

June 10, 1930.

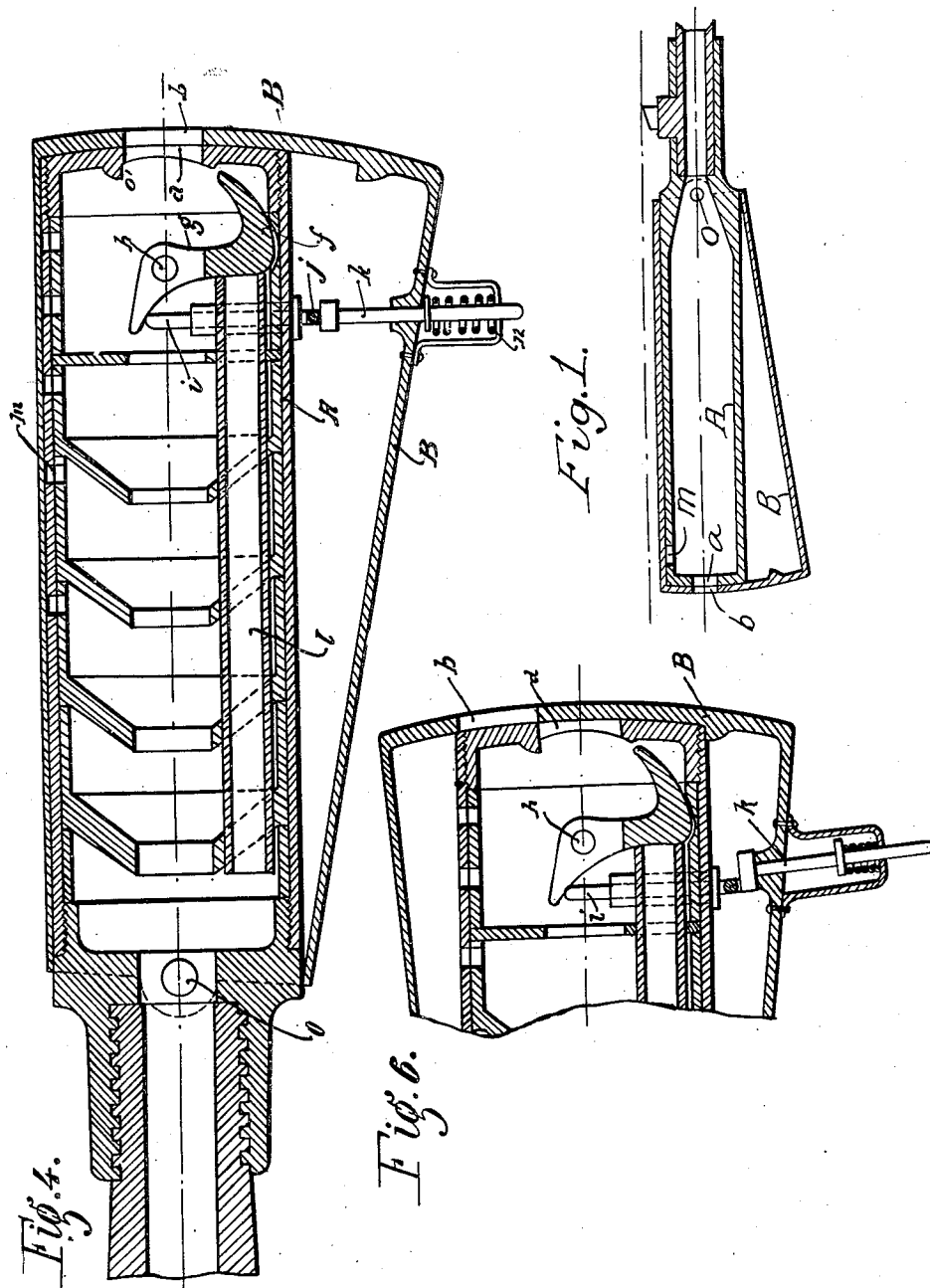
Z. WILMAN

1,763,286

DAMPING OR ABSORBING DEVICE FOR FIREARMS FOR THE  
PREVENTION OF SOUNDS, FLAMES, AND RECOIL

Filed Nov. 29, 1927

2 Sheets-Sheet 1



Zygmunt Wilman

INVENTOR;

By *Otto H. H. H.*  
his Attorney.

