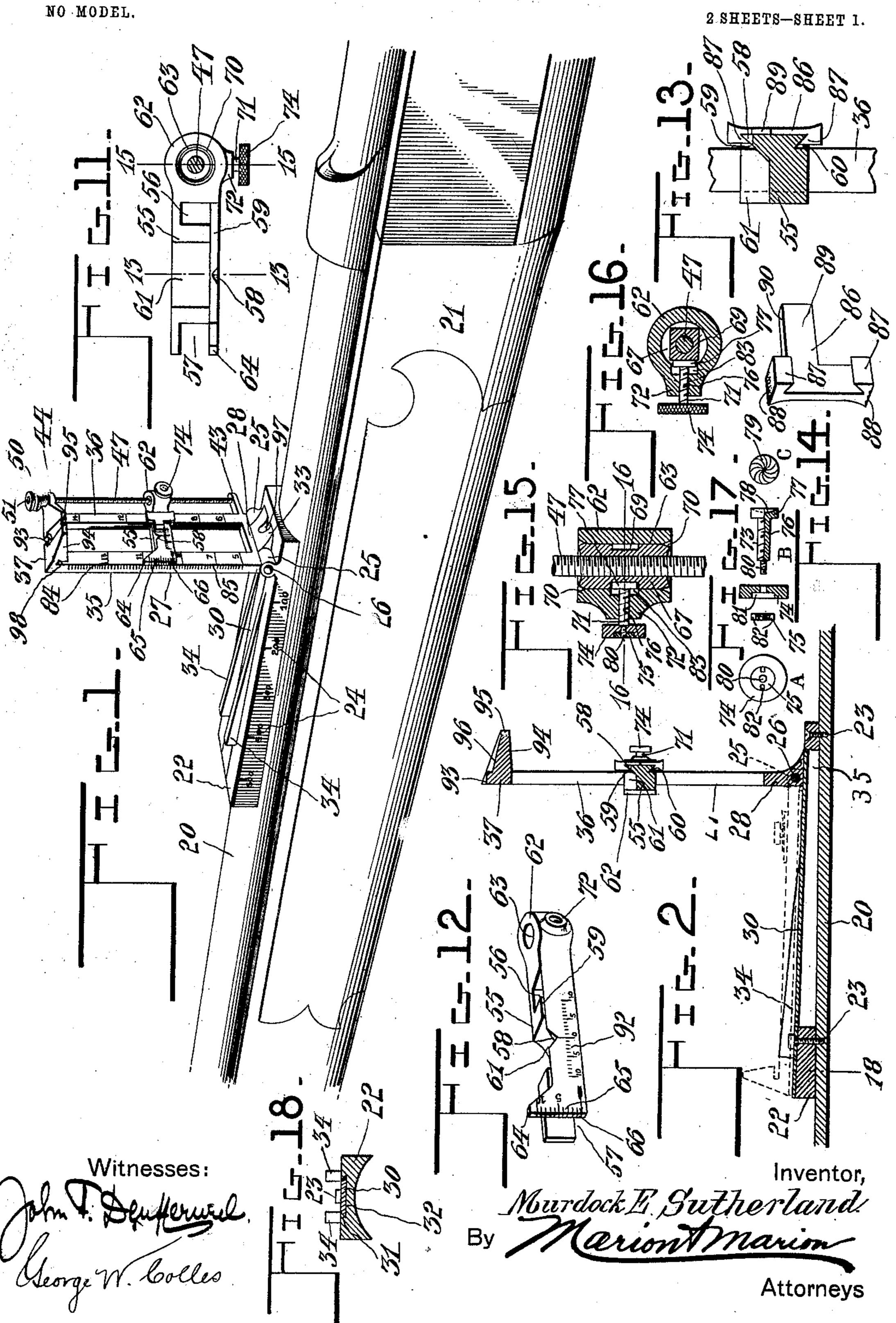
