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TELESCOPIC SIGHT MOUNTING

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2 Sheets-Sheet 1

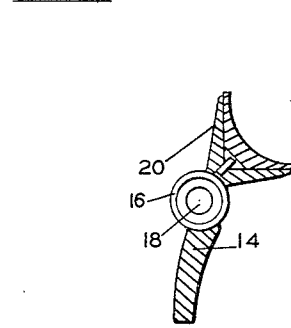
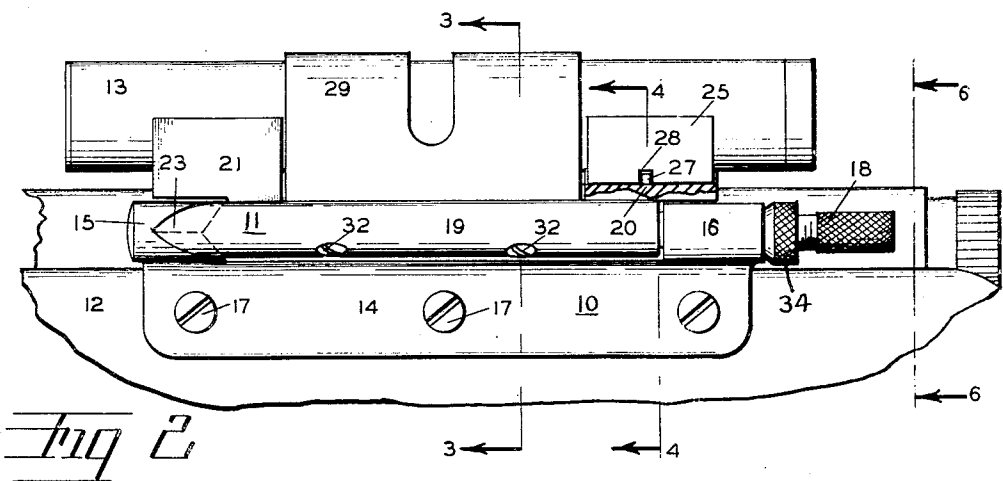
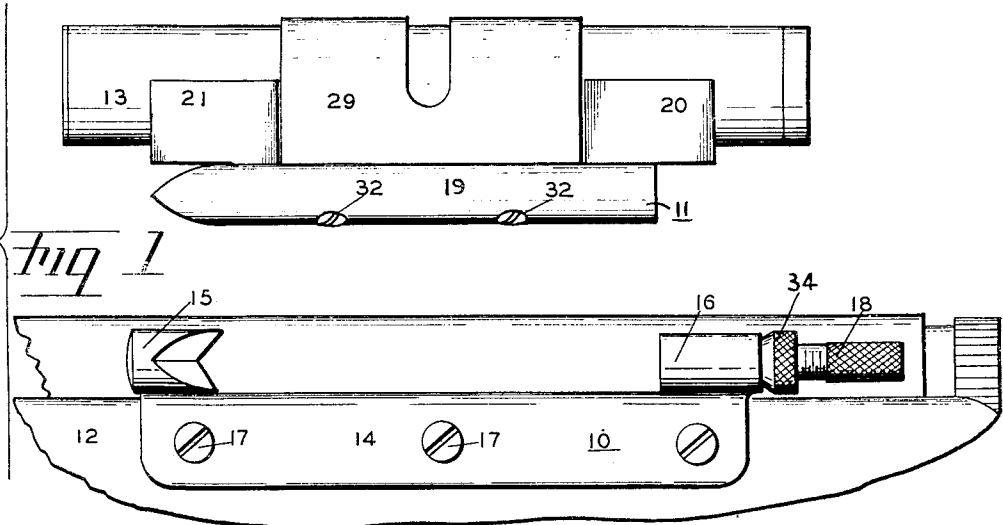


