July 22, 1969 W. GEHMANN 3,456,351

ANNULAR GUN SIGHT

Filed June 6, 1966 2 Sheets-Sheet 1

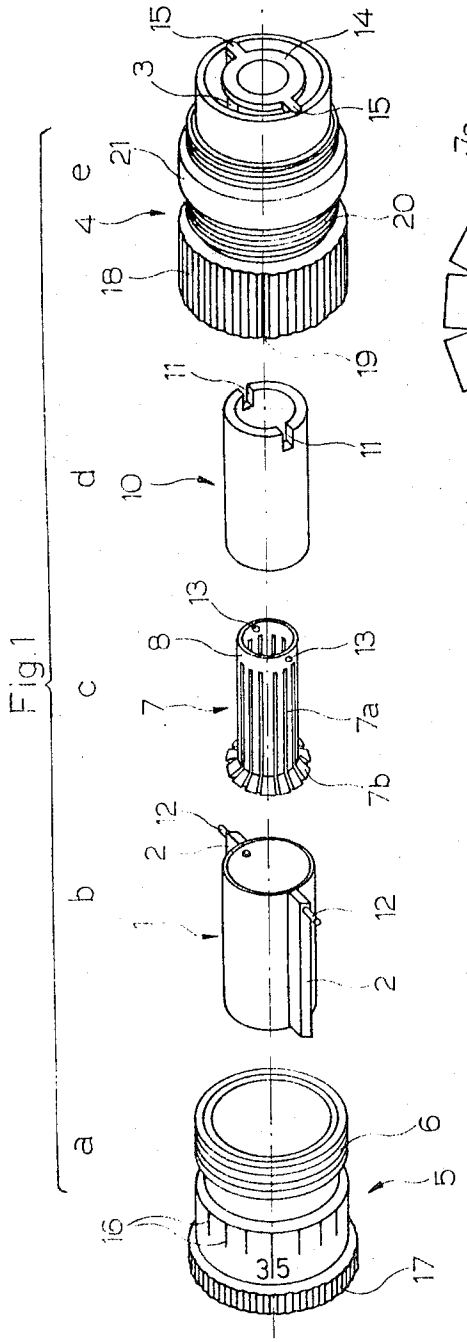


Fig. 1

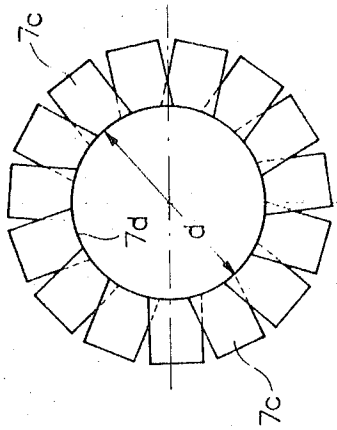


Fig. 3

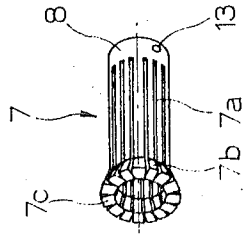


Fig. 2c

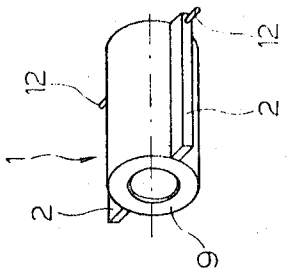


Fig. 2b

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July 22, 1969 W. GEHMANN 3,456,351

