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F. F. BURTON

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FIREARM SIGHT

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2 Sheets-Sheet 2

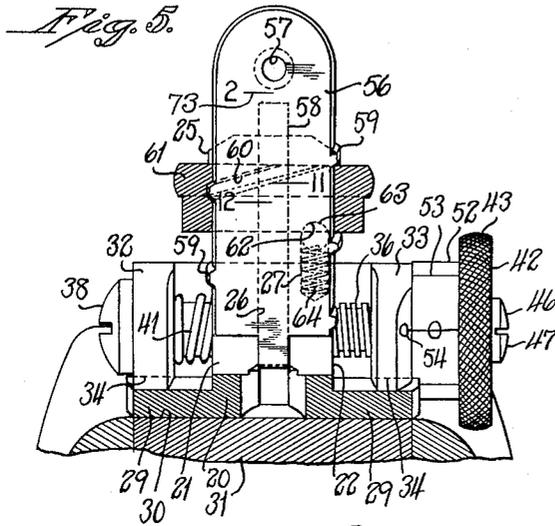


Fig. 5.

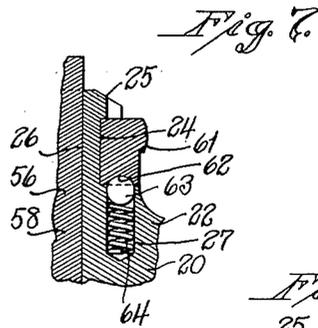


Fig. 7.

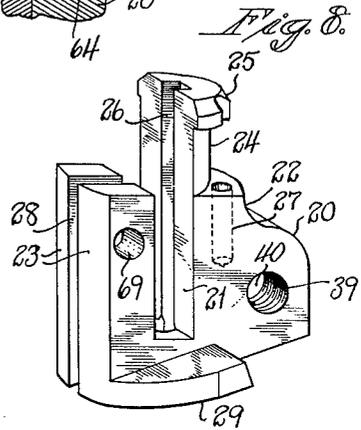


Fig. 8.

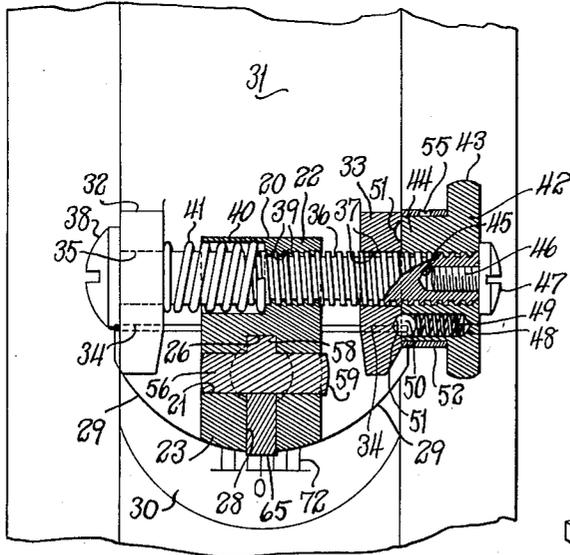


Fig. 6.

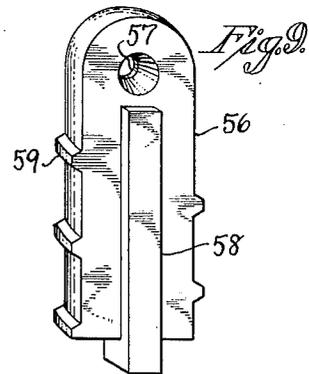


Fig. 9.

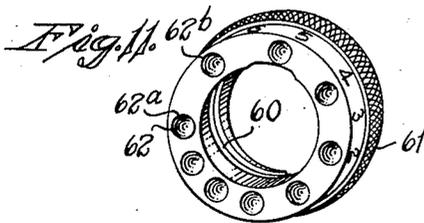


Fig. 11.

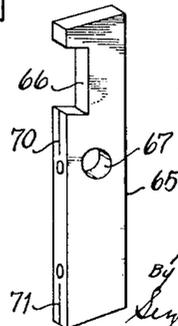


Fig. 10.

