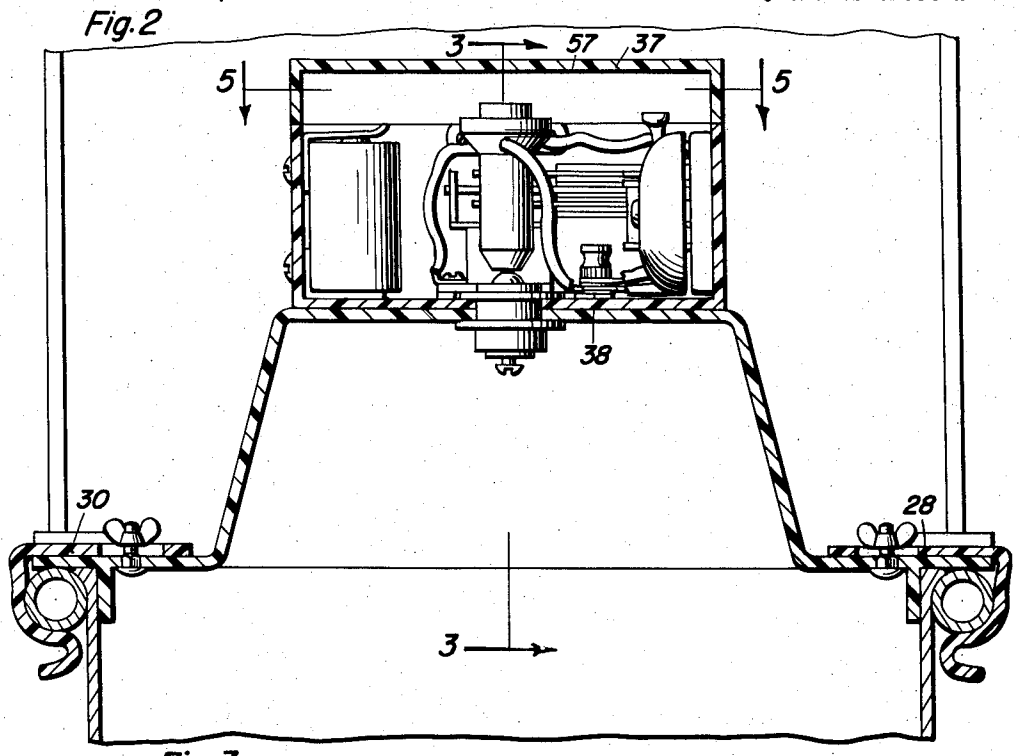


Fig. 3

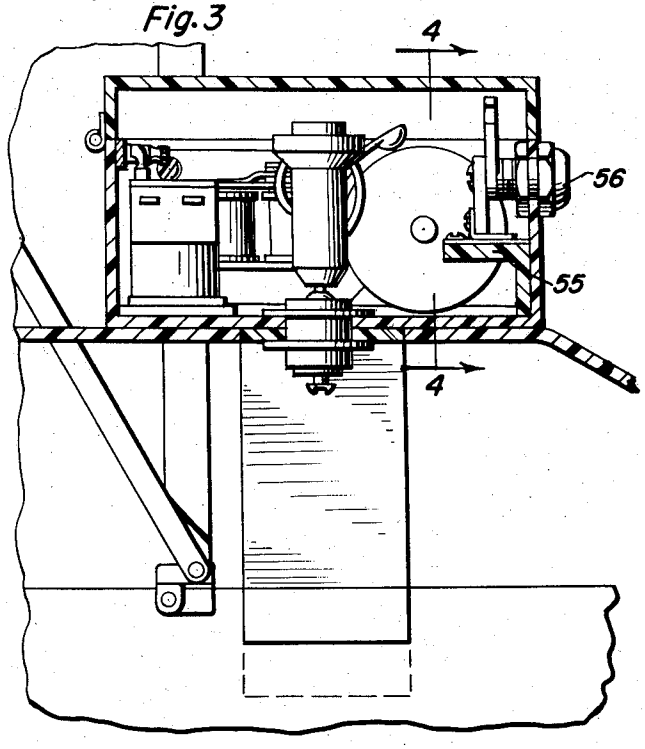
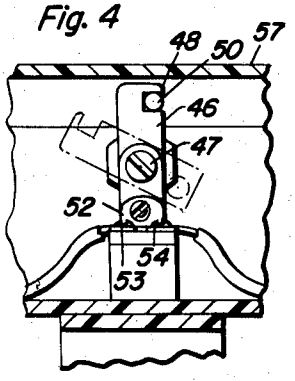


