Aug. 24, 1965 K. SEEBERGER 3,202,056

FIRE ARM MUZZLE BRAKE

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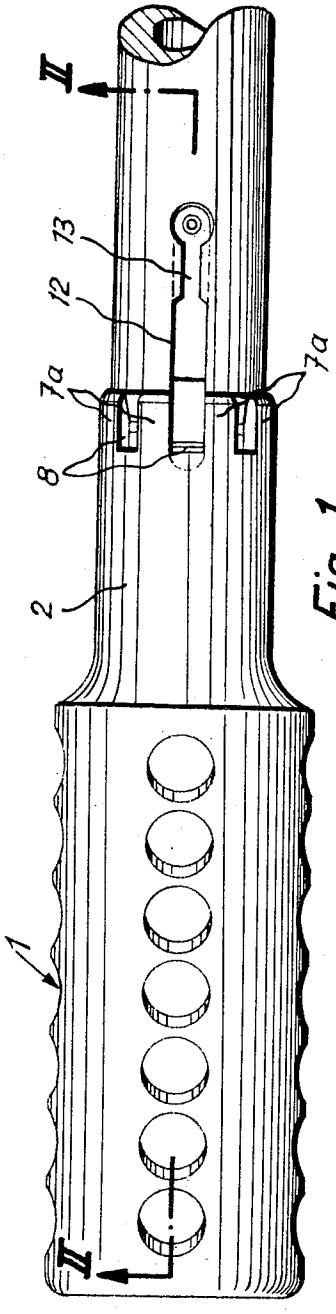

Fig. 1

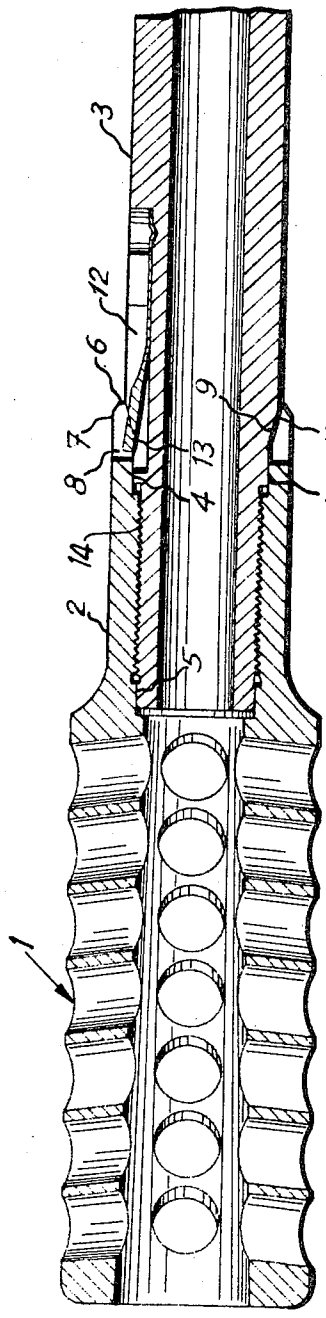

Fig. 2

Inventor
Kurt Seeberger
By
Wenderoth, Lind & Ponack
Attorneys

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FIRE ARM MUZZLE BRAKE

Kurt Seeberger, Zurich, Switzerland, assignor to Verwaltungsgesellschaft der Werkzeugmaschinenfabrik Oerlikon, Zurich, Switzerland

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2 Claims. (Cl. 89—14)

The invention relates to a fire arm having a muzzle brake screwed to the forward end of the barrel of the weapon and secured against detaching, whose fixing portion is constructed in the shape of a sleeve with a frontal slotted safety crown.

In a weapon of this kind the muzzle brake is secured against turning loose by a leaf spring, which is attached on the barrel and engages into a slot of a slotted crown. The muzzle brake is connected with the barrel in such a manner that when tightening the screw thread, a shoulder in the bore of its sleeve-shaped fixing portion is pressed against the frontal end face of the barrel of the weapon. By this pressing however very small deformations of the material are produced at the contacting faces of the barrel and of the brake so that, for tightly screwing-on, the muzzle brake can be turned only to a negligible extent. The screw-threaded barrel end and the shoulder in the bore of the brake have for this reason to be matched with one another in their position in such a manner that with the muzzle brake tightly screwed to one of the slots of the slotted crown it lies in such a position relative to the barrel that the leaf spring fixed to the barrel can engage into the same.

The muzzle brake has to be firmly clamped to the barrel since experience has shown that with a muzzle brake loosely mounted thereon the hitting accuracy of the shots fired through the same is diminished.

The disadvantage of the manner of securing the muzzle brake hitherto used consists in that the muzzle brake must accurately match the barrel on which it is to be fitted in order that the leaf spring can catch.

The invention has the primary object of obviating this disadvantage and of providing an attachment of a muzzle brake to the barrel of a fire arm which is secured against unintentional loosening and which allows exchangeability of the matching components without requiring any touching up or adaptation work.

With this and other objects in view, which will become apparent later from this specification and the accompanying drawing, I provide a fire arm comprising in combination: a barrel, a muzzle brake in screw-threaded connection with the forward end of said barrel and having a frontally slotted sleeve-shaped safety attachment portion, an external truncated cone pointing forward being provided on said barrel and a complementary internal truncated cone being provided at the rear end of said slotted sleeve-shaped portion, said internal truncated cone having longitudinal slots spreading on said external truncated cone when screwing fast said muzzle brake on said barrel.