Inventor  
 Frank F. Burton  
 By Seymour C. Nichols  
 Attorneys

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## FIREARM SIGHT

Frank F. Burton, Mount Carmel, Conn., assignor  
to Western Cartridge Company, New Haven,  
Conn., a corporation of Delaware

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12 Claims. (Cl. 33—56)

This invention relates to improvements in sights and more particularly to sights for firearms, and also the sight-accommodating features of the firearm structures themselves.

5 One of the objects of the present invention is to provide a superior firearm sight characterized by accuracy and simplicity, and having sufficient ruggedness to withstand military and similar hard usage.

10 Another object of the present invention is to provide a superior firearm sight which may be conveniently and rapidly assembled and disassembled to thus not only reduce initial costs but to also permit cleaning and the replacement  
15 of parts.

A further object is to provide a superior firearm sight which is adjustable over a wide range by operating means which is gaugeable by a single set of indicia.

20 Still another object of the present invention is to provide a superior firearm sight which may be assembled and adjusted to eliminate lost motion, and then have its indicia set independently to correct position.

25 A still further object is to provide a superior firearm sight in which a threaded elevation slide and a rotary adjusting member or equivalent therefor is employed and in which guide means is provided to insure the accurate rectilinear  
30 movement of the said elevation slide without dependence upon threads for guidance.

Another object of the present invention is to provide a superior construction and arrangement  
35 of parts whereby the sight-carrying element of the firearm sight is stabilized against displacement with respect to the portion of the firearm upon which it may be mounted.

40 With the above and other objects in view, as will appear to those skilled in the art from the present disclosure, this invention includes all features in the said disclosure which are novel over the prior art.

In the accompanying drawings, in which certain modes of carrying out the present invention  
45 are shown for illustrative purposes:

Fig. 1 is a view in side elevation of an adjustable firearm sight constructed in accordance with the present invention and shown as applied to a firearm structure which latter is broken away;

50 Fig. 2 is a broken view thereof in rear elevation;

Fig. 3 is a top or plan view thereof;

55 Fig. 4 is a broken view in vertical central-longitudinal section taken on the line 4—4 of Fig. 2;

Fig. 5 is a vertical transverse sectional broken view taken on the line 5—5 of Fig. 1;

Fig. 6 is a broken horizontal sectional view taken on the line 6—6 of Fig. 2;

Fig. 7 is a broken detail sectional view taken  
5 through the detent means for the elevation adjusting nut, together with portions of the associated parts;

Fig. 8 is a perspective view of the body member;

Fig. 9 is a similar view of the elevation slide;

Fig. 10 is a perspective view of the elevation slide keeper;

Fig. 11 is a perspective view of the elevation adjusting nut, viewing the same mainly from the  
15 underside;

Fig. 12 is a perspective view of the windage adjusting finger piece showing the adjustable indicia ring thereon; and

Fig. 13 is a perspective view of the indicia  
20 ring detached.

The firearm sight herein chosen for the purpose of illustrating the present invention includes a block-like body member 20 formed about mid-  
25 way between its front and rear ends with a vertical transversely extending slide-receiving slot 21 serving, in effect, to divide the major portion of the said body member into a front lug 22 and a rear lug 23. Upstanding from the front lug  
30 22 is a neck portion 24 having a cylindrically contoured front portion and having its rear face substantially flat and constituting a smooth continuation of the rear face of the front lug 22, and, like the latter, forming a part of the front  
35 wall of the slide-receiving slot 21 before referred to.

The neck portion 24 of the body member 20 is surmounted by a flange-like head 25 which is spaced above the upper surface of the front  
40 lug 22 of the said body member to a degree sufficient to provide a relatively wide cylindrically contoured groove for the purpose as will hereinafter appear. Formed in the respective rear  
45 faces of the front lug 22, the neck portion 24 and the head 25 of the body member 20, is a rearwardly opening vertical guide groove 26 which will serve as a guide for an elevation slide as will be presently described. Intersecting and extending downwardly from the upper surface  
50 of the front lug 22 of the body member 20 slightly forwardly and to one side of the neck portion 24 is a detent pocket 27 which is illustrated particularly well in Figs. 7 and 8.