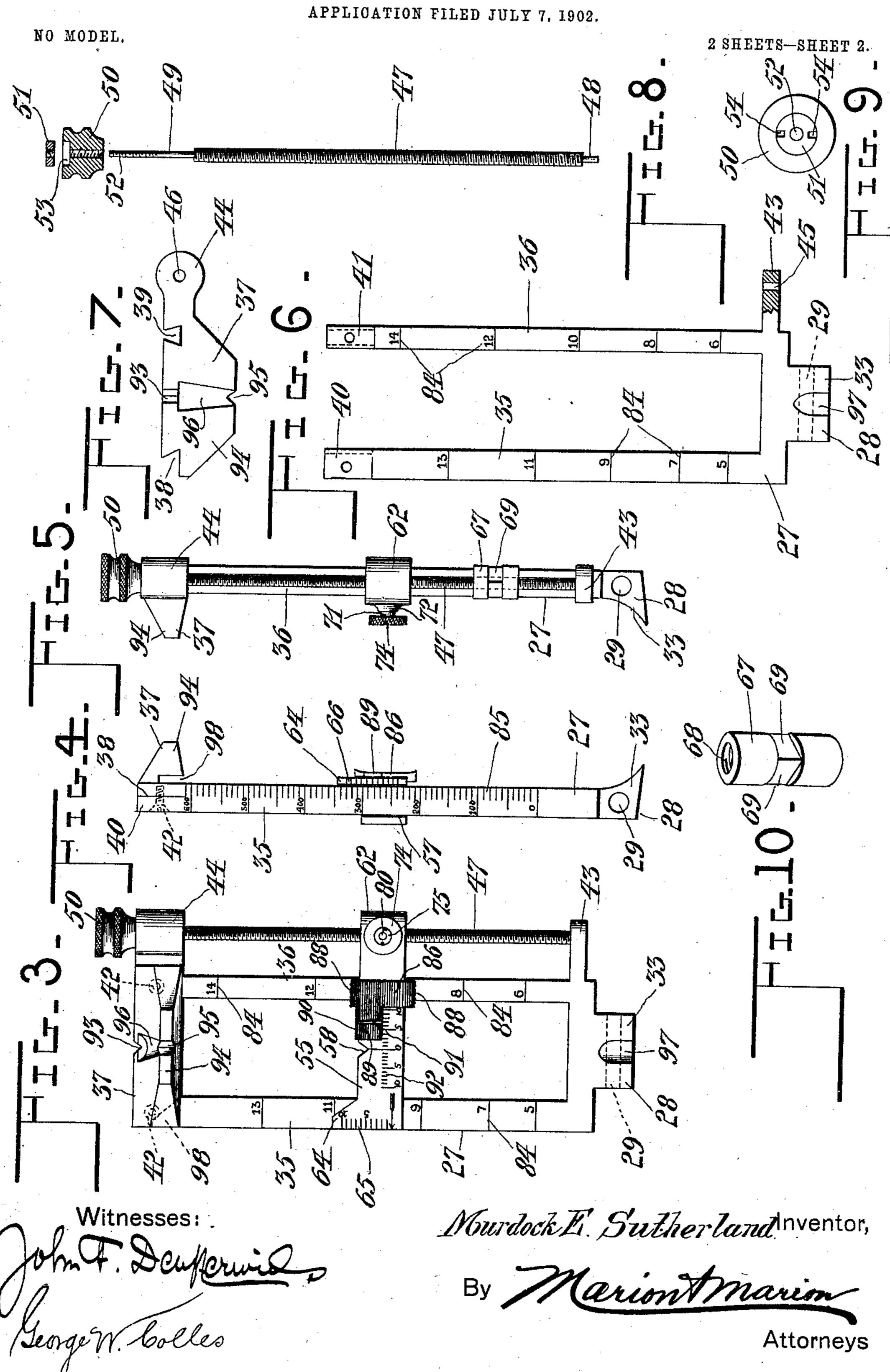
## M. E. SUTHERLAND.

