Jan. 14, 1964 H. GOLDMAN 3,117,322

BUTTON ASSEMBLY FOR PILOT'S HELMET

Original Filed April 1, 1960

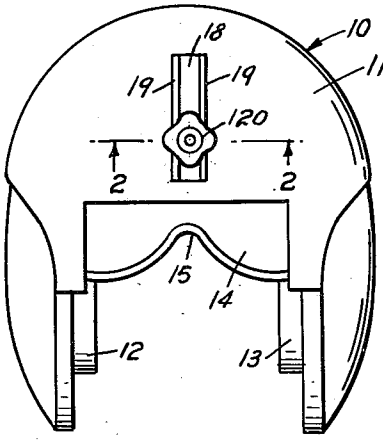



FIG. 1.

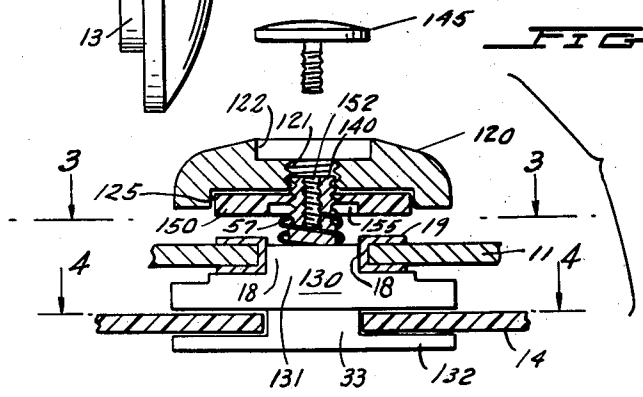



FIG. 2.

FIG. 3.

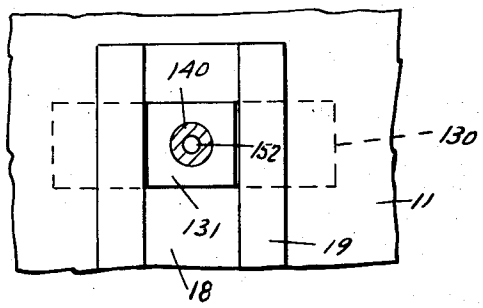
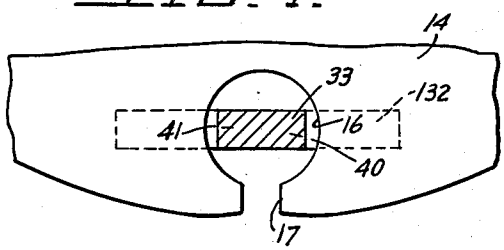



FIG. 4.




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# BUTTON ASSEMBLY FOR PILOT'S HELMET

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Original application Apr. 1, 1960, Ser. No. 19,219. Divided and this application May 5, 1961, Ser. No. 108,131

4 Claims. (Cl. 2—6)

This invention relates to a button assembly or visor lock for a pilot's helmet of the type containing a lens or visor element that can be lowered to a position to protect the pilot's eyes or raised to a position inside the helmet.

The button assembly of the present invention relates more particularly to the means for adjustably positioning the visor or lens means in the helmet with respect to the pilot's eyes. It is desirable that such a positioning means be readily adjustable under the pilot's control and yet be adaptable for quickly tightening in order to fix the visor or lens in any desirable position. In addition it is desirable that the positioning means be adapted to hold any one of a series of lens or visors and that it be so constructed that the visors or lenses may be readily interchanged.

Among the objects of this invention is to provide a button assembly which holds the visor in any one of a multiplicity of predetermined positions desired by the wearer, which is readily adjusted to fixedly hold the visor in other positions as conditions change and which is adjustable to be readily fitted into alternate forms of visors which the operator may desire to use.

Among other objects of the invention is to provide an improved adjusting button assembly which can be inserted into pilot's helmets as they are now made.