The rear lug 23 of the body member 20 is formed with a vertical keeper slot 28 positioned  
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intermediate the respective opposite side faces of the said lug 23, and intersecting the rear face of the said lug as well as the front face thereof, and hence also intersecting the transverse slide-receiving slot 21 in the said body member 20, as is illustrated particularly well in Fig. 8. At each of its respective opposite sides adjacent its rear, the body member 20 is provided with a segment-like stabilizing flange 29 designed to stabilize the said body member 20 and the parts carried thereby as well as to assist in the guidance thereof, as will hereinafter appear.

The flush under face of the body member 20 (including its stabilizing flanges 29—29) is rearwardly and downwardly sloped to conform to the slope of the upper face 30 of the receiver 31 of a firearm which receiver constitutes a supporting member for the sight structure. The said receiver 31 is formed with two parallel and laterally spaced-apart ears 32 and 33 which upstand from the downwardly and rearwardly sloping upper face 30 thereof as is shown in the drawings. Each of the upstanding ears 32 and 33 just referred to, is formed in its rear edge with a rearwardly opening guide notch 34 conforming in inclination to the inclination of the upper face 30 of the receiver 31. Each of the guide notches 34—34 receives, with a sliding fit, the adjacent one of the stabilizing flanges 29—29 to form a guide-way therefor.

The upstanding ear 32 of the receiver 31 is formed with a smooth transverse passage 35 in which turns the adjacent portion of a windage adjusting screw 36 which extends crosswise of the receiver 31 and bears adjacent its opposite end in a smooth passage 37 formed in the ear 33 of the receiver 31 in axial alignment with the passage 35 before referred to. The left end of the windage adjusting screw 36 is provided with an integral head 38 having its inner face bearing against the outer face of the ear 32 of the receiver 31, as is especially well shown in Figures 5 and 6.

The forward portion of the front lug 22 of the body member 20 is formed adjacent its right face with an internally threaded bore 39, the threads of which are in engagement with the external threads of the windage adjusting screw 36 so that the rotation of the said screw will cause the body member 20 to travel laterally of the receiver 31 intermediate the upstanding ears 32 and 33 thereof. To the left of the threaded bore 39, the front lug 22 of the body member 20 is formed with a spring receiving pocket 40 receiving a helical anti-backlash spring 41 which has its left end engaged with the inner face of the ear 32 of the receiver 31 so as to exert a constant but yielding effort to move the body member 20 from left to right.

Threaded onto the extreme right end of the windage adjusting screw 36 is a nut-like windage adjusting finger piece 42 having a peripherally knurled annular flange 43 and an inwardly projecting hub 44.

The right end of the windage adjusting screw 36 is formed with an internally threaded axial socket 45 receiving a locking screw 46 which has the inner face of its head 47 pressing against the outer face of the windage adjusting finger piece 42, as is especially well shown in Fig. 6.

In assembling the windage adjusting screw 36 and its nut-like finger piece 42, the said screw is installed in place and the finger piece 42 is threaded thereon until it engages with the outer face of the ear 33 of the receiver 31 with suf-

ficient tightness to draw the head 38 of the said screw firmly into engagement with the outer face of the ear 32 to thus guard against any end play of the elements 36 and 42. The locking screw 46 is now installed and screwed home until the inner face of its head 47 tightly engages the outer face of the finger piece 42 to thus firmly interlock the screw 36 and the finger piece 42 for concurrent rotation as a unit.

The windage adjusting finger piece 42 is, as is shown in Fig. 6, formed with an inwardly opening spring pocket 48 in which is installed a helical detent or click spring 49 which exerts a constant thrust upon a ball-like detent or click 50 in the direction of the ear 33. The said detent 50 is adapted to sequentially engage the units of an annular series of spherically contoured detent pockets 51 formed in the outer face of the ear 33.

