(No Model.)

A. LUNGEN.

CIRCUIT CLOSER FOR ELECTRIC ALARMS.

No. 309,790. Patented Dec. 23, 1884.

Fig 1.

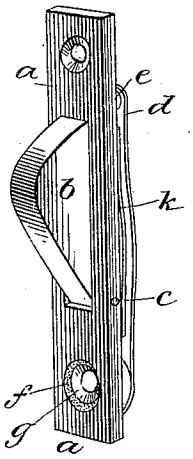


Fig. 4.

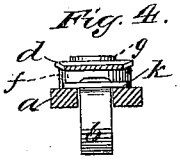


Fig. 2.

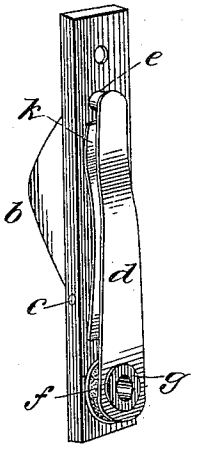


Fig. 3.

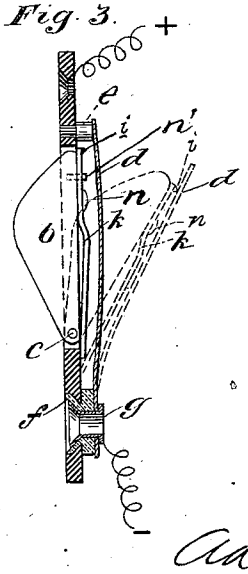
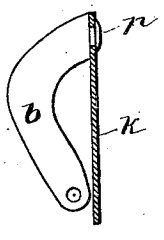


Fig. 5.



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UNITED STATES PATENT OFFICE.

ADAM LUNGEN, OF NEW YORK, N. Y., ASSIGNOR TO EDWARDS & CO., OF SAME PLACE.

CIRCUIT-CLOSER FOR ELECTRIC ALARMS.

SPECIFICATION forming part of Letters Patent No. 309,790, dated December 23, 1884.

Application filed June 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, ADAM LUNGEN, of New York city, New York, have invented certain new and useful Improvements in Circuit-Closers for Electric Alarms, of which the following is a specification.

My invention applies more especially to circuit-closing springs or contacts adapted for application to windows with which a burglar-alarm circuit is connected; and it relates to that class of window-springs which are formed with a slotted base-plate which is mortised into the sash-guide of the window-casing, and having a cam-shaped bar pivoted in the slot of the plate and projecting therefrom in the path of the sash, and with a contact-spring fixed on the back of the plate behind said cam, so that when the sash is raised to a certain height the cam is depressed and makes contact with the contact-spring, thereby closing the circuit and sounding the alarm; and the invention consists in the peculiar combinations and the construction and arrangement of parts hereinafter more fully described and claimed.

In the drawings annexed, Figure 1 presents a front perspective view of my improved window contact-spring, and Fig. 2 gives a rear perspective view of the same. Fig. 3 is a vertical longitudinal section of the same, and Fig. 4 a cross-section thereof. Fig. 5 is a modification.

In these figures, *a* indicates the base-plate of the device, which is preferably of a narrow oblong rectangular form, adapted to be set into a mortise cut into the face of the sash guides or ways on the window-frame in the usual manner, as will be understood. This plate is bored with a countersunk screw-hole at top and bottom, whereby it may be screwed in place, and it has a long narrow slot in the middle from which the cam *b* projects. This base-plate *a* has been usually formed of cast-brass, which necessitates it being made comparatively thick for sake of strength; but I prefer to construct it from a strip of wrought or sheet brass by stamping it therefrom by dies, which are so formed as to cut out the central opening for the cam *b*, and also punch the holes for the fastening-screws in each end at one action, these holes being subsequently countersunk by boring on the front side of the plate. This enables the plate to be made much thinner and yet be stiffer and stronger than if cast, so that the device when finished is much flatter and requires but a very shallow mortise to receive it in the window-frame, which is a great advantage in applying the device to the window. The cam *b* is of the usual proximately-triangular form, and is pivoted at its lower and narrow end at the bottom of the slot in the base-plate on a pivot-pin, *c*, which is driven through the side of the base-plate, as fully shown in Figs. 1, 2, and 3. The base or straight side of the cam when in repose is about flush with the back face of the base-plate, while the inclined face of the cam projects from the front of the plate, so as to present an inclined wedging-face toward the sash, so that when the sash is raised it will contact with said inclined face, and thereby depress the cam back into the slot of the base-plate, as shown by dotted lines in Fig. 3, and thence move smoothly over the cam, as will be understood. Now, on the back of the base-plate behind and over the cam is mounted the contact-spring *d*, which is fixed at its lower end to the lower end of the plate below the hinged end of the cam, while the free end of the spring rests normally on an insulating-stop, *e*, which projects from the base-plate just above the tip of the cam, as seen best in Fig. 3. The lower or fixed end of the contact-spring is firmly attached to yet insulated from the base-plate by the insulating-eyelet *f*, which is embedded in the lower countersunk hole in the plate, (see Fig. 3,) this insulating-eyelet being held in firm position by the metallic eyelet *g*, which is in metallic contact with the contact-spring, but not with the base-plate, as illustrated. It will therefore be noted that the lower screw which will fasten the device on the window-casing will therefore be in contact with the eyelet *g*, and hence with the contact-spring *d*, while the upper screw will be in direct contact with the base-plate, and therefore with the cam; hence the respective circuit-wires are connected with said screws, and the circuit will be normally broken between the tip of the cam and the tip of the contact-spring; but if the cam is forced back in the slot it will

