

Aug. 31, 1948.

W. P. MASON  
SILENCER

2,448,382

Filed Oct. 26, 1944

FIG. 1

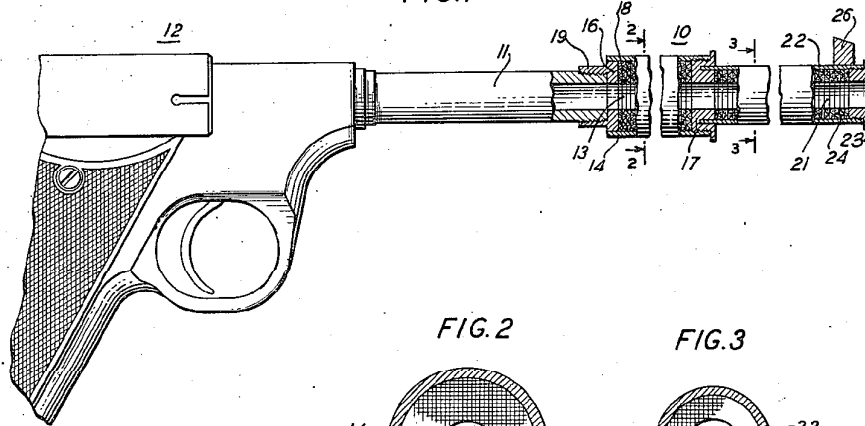


FIG. 2

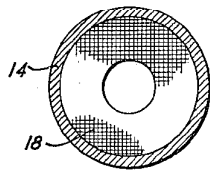


FIG. 3

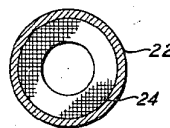


FIG. 4

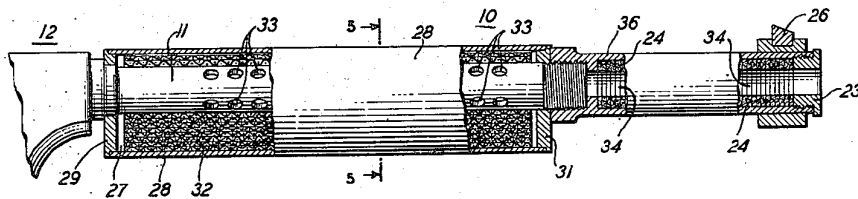
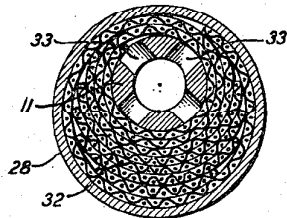


FIG. 5



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## UNITED STATES PATENT OFFICE

2,448,382

## SILENCER

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Application October 26, 1944, Serial No. 560,456

2 Claims. (Cl. 89-14)

1 This invention relates to firearms and more particularly to a silencer for reducing the muzzle blast.

The principal object of the invention is to reduce the noise associated with the muzzle blast of a firearm. Other objects are to reduce the weight, size and cost of a silencer and improve the stability of performance.

Important factors in silencing the muzzle blast of a firearm are the rapid cooling of the power gases and the reduction of pressure before they emerge. An effective silencer utilizing these principles comprises a chamber containing heat absorbing material through which the bullet passes. The effectiveness of such a device depends, among other things, upon its cross-sectional area. Applicant has discovered, however, that the importance of having a large cross-sectional area diminishes considerably toward the front end of the silencer.

In accordance with the invention, therefore, the chamber has at its front end a section of reduced cross-sectional area. Weight, size and cost are reduced without seriously affecting the efficiency of noise reduction. The silencer may be built as an attachment or, preferably, the rear portion of the chamber may be built around the barrel of the firearm, with communicating holes through the barrel. The heat absorbing material may be metal screen, which may take the form of apertured discs, stacked one upon another and preferably held in compression. Plating the screen with some metal such as tin before punching the discs will increase the stability of performance.

