

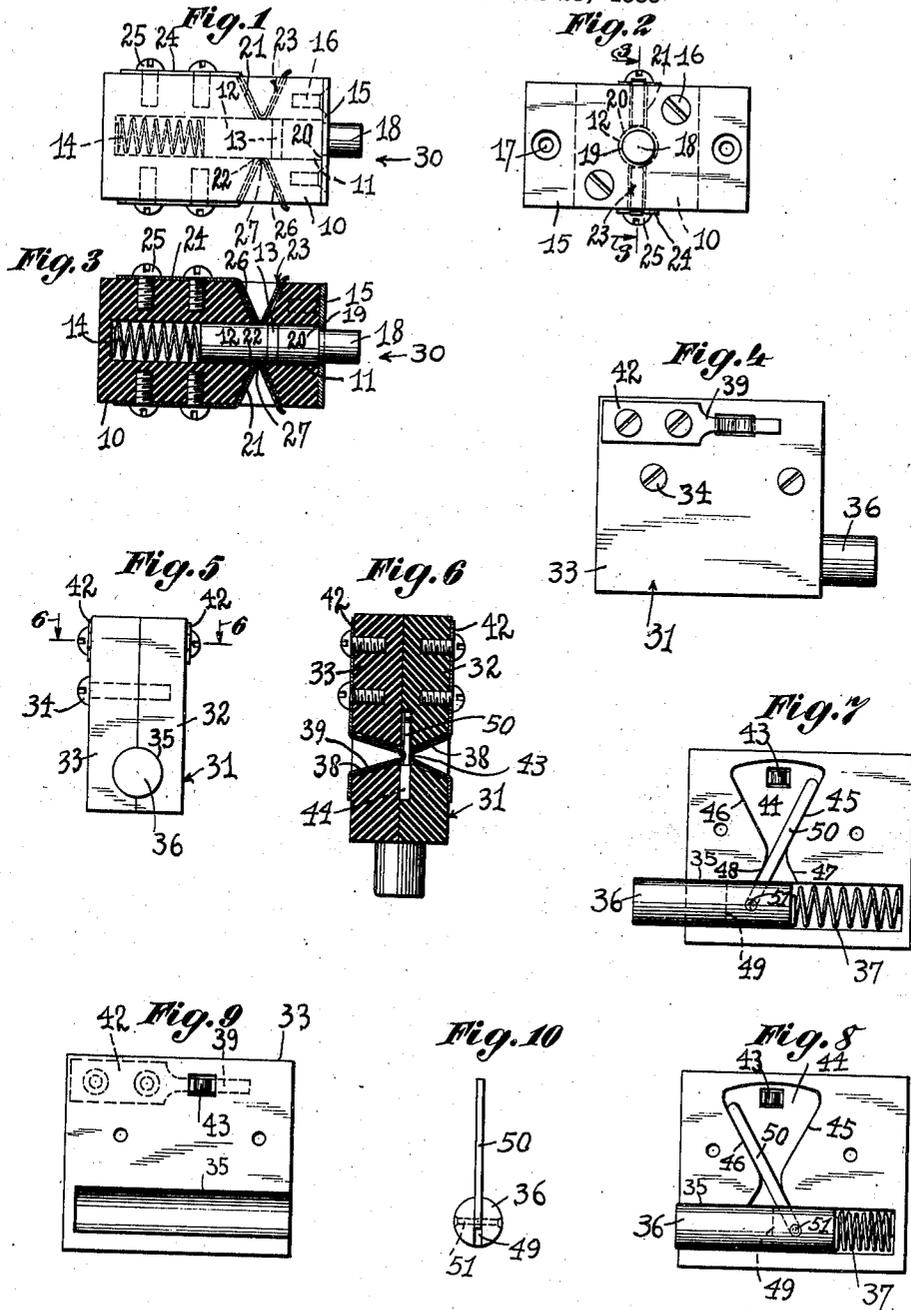
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J. DE VINCENZI

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MOMENTARY ACTION ELECTRIC SWITCH

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JOHN DE VINCENZI,
INVENTOR.

