

J. L. BRODIE,
HELMET OR HEAD SHIELD.
APPLICATION FILED JUNE 27, 1916.

1,251,959.

Patented Jan. 1, 1918.

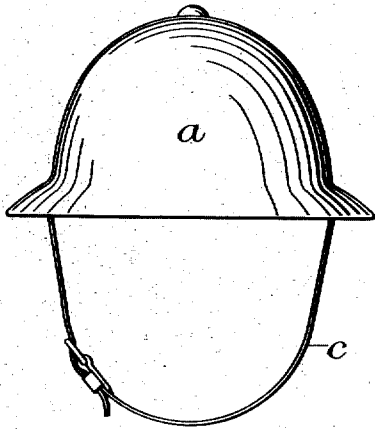


FIG. 1.

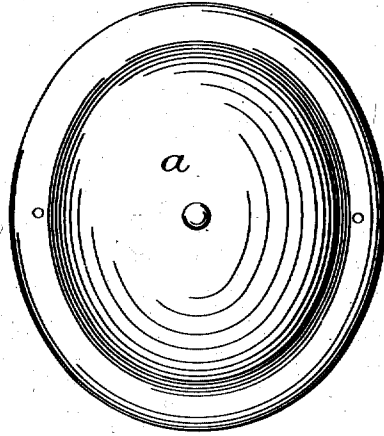


FIG. 2.

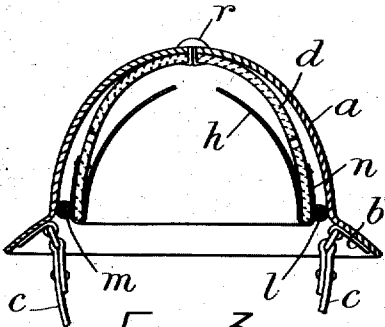


FIG. 3.

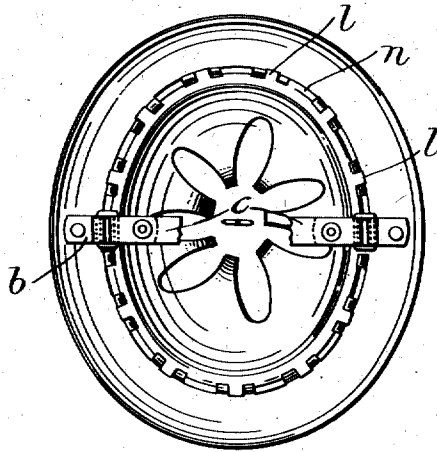


FIG. 4.

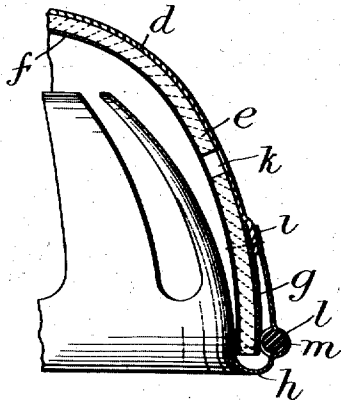


FIG. 5.

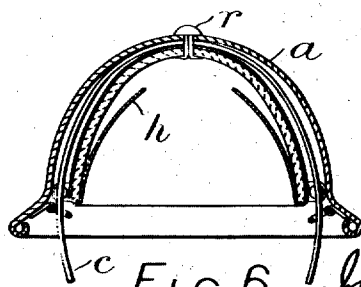


FIG. 6. Inventor:
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UNITED STATES PATENT OFFICE.

JOHN LEOPOLD BRODIE, OF LONDON, ENGLAND.

HELMET OR HEAD-SHIELD.

1,251,959.

Specification of Letters Patent.

Patented Jan. 1, 1918.

Application filed June 27, 1916. Serial No. 106,278.

To all whom it may concern:

Be it known that I, JOHN LEOPOLD BRODIE, a subject of the King of Great Britain and Ireland, residing at London, England, have invented certain new and useful Improvements in Helmets or Head-Shields, of which the following is a specification, reference being had therein to the accompanying drawing.

