

(No Model.)

S. BERGMANN.
CUT-OUT.

No. 445,362.

Patented Jan. 27, 1891.

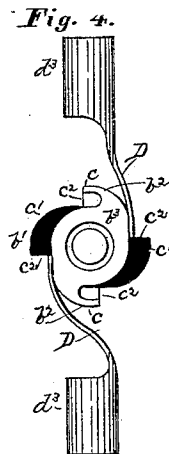
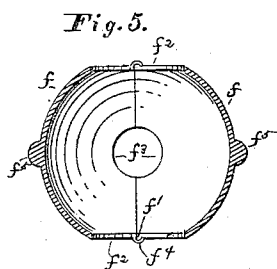
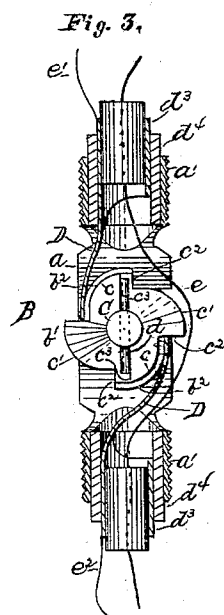
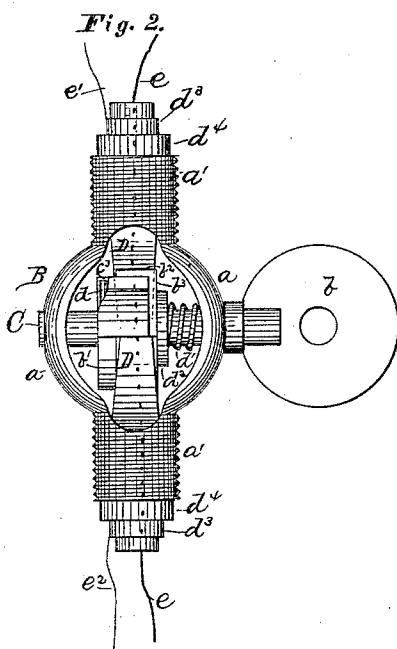
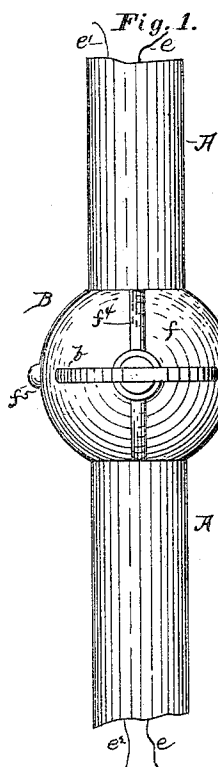
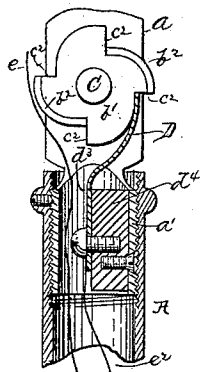


Fig. 6.



WITNESSES:

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CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 445,362, dated January 27, 1891.

Application filed January 25, 1890. Serial No. 338,132. (No model.)

To all whom it may concern:

Be it known that I, SIGMUND BERGMANN, of New York, county and State of New York, have invented a certain new and useful Improvement in Cut-Outs for Incandescent Electric Lamps, of which the following is a specification.

I will describe a device embodying my improvement, and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 represents a cut-out embodying my improvement and applied to a tube or pipe. Fig. 2 is a view of one side of the cut-out with its casing removed. Fig. 3 is a front view, partly in section, with the casing removed. Fig. 4 shows one side of the cut-out wheel and the contact-strips thereof. Fig. 5 is a section of the casing, and Fig. 6 shows a modification of a portion of the device.

Similar letters of reference indicate like parts in all the figures of the drawings.

Referring by letter to the drawings, A designates a section of conductor-tubing, which may be a portion of the arm of a chandelier when a cut-out is employed for each lamp, or it may be the main vertical portion of the fixture when one cut-out is employed for the several lamps.

B designates the cut-out, the frame consisting of the side portions *a*, which are here shown as bowed outward, and the tubular end portions *a'*. The end portions *a'* are threaded on their outer side to engage an internal thread of the tube. As shown in Fig. 6, set-screws may be employed to prevent the parts from turning upon each other. I prefer to use the set-screws as shown, as the parts should be fastened together, and pins will not answer, as the parts could not be taken apart without injury. By soldering the parts together they could not be separated, and, further, during the operation of soldering the insulation might be affected.

C designates a rotary shaft having bearings in the side portions *a* and having a finger-piece *b* on one of its ends, by means of which the shaft may be rotated.