### RIFLE SIGHT.

APPLICATION FILED JULY 7, 1902.



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# United States Patent Office.

## MURDOCK EVETT SUTHERLAND, OF WESTVILLE, CANADA.

#### RIFLE-SIGHT.

SPECIFICATION forming part of Letters Patent No. 752,809, dated February 23, 1904.

Application filed July 7, 1902. Serial No. 114,684. (No model.)

To all whom it may concern:

Be it known that I, MURDOCK EVETT SUTH-ERLAND, a subject of the King of Great Britain, residing at Westville, county of Pictou, 5 Province of Nova Scotia, Canada, have invented certain new and useful Improvements in Riffe-Sights; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable 10 others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved back sight or rifle-sight especially adapted for mili-

tary rifles.

The object of my invention is to provide a sight of the leaf pattern which shall be of very much increased accuracy and adjustability over all leaf-sights at present in use; to dispense with the use of all detachable sighting 20 appurtenances; to supply a continuously-adjustable sighting-point which may be exactly set in position for any range whatever by the use of a finely-graduated vernier; to provide a perfect wind-gage which is so graduated as 25 to be adjustable to any strength of wind and over any desirable range; to provide an alternative sighting-point either in the form of the intersection of a line and a straight edge or on a V-shaped groove, as may be desired, without 30 any other change but a slight movement of one of the parts without altering the setting of the instrument; to provide a sight which may be readily attached to any rifle now in use without any alteration therein and which 35 will occupy no more room or space on the top of the barrel than that now occupied, and in general to improve the construction and collocation of the parts in such manner as to produce a compact and thoroughly practical sight

tion with the above is to provide means not only for setting the sight to an extreme degree of accuracy by the use of the vernier 45 above referred to, but also to permit the instrument to be quickly and roughly set by hand independently of the vernier and tangent screw in cases where there is not time

40 which shall stand all tests of use. A special object of my invention in connecenough to permit of a great adjustment of ac-5° curacy.

To these and other ends my invention consists in the main in a rectangular plate, which has centrally thereof a rectangular slot and which is pivoted at its forward end to a sightbed of the ordinary form used for such leaf- 55 sights as are in common use, with the exception of such improvements thereon as will be pointed out. The pivoted rectangular plate constituting the sighting means has various attachments thereon, the principal of which is a 60 transverse sighting-bar, which is moved up and down by a vertical tangent-screw and is set in place by a scale and vernier formed on one end of the bar. In the center of this bar is a V-notch for ordinary sighting, and this 65 sighting-bar may be moved up and down by turning the tangent-screw. I provide two scales upon the said rectangular plate, one upon the edge and the other upon the face thereof, which may be used in setting the sight- 70 ing-bar, according to different conditions. The upper end of the rectangular plate is open, and the two limbs thereof are joined by a sightingblock, which has two V-notches at right angles with each other, so that these also may 75 be used in sighting at very long or very short ranges, according as the plate is turned upright or horizontal on its bed.

My invention further consists in providing upon the said sighting-bar a sliding wind- 80 gage, which is formed, preferably, of blued steel, having set therein and at right angles to the horizontal edges thereof a fine platinum wire, so as to form a white sighting-line on a black background, and this wind-gage may 85 be moved back and forth and adjusted to various positions at either side of the center of the sighting-bar by means of a scale arranged

adjacent to it for that purpose.

My invention further consists in the peculiar 90 connection between the sighting-bar and tangent or vernier screw, which moves it up and down, this being by means of a threaded bushing or nut, which makes a detachable connection with the sighting-bar itself and fits into a 95 socket therein and is held in place by a setscrew, also of peculiar form, when it is desired to use the tangent-screw as an adjusting means; but at other times the said sightingbar is loosened from the said bushing or nut 100 and is free to slide up and down on the rectangular plate independently of the tangentscrew.

My invention further resides in the particu-5 lar combination and construction of parts hereinafter described, and more particularly pointed out in the claims.

In the drawings accompanying this specification I have illustrated the most improved to form of my new rifle-sight, and herein—