Fig. 4



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June 26, 1962 R. J. CHARLES 3,041,594

BABY GUARD

Filed Dec. 26, 1957 3 Sheets-Sheet 3

Fig. 5

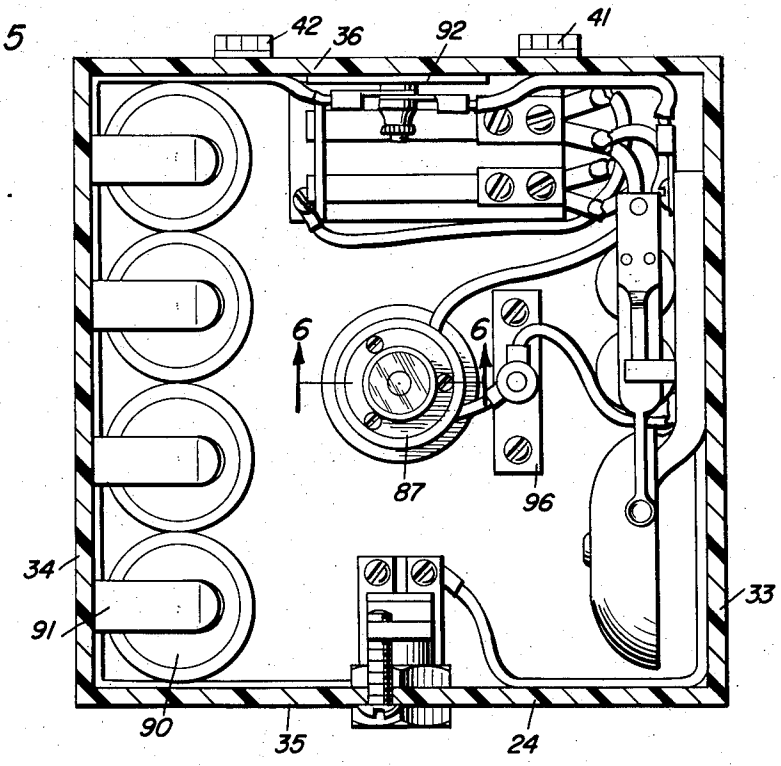


Fig. 6

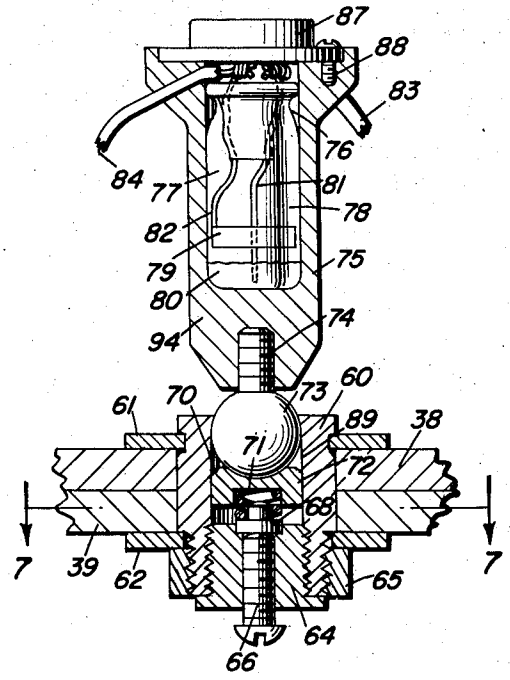
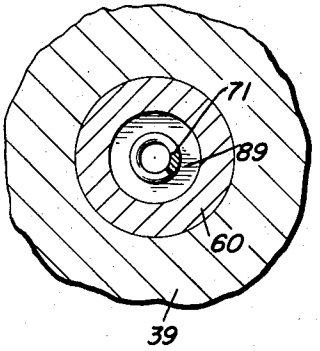


Fig. 7



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3,041,594

BABY GUARD

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Filed Dec. 26, 1957, Ser. No. 705,398
4 Claims. (Cl. 340—283)

This invention relates to a protective device.

An object of the present invention is to provide a device for signalling in response to movement of a sensory structure that is especially adapted for mounting over a baby carriage thereby providing protection for the baby in the carriage, stroller, etc.

