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ABSTRACT OF THE DISCLOSURE

A double-barreled rifle or shotgun in which the axes of the two barrels are adjustable relative to each other in lateral and vertical directions by a system of three eccentric bushings which are disposed within and rotatable relative to each other. The innermost bushing is rotatably mounted on the muzzle end of one barrel, while the outermost bushing is rotatably mounted within a connecting element which is secured to the muzzle end of the other barrel. The present invention relates to a firearm and more particularly to a double-barreled rifle, shotgun or the like with two barrels disposed above each other and connected to each other in such a manner that their positions may be adjust relative to each other so as to permit each of them to be accurately aimed. Such adjustments may be necessary also, for example, when different kinds of cartridges are to be used or a telescopic sight is to be additionally mounted on the rifle.

It is an object of the present invention to provide a device for adjusting two or more barrels of a firearm, for example a rifle or shotgun, very quickly and accurately relative to each other whenever such an adjustment becomes necessary.

For attaining this object, the invention provides a system of eccentric bushings which are disposed within and rotatable relative to each other for adjusting the position at least one of the barrels of the firearm. This barrel is therefore mounted in a first eccentric bushing which is rotatable relative thereto and rotatably mounted within a second eccentric bushing which, in turn, is rotatably mounted within a third eccentric bushing which is rotatably mounted within an element which connects the barrels to each other. The peripheral outer surface of the first barrel and of each successive eccentric bushing around this barrel therefore serves as the axis of rotation of the next outer bushing, while the outermost bushing is rotatably guided by the inner wall of the connecting element.

The device according to the invention permits the barrels, for example, of a double-barreled rifle or shotgun to be adjusted relative to each other in lateral as well as vertical directions so as to aim them accurately upon a certain point.

Another feature of the invention consists in providing the individual eccentric bushings with peripheral knurling, or with bores, projections or the like for turning them manually or by means of a suitable tool, and in providing suitable releasable means for locking the eccentric bushings in the adjusted positions.

The connecting element between the two or more barrels is preferably mounted near their muzzle ends and may additionally serve to support a front sight or a telescopic sight.

Still another feature of the invention consists in providing the individual eccentric bushings with markings which may be adjusted in relation to each other so as to permit the barrels to be directed upon an aim which is located at a certain distance from the firearm.

The features and advantages of the present invention will become further apparent from the following detailed description thereof which is to be read with reference to the accompanying drawings, in which:

FIG. 1 shows a side view of a double-barreled rifle or shotgun according to the invention;

FIG. 2 shows a cross section of the two barrels according to FIG. 1 and their connecting and adjusting means;

FIG. 3 shows a cross section which is taken along the line III--III of FIG. 2;

FIG. 4 shows a front view of a part of the barrel-connecting and adjusting means according to a modification of the invention;

FIG. 5 shows a cross section which is taken along the line V--V of FIG. 4;

FIG. 6 shows a cross section which is taken along the line VI--VI of FIG. 4.

In the drawings, the invention is illustrated as being applied to a double-barreled rifle or shotgun which comprises the two barrels 1 and 2 which are located above each other. While the rear parts of the barrels are mounted and connected to the receiver and the stock of the firearm in the conventional manner, their muzzle are connected in accordance with the invention by a special connecting element 3. According to the embodiment of the invention, as illustrated in FIGS. 2 and 3 which show enlarged cross-sectional views of the two barrels and their connecting and adjusting means, the connecting element 3 which is secured to the upper barrel 2 contains three eccentric bushings 4, 5, and 6 which are rotatable relative to each other and around barrel 1. Thus, bushing 6 is rotatably mounted in the connecting element 3, bushing 5 in bushing 6, and bushing 4 in bushing 5 and around barrel 1. For the purpose of illustration, the degree of eccentricity of these bushings has been over-emphasized in FIGS. 2 and 3. Since barrel 1 is freely movable to a limited extent, it is possible by suitable adjustments of the eccentric bushings 4, 5, and 6 to adjust the position of barrel 1 very accurately in lateral as well as vertical directions relative to the position of barrel 2. For this purpose, the front ends of bushings 4, 5, and 6 are provided with suitable means for turning each bushing by hand or by means of a suitable tool which may be inserted, for example, into bores 7 in each bushing. The individual bushings 4, 5, and 6 are then covered in the adjusted positions relative to each other and to the barrel 1 and to the connecting element 3 by any suitable means which are merely indicated diagrammatically in FIGS. 2 and 3 by a set screw 8 which may be inserted into a bore into the adjacent peripheral surfaces of two of the elements which are adjustable relative to each other.