Fig 4

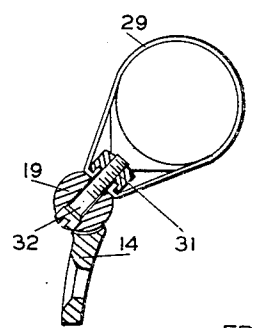


Fig 3

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Fig 5

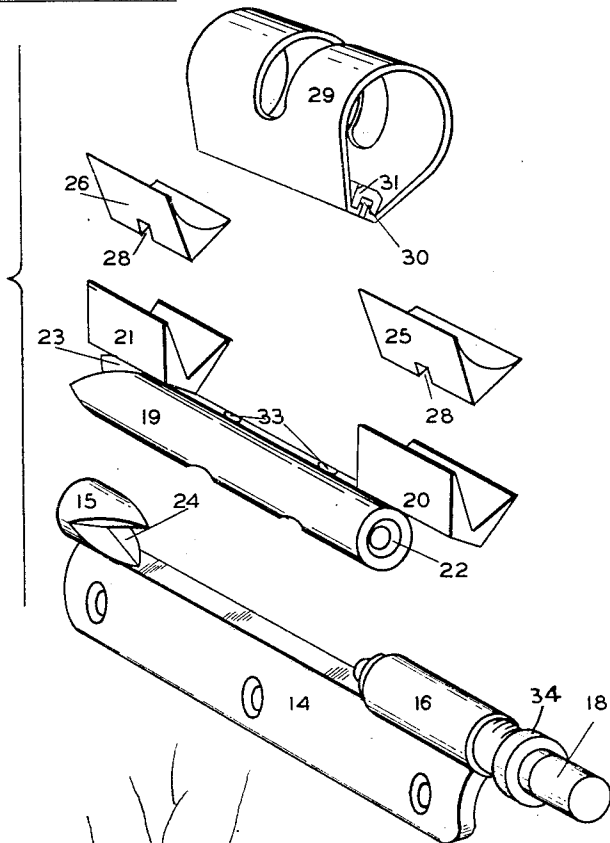


Fig 6

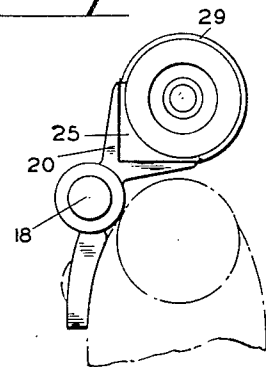
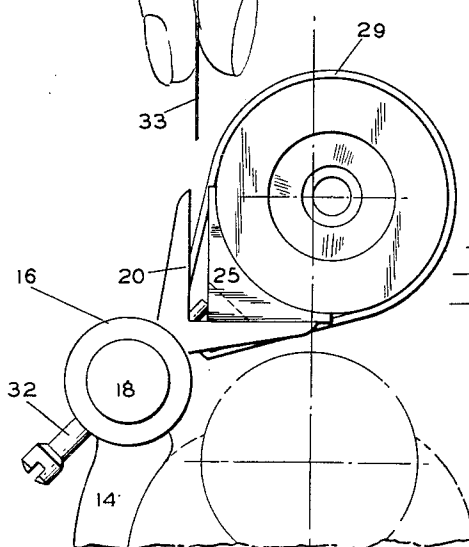


Fig 7



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## UNITED STATES PATENT OFFICE

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## TELESCOPIC SIGHT MOUNTING

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5 Claims. (Cl. 33—50)

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This invention relates to means for mounting a telescopic sight on a gun or rifle and, in particular, to detachable and adjustable mountings for such telescopic sights.

Since telescopic sights are delicate and quite expensive it is customary to remove the telescopic sight when the gun is not being used so that the sight can be kept and protected in a separate and suitable case. For this reason it is desirable to have a telescopic sight mounting which will enable the sight to be removed from the gun quickly and easily, and which will also make it possible to remount the sight on the gun just as quickly and easily. Furthermore, it is very desirable to have a mounting which will insure the return of the telescopic sight to exactly the same relative position with respect to the axis of the gun bore, and with great accuracy, so that no further adjusting and testing will be required each time the telescopic sight is subsequently remounted on the gun, since considerable time could be consumed in readjusting and testing the telescopic sight.

In addition to having a telescopic sight mounting permitting the telescopic sight to be quickly demounted and then quickly remounted, and with a high degree of accuracy, it is desirable that the mounting, and specifically that portion of it which is removable with the telescope, also provide means whereby the relative position of the telescope with respect to the axis of the bore of the gun can be given a minute and accurate adjustment. While adjustment for alignment with the gun bore axis can be made within the telescope itself when necessary, nevertheless, it is much more desirable and less confusing to the user of the gun if this adjustment can be initially made in the mounting of the telescope, for in such case the user of the gun need not further concern himself with the alignment adjustment or with the making of allowance therefor.

An important object of the present invention is to provide a detachable telescopic sight mounting for a gun in which the initial alignment adjustment for the sight, if necessary, can be made in that portion of the mounting which is to be more or less permanently attached to the telescope and thus removable with it.

Another object of the invention is to provide a simplified and practical means for such alignment adjustment of the telescope in the mounting on the gun.

A further object of the invention is to provide an improved telescopic sight mounting which will permit the desired quick and easy demount-

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ing and remounting of the telescopic sight on the gun without the necessity of further adjustment.