Frictionally gripped upon the outer periphery of the hub 44 of the windage adjusting finger piece 42, is an indicia ring 52 which is preferably formed of spring steel or the like. Prior to its installation upon the hub 44 the said indicia ring is distorted out of round, as indicated in Fig. 13, so as to have a very strong frictional coupling effect with the outer surface of the hub 44 when installed thereon. The said indicia ring 52 is provided with graduations 53 which are adapted to be sequentially registered with an index mark 54 engraved upon the outer face of the ear 33 of the receiver 31, as is shown in Figs. 2 and 5. As shown, the indicia ring 52 is formed with an aperture-like socket 55 designed for the reception of a tool to enable the said indicia ring to be oriented with respect to the hub 44 upon which it is frictionally mounted, for the purpose as will more fully hereinafter appear.

Mounted for vertical reciprocation in the slide receiving slot 21 of the body member 20 is an elevation slide or sight carrier 56 which is formed adjacent its upper end with a sight aperture 57. Centrally of its front face, the elevation slide 56 is formed with a vertical guide rib 58 which extends, with a snug sliding fit, into the rearwardly opening guide groove 26 in the rear face of the front lug 22 of the body member 20 as well as in the neck portion 24 and the head 25 of the said front lug 22.

The respective opposite side edges of the elevation slide 56 are cylindrically contoured and are formed with relatively coarse pitch threads 59 which intermesh with threads 60 of similar pitch formed in the interior of a ring-like elevation adjusting nut 61 through which the said elevation slide 56 normally extends.

The pitch of the thread upon the elevation slide 56 is such that one revolution of the elevation nut will move the slide a distance at least equal to the elevation scale thereon.

The height or thickness of the elevation adjusting nut 61, above referred to, corresponds to the length of the neck portion 24 of the front lug 22 of the body member 20, and the interior radius of the said nut corresponds to the radius of the cylindrically contoured front face of the said neck portion 24. When in place, the elevation adjusting nut 61 is confined against axial displacement by the upper face of the main portion of the front lug 22 and the under face of the head 25.

The under face of the elevation adjusting nut 61 is formed with an annular series of spherically contoured detent pockets 62 (Fig. 11) which are adapted to be sequentially turned into registration with a ball-like detent or click 63 mounted

in the upper end of the detent pocket 27 in the front lug 22, as before described, and yieldingly pressed upwardly by a helical detent spring 64.

5 Located in the vertical keeper slot 28 in the rear lug 23 of the body member 20, is a plate-like keeper 65 formed adjacent its upper end with a rearwardly opening notch 66 receiving the rear portion of the elevation adjusting nut 61, as is especially well illustrated in Fig. 4. About mid-  
10 way of its length the keeper 65 is formed with a transverse passage 67 which receives a retaining pin 68 extending through a transverse passage 69 formed in the rear lug 23 of the body member 20.

15 Adjacent the bottom wall of the notch 66 therein, the keeper 65 has provided on its rear face an index mark 70 with which is adapted to register sequentially, indicia numerals (two to ten, inclusive, in the instance shown) engraved,  
20 or otherwise formed, upon the lower portion of the periphery of the elevation adjusting nut 61, as is especially well shown in Figs. 1, 2 and 11. In the particular sight structure shown, the numerals upon the elevation adjusting nut 61  
25 represent units of one hundred yards and are appropriately spaced to correspond to the spacing of the detent pockets 62.