Such pilot's helmets as now formed comprise a curved slotted portion in the front end thereof above the eyes of the wearer which provides a visor housing in which the visor or lens can slide from a position in front of the eyes to a position within the body of the helmet. The visor is held in position by a connector device to the center of which a shaft is fixed which extends to the outside of the helmet and moves in a slot along parallel runners. Means must be provided on the shaft to fix the shaft in a plurality of positions with respect to the pair of parallel runners along the slot and thus fix the position of the visor with respect to the wearer. This has been done previously by providing the upper side of the connector device with one or more pairs of upwardly projecting pins on opposite sides of the shaft which fit within a number of pairs of holes on the bottom side of the runners (see U.S. 2,798,221). Pilots have difficulty in fitting the pins in the holes since both are concealed from their view and in the adjusting process care must be taken to avoid rotation of the shaft while the pins are being fitted into a desired set of holes therefor, since rotation of the shaft tends to rotate the connector device and release the visor therefrom.

Among other objects of the invention is to provide a button assembly which can be used on helmets which do not require the parallel runners along the slot.

The objects of this invention are attained by providing one part of the assembly with a non-circular projection which fits into the slot and prevents rotation of the part containing the projection when fitted into said slot. If the non-circular projection is not on the visor connector itself, an addition means must be provided to prevent rotation of the visor connector. For this purpose the screw shaft of the visor element may be flattened and the part containing the non-circular projection is fitted with a hole which exactly fits the flattened screw shaft.

This application is a division of my U.S. application



Serial No. 19,219 filed April 1, 1960, now abandoned, and in the subject matter claimed in the present application the noncircular projection is formed as a part of the visor connector itself.

A button or lever means is provided to tighten the slide means on the runners by reducing the distance between the connector means and the slide means. The button or lever means is preferably operated by rotation about the screw shaft of the visor connector which extends from the connector means through the slot in the top of the helmet or by rotation about an auxiliary axis, for example, one at right angles to the main shaft.

In the drawings:

FIG. 1 is a view of a pilot's helmet containing a device made according to the invention.

FIG. 2 is an enlarged detail view taken along line 2—2 of FIG. 1.

FIG. 3 is a top plan view taken on line 3—3 of FIG. 2.

FIG. 4 is a detail view taken along line 4—4 of FIG. 2.

The helmet 10 of FIG. 1 comprises an outer layer 11 of hard, tough reinforced plastic or resinous material. Such helmets also have one or more lining materials at least the inner one of which is soft and highly porous. The inner linings do not show in the figure except as the ear pads 12 and 13. The visor 14 is adapted to slide in a slot between the outer layer 11 and the inner layer (not shown) of the visor housing and may be lowered to a position where the yoke 15 rests upon part of the nose or raised to a position where the visor or lens 14 is completely concealed within the housing therefor. The visor 14 is controlled by the button assembly 120 to which subject matter this invention relates. The sliding of the visor 14 and control button 120 is limited by the slot 18 which may be reinforced on either side by the metal runners 19. With the device of the present invention the runners are not necessary. When applied as a replacement on a helmet already containing runners, the device operates as well with the runners as on helmets without runners.

The rear or concealed portion of visor 14 contains a rounded opening 16 which is slotted as shown at 17 (FIG. 4), to provide for the insertion and removal of a connector means 130. The connector means 130 comprises the upwardly projecting block 131 and includes a lower portion 132 connected thereto by means of an oblong or rectangular stud 33. The stud 33 has a width (its shortest dimension) which is less than the width of slot 17 but a length (longest dimension) which approaches to edges of circular opening 16. Thus, the stud 33 will be admitted to opening 16 if turned at right angles to the position shown in FIG. 4 but in the position shown in FIG. 4 is held within the opening 16. In other words, once the connector means 130 is inserted into the slot 16 and rotated to the position shown in FIG. 4 it will be adapted to control the position of the visor; the connector means 130 must be prevented from rotating with respect to opening 16 and slot 17. The parts 131, 132 and 33 also have a width which is smaller than the width of slot 18 in the visor housing of the helmet so that the connector elements 130 and its shaft 140 can be completely removed from the helmet when rotated 90° from the position shown in FIGS. 2 or 4.