ANNULAR GUN SIGHT

Filed June 6, 1966 2 Sheets-Sheet 2

FIG. 5

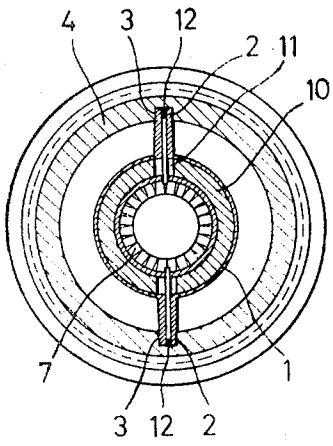


FIG. 4

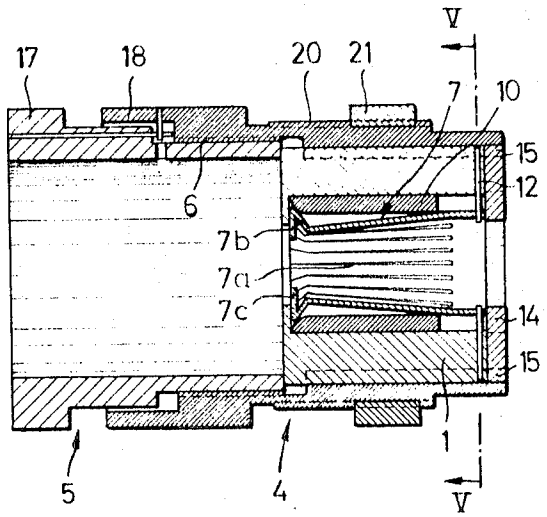
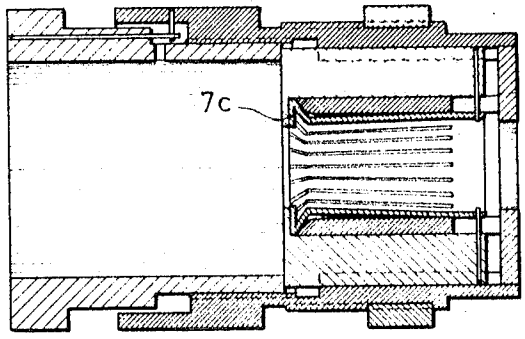


FIG. 6



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ANNULAR GUN SIGHT

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ABSTRACT OF THE DISCLOSURE

First and second tubular members at least partially telescopically fitted together have an axially slotted tubular element therein defining strips terminating in free ends bent over at an incline to the axis of the element and overlapping to form an adjustable gun sight aperture. A sleeve slidably engages the strips particularly at the inclined bent over ends for moving the ends toward the axis of the element to reduce the size of the aperture and is retractable to permit movement of the free ends away from said axis to cause an increase in the size of said aperture.

The present invention relates to a gun sight especially for sporting guns. Annular gun sights employed for target shooting are tubular and are connected to a sight tunnel surrounding said annular sight, by means of a web, which does not extend through the tubular gun sight. The purpose of the sight tunnel consists in eliminating various light effects upon the annular sight and corresponding reflections.

When shooting at targets with the annular sight, the level of the surface aimed at should appear as being within the annular sight while the transverse webs are generally to be held so that their plane is located horizontally. This requirement, however, can be met only when the shooting is carried out always at the same targets and from the same distance and under the same light conditions. Moreover, the disposition of the marksman is to be taken into consideration, and when a marksman changes, the different adaptability of his eyes (the different distance of the visual cone) will have a bearing. Furthermore, some marksmen deliberately tilt their rifle because they obtain a better aim in this way.

Inasmuch as it is impossible to circumscribe the area of the target by means of a single annular gun sight, in view of the various influences set forth above, generally the said annular gun sights are exchangeably arranged on sporting guns. To this end, an annular gun sight orifice is enclosed in a gun sight holder, which orifice comprises the annular gun sight proper with its transverse webs and connecting ears. The gun sight holder is intended to be able to guide the various annular gun sight orifices in such a way that when exchanging the individual annular gun sights, always the same line of sight will be obtained. If this guiding arrangement is even minutely affected as for instance by soiling or by influences of temperature or the like, the aiming position of the rifle is changed considerably. The inner diameter of such exchangable annular gun sights is generally selected between 3 and 5 millimeters in distances of 0.1 millimeter. The outer diameter of the annular gun sight is determined by the fact that it must not cover too great a portion of the target disc in order not unnecessarily to make it more difficult to find the target. Customarily, the outer diameter of such annular gun sights is 9 millimeters. Marksmen who deliberately tilt their rifles will when employing annular gun sights have to put up with the fact that the transverse web is no longer located in the horizontal plane but forms an angle therewith in conformity with

the tilting of the rifle. This tilting may with otherwise good marksmen affect their aiming results.

