

Feb. 22, 1944.

A. A. STRAUSS

2,342,501

HAT

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Fig. 1.

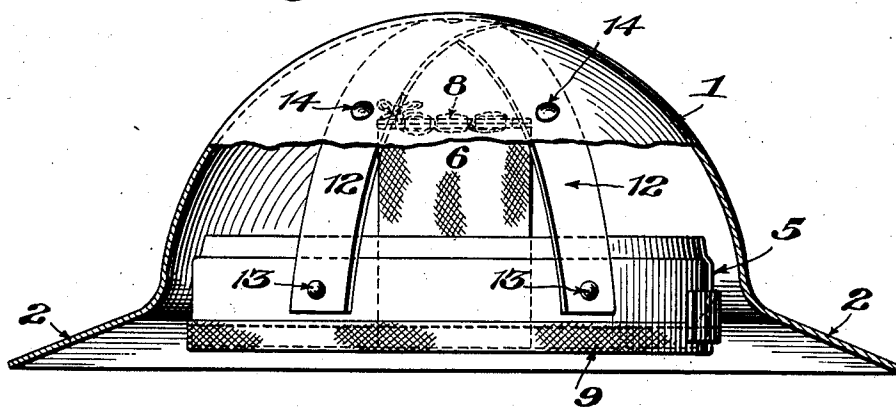
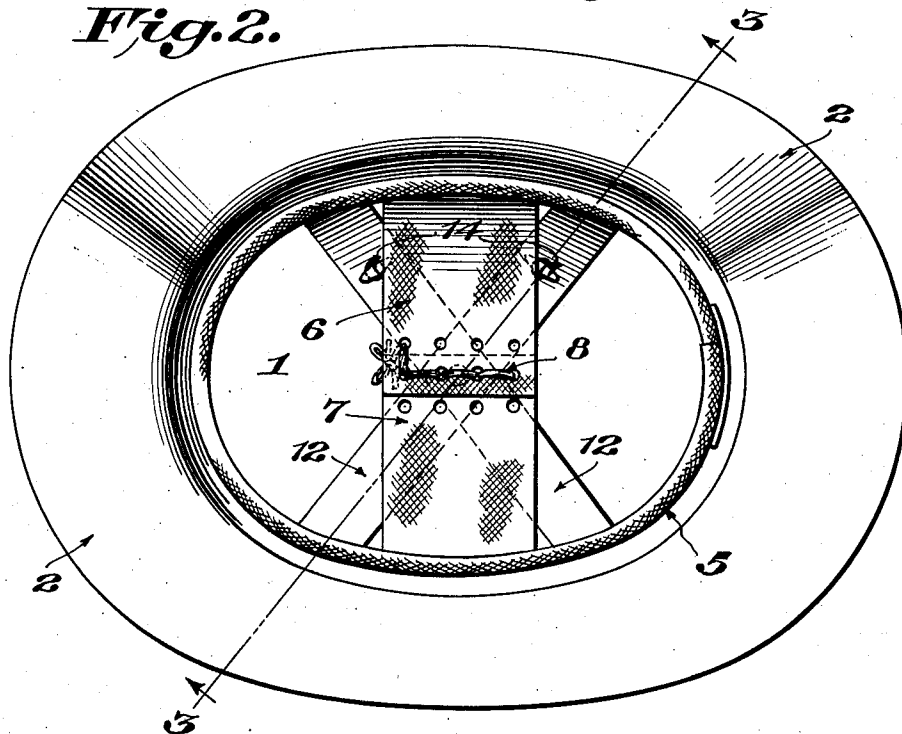


Fig. 2.



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Fig. 3.

