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Patented Mar. 14, 1899.

R. BOSTOCK & F. A. CHEETHAM.
APPARATUS FOR SUPPORTING ELECTRIC WIRES AND AUTOMATICALLY CUTTING OFF
CURRENT ON BREAKAGE OF SAME.

(No Model.)

(Application filed Nov. 29, 1898.)

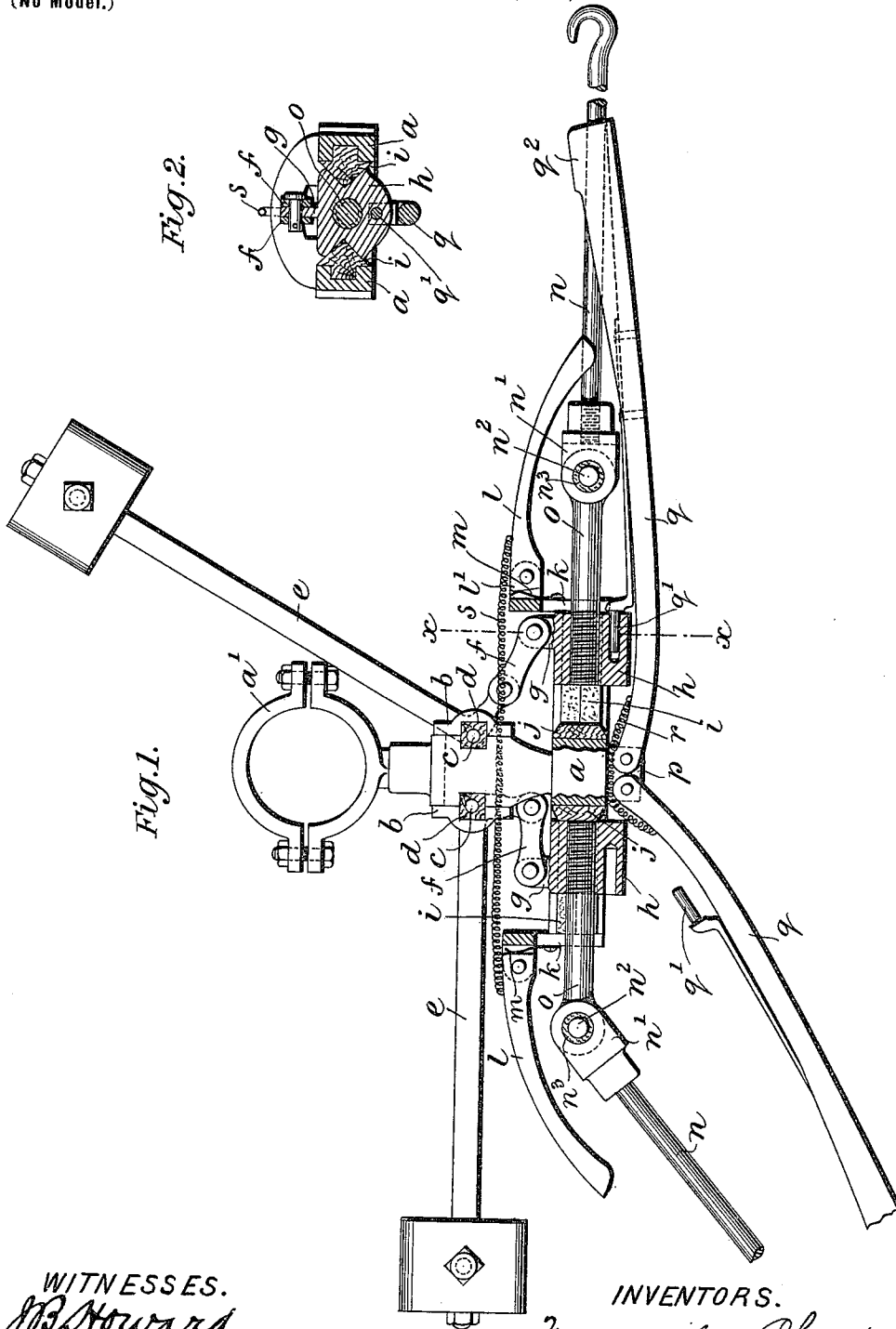


Fig. 2.

Fig. 1.

WITNESSES.
J. B. Howard
Gerware Appleyard.

INVENTORS.
Frank Arthur Cheetham
Ralph Bostock.

UNITED STATES PATENT OFFICE.

RALPH BOSTOCK AND FRANK ARTHUR CHEETHAM, OF BRIGHOUSE,
ENGLAND.

APPARATUS FOR SUPPORTING ELECTRIC WIRES AND AUTOMATICALLY CUTTING OFF CURRENT ON
BREAKAGE OF SAME.

SPECIFICATION forming part of Letters Patent No. 621,210, dated March 14, 1899.

Application filed November 29, 1898. Serial No. 697,794. (No model.)

To all whom it may concern:

Be it known that we, RALPH BOSTOCK and FRANK ARTHUR CHEETHAM, subjects of Her Majesty the Queen of Great Britain, residing at Brighouse, in the county of York, England, have invented a certain new and useful Improved Apparatus for Supporting Electric Wires and Automatically Cutting Off Current on Breakage of Same, of which the following is a specification.

