

(No Model.)

J. MENCHEN.  
OVERHEAD ELECTRICAL KNIFE SWITCH.

No. 574,926.

Patented Jan. 12, 1897.

Fig. 1.

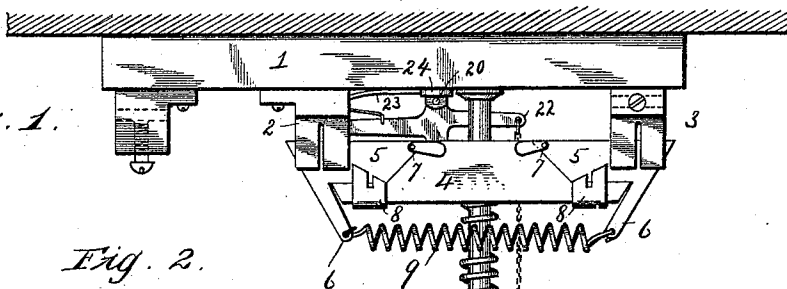


Fig. 2.

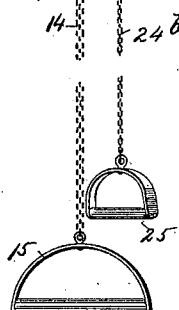
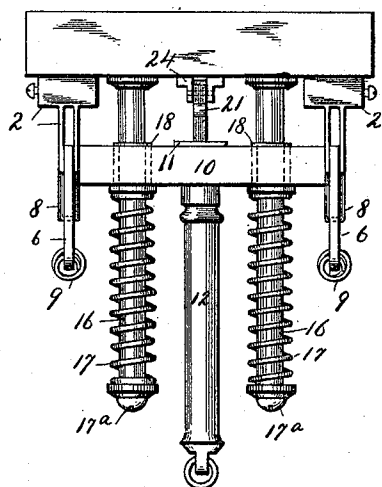


Fig. 3.

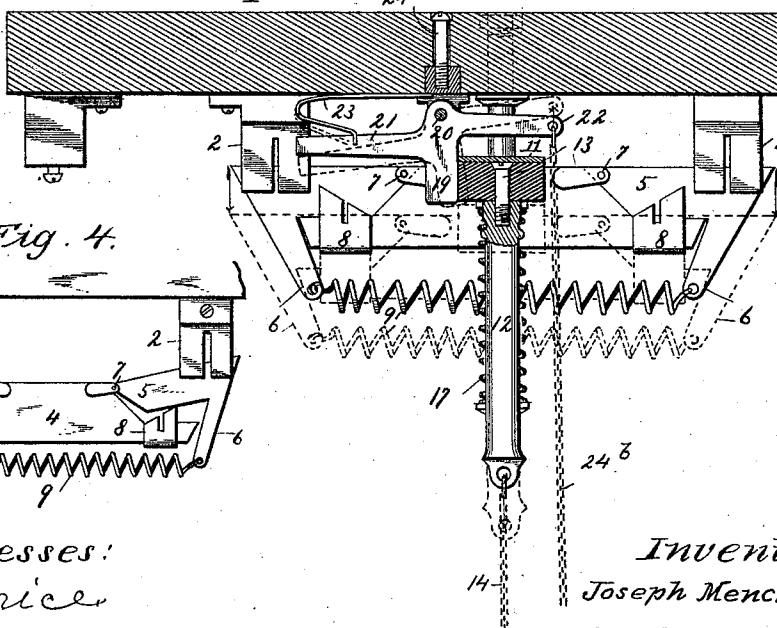


Fig. 4.

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# UNITED STATES PATENT OFFICE.

JOSEPH MENCHEN, OF KANSAS CITY, MISSOURI.

## OVERHEAD ELECTRICAL KNIFE-SWITCH.

SPECIFICATION forming part of Letters Patent No. 574,926, dated January 12, 1897.

Application filed February 25, 1896. Serial No. 580,727. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH MENCHEN, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Overhead Electrical Knife-Switches, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in overhead electrical knife-switches, and my object is to provide an electrical switch which may be secured to the ceiling of a room and thus obviate the necessity of running the electrical-current-conducting wires down the side of the wall, which it is necessary to do in order to make connections with switches now in general use. In addition to the expense saved by discarding the wall-wires, economy of space is obtained where a number of switches are employed, and the wall-space which they would now occupy may be utilized for other purposes.

With these objects in view the invention may be said to consist in certain features of novelty hereinafter described, and pointed out in claims.

In order that the invention may be fully understood, reference will be had to the accompanying drawings, in which—

Figure 1 represents a detail side view of said invention in position for operation. Fig. 2 represents an end view of same. Fig. 3 is a central vertical longitudinal section of the switch, showing its operation by dotted lines. Fig. 4 represents the switch-knives engaging the knife-terminal jaws, with the central portion of said knives depressed a part of the distance through which they pass and showing the position of the knife terminals before they are withdrawn from the knife-terminal jaws by the retractile spring.

