Aug. 19, 1958 H. W. ATKIN 2,848,585

LEVER ACTUATED, ELECTRIC SWITCH ADAPTERS

Filed Sept. 14, 1955 2 Sheets-Sheet 1

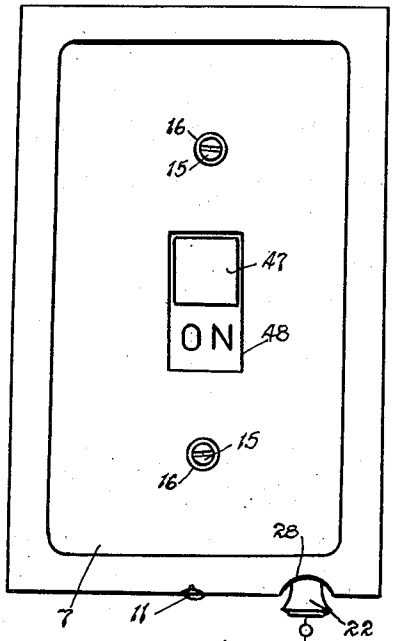


Fig. 1

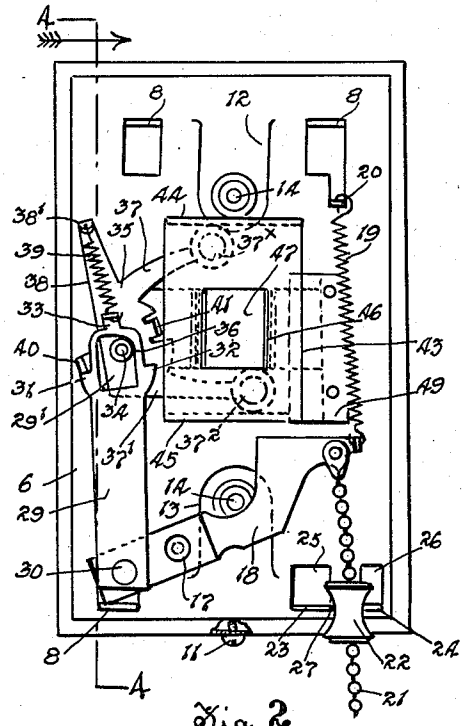


Fig. 2

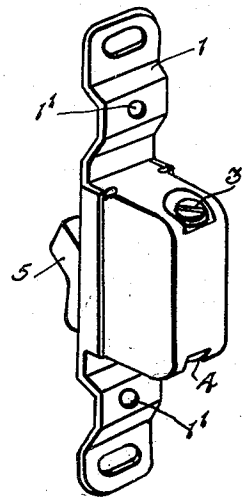
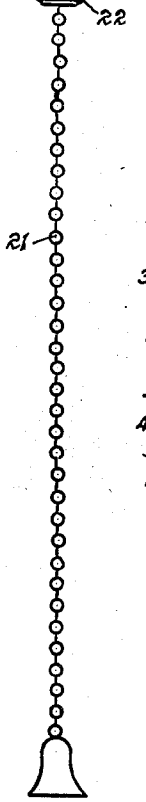


Fig. 5



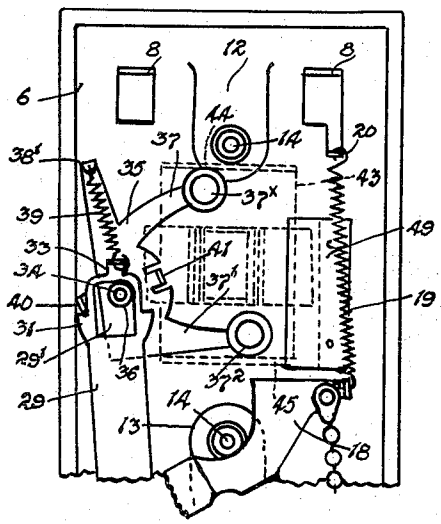


Fig. 3

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LEVER ACTUATED, ELECTRIC SWITCH ADAPTERS