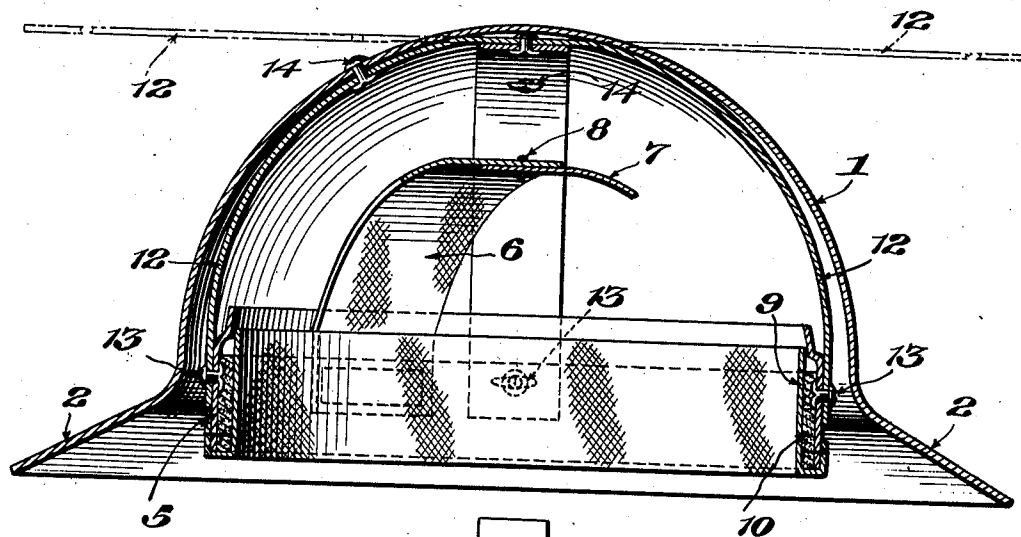
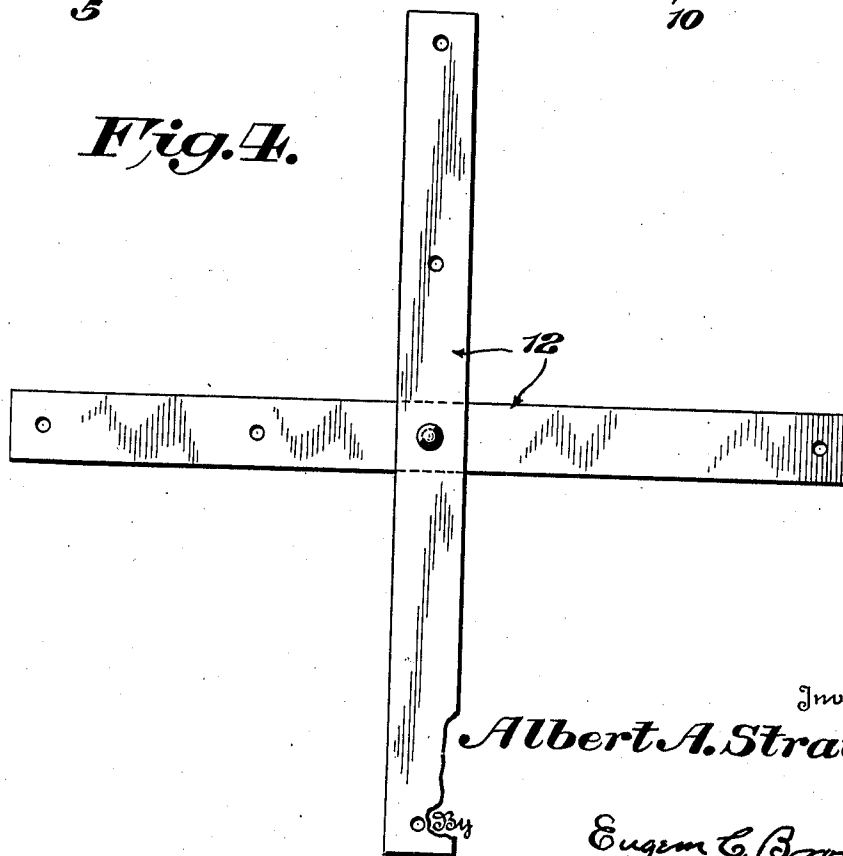


Fig. 4.



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2 Claims. (Cl. 2—3)

This invention relates to protective headgear for industrial safety purposes where there is danger of being struck by falling objects, also for use in the Army and Navy both in peace and war and for civilian use as a protection from the sun and falling objects.

Protective headgear must be constructed of material having sufficient rigidity to protect the wearer from injury, such as hard compacted fibrous material or vulcanized fibre and yet light enough to be worn without discomfort. In order to distribute the effects of shocks or blows to which the hat may be subjected it is desirable that the head-band should be spaced from the crown and it should also be capable of conforming to the shape of the head of the wearer.

For the purpose of attaining the above-mentioned objects, my invention provides resilient supporting means which suspend the head-band in spaced relation to the inner periphery of the base of the hat and yieldingly maintain it in position under the tension of opposing spring forces. The opposed pairs of spring arms are arranged in substantially ninety degree relationship so that the inner perimeter of the head-band may accurately conform to the particular configuration of the head of the wearer. When a sudden blow is received from the crown of the hat, all of the spring arms will yield, bulging outwardly toward the inner surface of the hat and thereby absorbing the force of the blow, distributing it over the plurality of spring arms and thus cushioning the shock transmitted to the head-band.

