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OBTURATOR ARRANGEMENT FOR GUN BARRELS

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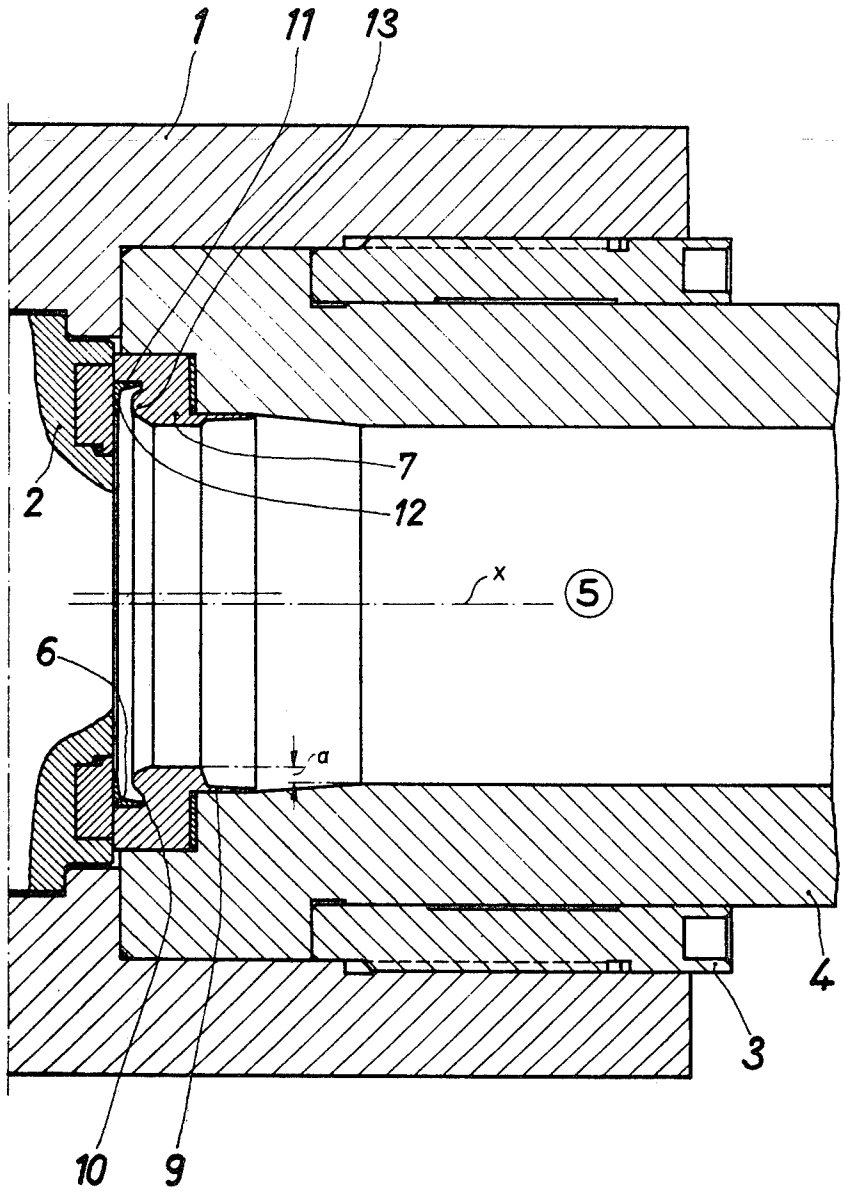

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OBTURATOR ARRANGEMENT FOR GUN BARRELS

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ABSTRACT OF THE DISCLOSURE

An obturator device for the charge chamber of a gun barrel in which the obturator is L-shaped with an annular leg portion and a base ring to receive and hold the obturator. The base ring has an annular sleeve-like extension of decreasing wall thickness.

The invention relates to obturators for gun barrels and more particularly to annular obturators held in base rings mounted in gun barrels.

Annular obturators have hitherto proved to be very effective and also simple to insert in the base of barrels and simple to exchange. This change of obturator rings must be carried out from time to time since they are subject to a certain amount of wear due to the hot combustion gases. In modern better performance guns it has been found that, due to the higher gas pressures and temperatures present, these wear phenomena occur to an increased extent and, furthermore, that burning out and damage occur at the base of the barrel.

