United States Patent [19]

Caldwell

[11] **3,797,040**

[45] **Mar. 19, 1974**

[54] **HELMET CONSTRUCTION**

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[22] Filed: **Apr. 20, 1972**

[21] Appl. No.: **245,845**

[52] **U.S. Cl.** ..... **2/3 R**
[51] **Int. Cl.** **A42b 3/00**
[58] **Field of Search** ..... 2/6, 3, 5, 8, 14 XS; 70/59

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[57] **ABSTRACT**

A protective-type helmet expressly for use by a motorcyclist and unique in that a pair of manually controlled spring-loaded door-like lids or ear flaps are hingedly installed for coaction with hearing holes located in line with the user's ears. When fully open, the ear flaps stay put until intentionally closed by the wearer. Being spring-biased and correctly aligned and pivotally mounted they stay normally closed. Each door or flap embodies a suitable rubber gasket inside to provide and to insure a reliable airtight seal while the motorcycle is in motion. A smaller but similar spring-loaded pivoted door or flap is mounted on the median lower portion of the helmet's rear wall to permit an appropriate normally spring-loaded door to be used in a convenient manner to fasten and anchor the helmet on a part of the motorcycle which is not being ridden. All three doors may be basically alike in construction and general manner of use.

7 Claims, 4 Drawing Figures

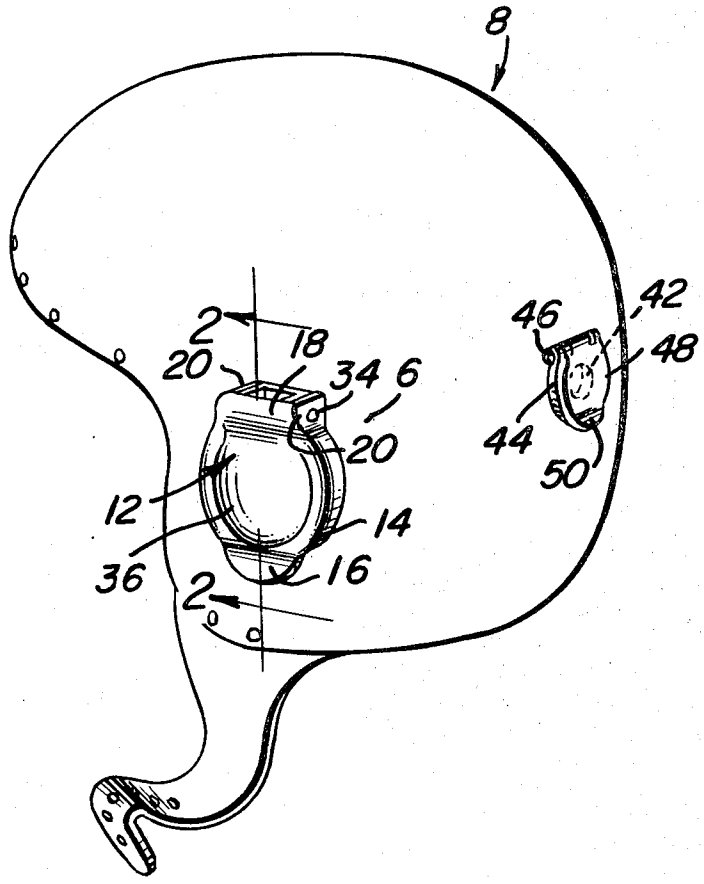


Fig. 1

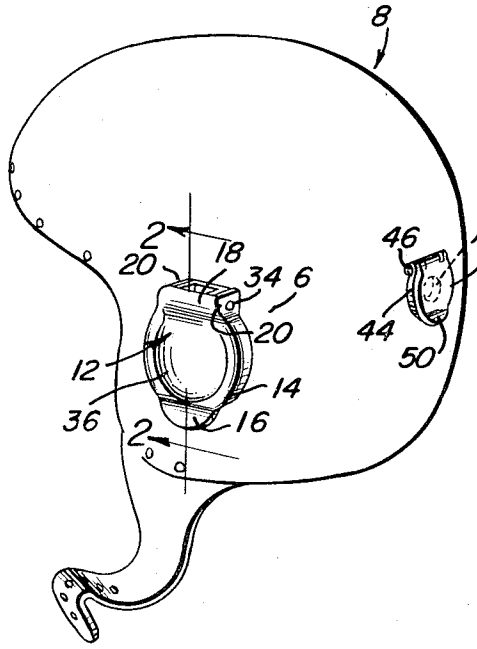


Fig. 4

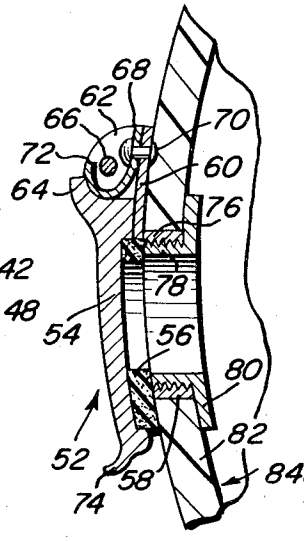


Fig. 2

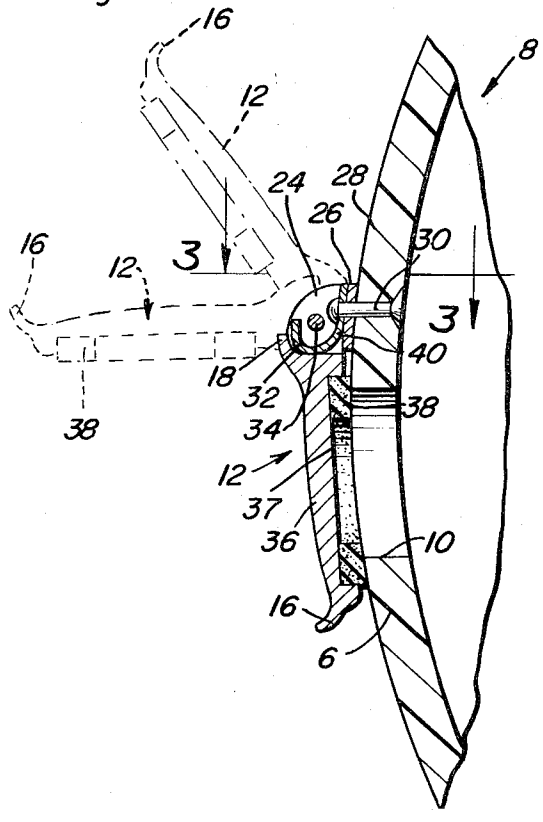
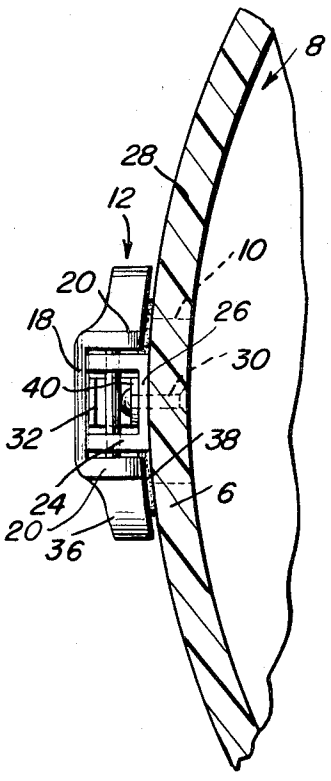


Fig. 3



HELMET CONSTRUCTION

This invention relates to a motorcycle helmet which is an innovation in that it is equipped with spring-biased openable and closable pivoted flaps or doors, one in each side wall aligned with the wearer's ear and a suitable hole in the central bottom portion of the rear wall and which has a special purpose in that it facilitates hanging and locking the helmet in a safe place whereby to minimize the likelihood of use by unauthorized persons when the motorcycle is parked for subsequent use.