The details of construction will be described in connection with the accompanying drawings, in which

Figure 1 is a side view in elevation of a hat partly broken away to show the manner of supporting the head-band according to my invention;

Figure 2 is a bottom plan view of the hat of Fig. 1;

Figure 3 is a transverse sectional view on the line 3—3 of Fig. 2; and

Figure 4 is a plan view of the suspension springs in their normally straight form before being forced into the crown of the hat and restrained by attachment to the head-band.

The hat illustrated comprises a one-piece crown 1 of dome shape and a brim 2, of integral hard vulcanized fibre. The hat is supported on the head of the wearer by a head-band 5 having head straps 6, 7, of wide flexible material, such as fabric, sewed or otherwise secured to the opposite sides of the head-band to form a head sup-

port or hammock lining. The overlapping inner ends of the straps are laced together at 8 and provided with a plurality of lacing holes to allow for adjustment to suit the head of the wearer. This hammock type of head support prevents the hat from being driven down over the head, while being sufficiently flexible to cause no discomfort. Moreover, it does not interfere with the proper ventilation of the crown. The head-band 5 may be formed of fibre and provided with a sweat-band 9 of soft leather or other suitable flexible material. A cushion padding 10 is held between the sweat-band and the inner surface of the head-band.

The head-band is riveted or otherwise secured at 13 to the ends of a plurality of arched or bowed flat spring bands or strips 12 and is thereby constantly maintained in spaced relation to the inner perimeter of the hat, thus providing ample ventilation through the crown of the hat.

The spring suspension for the head-band comprises a plurality of flat spring bands or strips, which cross each other and are riveted together at their central portions. The opposite ends of each spring strip are then curved or bowed downwardly to form an arch, the opposite ends thus forming a pair of downwardly extending arms which are secured to opposite points of the head-band. I have shown two pairs of springs 12 arranged at right angles and riveted together at their central intersecting portions. It will be obvious that a larger number of pairs may be employed if desired and that separate spring arms may be used instead of making a pair of arms from a single spring strip.

The spring strips are preferably of thin flat spring material so that the arms of the flat spring strips radiate outwardly from the center in the same plane as indicated in Fig. 4 and in dotted lines in Fig. 3.

To assemble the parts of the hat, the outer ends of the spring strips are drawn downwardly and inwardly toward each other until they are arched sufficiently to be forcibly pushed into the crown of the hat. The resiliency of the spring arms causes them to conform to shape of the crown and to fit tightly against its inner surface. Each spring strip is then securely fastened to the upper part of the crown by rivets 14. The intersecting spring strips held tight against the inner side of the crown constitute a strong rigid reinforcement for the top of the crown and yet without unduly adding to the weight of the hat.

The lower free ends of the spring strips are then drawn inwardly away from the inner sur-

face of the crown and the opposite ends of each strip are riveted to the head-band at diametrically opposite points 13. The opposite free ends of each strip thereby constitute a pair of spring arms continuously held under restrained tension, each arm constantly exerting an outward pull or counter-thrust in opposition to that of the opposite arm.

Since the forces exerted in the spring arms of each pair are opposed to each other and are therefore in balanced relation, the head-band is continuously maintained in centered stabilized position within the hat. Any shocks received by a blow upon the crown or by a falling weight are transmitted and distributed to each of those portions of the spring arms between the riveted connections at 14, and the head-band, causing said portions to yield and arch or bulge outwardly thereby absorbing the energy of the blow in bending the springs against the resistance of their spring action, thus effectively cushioning the jar transmitted to the head of the wearer through the head-band and head-straps. It will be seen that by avoiding any connection between the head-band, and the lower part of the crown, the head band is effectively isolated from direct jars received by the hat crown, while the comparatively long suspension through resilient flat strips maintained under tension, greatly minimizes the transmission of shocks from the upper part of the crown. Furthermore the opposite

effects produced in the counter-acting springs immediately retards any tendency to vibratory motion.

I claim:

1. In a hat of the type described, a dome-like rigid crown, a pair of thin flat resilient strips centrally crossed at right angles and secured to the inner top portion of the crown, a head-band of flexible material centrally positioned in the crown, said band being entirely detached and spaced from the inner perimeter at the base of the crown, the free ends of said resilient strips being arched downwardly and secured in pairs to diametrically opposite points of said band to thereby constrain said strips under tension and support the band independently and spaced from the crown.

2. In a hat of the type described, a dome-like rigid crown, a hat-band positioned within the crown adjacent to its base, and means for normally supporting said band entirely separated and yieldingly spaced from the inner perimeter of the crown, comprising a pair of thin resilient strips centrally crossed at right angles and secured to the inner top portion of the crown, the outer ends of each pair of said resilient strips being held under tension and secured to diametrically opposite points of said band and in spaced relation to said inner perimeter.

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