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SEARCH ROOM

July 28, 1959 A. J. BRÖNNIMANN 2,896,326

PRECISION GUN SIGHT

Filed May 9, 1958 2 Sheets-Sheet 1

FIG. 1.

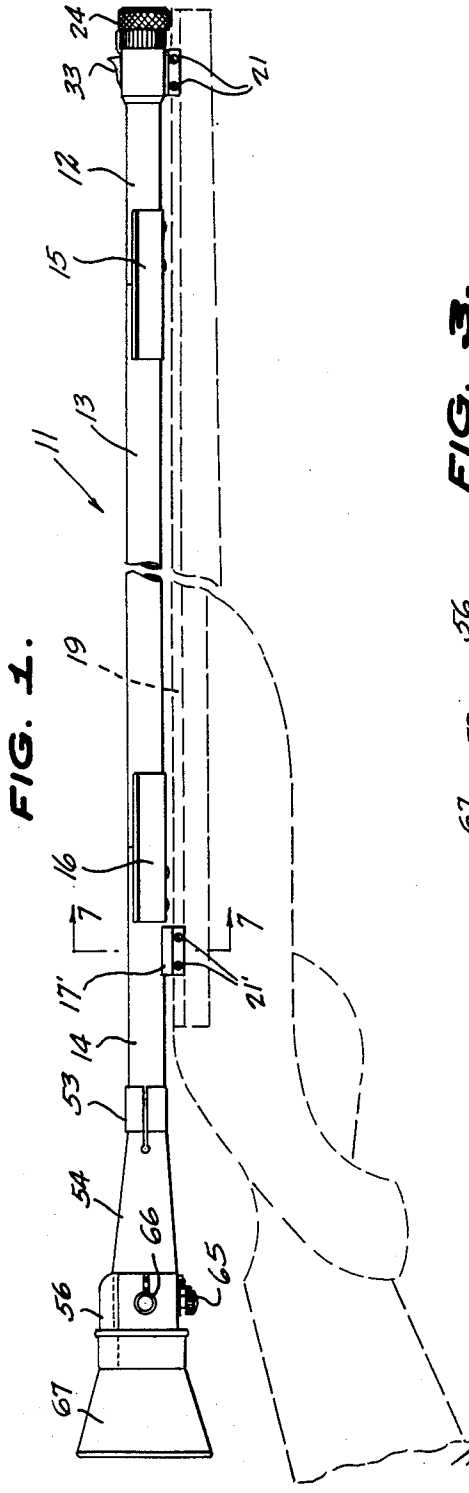


FIG. 3.

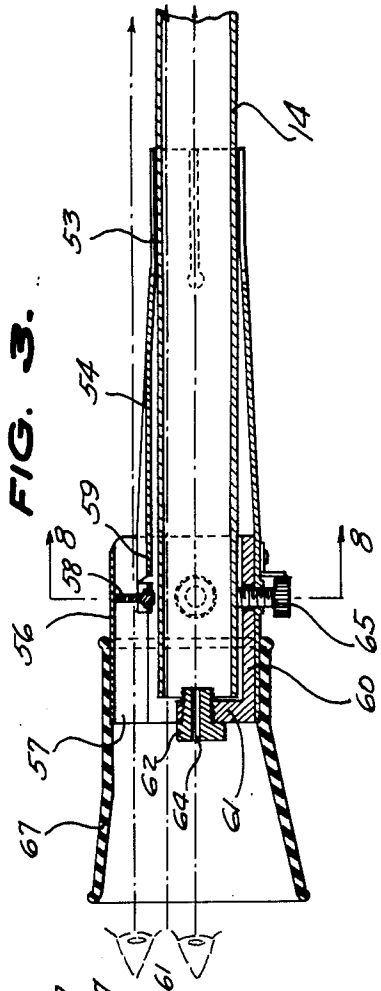
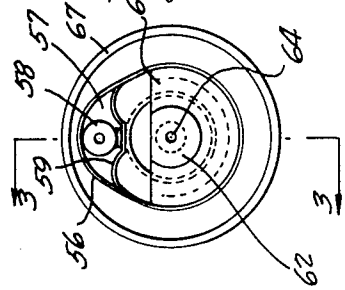


FIG. 2.