Although the principal application of my invention is considered to be, at the present time, as a safety device for babies in perambulators of one type or another, there are other uses of my invention. The sensory structure is designed in a casing and yields an intensive audible signal in response to the disturbance of a particular set position of the casing. There are means in my safety device for compensating for angularity, as when the carriage is stopped on a hill. The referenced position of the sensory structure is changeable to meet the particular needs at the time that the signal device is used.

In brief, the sensory structure of the invention is mounted in a convenient casing with a door or closure of one type or another, that locks with a key-controlled lock. The electric circuit in the casing has a specially designed mercury switch which closes when the box is tilted. This operates a holding relay which energizes a bell and it continues to ring until the key-controlled lock is opened and the door or closure is also opened. This is the only way that the circuit can be re-set. This avoids the possibility of an intruder tilting the sensory device and then quickly returning it to the level position with only a short signal being yielded. My invention is so arranged that the bell continues to ring until someone in possession of the key of the lock appears to open the closure. This is a considerable improvement over other signal devices of which I am aware and of which I have been made aware.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of a device which exemplifies my invention, the device mounted on a conventional carriage in the suggested location.

FIGURE 2 is a sectional view taken on the line 2—2 of FIGURE 1.

FIGURE 3 is a sectional view taken on the line 3—3 of FIGURE 2.

FIGURE 4 is a sectional view of the lock and latch which holds the closure or door in a locked position and at the same time functions as a switch.

FIGURE 5 is a sectional view taken on the line 5—5 of FIGURE 2.

FIGURE 6 is an enlarged sectional view taken on the line 6—6 of FIGURE 5 and showing principally the mercury switch and the mounting means for the switch.

FIGURE 7 is a transverse sectional view taken on the line 7—7 of FIGURE 6.

FIGURE 8 is a schematic wiring diagram showing the circuit of the signalling device.

In the accompanying drawings there is a baby carriage **10** which schematically represents any type of carriage, perambulator, stroller, etc. within which a small child would be located. The carriage has sides **13** and **14** to which the arms **15** and **16** of support **18** are secured. The other arms **20** and **22** are attached to the casing **24**, as are arms **15** and **16**, and contact the hood **25** and the foot **26** of the carriage. The arms **15**, **16**, **20** and **22** are flat and elongated with arms **15** and **16** having adjustable clamps **28** and **30** thereon firmly attaching them to the sides **13** and **14** of the carriage. Arms **20** and **22** merely contact the carriage foot **26** and hood **25** respectively in order to transmit motion to the casing **24**.

The casing **24** is mounted directly above the baby in the carriage and the four arms that are at approximately right angles to each other, form a protective covering for the child so that the child cannot be fitted between the arms. Accordingly, the only way to remove the child, in the absence of breaking the carriage, would be to disturb the casing **24**. The casing houses sensory structure which detects or senses the tilting of the casing and yields a signal that is quite loud and which is carried over a long duration.

The casing **24** has four side walls **33**, **34**, **35** and **36** with the upper portions thereof attached to cover panel **37** and the lower edges thereof attached to the bottom **38**. The sides are each formed in two pieces so that the upper parts thereof cooperate with the top panel **37** that is hinged as at **41** and **42**, to the lower portion of the backwall **36**. Accordingly, the entire top of the casing functions as a closure or door because it can be hingedly opened and hingedly closed. When closed, it is latched by latch **46**. This latch consists of a plate which is mounted on a pivot **47** between its upper and lower ends and which has a notch **48** near its upper end engageable with latch pin **50**. The latch pin is carried by a wall of the closure **51**. The lower end of the arm **46** has a contact **52** which touches fixed contacts **53** and **54** thereby bridging them. Fixed contacts **53** and **54** are mounted on a support **55** that is located in the casing **24**. A key controlled lock **56** of conventional construction, is carried by the front wall of the casing and has the pivot **47** attached to the moving part of the lock, usually the barrel.

