

(No Model.)

2 Sheets—Sheet 1.

R. FURGANG.

SAFETY ATTACHMENT FOR ELECTRIC CONDUCTING WIRES.

No. 481,666.

Patented Aug. 30, 1892.

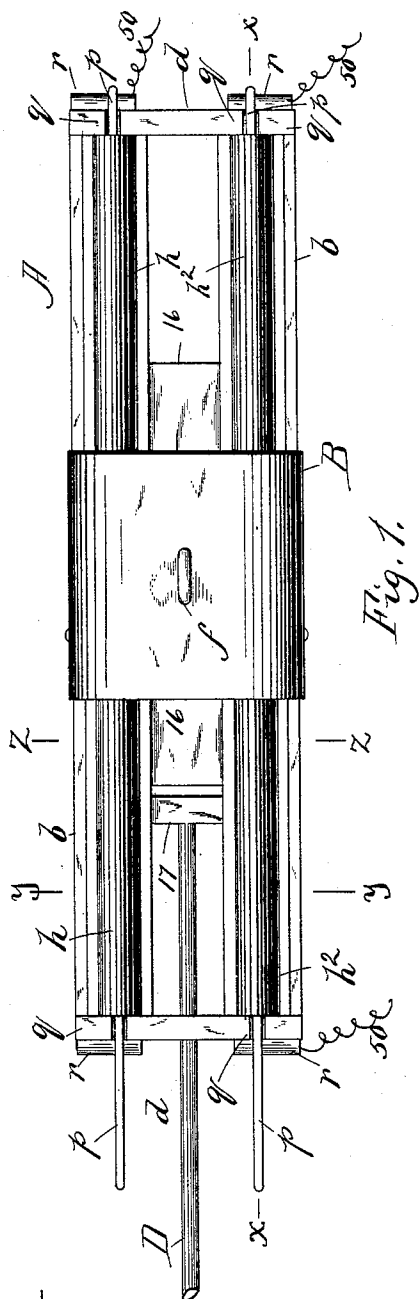


Fig. 1.

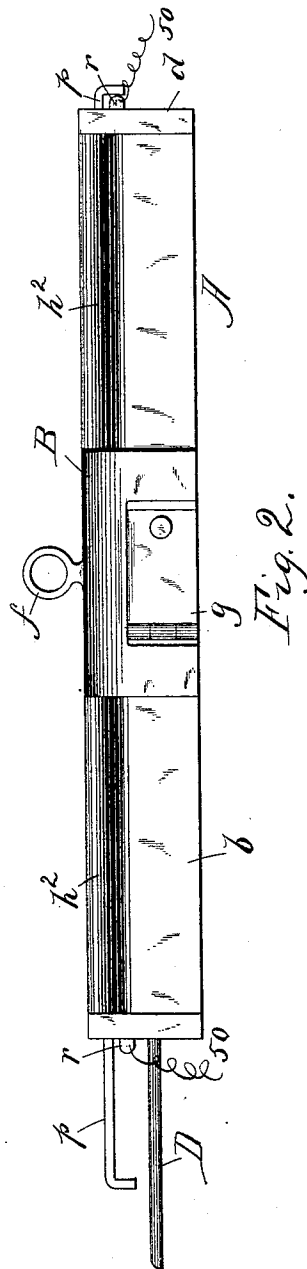


Fig. 2.

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2 Sheets—Sheet 2.

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SAFETY ATTACHMENT FOR ELECTRIC CONDUCTING WIRES.

No. 481,666.

Patented Aug. 30, 1892.

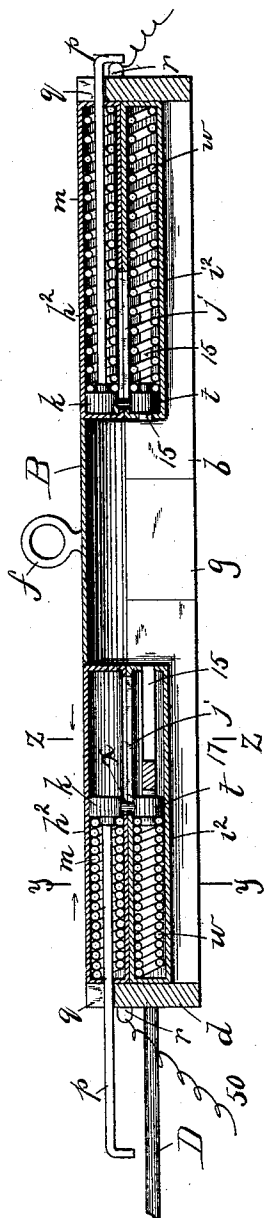


Fig. 3.

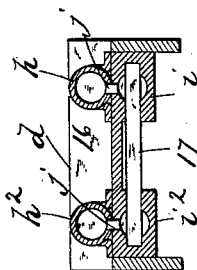


Fig. 6.

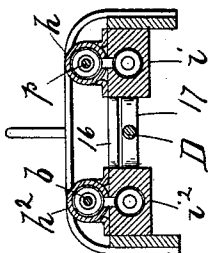


Fig. 5.

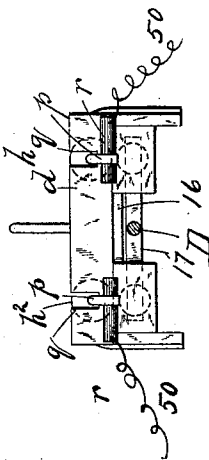


Fig. 4.

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UNITED STATES PATENT OFFICE.