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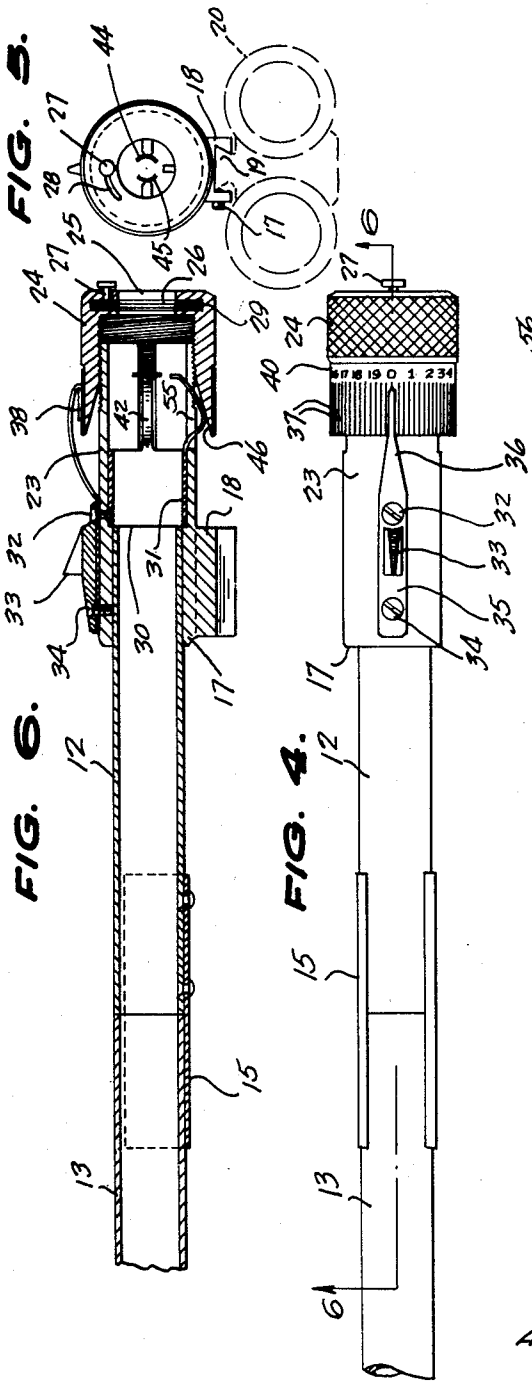


FIG. 5.

FIG. 6.

FIG. 4.

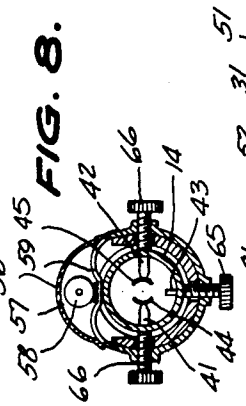


FIG. 8.

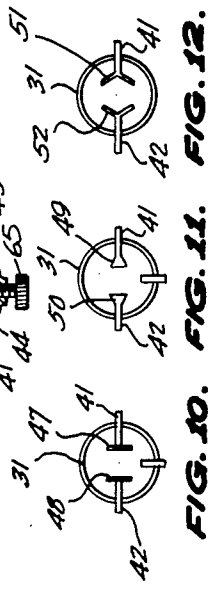


FIG. 12.

FIG. 11.

FIG. 10.

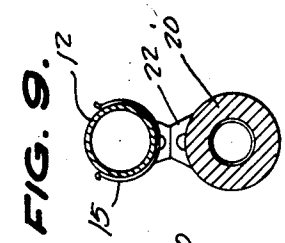


FIG. 9.

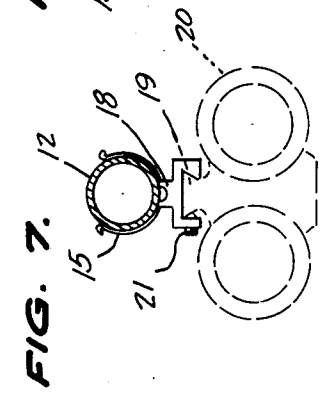


FIG. 7.

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PRECISION GUN SIGHT

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Application May 9, 1958, Serial No. 734,235

5 Claims. (Cl. 33—50)

This invention relates to improvements in gun sights, and more particularly to an improved sighting attachment for use with a firearm to serve as a telescopic sight for improving the sighting accuracy of the firearm.