Figure 1 is a perspective view of the sight as mounted in position for use on a gun-barrel. Fig. 2 is a longitudinal vertical central section through the sight and gun-barrel. Fig. 15 3 is a front elevation of the rectangular plate constituting the sighting means and the attachments mounted thereon. Fig. 4 is a side elevation of the parts shown in Fig. 3 from the left side. Fig. 5 is a side elevation of the 20 same from the right side, showing the slidable sighting-bar as detached from the vernierscrew. Fig. 6 is a front elevation of the sighting-plate by itself, a small portion thereof being shown in section. Fig. 7 is a plan 25 view of the block which joins the upper ends of the sighting-plate. Fig. 8 is a side elevation of the vernier-screw, the parts thereof being shown separated. Fig. 9 is a plan view of the head of the vernier-screw. Fig. 10 is 30 a perspective view of the vernier-screw nut. Fig. 11 is a plan view of the sighting-bar. Fig. 12 is a perspective view of the same. Fig. 13 is a transverse section of the sightingbar, showing the wind-gage mounted thereon 35 and taken on the line 13 13 of Fig. 11. Fig. 14 is a perspective view of the wind-gage from the rear side. Fig. 15 is a central vertical section taken on the line 15 15 of Fig. 11 to show the internal construction and coöpera-40 tion of the vernier-screw nut, the sightingbar, and the set-screw thereof. Fig. 16 is a transverse section of the same parts, taken on on the line 16 16 of Fig. 15. Fig. 17 is a series of detail views of the parts constituting 45 the sighting-bar set-screw. At A is shown a front view of the head of the set-screw, at B the several parts of the set-screw separated from one another and shown partially in central section, and at C is shown an end view of 50 the inner end or foot-piece of the set-screw. Fig. 18 is a transverse section through the bed of the leaf-sight, taken on the line 18 18 of Fig. 2.

The same numerals of reference denote like 55 parts in all the figures of the drawings.

20 denotes the barrel, and 21 the fore-arm, of a rifle or firearm of any desired type and on which is mounted, near the rear end thereof, the bed of the sight, (designated 22,) which 60 is secured to the barrel either by screws 23, or it may be forged integral therewith, as desired. This bed is plane upon its upper surface and slightly inclined upwardly toward the muzzle of the gun, as shown, having a 65 graduated scale 24 formed on one or both

sides, which are used in sighting for shortdistance or point-blank ranges. On the upper side and near the rear end of the sightbed is formed a pair of lugs 25, through which passes a pintle 26, which serves as a pivot for 70 the leaf-plate 27, which has on its lower end a perforated lug 28, having a lateral hole 29, through which the pin 26 passes. This plate 27 is thus rotatable about the pin 26 into either vertical or horizontal position, in one 75 of which it is rigidly held by the upward pressure of the leaf-spring 30, which is preferably dovetailed at its forward end, as shown at 31 in Fig. 18, and set in a dovetailed notch 32 in the rear end of the sight-bed. The hinge-80 lug 28 is formed with a square or slightly-inclined rearwardly-projecting toe 33, which is adapted to be seated flat against the end of the spring 30 when the plate is raised into vertical position, so as to hold it steadily there-85 in. The object of having the lower surface of the lug 28 slightly inclined, as shown, is to cause the plate to assume a position at right angles to the line of sight in sighting for long ranges, in which the barrel is necessarily tilted 90 up at a sensible angle to the horizontal. When the plate 27 is turned down to rest upon the bed, it is held against any sidewise movement by parallel lugs 34, which abut against the inner sides of the limbs of the plate and 95 have sloping edges which cooperate with the sighting-bar and scale 24.

The leaf-plate or sighting-plate 27 is formed as shown in Fig. 6, having a central portion entirely cut away, so as to leave the plate with 100 a pair of parallel upstanding limbs 35 and 36, whose upper ends are joined together by a capblock 37, having dovetailed grooves 38 and 39 therein which coact with the dovetailed ends 40 and 41 of the limbs 35 and 36, and the block 10! 37 may be secured to the limbs 35 and 36 by small machine-screws 42, one in each limb.

The plate 27 has extending laterally from its lower edge at the right side a pivot-lug 43, and the cap-block 37 has also a similar pivot- 110 lug 44 extending from the right side, and these two lugs have a pair of coaxial pivotholes 45 and 46, in which is rotatably mounted a tangent-screw 47, which has reduced bearing ends 48 and 49, fitting in these holes 119 and forming shoulders at the ends of the screw which exactly span the distance between the opposing faces of the lugs 43 and 44, so that the screw 47 is prevented from endwise motion. The reduced end 49, which 120 passes through the upper lug 44, is prolonged above the latter and has mounted thereover and threaded thereon a milled adjusting-head 50, which is fixed thereon by a small nut 51, screwed upon the projecting end 52 of the 12! reduced portion 49 of the screw. This nut 51 is set flush in a recess 53, formed in the upper face of the head 50, being flat and washerlike in form and having an outline as seen in Fig. 9, being circular except for two small 130

notches 54 at opposite extremities of a diameter in order to permit the same to be turned up tight in place within its socket, so as to firmly secure the milled head 50 to the 5 screw and prevent it from binding upon the

lug 44.