Our invention relates to an apparatus for supporting electric wires, such as overhead lighting or street-railway wires, in such a manner that the current may be automatically cut off on the breakage or disconnection of same, so that accidents may be prevented.

Our invention is illustrated in one form in the accompanying drawings, Figure 1 being a sectional elevation, and Fig. 2 a cross-section on line *x x*.

The apparatus consists of a frame *a*, an upright of which carries a ring *a'* or other means by which it may be held or slung. The block also carries bearings *b b*, (of which one only is shown,) such bearings supporting a pin *c* and wooden or other suitable insulating-blocks *d*. These latter parts and those which follow are duplicated on the other side, the same letters of reference being applied to them. The pin *c* forms a pivot-point for a cranked lever *e*, carrying an adjustable counterweight on its long end, while its short end is pivotally attached to links *f f*, Fig. 2, which in turn are pivoted to a lug *g* of a block *h*. This block has V-shaped grooves in its sides, as shown in Fig. 2, and can slide in correspondingly-shaped guides *i i*, held in the sides of a slot in the frame *a*. These guides are of wood or insulating material, and the inside end of the slot is also provided with a block *j* of wood or insulating material for the block *h* to abut against; or the block may be otherwise supported so that it can slide and yet be suitably insulated. The parts of the frame *a* on either side of the slot are connected by an arched plate *k* in lugs, on the upper or central part of which there is pivoted an arm *l*, behind which is a spring *m*, adapted to bear against a shoulder *l'* of arm *l* and to keep the

outer end forced down. This outer end is preferably grooved so as to bear snugly on a rod *n*, pivotally connected through its head *n'* and pin *n²* with a rod *o*, attached to block *h*. The rod *n* terminates in a hook or eye, to which the electric wire is attached. Pivoted to a lug *p* on the frame *a* is an arm *q*, forming a shield carrying a pin or hook *q'*, adapted to engage with a hole in the sliding block *h*. The outer end of the shield at *q²* is grooved so as to embrace the rod *n* and is so shaped that it forms a gradual inclination from the under surface of the rod *n*, and thus forms a path in the case of a trolley-system railroad for the contact wheel or pulley for taking the electricity from the wire. The shield *q* is connected by a flexible wire *r* with the shield *q* on the opposite side of the frame, and the arm *l* is connected by a flexible wire *s* with the corresponding arm *l*. The pin *n²* of rod *n* is insulated by a bushing *n³* of suitable insulating material, and the head *n'* of the rod *n* is enameled inside or otherwise insulated from the head of rod *o*. The other end of the wire carrying the current is attached to a similar rod to rod *n* on the next block, and a suitable tension being put on same it will be seen that the rods *n* and *o* and block *h* will be drawn out, thus holding the cranked lever *e* in its raised position, as shown on the right-hand side of Fig. 1. The current is then on rod *n*, shield *q*, flexible wire *r*, and the parts on the opposite side of the apparatus, which are normally, of course, in the same position as those above described, and said current is also on arm *l*, wire *s*, and the corresponding parts on the other side. If, now, a breakage occurs of the wire carrying the current, the rods *n* and *o* are released and the counter-weighted lever *e* falls and draws back block *h*, thus releasing the pin or hook *q'* and allowing the shield *q* to fall, the parts being then in the position shown on the left-hand side of Fig. 1, where it will be seen that the wire being separated from shield *q* and arm *l* the current is cut off, and hence such broken wire becomes harmless. When such a breakage occurs, the arm *l* and shield *q* on the opposite side to the broken side may be separated by

some insulating material, such as a block of wood, placed between same and the wire n , so that the current from the unbroken wire is kept off same, thus allowing the broken wire to be replaced and the parts $q l$ to be restored before current is allowed to come on same, which is only effected when the block is removed.

What we claim is—

10 1. In apparatus for supporting electric wires, and in combination, a frame, a block capable of sliding in same and insulated therefrom a shield pivoted at one end and below the frame and adapted to make contact with
15 the wire carrying the current, means for normally connecting the shield and block, and means for withdrawing the block and thereby disconnecting it from the shield when the wire is broken so that said shield may fall by its
20 own weight substantially as and for the purpose specified.

25 2. In apparatus for supporting electric wires, and in combination, a frame, a block capable of sliding in same and insulated therefrom, a shield pivoted to the frame and adapted to make contact with the wire carrying the current, a hook carried by the shield adapted to be engaged by the block, a weighted cranked lever pivoted to the frame,

and a connection between same and the block so that when the wire is broken the lever may fall, withdraw the block, and release the shield, thus cutting off current from the broken wire substantially as described.

3. In apparatus for supporting electric wires and in combination, a frame, blocks oppositely arranged and capable of sliding in same and insulated therefrom a current-carrying wire connected to each block the tension on same being adapted to hold the blocks outwardly, shields pivoted to the frame and adapted to make contact with each wire and to form a track, means for normally connecting the blocks and shields so that the latter are held up and means for withdrawing the blocks automatically on the breakage of the wire connected to same thus releasing the shield and cutting off current from the broken wire substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

RALPH BOSTOCK.
FRANK ARTHUR CHEETHAM.

Witnesses:

I. B. HOWARD,
GERVASE APPELEYARD.