BY *Julian J. Wittal,*
his ATTORNEYS.

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MOMENTARY ACTION ELECTRIC SWITCH

John De Vincenzi, New York, N. Y.

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This invention relates to electric switches, and has for its main object to provide a switch which will close the electric circuit for a short time, so to say, for a moment only at one operation and in which it will be practically impossible to cause the same to close the circuit for a longer time.

Another object of this invention is to provide an electric switch as characterized hereinbefore, which at every operation will close the circuit twice, but at each time for said momentary short interval only.

Still further objects of my invention will be apparent as the specification of the same proceeds, and among others I may mention: to provide an electrical switch of this type which will be simple in construction, inexpensive to manufacture, easy to install, reliable and positive in its action.

In the drawing forming a part of this specification and accompanying the same:

Fig. 1 is a side elevation of one embodiment of my novel electrical switch;

Fig. 2 is a front elevation thereof, and

Fig. 3 is a sectional elevation, the section being taken on the line 3—3 of Fig. 2.

Fig. 4 is a side elevation of another embodiment of my invention, and

Fig. 5 is a front elevation thereof;

Fig. 6 is a sectional elevation, the section being taken on the line 6—6 of Fig. 5;

Fig. 7 is an elevation of the inner side of one member of my device, the other member thereof having been removed and my switch being shown in its normal position;

Fig. 8 is a similar view to that of Fig. 7, the switch being shown in the position it would assume when its push button or pin is pressed inwardly to its limit;

Fig. 9 is an elevation of the inner side of the other member of my switch, and

Fig. 10 is a sectional detail showing the arrangement of a pivoted conductor lever on said push button or pin.

Referring now to the drawing more in detail by characters of reference, the first embodiment of my device, shown in Figs. 1 to 3, is housed in a rectangular insulating block 10 of any appropriate material. A bore 11 is provided in the block in which may slidably reciprocate the push button or pin 12 of insulating material, said push button, however, having a ring 13 of electro-conductive material arranged at an appropriate portion thereof, as will be understood by those versed in this art. A helical spring 14 is arranged in the bore 11, back of the push button

or pin 12, normally tending to push the same outwardly. An appropriate plate 15 may be secured on the front of the insulating block 10 as by the screws 16, the whole device to be secured at the place of its use, like in a door frame for a bell, by using the holes 17 in the plate 15, as for instance, for securing screws. The push button or pin 12 has a reduced front portion 18 projecting through an appropriate hole 19 in the plate 15 and the shoulder 20 between the wider and reduced portions of said push button 12 will provide a limit to the outward movement thereof under the action of the helical spring 14, since the hole 19 is made smaller than the wider portion of the pin 12.

Two oppositely placed triangular slots 21 are provided in the block 10, their narrow lower terminations 22 opening into the bore 11 and an appropriately bent resilient electro-conductive member 23 is secured in each slot 21, in the manner shown in the drawing, the end 24 thereof being secured by the screws 25 on the block 10, while the triangular bent inner end 26 of the same is free and may be moved somewhat outwardly through the resilient character of the material of said electro-conductive members 23.

It also will be understood that the innermost tip 27 of each electro-conductive strip of material 23 normally will have the tendency to project into the space within the bore 11, but will be prevented therefrom when the pin 12 is arranged in said bore, as shown in Fig. 3, and said tips 27 will be resting against the sliding pin 12 through their resilient action. The two terminations of an electrical circuit which it is desired to momentarily close through my device, as for instance, that of a door bell, are secured to the ends 24 of the electro-conductive spring strips 23, as will be understood.

The use and operation of my device will be obvious from the description of its construction hereinbefore, and from the drawing.