contact with the spring and close the circuit, as indicated by dotted lines in Fig. 3.

I provide the cam with a distinct spring, *k*, independent of the contact-spring, which tends constantly to keep the cam protruded, the spring *d* serving solely as the contact-spring. This cam-spring *k* is preferably a plate-spring riveted at its fixed end to the back of the cam near the tip of the same, with the free end of the spring bearing on the back of the base-plate below or near the pivotal end of the cam, its position being thus reverse to the contact-spring *d*.

By reference to Fig. 4 the cam-spring will be seen to be broader than the cam, so that its edges rest upon the base-plate, and thus form a stop to limit the projection of the cam, as will be readily understood from the figures.

The tip of the cam, or rather the fixed tip of the cam-spring *k*, is provided with a point, *i*, of platinum, and the coincident tip of the contact-spring is also faced with platinum, as usual in these devices. It will therefore be seen that when the cam *b* is pressed back in the base-plate the cam-spring *k* will be flexed, as indicated by dotted lines in Fig. 3, and the platinum point *i* of the cam will make a long scraping contact with the contact-spring *d*, thus making perfect electrical connection, and when the cam is released its spring *k* will instantly force it back to its position of repose and break contact with the contact-spring, as shown by full lines in Fig. 3. It will also be noted that the cam-spring *k* will hold the cam firmly in its position of repose and prevent all idle play between the cam and contact-spring, thus relieving the contact-spring from any extra duty and preventing the possibility of premature contacts between them through severe rattlings of the windows, vibrations of the building, or other cause, which have been a source of frequent objections with the former construction. The use of the cam-spring *k* also obviates any necessity of bending or adjusting the contact-spring *d* relatively to the cam, as the former construction requires, and this renders the entire device much more durable and efficient. The cam-spring *k* is held to the cam *b* by the single rivet or screw *n*, and a small metal dowel-pin, *n'*, is driven through the spring into the cam above the rivet *n*, which prevents the spring from turning out of place on the rivet. The cam *b* is also formed of wrought metal, being cut in transverse slices or sections from a wrought-brass bar rolled to have the same form in cross-section as the cam, which renders the construction very cheap, strong, and durable. It is therefore obvious that the window-contact when constructed, as above set forth, possesses several advantages, as already indicated, and presents a positive improvement over the former constructions.

Instead of forming the cam *b* in the solid triangular form shown in Figs. 1, 2, and 3, it is much preferable to recess the back of the cam so as to form it in a curved shape, as shown in Fig. 5, as this will render the cam much lighter and require less metal, and thus further economize the manufacture. In this modification the cam-spring *k* will be fastened to the cam by means of a square projection, *p*, projecting solidly from the top end of the cam, which fits into a square hole in the spring, and is thence riveted down over the spring, as indicated, thus securing the spring firmly to the cam in a manner which will not allow it to turn out of place, and without employing a rivet separate from the cam. This form of cam will be also made of wrought metal, being cut in transverse slices from a brass bar rolled to the correct shape.

I am aware of the Patent No. 279,483, and make no claim to the construction shown therein as forming part of my invention.

What I claim is—

1. The plate *a*, provided with an oblong aperture, in combination with the cam *b*, projecting through said aperture, and pivoted therein at one end, and the spring *k*, attached to the free end of said cam and projecting below its pivoted point to find a resisting point on said plate *a* beyond its aperture, to force the cam outward, said spring being extended, substantially as described, to limit the forward movement of the cam, as set forth.

2. The apertured plate *a*, having countersunk openings to afford a means for securing the same in place, and cam *b*, in combination with the spring *d*, insulating-ring *f*, and metal eyelet *g*, the parts being constructed, arranged, and operating substantially as and for the purposes set forth.

3. A circuit-closer consisting of the following elements: apertured plate *a*, provided with openings on either side of said aperture to secure the device in place, cam *b*, spring *k*, stop *e*, spring *d*, insulating-ring *f*, and eyelet *g*, all constructed, combined, arranged, and operating substantially as and for the purposes set forth.

ADAM LUNGEN.

Witnesses:
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