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SAFETY ATTACHMENT FOR ELECTRIC CONDUCTING-WIRES.

SPECIFICATION forming part of Letters Patent No. 481,666, dated August 30, 1892.

Application filed January 25, 1892. Serial No. 419,140. (No model.)

To all whom it may concern:

Be it known that I, RUDOLPH FURGANG, of Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Safety Attachments for Electric Conducting-Wires, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view of my improved safety attachment; Fig. 2, a side elevation of the same; Fig. 3, a longitudinal section taken on line *x x* in Fig. 1; Fig. 4, an end elevation; Fig. 5, a transverse section taken on line *y y* in Fig. 1, and Fig. 6 a like view taken on line *z z*.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

My invention relates especially to a device applicable for use on the overhead conducting-wires of electric street-railway systems, whereby when such wire is accidentally broken and falls to the ground said broken section may be disconnected automatically from the remainder of the line-wire; and it consists in certain novel features hereinafter fully set forth and claimed, the object being to produce a simpler, cheaper, and more effective device of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents a frame of conductive material, which comprises parallel side bars *b*, connected at their ends by cross-bars *d*. Secured centrally to the side bars there is a supporting-arch B, of insulating material, at the top of which is disposed a loop or eye *f* for attaching it to the supporting-wires. Centrally in each side bar there is a hinged gate or switch *g*, whereby the circuit through said bars may be broken, said switches opening outwardly through the lower edges of the arch, as shown in Fig. 2. Twin

cylinders *h i h² i²* are arranged longitudinally of the frame adjacent the side bars, respectively. The cylinders *h h²* are mounted on the tops of their respective companions *i i²* and the sets are in parallelism.

Each end of the frame is provided with four cylinders, a space being left between the inner ends of the sets below the arch B. The lower walls of each cylinder *h h²* and the upper walls of the cylinders *i i²* are slotted longitudinally in alignment, forming an opening *j*, (see Fig. 3,) connecting said cylinders. A piston *k* is fitted to slide in each cylinder *h h²* and is pushed inward by a spring *m*. Piston-rods *p* play through the forward heads of said pistons, their outer ends working in notches *q* in the cross-bars *d*. The outer ends of said rods are bent downward in position to engage bosses *r* on the cross-bars when the pistons are projected inward. These bosses are insulated from the frame and a wire *50* connects them with the ground. A piston *t*, pushed by a spring *w*, works in the cylinders *i i²* and is connected rigidly to the piston *k* by a bar *x*, which plays in the slots *j*. The inner side walls of the cylinders *i i²* are slotted longitudinally at 15 through their inner heads. Adjacent cylinders *i i²* are connected by brace-plates 16 above said slots. A horizontally-arranged bar 17 projects into the slots of the adjacent cylinders *i i²* in front of their pistons *t* and is fitted to slide therein under the plates 16.

The device described forms a connection for adjacent ends of the conducting-wire D, which are respectively secured to the sliding bars 17. The tension of said wire-sections drives the bars 17 against the pistons *t*, compressing the springs *m w* and driving the piston-rods *p* outward, as shown at the left of Fig. 3. Should a section of the wire D break, the strain thereof being relieved, the combined force of the springs *m w* drive the bar 17, to which said wire is attached, inward, forcing it out from the slot 15 into the open frame under the arch B, where it falls to the ground. This breaks at once the ground connection which has been formed with the line by the broken wire coming into contact with the ground, preventing it from burning and obviating the danger incident to handling

such wires. The pistons assume the position shown at the right of Fig. 3, wherein the disconnection is represented as completed. The hooked ends of the rod p , contacting

5 with the bosses r , form a perfect ground connection and prevent the frame from becoming heated or melting from the resistance offered to the current passing over the ordinary supporting wires and poles to the ground.

10 In repairing the wires by opening the gates g the circuit may readily be broken.

By housing the springs in cylinders, as described, their life is prolonged and by multiplying the same in pairs, as shown, the action

15 on the wire-bars 17 is rendered positive.

Having thus explained my invention, what I claim is—

1. A safety attachment for electric conducting-wires, comprising a frame of conductive

20 material, two sets of twin cylinders secured thereto and provided with spring-pushed pistons, companion pistons being rigidly connected, and a block or bar sliding in slots in the lower cylinders of each set in front of their

25 pistons, to which the conducting-wire is attached, substantially as described..

2. In a device of the character described, a frame of conductive material and an insulated supporting connection therefor, combined

30 with two sets of twin cylinders on said frame, a block to which the conducting-wire is attached, fitted to slide in corresponding cylinders of each set, and spring-pushed pistons in said cylinders, companion pistons being rigidly connected and adapted to eject said block

when the tension on the conducting-wire is removed, substantially as described.

3. In a device of the character described, the frame A, provided with twin cylinders h i h^2 i^2 , having the connected spring-pushed

45 the frame A, provided with insulated bosses r and ground-wire 50, in combination with the rigidly-connected spring-pushed pistons k t , housed in connected cylinders, the line-wire bar 17, fitted to slide in corresponding cylinders and be ejected by said pistons, and the rods p for engaging said bosses, all being arranged to operate substantially as described.

5. In a device of the character described, the frame A, having the insulated supporting- arch B, in combination with the cylinders h i h^2 i^2 , mounted in said frame and provided with spring-pushed connected pistons k t , said cylinders being slotted at j , slots 15, the bar 17, fitted to slide in the slots 15 behind the pistons t , the line-wire D, secured to said bar, and the rods p on pistons k , adapted to form ground connections with the frame when the tension on said wire is removed, substantially as described.

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Witnesses:

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