33-257. OR 2,401,752 SR

Search Room

June 11, 1946. S. W. FISH 2,401,752

SIGHT

Filed Aug. 6, 1943

Fig. 1.

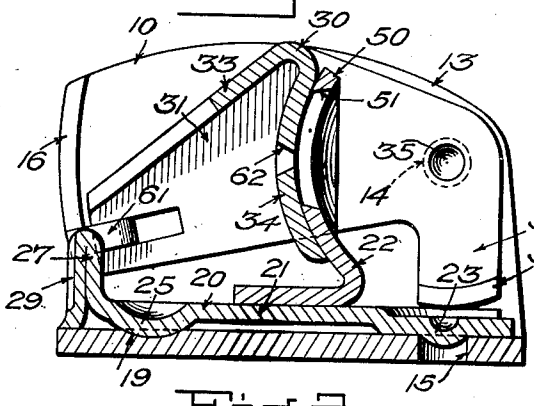


Fig. 3.

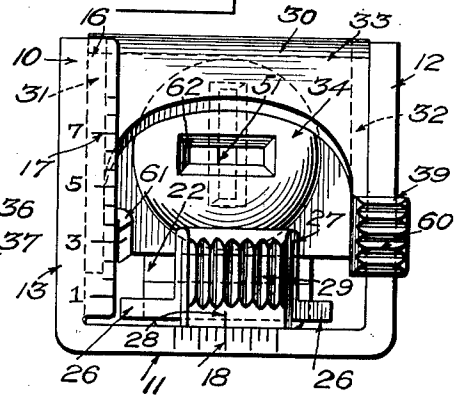


Fig. 2.

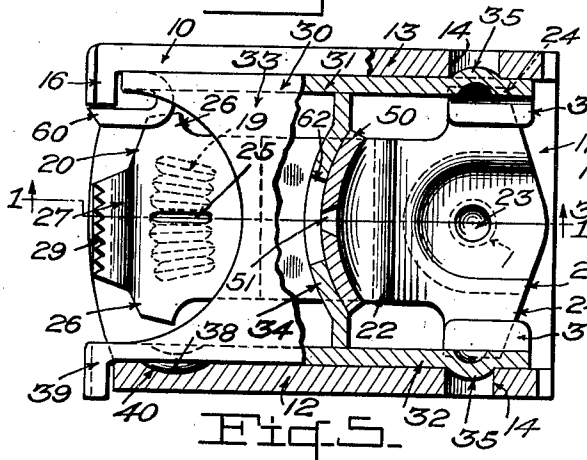


Fig. 4.

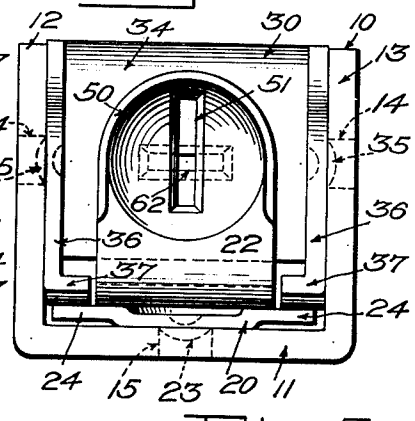


Fig. 5.

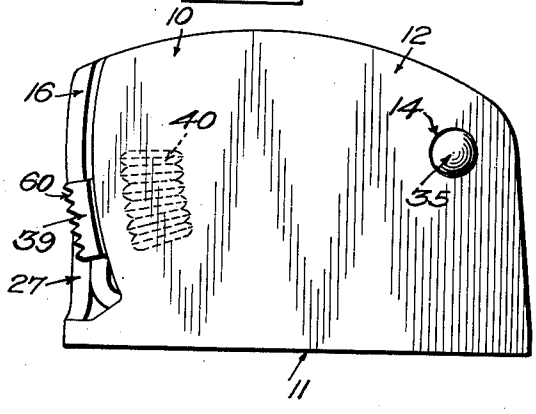
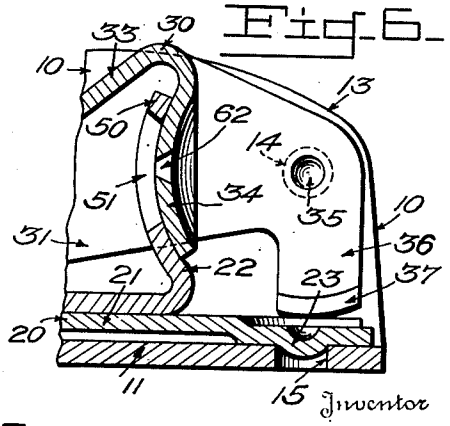


Fig. 6.