Similar reference-figures refer to similar parts throughout the views in the drawings.

1 represents an insulating-base which is attached to the ceiling or overhead surface.

2 2 and 3 3 represent knife-terminal jaws which engage the contact-knife terminals 5 5. 4 represents the main or central portion of said contact-knives, to which are connected the knife terminals 5 5. 5 5 represent the

contact-knife terminals, which are connected with the central part 4 of said contact-knives by the pivots 7 7 and which engage the knife-terminal jaws to complete the current.

6 6 represent downward prolongations of the contact-knife terminals 5 5, forming levers by which said contact-knife terminals 5 5 are held in place when not engaged by the knife-terminal jaws 2 2 and 3 3 and by which said contact-knife terminals are instantaneously withdrawn from engagement with said knife-terminal jaws 2 2 and 3 3 as the knives are depressed by the downward movement of the cross-head 10 and its connections and through the agency of the retractile spring 9.

7 7 represent pivots connecting the central portion of the contact-knives 4 with the contact-knife terminals 5 5. 8 8 represent guards on either end of the central portion 4 of said contact-knives and extending up on either side of the contact-knife terminals and serving the double purpose of holding said contact-knife terminals in place and supplying a more extended contact-surface for conducting the electrical currents through the parts of said contact-knives.

9 represents a retractile spring which holds the contact-knife terminals 5 5 in place and instantaneously disengages said terminals from the knife-terminal jaws 2 2 and 3 3 when said contact-knife is depressed to break the electrical current.

10 represents a reciprocal insulating cross-head, to which are attached the contact-knives 4, with their connections, as above described, and through which pass the vertically-depending standards 16 16.

11<sup>a</sup> represents a wear-plate on the upper side of the reciprocatory insulatory cross-head 10 to protect said cross-head from wear by contact with the dog 19, on which it rests when said cross-head is in its depressed position.

12 represents a post depending centrally from said insulatory reciprocatory cross-head 10, to which may be attached any means of depressing said insulatory cross-head 10 and the contact-knives 4, with their connections, until said contact-knife terminals 5 5 are disengaged from the knife-terminal jaws 2 2 and 3 3.

13 represents a screw-bolt by which the de-

pending post 12 is attached to the insulatory reciprocatory cross-head 10.

14 represents a chain which is attached to the post 12, by means of which the insulatory reciprocatory cross-head 10, together with the contact-knives 4 and their connections, is depressed until the contact-knife terminals 5 5 are disengaged from the knife-terminal jaws and the electrical current broken. 15 represents a handhold for operating said chain 14 and its connections.

16 16 represent vertically-depending standards connected with the insulatory base 1 and passing through the insulatory reciprocatory cross-head 10 and terminating at the lower end in a screw-head or washer 17<sup>a</sup> 17<sup>a</sup> and mounted between said screw-head or washer and the lower surface of said reciprocatory insulating cross-head by spiral springs 17 17, holding said cross-head elevated and said contact-knife terminals 5 5 in engagement with the knife-terminal jaws 2 2 and 3 3.

17 17 represent spiral springs mounted on or encircling the depending standards 16 16, the lower end resting on the screw-head or washers 17<sup>a</sup> 17<sup>a</sup> and the upper end in contact with the lower surface of said reciprocatory insulating cross-head 10, which, with its connections, said springs force upward when disengaged from their depressed position by springing the dog 19 until said contact-knife terminals 5 5 engage the knife-terminal jaws 2 2 and 3 3, and thus connect the electrical circuit.

17<sup>a</sup> 17<sup>a</sup> represent the screw-heads or washers on the lower ends of the depending standards 16 16 and furnish the support for the springs 17 17 and the reciprocatory insulating cross-head 10 and its connections.

18 18 represent boxings passing through the insulating reciprocatory cross-head 10 and surrounding the depending standards 16 16.

19 represents a dog so placed that when the reciprocatory insulating cross-head 10 and its connections are so depressed as to disengage the contact-knife terminals 5 5 from the knife-terminal jaws 2 2 and 3 3 said dog engages the upper surface of said cross-head 10 and holds said cross-head and its connections in said depressed condition. 20 represents a pivot on which said dog 19 works and through which it is attached to the insulating-base 1.

21 represents a lever attached to and constituting a part of the dog 19, which, by means of a spring 23, when said reciprocatory insulating cross-head 10 is brought to its depressed position, is caused to take a position over said cross-head 10 and hold said cross-head and its connections in said depressed position.

22 represents a lever attached to and forming a part of the dog 19, which, by being depressed by a downward movement by the chain 24, removes said dog from its position over the reciprocatory insulating cross-head 10 and allows the springs 17 17 to carry said

cross-head 10 and its connections to their elevated position, forming an engagement with the knife-terminal jaws.

23 represents a spring interposed between the insulating-base 1 and the lever 21 of the dog 19 for throwing said dog 19 over the reciprocatory insulating cross-head 10 when said cross-head is brought to its depressed position.

