July 3, 1928. 1,675,737

E. L. TEICH

LOCK CONTROLLED ELECTRIC SWITCH

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Fig 1

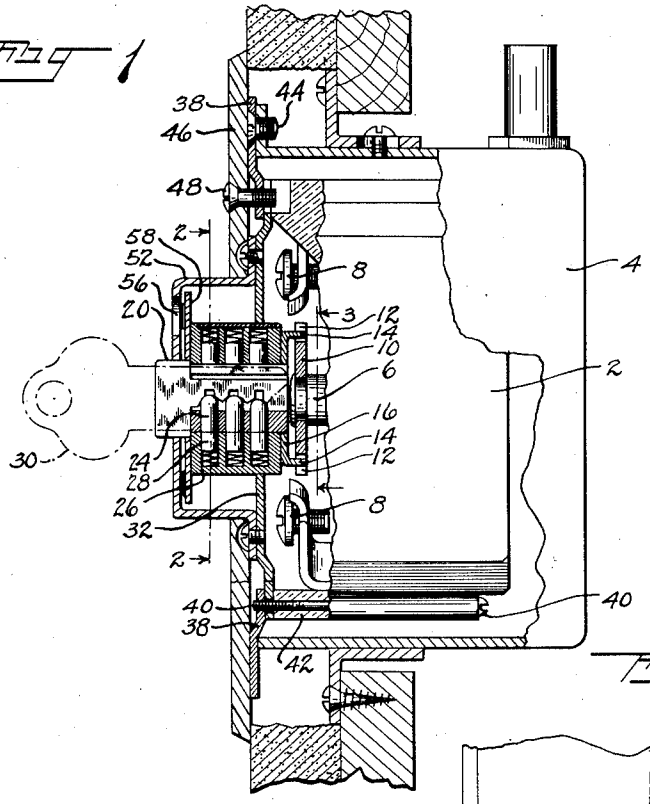

Fig 2

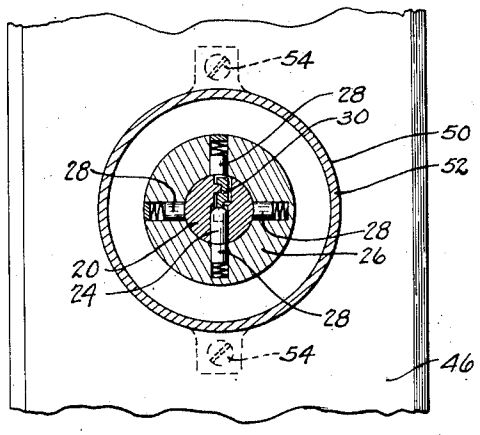

Fig 3

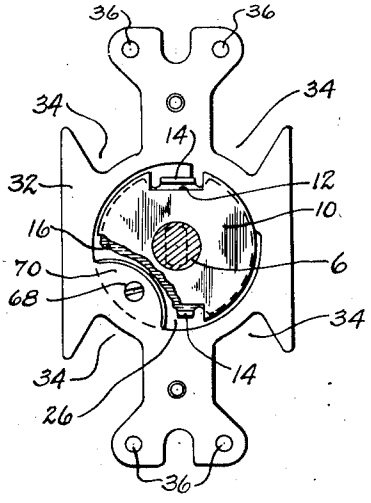

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Fig 4

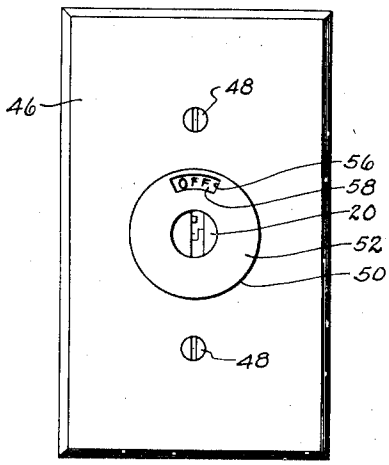
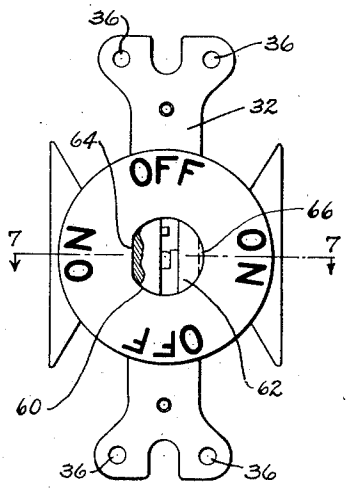


