

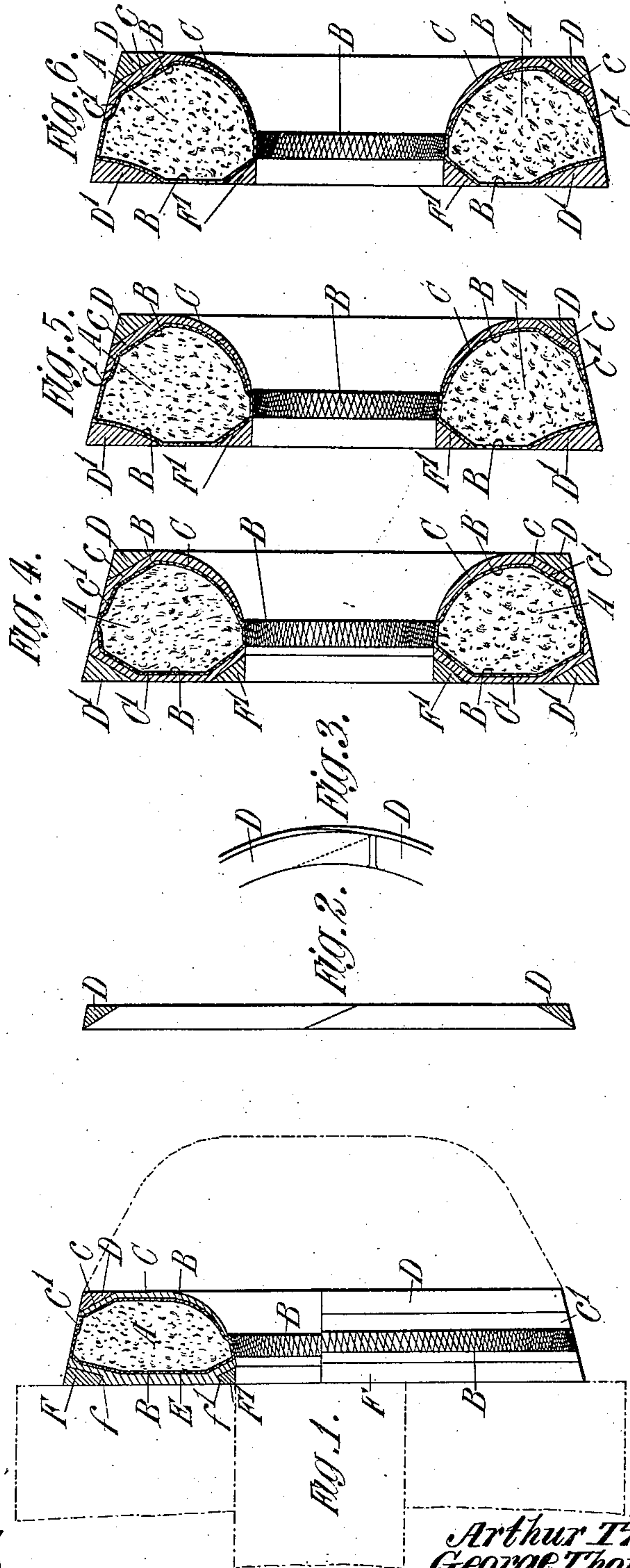
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Patented Mar. 18, 1902.

A. T. DAWSON & G. T. BUCKHAM.
OBTURATOR FOR BREECH LOADING ORDNANCE.

(Application filed Sept. 6, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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OBTURATOR FOR BREECH-LOADING ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 695,799, dated March 18, 1902.

Application filed September 6, 1901. Serial No. 74,512. (No model.)

To all whom it may concern:

Be it known that we, ARTHUR TREVOR DAWSON, late lieutenant of Royal Navy and superintendent of Ordnance Works, and GEORGE THOMAS BUCKHAM, engineer, subjects of the King of Great Britain, residing at 32 Victoria street, Westminster, in the county of London, England, have invented certain new and useful Improvements Relating to Obturators for Breech-Loading Ordnance, of which the following is a specification.

This invention relates to obturators of the "De Bange" type for breech-loading ordnance, and has for its chief object to improve the construction of such obturators, so that the liability of their pads to become injured during use will be much less than heretofore.

In a gun having a swinging screw-threaded breech-block with interrupted threads we make the outer circumference or seat of the obturator-pad—that is to say, the part which fits radially against the breech end of chamber—conical or ogival in form, so that in the swinging of the block in opening or closing the breech the obturator will easily leave or enter its place within the breech-chamber without requiring to be shifted rectilinearly. The said pad preferably consists of a composition of asbestos and mutton-suet, covered with canvas, and is made in the form of a ring in the manner usual with the De Bange obturators. In such obturators experience has proved that during use the canvas of the pad is liable to injury, particularly at the forward circumferential part where the junction takes place between the said canvas and the edge of the disks employed for protecting the pad.

