S. B. N. HILL.

DETONATOR SECURING DEVICE.

APPLICATION FILED FEB. 28, 1921.

1,409,108. Patented Mar. 7, 1922.

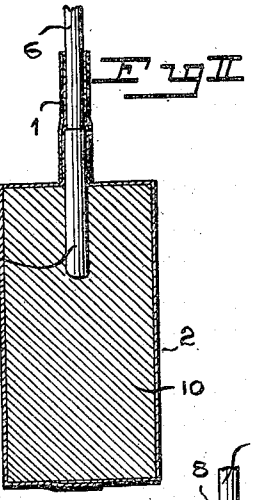



Fig II

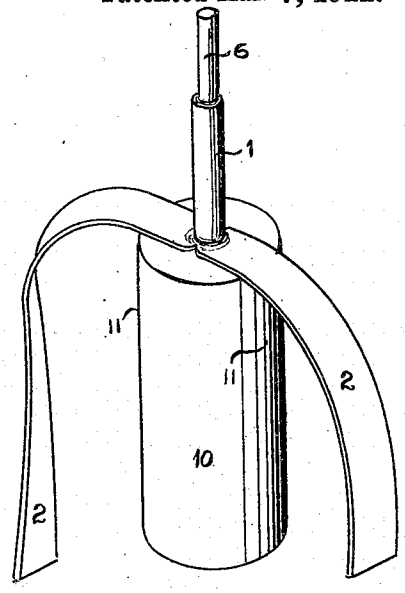



Fig I

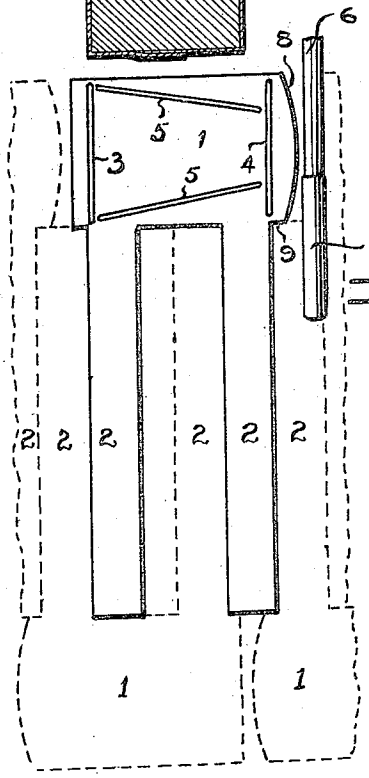



Fig III

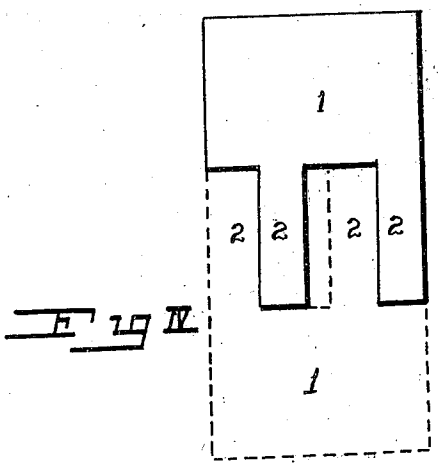



Fig IV

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# UNITED STATES PATENT OFFICE.

SYDNEY BROWN NICHOLSON HILL, OF BREYTEN, TRANSVAAL, SOUTH AFRICA.

## DETONATOR-SECURING DEVICE.

1,409,108. Specification of Letters Patent. Patented Mar. 7, 1922.

Application filed February 28, 1921. Serial No. 448,365.

*To all whom it may concern:*

Be it known that SYDNEY BROWN NICHOLSON HILL, a British subject, residing at Breyten Collieries, Breyten, Transvaal, Province of the Union of South Africa, has invented certain new and useful Improvements in Detonator-Securing Devices, of which the following is a specification.

The present invention relates to means in connection with explosive charges for securing a detonator to the fuse or fuse wire and to the explosive cartridge; and to means for effecting a watertight joint between the detonator and the fuse or fuse wire.