The object of the present invention is substantially to obviate these drawbacks and lengthen the life of these parts which are subjected to wear to an increased extent. This problem is solved by providing a base ring inserted in the base of the gun barrel to receive and hold the annular obturator, the said base ring having a bush-shaped extension of steadily decreasing wall thickness extending into the charge chamber and bearing against the wall thereof. With the provision of a separate structural part to receive and hold the annular obturator, exchange of the base ring with the annular obturator inserted therein is considerably simpler than heretofore. Moreover, the base ring may also be made of a material different from that of the gun barrel. The base ring therefore advantageously consists of a heat-resistant steel.

The bush-shaped extension of the base ring likewise forms a gas check or obturator, in that that end of the extension which is of reduced wall thickness is pressed against the tubular wall of the chamber with a sealing action under the pressure of the powder gases.

As an advantageous development of the invention, the base ring has an annular recess for the co-axial side of the obturator ring, this being arranged in such manner that an annular shoulder formed on the base ring projects into the free angular cross-section of the annular obturator. As shown by the practical carrying into effect of the invention, the sealing action of the annular obturator has been thereby increased and its life extended.

The base ring according to the invention at the same time constitutes the prerequisite for another advantageous development of the invention, whereby the charge is secured against slipping out when firing is carried out with a rather large elevation of the barrel. This is achieved in that the base ring or the annular shoulder has in the lower zone of the vertical longitudinal central plane of the barrel a thickened portion projecting into the cross-section of the opening of the chamber. This thickened portion may also be produced in a simple and advantageous manner in that, during the machining of the base ring on the lathe, the internal diameter of the base ring or the annular shoulder is arranged to be so offset in the cross-sectional plane of the barrel that it projects into the cross-section of the opening of the chamber in the lower zone of this plane.

An embodiment of the invention will now be described in greater detail, by way of example only, with reference to the accompanying drawing which is a longitudinal section through the rear end of a gun barrel breech fitted with a wedge-type breechblock.

The breech **1**, which contains the wedge-type breechblock **2** slidable transversely of the axis of the bore and the firing arrangement (not shown), is fixed by means of a threaded nut **3** to the gun barrel **4**. A base ring **7** inserted in the base of the barrel is provided for receiving and holding the annular obturator **6** effecting sealing between the wedge-type breechblock **2** and the chamber **5**, the annular obturator, which has an L-shaped cross-section comprising the sides **11** and **12**, being inserted in a recess in the base ring, so that the vertical side **12** of the annular obturator bears against the wedge-type breechblock **2**. The annular obturator, like the base ring, is made of a steel which is very resistant to heat.

The base ring has a bush-shaped extension **9** projecting into the chamber **5** of the barrel. The wall of the bush-shaped extension tapers steadily towards the front, so that it expands elastically through the pressure of the powder gases and is pressed against the wall of the barrel with a sealing action. The base ring has an annular recess **10** for the co-axial side **11** of the annular obturator. In this way, an annular shoulder **13** projecting into the free angular cross-section of the annular obturator is formed between the inner diameter of the base ring, which is some millimetres smaller than the inner diameter of the annular obturator, and the recess **10**. The inner diameter of the annular shoulder **13** is so offset upwardly with respect to the axis *x* of the bore in the cross-sectional plane of the barrel that in the lower zone of this plane it projects approximately in sickle shape by the amount *a* into the cross-section of the opening of the chamber. In this way, when firing is carried out with a large elevation of the barrel, the charge is secured against slipping out.

This reduction of the cross-section of the chamber by the amount *a* could also be obtained by means of a thickening portion arranged in this zone on the base ring or the annular shoulder, but the construction hereinbefore described and illustrated is more advantageous, because it can be produced in simple manner by machining on the lathe.

I claim:

1. An obturator arrangement for the charge chamber of a gun barrel comprising in combination a gun barrel including a charge chamber, an annular obturator of substantially L-shaped cross-section, and a base ring located adjacent one end of said charge chamber and receiving and holding said obturator in position adjacent said charge chamber, the base ring having a thickened portion lying in the lower zone of the vertical longitudinal central plane of the gun barrel and projecting into the lower zone of the charge chamber.

2. An obturator arrangement as claimed in claim **1** in which the centre of the internal diameter is offset from the centre of the external diameter of the base ring providing a thickened portion on the base ring projecting into the lower zone of the charge chamber.

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