A main object of the invention is to provide a novel and improved precision gun sight assembly which is simple in construction, which is easy to install on a firearm and which greatly improves the sighting accuracy of the firearm.

A further object of the invention is to provide an improved sighting assembly for use on a firearm, said assembly involving inexpensive components, being durable in construction, and being adapted to provide a concentrated view of a predetermined field area around a sighted target.

A still further object of the invention is to provide an improved precision sighting assembly for a firearm, said assembly being provided with means for easily and accurately adjusting the same for windage and elevations, as well as for adjusting the field of view seen in the assembly around a sighted target and being further provided with means for accurately proportioning the field of view to the size of the target, as desired by the user of the device.

Further objects and advantages of the invention will become apparent from the following description and claims and from the accompanying drawings, wherein:

Figure 1 is a side elevational view of an improved precision sighting assembly constructed in accordance with the present invention shown associated with a firearm, the firearm being illustrated in dotted view.

Figure 2 is an enlarged rear end view of the gun sight assembly of Figure 1.

Figure 3 is a fragmentary longitudinal vertical cross sectional view taken through the gun sight assembly on the line 3—3 of Figure 2.

Figure 4 is an enlarged fragmentary top plan view of the forward portion of the gun sight assembly of Figures 1 to 3.

Figure 5 is a front end elevational view of the gun sight assembly.

Figure 6 is a longitudinal vertical cross sectional view taken on the line 6—6 of Figure 4.

Figure 7 is a transverse vertical cross sectional view taken on the line 7—7 of Figure 1.

Figure 8 is a transverse vertical cross sectional view taken on the line 8—8 of Figure 3.

Figure 9 is a transverse vertical cross sectional view similar to Figure 7 but showing a modification wherein the gun sight assembly is mounted on a single barreled firearm.

Figure 10 is a front elevational view of a modified form of reticle which may be employed in the gun sight assembly of Figures 1 to 8.

Figure 11 is a front elevational view of another modified form of reticle which may be employed in the gun sight assembly of Figures 1 to 8.

Figure 12 is a front elevational view of still another modified form of reticle which may be employed in the gun sight assembly of Figures 1 to 8.

Referring to the drawings, 11 generally designates an improved sighting assembly according to the present invention, said sighting assembly comprising an elongated main tube comprising a front end section 12, an intermediate section 13 and a rear end section 14 detachably secured in end-to-end relationship. Thus, a first resilient sleeve-like channel member 15 is secured to the front end section 12 and telescopically and clampingly receives the forward end portion of the intermediate section 13, clamping the section 13 to the section 12 in axial alignment and in abutting relation therewith. Similarly, a resilient sleeve-like channel-shaped member 16 is secured to the rear section 14 and receives the rear end portion of the intermediate section 13, clamping the section 13 to the section 14 in axial alignment therewith and in abutting relation thereto.

Secured to the forward end of the front tubular section 12 is a sleeve-like bracket member 17 having a depending dove-tailed channel portion 18 adapted to receive the upstanding longitudinal dove-tail ribs 19 of a double-barreled shotgun 20, as shown in dotted view in Figure 7. The channeled member 18 is provided at one side wall thereof with locking screws 21, 21 which may be tightened against the dove-tailed ribs 19 to lock the bracket member 17 thereto.

Similarly, the rear tubular section 14 is provided with a depending bracket 17′ provided with a dove-tailed channel receiving the dove-tailed ribs 19 and provided with locking screws 21′, 21′ in a side wall thereof to lock the bracket member 17′ to the ribs 19.

As shown in Figure 9, in an alternate arrangement, for a single barreled firearm 20′, the tubular sections may be merely secured to the firearm by suitable brackets 22 interconnecting the tubular sections 12 and 14 to the barrel of the firearm 20′ and supporting said tubular sections in spaced parallel relationship to the firearm barrel as illustrated in Figure 9.

As shown in Figure 6, the sleeve-like bracket member 17 includes a forwardly extending tubular portion 23 which is provided with external threads on which is engaged an annular diaphragm-supporting cap member 24. The cap member 24 is formed with the diaphragm aperture 25 and contains an adjustable diaphragm assembly 26 whose size may be regulated by adjusting a diaphragm-regulating pin 27 extending through an arcuate slot 28 formed in the forward wall of the annular grove 29 containing the conventional diaphragm elements. The diaphragm 26 is of conventional construction, similar to the adjustable diaphragms employed in photographic equipment, and the headed pin 27 may be manually adjusted to provide a desired size of diaphragm aperture in the opening 25.