According to the present invention the connection is made by means of a flexible self-adhesive leaf consisting for example of a piece of canvas coated on one or both faces with non-drying adhesive, and similar to sticking plaster. The leaf is preferably waterproof in order to exclude moisture from the joint.

The joint is made by rolling the adhesive leaf around the junction of the detonator and fuse whereby it forms a sleeve adherent to the junction. In order further to secure the fuse and detonator to the cartridge the leaf is provided with a tail or tails, left loose when the leaf is rolled up, and afterwards secured to the cartridge.

In the accompanying drawings

Fig. I shows the device in use,

Fig. II is a vertical section of Fig. I,

Fig. III shows the flat leaf and its position relatively to the fuse and detonator immediately before it is wrapped thereon.

Fig. IV shows a modified form of the leaf.

In the drawings 1 indicates the body of the leaf and 2 the tails integral therewith. The whole can conveniently be stamped out of a large sheet of the material; the leaves being stamped out in alternate positions as indicated by the full and dotted lines of Fig. III.

During manufacture ribs 3, 4, 5 may be pressed up from the fabric, one near each edge, for the purpose mentioned hereafter.

When making use of the device the fuse or fuse wire 6 is inserted into the detonator 7 in the usual manner; but as the holder effectually secures these parts together, the usual crimping of the detonator on the fuse may, if desired, be omitted, with consequent lessening of danger to the operator.

An edge 8 of the leaf is applied to the fuse an detonator as indicated in Fig. III, with the lower edge 9 overlapping the open end of the detonator whilst leaving sufficient length of detonator free for insertion into the cartridge 10.

The leaf is then rolled, with the adhesive side (or one of such sides) inwards, firmly onto the fuse and detonator in the form of a sleeve (Fig. I). Said sleeve adheres to the fuse and detonator, securing them together, and also making a waterproof joint between them.

The detonator is then sunk in the end of the primer cartridge 10, the loose tails 2 are applied to the sides of the same, and caused to adhere thereto by pressure. In the form of the device shown in Figs. I, II and III the tails 2 are made long enough to overlap one another so forming a complete loop in which the cartridge is securely held.

In the alternative form shown in Fig. IV the tails 2 are shortened and in use extend to about the points 11 (Fig. I) on the sides of the cartridge. This form effects a saving of sheet material as compared with the first described form as will be apparent from Fig. IV.

The pressed-up ribs 3, 4, 5 above referred to form—when the sheet is rolled up—definite lines of jointing which ensure a watertight joint. The vertical rib 3 thus makes definite initial contact with the fuse and detonator, and the vertical rib 4 similarly joints the last layer of the rolled sheet to the preceding layer. The transverse ribs 5 ensure the ends of the several layers of the sleeve 11 being jointed together and said ribs are inclined as shown so that they each roll up into a helix and thus avoid undue thickening of the ends of the rolled cylinder.

I claim:

1. A device for the purpose specified consisting of a self-adhesive flexible leaf adapted for rolling around the junction of a fuse and detonator and having an integral tail or tails adapted to adhere to the cartridge in which the detonator is placed.

2. A device for the purpose specified consisting of a self-adhesive flexible leaf adapted for rolling around the junction of a fuse and detonator and having two integral tails adapted to adhere to the cartridge in which the detonator is placed, the tails being sufficiently long to be passed completely round the cartridge and to overlap one another.

3. A device for the purpose specified con-

sisting of a self-adhesive flexible leaf adapted for rolling around the junction of a fuse and detonator and having an integral tail or tails adapted to adhere to the cartridge in which the detonator is placed, the leaf being formed with pressed-up ribs adapted to make a definite joint.

4. A device for the purpose specified consisting of a self-adhesive flexible leaf adapted for rolling around the junction of a fuse and detonator and having two integral tails adapted to adhere to the cartridge in which the detonator is placed, the tails being sufficiently long to be passed completely round the cartridge and to overlap one another, the leaf being formed with pressed-up ribs adapted to make a definite joint.

In testimony whereof I affix my signature.

SYDNEY BROWN NICHOLSON HILL.