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33 GEOMETRICAL INSTRUMENTS
56
Search Room

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2,401,752

UNITED STATES PATENT OFFICE

2,401,752

SIGHT

Stanley W. Fish, Springfield, Mass.

Application August 6, 1943, Serial No. 497,609

13 Claims. (Cl. 33—56)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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The invention described herein may be manufactured and used by or for the Government for governmental purposes without the payment to me of any royalty thereon.

This invention relates to an improved sight for a firearm and particularly to an improved rear sight having windage and elevation adjustments.

It is an object of this invention to provide an improved rear sight for small arms weapons which is adjustable over a large range of windage and elevation.

Another object of this invention is to provide an adjustable rear sight composed of a minimum number of parts and having no small parts such as screws or springs which are easily broken or lost.

A particular object of this invention is to provide an adjustable rear sight which is susceptible of quantity production and can be produced from pressed metal parts.

The specific nature of the invention as well as other objects and advantages thereof will clearly appear from a description of a preferred embodiment as shown in the accompanying drawing in which:

Fig. 1 is a longitudinal sectional view of the sight taken on the plane 1—1 of Fig. 2.

Fig. 2 is a top elevational view of the sight partly broken away and partly in section to show the mounting of the windage and elevation members.

Fig. 3 is a left end elevational view of Fig. 1.

Fig. 4 is a right end elevational view of Fig. 1.

Fig. 5 is a right side elevational view of Fig. 3.

Fig. 6 is a broken view similar to Fig. 1 showing a modified form of construction and assemblage of the windage and elevation members.

As shown in assembled relation in Fig. 1, this improved sight comprises only three members, a base member 10, a windage member 20, and an elevation member 30. The base member 10 is essentially a U-shaped member conveniently produced by pressing or stamping a piece of sheet or strip metal. The base portion 11 of the base 10 is mounted in any suitable manner to the receiver or barrel of a firearm (not shown). The mounting method utilized could be spot welding, dovetail or screw type fasteners passing thru the base portion 11. In the top forward portion of the side walls 12 and 13 of base 10 transverse aligned holes 14 are provided. A hole 15 is centrally provided in the base portion 11 about a center located directly beneath the axis of the holes 14. The side wall 13 of base 10 has an extension 16 which is bent inwardly to lie substantially at right

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angles to the plane of the side wall 13 and is curved on an arc about the axis of holes 14. Suitable elevation graduations 17, preferably in units of hundreds of yards, are provided on the rear surface of extension 16. Suitable windage graduations 18 are provided on the rear surface of the base portion 11.

Near the rear of the base portion 11, a set of windage serrations 19 are produced in the metal of the base portion 11. These serrations are located along an arc centered on the center of hole 15. In the rear portion of the interior surface of side wall 12, there is produced a group of elevation serrations 40 which are disposed along an arc having the same center as the hole 14.

The windage member 20 is essentially an inverted T-shaped member with a base portion 21 and a stem portion 22. If the proportions of a particular sight embodying this invention are ample, it is then possible to produce both the base portion and the stem portion from a single piece of strip metal by stamping out the stem portion 22 from the base 21 and bending it in a transverse position. In the illustrated construction however, the stem portion 22 is formed from a separate piece of strip metal and spot welded to the base portion 21.

The center of the forward portion of the base portion 21 is depressed somewhat and a depending spherical projection 23 is formed in this depressed portion which, when the sight is assembled, is arranged to engage in the hole 15 of the base member 10. On each side of the depending projection 23, the base portion 21 is shaped to form projecting ears 24 which cooperate with a portion of the elevation member 30 in a manner that will be described. Near the rear of the base portion 21 of the windage member 20, a depending tooth 25 is formed which is shaped to engage in the windage serrations 19 of the base 10 when the sight is assembled. Opposite the depending tooth 25, each side of the base portion 21 is provided with ears 26 which operate to limit the extent of lateral movement.

The rear end of the base portion 21 of the windage member 20 is bent to a transverse position with respect to the base portion 21 and then bent back upon itself to form the windage knob 27. A graduation line 28 is provided on the rear surface of windage graduations 18 on the base 10 when the sight is assembled. Serrations 29 may also be provided in the rear surface of the knob 27 to facilitate movement of the windage member by the finger of the operator.

