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2,828,569

CHOKING DEVICE FOR FIREARMS

Filed March 30, 1955

2 Sheets-Sheet 1

Fig. 1.

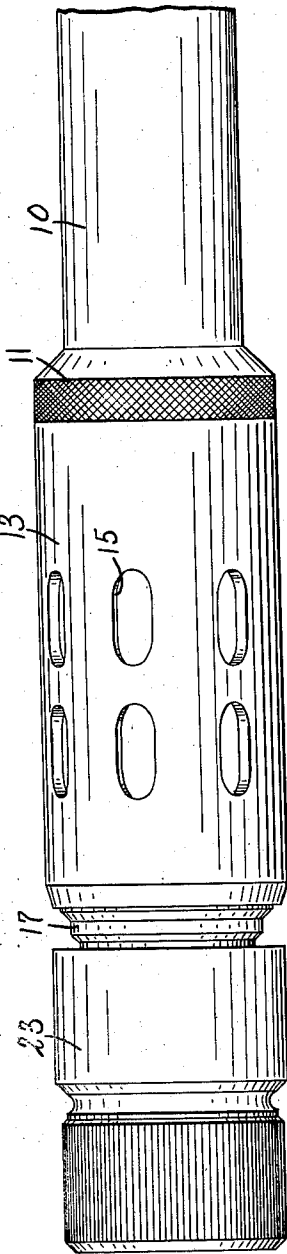
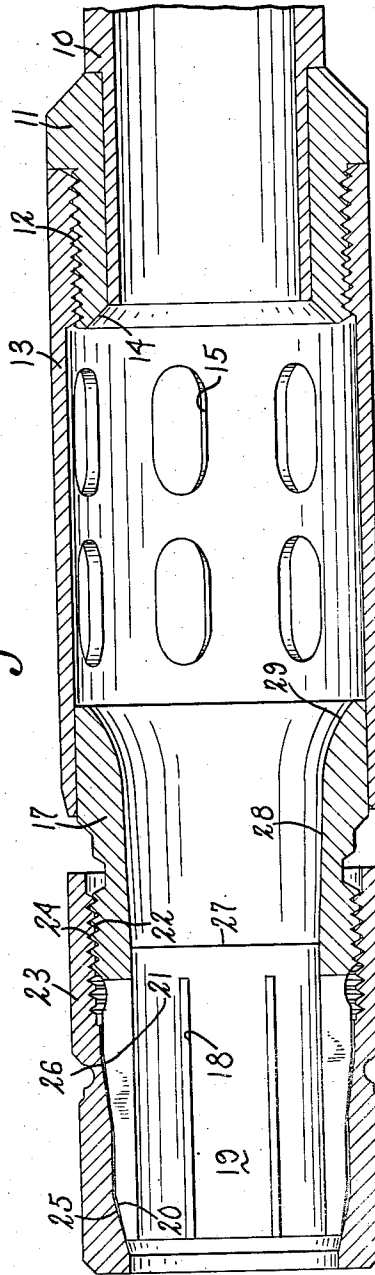


Fig. 2.



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Fig. 3.