June 10, 1930.

Z. WILMAN  
DAMPING OR ABSORBING DEVICE FOR FIREARMS FOR THE  
PREVENTION OF SOUNDS, FLAMES, AND RECOIL  
Filed Nov. 29, 1927

1,763,286

2 Sheets-Sheet 2

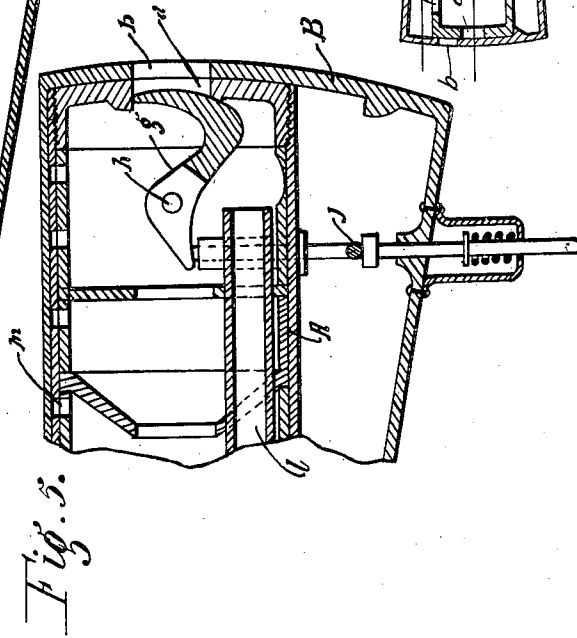
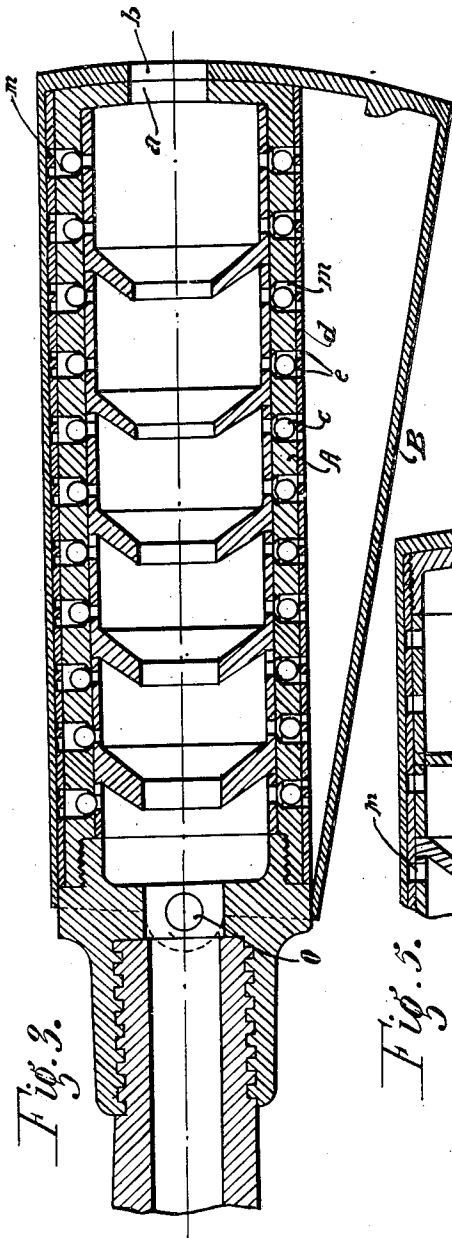
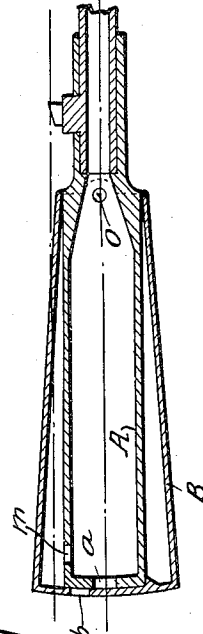


Fig. 2.



Zygmunt Wilman

INVENTOR;

By *Attorney*  
his Attorney.

## UNITED STATES PATENT OFFICE

ZYGMUNT WILMAN, OF PARIS, FRANCE

DAMPING OR ABSORBING DEVICE FOR FIREARMS FOR THE PREVENTION OF SOUNDS,  
FLAMES, AND RECOIL

Application filed November 29, 1927, Serial No. 236,413, and in France December 23, 1926.

The present invention relates to a device for fire arms whereby the sounds, flames and recoil will be prevented or diminished.

Attempts have been made by various constructors to afford means for damping or reducing the noise of firearms by the use of funnel-shaped or cylindrical devices or fittings which contain a spiral member, but the results offered by such devices are imperfect. Although a great part of the gas from the combustion of the powder is throttled when passing through the said devices, the remainder of the gas follows the projectile and causes a sound or noise when issuing from the apparatus.

In my said invention, the throttling means will perform only a secondary and supplementary function, and in many cases may be entirely eliminated, and I employ an essential principle of quite another nature, disposing for this purpose at the end of the gun barrel a metal casing or box pierced with an aperture for the passage of the projectile, and the said aperture is automatically closed, or reduced in section, as soon as the projectile has been discharged. In this manner the major part of the gas is retained in the interior of the apparatus, and it can only be evacuated through special orifices.

In the appended drawings and by way of example:—

Fig. 1 is a diagrammatic view showing an embodiment of the invention.

Figs. 2 to 6 are modified forms of construction.

According to the invention, the apparatus comprises a metal box or casing A, preferably of cylindrical shape, which is mounted on the end of the gun barrel C; the diameter of the aperture *a* is larger than that of the barrel; so as to afford passage to the projectile without friction. At the exterior of the box A is placed a second box B of tapered shape; which is pierced with the aperture *b*. The said outer box is mounted on the inner box in such manner that it will pivot about the axis *c*.

In the initial position, and before the shot is fired (which will be designed as the open position I) the aperture *a* of the inner box

coincides with the aperture *b* so as to allow free passage for the projectile. When the shot has been fired, the gas issuing from the barrel and partially expanded in the box A, will pass through the aperture *m* and will thus raise the box B by pivotation on the axis *c*, to a stated point at which it is held by suitable means. At the same time the aperture *b* moves upwardly and the aperture *a* is closed by the wall of the box B.

This is the position II, or closing position. The projectile has time to traverse the apparatus before it is closed, but the major part of the gas is now enclosed and can only escape in a slow and noiseless manner through the interstices between the two boxes or through special apertures.

To continue the firing, the apparatus must be brought into the open position at each shot, and to this effect the apparatus is automatically opened by means of a spring, or positive control may be employed, and chiefly in the case in which the apparatus is mounted upon a machine gun and herein the device for closing the said outer or damping part is connected with one of the movable parts of the machine gun.

In the construction shown in Fig. 2, I form in the wall of the part A, mounted on the gun barrel the apertures *m* communicating with outer metal box 3, but the said apertures are controlled by valves or the like *c* which allow the exit of the gas into the outer box B but prevent it from circulating in the other direction, and hence when the gun barrel is closed, the gas entering through the valves *c* into the box B can only escape therefrom by reason of the play between the barrel position A and the box B, or through apertures in the wall of the latter. For instance—and solely by way of example—valves *c* may consist of balls contained in the apertures *m* in the wall of the barrel portion which form valve seats, said balls *c* being held in place by a separate envelope *d* fitting upon the barrel portion A and pierced with orifices *e* for the gas circulation.

In the modification shown in Figs. 3, 4 and 5, the exit apertures *a* and *b* situated on the path of the projectile are closed by two suc-

cessive movements; the first closing is effected very rapidly after the shot is fired, and the second closing is taking place more slowly.

As above described, the second closing is effected by the motion of the outer box relatively to the stationary box A mounted on the gun barrel 4, so that the exit aperture *b* will be displaced from the axis of the barrel.

To obtain this first closing movement, I dispose in the barrel position A a shutter *f* of the disappearing type which is adapted to open or close the aperture *a* for the exit of the projectile. The said shutter *f* has a very light construction and forms a closing device of cylindrical outline which is movable along a corresponding surface formed on the end wall closing the barrel portion A, which is pierced with the said aperture for the exit of the projectile. The shutter *f* is provided with two lateral arms *g* which are pivoted at *h* upon the barrel portion A, so that the device may leave a clear path for the projectile. The arms *g* are controlled by the respective push rods or tappets *i* which are suitably guided, said tappets are connected together by a cross-piece *j* making contact with an elastic abutment *k* which is mounted on the movable outer box B.

When in the inoperative position (Fig. 3), the shutter *f* will close the end of a conduit *l* which extends along the interior of the barrel part A and whose rear end is adjacent the end of the gun barrel offering passage to the projectile.

In these conditions, as soon as the projectile has left the barrel, the gas pressure in the conduit *l* will cause the abrupt pivotation of the shutter *f*, since it has but little inertia; but this closing is only effected after the exit of the projectile, since its speed is much greater than that of the shutter *f*, so that the projectile will have already cleared the apertures *a b* before the upper edge of said shutter *f* begins to close the said apertures. The shutter then closes the apertures and makes contact with the shoulder *o*, and at the same time, due to the tappets *i*, the spring *n* of the elastic abutment *k* is compressed (Fig. 4). At the same time, the gas escapes through the apertures *m* and thus displaces the box B, as above disclosed.

Finally, the box B takes the position shown in Fig. 5 in which it closes the aperture *d* of the barrel portion A; by its motion, the box B has acted upon the tappets *i* by means of the abutment *k*, and the said tappets have brought the shutter *f* into the open position.

It is obvious that in this modified construction I may place upon the apertures *m* connecting the interior of the barrel portion with the outer box B, suitable closing devices which are similar to the devices employed in the construction shown in Fig. 2.

I claim—

1. In a gun silencer, the combination of

relatively fixed and movable chambers mounted in nested and mutually pivoted relationship upon the end of the gun barrel, said chambers being provided with openings which normally register in alignment with the gun barrel to provide a projectile outlet, whereby pivoting of the movable chamber will destroy said registry to obturate said outlet.

2. In a gun silencer, a pair of nesting chambers mounted on the end of the gun barrel, the inner chamber being relatively fixed and the outer chamber being relatively movable, said chambers being provided with openings which normally register in alignment with the gun barrel to provide a projectile outlet, whereby movement of the outer chamber will destroy said registry to obturate said outlet.

3. In a gun silencer, a pair of nesting chambers mounted on the end of the gun barrel, the inner chamber being fixed to the gun barrel and the outer chamber being pivotally mounted with respect to said fixed chamber, said chambers being provided with openings which normally register in alignment with the gun barrel to provide a projectile outlet, whereby pivotal movement of the outer chamber will destroy said registry to obturate said outlet.

4. In a gun silencer, a pair of nesting chambers mounted on the end of the gun barrel, the inner chamber being fixed to the gun barrel and the outer chamber being pivoted at its rear end to said inner chamber, the front walls of said chambers being provided with openings which normally register in alignment with the gun barrel to provide a projectile outlet, whereby pivoting of the outer chamber about its rear end will destroy said registry to obturate said outlet.

5. In a gun silencer, a pair of nesting chambers mounted on the end of the gun barrel, the inner chamber being relatively fixed and the outer chamber being relatively pivotable, the forward walls of said chambers being cylindrical and slidably superposed whereby pivoting of the outer chamber will cause said walls to slide relatively to each other.

6. In a gun silencer, a pair of nesting chambers mounted on the end of the gun barrel, the inner chamber being relatively fixed and the outer chamber being relatively pivotable, the forward walls of said chambers being cylindrical and slidably superposed whereby pivoting of the outer chamber will cause said walls to slide relatively to each other, and said forward walls being provided with openings which normally register in alignment with the gun barrel to provide a projectile outlet which is obturated when said relative sliding occurs.

7. In a gun silencer, a pair of nesting chambers mounted on the end of the gun barrel, the inner chamber being relatively fixed and

the outer chamber being relatively movable, said chambers being provided with openings which normally register in alignment with the gun barrel to provide a projectile outlet, whereby movement of the outer chamber will destroy said registry to obturate said outlet, and the inner chamber being provided with apertures which communicate with the interior of the outer chamber.

8. In a gun silencer, a pair of nesting chambers mounted on the end of the gun barrel, the inner chamber being relatively fixed and the outer chamber being relatively pivotable, the forward walls of said chambers being cylindrical and slidably superposed whereby pivoting of the outer chamber will cause said walls to slide relatively to each other, said forward walls being provided with openings which normally register in alignment with the gun barrel to provide a projectile outlet, and the walls of the inner chamber being provided with apertures which communicate with the interior of the outer chamber.

9. In a gun silencer, a pair of nesting chambers mounted on the end of the gun barrel, the inner chamber being relatively fixed and the outer chamber being relatively pivotable, said chambers being provided with openings which normally register in alignment with the gun barrel to provide a projectile outlet, whereby pivoting of the outer chamber will destroy said registry to obturate said outlet, and an abutment on the outer chamber to limit such pivotal movement.

10. In a gun silencer, a pair of nesting chambers mounted on the end of the gun barrel, the inner chamber being relatively fixed and the outer chamber being relatively movable, said chambers being provided with openings which normally register in alignment with the gun barrel to provide a projectile outlet, whereby movement of the outer chamber will destroy said registry to obturate said outlet, the inner chamber being provided with apertures which communicate with the interior of the outer chamber, and the latter chamber being provided with passages communicating with the atmosphere to permit exit of gases therefrom.

11. In a gun silencer, a pair of nesting chambers mounted on the end of the gun barrel, the inner chamber being relatively fixed and the outer chamber being relatively pivotable, the forward walls of said chambers being cylindrical and slidably superposed whereby pivoting of the outer chamber will cause said walls to slide relatively to each other, said forward walls being provided with openings which normally register in alignment with the gun barrel to provide a projectile outlet, whereby pivotal movement of the outer chamber after the discharge of the projectile will cause said walls to slide relatively to each other to obturate said outlet, the inner chamber being provided with apertures communi-

cating with the interior of the outer chamber to permit passage of gases into the latter, and the outer chamber being provided with passages which communicate with the atmosphere to permit exit of said gases from said outer chamber.

12. In a gun silencer, a pair of nesting chambers mounted on the end of the gun barrel, the inner chamber being fixed to said barrel and of larger interior diameter than said barrel, the outer chamber being pivotally associated with the inner chamber, said chambers being provided on their front walls with openings which normally register in alignment with the gun barrel to provide a projectile outlet, and the inner chamber having apertures communicating with the interior of the outer chamber, whereby passage of the combustion gases from the inner to the outer chamber after the discharge of the projectile will pivot said outer chamber to destroy said registry and obturate said outlet.

In testimony whereof I affix my signature.

ZYGMUNT WILMAN.