The top portion of the stem 22 of the windage member 20 is shaped to form a spherical surface 50. The radius of the spherical surface 50 is such that when the windage member 20 is assembled in the base 10, the theoretical center of the spherical surface 50 will be located at the intersection of the axes of the holes 14 and 15. A slot 51 is cut vertically through the spherical surface 50 and this slot acts as the elevation aperture, as will be described. The extent of the slot 51 should be made equal to the range of elevation adjustment desired for the particular sight.

The elevation member 30 comprises an essentially inverted U-shaped member having side walls 31 and 32 and a base portion 33. The elevation member 30 may also be produced by pressing or stamping a piece of strip metal. Approximately the front half of base portion 33 is bent back and shaped to form a spherical surface 34 which lies between the side walls 31 and 32 and is disposed essentially perpendicular to the side walls 31 and 32. In each of the side walls there is produced an outwardly extending spherical projection 35. These projections are arranged and shaped to engage in the holes 14 when the sight is assembled.

In the vicinity of the projections 35 both of the side walls 31 and 32 are provided with depending arms 36. The bottoms of the arms 36 are bent to form a horizontal portion 37. These portions 37 bear upon the ears 24 of the windage member 20 when the sight is assembled and hold the windage member 20 in place.

In the rear portion of side wall 32, a projecting tooth 38 is formed which is shaped and located to engage the elevation serrations 40 in the base 10 when the sight is assembled. The extreme end of the side wall 32 is bent transversely to form an elevation knob 39. Serrations 60 may be provided on the rear surface of the elevation knob 39 to facilitate operation by the finger of the operator.

In the extreme rear portion of the side wall 31 of the elevation member 30, a pointer 61 is punched out. The pointer 61 is arranged to lie adjacent to the elevation graduations 17 on the base 10 when the sight is assembled. The spherical surface 34 provided on the elevation member 30 is formed on a radius about the theoretical intersection of the axes of holes 14 and 15. Extending horizontally across the centers of the spherical surfaces 34 is a slot 62 which is utilized as the windage aperture of the sight. The extent of this slot is commensurate with the range of windage adjustment desired.

In assembling the sight, the windage member 20 is inserted between the side walls 12 and 13 of the base 10 with the spherical projection 23 engaging the hole 15 in the base portion of the base 10. The elevation member 30 is then placed between the side walls 12 and 13 of the base 10. The projections 35 on the side walls 31 and 32 of the elevation member 30 engage in the holes 14 in the side walls 13 and 12 respectively of base 10. The width of the elevation member is such that a slight inward yielding of the walls 31 and 32 is necessary for assembly and hence the projections 35 are resiliently held in the holes 14.

In this assembled position, the spherical surface 34 of the elevation member 30 lies directly behind and contiguous to the spherical surface 50 of the windage member 20. The horizontal portions 37 of the depending arms 36 of the elevation member 30 pivotally bear upon the ears 24 of the windage member 20 holding windage member 20 in place. The depending tooth 25 on the windage member 20 is thereby held in engagement with the windage serrations 19 in the base 10. The projecting tooth 38 in the elevation member 30 is held in engagement with the elevation serrations 40 due to the slight flexing of the walls 31 and 32 of the elevation member which is produced by the assembly.

It will therefore be apparent that a small sighting aperture is formed by the intersection of the elevation aperture 51 in windage member 20 and the windage aperture 62 in elevation member 30. The position of this resultant aperture may be shifted to compensate for windage or elevation by horizontal pivotal movement of the windage member 20 with the hole 15 as a pivot and vertical pivotal movement of the elevation member 30 with the holes 14 as a pivot. The serrated windage knob 27 and elevation knob 39 permit such pivotal movement to be readily imparted to these members by the finger of the operator. The extent of elevation or windage correction is indicated respectively on the elevation graduations 17 and the windage graduations 18 by the pointer 61 on elevation member 30 and the graduation mark 28 on windage member 20. The serrations 19 and 40 hold the sight members firmly in any selected position.

An alternative construction is shown in Fig. 6 wherein the same reference numerals indicate similar parts. In this construction the windage member 20 is proportioned to assemble with spherical surface 50 in front of spherical surface 34 of elevational member 30 and an additional holding action on the windage member 20 is obtained since the spherical surface 34 of the elevation member 30 now is positioned with respect to spherical surface 50 of windage member 20 to prevent upward displacement of windage member 20.