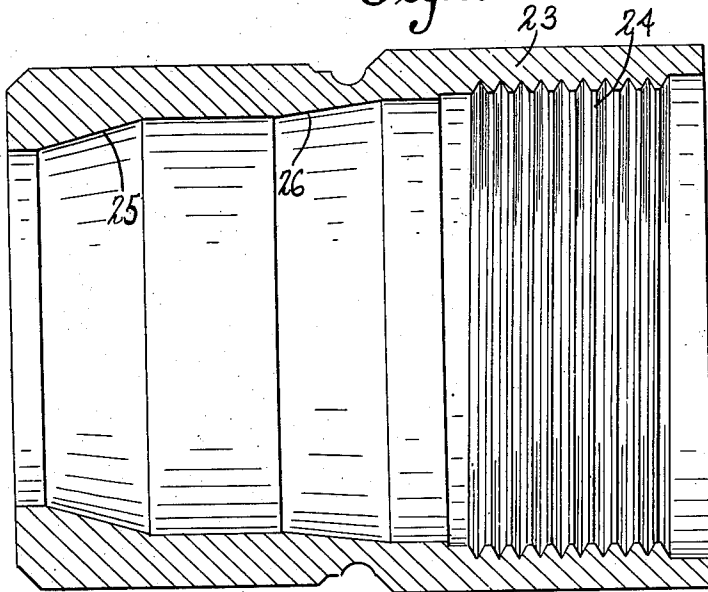
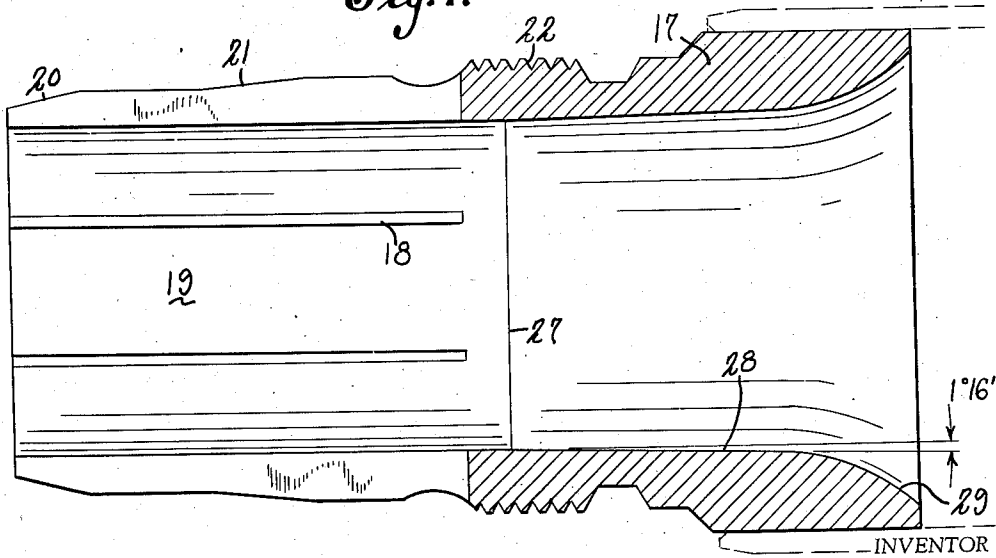


Fig. 4.



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CHOKING DEVICE FOR FIREARMS

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3 Claims. (Cl. 42—79)

This invention relates to gun chokes, and more particularly to an adjustable gun choke for shotguns, for example, which will produce an accurate and uniform shot pattern and for great efficiency in the several adjustments of the choke.

It is also contemplated to provide in connection with the choking mechanism a ventilating section or chamber which will reduce the force of the recoil of the gun upon firing by permitting the escape of the explosion gases before the charge leaves the muzzle end of the gun.

It has previously been known to provide adjustable gun chokes for barrels and also to provide a recoil-compensating device which will reduce the recoil of the gun. Such a compensating device usually comprises a chamber through which the charge passes, the chamber being provided with lateral openings to permit escape of the gases. In the present instance this chamber is somewhat enlarged with respect to the bore of the gun at the muzzle thereof, thus permitting the gases to expand to some extent.

As illustrated in the drawings, the adjustable choking mechanism consisting of an element and an adjustable sleeve is mounted forwardly of this chamber, and the charge is, therefore, constricted in the choke mechanism after it leaves the enlarged chamber above referred to. The present invention relates particularly to construction of the choking mechanism in such a way that the constriction of the charge after it leaves the compensating chamber will be effected in an efficient manner without effecting turbulence of the shot so that the charge will pass smoothly through the choked or constricted portion of the mechanism without violent disturbance of the shot which constitute the charge.

Thus a more uniform pattern will be obtained at various adjusted positions of the choking mechanism than has been possible heretofore in addition, of course, to the reduction in the force of the recoil.