Normally, coiled spring 14 will press the push button 12 outwardly to its limit, as shown in Fig. 3. When the reduced portion 18 of the push button is pressed inwardly as indicated by the arrow 30, and as it is usual, the electro-conductive ring 13 will pass between the tips 27 of the conductor strips 23 and during its passing between them, will close the circuit. This passing may take a very short time, depending on the speed of pushing the pin 12 inwardly, and as soon as the ring 13 is beyond the tips 27, the circuit will again be broken. Upon relieving the pressure on the sliding pin or button 12, coiled spring 14 will shoot

the same forwardly, back into its normal position, and the ring 13 will again pass, for a moment, between the tips 27, and will again, for that moment, close the circuit.

5 It will be seen that my device will close the circuit automatically twice for each pressure on the push button 12, and each time for a very short time only.

10 It also will be seen that it will be practically impossible to close the circuit for a longer time through my device, since the operator thereof for this purpose would have to keep the push button 12 exactly in the position where the ring 13 makes the connection between the two electro-
15 conductive strips 23.

A long continued ringing of a door bell is a great nuisance and sometimes even more serious, like in a case when a sick person is affected thereby, and my device will make impossible a
20 continued ringing of the bell except by design and even then will make it almost impossible, while, on the other hand, it will insure two very short distinct signals.

It also will be obvious that my device may be
25 used at many other occasions where such an effect is necessary or desirable.

In Figs. 4 to 9, I show a second embodiment of my device.

In this embodiment also, my device is housed
30 in an insulating block generally indicated by the numeral 31, and in this case, being formed of two sections 32 and 33, respectively, secured together in any appropriate manner as by the screws 34. A bore 35 is again provided in the insulating block in this embodiment, being formed partly
35 in the member 32 and partly in the member 33 as shown in Figs. 5 and 7, 8, 9. A sliding push button or pin 36 is arranged in the bore 35 normally being urged in an outward direction
40 by the coiled spring 37.

Two inwardly open triangular slots 38 are provided in the opposite sides of the upper portion of the conductor block 31, each having a resilient conductor strip 39 arranged therein, somewhat
45 similar to the conductor strips 23 described in connection with the first embodiment of my device, shown in Figs. 1 to 3, and the terminations of the electric circuit to be closed by my switch are secured to the outer secured ends 42 of the
50 respective conductor strips 39, while the triangular bent portions of said conductor strips 39 are free and resilient, and their innermost tips 43 are in close proximity to one another. A peculiarly shaped hollow space 44 is provided in the mem-
55 ber 32, the construction and purpose of which will be described presently, and the meeting tips 43 of the conductor strips 39 are projecting into said space 44, as best shown in Fig. 6.

The upper portion of said space or recess 44
60 in insulating member 32 (Figs. 7 and 8) is formed with two converging sides 45 and 46 and the lower part thereof is formed with two outwardly inclined sides 47 and 48, said sides entering into the bore 35 and the space 44 at its lower ends
65 communicating with said bore, as shown.

The inner end of the slide pin 36 is slotted as at 49, and an electro-conductive lever 50 is set into said slot rockable on a pin 51.

Normally, my device is in the position shown
70 in Fig. 7 and it will be seen that the pin 36 is pushed outwardly by the spring 37, conductive lever 50 resting against the inner upper side 45 of the space 44. When the push button 36 is pressed inwardly to its limit, compressing the
75 spring 37, lever 50 will be rocked and will take

up the position shown in Fig. 8, resting against the other side 46 of said space 44, and it will be seen that during such rocking and such movement of the pin 36 inwardly, lever 50 will have
5 to pass between the inner tips 43 of the electro-conductive strips 39 and will close the circuit for that moment.

When the pressure is released on the pin 36,
10 coil spring 37 will push the same outwardly into its normal position shown in Fig. 7, lever 50 again taking up its position shown in Fig. 7, and it will be obvious that during such return of the pin 36, the lever 50 again will pass for a moment
15 between said resilient and yielding conductor tips 43 and will again close the circuit for said moment.

