Dec. 22, 1942. A. WOLFF 2,306,362

HELMET

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Fig. 1.

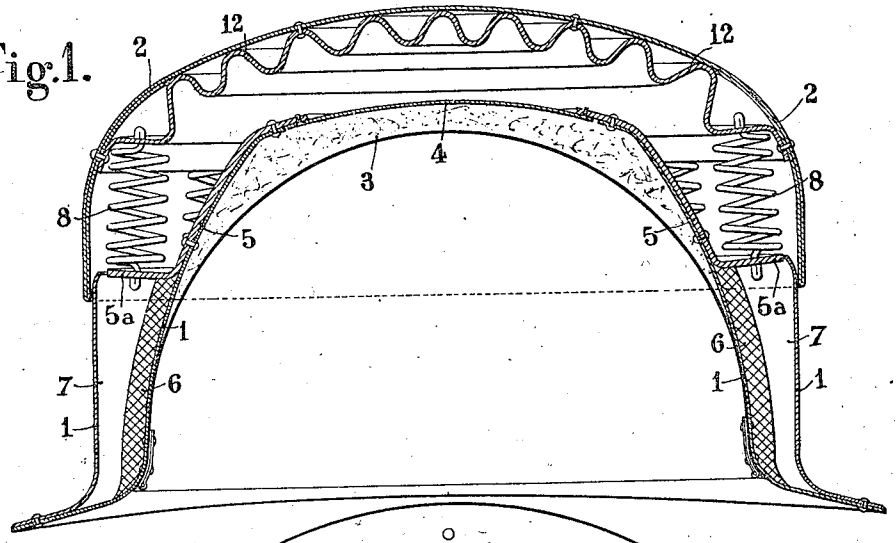
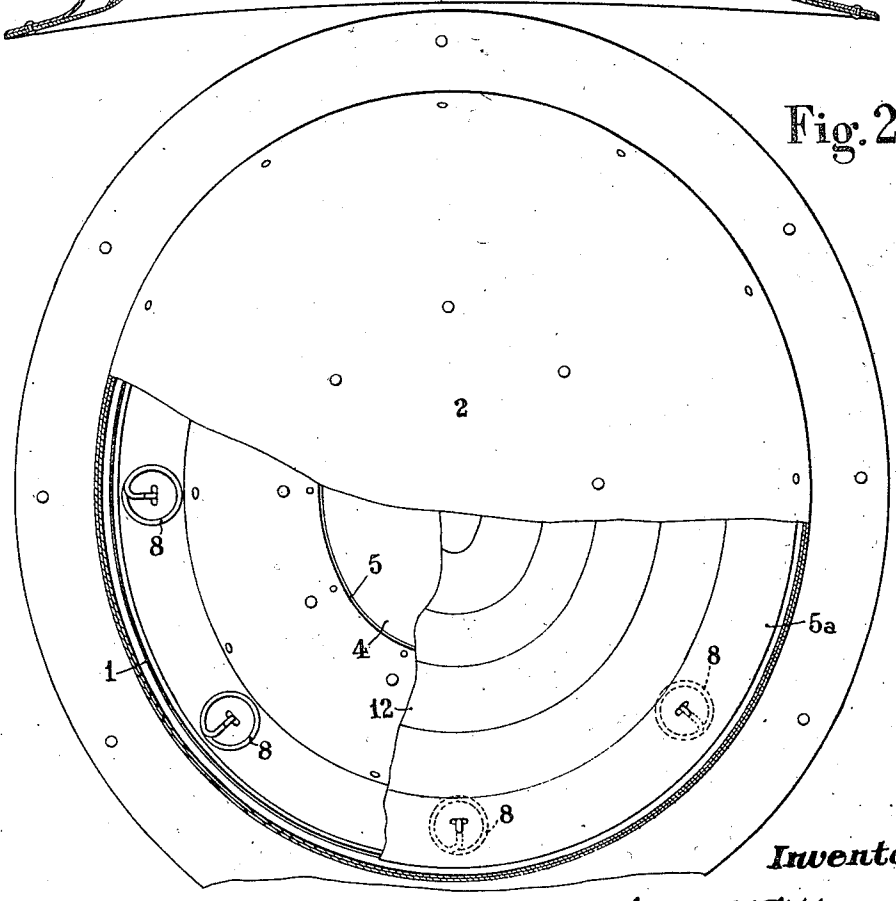


Fig. 2.