It will therefore be apparent that a sight constructed in accordance with this invention will permit a full range of windage and elevation correction. Furthermore, such sight involves no small parts and the attendant danger of the loss of such parts during the use of the sight. This sight can be produced entirely from pressed metal parts and is therefore adapted to large quantity production.

I claim:

1. A sight comprising a base, a windage member pivotally mounted on said base for movement thru a horizontal arc, said windage member having a vertical slot, an elevation member pivotally mounted on said base for movement thru a vertical arc, said elevation member having a horizontal slot, said windage member and said elevation member arranged on said base with respect to each other to form a sighting aperture at the intersection of said slots.

2. A sight comprising a base, a windage member pivotally mounted on said base for movement thru a horizontal arc, means for limiting the movement of said windage member, means for indicating the position of said windage member, said windage member having a vertical slot, an elevation member pivotally mounted on said base for movement thru a vertical arc, means for indicating the position of said elevation member, said elevation member having a horizontal slot, said windage member and said elevation member arranged on said base with respect to each other to form a sighting aperture at the intersection of said slots.

3. A sight comprising a base, a windage mem-

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ber mounted on said base for movement thru a horizontal arc, a spherical portion on said windage member, said spherical portion including a vertical slot, an elevation member mounted on said base for movement thru a vertical arc, a spherical portion on said elevation member, said spherical portion including a horizontal slot, said windage member and said elevation member arranged on said base with respect to each other so that the spherical portions of each lie in abutting relation for all positions of said windage and elevation members whereby a variable position sighting aperture is formed at the intersection of said slots.

4. A sight comprising a base, a windage member pivotally mounted on said base for movement thru a horizontal arc, means for limiting the movement of said windage member, means for indicating the position of said windage member, a spherical portion on said windage member, said spherical portion including a vertical slot, an elevation member pivotally mounted on said base for movement thru a vertical arc, means for indicating the position of said elevation member, a spherical portion on said elevation member, said spherical portion including a horizontal slot, said windage member and said elevation member arranged on said base with respect to each other so that the spherical portions of each lie in abutting relation for all positions of said windage and elevation members whereby a variable position sighting aperture is formed at the intersection of said slots.

5. A sight comprising a U-shaped base, an elevation member pivotally supported at its forward end by the walls of said base for movement thru a vertical arc, a windage member resting on the bottom of said base and pivotally mounted at its forward end to the bottom of said base for movement thru a horizontal arc, said elevation member having a horizontal slot, said windage member having a vertical slot, said windage member and said elevation member arranged with respect to each other to form a sighting aperture at the intersection of said slots.

6. A sight comprising a U-shaped base, an elevation member pivotally supported at its forward end by the walls of said base for movement thru a vertical arc, a windage member resting on the bottom of said base pivotally mounted at its forward end to the bottom of said base for movement thru a horizontal arc, a spherical portion on said windage member, said spherical portion including a vertical slot, a spherical portion on said elevation member, said spherical portion including a horizontal slot, said windage member and said elevation member arranged with respect to each other so that the spherical portions of each lie in abutting relation for all positions of said windage and elevation members whereby a variable position sighting aperture is formed at the intersection of said slots.

7. A sight comprising a U-shaped base, an elevation member pivotally supported at its forward end by the walls of said base for movement thru a vertical arc, a windage member resting on the bottom of said base and pivotally mounted at its forward end to the bottom of said base for movement thru a horizontal arc, said elevation member having a horizontal slot, said windage member having a vertical slot, said windage member and said elevation member arranged with respect to each other to form a sighting aperture at the intersection of said slots, one of the walls of said base being bent inwardly to define an arcuate surface lying adjacent and parallel to the arcuate path of said elevation member, a plurality of spaced graduations of said surface and means on said elevation member cooperating with said graduations to indicate the position of said elevation member.

8. A sight comprising a base, a windage member pivotally mounted on said base for movement thru a horizontal arc, said windage member pivotally having a vertical slot, an elevation member mounted on said base for movement thru a vertical arc, said elevation member having a horizontal slot, said windage member and said elevation member arranged on said base with respect to each other to form a sighting aperture at the intersection of said slots, means resiliently holding said windage member in any selected pivotal position and means for resiliently holding said elevation member in any selected pivotal position.

9. A sight comprising a U-shaped base, an elevation member pivotally supported at its forward end by the walls of said base for movement thru a vertical arc, a windage member resting on the bottom of said base and pivotally mounted at its forward end to the bottom of said base for movement thru a horizontal arc, said elevation member having a horizontal slot, said windage member having a vertical slot, said windage member and said elevation member arranged with respect to each other to form a sighting aperture at the intersection of said slots, a projection on said windage member cooperating with serrations on the bottom of said base to yieldingly hold said windage member in any selected pivotal position and a projection on said elevation member cooperating with serrations on one of the arms of said base to yieldingly hold said elevation member in any selected pivotal position.