Loosely mounted on the shaft C is the cut-out wheel *b'* of insulating material, such, for instance, as hard rubber. This wheel has on

its periphery four eccentric cam-surfaces *c c'*, providing the radial shoulders *c²*. The two opposite cam-surfaces *c* are faced with metal contacts *b²*. These contacts *b²* are joined together at one side of the wheel by a strip *b³*, having an opening through it large enough for the passage of the shaft C without forming a contact. This strip *b³* is preferably integral with the contacts *b²*, so that the contacts and strip may be placed upon the wheel and held by friction. On one side of the wheel *b'* are formed cam-surfaces providing shoulders *c³*, and a pin *d*, extended through the shaft C, impinges against these shoulders when the shaft is rotated in one direction, and thus rotates the wheel, with the shaft, to make or break the electrical connection. The wheel is adapted to move longitudinally on the shaft, so that when the shaft is rotated in a direction reverse to that for rotating the wheel the pin *d* will ride over the cam-surfaces, pushing the wheel lengthwise of the shaft without imparting rotary motion to the wheel. A spring *d'* serves to force the wheel against the pin *d*, and an insulating-washer *d²* is interposed between the spring and strip *b³*, so that the electrical current may not pass from the contacts to shaft or outer portions and fixture.

D represents resilient metal contact-pieces impinging against the periphery of the wheel *b'* and having shank portions *d³*, which may be tubular, extended into the tubular end portions *a'* and insulated therefrom by a bushing *d⁴*. This bushing serves to hold the contact-piece rigidly in its position. In Fig. 6 I have shown a straight shank portion *d³*, secured by a screw to the insulator *d⁴*, which in this event is in the form of a block. A line-wire *e*, properly insulated, extends through the tubular portions *a'* and leads directly to the lamp. The other line-wire *e'* has its end inserted between the tubular portion *a'* and the shank *d³* in contact with the shank and insulated from the tubular portion *a'*. A wire *e²* is similarly connected to the shank of the opposite contact-piece and leads to the lamp. It is obvious that when the wheel *b'* is rotated, so that the contacts connect with the contact-pieces, an electrical circuit is established, and when the wheel is turned so

that the cam-surfaces c' connect with the resilient contact-pieces the current is cut out. It may be here stated that the contacts b^2 are so arranged on the wheel c' and the connection between the rotary shaft and wheel so related that when the several contacts are in engagement the finger-piece b will stand parallel with the axis of the gas-tube and transverse to the tube when the contacts are not in engagement. By this means, if the lamp is not lighted when the finger-piece is turned to connect the operator may know that the current is broken at some other point, provided, of course, the finger-piece be turned in the right direction, as before explained.

The outer casing or shell consists of two hemispherical portions f , each provided with semicircular notches f to embrace the sides of the gas-pipe and semicircular notches f^3 to provide a passage for the rotary shaft. It is designed that the two portions f shall be locked together in such manner as to be easily detached. One of the means for so locking the parts I have illustrated and describe as follows: One of the portions f is provided on its edge with a rib f' and the other portion has on its edge a groove f^4 . When the two portions f are placed in position to cover the cut-out, the rib of one will be forced into the groove of the other and the parts will be held together. When it is desired to separate the parts, it is only necessary to push laterally on one of the nibs or projections f^5 .

It is to be observed that the shell may be removed without disarranging the other parts of the cut-out, as the two parts alone are movably secured together.

This cut-out is much smaller than those heretofore constructed. Its size with relation to the pipe is shown in Fig. 1.

Having described my invention, what I claim is—

1. In a cut-out, the combination of the frame having the tubular portions adapted to connect with a tubing, a rotary shaft, a cut-out wheel on said shaft, contacts on the wheel, and resilient contact-pieces extending into and secured within the tubular portions of the frame, substantially as specified.

2. In a cut-out, the combination of the frame having the tubular portions constructed to connect with tubing, a rotary shaft, a cut-out wheel loosely mounted on said shaft, contact-plates on the wheel, and resilient contact-pieces having tubular shanks secured in the tubular portions of the frame and insulated therefrom, substantially as specified.

3. In a cut-out, the combination of the rotary shaft, a wheel loosely mounted thereon and having cam-surfaces on its side, a pin extending from the shaft to engage with the shoulder portions of the cam-surfaces, contact-plates on the periphery of the wheel having an integral connecting-strip provided with a hole for the passage of the shaft, the said plates and strip being held in place by friction, and resilient contact-pieces, substantially as specified.

4. In a cut-out, the combination of the frame consisting of the outwardly-bowed side portions and the tubular end portions, a rotary shaft having bearings in the side portions of the frame, a cut-out wheel and contacts, and the casing consisting of two parts constructed to inclose the cut-out and frame, substantially as specified.

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