The non-circular projecting portion 131 is adapted to fit into the slot between runners 19 and prevent rotation of the connector element when the latter is held within said slot between runners 19. To provide easy sliding a nylon type disk 150 is provided for. This disk contains a shouldered opening 155 to provide a seat for one end of the spring 57 in the event that the spring is added, as shown. The manual control button 120 contains a lower recess 125 to receive the upper portion of washer disk 150, and an upper recess 122 to receive the head of screw

145. In practice, the screw 145 is a left handed screw so that it does not loosen when button 120 is loosened.

In operation, the connector element 130 with or without the button 120 threaded on the end of screw shaft 140 can be inserted through the slot 18 when the extending portions thereof are held parallel to the length of said slot: the connector element is slipped through slot 17 of visor 14 as shown in FIG. 4, and is then pushed through the slot far enough to free the projecting portion 131 from the confines of the slot 18 whereupon the connector element may be rotated 90° to connect it to said visor (see FIG. 4); in this latter position the projecting portion 131 also fits non-rotably in slot 18, and the assembly is in the position shown in FIG. 2. Upon rotating the button 120, the runners 19 are tightly clamped between disk 150 and the connector element 130 to hold the assembly and the connected visor in any desired position along the slot 18.

It will be seen that the invention provides a readily adjustable visor lock which can be locked in any desired position without restriction except by the length of slot 18. The invention also eliminates the necessity of providing runners which contain locking holes and, in fact, eliminates the need for runners or any auxiliary locking portions altogether.

The features and principles underlying the invention described above in connection with specific exemplifications will suggest to those skilled in the art many other modifications thereof. It is accordingly desired that the appended claims shall not be limited to any specific feature or details thereof.

I claim:

1. In a button assembly for a pilot's helmet of the type comprising a visor housing; a removable visor or similar device and slotted means in the visor housing for holding and moving the visor from a position within the housing to a position in front of the wearer's eyes, said slotted means extending along a portion of the external surface of said housing and a button assembly with the button extending through to the outside of the housing and being adjustable along said slot for controlling the position of the visor with respect to the helmet, the improvement comprising

shaft means extending from within said visor housing to the outside surface thereof,

visor-connecting means secured to the inner end of said shaft, said visor connecting means comprising a lower portion having one dimension small enough to pass through the slot of said visor housing,

said visor connecting means comprising an upper portion with a first and shorter dimension small enough to pass through the slot of said visor housing and with a second and longer dimension which extends beyond the sides of said slot in one angular position of said shaft,

the upper portion of said visor-connecting means having a substantially straight sided projection extending upwardly from the longer dimension thereof which is proportioned and shaped to fit non-rotatably into said slot when said upper portion of said visor-connecting means is positioned to extend below and beyond the sides of said slot whereby the angular position of the shaft and its visor connecting means with respect to said slot is fixed when the projection of the upper portion of said visor connecting means is held within said slot,

said shaft means having external threads at the upper end portion thereof,

rotatable button means having an internally threaded opening therein adapted to receive the threaded end of said shaft, means whereby the button and the upper portion of said visor connecting means cooperate to fix the position of the visor with respect to said slot.

2. The button assembly as claimed in claim 1 comprising a plastic slider element having a body portion adapted to ride on and above both sides of said external slot, said slider element including an opening through which said shaft projects, said button including a recess in the under surface thereof adapted to surround at least the upper portion of said slider element.

3. The button assembly as claimed in claim 2 comprising coil spring means surrounding said shaft means and positioned between the slider element and the visor connecting means to normally urge the slider element towards said button.

4. The button assembly as claimed in claim 1 wherein,

the external threads of said shaft means and the corresponding internal threads of said button means are right handed threads,

said shaft means including a threaded opening extending axially into the upper end thereof,

screw means for said threaded opening adapted to prevent said button from being completely separated from the shaft means,

said button means being recessed to receive the head of said screw means,

said screw means and threaded opening having left handed threads whereby rotation of the button to fix the position thereof with respect to the slot does not loosen said screw means.


**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 787,088 | Earhart et al. | Apr. 11, 1905 |
| 989,771 | Eske | Apr. 18, 1911 |
| 1,034,444 | Hazen | Aug. 6, 1912 |
| 1,210,595 | Brubaker | Jan. 2, 1917 |
| 2,177,215 | Hodgkinson | Oct. 24, 1939 |
| 2,391,232 | Farrell et al. | Dec. 18, 1945 |
| 2,487,811 | Karvis | Nov. 15, 1949 |
| 2,798,221 | Bailey et al. | July 9, 1957 |
| 3,066,305 | Aileo | Dec. 4, 1962 |

# UNITED STATES PATENT OFFICE
# CERTIFICATE OF CORRECTION

Patent No. 3,117,322 January 14, 1964

Henry Goldman

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 14, after "shaft" strike out the comma.

Signed and sealed this 1st day of September 1964.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents