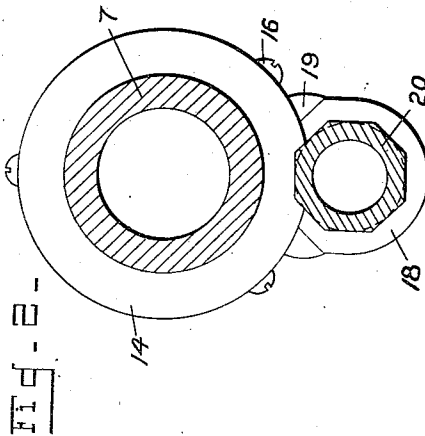


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MUZZLE BRAKE AND GAS COLLECTOR

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MUZZLE BRAKE AND GAS COLLECTOR

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The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

5 This invention relates to a muzzle brake and gas collector for guns.

In muzzle brakes the reaction surfaces presented to the gases of discharge for the purpose of absorbing the energy of recoil 10 of the gun have variously been established by special forms of baffle plates and by discharge ports arranged to deflect the gases. Where the reaction surfaces are designed to change the direction of the deflected gases, 15 their provision and formation are a matter of considerable expense and manufacturing difficulty.

The principle object of the present invention is to simplify the provision of reaction 20 surfaces by forming all of the similar portions in the same member and then assembling the component members in proper relation.

A further object of the invention is to associate a gas collecting casing with the reaction surface members in a manner to facilitate its mounting on the gun barrel.

With the foregoing and other objects in view, the invention resides in the novel arrangement and combination of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made with- 30 in the scope of what is claimed without departing from the spirit of the invention.

A practical embodiment of the invention is illustrated in the accompanying drawing, wherein:

40 Fig. 1 is a longitudinal sectional view of the improved device,

Fig. 2 is a sectional view on the line 2—2 of Fig. 1.

Referring to the drawing by characters of 45 reference:

The muzzle brake A consists of a plurality of concentric tubes, in the present instance, an outer tube 5 and an inner tube 6 whose internal diameter is approximately the 50 same as the bore of the gun barrel 7.

The outer tube is formed with series of spaced ports 8 inclined rearwardly with respect to the longitudinal axis of the tube. The inner tube 6 is formed with a similar series of spaced ports 9 inclined forwardly 55 with respect to the longitudinal axis of the tube, at a lesser angle than the ports 8. The ports are cut in the tubes by means of a drill and milling cutter.

The inner surface of the outer tube is made 60 with an interference fit with respect to the outer surface of the inner tube, and the tubes are assembled by expanding the outer tube through the application of heat and then permitting it to shrink on the inner tube with 65 the ports 8 and 9 in alignment.

The outer tube 5 is of a greater length than the inner tube 6 and includes an internal flange 10 on its forward end to confine the inner tube and an internally threaded portion 70 11 on its rear end to provide for attachment to the gun barrel. The outer tube is also formed with a front collar 12 and a rear collar 13 serving to support and to space a casing 14 from the ports in the outer tube 75 5. The rear extremity of the casing is formed with an internal flange 15 abutting the rear face of the outer tube and held in place by set-screws 16—16 passing through the casing and into the rear collar 13. 80

The under side of the casing 14 is provided with an elongated aperture 17 which is in communication with a trough 18 secured to the outer wall of the casing by means of a welded joint indicated at 19. A pipe 20 is 85 threaded into the rear end of the trough to conduce the gases to any desired point.

In operation the gases of the propellant charge follow the projectile and as they emerge from the muzzle of the gun they ex- 90 pand and pass through the ports 8—9, being reversed in direction. The force exerted by the gases on the reaction surfaces of the ports is sufficient to neutralize a considerable amount of the energy of recoil of the gun. 95 The expansion and cooling of the gases in the casing 14 tends to reduce flash and noise.

I claim:

1. A muzzle brake comprising a plurality of tubes, each tube having series of ports in- 100

clined relative to the axis of the tube, the inclination of the ports of each tube being different from the ports of the adjoining tube, and the tubes shrunk together with the ports
5 in alignment.

2. A muzzle brake comprising concentric tubes shrunk together, and aligned ports in the tubes, the ports in one tube being inclined relative to the ports in the adjoining tube.

10 3. A muzzle brake comprising an inner tube having ports, an outer tube shrunk on the inner tube and having ports in alignment with the ports of the tube, and an internal flange on the outer tube abutting the front
15 face of the inner tube.

4. In combination with a gun barrel, a tubular muzzle brake connected to the gun, and having gas ports, a collar on the front and the rear end of the brake, a casing
20 mounted on the collar and having an internal flange on its rear end abutting the rear face of the muzzle brake, a gas port in the casing, and means for securing the casing to the muzzle brake.

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