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Fig. 3.

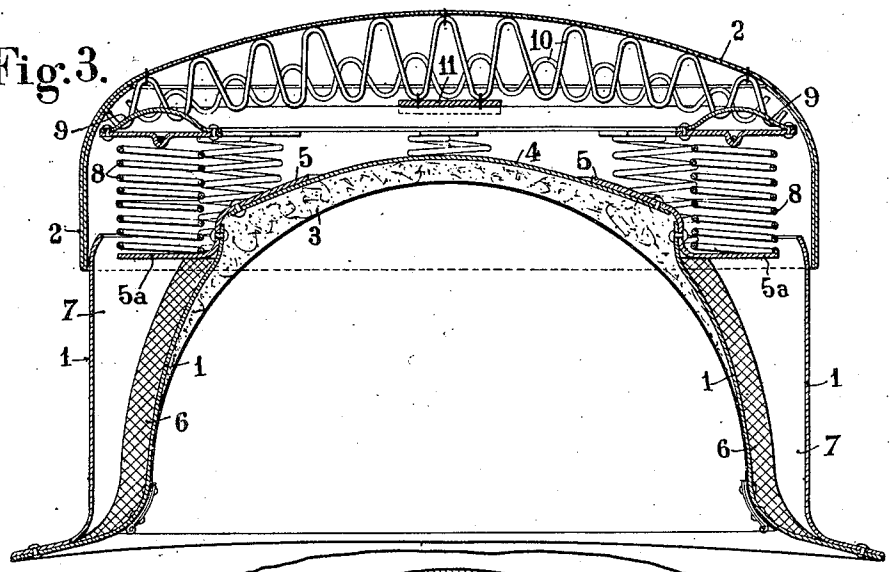
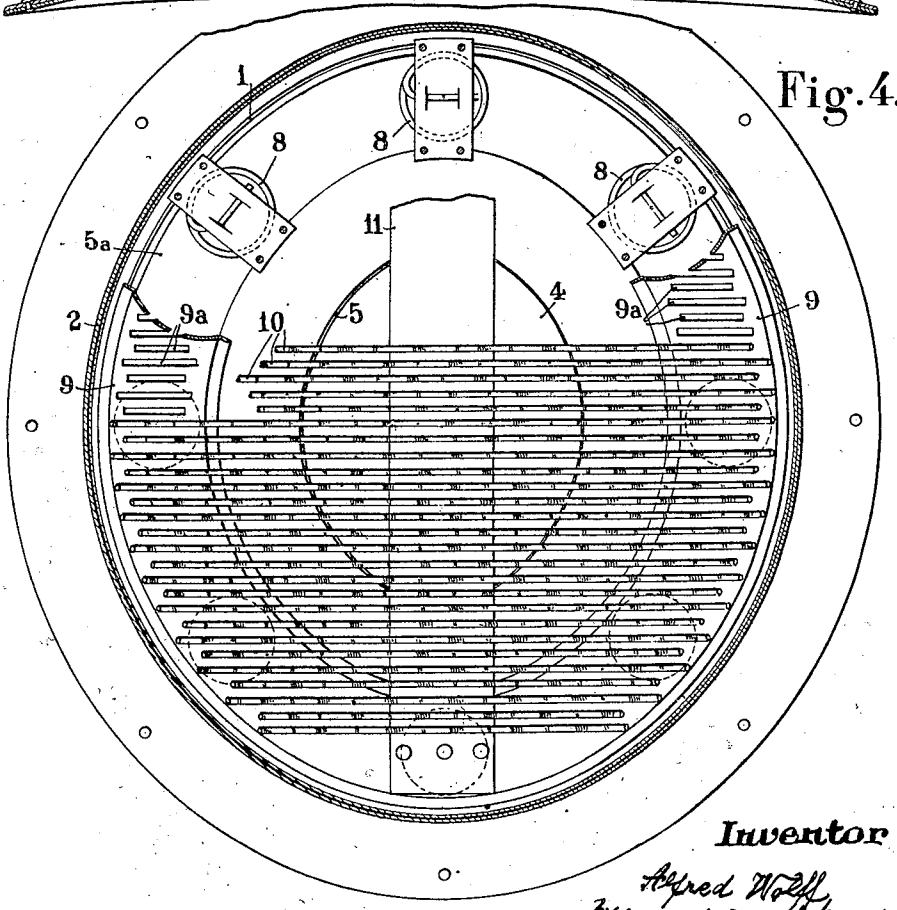