It will be seen that the principle of operation, the use, and the objects of said second embodiment of my device are identical with those of said first embodiment thereof, but the details of construction, combination and elements of said second
20 embodiment are somewhat different, for obvious reasons.

It will be seen that I provided a novel electric switch which when connected into the circuit of an electric bell, buzzer, bulb, or an electric signal device, will make two short closings of the circuit, one on the inward movement of the push
25 pin, and one on the outward movement thereof. The devices which are fed by said circuit will therefore be operative for two very short periods of time, only.

It is well known that some such devices, particularly door bells, and the like, are greatly
30 abused today. The bell buttons are pushed to the limit and are kept there, making a long annoying continuous ring. With my device, two very short rings will be produced with every pushing in and releasing of the bell button, no matter how long the push button is kept pressed
40 inwardly. Similarly, a light or signaling device will be used only for two short periods of time, thereby effecting a great saving, and more efficient and less annoying operation.

With my device, the short operation of the
45 electric circuit may also be easily regulated and adjusted. The widths of the metal ring around the pin in the first embodiment of my device may be made of different dimensions, and similarly, the widths of the rocking arm in the second embodiment thereof. By changing the widths of the resilient circuit terminals, the length of the push pin, the amount of its protruding end, the relative placing of the terminals, and of the active member on the pin, and so on, various tim-
50 ings and lengths for the operation of the device fed by the electric circuit may be produced.

What I claim as new, is:

1. A momentary action repeating electric
60 switch, comprising an insulated housing, a movable element in said housing operable by a part thereof projecting from the housing, a resilient member urging said element outwardly of said housing, a limit to the outward movement of said
65 element, said element being adapted to be moved inwardly against said resilient member, an electro-conductive closing member carried by said movable element, two electrical terminations in said housing for the circuit of the switch, said
70 electro-conductive closing member normally being out of contact with said terminations but being adapted to contact them and close the circuit for a pre-determined short time interval during the inward travel of said movable element, said movable element upon its release being auto-
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5 matically returned by said resilient member, and
said electro-conductive closing member thereon
once more establishing contact with said termi-
10 nations for a pre-determined short time interval
during its return travel, said movable element
being in the form of a slide pin, said terminations
being formed by V shaped resilient metal strips
projecting into said housing, and said electro-
15 conductive closing member being in the form of
a rockable arm pivoted in said pin, a recess in
said housing for said arm, means to cause said
arm to swing in one direction upon the inward
travel of said pin, and to cause the same to swing
20 in the other direction upon the return of said
pin, said arm passing between the innermost
points of said V shaped conductor springs, and
brushing against both of them, upon each of its
inward and return travels, respectively.

25 2. In an electric switch as set forth in claim
1, said means to cause said arm to swing in one
direction or in the other, comprising inwardly
inclined concave generally V shaped sides for
said recess, the inward points of said sides acting
as pivots for said arm upon the travels of said
pin, and their respective inner and outer inclined
portions acting as limits for the swings of said
arm.

3. A momentary action repeating electric
switch, comprising a block of insulating material
for a housing, a hole being provided in said block
from the front surface thereof, a sliding pin in
5 said hole projecting beyond said front surface, a
helical spring in said hole to the rear of said pin
urging said pin in an outward direction, a V
shaped recess in the top of said block, the lower
apex thereof communicating with said hole, a
10 similar but inverted V shaped recess in the bot-
tom of said block also communicating with said
hole, a V shaped yielding resilient conducting
member in said upper recess, its apex projecting
into said hole and into the path of said sliding
15 pin, a similar but inverted V shaped resilient
yielding conductor member in said lower recess,
its apex also projecting into the path of said
sliding pin, and an electro-conductive bridge
member carried by said pin adapted to brush
20 against both apexes of said V shaped conductors
and to establish a momentary short electrical
connection between them when passing them
upon the travel of said pin, both inwardly and
outwardly, said electro-conductive bridge mem-
25 ber on said pin normally being in front of said
apexes.

JOHN DE VINCENZI.