Secured in the tubular member 23 is a reticle 30 which comprises a main sleeve portion 31 secured in the rear portion of the tubular element 23, as by one of the fastening screws 32 employed to secure the conventional upstanding open front sight element 33 to the top portion of bracket member 17. Said sight element 33 is further secured by another fastening screw 34 at its rear portion.

As shown in Figure 4, the upstanding open front sight element 33 is formed on a longitudinally extending plate member 35 which is fastened by the screws 32 and 34 to the bracket 17, the screw 34 being employed, as previously mentioned, for rigidly securing the reticle sleeve 31 in the tubular element 23. Plate member 35 is formed with a forwardly extending index pointer 36 which extends over and yieldably engages the exterior surface of the annular member 24, said annular member being provided with calibration grooves 37 adapted to lockingly

receive the reversely bent end 38 of the resilient index member 36, to yieldably secure the annular member 24 in a desired position of adjustment for a purpose presently to be described. The member 24 is provided adjacent the locking grooves 37 with a suitable numerical scale 40 which may be employed to identify the different adjusted positions of the annular diaphragm-supporting member 24.

Integrally formed with the reticle sleeve 31 are the forwardly extending outwardly bowed reticle finger elements 41, 42 and 43, the outwardly bowed resilient finger elements 41 and 42 opposing each other horizontally and the outwardly bowed resilient reticle finger 43 being disposed below and between the finger elements 41 and 42 so as to project upwardly toward the space defined between the ends of the reticle fingers 41 and 42. The reticle fingers 41 and 42 are provided at their ends with opposing arcuate target-centering elements 44, 45 defining a substantially circular field of view therebetween, as shown in Figures 5 and 8.

The annular diaphragm-supporting sleeve member 24 is internally formed with a rearwardly flaring annular cam surface 46 which cammingly engages the arcuately curved reticle fingers 41, 42 and 43, whereby the spacing between the ends of the fingers may be adjusted by rotating the annular cap member 24 relative to the tubular member 23, namely, for adjusting the cap member on the external threads of the tubular element 23. Thus, the spacing between the target-defining elements 44 and 45 may be varied, and simultaneously with this variation, the distance of the end of the upstanding reticle finger element 43 from the center of the target field is varied in a similar manner. As above mentioned, the annular cam member 24 is yieldably locked in adjusted position by the engagement of the rearwardly bent lower end portion 38 of the pointer element 36 in the locking grooves 37.

As shown in Figures 10, 11 and 12, the resilient reticle fingers 41 and 42 may be provided at their ends with field-defining elements of different shapes. Thus, as shown in Figure 10, a pair of straight bar elements 47 and 48 may be employed in place of the arcuate target area-defining elements 44 and 45, whereby to define a generally rectangular target area therebetween. As shown in Figure 11, a pair of triangular plate elements 49 and 50 may be provided on the fingers 41 and 42 in place of the arcuate elements 44 and 45. As is further illustrated in Figure 12, opposing V-shaped members 51 and 52 may be provided respectively on the reticle fingers 41 and 42 to define a target field therebetween in place of the arcuate elements 44 and 45.

The forward portion of the tubular bracket extension 23 is formed with longitudinal slots 55 through which the outwardly bowed reticle finger elements 41, 42 and 43 extend to cammingly engage with the annular cam surface 46 on the interior of the cap member 24, as is clearly shown in Figure 6.

Resiliently engaged on the rear tubular section 14 is a longitudinally slotted sleeve-like auxiliary tube 53 formed with the rearwardly flaring portion 54. The resilient, longitudinally slotted forward portion of the tube 53 slidably engages on the tubular section 14 and may pivot slightly relative to the tubular section 14 for a purpose presently to be described.

The flaring portion 54 is formed at its rear end with the enlarged upwardly elongated portion 56 defining a sighting tunnel 57 in which is mounted the conventional centrally apertured disc-shaped rear sight 58, said rear sight being mounted centrally in a shallow longitudinally channeled portion 59 formed in the member 54.