Fig. 4.



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Patented Dec. 22, 1942

2,306,362

UNITED STATES PATENT OFFICE

2,306,362

HELMET

Alfred Wolff, Paris, France; vested in the Alien Property Custodian

Application December 16, 1938, Serial No. 246,177
In France December 16, 1937

8 Claims. (Cl. 2—3)

The object of the present invention is a covering for the head or helmet, which protects the head better than the known devices, and which is especially adapted as war helmets at close combat, under air attack, in mine and grenade explosions, against projectiles under fire, etc. It is also useful as a police, fire and mine or sport helmet, in order to reduce the imminent dangers of loss of life.

Principally the invention provides in a helmet a stiffened crown which is arranged at a determined distance from the skull and which reposes on one or more rows of elastic buffers formed, i. e. by helicoidal pressure-springs. The invention resides furthermore in positioning of the stiffened crown as well as the buffers and in their construction.

The drawings show two forms of embodiments of a helmet forming the object of the present invention.

Fig. 1 is a cross-section of the first form of execution of the helmet.

Fig. 2 is a plan view, wherein the crown and other parts are partly broken away.

Fig. 3 is a cross-section of a second form of embodiment.

Fig. 4 is a plan view (like Fig. 2).

The hollow body of a device of this invention comprises a double walled helmet casing made from light metal etc., and is closed at the top by a crown 2 made from leather, light metal etc. The crown 2 has a stamped, corrugated or otherwise profiled, stiff but resilient lining 12 which reposes directly on the damping springs 8. This stiffened crown can be perforated or cut out in any convenient manner in order to reduce the weight. The cover or crown 2 overlaps the rim, i. e. the outer wall of the double wall helmet 1. The cap has an inner soft lining 3 which is fastened in a plate 4 made of light metal. The circumference of plate 4 merges with the inner wall of the cap casing 1, an annular part 5 made from light metal or steel establishing the connection. The profile of this annular part 5 is extended at the bottom or underpart by a flange 5a which serves as a support. The outer side of the inner wall of the cap casing 1 may for reinforcing purposes be provided with a coating 6 of caoutchouc or the like. The hollow space 7 below the flange 5a may also be filled up with caoutchouc or another protecting material. The flange 5a supports a number, e. g. eight helicoidal pressure springs 8, which are distributed over the circumference of the cap around the head.

According to the second embodiment of Figs. 3 and 4, the springs 8 support a second profiled flange or ring 9 made for instance out of a sheet of steel or light metal and showing the form of a convex channel wherein the transverse slots 9a (Fig. 4) are cut substantially parallel with each other.

According to this form of execution the reinforced upper part comprises a series of transverse metal wires or small rods 10, which are preferably crimped, the corrugations being disposed, in a vertical plane. These wires or rods form a kind of trellis placed at a certain distance from the crown. The ends of the wires or rods are pressed into the slots 9a (Fig. 4) of the annular ring 9. At the center the wires or small rods 10 are rigidly mounted on a central, longitudinal steel band or bridge 11. The longitudinal band is attached at the ends to the ring 9. Fig. 3 shows that the corrugations may be relatively displaced from one wire or rod to the other, a low point on one being aligned with the apex of a corrugation of the other; they may also show difference in height. The wires or small rods are rigidly fastened to the crown 2. The crown 2 is spaced in an outward direction so that there is a small clearance between the crown and the upper border of the rim or outer wall of casing 1 of the cap, allowing circulation of air. The arrangement of the stiffened crown or of the trellis work made of corrugated wire or small rods—which rests on the springs placed around the cap and in a circle about the head, which springs are again supported by a flat annular ring fastened to the cap part,—is chosen in such a way, that the stiffened lining 12 and also the trellis 10 are maintained at a distance suitable to give a desired spring effect above the skull of the user. In this manner and in spite of small weight, a very strong helmet is obtained which is able to damp and absorb in a very efficient way any blows or stroke directed against the skull. When such blows are received by the stiffened or reinforced crown or the trellis, they are transmitted to the circumferentially disposed springs, which are compressed and allow the blows to be transmitted only in a very damp manner to the human head.