10 The present invention relates to helmets or head shields for military, mining and the like use.

15 The resisting power of existing steel helmets designed to protect the head against wounds caused by the impact of rifle bullets, shrapnel bullets, shell splinters, falling coal, stones or minerals and the like depends upon the thickness of the metal of which the helmet or head shield is made. The thick-
20 ness however has hitherto been restricted by the weight of the helmet. Even in the case of comparatively light, but fairly strong helmets of the existing kinds, the method of fitting them on the head has the disadvantage that the force of a relatively small impact is transmitted direct to the skull and may easily produce concussion of the brain or at any rate a severe bruise. Apart from the danger of such bruises or wounds be-
25 coming infected and causing blood poisoning, difficulties arise in removing these helmets when they have received jagged penetrations and deep indentations, because the metal becomes embedded in the head. More-
30 over such helmets in cold weather are likely to cause frostbite and in hot weather become insupportable.

The present invention aims at overcoming these drawbacks.

40 According to the invention the helmet or head shield is stamped from a resistant metal and when used for military purposes from a known form of bullet-proof steel such as manganese steel so that comparatively thin
45 plate may be used, which is as resistant as much thicker plates hitherto used for making helmets.

50 In order to prevent concussion of the brain by external impact and to prevent injury to the frontal, parietal or occipital bones of the cranium by any indentation or penetration of the helmet, the latter is provided with an inner lining adapted to act as a buffer. This buffer or anticoncussion
55 lining is so arranged within the helmet shell

that a free space or air gap is left between lining and shell, and therefore the helmet may be subjected to a considerable force of impact or even be indented or penetrated without injury to the wearer.

60 By providing an antiseptic and absorbent cushion of lint or cotton wool in said lining the danger of wounds becoming infected is avoided, while any blood is absorbed and prevented from running down into the wear-
65 er's eyes. In cases of strong hemorrhage the helmet can be strapped tightly so as to act as a tourniquet.

The lining is only loosely secured inside the shell, and preferably only at one point
70 in such a way that the shell can be easily removed from the lining if the latter sticks to the injured head. This arrangement also enables the lining to be quickly renewed.

75 The buffer or anti-concussion lining tends to retard the velocity of objects striking the helmet and this diminishes the shock usually felt with other helmets. The inner lining protects the wearer against frostbite in cold weather and the air gap surrounding the
80 lining keeps the wearer's head cool in hot weather. The lining equalizes the distribution of weight on the wearer's head because of its resiliency and thereby prevents the undue local pressure which is a prime cause
85 of headaches. The inner protective lining grips the head firmly and does away with the continued necessity of pressing down the helmet to keep it in place. The lining also
90 protects the helmet from rusting.

95 In order to fully understand the invention one way of constructing the helmet or head shield is explained by way of example with reference to the accompanying drawings:—

Figure 1, is a front view,
Fig. 2 a top view,
Fig. 3, a cross section,
Fig. 4, an underside view,
Fig. 5, an enlarged section of part of the
100 buffer lining; and
Fig. 6, a section of a modification.

The shell *a* of the helmet which is made considerably larger than the skull and provided with a brim of 1 to 1½ inches wide all
105 around is stamped out of bullet proof steel plate of about one-twentieth of an inch thickness. The brim or any other convenient part is provided with riveted chin strap
110 buckles *b* (Figs. 3, 4 and 6) and leather

straps *c*, the buckles *b* being arranged in such way that when the straps are tightened they do not inconvenience the wearer. As shown in Fig. 5 the buffer lining is arranged in the shape of a skull cap and is composed of an outer layer of felt *d* an inner layer of canvas *f* and an intermediate layer of absorbent cotton wool or lint *e*. The edge of the felt layer *d* is stiffened by means of a surrounding band of fiber or other suitable material *g*, which is sewn on to the other linings. The canvas lining *f* is covered with American cloth or the like *h* cut and arranged in the way usual for helmet linings.

15 The outer edge of this American cloth is turned up outside the stiffened band *g* and stitched to the felt at *i*, being also provided with loops *l* (Figs. 3, 4 and 5) preferably made by cutting the American cloth. Small buffers or studs *m* of resilient material such as rubber or the like are passed through said loops *l* for the purpose of providing the required air space or gap *n* between the lining and the shell and for absorbing shocks produced by external impact. When rubber studs are used these may be perforated. Ventilating holes *k* are provided at suitable positions and are cut right through the felt *d*, absorbent cotton *e* and canvas *f*. The lining is fixed to the crown of the shell by a single fastening device such as a split rivet *r* which, while affording sufficient hold for the lining in the shell also allows of the steel shell being easily removed from the lining in case of injury to the skull.