10. A sight comprising a U-shaped base, an elevation member pivotally supported at its forward end by the walls of said base for movement thru a vertical arc, a windage member resting on the bottom of said base and pivotally mounted at its forward end to the bottom of said base for movement thru a horizontal arc, a spherical portion on said windage member formed and located with its center coinciding with the intersection of the pivotal axes of said windage and elevation members, a spherical portion on said elevation member arranged to abut the said spherical portion on said windage member and formed and located with its center coinciding with said axes intersection, whereby said spherical portions lie in abutting relation for all positions of said windage and elevation members, said spherical portion on said windage member having a vertical slot therein, said spherical portion on said elevation member having a horizontal slot therein, whereby a variable position sighting aperture is formed at the intersection of said slots, a projection on said windage member cooperating with serrations on the bottom of said base to yieldingly hold said windage member in any selected pivotal position and a projection on said elevation member cooperating with serrations on one of the arms of said base to yieldingly hold said elevation member in any selected pivotal position.

11. A sight comprising a U-shaped base, an elevation member pivotally supported at its forward end by the walls of said base for movement thru a vertical arc, a windage member resting on the bottom of said base pivotally mounted at its forward end to the bottom of said base for movement thru a horizontal arc, a spherical por-

tion on said windage member, said spherical portion including a vertical slot, a spherical portion on said elevation member, said spherical portion including a horizontal slot, said windage member and said elevation member arranged with respect to each other so that the spherical portions of each lie in abutting relation for all positions of said windage and elevation members whereby a variable position sighting aperture is formed at the intersection of said slots, one of the walls of said base being bent inwardly to define an arcuate surface lying adjacent and parallel to the arcuate path of said elevation member, a plurality of spaced graduations on said surface and means on said elevation member cooperating with said graduations to indicate the position of said elevation member, a projection on said windage member cooperating with serrations on the bottom of said base to yieldingly hold said windage member in any selected pivotal position and a projection on said elevation member cooperating with serrations on one of the arms of said base to yieldingly hold said elevation member in any selected pivotal position.

12. A sight comprising a U-shaped base, an elevation member pivotally supported at its forward end by the walls of said base for movement thru a vertical arc, a windage member resting on the bottom of said base and pivotally mounted at its forward end to the bottom of said base for movement thru a horizontal arc, depending arms on said elevation member bearing on said windage member to hold it in place, said elevation member having a horizontal slot, said windage member having a vertical slot, said windage member and said elevation member arranged with respect to each other to form a sighting aperture at the intersection of said slots.

13. A sight comprising a U-shaped base, an elevation member pivotally supported at its forward end by the walls of said base for movement thru a vertical arc, a windage member resting on the bottom of said base and pivotally mounted at its forward end to the bottom of said base for movement thru a horizontal arc, depending arms on said elevation member bearing on said windage member to hold it in place, a spherical portion on said windage member formed and located with its center coinciding with the intersection of the pivotal axes of said windage and elevation members, a spherical portion on said elevation member arranged to abut the said spherical portion on said windage member and formed and located with its center coinciding with said axes intersection, whereby said spherical portions lie in abutting relation for all positions of said windage and elevation members, said spherical portion on said windage member having a vertical slot therein, said spherical portion on said elevation member having a horizontal slot therein, whereby a variable position sighting aperture is formed at the intersection of said slots, indicating means on said windage member cooperating with graduations on said base to indicate the position of said windage member and indicating means on said elevation member cooperating with graduations on one of the arms of said base to indicate the position of said elevation member, a projection on said windage member cooperating with serrations on the bottom of said base to yieldingly hold said windage member in any selected pivotal position and a projection on said elevation member cooperating with serrations on one of the arms of said base to yieldingly hold said elevation member in any selected pivotal position.

STANLEY W. FISH.

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Certificate of Correction

Patent No. 2,401,752. June 11, 1946.

STANLEY W. FISH

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Column 6, line 9–10, claim 8, strike out the word "pivotally" and insert the same before "mounted" in line 11, same claim; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 29th day of October, A. D. 1946.

[SEAL]

LESLIE FRAZER,
First Assistant Commissioner of Patents.

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[SEAL]

LESLIE FRAZER,
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