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EMBRASURE SHUTTER FOR AIRPLANE COMBAT HOODS

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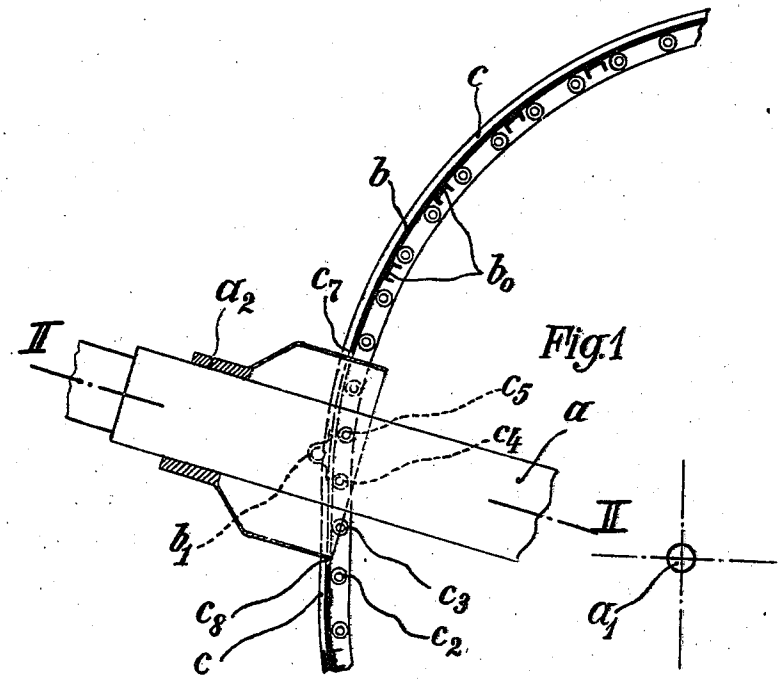


Fig.1

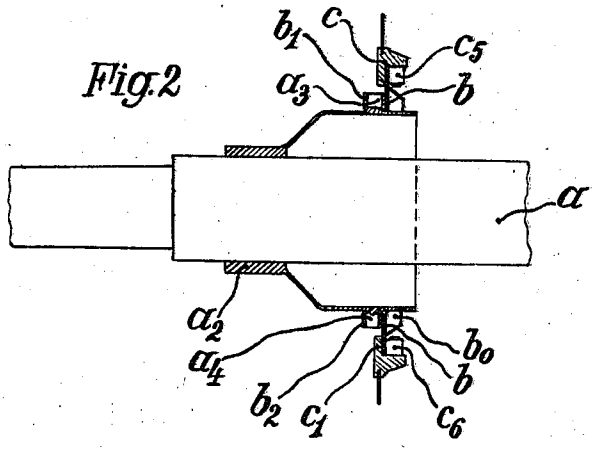


Fig.2

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EMBRASURE SHUTTER FOR AIRPLANE COMBAT HOODS

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1 Claim. (Cl. 89—36)

It has become usual to equip airplane combat places with fairings or protective shields, in order to protect the gunner and his firearm against the wind and weather. A slit in the hood serves for the movement of the firearm in vertical direction, whereas the hood as a whole can follow the aiming movements in lateral direction.

To prevent wind, rain or snow from penetrating through the slit, it has already been proposed to cover the slit with roller blinds or fabric gores with sliding clasp fasteners as a shutter so that only an opening remains free for passing through the firearm. Embrasure shutters of endless bands, composed of a sheet metal- and "cellon" band material are already known. Such endless bands can be employed only for embrasure shutters of ball- or circular shape and cannot be used on the usual combat places as they require extraordinarily much space. Amongst the roller blind embrasure shutters a proposal has been made according to which the embrasure shutters consists of a flexible band of several movable metal elements which are guided singly by rollers in grooves in the embrasure opening. Such link bands cannot be satisfactory, as they are exposed to frost at great flying heights, and in this instance they would render difficult or impossible any movement of the firearm for aiming in vertical direction. They further do not protect against the penetration of dust and dirt owing to their leaky covering and require great forces for adjustment owing to the winding up of the roller band, especially when the same is frozen.

The invention proposes in order to avoid such inconveniences to use as embrasure shutter a flexible metal band made preferably of non-rusting steel. The band is reinforced by strips or indentations and guided at its outer side directly on guide shoulders fixed on the embrasure opening and on its inner side by rollers. The band is of such length, that it still covers the slit when the firearm is in its highest and lowest position. It is stiffened on the inner side by reinforcing strips extending transversely to the longitudinal direction of the shutter-band, in order to admit of an unimpeded adaptation to the curvature of the covering of the stand when the band is shifted in the embrasure opening and in spite of the high wind pressure. The band comprises an opening through which the firearm passes the barrel of which is guided in a sleeve hingedly connected with the opening.

An embrasure shutter according to the invention is illustrated by way of example in the accompanying drawing, in which

Fig. 1 shows a combat place carried out according to the invention and in partial vertical section,

Fig. 2 is a section on line II—II of Fig. 1.

The firearm a which can be aimed in vertical direction about the trunnion axis a_1 carries on its cylindrical exterior a sleeve a_2. This sleeve has at the right and at the left a pin a_3 and a_4. The steel band b forming the embrasure shutter is movably connected with the two pins a_3 and a_4 by supports b_1 and b_2. The steel band b is pressed by rollers c_2, c_3, c_4 and c_5 against the guides c and c_1 which form frame parts of the covering. In this manner the steel band b can follow the movements of the firearm, the sleeve a_2 being adapted to shift longitudinally on the exterior of the firearm according to the distance of the guides c and c_1 from the trunnion axis a_1. The sleeve a_2 can further slightly adjust itself relative to the steel band b, in order upon aiming in vertical direction to be able to follow the different curvature of the guides c and c_1 of the embrasure opening which do not extend circular relative to the trunnion a_1. With this object in view a slight clearance c_7 and c_8 is provided above and below sleeve a_2, these clearances admitting of inclined positions of sleeve a_2 as tipping movements about the pins a_3 and a_4. The opening is, however, completely covered by the steel band b in whatever height position of the firearm, so that the steel band can either further move stretched in a guide extending beyond the embrasure opening or roll up and down in front of or behind the opening in a manner known from roller blinds. For reinforcing the metal band b reinforcing strips b_0 can further be provided on the inner side of the metal band by welding or by other means which extend transversely in the longitudinal direction of the shutter band b, in order not to impair the adaptation to the curved shape of the covering guide shoulders in the opening c, c_1 when the metal band is shifted in the embrasure opening. The reinforcing of band b might also be effected by indentations, which are chiefly arranged in the transverse direction of the band b and may extend over the whole width of the band close up to the guide edges. A desirable reinforcing in the direction of shifting of the metal band b ought to be limited to the middle section of the shutter b and the individual indentations must be kept so short that the easy adaptation of the metal band b to the curved shape of the embrasure opening is not impaired thereby.

We claim:

Embrasure shutter for covering embrasure openings in the hood of airplane combat places comprising a flexible band shiftably guided in accordance with the aiming movement of a firearm in vertical direction, a sleeve adapted to be movably mounted on a barrel of the firearm, said band, being metallic, continuous, reinforced and movable along with the barrel by said sleeve, guide shoulders in the opening of the embrasure adapted to directly guide said metal band on its outer side, and rollers adapted to guide said metal band on its inner side.

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