It is the chief object of our invention to overcome this liability to injury by providing the pad with a protecting metallic cup or cups and a split ring or rings, as hereinafter explained.

In the accompanying drawings, Figure 1 is a sectional elevation of one form of obturator constructed in accordance with our invention. Fig. 2 is a section of the split ring used with this form of obturator. Fig. 3 is a detail face view of the said ring (looking toward the left

of Fig. 2) and showing how its ends overlap. Figs. 4, 5, and 6 are vertical sections of modified constructions of the obturator.

Like letters of reference indicate similar parts in all the figures.

Referring more particularly to Figs. 1 to 3, A is the body portion or pad of the obturator, and B the canvas covering thereof. The front portion of the pad is provided with a protective facing or cup C, of copper or other appropriate material, which we interpose between the mushroom head of the obturator-bolt (shown in dotted lines) and the forward part of the pad, said forward part being preferably beveled at *c* near its periphery. The said copper facing or cup is also preferably flanged rearwardly at its periphery to form a circular lip *c'*, which will cover a part of the pad that would otherwise be exposed at the periphery. This rearwardly-flanged portion may taper to a thin or knife edge. At the aforesaid front beveled part *c* of the periphery of the said copper facing or cup we provide a steel or other suitable split ring D, which is preferably of triangular cross-section to fit the correspondingly-beveled portion of the copper facing or cup C, but which is not connected to the latter. The rear portion of the pad may be protected with a tin or other suitable metal disk E, steel rings F, and metallic ring F' in the manner usual with De Bange obturators, these rings being secured in place by causing the tin composing said metal disk E to overlap the annular dovetail groove formed by the inclined inner edges *ff'* of the rings. With this construction of obturator when the gun is fired the gaseous pressure generated causes the mushroom head of the obturator-bolt to exert great pressure on the pad, as is well understood, thereby compressing the latter and causing the copper facing or cup C and the steel split ring D to make a tight joint at the seat of the obturator and to thus effectually seal the breech-opening of the gun. The action of the rear disk is practically the same as in the ordinary form of the De Bange obturator. The special advantage of the copper facing or cup C is that if the obturator does not truly fit its seat the compression

of the pad causes the said facing or cup to take a permanent "set" against the said seat, thus permanently compensating for any inequality of the fit. The front split ring D insures a metallic contact with the seat of the obturator, so that when rapid firing is effected the great heat resulting therefrom is conducted from the mushroom head to the gun through the said metallic contact. The powder-gases are prevented from attacking the pad at the point where the steel ring D is split by the pressure of the mushroom head against the copper facing or cup C, and in order to prevent damage of the obturator by successive intermittent pressures occasioned by rapid firing the copper facing or cup should be made of appropriate thickness.

In Fig. 4 we have shown the pad A provided with a copper or other appropriate metal protective backing or cup C' at its rear in addition to the front facing or cup C, and also with a rear split ring D' in addition to the front split ring D. In this case the rear rings D' and F' are not formed with the dovetail portions represented in Fig. 1, and the holding of the rings in place is dependent upon the obturator-bolt and breech-block retaining the pad between them.

In Figs. 5 and 6 we have dispensed altogether with the metal disk E and the rear cup C' shown in the preceding figures, but in other respects the obturator is similar to those already described, except that in Fig. 6 it is curved or ogivally formed on its periphery, the radius of such curve being struck from the axis of the hinge about which the breech-block swings.

We wish it to be understood that the aforesaid rear metallic cup C' and split ring D', Fig. 4, may be used without the forward cup C and split ring D, if desired, and in some

cases we may use the rear split ring D' without the rear metallic cup C', or the said rear split ring D' may be used with both the forward metallic cup C and the split ring D. We also wish it to be understood that our improvements may be used with an obturator having its periphery parallel instead of conical or curved, in which case it would of course be necessary to provide the breech mechanism of the gun with the usual or other means for rectilinearly withdrawing the obturator before swinging the breech-block outwardly about its hinge.

What we claim, and desire to secure by Letters Patent of the United States, is—

1. In an obturator, the combination with the pad, of a forward metallic split ring of triangular cross-section, a protective metallic facing to said pad having a beveled portion near its periphery and flanged rearwardly, and two concentric rear rings, the outer one of which is split, substantially as and for the purpose specified.

2. In an obturator, the combination with the pad, of a forward metallic split ring of triangular cross-section, a protective metallic facing to said pad having a beveled portion near its periphery and flanged and tapered rearwardly, a protective metallic backing to said pad, and two concentric rear metallic rings of triangular cross-section, the outer one of which is split, substantially as and for the purpose specified.

In testimony whereof we have hereunto set our hands, in presence of two subscribing witnesses, this 24th day of August, 1901.

ARTHUR TREVOR DAWSON.
GEORGE THOMAS BUCKHAM.

Witnesses:

A. J. MORRIS,
C. A. SEARLE.