The bottom wall **38** of the casing has a sleeve **60** locked with upper and lower washers **61** and **62** on the upper surface of bottom wall **38** and the bottom surface of the junction portion **39** of the four arms **15**, **16**, **20** and **22**. The lower end of the sleeve **60** is threaded to accept hollow plug **64** and nut **65** that actually locks the sleeve in place. The hollow plug **64** has a bolt **66** threaded in it and the inner end of the plug accommodates a plunger **68** that is vertically adjustable by adjusting screw **66**. A coil spring **71** is on the reduced end of plunger **68** and fits in a well **71** in seat member **72**. The upper part of the seat member **72** is dished to accept the ball **73**. Stud **74** extends from the upper end of the ball and it is threaded in the receptacle **75**. The receptacle has a cavity **76** within which a mercury switch **77** is disposed. As shown in FIGURE 6, the mercury switch is made of a glass envelope **78** that has a ring **79** of conductive material located in it but spaced from the pool of mercury **80** in the bottom of the envelope. One contacting wire **81** extends through the sealed top of the envelope and through the area circumscribed by the ring **79** and is partially immersed in the mercury **80**. The other contact **82** is attached to the ring and passes through an opening in the sealed upper end of the envelope. Lead wires **83** and **84** are soldered or otherwise joined to the conductors **81** and **82** and pass through openings in the receptacle **75**.

A 360° level **87** is connected by bolts **88** to the top part of the receptacle **75** and is inspected in setting the mercury switch. The operation of the mercury switch is deemed apparent from inspection of FIGURE 6. It is capable of being moved to any position with the ball **73** forming a swivel connection or universal joint in that

a part of its upper surface is held captive in the socket **89** formed by the cavity within which the seat member **72** is operable.

The remainder of the necessary parts for my safety device consists of one or more batteries **90** in battery holders **91**. These are carried by the casing on the inside thereof as are all of the other operative elements. They provide energy to the terminal strip **92** that is carried by the casing, from which the latching relay **93** is energized. This latching relay is of standard form, having been purchased, and is controlled by the tilt responsive switch **94** (see FIGURE 6). Bell **95** has been selected as the means of providing an audible signal, and it is wired to the terminal block **92** and to terminal block **96**, as is the switch **94** and latching relay **93**. The switch is key controlled and wired serially with the battery so that the circuit is not broken until such time that the closure is open. The key is required to do this. As shown in FIGURE 8, when the switch **94** becomes closed, current can flow to the latching relay and holds it. The switch of the latching relay closes the circuit of the bell **95** and it continues to ring. Since this circuit is isolated from the circuitry of the switch **94**, the return of the switch **94** to the upright position will not stop the bells ringing. Instead, the main circuit has to be opened by opening switch **99** which is controlled by the key of lock **56**.

It is understood that various changes may be made without departing from the claimed invention. Among these are the miniaturization of the entire casing and its contents. Four dry cell batteries are shown in the battery holders **91**, but these could be omitted for a hearing aid battery or some other kind of battery. The same holds true for many of the elements. Moreover, the device need not be exclusively used with the detection of intruders of the privacy of children. This invention is not restricted to a single use where kidnapping is thwarted, but may be used in connection with any animate or inanimate object whose movement is to be signalled. With the four arms **15**, **16**, **20** and **22** detached, the safety device can be placed almost anywhere to guard almost anything by producing a signal in response to unauthorized movement. Many minor attachments can be made for or to take the place of the arms to accommodate the article that is being protected.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A safety device for signalling unauthorized tampering with an animate or inanimate object comprising a casing, support arms radially extending from said casing for supporting same, an alarm means enclosed in said casing and movable in response to tilting of said casing, said alarm means comprising a series circuit including an alarm device, a source of electrical energy and a tilt responsive gravity operated switch, means swivelly mounting said switch within said casing, and means connecting a holding relay to said series circuit maintaining said alarm device energized subsequent to the closing and opening of said switch.

2. A safety device as defined in claim 1 wherein said means swivelly mounting said switch includes a universal joint having adjustable braking means for preventing undesired movement between relatively movable parts of the joint.

3. A device as defined in claim 2 wherein said support arms have clamping means on their free ends adapted to engage the upper edges of a baby carriage, said casing having cantilevered projections fixed thereto for moving it, said projections being adapted to extend longitudinally of the baby carriage.

4. A safety device for signalling unauthorized tampering with an animate or inanimate object comprising a casing, support arms radially extending from said casing for supporting same, an alarm means enclosed in said casing and movable in response to tilting of said casing, said alarm means comprising a series circuit including an alarm device, a source of electrical energy and a tilt responsive gravity operated switch, means swivelly mounting said switch within said casing, and means connecting a holding relay to said series circuit and in parallel with said switch for maintaining said alarm device energized subsequent to the closing and opening of said switch, said casing including a pivotally secured closure, a key controlled lock including cooperating portion of said casing for retaining said closure in a closed and locked position, a second switch operatively connected with and operated by said key controlled lock, said switch being automatically opened when said lock is opened, said switch serially interposed in said series circuit.

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