The sighting-plate 27 has slidably mounted on the limbs 35 and 36 thereof a sighting-bar 55. (Shown in plan view in Fig. 11 and in 10 perspective in Fig. 12.) This is formed from a single piece of metal—as, for instance, nickel, steel, or German silver—having near one end thereof a slot 56, adapted to fit around the limb 36, and at the other end a notch 57, 15 adapted to embrace the limb 35 of the plate 27. It has, further, at the center and in the front side thereof a V-shaped sighting-notch 58, which is cut in one of the projecting edges left by a pair of longitudinal V-shaped grooves 20 59 60, (see Fig. 13,) formed behind the upper and lower edges at the front side of the bar for the purpose to be hereinafter named, and behind the notch 58 the sighting-bar is cut away in a semicircular groove or recess 61, 25 so as to clear away the metal from around the groove 58 and to permit a clear-cut edge only to be presented to the eye in sighting. At its right-hand end this sighting-bar projects beyond the limb 36 of the plate 27 to 30 form a lug 62, which is centrally apertured, as at 63, and embraces the tangent-screw 47, while at the other end the bar is widened and extended upwardly in a toe 64 sufficiently to leave room for a vernier-scale 65, formed on 35 the end of the bar and extending around upon the rectangular edge, as shown at 66. (See Figs. 1, 4, and 12.)

In order to connect the sighting-bar 55 with the screw 47, there is provided a small cylin-40 drical nut 67, which is internally threaded, as shown at 68, and may be formed, together with the screw itself, preferably of phosphorbronze, German silver, or other non-rustable metal, so as to prevent the nut and screw from becoming rusted together or otherwise working irregularly. This nut 67 is of such a size externally as to fit neatly and closely within the aperture 63 in the lug 62, and around the waist thereof it is cut away to form a squared

50 portion 69. (See Figs. 10, 15, and 16.) This nut, as well as the aperture 63, has its ends chamfered or cut away, as shown at 70, so as to permit the bar 55 in sliding up and down on the limbs of the plate 27 to pass easily over

55 the nut 67 in one direction or the other or to permit the latter to slide readily into place within the aperture 63, as shown in Figs. 15

and 16.

Coacting with the squared portion 69 of the 60 nut 67 is a set-screw 71, which has a very steep pitch and is mounted to turn in a threaded boss 72 at one side of the lug 62 and radially with the aperture 63. This set-screw is formed in three parts 73, 74, and 75, (shown separated

from each other at Fig. 17<sup>B</sup>,) the main portion 65 73 having a threaded stem 76 and an enlarged foot 77 at the inner end thereof, which is of the same diameter as the width of the square portion 69 of the nut 67, so as to be screwed up against one of the faces of the squared 70 portion in the manner shown in Fig. 15, and this foot 77 is preferably concave on its operative face, as shown at 78, and may have a series of spiriform corrugations or ribs 79 formed thereon, as shown in the end view, 75 Fig. 17°, whereby to enable the foot of the set-screw with a single turn thereof to firmly grip the squared portion 69 of the nut and prevent it from possibility of turning, while not requiring any great torsional strain of the 80 screw, which might otherwise be necessary on account of the steep pitch of the threaded shank 73. This screw is of course inserted into the boss 72 from the interior of the aperture 63, and its outward end is formed with 85 a threaded stud 80, over which is placed the milled head 74, which is held in place by a small circular nut 75, fitting in the recess 81 of the head 74, so as to be flush therewith, and this nut 75 has a pair of notches 82 at op- 90 posite ends of a diameter, by which it is enabled to be screwed up in place by any suitable tool. It is to be observed that the interior of the aperture 63 is recessed or cut away around the inner end of the set-screw, as shown 95 at 83, so as to permit the screw to be withdrawn out of contact with the nut 67 and permit the latter to pass readily in and out of the aperture 63.