As shown in Figure 3, the disc-shaped rear sight 58 is located over the rear portion of the tubular section 14 and is disposed in the rear portion of the sighting tunnel 57.

Secured in the bottom of the enlarged end portion 56 of sleeve element 54 is a longitudinally extending channel-shaped member 60 formed with an upstanding transversely extending rear end wall portion 61 which rises rearwardly adjacent the open rear end of tubular section 14. Threadedly engaged in the upstanding transverse wall 61 is a tubular rear sight member 62 which projects into the central portion of the open rear end of tubular section 14, as shown in Figure 3. The member 62 is provided with the axial sighting bore 64 which may be employed as a sighting aperture to view the field-defining finger elements in the reticle 30.

Threaded through the bottom of the sleeve element 56 is an elevation adjusting screw 65 and threaded through the opposite sides of the sleeve element 56 are windage adjusting screws 66, 66, these screws engaging the tubular section 14 so that the sighting member 62 carried on the rear end portion of the auxiliary tube 53 may be adjusted in a plane perpendicular to the axis of the main tube defined by the joined segments 12, 13 and 14.

Designated at 67 is a rearwardly flaring skirt member of resilient deformable material, such as rubber or the like, which is secured on the auxiliary tube rear sleeve element 56 and which extends rearwardly therefrom to provide a shield so that external glare or other objectionable side rays of disturbing light will be excluded when a person is using the gun sight assembly.

As will be readily apparent, in using the device, the conventional rear sight 58 and front sight 33 may be first employed as a finder to locate the target, since the user may view these sights through the tunnel 57. Thereafter, the tubular sighting member 62 and the target-defining reticle fingers may be employed to accurately aim the firearm on the intended target.

As previously mentioned, the size of the field may be regulated by adjusting the diaphragm assembly 26, and the spacings between the reticle fingers may be similarly adjusted by rotatably adjusting the annular cap member 24 on the tubular extension 23 of bracket 17. Elevation adjustments may be performed by means of the elevation adjusting screw 65 and windage adjustments may be performed by using the opposing windage adjustment screws 66, 66. As will be readily apparent, adjustment of the elevation screw 65 moves the sighting tube 62 vertically relative to the main tube section 14, whereas adjustment of the windage screws 66, 66 moves the sighting tube 62 laterally relative to the tubular section 14.

The sighting assembly of the present invention facilitates the accommodation of the user's eye to the available light in sighting distant targets. The front sight portion of the assembly is employed to use and properly adjust the field of light in relation to the eye accommodation of the user for different ranges and light conditions. The design of the adjustable reticle also permits physical focussing of the black center of the target by the user's eye. Thus, the assembly provides improved accuracy without eye strain or eye fatigue, due to the improved ability of the eye to accommodate and because no magnification of the reticle is required.

It is to be noted that the assembly can be readily fastened over a conventional gun barrel after the normal rear and front sights are removed therefrom and can thereafter be employed in place of said normal rear and front sights, since the assembly includes rear and front sight members designed to be easily fastened to the respective ends of the scope tube. Thus, the assembly involves the use of only one main tube (readily fastened over a gun barrel) with special front and rear sights designed so as to be properly fastened at each end of the tube.

It is to be further noted that the sight assembly of the present invention permits accurate sighting from a totally dark location to a distant lighted target without refraction, loss of light or disturbing glare.

While certain specific embodiments of an improved sighting assembly for use on a firearm have been disclosed in the foregoing description, it will be under-

stood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. In a firearm, a sighting assembly comprising an elongated main tube, means supporting said main tube on the barrel of the firearm parallel thereto, an upstanding open front sight element on the top of the forward portion of said main tube, a reticle in the forward portion of said main tube and including a pair of spaced, opposing inner front sight elements, a sleeve-like auxiliary tube disposed loosely on the rear portion of said main tube, means to adjust the auxiliary tube in a plane perpendicular to the axis of said main tube, a rear sight element mounted on the top of the rear portion of said auxiliary tube, a channel-shaped member secured in said auxiliary tube and receiving the rear end of said main tube, said last-named member having a transverse end wall located rearwardly adjacent said rear end of the main tube, and a tubular rear sight member mounted in said end wall and directed substantially into said main tube towards said inner front sight elements.

