

[54] **SILENCER FOR MOUNTING ON FIREARM BARREL**
 [75] Inventor: **Mitchell L. Werbell, III**, Powder Springs, Ga.
 [73] Assignee: **The Quantum Corporation**, Washington, D.C.
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Primary Examiner—Stephen C. Bentley
Attorney—Nolte & Nolte

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 [58] Field of Search **89/14 R, 14 A, 14 B, 14 C, 89/14 D, 14 E, 145 B**

[57] **ABSTRACT**

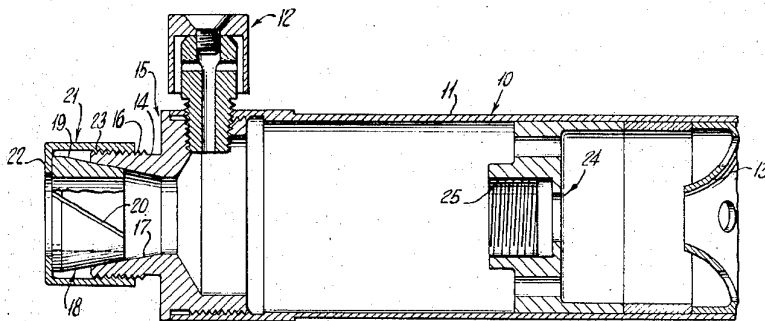
A device, particularly a silencer, adapted to be mounted on and in axial alignment with the barrel of a firearm having an externally threaded end, the device mounting on the barrel at one point by means of internal threads in the device which engage the external threads on the barrel and at a second point by means of an annular clamp which compressively engages the barrel.

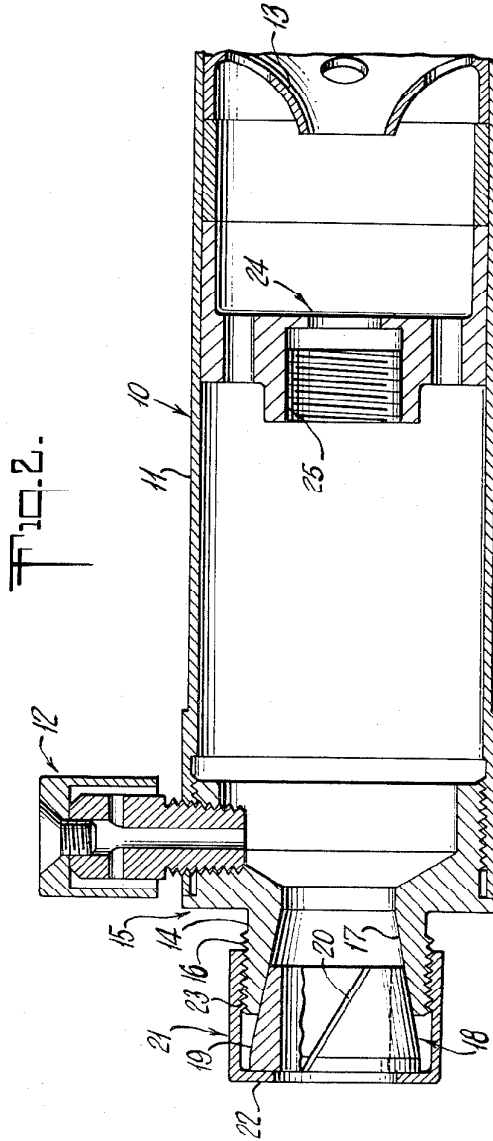
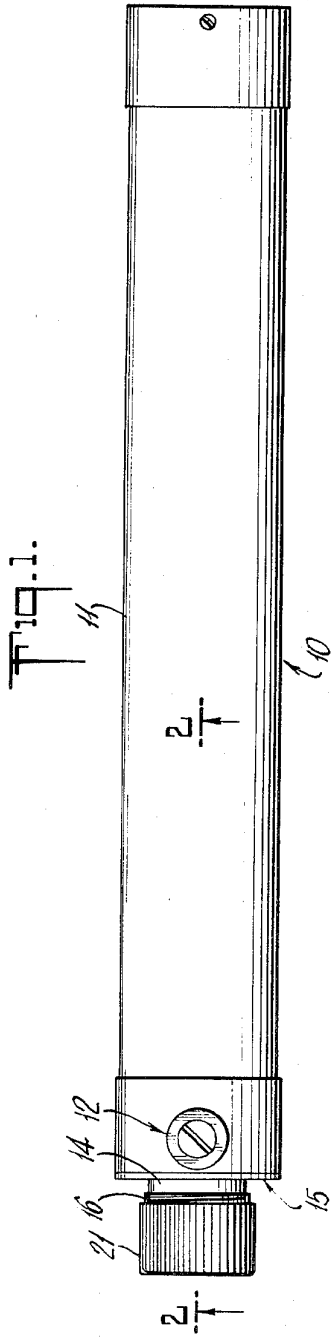
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4 Claims, 2 Drawing Figures





INVENTOR
MITCHELL L. WERBELL III
BY
Polte & Polte
ATTORNEYS

SILENCER FOR MOUNTING ON FIREARM BARREL

This invention relates to a device adapted to be mounted on and in axial alignment with the barrel of a firearm.