Fig. 6 shows a modification of the attachment of the chin strap. As will be seen from the drawings the chin strap *c* is passed through one buckle *b* over the lining and through the other buckle. The strap is fixed by the rivet at the crown of the helmet. This kind of attachment has the advantage that the lining adjusts itself to the wearer's head when the strap is pulled around the wearer's chin. The buckles *b* are preferably made slightly larger than is the case in the arrangement shown in Fig. 3 so as to give adequate play to the chin strap.

50 The steel shell is preferably colored in rainbow colors so as to make it invisible to the enemy when the helmet is used for military purposes, and to prevent injury by the sharp edge of the rim of the helmet, the edge is preferably rounded off as shown in Fig. 4.

It is evident that various alterations and modifications of the construction of the helmet are possible without departing from the spirit of the invention and I do not therefore desire to limit myself to the exact form of construction shown and described.

What I claim as my invention and desire to secure by Letters Patent is:—

65 1. A helmet or head shield consisting of a

metal shell and a loose buffer lining, secured at one point only of its crown to the crown of said shell by detachable means.

2. A helmet or head shield consisting of a metal shell and a loose buffer lining which contains absorbent material and is secured at one point only of its crown to the crown of said shell by detachable means.

3. A helmet or head shield consisting of a metal shell and a loose buffer lining, spaced away from said shell at the lower edge, said buffer lining being secured at one point only of its crown to the crown of said shell by detachable means.

4. A helmet or head shield consisting of a metal shell and a loose buffer lining spaced away from said shell at the lower edge, said buffer lining containing absorbent material and being secured at one point only of its crown to the crown of said shell by detachable means.

5. A helmet or head shield consisting of a metal shell and a loose buffer lining provided with resilient pads at intervals between the lower edge of said lining and said shell, said lining being secured at one point only of its crown to the crown of said shell by detachable means.

6. A helmet or head shield consisting of a metal shell and a loose buffer lining containing absorbent material and provided with resilient pads at intervals between the lower edge of said lining and said shell, said lining being secured at one point only of its crown to the crown of said shell by detachable means.

7. A helmet or head shield consisting of a metal shell and a loose buffer lining provided with rubber pads held in loops of said lining at intervals between the lower edge of said lining and said shell, said lining being secured at one point only of its crown to the crown of said shell by detachable means.

8. A helmet or head shield consisting of a metal shell and a loose buffer lining provided with rubber pads held in loops of said lining at intervals between the lower edge of said lining and said shell, said lining containing absorbent material and being secured at one point only of its crown to the crown of said shell by detachable means.

9. A helmet or head shield consisting of a metal shell and a loose buffer lining composed of an outer layer of felt, an inner layer of canvas, and an intermediate layer of absorbent material and secured at one point only of its crown to the crown of said shell by detachable means.

10. A helmet or head shield consisting of a metal shell and a loose buffer lining provided with resilient pads at intervals between the lower edge of said lining and said shell, said lining being composed of an outer layer of felt, an inner layer of canvas, and an intermediate layer of absorbent material and

being secured at one point only of its crown to the crown of said shell by detachable means.

5 11. A helmet or head shield consisting of a metal shell and a loose buffer lining composed of an outer layer of felt, an inner layer of canvas, an intermediate layer of absorbent material and a head cover of fabric which is turned up around the lower edge of
10 said felt, and is provided with rubber pads held in loops in said head cover at intervals between the lower edge of said lining and said shell, said lining being secured at one
15 point only of its crown to the crown of said shell by detachable means.

12. A helmet or head shield consisting of a metal shell, strap buckles on said shell and a loose buffer lining spaced away from said shell at the lower edge, a chin strap passed
20 through said buckles and over said lining which is secured at one point only of its crown to the crown of said shell by detachable means.

13. A helmet or head shield consisting of
25 a metal shell, strap buckles on said shell, a

loose lining, resilient pads at intervals between the lower edge of said lining and said shell, a chin strap passed through said buckles and through interstices between adjacent pairs of said pads and over said lining
30 which is secured at one point only of its crown to the crown of said shell by detachable means.

14. A helmet or head shield consisting of a metal shell, strap buckles on said shell, a
35 loose lining, rubber pads held in loops on said lining at intervals between the lower edge of said lining and said shell, a chin strap passed through said buckles and through interstices between adjacent pairs
40 of said pads and over said lining which is secured at one point only of its crown to the crown of said shell by detachable means.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN LEOPOLD BRODIE.

Witnesses:

CONRAD JOHN STARDEY,
FREDERICK JOHN TAYLOR.