An exchange of the various annular gun sights or a change in the inner diameter of the gun sight is desired also when the light conditions change with regard to the same target disc which remains at the same distance. When a target disc is hit brightly by the sun, in view of the good light conditions, a smaller annular gun sight will suffice than under conditions when the sun, for instance, by passing clouds, is temporarily covered. The same effect will be noticed when the target shooting is effected for a longer period of time under conditions covering a contest and the strain of the marksman during the shooting will be felt in view of a decrease in the physiological functions of the marksman. This decrease in the physiological functions may be felt in a tiring of the eye whereby a larger annular gun sight orifice will become necessary, or it may be felt by the fact that the marksman, in order to be able to aim properly, even when not fully properly holding his weapon, will require a greater play between the inner confinement of the annular gun sight and the area to be sighted of the target disc. In only rare cases, however, will it be possible to exchange the gun sight in such a short time that the gun sight size can always be adapted to the various conditions. Moreover, it is not advantageous to exchange the gun sight during a shooting series because the new necessary familiarization with the newly inserted gun sight is generally not possible and the change in the line of sight cannot be recognized at the right time. The best conditions would be obtained when the marksman right in the firing position could adapt the inner diameter of the annular gun sight in a continuous manner to the various conditions by a corresponding adjusting device. Such adjusting device would, however, have to be such that it will definitely prevent a change in the line of sight and that also no change in the position of the transverse webs will occur. On the other hand, the inclination with regard to the horizontal should be adjustable. Furthermore, the size of the opening of the annular gun sight should be adjustable prior to the firing which means that the adjusting device should be adapted to be gauged.

It is, therefore, an object of the present invention to provide an annular gun sight, especially for sporting guns, which will make it possible to adapt the inner diameter of the annular gun sight to various conditions in a continuous manner.

It is another object of this invention to provide a gun sight as set forth in the preceding paragraph which will avoid a change in the line of sight while the gun sight is adapted to changing conditions such as light conditions.

In accordance with the present invention, metallic plates are displaced radially toward the center and are arranged resiliently approximately perpendicular to the line of sight, in or ahead of the height of the outer diameter of the annular gun sight at an acute angle and bent inwardly or are bent coaxially with regard to the line of sight when or prior to reaching the maximum inner diameter of the annular gun sight. A stationary ring with maximum outer and inner diameter of the annular gun sight is arranged in axial alignment with the generally annular figure formed by the somewhat vertically extending plate parts. Furthermore, the coaxially arranged plates are embraced by a slidable sleeve which is adjustable in longitudinal direction.

Displacing the sleeve toward the bent portion provides a narrowing of the inner diameter of the annular gun sight when the plates are pulled together into the sliding sleeve by moving onto the cone formed by the combined metal plates. This common pulling into the sliding sleeve additionally brings about an always constant

position of the individual metal plates and thus also a sure reliability of the line of sight surrounded by the vertical portions of the plates. During a radial displacement of the metal plates, the end face of the parts perpendicular to the line of sight will have a form which deviates from the absolute circular shape. This deviation, however, is in view of the possible employment of a great number of metal plates extremely minor and is additionally reduced by the fact that the end faces of the metal plates which are perpendicular to the line of sight are concave-shaped in comformity with a medium annular gun sight inner diameter.

Advantageously, two symmetrically located lateral guiding rails are arranged on the sliding sleeve which rails are located behind the transverse pins of the annular gun sight while the guiding rails extend in grooves of a hollow cylindrical portion which is adapted to be screwed into the gun sight tunnel or barrel. It will then be possible to displace the sliding sleeve coaxially with regard to the line of sight by means of an adjusting screw member or nut provided with a graduation, and thus to permit a simple adjustment of the gun sight. A proper resiliency of the plates is obtained by the fact that the coaxially arranged plate parts are at the end combined in a spacer ring so as to be resilient toward the outside.