Between the crown 2, reinforced by lining 12, and the plate 4 and lining 3 of the cap, remains a hollow space, so that the helicoidal springs may work without acting directly on the skull. Moreover the reenforced crown as a whole as well as the corrugated wire or small rods represents an efficient protecting means against projectiles, splinters of grenades, stone or chunks of soil etc. turned up by grenades etc. The danger caused

by laterally directed blows, strokes, projectiles, etc. is reduced in a very efficient way by the exterior mantle of the helmet and especially by the disposition and construction of the materials inside of the crown. The reenforced crown is arranged in such a way that not only the upper part of the skull, but also the lateral parts of the human head are protected by said means.

In the event of the destruction of this protection, the protecting effect of the annular border enters into action which, by reason of its position, laterally protects the head. Thus the skull is in part twice protected from the top. Besides the efficient effect of the dampers or springs, arranged around the head, the position and construction of the materials thus offer a considerable protection against any kind of attack from the top. The protection is many times superior to that offered by actual steel helmets, although there is no increase of weight of the new helmet as compared to the known helmets, etc.

Without departing from the character of the invention, it is naturally possible to modify the form, the arrangement and the dimensions of the different details, especially the stiffened crown. It is also possible to replace the helicoidal springs by other springs and by equivalent elastic bodies, dampers etc. In lieu of being placed transversally, the wires or small rods of the stiffened cover can also be placed longitudinally or diagonally or they can be arranged crosswise.

What I claim is:

1. A helmet combining a cap having a laterally projecting circumferential flange near the top and a radially outwardly spaced rim arising from the bottom of the cap, with a crown having a reinforced lining and elastic members resting on said flange and spacing said crown apart from said cap, said crown overlapping said rim.

2. A helmet combining a cap having a circumferential flange and a rim, with a crown having a reinforced lining and elastic members extending only between the marginal portion of said lining and said flange and spacing said crown apart from said cap, said crown overlapping said rim.

3. A helmet comprising a crown, a lining in said crown made of a stiff material rendered resilient by corrugations, a cap, and elastic buffer means arranged in a circle between said crown and said lining and spacing them apart.

4. A helmet comprising a crown, a stiff lining in said crown having an outer ring and substantially concentric corrugations, a cap, and elastic buffers extending from said ring onto the cap and spacing the crown apart from the cap.

5. A helmet comprising a crown, a lining in said crown having an outer ring and crimped wires extending as a trellis across said ring and spacing said ring relatively to said crown, a cap, and elastic buffers extending from said ring onto the cap and spacing the crown apart from the cap.

6. In a helmet, a cap having a soft lining to fit onto the skull, a crown, an upper and a lower flange extending out from said cap, elastic members seated upon said upper flange and supporting said crown spacedly above said cap, and a rim arising from said lower flange and vertically slidably extending into said crown.

7. In a helmet, a cap having a soft lining to fit onto the skull, a crown, an upper and a lower flange extending out from said cap, elastic members seated upon said upper flange and supporting said crown spacedly above said cap, and a rim arising from said lower flange, spacedly surrounding the cap and said upper flange and vertically slidably extending into said crown.

8. In a helmet, a cap having a soft lining to fit onto the skull, a crown, an upper and a lower flange extending out from said cap, elastic members seated upon said upper flange and supporting said crown spacedly above said cap, a rim arising from said lower flange and vertically slidably extending into said crown, and a resilient filler between said rim and the cap.

ALFRED WOLFF.