It will be noted by reference to Fig. 11 that the detent pockets 62 in the under face of the elevation adjusting nut 61 are progressively increased in spacing from the detent pocket 62a (located for the substantially flat trajectory range of two hundred yards) to the detent pocket 62b which is positioned for the one-thousand yard setting of the elevation slide 56. In other words, when the detent pocket 62a in the under face of the elevation adjusting nut 61 is in registration with the detent 63, the numeral "2" upon the periphery of the said nut will be in registration with the index mark 70 upon the keeper 65. Similarly, when the detent pocket 62b is in registration with the detent 63, the numeral "10" upon the elevation adjusting nut 61 will be in registration with the index mark 70 before referred to.  
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At its lower edge the keeper 65 is also provided on its rear face with an index mark designated by the reference character 71 and adapted to register with a series of indicia 72 engraved or otherwise marked upon the upper face 30 of the receiver 31.  
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In assembling the elevation slide 56, the elevation adjusting nut 61 and the keeper 65 in the body member 20, the said elevation adjusting nut 61 should first be dropped over the head 25 of the said body member 20 and then moved rearwardly until its inner periphery is engaged with the cylindrically contoured forward face of the neck portion 24. The keeper 65 may now be installed in the keeper slot 28 so that its notch 66 receives the rear portion of the said nut 61. The retaining pin 68 should now be installed to retain the said keeper 65 in place. The lower end of the elevation slide 56 may be brought into registration with the internally threaded passage through the nut 61 after having first entered the lower end of its guide rib 58 in the upper end of the guide groove 26. The rotation of the elevation-adjusting nut 61 in a clockwise direction will now serve to cause the threads 60 in the said nut 61 to engage with the threads 59 of the elevation slide 56 and thus draw the latter downwardly to the desired degree. The vertical location of the elevation slide 56 may be gauged  
75 by the position of the numerals upon the periph-

ery of the nut 61 or by reference to the position of indicia 73 upon the rear face of the said slide 56 with respect to the upper edge of the keeper 65, as will be seen by reference to Fig. 2 in particular.  
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By progressively appropriately varying the spaces between the various detent pockets 62 in the under face of the elevation adjusting nut 61, each click, so to speak, of the said nut 61, may be relied upon to alter the position of the elevation slide 56 in equal units of range, such for instance, as in the case shown, of 100 yards for each click.  
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From the foregoing, it will be seen that the turning of the windage adjusting finger piece 42 15 will bodily shift the body member 20 laterally with respect to the receiver 31 to the degree desired and which may be gauged by reference to the position of the indicia 53 upon the indicia ring 52 with respect to the index mark 54 on the ear 33. The lateral adjustments of the body member 20, and the parts carried thereby, may also be gauged by reference to the position of the index mark 71 on the keeper 65 with respect to the indicia 72 on the receiver 31. The pitch of 25 the thread upon the windage adjusting screw 36 is preferably such that one complete revolution thereof will shift the body member and the parts carried thereby a distance corresponding to the spacing between the indicia 72 upon the receiver 30 31.

By providing the indicia ring 52, it will be obvious from the foregoing that the finger piece 42 of the windage adjusting screw 36 may be firmly locked in place in a position to preclude back-  
35 lash without reference to its position with respect to the indicia. After the said finger piece 42 has been appropriately tightened the indicia ring 52 may be turned by means of a tool inserted in its socket 55 to bring the indicia 53 into appropriate and proper position.  
40

The invention may be carried out in other specific ways than those herein set forth without departing from the spirit and essential characteristics of the invention, and the present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive, and all changes coming within the meaning and equivalency range of the appended claims are intended to be embraced therein.  
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I claim:

1. A firearm-sight construction, including in combination: a mounting-member provided with a pair of laterally-spaced-apart upstanding ears each formed with a guide-way extending cross-  
55 wise of the said mounting member; a body-member adjustable laterally between the upstanding ears of the said mounting-member and having portions entering the guideways therein and slidably engaging with said mounting-member for substantially-preventing vertical displacement of the said body-member and for guiding the same laterally in the said crosswise-extending guide-ways; actuating means for adjusting the said body-member laterally with respect to the said 65 mounting-member; an elevation-member carried by and movable laterally with the vertically-held body-member; and elevation-adjusting means for vertically adjusting the said elevation-member with respect to the said laterally-movable body-  
70 member.

2. A firearm-sight construction, including in combination: a mounting-member provided with a pair of laterally-spaced-apart upstanding ears each formed with a rearwardly-opening guide-  
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notch extending crosswise of the said mounting member; a body-member adjustable laterally between the upstanding ears of the said mounting-member and having two stabilizing-flanges respectively entering the rearwardly-opening guide-notches therein and slidingly engaging with said mounting-member for substantially-preventing vertical displacement of the said body-member and for guiding the same laterally in the said rearwardly-opening crosswise-extending guide-notches; actuating means for adjusting the said body-member laterally with respect to the said mounting-member; an elevation-member carried by and movable laterally with the vertically-held body-member; and elevation-adjusting means for vertically adjusting the said elevation-member with respect to the said laterally-movable body-member.