From the above arrangement it will be seen 100 that the sighting-bar 55 is adapted to be moved freely up and down on the limbs 35 and 36 of the leaf-plate when the set-screw 71 is retracted, in which position it is shown in Fig. 5, the nut 67 being shown independently lower down 105 on the screw, and this is the condition in which it will be used when there is no time for accurate adjustment and the sight is to be set by a rapid guess, and to this end the faces of the limbs 35 and 36 are provided with the scale- 110 marks 84, in which the divisions marked "5," "6," "7," "8," &c., represent the number of hundred-yards range to which the sighting-bar is set. When, however, an accurate adjustment is desired, the sighting-bar is first moved along 115 the screw 47 until it incloses the nut 67 and the ends of the aperture 63 are flush therewith, whereupon a single turn of the set-screw 71 firmly clamps the sighting-bar thereto, and the whole may now be moved slowly up and 120 down the same by the milled head 50 of the tangent-screw. For setting in this case I provide a finely-divided scale 85 on the left-hand edge of the plate 27, against which the edge scale 66 of the vernier is adapted to be set. 125. The divisions of the scale 85 may preferably be about one-fifteenth of an inch apart, so that by the aid of the vernier an accuracy one onehundred-and-fiftieth of an inch may be readily reached; but the divisions may of course be finer, if desirable.

The instrument as thus far described pro-5 vides for all vertical or range adjustment; but to provide properly against windage or side drift of the projectile I provide a wind-gage 86, which is in the form shown in perspective in Fig. 14, and this constitutes an important 10 element of my invention. The gage 86 is in the form of a thin T-shaped steel plate having a pair of dovetailed overhanging flanges 87 at the upper and lower sides, which hook into and cooperate with the V-shaped grooves 59 15 and 60, and on its top and bottom sides the gage is provided with milled or roughened surfaces 88, by which it may be easily slid back and forth on the sighting-bar. The gage is provided with a horizontal tongue 89, the 20 upper edge 90 of which is preferably very slightly above the upper edge of the bar 55, so that when this edge 90 is being used for sighting purposes the edge of the bar 55 does not interfere therewith. The face of the gage 25 is blued by any suitable process, so as to form a dark surface, and it has set therein at an intermediate point of the tongue 89 a vertical line 91, formed of platinum wire or other white non-rustable metal, of which there are 30 several different available kinds; but I prefer to use platinum as being wholly unaffected by all atmospheric influences, and thus the sighting-line 91 forms an unalterable white line upon a dark background and is always in con-35 dition for use. This line not only provides sighting means across the upper edge of the tongue 90 of the gage, but it also provides sighting means against a scale 92, whose zeropoint is directly in the center or at the apex 40 of the notch 58 and which is graduated in either direction therefrom, as shown. The size of the divisions of this scale are such that each division represents a wind-drift of two feet at five hundred yards range; but I may 45 graduate them as fine as desirable, and the gage is set by simply moving it to either side by means of the milled edges 88 until the line 91 coincides with the proper division on the scale 92. In ordinary use when it is not desired to 50 allow for windage the gage may be simply pushed aside, as shown in Fig. 3, so as to be out of the way of the notch 58, or it may be set centrally, as desired, forming an alternative

Inasmuch as it may often be desirable to use the cap-block 37 for sighting independently of the sighting-bar 55, I provide the later ter with a notch 93 in the center of its upper edge and also a forwardly-projecting beveled lug 94, which has likewise at its center a V-notch 95 for use when the leaf-plate 27 is turned into horizontal position, as indicated by

means of sighting, according to whether it is

55 preferred to use the notch or the straight-edge

the dotted lines in Fig. 2, and in order to in- 65 crease the accuracy of sighting by these notches they are thinned by cutting away the metal in a circular recess or semicylindrical groove 96 at the back of the groove 95 and at the front of the groove 93, as shown in 70 Figs. 1, 2, 3, and 7. In order to prevent the toe 33 from interfering with sighting across the groove 95 when the leaf-plate is horizontal, the latter is cut away at its center, as shown at 97. The cap-block 37 has a groove 75 or recess 98 cut at the left-hand side thereof, which would otherwise interfere with the projecting toe 64 of the sighting-bar and to permit the latter to be moved up to the top of the scale.