The free end of the barrel of a firearm, particularly for military purposes, frequently is provided with external threads for the mounting on the barrel of a silencer, flash suppressor or other attachment. The prior art mechanisms for such mounting have not been fully satisfactory in dealing with the numerous problems involved. Among the problems, the following are particularly noteworthy. True alignment of the attachment with the barrel is essential and it is economically desirable to provide such alignment without modification of the barrel. The external diameter of the barrel at a given point varies from weapon to weapon of the same model due to manufacturing tolerances. Moreover, in a given weapon the barrel diameter will tend to increase upon heating, as occurs particularly during rapid sequence firing. Accordingly, while the attachment of the barrel at a second point in addition to the threaded end of the barrel might appear desirable for purposes of alignment, difficulties are encountered due to the and/or diameter variations. Hence, time-consuming alignment and realignment procedures and/or modification of the barrel are necessary. Also encountered is periodic loosening of the attachment under the duress of repeated firing.

According to the present invention, there is provided a mounting device which overcomes the aforementioned problems.

The device of the invention comprises a hollow sleeve of internal diameter greater than the external diameter of the barrel, fixedly connected to the sleeve at a point spaced from at least one end of the sleeve, means defining an internally threaded bore adapted to receive coaxially the externally threaded end of the barrel with the threads of the barrel engaging the threads of the bore, and connected to the sleeve at a point spaced from the means defining the bore, means for compressively clamping the barrel.

The clamping means preferably comprises an annular bushing having a slit therethrough and of internal diameter, when uncompressed, greater than the external diameter of the barrel and, when so compressed that the slit is completely closed, no greater than the external diameter of the barrel and means for compressing the bushing thereby to narrow the slit and bring the bushing into annular engagement with the barrel.

Other features of a preferred construction of the device according to the invention are that the exterior of the bushing tapers inwardly in the axial direction toward the bore defining means and the clamping means further comprises fixedly connected to the sleeve, means defining a second bore, the second bore having a taper which mates with the taper of the bushing and having a portion of diameter sufficiently less than the diameter of the uncompressed bushing to compress the bushing to an internal diameter no greater than the external diameter of the barrel when the bushing is urged into diametrical alignment with the aforementioned portion and means for urging the bushing into the aforementioned diametrical alignment.

Additional features of a preferred construction according to the present invention are that the clamping means further comprises means defining external threads on a fixed cylindrical surface having a free end and being coaxial with the tapered bore and an annular collar having internal threads, the free end of the cylindrical surface being received in the collar with the threads on the surface engaging the threads in the collar, the collar including means defining a surface transverse to the axis of the sleeve and abutting against the end of the bushing in which the diameter of the tapered bore in the bushing is larger and thereby being adapted to urge the bushing into the aforementioned diametrical alignment.

The slit in the bushing creates communication from the muzzle of the barrel to the exterior of the barrel and attachment in a backwards direction, i.e., in a general direction toward the user of the firearm. Therefore, to prevent the possibility of the escape of gas and carbon particles through the slit toward the user's face it is preferred that the slit be directed transversely of axial planes of the bushing.

The invention will now be further described by reference to a specific preferred embodiment thereof, as illustrated in the drawings, in which:

FIG. 1 is a plan view of a silencer incorporating the mounting device of the invention; and

FIG. 2 is a sectional view taken on section line 2—2 of FIG. 1 and showing in detail the mounting device portion of the silencer.

Silencer 10 (FIG. 1) comprises a hollow sleeve 11 through which is provided a relief valve 12 and in which is provided a plurality of baffles 13 (one of which is illustrated in FIG. 2). Relief valve 12 and baffle 13 constitute no part of the present invention but are parts of silencers described in my copending application Ser. No. 19,829, filed Mar. 16, 1970. The mounting device of the present invention is integrated into the silencer, the sleeve 11 of the silencer also serving as the sleeve of the mounting device.