3. A firearm-sight construction, including in combination: a mounting-member provided with a pair of laterally-spaced-apart upstanding ears each formed with an aperture therethrough, and each of the said ears being also provided with a guide-way extending crosswise of the said mounting member; a body-member adjustable laterally between the upstanding ears of the said mounting-member and having portions entering the guide-ways therein and slidingly engaging with said mounting-member for substantially-preventing vertical displacement of the said body-member and for guiding the same laterally in the said crosswise-extending guideways; a windage-adjusting screw extending through the said apertures in the ears of the said mounting-member and having threaded engagement with a portion of the said body-member to adjust the latter transversely of the said mounting-member; an elevation-member carried by and movable laterally with the vertically-held body-member; and elevation-adjusting means for vertically adjusting the said elevation-member with respect to the said laterally-movable body-member.

4. A firearm-sight construction, including in combination: a mounting-member provided with a pair of laterally-spaced-apart upstanding ears each formed with an aperture therethrough, and each of the said ears being also provided with a rearwardly-opening guide-notch extending crosswise of the said mounting member; a body-member adjustable laterally between the upstanding ears of the said mounting-member and having two stabilizing-flanges respectively entering the rearwardly-opening guide-notches therein and slidingly engaging with said mounting-member for substantially-preventing vertical displacement of the said body-member and for guiding the same laterally in the said rearwardly-opening crosswise-extending guide-notches; a windage-adjusting screw extending through the said apertures in the ears of the said mounting-member and having threaded engagement with a portion of the said body-member to adjust the latter transversely of the said mounting-member; an elevation-member carried by and movable laterally with the vertically-held body-member; and elevation-adjusting means for vertically adjusting the said elevation-member with respect to the said laterally-movable body-member.

5. A firearm-sight construction, including in combination: a firearm-receiver having a pair of laterally-spaced-apart upstanding ears formed integral therewith and each provided with a guide-way extending crosswise of the said firearm receiver; a body-member adjustable laterally between the upstanding ears of the said firearm-

receiver and having portions entering the guideways therein and slidingly engaging with said firearm-receiver for substantially-preventing vertical displacement of the said body-member and for guiding the same laterally in the said crosswise-extending guideways; actuating means for adjusting the said body-member laterally with respect to the said firearm-receiver; an elevation-member carried by and movable laterally with the vertically-held body-member; and elevation-adjusting means for vertically adjusting the said elevation-member with respect to the said laterally-movable body-member.

6. A firearm-sight construction, including in combination: a firearm-receiver having a pair of laterally-spaced-apart upstanding ears formed integral therewith and each provided with a rearwardly-opening guide-notch extending crosswise of the said firearm-receiver; a body-member adjustable laterally between the upstanding ears of the said firearm-receiver and having two stabilizing-flanges respectively entering the rearwardly-opening guide-notches therein and slidingly engaging with said firearm-receiver for substantially-preventing vertical displacement of the said body-member and for guiding the same laterally in the said rearwardly-opening crosswise-extending guide-notches; actuating means for adjusting the said body-member laterally with respect to the said firearm-receiver; an elevation-member carried by and movable laterally with the vertically-held body-member; and elevation-adjusting means for vertically adjusting the said elevation-member with respect to the said laterally-movable body-member.

7. A firearm-sight construction, including in combination: a firearm-receiver member provided with a pair of laterally-spaced-apart upstanding ears each formed with an aperture therethrough, and each of the said ears being also provided with a guide-way extending crosswise of the said firearm-receiver; a body-member adjustable laterally between the upstanding ears of the said firearm-receiver and having portions entering the guideways therein and slidingly engaging with said firearm-receiver for substantially-preventing vertical displacement of the said body-member and for guiding the same laterally in the said crosswise-extending guideways; a windage-adjusting screw extending through the said apertures in the ears of the said firearm-receiver and having threaded engagement with a portion of the said body-member to adjust the latter transversely of the said firearm-receiver; an elevation-member carried by and movable laterally with the vertically-held body-member; and elevation-adjusting means for vertically adjusting the said elevation-member with respect to the said laterally-movable body-member.