It is within the purview of the concept to install the novel hearing aid door in a new helmet for sale or to construct it in a manner for feasible usage on helmets which are in current use.

For background purpose, reference can be made to prior U.S. Pat. No. 2,140,630 of Dec. 20, 1938 or 1,879,104 of Sept. 27, 1932 from which it can be ascertained that helmets having closure flaps which are selectively opened or closed are not broadly new. The present improvement pertains to rigid spring-biased closure flaps which are spring retained in open as well as closed positions by self-contained spring-loaded hinging means and, in addition offers a smaller closure flap for a lock anchor member by way of which a lid-type cover or lid expedites suspending and locking the out-of-use helmet on convenient supporting means.

The subject matter of the invention as will be hereinafter more fully appreciated pertains to adding supplemental features to helmets of the type which are currently being worn for safety purposes by motorcyclists. Broadly and basically the helmet itself is not materially altered. Primarily, hearing holes are provided in the respective side walls opposite the ears of the wearer. In many instances for the motorcyclist to hear satisfactorily he has to take off his helmet. It follows that the principle which underlies the instant invention is to equip helmets with facilities whereby the wearer can conveniently lift up a door-like flap or lid which is on either side and in that way open up an ear opening. Stated otherwise, the invention pertains to a helmet having a hole for a prescribed purpose in at least one side wall, an exteriorly disposed hole opening and closing flap or lid which normally closes the hole and is capable of being swung from a normally spring-pressed closed position to an open self-retaining position. The flap has a finger grip at a convenient bottom marginal portion to facilitate achieving the manual opening and closing positions expeditiously. An adapter bracket on which the flap is supportively and operatively mounted is provided and may be of a type which is built into the helmet at the time of construction or is applicable thereto on present-day helmets and functions to provide supporting and operating means whereby to permit the flap to be manually opened at will in keeping with the requirements at hand. These door-like or lid-type flaps on one or both sides are excellent added features for helmets. In addition it is within the purview of the invention to provide a third hole near the nape of the neck or just above the nape of the neck which likewise has a correspondingly constructed spring-closed flap and which when opened exposes the hole by way of which the helmet can be hung on an existing part of the motorcycle when the same is not being ridden. Also, it is an object of the invention to improve upon and reduce the number of parts entering into the overall combination thereby not only increasing the efficiency of the structure as a whole, but also rendering the same less costly to manufacture and to otherwise simplify the important factors of assembling, repair, sale and safety.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIG. 1 is a view in perspective showing, generally stated, a conventional-type helmet for use primarily by motorcyclists and showing, more particularly, the left-hand normally closed but upwardly hinged and openable hole opening flap and also showing to the right thereof a somewhat smaller but similar flap for closing the hole which is used for suspending and safeguarding the out-of-use helmet.

FIG. 2 is an enlarged fragmentary detailed sectional and elevational view taken approximately along the plane of the section line 2—2 of FIG. 1.

FIG. 3 is a horizontal section taken on the plane of the section 3—3 of FIG. 2 looking downwardly in the direction of the indicating arrows.

FIG. 4 is a view similar to FIG. 2 but showing a modified form of the invention, that is, the type which is capable of being installed on helmets which are currently being used.