2. In a firearm, a sighting assembly comprising an elongated main tube, means supporting said main tube on the barrel of the firearm parallel thereto, an upstanding open front sight element on the top of the forward portion of said main tube, a reticle in the forward portion of said main tube and including a pair of spaced opposing, inner front sight elements, a sleeve-like auxiliary tube disposed loosely on the rear portion of said main tube, means to adjust the auxiliary tube in a plane perpendicular to the axis of said main tube, a rear sight element mounted on the top of the rear portion of said auxiliary tube, a channel-shaped member secured in said auxiliary tube and receiving the rear end of said main tube, said last-named member having a transverse end wall located rearwardly adjacent said rear end of the main tube, a tubular rear sight member mounted in said end wall and directed substantially into said main tube towards said inner front sight element, and a rearwardly flaring resilient deformable skirt member secured on and extending rearwardly from said auxiliary tube.

3. In a firearm, a sighting assembly comprising an elongated main tube, means supporting said main tube on the barrel of the firearm parallel thereto, an upstanding open front sight element on the top of the forward portion of said main tube, a reticle in the forward portion of said main tube and including a plurality of spaced opposing inner resilient front sight elements, an annular apertured diaphragm member threadedly engaged on the forward end of said main tube, a rearwardly flaring annular internal cam surface on said diaphragm member cammingly engageable with said inner front sight elements and being arranged to vary the spacings of said inner front sight elements responsive to rotation of the cap member, a sleeve-like auxiliary tube disposed loosely on the rear portion of said main tube, means to adjust the auxiliary tube in a plane perpendicular to the axis of said main tube, a rear sight element mounted on the top of the rear portion of said auxiliary tube, a channel-shaped member secured in said auxiliary tube and receiving the rear end of said main tube, said last-named member having a transverse end wall located rearwardly adjacent said rear end of the main tube, and a tubular rear sight member mounted in said end wall and directed substantially into said main tube toward said inner front sight elements.

4. In a firearm, a sighting assembly comprising an elongated main tube, means supporting said main tube on the barrel of the firearm parallel thereto, an upstanding open front sight element on the top of the forward portion of said main tube, a reticle in the forward portion of said main tube and including a plurality of spaced opposing, inner resilient front sight elements, an annular apertured diaphragm member threadedly engaged on the forward end of said main tube, means to adjust the area of the aperture in said diaphragm member, a rearwardly flaring annular internal cam surface on said diaphragm member cammingly engageable with said inner front sight elements and being arranged to vary the spacings of said inner front sight elements responsive to rotation of the cap member, a sleeve-like auxiliary tube disposed loosely on the rear portion of said main tube, means to adjust the auxiliary tube in a plane perperdicular to the axis of said main tube, a rear sight element mounted on the top of the rear portion of said auxiliary tube, a channel-shaped member secured in said auxiliary tube and receiving the rear end of said main tube, said last-named member having a transverse end wall located rearwardly adjacent said rear end of the main tube, and a tubular rear sight member mounted in said end wall and directed substantially into said main tube towards said inner front sight elements.

5. In a firearm, a sighting assembly comprising an elongated main tube, means supporting said main tube on the barrel of the firearm parallel thereto, an upstanding open front sight element on the top of the forward portion of said main tube, a reticle in the forward portion of said main tube and including a plurality of spaced opposing inner outwardly bowed resilient front sight elements, an annular apertured diaphragm member threadedly engaged on the forward end of said main tube, means to adjust the area of the aperture in said diaphragm member, a rearwardly flaring annular internal cam surface on said diaphragm member cammingly engageable with the outwardly bowed inner front sight elements and being arranged to vary the spacings of the ends of said inner front sight elements responsive to rotation of the cap member, a sleeve-like auxiliary tube disposed loosely on the rear portion of said main tube, means to adjust the auxiliary tube in a plane perpendicular to the axis of said main tube, a rear sight element mounted on the top of the rear portion of said auxiliary tube, a channel-shaped member secured in said auxiliary tube and receiving the rear end of said main tube, said last-named member having a transverse end wall located rearwardly adjacent said rear end of the main tube, a tubular rear sight member mounted in said end wall and directed substantially into said main tube towards said inner front sight element, and a rearwardly flaring resilient deformable skirt member of substantial length secured on and extending rearwardly from said auxiliary tube.

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