From the above description it will be evident that my improved sight possesses a great many advantages not possessed by those heretofore invented. It has all the advantages of the open military leaf-sight, and yet dispenses 85 with the use of all detachable sighting appurtenances and supplies the use of a vernier graduated to one one-hundred-and-fiftieth of an inch. It also supplies a perfect wind-gage which is graduated fine enough for all practi- 90 cal purposes and one which supplies an adjustable sighting-line and dispenses entirely with the use of paint and pencil heretofore necessary for putting on a line, and the sight can be instantly adjusted independently of the 95 vernier-screw to any elevation or range. It is strong and simple in construction and is compact, as it can still be made without having it too complicated and delicate to stand the severe tests to which a military rifle is roc subjected, and it can be attached to any pattern of gun, either military or sporting rifle, or to artillery guns, if desired.

While I have shown in the accompanying drawings the preferred form of my invention, it will be understood that I do not limit myself to the precise form shown, for many of the details may be changed in form or position without affecting the operativeness or utility of my invention, and I therefore reserve the right to make all such modifications as are included within the scope of the following claims or of mechanical equivalents to the structures set forth.

Having thus described my invention, what III I claim as new, and desire to secure by Letters Patent, is—

1. A back sight for firearms comprising a pivoted leaf-plate having its central portion cut away to form a pair of parallel upstanding 12c limbs, an integral sighting-bar having ends embracing said limbs and vertically adjustable thereon, said sighting-bar being mounted on said limbs by being pushed down over the free ends thereof, and an independent cap-block 125 connecting the free ends of said limbs.

2. A back sight for firearms comprising a pivoted leaf-plate having its central portion

cut away to form a pair of parallel upstanding limbs, an integral sighting-bar having ends embracing said limbs and vertically adjustable thereon, said sighting-bar being mounted on 5 said limbs by being pushed down over the free ends thereof, an independent cap-block connecting the free ends of said limbs, and dovetailed pins formed on the upper ends of said upstanding limbs and fitting in correspond-10 ingly-shaped recesses in said cap-block, said cap-block having a rearwardly-projecting lug and a pair of sighting-notches formed at right angles to each other in its upper and rearmost edges, whereby said block may be used as a 15 sight when said plate is turned into either vertical or horizontal position.

3. A back sight for firearms comprising a pivoted leaf-plate having a pair of pivot-lugs at one side thereof, a tangent-screw rotatably 20 mounted in said pivot-lugs and having a manually-adjustable milled head, a sighting-bar slidably mounted on said plate and having threaded connection with said screw, a scale formed on said leaf-plate against which said 25 sighting-bar is adapted to be adjusted in elevation, said bar having a transverse sightingnotch therein, a horizontally-adjustable windgage slidably mounted on said sighting-bar, a horizontal scale on said sighting-bar against 30 which said wind-gage is adapted to be adjusted, and a vernier-scale formed on said sighting-bar coöperating with said first-named scale.

4. In a back sight for firearms, the combination of a vertically-adjustable sighting-35 bar, a vertical tangent-screw, a cylindrical nut having threaded engagement with said tangent-screw, a perforated lug formed on said sighting-bar and embracing said tangentscrew and adapted to inclose said nut, and a 40 set-screw adapted to clamp said sighting-bar to said nut.

5. In a back sight for firearms, the combination of an adjustable sighting-piece, a screw, a cylindrical nut mounted thereon and having a squared waist portion, a perforated lug on said sighting-piece surrounding said screw and into which said nut fits, a set-screw radially mounted in the center of said lug radial to said nut, a flattened foot formed on said set-screw of approximately the same width as the squared portion of said nut and coacting therewith and adapted to be withdrawn into a recess formed around the base of said set-screw on the interior of said lug, and a head formed on the outer end of said set-screw.

6. A back sight for firearms comprising a sight-bed, a leaf-plate pivoted at its rear end to said bed, said leaf-plate having its central portion cut away to form two upstanding limbs, a pair of pivot-lugs projecting from one side of the leaf-plate, a tangent-screw rotatably mounted in said lugs and having a milled head, a nut mounted on said tangent-screw, a sighting-bar mounted to slide vertically on the limbs of said leaf-plate and having a lug

adapted to embrace said nut, and means for clamping said sighting-bar to said nut.