24 represents a bifurcated casting screw-bolted to the insulatory base 1, to which the dog 19 is pivoted and by which said dog is attached to said base 1.

24<sup>a</sup> represents a screw-bolt by which the bifurcated casting 24 is bolted to the insulating-base 1.

24<sup>b</sup> represents a chain attached to the lever 22 of the dog 19, by means of which said dog is removed from over said insulating reciprocatory cross-head, allowing the same to be forced to its elevated position by spiral springs 17 17.

25 represents a handhold for operating the chain 24 and its connections.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An overhead switch, comprising an insulating-base, standards depending vertically therefrom, an insulating reciprocatory cross-head mounted thereon, knife-terminal jaws secured to the base, contact-knives carried by said cross-head, and provided with pivotal terminals, and retractile springs connected with each pair of pivotal terminals, substantially as set forth.

2. An overhead switch, comprising an insulating-base, standards depending vertically therefrom an insulating reciprocatory cross-head upon said standards, knife-terminal jaws secured to the base, contact-knives carried by said cross-head, terminals pivotally secured to the opposite ends of said knives and provided with downward projections, retractile springs connecting said projections, and means to hold said pivoted terminals into engagement with the terminal jaws, with a yielding pressure, substantially as described.

3. An overhead switch, comprising an insulating-base, standards depending therefrom, an insulating reciprocatory cross-head upon said standards, knife-terminal jaws secured to the base, contact-knives carried by the cross-head, terminals pivotally secured to the opposite ends of the knives, retractile springs connecting said terminals, means for holding the terminals in engagement with the contacts, with a yielding pressure, and means to break such engagement, substantially as described.

4. An overhead switch, comprising an insulating-base, standards depending therefrom, an insulating reciprocatory cross-head upon said standards, knife-terminal jaws secured to the base, contact-knives carried by the cross-head, terminals pivotally secured to the opposite ends of the knives, retractile springs

connecting said terminals, a post depending from the cross-head, a chain depending from the post and springs mounted upon the standards to normally press the cross-head toward the base, substantially as described.

5 5. An overhead switch, comprising an insulating-base, knife-terminal jaws secured thereto, standards depending from the base, an insulating reciprocatory cross-head upon the standards, contact-knives carried by the cross-head, springs normally pressing the cross-head toward the base with the knives engaging the knife-terminal jaws, and a dog to hold the cross-head in its removed position from the base, with the knives and terminal jaws separated, substantially as described.

6. An overhead switch, comprising an insulating-base, knife-terminal jaws secured thereto, standards depending from the base, an insulating reciprocatory cross-head upon said standards, and provided with a wear-plate, contact-knives carried by the cross-head, springs upon said standards and normally pressing the cross-head elevated, and a spring-actuated dog, carried pivotally by the base, which automatically engages the wear-plate when the cross-head is removed from the base, substantially as described.

7. An overhead switch, comprising an insulating-base, standards depending therefrom, an insulating reciprocatory cross-head upon said standards, knife-terminal jaws secured to the base, contact-knives carried by the cross-head, springs upon the standards for normally pressing the cross-head elevated, a post depending centrally from the cross-head, a chain connected thereto, a dog pivotally connected to the base to automatically engage and hold the cross-head when removed from the base, and means to trip said dog to permit the cross-head to rise, substantially as described.

8. An overhead switch, comprising an insulating-base, knife-terminal jaws and standards depending therefrom, an insulating reciprocatory cross-head upon said standards, contact-knives carried by the cross-head and

provided with pivoted terminals and springs normally pressing the cross-head elevated, and said terminals with a yielding pressure into frictional engagement with said knife-terminal jaws, substantially as described.

9. An overhead switch comprising an insulating-base, knife-terminal jaws and standards depending therefrom, an insulating reciprocatory cross-head upon said standards, contact-knives carried by said cross-head, and provided with terminals, and with slotted guides, which also act as current-conductors between the two sections of the knives, springs normally pressing the cross-head elevated and the said knife terminals into frictional engagement with knife-terminal jaws, whereby, when the cross-head is removed from the base, said terminals are caused to pivotally operate, and a retractile spring connecting each pair of pivoted terminals to facilitate their separation from the knife-terminal jaws, and engagement with the slotted guides, substantially as described.

10. In an overhead switch, the combination of a suitably-supported insulating-base, vertical standards projecting upwardly into the base, nuts engaging and clamping them in position, knife-terminal jaws depending from the base, an insulating reciprocatory cross-head upon said standards, provided with a wear-plate at its upper side, a post screw-bolted to the cross-head with a chain attached, expansion-springs spirally encircling the standards and bearing at their opposite ends against the heads of the same and the under side of the cross-head, contact-knives engaging the knife-terminal jaws, and carried by the cross-head, a bifurcated casting-screw bolted to the base, a dog pivoted therein, a spring interposed between the base and the dog, and a chain depending from the dog, all arranged substantially as shown and described.

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Witnesses:

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