Reference will be made first to that form or modification of the invention shown in FIGS. 1 to 3, inclusive. To the ends desired the helmet is designated broadly by the numeral 6 and may be of any conventional construction. Only one of the bearing hole closing doors or flaps is shown in these several views, the one at the right in FIG. 1 being for hang-up and safety storage purposes. To begin with, a suitable hearing hole is provided in the side wall portion 6 of the helmet 8. This opening, which is shown best in FIG. 2, is denoted by the numeral 10. That part of the overall attachment which is designated as the flap, door, lid or cover is denoted by the numeral 12 and is of suitable size and shape as is best illustrated in FIG. 1 and the lower marginal portion 14 is equipped with an outstanding sector-shaped lip 16 which constitutes a convenient finger grip. The median upper marginal portion is flanged as shown in FIG. 1 as at 18 and is appropriately shaped and constructed to facilitate pivotal or hinged mounting. Accordingly, the respective left and right end portions are provided with ears 20 which are shaped and located to straddle a pair of outstanding appropriately shaped lugs 24 which are carried by an appropriately shaped adapter 26. In actual practice the adapter comprises a suitable yoke (not detailed) which is superimposed and riveted, as at 30, upon an exterior surface of the apertured portion of the helmet, that is, the portion generally denoted at 28 (FIG. 2). As also shown in FIG. 3 it will be seen that the lugs 24 on the adapter plate provide a pocket for an appropriately tensioned J-shaped or C-shaped retaining spring 32. This arrangement also serves to accommodate an assembling and pivoting or hinge pin 34 which passes through the respective ears 20 and lugs 24 to provide the desired anchorage and hinge action. This lid or cover can, if desired, be slightly concavo-convex in shape as suggested broadly at 36 in FIG. 1. In fact the lid provides a flap and the side which faces the helmet on which consti-

tutes the interior surface is recessed and provided with a pocket as at **37** in which a rubber gasket or equivalent compressibly resilient packing ring **38** is lodged and retained with requisite nicety. This packing ring lines up with the hearing hole **10** and cooperates with the flap so that when the flap is down it provides a substantially airtight closure for the hole **10.** The arrangement is also such that the aforementioned finger grip **16** is so located that it can be reached readily by the user and the lid or cover can be lifted up to the desired position or elevation. Sometimes the user may desire to lift the lid just slightly or halfway as suggested in dotted lines in FIG. **2** or further up as suggested in the same view or can be pushed all the way open (not detailed) in which position the hinged edge portion passes beyond dead center and the riveted or anchored spring serves as self-positioning and retaining means for the cover. The shank portion **40** of the spring is shown properly in FIG. **2** and is held in place by the same rivet **30** which serves to anchor the adapter plate. All of the essential features and characteristics of the attachment are shown in several FIGS. **1** to **3** and the reader can readily appreciate how the cover is opposed to the hole **10,** how it closes and seals the hole when it is down as shown in FIG. **2** with particularity and how it can be swung either partly up or all the way up as suggested in phantom lines. It is desirable that the spring be so constructed that it will hold the gasket tight and render the opening **10** substantially airtight under normal circumstances. On the other hand, the spring being J-shaped and located as best shown in FIG. **2** cooperates with the flanged portion **18** of the cover to hold it automatically in and up out-of-the-way position after it passes dead center. Since the shape of aforementioned adapter plate **26** may vary, ordinarily, and in actual practice, it is approximately in the shape of a yoke (not detailed).

There are instances when the motorcyclists wants to fasten the helmet **8** on an appropriate part of the motorcycle when the motorcycle is not being used and under the circumstances a similar cover or flap is provided. To accomplish this, all that is necessary is to provide a suitable hole or opening **42** in the rear, that is, the central rear portion as brought out in FIG. **1** and to use an adapter **44,** hinging means, generally designated as at **46,** a cover or lid **48** and a finger grip **50.** In other words, this door or lid, also referred to as flap, would be substantially the same as the one set forth in detail except that it will be appropriately smaller.

There are other instances where there may be a desire or need to provide either one or two of the hearing aid type closures on a helmet which is already in use. This is accomplished by using a similar construction and arrangement as illustrated in the modification in FIG. **4** wherein the closure or flap is denoted by the numeral **52,** has a concavo-convex body portion **54** and a recessed interior to accommodate a rubber or equivalent packing ring **56.** Hereagain an appropriate opening or hole has to be provided as at **58.** The means for attaching it is slightly different. This is to say, the adapter plate **60,** in practice, has an upper marginal portion provided with a pair of spaced outstanding lugs **62** to accommodate ears (not detailed) on the upper oriented portion **64** and which are hinged or pivoted in place as at **66.** Hereagain a J-shaped or similar leaf-type spring is provided as at **68** and has one end portion riveted to the adapter as at **70.** The rivet here does not go through the helmet but simply rests against the surface. The free curled end **72** functions in the manner already described. The foot-like member on the bottom constitutes a finger grip as at **74** to facilitate operation of the device. The adapter plate has a collar **76** which fits with requisite nicety into the hole **58** and has internal threads to accommodate the external threads on the assembling and retaining ring nut **78.** This ring nut is screwed into place as shown in FIG. **4** and has an abutment flange **80** which bears against the interior surface **82** of the helmet **84.**