The vertically arranged plate parts point or face toward the front. If the coaxially arranged disc parts including the sliding disc are surrounded by a pressure sleeve provided with a lateral guiding sleeve located behind the transverse webs of the annular gun sight, then the vertical plate parts point toward the marksman. This turning of the plate parts by 180° advantageously locates the vertically arranged parts approximately in the center of the device where they are best protected against various influences of light and reflections.

The annular gun sight of this invention may be secured by screwing it into a corresponding thread in the gun sight tunnel or barrel and may be secured by means of a lock nut. Thus the transverse web of the gun sight always is placeable horizontally regardless of whether the rifle is placed into firing position normally or at an edge or horizontally inclined. Any insecurities during the firing in view of a non-horizontal transverse web will be safely avoided even if the rifle is held at an edge.

These and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawings, in which:

FIGURE 1 is an exploded view of a gun sight according to the present invention wherein the individual parts are designated with the letters *a, b, c, d* and *e*;

FIGURES 2*b* and 2*c* respectively illustrate the elements *b* and *c* of FIGURE 1 in a different position;

FIGURE 3 is a top view of the disc or shutter portions in a direction perpendicular to the line of sight;

FIGURE 4 illustrates a longitudinal section through the gun sight showing the sight proper in radially compressed or narrowed condition;

FIGURE 5 is a section taken along lines V—V of FIGURE 4; and

FIGURE 6 is a section similar to that of FIGURE 4 but showing the sight proper in completely opened position.

Referring now to the drawing in detail, FIG. 1 shows in an exploded view the various parts of the gun sight made of light metal maintained in position even during the firing recoil shock. More specifically, the gun sight comprises a pressure sleeve **1** which at the level of its diameter has outwardly extending guiding rails or ribs **2** slidably engaging grooves **3** provided in a hollow cylindrical member **4**. The collar of a thread **6** on an adjusting screw **5** presses against and end face of guiding rails **2** which end faces the adjusting screw **5**. The pressure sleeve **1** has arranged therein metallic plates **7** which at the end thereof are resiliently joined and held together by a spacer ring **8**. Each of the metallic plates **7** consists of a part **7***a* which is parallel to the line of sight passing through the center of the annular gun sight, and furthermore comprises a part **7***b* which is angled outwardly, and finally comprises a part **7***c* which is approximately perpendicular to the line of sight. The part **7***c* presses against an inward flange **9** of the pressure sleeve **1** when the metallic plates **7** have been completely moved into the pressure sleeve **1**. A sliding sleeve **10** can be moved over the longitudinal part **7***a* of the metallic plates **7**. As will be seen from the drawing, that end face of sleeve **10** which faces the outwardly bent surfaces **7***b* is inwardly slightly tapering. Sleeve **10** has two passages or notches **11** through which extend pins **12** arranged in the guiding rails **2** of the pressure sleeve **1**. These pins **12** can be secured in bore **13** of the spacer ring **8**. When sleeve **1**, plates **7**, and sleeve **10** are assembled, they are inserted in part **4**, and that end face of sleeve **10** which has the notches **11** rests on a stationary annular member **14** in the hollow cylindrical part **4**. Annular member **14** is by means of transverse webs or spoke-like ribs **15** connected to the hollow cylindrical part **4**. The end of part **4** opposite member **14** is threaded to receive threads **6** of screw **5** to complete the assembly.

Adjusting screw member or nut **5** is provided with gauging markings **16** and is knurled at **17**. A further knurled portion **18** of the hollow cylindrical part **4** is provided with an index marking **19** for cooperation with markings **16**. Furthermore, the hollow cylindrical part **4** is additionally provided with a thread **20** and a lock nut **21**. Thread **20** is adapted to be screwed into a corresponding thread of the gun sight tunnel or barrel.