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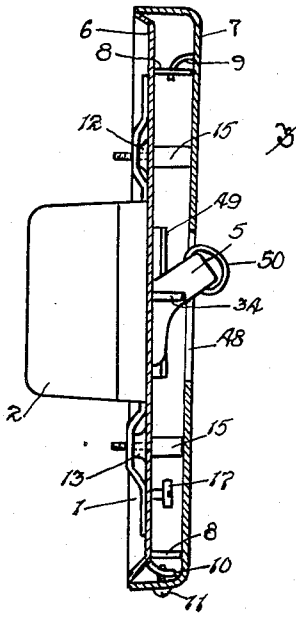


Fig. 4

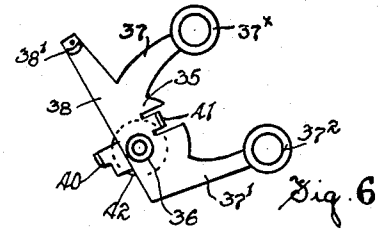


Fig. 6

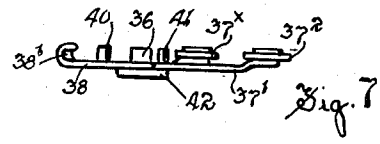


Fig. 7



Fig. 8

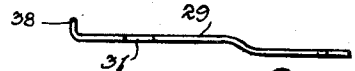


Fig. 9

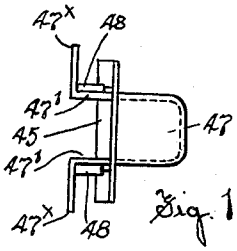


Fig. 12

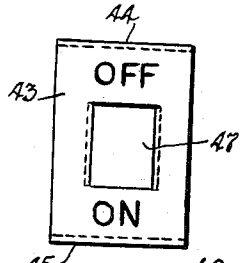


Fig. 10

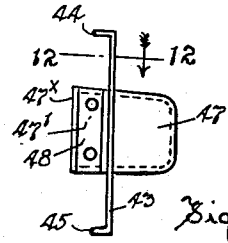


Fig. 11

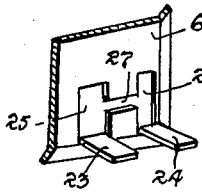


Fig. 15



Fig. 13



Fig. 14

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United States Patent Office 2,848,585 Patented Aug. 19, 1958

2,848,585

LEVER ACTUATED, ELECTRIC SWITCH ADAPTERS

Horace W. Atkin, St. Vital, Manitoba, Canada

Application September 14, 1955, Serial No. 534,208

8 Claims. (Cl. 200—172)

This adapter is to be used with the standard or conventional electric, lever actuated, switch and its carrying bracket and when in use permits a child to operate the switch and without interfering with the normal operation of the switch by an adult, it being understood that for the adult operation of the switch, the switch is usually located on a wall at a height convenient for an adult but too high up for a child to actuate the switch lever.

As electric, lever actuated, wall switches are well known, I have not considered it necessary to detail their construction, it being sufficient for the purposes of this invention and the present disclosure to show the conventional switch carrying bracket, switch containing casing and its projecting switch lever.

As before stated, an object of the invention is to provide an adapter for use with the standard, lever actuated, electric switch which will permit a child to easily and quickly actuate the switch mounted at a height inconvenient for child's use and such without interfering in any way with the use of the switch by an adult, by his manipulation of the device, at its usual mounted position.

A further object is to provide an adapter which can be mounted in place for use without interfering with or altering the construction of the existing switch casing and its contents or the changing or altering of the standard bracket which carries the casing.

A further object is to provide spring clips or the like for mounting on the switch lever to compensate for lost motion which might otherwise occur when my adapter is mounted in place.

A further object is to construct the adapter in a simple, inexpensive, and durable manner and so that it can be easily, quickly and conveniently installed by a layman and when installed can be relied upon to effectively serve the purpose for which it is designed.

With the above more important objects and other minor objects in view, which latter will become more apparent as the description proceeds, the invention consists essentially in the arrangement and construction of parts hereinafter described reference being had to the accompanying drawings, in which:

Fig. 1 is a face view of the adapter.