Fig 5



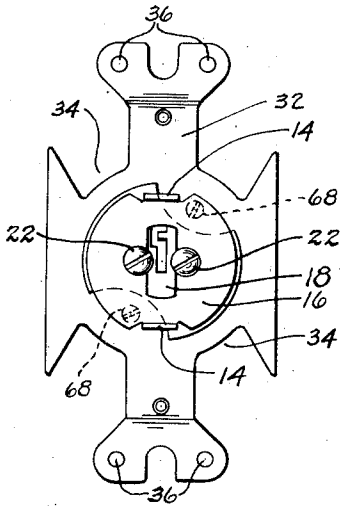


Fig 6

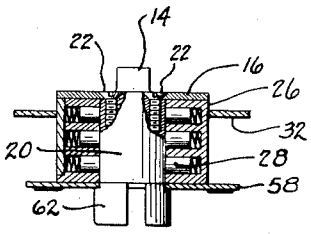


Fig 7

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Patented July 3, 1928. 1,675,737

UNITED STATES PATENT OFFICE.

ERNEST L. TEICH, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE AMERICAN HARDWARE CORPORATION, OF NEW BRITAIN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

LOCK-CONTROLLED ELECTRIC SWITCH.

Application filed November 27, 1926. Serial No. 151,057.

My invention relates to electric switches and has for its object to provide a new and improved lock-controlled electric switch. It further has for its object to provide a flush lock-controlled electric switch in which the switch mechanism can be any of the usual types of flush rotary snap switches and the lock and switch mechanism can be separately manufactured and assembled with the switch mechanism as desired. It further has for its object to provide a flush switch in which the lock mechanism is secured against removal so long as the switch is installed. It further has for its object to provide a flush lock switch having an enclosed indicating dial.

The following is a description of an embodiment of my invention reference being had to the accompanying drawings, in which:

Figure 1 shows partly in side elevation and partly in section an electric switch embodying my invention;

Fig. 2 is a section on the line 2—2, Fig. 1;

Fig. 3 is a partial section on the line 3—3, Fig. 1;

Fig. 4 is a front elevation, on a reduced scale, of the switch showing it installed with its face plate in position;

Fig. 5 is a detail showing a front view of the receptacle cover and parts carried thereby.

Fig. 6 is a rear view of the same; and

Fig. 7 is a sectional view on the line 7—7, Fig. 5.

Referring more particularly to the drawings, 2 is the cup-like porcelain base of a flush switch which is mounted within the ordinary wall case 4. This switch may be of any usual flush switch construction, of which there are a number on the market at the present time, and comprises an actuating shaft 6 within the receptacle and axial therewith and binding posts 8. To the outer end of this shaft 6 I secure a coupling member 10 shown in the form of a plate, having notches 12 with which engage projections 14 carried by a cooperating plate-like coupling member 16 carried by the adjacent end of the plug of the lock. This plate 16 as shown is provided with a slot fitting over an oblong projection 18 on the end of the plug 20 of a pin tumbler lock, being secured to said plug by the screws 22. This pin tumbler lock is of ordinary pin-tumbler construction except that in order to reduce its size it has but three pins 24 and its cylinder casing 26 is provided with four sets of spring-pressed drivers 28 spaced apart from each other by 90 degrees, as shown in Fig. 2 instead of a single series of drivers. The cylinder 26 being stationary, the plug 20 can be rotated by the usual key 30, turning the snap switch so that it moves in successive steps 90 degrees for each step in the usual manner, the key 30 being removable and insertable at the completion of each step on account of the four sets of drivers 28 so as to lock and unlock the plug at any one of said four points.

In order to secure the lock in place, I mount the cylinder 26 rigidly in a metal plate 32 which constitutes a cover for the mouth of the cup-like receptacle 2. This cover is cut away at 34 so as to expose the binding posts 8 of a two-pole switch. The cover 32 is provided with ends having openings 36. These ends are located beneath the usual switch ears 38 and are held in place by screws 40 whose heads are at the rear of the porcelain base 2 so as to be inaccessible when the switch is installed. These screws pass through portions 42 of the porcelain base and through the holes 36 of the cover 32 and make screw-threaded engagement with the usual holes in ear pieces 38, as shown in the lower part of Fig. 1. The screws 40 being inaccessible so long as the switch is installed, the cover 32 cannot be removed so as to remove the lock without removing the receptacle. When, however, the switch is out of its casing, the cover 32 can easily be removed by removing the screws 40 so that the lock can be separated from the switch mechanism proper. The ears 38 are secured to the wall case 4 in the ordinary manner by screws 44. The face plate 46 is secured to the ears 38 by screws 48 in the ordinary manner. This face plate is provided with a large opening 50, through which the lock protrudes. In order to conceal the lock and provide a suitable finish I provide a supplemental cover 52 which is secured to the cover 32 by screws 54. This supplemental cover is provided with a window opening 56 in its front face through which a portion of the dial 58 appears, said dial bearing the words "off

and "on" as indicated at Fig. 5, which words appear alternately beneath the opening 56 in the successsive steps of the switch.