Fixedly positioned in the sleeve 11 is a member 24 provided with an internally threaded bore 25. Attached to one end of the sleeve 11 is an annular member 15 having a neck 14 the external surface of which is cylindrical and provided with threads 16 and the internal surface of which is in the form of a bore 17 which is coaxial with the bore 25 and tapers inwardly in the axial direction toward the member 24. In mating relation with the bore 17 is provided a bushing 18 having an external surface 19 tapering similarly to the bore 17. Through the bushing 18 is provided a slit 20 directed transversely of axial planes of the bushing.

The bushing 18 is constituted preferably of brass or a tough, machinable, high temperature resistant plastic such as a fluorinated hydrocarbon (materials of which type are commonly known by the trademark Teflon) or a polyacetal (one common such material being commonly known by the trademark Delrin). The internal diameter of the bushing 18 when the bushing 18 is uncompressed is greater than the external diameter of the barrel of the firearm and the bushing may be compressed with a coincident narrowing of the slit 20 to an internal diameter equal to the external diameter of the barrel.

As part of the mechanism for compressing the bushing 18 there is provided a collar 21 having an annular inwardly extending flange 22. The collar 21 is provided with internal threads 23 which engage the external threads 16 of the neck 14. Hence, twisting of the collar 21 to screw further down on the neck 16 causes the flange 22 to push the bushing 18 further into the bore 17. The wall of the bore 17 presses against the external wall 19 of the bushing causing the bushing 18 to decrease in internal diameter by virtue of narrowing of the slit 20. Conversely, twisting of the collar 21 in the reverse direction unscrews the collar 21 upwardly toward the top of the neck 14 and as the flange 22 moves away from the top of the neck 14, the bushing 18 moves in the same direction in continued abutment against the flange 22 due to widening again of the slit 20.

Mounting of the silencer or other firearm attachment onto the barrel of the firearm provided with a threaded muzzle is very simple. The collar 21 is unscrewed toward the top of the neck 14 sufficiently to permit the bushing 18 to open to an internal diameter greater than the external diameter of the barrel. The silencer 10 is then slipped onto the barrel, with the muzzle passing through the bushing 18 and entering the bore 25. The silencer 10 is then twisted to screw the threaded bore 25 onto the threaded end of the muzzle. Then the collar is twisted to tighten the bushing 18 around the barrel. To remove the silencer from the firearm barrel, the collar 21 is first twisted in the reverse direction to loosen the bushing 18 from its clamping engagement with the barrel, the silencer 10 is twisted to unscrew the bore 25 from the threaded end of the muzzle and then the silencer 10 is slipped off the barrel.

While the invention has been described with reference to a specific embodiment thereof, it is to be understood that this is by way of illustration and is not intended as a limitation upon the scope of the invention as defined by the appended claims.

What is claimed is:

1. A device adapted to be mounted on and in axial alignment with the barrel of a firearm having an externally threaded end, comprising a hollow sleeve of internal diameter greater than the external diameter of the barrel, fixedly connected to the sleeve at a point spaced

from at least one end of the sleeve means defining an internally threaded bore adapted to receive coaxially the externally threaded end of the barrel with the threads of the barrel engaging the threads of the bore, and, connected to the sleeve at a point spaced from the means defining the bore, means for compressively clamping the barrel, the clamping means comprising an annular bushing the exterior of which tapers inwardly in the axial direction toward the bore defining means and said bushing having a slit therethrough and being of internal diameter, when uncompressed, greater than the external diameter of the barrel and, when so compressed that the slit is completely closed, no greater than the external diameter of the barrel and means for compressing the bushing thereby to narrow the slit and bring the bushing into annular engagement with the barrel, fixedly connected to the sleeve means defining a second bore, the second bore having a taper which mates with the taper of the bushing and having a portion of diameter sufficiently less than the diameter of the uncompressed bushing to compress the bushing to an internal diameter no greater than the external diameter of the barrel when the bushing is urged into diametrical alignment with said portion, and means for urging the bushing into said diametrical alignment, means defining external threads on a fixed cylindrical surface having a free end and being coaxial with the second bore, an annular collar having internal threads, the free end of the cylindrical surface being received in the collar with the threads on the surface engaging the threads in the collar, the collar including means defining a surface transverse to the axis of the sleeve and abutting against the end of the bushing at which the diameter of the second bore is larger and thereby being adapted to urge the bushing into said diametrical alignment.

2. A device according to claim 1, in which the slit is directed transversely of axial planes of the bushing.

3. In combination, a device according to claim 1 and a firearm having a barrel provided with an externally threaded end, the device being mounted on said barrel.

4. In combination, a device according to claim 2 and a firearm having a barrel provided with an externally threaded end, the device being mounted on said barrel.

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