The manner in which these objects and other advantages are attained through the medium of our present invention will become apparent in the course of the following brief description and explanation with reference to the accompanying drawings, in which:

Fig. 1 is a side elevation of our improved telescopic sight mounting showing one portion of the same permanently secured to the gun stock, and the other portion secured to the telescopic sight and illustrating the telescopic sight in demounted position;

Fig. 2 is a similar elevation showing both parts of our telescopic sight mounting and illustrating the telescopic sight in mounted position on the gun;

Fig. 3 is a transverse vertical section on line 3—3 of Fig. 2, with the telescopic sight omitted; Fig. 4 is a similar section on line 4—4 of Fig. 2 with the telescopic sight omitted;

Fig. 5 is an exploded view showing, in perspective, all the members of both parts of our telescopic sight mounting separated from each other but arranged in their relative positions, with the telescopic sight and the gun entirely omitted from the figure;

Fig. 6 is an end elevation of our telescopic sight mounting with the telescopic sight shown mounted on the gun, the view being taken from the right in Fig. 2 and corresponding to line 6—6 of Fig. 2, with portion of the gun stock and the gun barrel indicated in broken line; and

Fig. 7 is an end elevation similar to Fig. 6, but drawn to a larger scale, and illustrating how a more or less permanent alignment adjustment of the position of the telescope within the mounting can be made.

In general, our telescopic sight mounting comprises two parts or two groups of members. One part or group, which constitutes the base portion and is designated by the reference character 10 in Fig. 1, is intended to be permanently secured to the gun stock 12. The other part or group, which constitutes the telescope-holding part and which is designated collectively by the reference character 11, is intended to remain attached to the telescopic sight 13 whether the telescopic sight is in mounted or demounted position.

The part 10 of our mounting, which is secured to the gun stock 12, includes a main plate 14, formed with an integral element 15 and an integral tube 16 (Figs. 1, 2 and 5). The inside face

of the main plate 14 is curved to conform to the contour of the adjacent surface of the gun stock 12, and the main plate 14 is firmly and permanently secured to the gun stock by screws 17. The integral tube 16 is threaded on its inner cylindrical surface so as to engage with the threads of a thumb screw 18 extending longitudinally there-through. The inner tip of the thumb screw 18 is cone-shaped. A threaded lock-nut 34 is provided in conjunction with the thumb screw 18.

The part or the group 11 adapted to be secured to the telescopic sight 13, includes a shaft-like member 19 having a pair of integral spaced trough brackets 20 and 21. One end of the member 19 has a central conical recess 22 (Fig. 5) adapted to be engaged by the cone-shaped tip of the thumb screw 18 when the telescopic sight is mounted on the gun. The other end 23 of the member 19 and the inner end 24 of the element 15 of the other part of the mounting, are formed with a special grooving (such as is described in our copending application, Serial No. 764,110, filed under date of July 28, 1947, now Patent No. 2,470,282, granted May 17, 1949, and entitled "Mounting for Shafts and the Like"), causing the opposed ends to interfit and the member 19 to be non-rotatably and rigidly secured in absolute axial alignment with the element 15 and tube 16 when the cone-shaped end of the thumb screw 18 engages the conical recess 22 of the member 19 and the thumb screw is tightened.

The trough brackets 20 and 21 have their inner faces lying in a pair of planes which are perpendicular to each other, the corresponding inner faces of the two brackets extending in the same plane. A pair of telescope-supporting blocks 25 and 26 (shown most clearly in Fig. 5) are provided to be mounted in the brackets 20 and 21. The two bottom faces or undersides of each block lie in a pair of planes which are perpendicular to each other and the top face of each block comprises a convex surface having a radius of curvature approximately equal to the radius of the cylindrical outer surface of the telescopic sight 13. To hold the blocks 25 and 26 from moving endwise in the trough brackets each bracket has a central lug 27 (see Fig. 2) extending upwardly from the bottom of the trough and each block is formed with a corresponding lug-engaging recess 28 in the bottom ridge.

A metal strap or loop 29 is arranged so as to extend around the telescope body between the brackets 20 and 21. The ends of this metal strap 29 are turned inwardly and upwardly (see Figs. 3 and 5) and engage a groove 30 in the bottom face of a clamping bar 31. A pair of screws 32 extending through holes 33 passing diametrically through the member 19, engage threaded recesses in the clamping bar 31 and act to pull the clamping bar 31, and with it the ends of the metal strap 29, toward the member 19. Thus, when the telescopic sight 13 is inserted in the metal strap 29, the blocks 25 and 26 having previously been placed in the trough brackets 20 and 21, the tightening of the screws 32 will pull the body of the telescopic sight firmly against the blocks 25 and 26 with the result that the telescopic sight will be rigidly held in place with respect to the member 19.