Fig. 2 is a front view of the back plate of the adapter casing and showing the various parts associated therewith together with the central, roller actuating plate and finger knob.

Fig. 3 is a view similar to Fig. 2 with the roller actuating plate shown in dotted outline.

Fig. 4 is a vertical sectional view at 4—4 Fig. 2, the shiftable parts carried by the back plate having been removed.

Fig. 5 is a perspective view of the standard, commercial switch and its carrying bracket.

Fig. 6 is a plan view of the triple armed, roller carrying, escape lever.

Fig. 7 is a side view of the part shown in Fig. 6.

Fig. 8 is a side view of the actuating lever.

Fig. 9 is a side view of the trip lever.

Fig. 10 is a face view of the roller actuating plate and the associated switch lever knob or cap.

Fig. 11 is a side view of the parts appearing in Fig. 10.

Fig. 12 is a horizontal sectional view at 12—12 Fig. 11.

Fig. 13 is a side view of the type of spring clip used.

Fig. 14 is a plan view of the clip.

Fig. 15 is a perspective view of one of the lower corners of the back plate.

In the drawings like characters of reference indicate corresponding parts in the several figures.

The conventional, standard bracket 1 has the usual switch casing 2 secured thereto and the casing presents the customary terminals 3 and 4 to which the electric service wires are connected. The switch, is actuated by the existing, switch lever 5 which projects from the front of the casing and is moved to set the switch in the well known "on" or "off" positions.

The bracket, with attached switch casing, is fixedly mounted in a wall in a location usually convenient for adult manipulation of the switch lever, and the whole, with the exception of the switch lever, is enclosed by a removable wall plate not herein shown, but well known to those familiar with the art. To apply my adapter, the said face plate is removed and my adapter casing is substituted, and I do not in any way interfere with the bracket and its attached switch casing which is fixedly mounted in the wall.

The casing of my adapter comprises a rectangular back plate 6 and a cover plate 7. The back plate is supplied with lugs 8 cut from the material of the plate and bent forwardly to space the applied cover plate 7 a desired distance from the back plate. Any suitable means can be employed for removably securing the front plate to the back plate and herein I have shown the front plate or cover supplied with hooked fingers 9 (see Fig. 4) and which are adapted to hook into suitable holes provided in the upper lugs 8. The lower part of the back plate is supplied with a forwardly extending lug 10 to receive a fastening screw 11 carried centrally by the lower part of the cover plate 7.

The back plate is also cut to provide upper and lower tongues 12 and 13 which have holes 14 therein, positioned to appear directly opposite the usual screw threaded upper and lower holes 1' existing in the bracket 1. This permits the back plate to be demountably fastened securely to the bracket by employing upper and lower screw threaded and shouldered studs 15. The cover 7 is supplied with upper and lower holes 16 to permit of the manipulation of the studs from the exterior of the formed casing by using a screw driver.

The back plate of the casing is provided with a pivot screw or bolt 17 on which I mount pivotally, an actuating lever 18 of the general shape shown in the drawings and the right hand tip of the lever has an upgoing tension spring 19 fastened thereto and which has its upper end attached to an overlying lug 20 struck from the material of the back plate. A pull chain 21 is attached to the lever and passes downwardly through a spool shaped guide member 22 held in a fixed position between the cover and the back plate. The length of the pull chain or cord is chosen such that it is always within convenient range of a child for switch operating purposes.

In the device as herein shown, the guide member is mounted in the following manner. The back plate is supplied with two forwardly turned, spaced lugs 23 and 24 cut from the material of the plate (see Fig. 15) and the distance between the out turned lugs is such that they can receive between them the central reduced part of the inserted spool to prevent side shifting thereof. The slots 25 and 26 left by the out turning of the lugs, are inter-

connected by a central slot **27** and such is positioned to receive a portion of the upper end of the spool thereby preventing end shifting thereof. The lower end of the cover plate is notched as indicated at **28** in Fig. 1 to allow the spool to pass through and the combined result of the whole arrangement is such that when the cover plate is attached to the back plate the intervening spool shaped member is securely held in place to guide the pull cord.