The nature of the invention will be more fully understood from the following detailed description and by reference to the accompanying drawings, in which like reference characters refer to similar or corresponding parts and in which:

Fig. 1 is a side view, partly in section, of a silencer in accordance with the invention attached to a firearm;

Figs. 2 and 3 are cross-sectional views, to larger scale, of the silencer of Fig. 1 taken along the lines 2-2 and 3-3, respectively;

Fig. 4 is a side view, partly in section, of a modified form of the silencer of Fig. 1 in which the rear portion of the chamber is built around the barrel; and

Fig. 5 is a cross-sectional view, to larger scale, of the silencer of Fig. 4 taken along the line 5-5.

Fig. 1 shows one form of the silencer 10 attached to the end of the barrel 11 of a firearm 12. The silencer 10 comprises a cylindrical

2 chamber having a rear section 13 and a front section 21, both containing heat absorbing material, through which the bullet passes with minimum clearance. The side walls of the rear section 13 are formed by the metal tube 14 which is securely fastened at the rear to the apertured end piece 16 and at the front end is internally threaded to receive the apertured connector 17. The heat absorbing material in the section 13 is in the form of a number of annular discs 18 of metal screen stacked one upon another and held in compression by the connector 17. The end piece 16 includes as an integral part thereof an internally threaded collar 19 which screws onto the threaded muzzle of the barrel 11 to hold the silencer 10 securely in position.

The front section 21 comprises a metal tube 22 securely attached at its rear to the connector 17, threaded at its front end to receive the annular end piece 23, and filled with annular discs 24 of metal screen. A forward sight 26 is provided at the front end of the silencer 10. In order to save drawing space parts of the sections 13 and 21 have been removed. Figs. 2 and 3 are cross-sectional views.

The effectiveness of the silencer 10 depends upon its length and cross-sectional area. However, applicant has found that the cross-sectional area may be reduced at the front end of the silencer without a proportional reduction in its ability to silence the muzzle blast. This is due to the fact that the powder gases have already been considerably lowered in temperature and pressure before they reach the front portion of the silencer and so it takes a smaller cross-sectional area to cool them a given additional amount. Therefore, in accordance with the invention, the front section 21 has a smaller cross-sectional area than the section 13. Furthermore, the original efficiency may be restored by a comparatively slight addition to the length of the silencer 10. These results, however, a considerable reduction in weight and volume. This reduces the cost of the silencer and, more importantly, improves the balance of the firearm.

Figs. 4 and 5 show a modified form of the silencer 10 in which the rear section 27 is built around the barrel 11 of the firearm 12. The side walls of the section 27 are formed by the metal tube 28 which is closed at the rear by an end piece 29 securely fastened to the barrel 11 and at its front end by an apertured and flanged metal disc 31. The section 27 is substantially filled with heat absorbing material in the form of layers of metal screen 32 wrapped around the

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barrel 11. To permit the powder gases to enter the section 27 there are provided a number of holes 33 through the wall of the barrel 11. These may, for example, be drilled and, as shown, are arranged in four rows spaced 90 degrees apart. The distance of the first hole 33 from the breach of the firearm 12 largely determines the muzzle velocity of the bullet, assuming a given weight of bullet and a given powder charge. It has been found that, in order to save weight, the outer diameter of the standard barrel may be turned down somewhat without unduly weakening it. As shown, the section 27 may be eccentrically mounted, with the larger part under the barrel 11, so that it may be of larger diameter without interfering with the line of sight.

The front section 34 comprises a metal tube 36 internally threaded at its rear to screw onto the threaded end of the barrel 11, internally threaded at its front end to receive the annular end piece 23, and filled with annular discs 24 of metal screen.

The screen is preferably plated with some metal such, for example, as tin before the discs 18 and 24 are punched. It has been found that this will largely overcome the tendency of the discs to develop loose wire ends which might accidentally come into contact with the bullet as it passes through them and adversely affect the dispersion pattern. The holes in the discs 18 and 24 are preferably made only large enough to insure clearance for the bullet.

What is claimed is:

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1. A silencer for firearms comprising a chamber and a plurality of annular discs of metal screen positioned within said chamber transversely with respect to the longitudinal axis thereof, said discs being stacked one upon another under compression and substantially filling said chamber except for a passageway therethrough providing only minimum clearance for a bullet.
2. A silencer in accordance with claim 1 in which said discs are plated with tin.

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