With the part or group 11 of our mounting thus securely attached to the telescopic sight and the part or group 10 permanently mounted on the gun stock, the mounting and demounting of the telescopic sight is a very quick and simple operation. Furthermore, since the member 19 will al-

ways be secured in identically the same position with respect to the plate 14 and the integral element 15 and tube 16, the telescopic sight, when mounted and remounted on the gun will always assume exactly the same relative position with respect to the axis of the gun bore.

It is of course probable that when the telescopic sight is initially secured to part 11 of our mounting and then mounted on the gun by having part 11 firmly attached in place on part 10 of the mounting, as previously described, the telescopic sight will not be in exact perfect alignment. This is quite probable since even a difference of  $\frac{1}{1000}$  of an inch would make a considerable error as far as absolutely perfect alignment is concerned. While the necessary compensating adjustment to correct any such errors can be made in the adjusting means in the telescopic sight itself, it is preferable, when this can be done, to have the telescopic sight set in the mounting in perfect alignment. Then the necessity for further adjustment for alignment in the telescopic sight itself will be eliminated. An important feature of our present invention resides in the provision for the making of such adjustment for alignment in the mounting itself.

Let it be assumed that when the telescopic sight is first mounted on the gun in the manner previously described, the telescopic sight is found by trial to be slightly out of alignment. Without removing the telescopic sight or any part of the mounting from the gun, alignment adjustments can be made if desired in the manner illustrated in Fig. 7. The screws 32 are first loosened, thus loosening the metal strap 29 which permits the telescopic sight and the supporting blocks 25 and 26 to be moved slightly in the mounting. Since the two underneath faces of the blocks 25 and 26 constitute planes at right angles to each other, the same as the trough faces of the brackets 20 and 21, it will be apparent that any desired positioning adjustment can be made by the insertion of one or more sheets of very thin paper or metal between one or more of the four faces of the brackets and corresponding face or faces of the blocks. Thus Fig. 7 illustrates the insertion of such a thin paper or metal shim between one face of a bracket and a corresponding face of its block. If upon trial it is found that the insertion of one such shim, say of  $\frac{1}{1000}$  of an inch in thickness, between one face of a block and its bracket, does not correct the alignment error entirely, then further adjustment can be made in the same manner. Generally, however, it will be unnecessary to try more than one adjustment. While such adjustment does require a little time at the outset, nevertheless this expenditure of time is more than justified by the resulting subsequent convenience and by the fact that the adjustment then becomes permanent inasmuch as the shim or shims can remain in place as long as the telescopic sight remains secured in part 11 of our mounting, and, as previously explained, the demounting and remounting of the telescopic sight on the gun is done without any removal of the telescopic sight from part 11 of the mounting.

Thus with our improved telescopic sight mounting not only can the telescopic sight be demounted and remounted quickly, easily and accurately, but initial alignment adjustment of the telescopic sight with respect to the gun bore axis can be made, when desired, in the mounting with the telescopic sight attached and such adjustment thereafter maintained without further

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change regardless of subsequent demounting and remounting of the telescopic sight.

We claim:

1. A detachable telescopic sight mounting, of the character described, for a gun, comprising a base portion adapted to be permanently attached to the gun and a telescope-holding part adapted to be detachably secured in said base, said telescope-holding part including a main shaft-like member, a pair of supporting brackets rigidly secured to said main member and spaced apart in a direction parallel to the axis of the gun barrel, the top portion of each bracket having two intersecting plane faces forming a bearing surface in the shape of a right dihedral angle, the respective faces of said dihedral angles extending in the same planes, the lines of intersections of the faces of said dihedral angles being in alignment with each other and extending parallel to said gun barrel axis, one face of each of said dihedral angles being substantially vertical and the other face substantially horizontal when said gun is in normal horizontal firing position, a telescope-supporting block removably positioned in each bracket, each of said blocks having a pair of intersecting plane faces perpendicular to each other and adapted to coincide with the dihedral angle faces of the supporting bracket respectively, a concave outer face on each block having a curvature corresponding to the outer surface of the telescope, engaging means preventing any movement of said blocks in a direction parallel to said gun barrel axis when said blocks are positioned in said brackets while permitting said blocks to move outwardly from said brackets in a direction normal to said axis, adjustable means connected with said main shaft-like member for holding said telescope firmly pressed against said outer concave faces of said blocks, and means for rigidly but detachably securing said main shaft-like member in fixed predetermined position in said base portion, whereby any slight permanent adjustment of the alignment of said telescope with respect to said gun barrel axis can be made by inserting a thin shim between a face of a bracket and the adjacent face of the corresponding block.