An upstanding trip lever **29** is secured by a pivot pin or screw **30** to the left hand end of the actuating lever **18** and the upper end of the trip lever is supplied with a rectangular slot **29'** and has opposing stop shoulders **31** and **32** formed at its sides and a central lug **33** provided at its upper end. The back plate **6** is provided with a fixed pin **34** which projects forwardly through the upper end of the slot **29'**.

Immediately to the rear of the trip lever I locate a triple armed, roller carrying, escape lever **35**, such being supplied with a fixed collar **36** rotatably mounted on the pivot pin **34**. The collar enters the slot **29'** and serves to limit the side sway of the trip lever when the latter is actuated by the lever **18**. The escape lever is supplied with a pair of spaced, laterally and inwardly extending arms **37** and **37'** which are provided at their extremities with similar rollers 37^x and 37^2 and also with an upstanding arm **38** terminating in a forwardly turned, pierced lug **38'**. A tension spring **39** connects the lugs **30'** and **33**. The body portion of the escape lever is provided with diametrically opposing, forwardly extending stops of catches **40** and **41** which are adapted, in the rotation of the escape lever, and the shifting of the trip lever, to alternately engage with the stop shoulders, **31** and **32**. A spacing disc **42** is fixedly secured to the rear face of the escape lever and centrally receives the pivot pin **34**.

A substantially rectangular, upstanding, roller actuating plate **43** is contained centrally within the casing and such plate is supplied with similar back turned flanges providing roller tracks **44** and **45**. The latter plate is supplied with a central, rectangular slot **46** which frictionally receives a hollow, slightly tapered push cap or knob **47**, the knob projecting considerably in advance of the front face of the plate **43** so that it can be used for switch actuating purposes. Actually the cap or knob projects through a central, substantially rectangular slot **48** supplied in the front plate.

If reference be now made to Figs. 10, 11 and 12, it will be seen that the side portions **47'** of the knob extend rearwardly, a predetermined distance from the plate **43** and are supplied with similar, out turned side flanges 47^x and that similar spacers **48** are fastened to the side portions **47'** to hold the plate and flanges in spaced relation. The plate **43** is retained against escape from the back plate by a vertical guide bar **49** or the like secured to the back plate and overlying the right hand flange 47^x and by the fact that the left hand flange 47^x underlies or is to the rear of the escape lever **35**. Here it will be noticed that the disc **42** spaces the trip lever from the back plate and it is in such spaced area that the left hand flange 47^x lies.

When the above operating parts have been mounted on the back plate in their proper positions and the back plate has been secured by the studs **15** to the bracket **1** with its attached switch casing **2**, the switch lever **5** is designed to enter the interior cavity of the push knob, which as above has been stated, extends forwardly through the rectangular slot **48** supplied in the front plate.

It has been found that switch levers vary somewhat in width and to compensate for such I supply various sizes of spring clips **50** to frictionally engage the end of the lever entering the knob, with the purpose of taking up too much loose play as might otherwise occur.

The front face of the plate **43** is provided with the usual "on" and "off" words, one or other of which is visible through the the slot **48** in the cover plate and which indicate the position of the switch.

In order to better understand the operation of the

adapter, I will first assume that the various parts are in the positions as shown in Figs. 2 and 3. Here it will be observed that the rollers are immediately to the inner sides of the flanges or tracks of the plate **43**, catch **40** is engaged with the stop stop shoulder **31** and the spring **39** is under tension. Should a child now pull the cord, the actuating lever **18** will upshift the trip lever **29**, the stop shoulder **31** through the engaged catch **40** will rotate the escape lever in a clockwise direction, the lower roller will shift down the plate **43** and the knob moving with the latter plate will actuate the switch lever.

