(No Model.)

# W. S. ANDREWS.

## SAFETY CATCH.

No. 348,371. Patented Aug. 31, 1886.

Fig. 1.

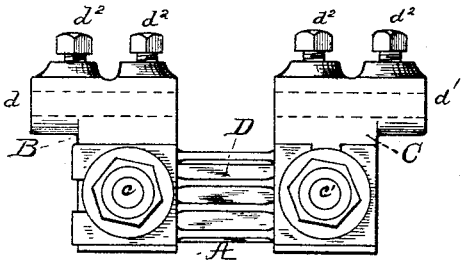



Fig. 2.

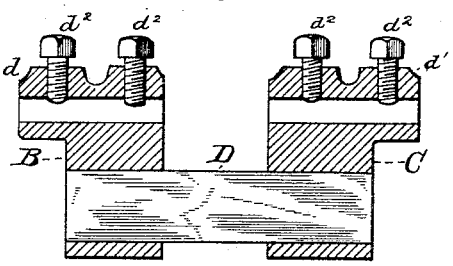



Fig. 3.

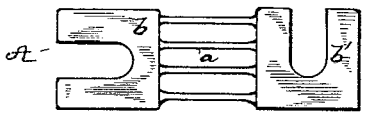



Fig. 4.

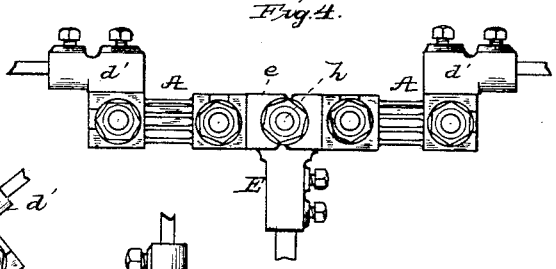



Fig. 5.

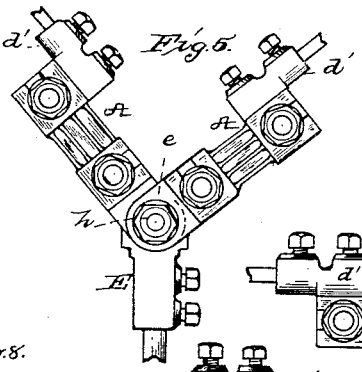



Fig. 6.

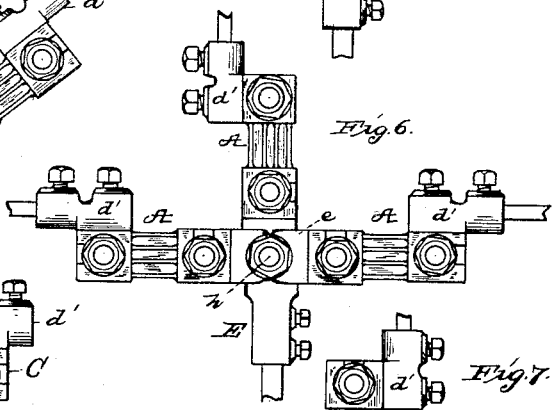



Fig. 8.

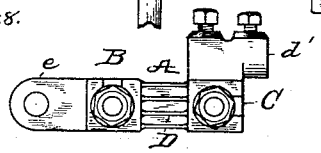



Fig. 7.

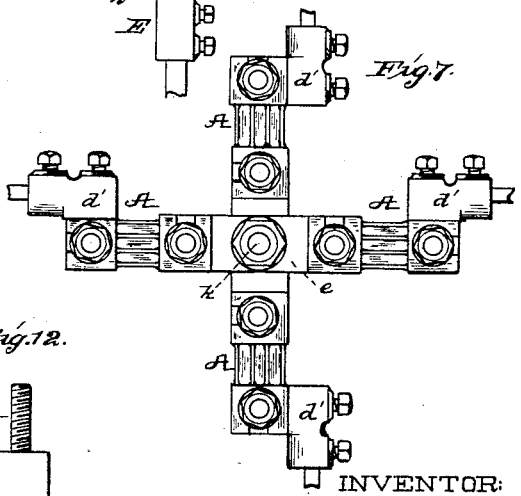



Fig. 9.

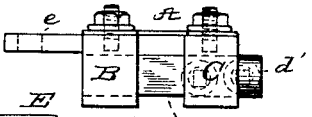



Fig. 10.

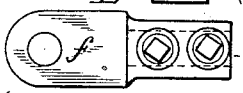



Fig. 11.

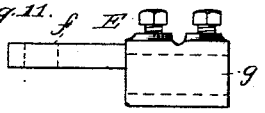
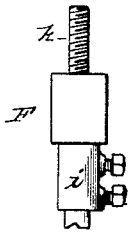



Fig. 12.

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# UNITED STATES PATENT OFFICE.

WILLIAM S. ANDREWS, OF NEW YORK, N. Y.

## SAFETY-CATCH.

SPECIFICATION forming part of Letters Patent No. 348,371, dated August 31, 1886.

Application filed November 20, 1884. Serial No. 148,378. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM S. ANDREWS, of New York city, in the county and State of New York, have invented a new and useful Improvement in Safety-Catches, of which the following is a specification.

The object I have in view is to produce a simple and efficient form of fusible safety-catch for electrical circuits employing heavy currents—such as the circuits of electric-light plants or those of systems of electrical distribution for light, power, and other purposes.