When the gun sight is in its assembled condition, it is possible by turning the adjusting screw member or nut **5** in clockwise direction, in view of the engagement of the end face of screw member or nut **5** with the end face of guiding rail **2**, to displace the pressure sleeve **1** in hollow cylindrical part **4** toward the right as viewed in FIG. 1. Pressure sleeve **1** will by means of its inward flange **9** displace the metallic plates in the same direction as pressure sleeve **1** and will press said plates against and squeeze them into the sliding sleeve **10**. In this way the outwardly bent plate parts **7***b* will move inwardly on the end of the sliding sleeve **10** which faces the adjusting srew **5**. As a result thereof, the plate parts **7***b* are pulled into the sleeve **10**. Consequently, the diameter *d* of the inner gun sight aperture as formed by the end face edges of part **7***c* will be narrowed. The edges **7***d* of the plate parts **7***c* which are approximately perpendicular to the line of sight are in comformity with the medium inner diameter of the gun sight designed circularly so that even when a deviation from this intermediate diameter occurs, an approximately circular inner aperture of the gun sight will be obtained. When the adjusting screw **5** is backed off, the resilient metallic plates **7** press the pressure sleeve **1** back in the direction of the adjusting screw whereby they will spring out and thus again increase the inner diameter of the gun sight. In view of the markings **16/19**, it is possible to effect a pre-adjustment of the desired opening of the gun sight, by turning the knurled portion **17**. The horizontal position of the assembly may be secured by a corresponding adjustment of the hollow cylindrical part **4** by means of the thread **20** of the joint and by means of the lock nut **21** in the gun sight tunnel or barrel.

What is claimed is:

1. In a gunsight including a first tubular member receivable at one end in a gunsight barrel and having the other end exposed, a tubular element for forming an adjustable aperture and having axial slots extending therein from one end but terminating short of the other end and dividing the element into a plurality of axial spring strips, the free ends of said strips being bent

inwardly toward the axis of said element into coplanar overlapping relation so the tips thereof define the said aperture, said strips adjacent said bent over free ends being formed at an incline to the axis of said element so that said strips diverge toward said bent over free ends, means comprising a sleeve for moving the ends of said strips toward the axis of the element to reduce the size of said aperture and retractable to permit movement of said free ends away from said axis to cause an increase in the size of said aperture and fitting axially over said tubular member and having one end slidably engaging said strips in the inclined regions thereof, said sleeve and tubular element being receivable into said first member, a second tubular member being threaded into said exposed end of said first member and confining said sleeve and tubular element therein, a stationary member in said first member comprising a ring portion coaxial with said tubular element, a stop for said sleeve and formed by said first and second tubular members, and a second sleeve slidably surrounding said first mentioned sleeve and having one end abutting said first and second members which have cooperating elements of indicia thereon to indicate the relative rotated position thereof and having a flange at said one end of said second sleeve also abutting said bent over free ends of said strips on the side thereof opposite the inclined region of said strips, said first tubular member having diametrically opposite axial grooves therein and said second sleeve having diametrically opposite axial ribs thereon slidably fitting said grooves, said stationary member comprising an outer part fixed to said first tubular member and spoke-like ribs extending therefrom to said ring portion and

coplanar with said grooves in said first member and thus also coplanar with the axial ribs on said second sleeve.

2. A gunsight according to claim 1 in which said second sleeve has an internal flange at said one end to abut the bent over free ends of said strips, pins in the other end of said second sleeve extending into the adjacent end of said tubular element, and slots in the adjacent end of said first mentioned sleeve through which said pins extend.

3. A gunsight according to claim 1 in which the inner diameter of said ring portion is as large as the largest aperture defined by said bent over free ends of said sleeve.

4. A gunsight according to claim 3 in which the outside diameter of said second sleeve is smaller than the inside diameter of said first and second tubular members to provide an annular sight area coaxial with said aperture and which is interrupted by said ribs.

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ROBERT B. HULL, Primary Examiner

U.S. Cl. X.R.

95—64; 350—266