It is submitted that the views of the drawing show all of the features of the several adaptations and that the construction of each device is substantially self-explanatory when considered in conjunction with the description. FIGS. **1, 3** and **4** show the lid or closure closed and FIG. **2** shows it closed as well as partly open in phantom lines. Under the circumstances a more extended description is believed to be unnecessary.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as new is as follows:

1. For use by a motorcyclist, a helmet having a hearing hole in at least one side wall, an exteriorly disposed hole opening and closing flap normally closing said hole and capable of being swung from a normally closed position to an open position, said flap having a finger grip to facilitate achieving manual opening and closing positions of said flap, an adapter bracket means mounting said flap on said bracket to permit said flap to be manually opened at will in keeping with the requirements at hand, and means mounting said bracket on said helmet in position so that said flap covers said hole in the closed position, said adapter bracket comprising a plate which is superimposed upon a surface of the helmet partly encompassing said hole, said plate having a pair of outstanding lugs, said flap having a pair of mounting and hinging ears straddling and pivotally joined to the respectively cooperable lugs, a substantially C-shaped resilient leaf spring positioned between said lugs, said spring having a curled free end portion, a marginal edge portion of said flap having spring-biased and retentive operating contact with said curled free end portion, said flap having an interior surface with a recess providing a pocket, and a compressibly resilient packing ring lodged fittingly in said pocket and providing an airtight seal.

2. For use by a motorcyclist, a helmet having a special purpose hole in a wall portion at a prescribed point, an adapter plate conformingly abutting an exterior surface of said helmet and having an internally screw-threaded collar conformingly fitting into and marginally lining said hole, an exteriorly threaded ring nut screwed into said collar from a point inwardly of the helmet and provided with an abutment flange abutting an interior surface portion of said helmet and positioning and retaining said collar and adapter plate in a given functioning position, a cap-like hole capping flap normally covering and closing said hole, means operatively securing said flap to said adapter plate.

3. The construction defined in and according to claim **2,** and wherein said flap has an interior recess

provided with a compressibly resilient sealing ring abutting said collar and ring nut, said adapter plate having an upper marginal portion provided with a pair of spaced outstanding supporting lugs, an oriented marginal portion of said flap having spaced companion spring-biased ears straddling said lugs and hinged thereto.

4. The construction defined in and according to claim **3,** and wherein said ring nut cooperatively fitting into said collar constitutes the means for positioning and operatively holding the entire assembly in place.

5. The hole covering flap defined in claim **1,** and wherein said plate is adjacent to and is positioned in alignment with said hole, said lugs being disposed in opposed spaced parallel alignment, said spring being positioned between said lugs, and rivet means uniting and riveting said spring and adapter plate to the apertured exterior surface portion of said helmet.

6. The hole covering flap defined in claim **1,** and wherein said helmet has a central rear portion which is provided with an optionally usable hole which is adapted to be used for temporarily mounting and fastening said helmet on an appropriate support member when the helmet is not being used, and a complemental spring-loaded flap pivotally mounted on an exterior surface of said rear portion adjacent to and covering said hole when in its normal closed position.

7. The combination defined in claim **4,** and wherein said adapter plate is provided with a pair of spaced outstanding lugs, said flap having a pair of mounting and hinging ears straddling and pivotally joined to and cooperable with said lugs, a J-shaped leaf spring positioned between said lugs and having one end portion abutting and secured to a coacting portion of said adapter plate, and a second free end portion with which an adjacent portion of said flap is cooperatively engageable.

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