The choking mechanism, as illustrated, comprises two sections, one of which may be termed an element within which the charge is first received and the other being an adjusting sleeve which is threaded upon the element and designed to constrict the latter. The element is provided with slots extending rearwardly from its forward end to provide resilient tongues or fingers which can be compressed by the adjusting sleeve in order to obtain various degrees of constriction or degrees of choking.

One object of the present invention is to provide a new and improved choke mechanism for firearms.

A further object of the invention is to provide an improved choke mechanism for firearms in combination with a recoil-reducing mechanism consisting of an enlarged chamber and so constructing the choking mechanism that the charge will pass smoothly into it from the enlarged chamber.

A still further object of the invention is to provide an adjustable choking mechanism arranged forwardly of an enlarged recoil-compensating and ventilating chamber and providing the inlet end of the choke element with a funnel-shaped or flattened opening to guide the charge

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smoothly into this element and effect gradual constriction of the charge.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a side elevational view of the muzzle portion of a gun barrel having my improved choke mechanism applied thereto;

Fig. 2 is a sectional view of the parts shown in Fig. 1;

Fig. 3 is a sectional view of the adjustable sleeve of the choke mechanism; and

Fig. 4 is a sectional view of the element of the choke mechanism.

To illustrate a preferred embodiment of my invention I have shown in the drawings the muzzle end of a gun barrel indicated at 10 to which is secured a thimble 11, the forward end of this thimble being threaded, as shown at 12, so as to threadedly receive a sleeve or chamber element 13. It will be noted that the forward end of the thimble 11 is flared, as shown at 14, so as to permit the charge leaving the barrel 10 to expand somewhat gradually into the enlarged chamber provided by the element 13, this chamber being, as shown, of greater diameter than the barrel so as to permit expansion of the charge.

The chamber element 13 extends forwardly from the gun barrel and is of sufficient length to be provided with lateral openings 15 to permit escape of some of the discharge gases, thus reducing the force of the recoil. I have shown two annular rows or series of such openings, but it will be understood that the number thereof and the size thereof may be varied as desired, it only being necessary to provide a sufficient total area of opening to permit escape of the desired amount of the discharge gases.

Within the forward end of the chamber member 13 is received the rear end of the element 17 of the choke mechanism. As shown in Figs. 2 and 4, the forward end of this element is slotted, as shown at 18, the slots opening through the front edge of the device so as to provide a plurality of resilient or bendable tongues or segments 19 which may be compressed by the adjusting sleeve, as hereinafter described. This slotted portion of the element is provided exteriorly with annular camming or beveled surfaces 20 and 21 and is also provided with a threaded portion 22 to cooperate with the threads upon the adjusting sleeve.

The adjusting sleeve 23, as shown in Fig. 3, is designed to be received telescopically over the forward end of the element 17 and is provided with interior threads 24 designed to engage the threads 22 when the sleeve is rotated so that the latter may be adjusted longitudinally of the element by rotating it with respect to the latter. The sleeve is also provided with interior annular tapering or camming surfaces 25 and 26 to cooperate with the surfaces 20 and 21 on the element so that when the sleeve is moved longitudinally of the axis of the element the resilient tongues or segments 19 will be compressed to restrict the bore and effect a greater choke or will be released to return by their own resiliency toward a normal position which will effect less choking of the gun.

The shape and dimensions of the interior of the element 17 are important as the control of the shot pattern particularly with respect to securing a uniform result at any given choking position of the sleeve is affected by the configuration of the bore of this element. As shown, the bore of the element adjacent the muzzle or slotted end thereof is of uniform diameter from its muzzle end rearwardly to a point adjacent or slightly beyond the rear ends of the slots 18, the limit of this uniform portion of the bore of the element being indicated by the line 27. In the full open position of the choke, that is when the segments 19 are not compressed by the sleeve 23, the bore

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of the sleeve is approximately .025 inch larger in diameter than the bore of the muzzle end of the gun barrel. It has been found that the shot when leaving the gun barrel will, if permitted, expand at a certain angle, and this difference in diameter of .025 inch permits the shot to expand, taking into consideration the distance of this portion of the element from the muzzle of the gun. Therefore, the shot will be received within this portion of the choke without creating turbulence in the mass of shot, and thus preventing a uniform shot pattern.