My device is more especially designed for use upon conductors run upon poles—such as are employed for the feeder and main circuits of the Edison three-wire or compensating system, as constructed for villages—which conductors are exposed to the weather; but the features of the invention are also applicable to safety-catches generally without regard to their particular location.

The invention will be understood by reference to the accompanying drawings, in which Figure 1 is a plan view of a single-part safety-catch; Fig. 2, a central section through the same; Fig. 3, a separate plan view of the safety-catch proper; Figs. 4 and 5, plan views of a two-part safety-catch on a smaller scale; Figs. 6 and 7, plan views of a three-part and a four-part safety-catch, respectively; Figs. 8 and 9, a plan view and side elevation of the separate radial part of which the multiple catch is made up; Figs. 10 and 11, a plan view and side elevation of the center piece for two and three part catches, and Fig. 12 an elevation of the center piece for the catch having four or more radial parts.

Like letters denote corresponding parts in all the figures.

The preferred form of my safety-catch A, Fig. 3, considered apart from its supports, is a number (two or more) of wires, *a*, of lead or other easily-fused metal, secured by soldering, fusing, or otherwise to common end plates, *b b'*, of harder metal, such as copper. These end plates are slotted, as shown, for securing the safety-catch in position.

The advantage of using a number of fusible wires secured to common end plates over a solid strip of lead is that the conducting capacity of the catch can be more accurately determined. The conductivity of one strand of the fusible wire and its fusing-point with relation to the current being determined, a safety-catch composed of a number of lengths of such wire will be known to have a definite fusing-point with relation to the current, since the radiating surface of the safety-catch increases directly as its conductivity; but with safety-catches of different sizes, each composed of a single piece of fusible metal, the relative fusing-points of the several catches cannot be determined by their relative resistances, since the radiating surface does not bear the same relation to conductivity in any two of the catches.

The simplest form of support for my safety-catch, Figs. 1 and 2, is composed of two metal frames, B C, connected by a block, D, of stoneware or other suitable insulation. The block D is cemented at its ends in the metal frames, or otherwise secured thereto. Stud-screws *c c'* are secured in the frames on one side, and receive nuts and washers for securing the end plates of the catch A. The metal frames B C are provided with sleeves *d d'*, cast therewith, which receive the ends of the wires forming the line in which the safety-catch is interpolated, such sleeves having set-screws $d^2$ for securing the wires within them. This construction is an exceedingly simple and effective one, the parts being weather-proof, strong, and durable.

The single safety-catch is intended for use in a line at a point beyond which the conductors are reduced in size. In a three-wire system this may frequently occur. I interpolate one of my catches at such point in each of the two outer conductors—the positive and negative—the central or compensating wire not being protected by safety-catches, although it may be. For a multiple-part safety-catch I mount the safety-catches A upon metal frames B C, connected by stoneware blocks D. The outer metal frame, C, has a wire-connecting sleeve, *d'*, while the inner frame, B, is provided with a perforated flat lip, *e*. For a two or three part catch I provide a metal center piece, E, having a perforated lip, *f*, and a horizontal wire-connecting sleeve, *g*. By means of a center bolt, *h*, the two or three safety-catch parts are secured to the center piece.

For a catch having four or more parts the metal center piece, F, has a vertical wire-connecting sleeve, *i*, so that the safety-catch parts

may radiate in any direction. A stud-bolt, *k*, is used to clamp the safety-catch parts together and to the center piece.

The multiple catches are used where a feeder enters a main, and the number of parts required for the safety-catch depends upon the number of branches there are to the main.

By making the multiple catch in separable parts the objects of economy and convenience are subserved. The radial parts can also be given the exact direction of the branching conductors, so that the strain will be taken lengthwise of the stoneware blocks. It is evident that this form of construction could also be applied to a single-part safety-catch, one part being secured to the center piece, instead of two or more.

The supporting-frames of my catches are covered with a suitable weather-proof paint or material, except upon surfaces where electrical connections are made, where they are left bare, and where, if desired, they may be plated with gold or other metal not easily oxidized.

My safety-catches when used upon air-lines are designed to be supported by the wires themselves, the connecting-sleeves and set-screws being an efficient construction for this purpose; but they may be secured to the poles in any suitable manner.

What I claim is—

1. The combination, with the metal frames or sockets and connecting-block of insulation entering such frames or sockets and secured therein, said frame or brackets surrounding the ends of the connecting-block, of the safety-catch secured to such metal frames, substantially as set forth.

2. The combination, with the metal frames or sockets and connecting-block of earthenware entering such frames or sockets and secured therein, said frames or sockets surrounding the ends of the connecting-block, of the safety-catch secured to such metal frames, substantially as set forth.

3. A multiple-part safety-catch having, in combination, a center piece, two or more safety-catches radiating therefrom, and connecting devices for connecting wires to such center piece and to the outer ends of the safety-catches, substantially as set forth.

4. In a multiple-part safety-catch, the combination of a metal center piece with two or more safety-catches mounted upon separate supports and removably connected to such center piece, substantially as set forth.

5. The combination of an insulating-block, metal frames secured to the ends of the block, a fusible safety-catch connecting such metal frames, a wire-connecting sleeve on one of such frames, and a perforated lug on the other frame, substantially as and for the purpose set forth.

This specification signed and witnessed this 4th day of November, 1884.

WILLIAM S. ANDREWS.

Witnesses:

F. H. WHITING,

G. W. LEWIS.