Immediately the pull cord is released, the spring **19** raises the right hand end of the actuating lever and causes the down movement of the trip lever **29** which comes to rest when lever **18** engages with the lower spacing lug **18**. At this time the catch **41** is engaging the stop shoulder **32**. A subsequent down pull of the chain causes the stop shoulder **32** to up shift the catch **41** which then through the upper roller and its engaged track upshifts the knob **47** and brings all parts to their original positions and as they appear in Figs. 1 and 2, the knob having actuated the switch lever in its movement. I might here explain that as the trip lever is moved downward, its upper end is side shifted by the tension developed in the spring **39** and that in the down movement of the trip lever the stop shoulders alternately escape past the catches and then become caught against them as shown in the figures of the drawings just mentioned.

It will be seen also that if an adult up or down shifts the knob, the switch lever will be actuated to "on" or "off" positions. In the shifting of the knob, the escape lever is rotated by the rollers and the trip lever sways sideways to bring one or other of the catches into contact with its associated shoulder. In the movement so occasioned, the catches do not alternately escape past their associated stop shoulders as there is no upshifting of the trip lever as occurs when the chain is pulled and the lever **18** is actuated as by a child.

What I claim as my invention is:

1. In combination with a wall supported bracket and a lever actuated, electric, on and off, switch secured thereto, an adapter comprising, a casing secured to the bracket, a vertically shiftable plate within the casing, a mechanism mounted within the casing to shift the plate successively and alternately up and down upon said mechanism being actuated and a single pull chain extending downwardly from the casing and connected to said mechanism for mechanism actuating purposes.

2. In combination with an elevated, wall supported, bracket and a lever actuated, electric switch secured thereto, an adapter comprising a casing secured to the bracket and having the switch lever operatively protruding through a vertical slot provided in the front of the casing, a vertically guided plate within the casing provided with a knob receiving the protruding switch lever, a single pull cord entering and extending downwardly from the casing and a mechanism mounted within the casing and actuated by the pull cord to successively and alternately up and down shift the plate in the intermittent down pulling of the cord.

3. In combination with a wall supported, bracket and a lever actuated, electric switch secured thereto, an adapter comprising a casing secured to the bracket and having the switch lever operatively protruding through a vertical slot provided in the front of the casing, a vertically guided plate within the casing and provided with a knob receiving the protruding switch lever, said plate being provided with upper and lower tracks, a spring tensioned, escape lever pivoted within the casing and provided with rollers engageable with the tracks, a self resetting actuating lever pivotally mounted in the lower part of the casing, a pull cord secured to the latter lever and extending downwardly from the casing and a trip lever pivotally connected to the actuating lever and

operating in the alternate down pulling of the cord to actuate the escape lever and, alternately, through the track engaging rollers, shift the plate up and down.

4. The device as claimed in claim 3 wherein a spring clip is secured to the lever within the knob to take up any lost motion which might otherwise occur.

5. In combination with an elevated, wall supported, bracket and a lever actuated, electric switch secured thereto, an adapter comprising, a casing embodying a back plate secured to the bracket and a cover plate demountably secured to the back plate, said cover plate being provided with a vertical slot through which the switch lever operatively protrudes, a vertically shiftable plate within the casing and provided with a hollow knob extending through the slot and receiving the protruding lever to shift the latter in the shifting of the plate, a pull cord entering the casing and extending downwardly therefrom and mechanism mounted on the back plate, connected to the cord and operating in the successive down pulling of the cord to alternately shift the plate up and down.

6. The device as claimed in claim 5 wherein the said mechanism is designed to operate the switch lever in the up and down pressing of the knob and without shifting the pull cord.

7. The combination with a wall supported bracket and a lever actuated, electric, on and off, switch secured thereto, an adapter comprising, a casing secured to the bracket, a vertically shiftable plate within the casing and engaging the lever to actuate the same alternately to switch, on and off, positions, a single pull chain extending outwardly from the interior of the casing and a mechanism mounted within the casing to which said pull chain is attached, said mechanism operating to successively and alternately shift the plate up and down in the successive pulling of the chain.

8. The device as claimed in claim 7 wherein the lever operatively protrudes through a slot in the front of the casing and the mechanism permits of the manual shifting of the protruding lever to switch, on and off, positions.

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