8. A firearm-sight construction, including in combination: a firearm-receiver provided with a pair of laterally-spaced-apart upstanding ears each formed with an aperture therethrough, and each of the said ears being also provided with a rearwardly-opening guide-notch extending crosswise of the said firearm-receiver; a body-member adjustable laterally between the upstanding ears of the said firearm-receiver and having two stabilizing-flanges respectively entering the rearwardly-opening guide-notches therein and slidingly engaging with said firearm-receiver for substantially-preventing vertical displacement of the said body-member and for guiding the same laterally in the said rearwardly-opening crosswise-extending guide-notches; a windage-adjusting

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screw extending through the said apertures in the ears of the said firearm-receiver and having threaded engagement with a portion of the said body-member to adjust the latter transversely of the said firearm-receiver; an elevation-member carried by and movable laterally with the vertically-held body-member; and elevation-adjusting means for vertically adjusting the said elevation-member with respect to the said laterally-movable body-member.

9. A firearm-sight construction, including in combination: a body-member provided with a vertically-extending guide-way for an elevation-member and with a keeper-receiving passage and also having a journaling-portion engageable by a portion of the inner periphery of a ring-like elevation-adjusting member; an elevation-member vertically movable in the guide-way in the said body-member; a ring-like elevation-adjusting member journaled upon the said body-member and having threaded engagement with the said elevation-member for vertically moving the same; and a keeper located in the keeper-receiving passage of the said body-member and having a portion extending into the interior of the said elevation-adjusting member and also engaging a portion of the inner periphery thereof to retain the same against lateral displacement with respect to the said body-member.

10. A firearm-sight construction, including in combination: a body-member provided with a vertically-extending guide-way for an elevation-member and with a keeper-receiving passage and also having a journaling-portion engageable by a portion of the inner periphery of a ring-like elevation-adjusting member; an elevation-member vertically movable in the guide-way in the said body-member; a ring-like elevation-adjusting member carried by the said body-member and having threaded engagement with the said elevation-member for vertically moving the same; and a keeper formed with a rearwardly-opening notch and extending through the said ring-like elevation-adjusting member in position to receive in its said notch a portion of the inner periphery of the said elevation-adjusting member.

11. A firearm-sight construction, including in combination: a body-member provided with a vertically-extending guide-way for an elevation-member, the said guide-way being flanked by two upstanding lugs one of which is formed with a cylindrically-contoured groove therein extending substantially perpendicularly with respect to the said guide-way; an elevation-member vertically movable in the guide-way between the two upstanding lugs of the said body-member; a ring-like elevation-adjusting member having a portion thereof fitting in the cylindrically-contoured groove in the said one of the upstanding lugs of the body-member and extending around the said elevation-member; and a keeper carried by the other of the said upstanding lugs and having a portion extending into the said elevation-adjusting member to maintain the same in the cylindrically-contoured groove in one of the lugs of the said body-member.

12. A firearm-sight construction, including in combination: a body-member provided with a vertically-extending guide-way for an elevation-member, the said guide-way being flanked by two upstanding lugs one of which is formed with a cylindrically-contoured groove therein extending substantially perpendicularly with respect to the said guide-way; an elevation-member vertically movable in the guide-way between the two upstanding lugs of the said body-member; a ring-like elevation-adjusting member having a portion thereof fitting in the cylindrically-contoured groove in the said one of the upstanding lugs of the body-member and extending around the said elevation-member; and a keeper provided with a notch, the said keeper being carried by the other of the said upstanding lugs and extending through the said elevation-adjusting member in position to receive a portion of the inner periphery of the latter in its said notch to hold the said elevation-adjusting member within the cylindrically-contoured notch in the said lug of the said body-member.

FRANK F. BURTON. 45