Another type of locking means is illustrated in FIGS. 4 and 6. It consists of a clamping bracket 9 which may be tightened on or released from the connecting element 3 by a screw 10. When this screw 10 is tightened, clamping bracket 9 presses with its end 9 against an external flange 4 on the eccentric bushing 4 which then presses against an external flange 5 on bushing 5, while this flange 5 then presses against an external flange 6 on bushing 6 which, in turn, presses against the front surface 3 of a flange on the connecting element 3.

FIG. 5 illustrates the locking means for the eccentric bushings 4, 5, and 6 according to this embodiment of the invention. In this case, a nut 11 is applied over the muzzle end of barrel 1 and may be screwed upon the rear end 4 of the inner eccentric bushing 4 so as to press—preferably by an intermediate washer 12—upon the rear end of the connecting element 3, whereby the flanges 4' 5', and 6' will be pressed against each other and against the surface 3' of the connecting element 3 and the eccentric bushings 4, 5, and 6 will thus be locked in the positions to which they have been previously adjusted.
When the nut 11 has been loosened, the bushings may be turned relative to each other by means of a suitable tool which may be inserted into lateral bores 13 in the flanges 4', 5', and 6', and the barrel 1 may thus be aimed accurately upon a particular point.

Especially for small-gauge firearms of less than 8 mm., it is advisable to make the upper barrel 2 of a larger outer diameter than the lower barrel 1 so as to attain the required static solidity of the connecting element 3.

Although my invention has been illustrated and described with reference to the preferred embodiments thereof, I wish to have it understood that it is in no way limited to the details of such embodiments, but is capable of numerous modifications within the scope of the appended claims. Thus, for example, the invention is also applicable to heavy firearms, for example, to antiaircraft guns and the like and even to means other than firearms which have to be adjusted relative to each other, for example, to molding presses where a male mold has to be accurately adjusted relative to the female mold or where several male molds have to be adjusted relative to each other.

Having thus fully disclosed my invention, what I claim is:

1. In a firearm having a plurality of barrels and means for adjusting said barrels relative to each other so as to permit them to be accurately aimed upon a particular point, wherein said means comprise a connecting element rigidly connected to a first of said barrels, and a system of three eccentric bushings within said connecting element and rotatably mounted within each other, the innermost of said bushings rotatably surrounding a second of said barrels and the outermost bushing rotatably mounted within said connecting element so that each inner bushing forms the axis of rotation of the next outer bushings.

2. A firearm as defined in claim 1, in which said connecting element is mounted on said barrels near the muzzles thereof.

3. A firearm as defined in claim 1, further comprising means for manually rotating said bushings relative to each other and relative to said second barrel and to said connecting element.

4. A firearm as defined in claim 3, in which the front end of each of said bushings is provided with at least one bore into which a tool may be inserted for turning said bushing.

5. A firearm as defined in claim 3, further comprising releasable means for locking said bushings in any adjusted position to each other and to said connecting element.

6. A firearm as defined in claim 5, in which said locking means comprise an abutment on said connecting element, an external flange on each of said eccentric bushings adapted to engage upon the flange of the adjacent bushing, and the flange on the outermost bushing being adapted to engage upon said abutment, and clamping means for pressing said flanges against each other and against said abutment.

7. A firearm as defined in claim 6, in which said clamping means comprise a clamping member and a screw extending through said clamping member and screwed into said connecting element.

8. A firearm as defined in claim 6, in which each of said flanges projects from one end of the associated bushing, said clamping means comprising a nut adapted to be screwed upon the other end of the innermost bushing so as to press against said connecting element and thereby to clamp said connecting element and said flanges together.

9. A firearm as defined in claim 6, in which each of said flanges is provided with at least one bore in its lateral side into which a tool may be inserted for turning said bushing.

References Cited

UNITED STATES PATENTS

2,949,825 8/1960 Musser et al. 42—1
3,098,410 7/1963 Giza 89—41
3,228,299 1/1966 Grandy 89—41
3,555,291 11/1971 Musser 42—1

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