Rearwardly of the line 27 the bore of the choke element is tapered so that the portion 28 thereof flares outwardly at an angle of approximately 1 degree and 16 minutes, this portion of the bore being larger toward the muzzle of the gun barrel.

At its extreme rear end the element is reamed or bored upon a radius, as shown at 29, so as to cause this bore to flare outwardly adjacent its communication with the chamber element 13 so as to provide a funnel-shaped portion leading into the tapered portion 28. The mouth of this funnel-shaped portion is approximately 1.5 inches from the gun muzzle while the distance from the line 27 to the mouth of the funnel-shaped portion is approximately 7/8 of an inch. Thus it will be seen that the charge in passing from the enlarged chamber provided by the element 13, first passes through the funnel-shaped portion 29 of the choke element, where the shot pattern is picked up after expanding in the element 13, and thence through the slightly tapered portion 28 until it reaches the position of the line 27 from which point forwardly the interior of the choke is of uniform diameter when in full open position.

Thus the charge in passing from the ventilated chamber is funneled into the slightly tapered portion of the choke, the bore of which terminates at its forward end in a portion of uniform diameter, this portion being of a diameter greater than the muzzle of the gun by a sufficient amount to permit expansion of the shot at the normal angle of 1 degree and 16 minutes. Therefore, the charge, while permitted to expand in the ventilating chamber, is gradually constricted but at all times given opportunity to expand according to its natural inclination.

While I have shown and described a preferred embodiment of my invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim is:

1. An adjustable choke for gun barrels having a cylindrical shell at the muzzle end of the barrel presenting a chamber of larger diameter than the barrel bore, said choke comprising a choke element connected to the forward end of said shell and provided at its forward end with resilient segments, a sleeve mounted for adjustment on said segments, said sleeve and element having co-

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operating surfaces whereby the segments are contracted when the sleeve is adjusted, and the bore of said element being tapered inwardly from a point adjacent its rear end to a point adjacent the rear ends of the segments, at an angle of substantially 1 degree and 16 minutes, and being of substantially uniform diameter, larger than the muzzle diameter of the gun barrel, from said point to its forward end when the segments are not contracted, and said element having a funnel-shaped throat leading into said tapered portion from said chamber.

2. An adjustable choke for gun barrels having a cylindrical shell at the muzzle end of the barrel presenting a chamber of larger diameter than the barrel bore, said choke comprising a choke element connected to the forward end of said shell and provided at its forward end with resilient segments, a sleeve mounted for adjustment on said segments, said sleeve and element having cooperating surfaces whereby the segments are contracted when the sleeve is adjusted, and the bore of said element being tapered inwardly from a point adjacent its rear end to a point adjacent the rear ends of the segments at an angle of substantially 1 degree and 16 minutes and being of substantially uniform diameter, .025 inches larger than the muzzle diameter of the gun barrel, from said point to its forward end when the segments are not contracted, and said element having a funnel-shaped throat leading into said tapered portion from said chamber.

3. An adjustable choke for gun barrels having a cylindrical shell at the muzzle end of the barrel presenting a chamber of larger diameter than the barrel bore, said choke comprising a choke element connected to said shell and having slots opening through its forward end to provide resilient segments, said element having a flaring funnel-shaped mouth at its entrance and an inwardly tapered bore extending from said mouth to a position adjacent the rear ends of said slots, and a substantially uniform bore, when unconstricted, from said position to its discharge end, said uniform bore being larger than the bore of the muzzle end of the barrel by at least .025 inches, a sleeve adjustably mounted on said element and said sleeve and element having cooperating surfaces whereby upon adjustment of the sleeve said segments are contracted to constrict said normally uniform bore, an element of said inwardly tapered bore of the choke element making an angle of substantially 1 degree and 16 minutes with the axis of the choke element.

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