2. A detachable telescopic sight mounting for a gun including a base portion adapted to be permanently attached to the gun, a telescope-holding part adapted to be detachably secured in said base, said telescope-holding part including a main member, a pair of supporting brackets rigidly secured to said main member and spaced apart in a direction parallel to the axis of the gun barrel, the top portion of each bracket having two intersecting plane faces forming a bearing surface in the shape of a right dihedral angle, the respective faces of said dihedral angles extending in the same planes, the lines of intersections of the faces of said dihedral angles being in alignment with each other and extending parallel to said gun barrel axis, a telescope-supporting block removably positioned in each bracket, each of said blocks having a pair of intersecting plane faces perpendicular to each other and adapted to coincide with the dihedral angle faces of the supporting bracket respectively, an outer face on each block acting as a supporting bearing for the telescope, engaging means preventing any movement of said blocks in a direction parallel to said gun barrel axis when said blocks are positioned in said brackets while permitting said blocks to move outwardly from said brackets in a direction normal to said axis, adjustable means connected with said main member for holding

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said telescope firmly pressed against said outer faces of said blocks, and means for rigidly but detachably securing said main member in fixed predetermined position in said base portion.

3. In a detachable telescopic sight mounting of the character described, a base portion adapted to be permanently attached to a gun, a telescope-holding part adapted to be detachably secured in said base, said telescope-holding part including a main shaft-like member, a pair of supporting brackets rigidly secured to said main member and spaced apart in a direction parallel to the axis of the gun barrel, the top portion of each bracket having two intersecting plane faces forming a bearing surface in the shape of a right dihedral angle, the respective faces of said dihedral angles extending in the same planes, the lines of intersections of the faces of said dihedral angles being in alignment with each other and extending parallel to said gun barrel axis, one face of each of said dihedral angles being substantially vertical and the other face substantially horizontal when said gun is in normal horizontal firing position, a telescope-supporting block removably positioned in each bracket, each of said blocks having a pair of intersecting plane faces perpendicular to each other and adapted to coincide with the dihedral angle faces of the supporting bracket respectively, a concave outer face on each block having a curvature corresponding to the outer surface of the telescope, adjustable means connected with said main member for holding said telescope firmly pressed against said outer concave faces of said blocks, and means for rigidly but detachably securing said main member in fixed predetermined position in said base portion.

4. In a detachable telescopic sight mounting, a base portion adapted to be permanently attached to a gun, a telescope-holding part adapted to be detachably secured in said base, said telescope-holding part including a main member, a pair of supporting brackets rigidly secured to said main member and spaced apart in a direction parallel to the axis of the gun barrel, the top portion of each bracket having two intersecting plane faces forming a bearing surface in the shape of a right dihedral angle, the respective faces of said dihedral angles extending in the same planes, the lines of intersections of the faces of said dihedral angles being in alignment with each other and extending parallel to said gun barrel axis, a telescope-supporting block removably positioned in each bracket, each of said blocks having a pair of intersecting plane faces perpendicular to each other and adapted to coincide with the dihedral angle faces of the supporting bracket respectively, an outer face of each block acting as a supporting bearing for the telescope, adjustable means connected with said main member for holding said telescope firmly pressed against said outer faces of said blocks, and means for rigidly but detachably securing said main member in fixed predetermined position in said base portion.

5. In a detachable telescopic sight mounting of the character described for a gun, a base portion adapted to be permanently attached to the gun, a telescope-holding part adapted to be detachably secured in said base, said telescope-holding part including a main member, a pair of supporting brackets rigidly secured to said main member and spaced apart in a direction parallel to the axis of the gun barrel, the top portion of each bracket having two intersecting plane faces

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forming a bearing surface in the shape of a dihedral angle, the respective faces of said dihedral angles extending in the same planes, the lines of intersections of the faces of said dihedral angles being in alignment with each other and extending parallel to said gun barrel axis, a telescope-supporting block removably positioned in each bracket; each of said blocks having a pair of intersecting plane faces adapted to coincide with the dihedral angle faces of the supporting bracket respectively, an outer face on each block acting as a supporting bearing for the telescope, engaging means preventing any movement of said blocks in a direction parallel to said gun barrel axis when said blocks are positioned in said brackets while permitting said blocks to move outwardly from said brackets in a direction normal to said axis, adjustable means connected with said main member for holding said telescope firmly pressed against said outer faces of said

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blocks, and means for rigidly but detachably securing said main member in fixed predetermined position in said base portion.

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