7. A back sight for firearms comprising a sight-bed, a leaf-plate pivoted at its rear end to said bed, said leaf-plate having its central 7° portion cut away to form two upstanding limbs, a pair of pivot-lugs projecting from one side of the leaf-plate, a tangent-screw rotatably mounted in said lugs and having a milled head, a nut mounted on said tangent- 75 screw, a sighting-bar mounted to slide vertically on the limbs of said leaf-plate and having a lug adapted to embrace said nut, means for clamping said sighting-bar to said nut, a rough-adjustment scale formed on the face of 80 said leaf-plate, a fine-adjustment scale formed on the edge of said leaf-plate, and a vernierscale cooperating with said fine-adjustment scale formed on the adjacent edge of said sighting-bar.

8. A back sight for firearms comprising a sight-bed, a leaf-plate pivoted at its rear end to said bed, said leaf-plate having its central portion cut away to form two upstanding limbs, a pair of pivot-lugs projecting from 9° one side of the leaf-plate, a tangent-screw rotatably mounted in said lugs and having a milled head, a nut mounted on said tangentscrew, a sighting-bar mounted to slide vertically on the limbs of said leaf-plate and hav- 95 ing a lug adapted to embrace said nut, means for clamping said sighting-bar to said nut, said sighting-bar having a V-notch formed in its upper edge and a gouge formed behind said V-notch to thin the edge thereof, a wind- 100 gage having overhanging flanges engaging in grooves in the upper and lower sides of said sighting-bar, and a transverse sighting-line formed on said wind-gage.

9. A back sight for firearms comprising a 105 sight-bed, a leaf-plate pivoted at its rear end to said bed, said leaf-plate having its central portion cut away to form two upstanding limbs, a pair of pivot-lugs projecting from one side of the leaf-plate, a tangent-screw rota- 110 tably mounted in said lugs and having a milled head, a nut mounted on said tangent-screw, a sighting-bar mounted to slide vertically on the limbs of said leaf-plate and having a lug adapted to embrace said nut, means for clamping 115 said sighting-bar to said nut, a rough-adjustment scale formed on the face of said leafplate, a fine-adjustment scale formed on the edge of said leaf-plate, a vernier-scale coöperating with said fine-adjustment scale formed 120 on the adjacent edge of said sighting-bar, said sighting-bar having a V-notch formed in its upper edge at the center thereof, a horizontal scale formed on said sighting-bar and having its zero-point at the center thereof, and a 125 wind-gage having overhanging flanges engaging in grooves at the upper and lower sides of said sighting-bar so as to be horizontally adjustable thereon and having a white-metal transverse vertical sighting-line extending 130

across the same on a dark background and adapted to be adjusted horizontally against said horizontal scale, substantially as described.

5 10. A leaf-sight for firearms comprising a pivoted plate having a central slot, a vertically-sliding sighting-bar transversely mounted across said slot, a vertical tangent-screw mounted at the side of said pivoted plate, a projecting lug at one side of the said sighting-bar embracing said tangent-screw, a horizon-tally-adjustable wind-gage mounted on said sighting-bar, and means on said projecting lug for securing a releasable threaded connection thereto of said tangent-screw.

11. A leaf-sight for firearms comprising a pivoted plate having a central slot, a vertically-sliding sighting-bar transversely mounted across said slot, a vertical tangent-screw mounted at the side of said pivoted plate, a projecting lug at one side of the said sighting-bar embracing said tangent-screw, a horizontally-adjustable wind-gage mounted on said sighting-bar, a threaded nut engaged with

said screw, and means for releasably connect- 25

ing said lug with said nut.

12. A back sight for firearms comprising a body-piece, a second piece mounted on said body-piece and vertically adjustable thereon, a scale formed on said first piece against which 3° said second piece is adapted to be adjusted, a tangent-screw at the side of said first piece opposite to said scale, a projecting lug on said second piece embracing said tangent-screw, means for releasably clamping said lug to said 35 screw whereby the second piece may be adjusted either by the screw or by a direct movement, a third or sighting piece carrying a sighting-mark adapted to slide horizontally on said second piece, and a horizontal scale 40 marked on said second piece against which said third piece is adapted to be set.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

MURDOCK EVETT SUTHERLAND.

Witnesses:

H. S. Mackay, Archie McNeil.