These and other features of my said invention will be clearly understood from the following description of a preferred embodiment thereof illustrated by way of example in the accompanying drawing in which:

FIG. 1 is a side elevation of the forward end of the barrel of a weapon with muzzle brake,

FIG. 2 is a section on line II—II of FIG. 1.

With reference to the drawing, the muzzle piece **1** is provided with sleeve-shaped attachment portion **2**, which is screwed on the thread **14** at the forward end of the barrel **3** of the weapon and is centred thereon by means of two cylindrical bore surfaces **4** and **5**. From the side

of the end face **6** of the attachment portion **2** six slots **8** are machined at equal angular distances parallel to the longitudinal axis of the muzzle brake. Any two adjacent slots **8** bound a projection slotted finger **7***a*. As a whole these fingers form a slotted safety crown **7**. The internal surfaces of these fingers **7***a* form part of the cylindrical surface of the bore **4**. These surfaces **4** of the fingers **7***a* are joined by surfaces forming part of a conical surface **9**, which flares out towards the end faces **6** of the fingers **7***a*. The barrel **3** of the weapon has an external conical surface **11** converging towards its centering surface **10** whose aperture angle corresponds to that of the complementary conical surfaces of the fingers **7***a*.

In the surface of the barrel **3** a groove **12** is machined parallel to the axis thereof whose forward end lies ahead of the conical surface **11**. At the bottom of this groove a leaf spring **13** is fixed, whose length and width corresponds to that of the slots **8** of the muzzle brake **1** and whose forward end is turned up so far that its protrudes from the groove **12** but can yet be resiliently pressed completely into the groove.

Based on this construction of the attachment, the muzzle brake can be fixed to the barrel **3** of the weapon as follows:

When screwing tight the brake **1** and depressing the leaf spring **13** the conical surfaces **9** of the fingers **7***a* come into contact with the external conical surface **11** of the barrel **3**. Thereafter the muzzle brake **1** is screwed on farther until the axis of one of the slots **8** coincides with the longitudinal axis of the said groove **12** of the barrel whereafter the leaf spring **13** can engage in this slot **8**. Thereby the muzzle brake **1** is secured against turning loose.

By this continued turning the fingers **7***a* are bent outwardly by the reaction force transmitted by the conical surface **11** of the barrel **3**, which forces at the same time establishes the tight clamping of the muzzle brake **1** to the barrel **3**. The fingers **7***a*, external cone **11** and complementary cone **9** are to be dimensioned so that the stressing of the fingers **7***a* remains within the elastic limit of the material, even when the spreading on the external cone **11** takes place upon turning the muzzle brake about its longitudinal axis to an extent corresponding to the full angular distances of two successive slots **8**.

Owing to this construction of the attachment, muzzle brakes can be used without any touching up or adaptation work, the adaptation of the actually existing dimensional relations of the barrel of the weapon and of the muzzle brake being effected by a more or less large elastic deformation of the fingers of the slotted safety crown.

While I have described herein and illustrated in the accompanying drawing what may be considered a typical and particularly useful embodiment of my said invention, I wish it to be understood that I do not limit myself to the particular details and dimensions described and illustrated; for obvious modifications will occur to a person skilled in the art.

What I caim as my invention and desire to secure by Letters Patent, is:

1. A fire arm comprising in combination a barrel having at the front end thereof an exterior thread and an exterior cone shaped portion, the apex of said portion pointing towards the front, a slot in the exterior surface of said barrel extending parallel to the longitudinal axis of said barrel adjacent the front end thereof, a muzzle piece having an interior thread to be screwed on said exterior thread and an interior cone shaped portion complementary to said exterior cone shaped portion, said piece having at its rear end regularly spaced longitudinal slots forming fingers, said interior cone shaped portion being arranged on said fingers, a spring tongue fixed at one end in said slot of said barrel and with its free end designed for

engaging in one of said slots, said spring being capable of being disengaged from said slots radially and resiliently by depression of said free end, whereby the expansion of said fingers by said exterior cone shaped portion permits a rotation of said muzzle piece relative to said spring tongue.

2. A fire arm comprising in combination a barrel having at the front end thereof an exterior thread and an exterior cone shaped portion, the apex of said portion pointing towards the front, a slot in the exterior surface of said barrel extending parallel to the longitudinal axis of said barrel adjacent the front end thereof, a muzzle piece having an interior thread to be screwed on said exterior thread and an interior cone shaped portion complementary to said exterior cone shaped portion, said piece having at its rear end a sleeve with regularly spaced

longitudinal slots forming fingers, said interior cone shaped portion being arranged on said fingers, a spring tongue fixed at one end in said slot of said barrel and with its free end designed for engaging in one of said slots, said spring being capable of being disengaged from said slots radially and resiliently by depression of said free end, whereby the expansion of said fingers by said exterior cone shaped portion permits a rotation of said muzzle piece relative to said spring tongue.

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BENJAMIN A. BORCHELT, *Primary Examiner.*

FRED C. MATTERN, JR., *Examiner.*