This dial has an opening 60 which conforms to the enlarged head 62 of the plug 20, except that it is provided with two side portions 64 which extend beneath overhanging portions 66 of said head. The overhanging portions hold the dial against the face of the lock cylinder 28, while the portions 64 coacting with corresponding surfaces on the plug prevent the dial from rotating relatively to the plug so that as the plug moves step by step, the dial also moves step by step and indicates through the opening 56 the successive positions of the switch mechanism.

While the supplemental cover 52 can be removed upon removal of the face plate 46 this does not enable one to remove the lock or actuate the switch, the function of the supplemental cover 52 being simply to provide a finish and an indicating opening.

The manufacturer of these lock switches can manufacture only the switch portion with the coupling member 10 affixed to the shaft 6, and obtain the lock portion with its cover 32 from a lock manufacturer, if desired, and assemble a switch portion and lock portion together, as shown in Fig. 1, so that the switch together with the lock can be sold and installed as a unit, and by reason of the manner in which the lock is held to the base by the screws 40, the lock can not be removed after the switch has been installed.

The lock cylinder 26 is preferably secured to the cover 32 by means of screws 68 which pass through lugs 70 upon the cover 32 which lugs enter recesses formed on the rear face of the cylinder as indicated in Fig. 3 between adjacent groups of drivers 28. These screws are of course inaccessible so long as the cover 32 is secured to the switch base, and hold the lock against removal so long as the switch together with the lock applied thereto is installed.

As will be evident to those skilled in the art, my invention permits various modifications without departing from the spirit thereof or the scope of the appended claims.

What I claim is:

1. In an electric switch the combination of a cup-like base, a switch mechanism contained within said base and having an axial rotatable actuating shaft, a cover for the mouth of said cup-like base, a lock carried by said cover and having a rotatable key-controlled plug adapted to be locked in any one of four positions upon removal of the key, separable coacting coupling members secured to adjacent ends of said plug and shaft, respectively, and screws passing through said cup-like base from rear to front and securing said cover thereto, the casing of said lock projecting on both sides of said cover, and having on its rear side reentrant portions, said cover having projections extending into said reentrant portions, and screws having rearwardly facing heads securing said projections to said portions.

2. In an electric switch the combination of a cup-like base, a switch mechanism contained within said base and having an axial rotatable actuating shaft, a cover for the mouth of said cup-like base, a lock carried by said cover and having a rotatable key-controlled plug adapted to be locked in any one of four positions upon removal of the key, separable coacting coupling members secured to adjacent ends of said plug and shaft, respectively, screws passing through said cup-like base from rear to front and securing said cover thereto, an auxiliary cover for said lock secured to the outer face of said first cover, said auxiliary cover having a window, and a dial secured to said plug so as to rotate therewith and having indicating symbols visible through said window.

3. In an electric switch the combination of a cup-like base, a switch mechanism contained within said base having an axial rotatable actuating shaft, a cover for the mouth of said cup-like base, a lock carried by said cover and having a rotatable key-controlled plug adapted to be locked in any one of four positions upon removal of the key, separable coacting coupling members secured to adjacent ends of said plug and shaft, respectively, ears for securing said base in position when installed, said ears overlying the ends of said cover and screws passing through said base from rear to front and engaging said ears so as to hold said ears and cover in position.

4. In an electric switch the combination of a cup-like base, a switch mechanism contained within said base and having an axial rotatable actuating shaft, a cover for the mouth of said cup-like base, a lock carried by said cover and having a rotatable key-controlled plug adapted to be locked in any one of four positions upon removal of the key, separable coacting coupling members secured to adjacent ends of said plug and shaft, respectively, screws passing through said cup-like base from rear to front and securing said cover thereto, an auxiliary cover for said lock secured to said first cover, and a face plate having an opening through which said auxiliary cover protrudes also secured to said first cover.

In testimony whereof, I have signed my name to this specification this 23rd day of November, 1926.

ERNEST L. TEICH.