

Sept. 30, 1947.

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2,428,232

SHOTGUN CHOKE

Filed May 25, 1944

Fig. 1.

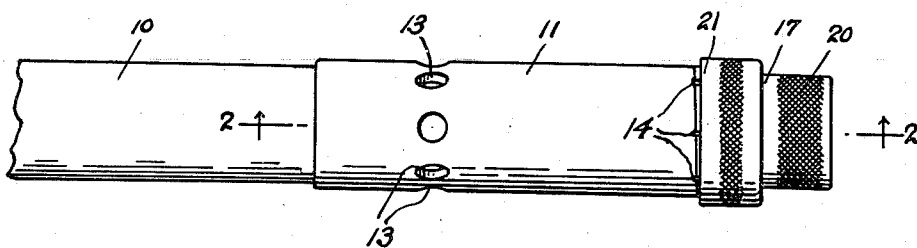


Fig. 2.

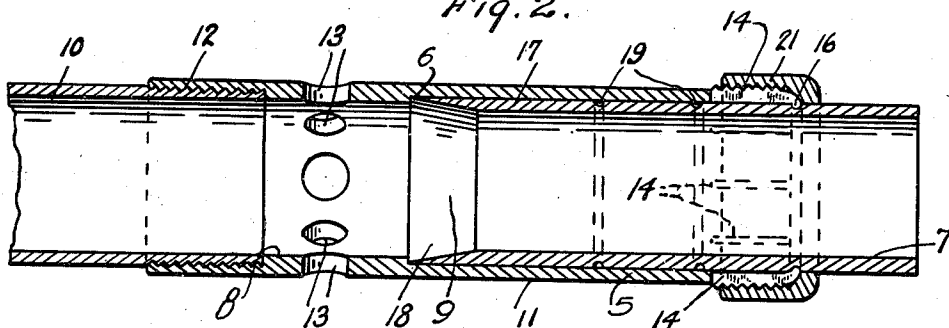


Fig. 3.

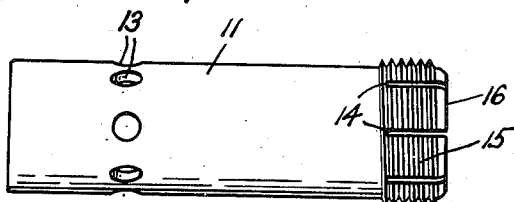


Fig. 5.

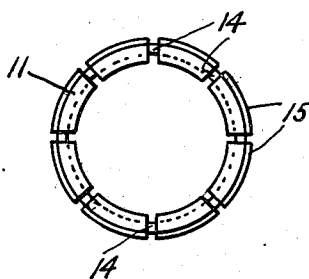
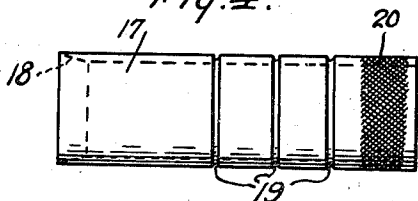


Fig. 4.



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2,428,232

SHOTGUN CHOKE

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Application May 25, 1944, Serial No. 537,330

1 Claim. (Cl. 42—79)

1

This invention appertains to chokes for shotguns, and has for one of its several objects to provide a choke attachment for any standard make of single-barrel shotgun, which is adapted to be mounted on the barrel and may be adjusted.

Another object of the invention has to do with making the choke attachment in telescopic sections, in combination with a simple means to effect adjustment of the sections in a manner that the shot can be delivered in varying patterns, at the will of the user.

In the straight-barreled or non-choking gun only thirty per cent of the shot in the charge reach a target thirty inches in diameter at a distance of forty yards. With the choke-bore barrel, other things being equal, seventy per cent of the shot is delivered within the thirty inch circle. The generally accepted explanation of this result is that the choke momentarily holds back the wad, and with it the forcibly expanding gases which otherwise have a tendency to scatter the shot laterally just as they leave the muzzle. It is therefore the main purpose of the instant invention to provide the sportsman, or other user, with a choke that will permit him to change the shot pattern between these extremes at will, as may be desirable or necessary from time to time.

According to my invention I provide a series of ports around the circumference of the choke to permit a limited lateral expansion of the gases, and further the extensible cylindrical bore for the choke is fashioned to form an interior chamber which may be expanded in area by adjustment of the cylindrical bore. This bore is of lesser diameter than the bore of the shotgun barrel and the charge will be constricted passing therethrough while the gases will expand laterally thus concentrating the charge forwardly rather than laterally as the expansion chamber is increased in area.

With the foregoing and other objects and advantages in view, the invention resides in the certain new and useful combination, construction, and arrangement of parts, as will be hereinafter more fully described, set forth in the appended claim, and illustrated in the accompanying drawing, in which:

Figure 1 is a side view of the muzzle end of a shotgun barrel, with the adjustable choke applied thereto, in accordance with the invention;

Figure 2 is a longitudinal section, taken through the line 2—2 of Figure 1;

Figure 3 is a side view of the barrel attaching section per se;

2

Figure 4 is a view similar to that of Figure 3, but showing the telescopically adjustable choke section; and,

Figure 5 is an end view of the mounting tube for attaching the choke to the end of a gun barrel on an enlarged scale and with the parts exaggerated for the purpose of illustration.

Referring to the drawing, the embodiment of the invention, as it is exemplified therein, is generally comprised in a tubular body, formed of telescopic lengths of steel tubing, with means for attaching the outer tube 11 to the muzzle end of a shotgun barrel 10 and other means for adjusting the inner tube 17 relatively thereto.

As shown, the outer tube 11 has the inner end of its bore screw threaded, as at 12, for engagement with the complementally screw threaded muzzle end of the gun barrel 10. Forwardly of the terminus of the screw thread 12, the outer tube 11 is provided with a series of circumferentially spaced exhaust ports 13 and these function to prevent distortion of the firing pattern. The ports or openings 13 relieve the pressure at this point, but by sacrificing this pressure energy it is possible to obtain higher chamber pressure and therefore, higher velocity, and thereby produce a better pattern. The forward end of the tube 11 is exteriorly screw threaded and longitudinally split, as at 14, to provide a number of segments 15, which have inwardly extending beads 16 at the ends as shown in Figure 2. Also the bore 5 of the tube length 11 is enlarged from a shoulder 6 adjacent the exhaust ports 13 to the forward end, so that this portion of its length is less rigid than the inner end portion thereof.

Telescopically engaged in the forward end of the tube 11, is the second or inner tube 17, which has an exterior diameter adapting it for snug sliding fit in the enlarged bore 5 of the tube 11, and its bore 7 is of a diameter substantially less than that of the bore 8 of the inner end portion of the tube 11, the diameter of the latter bore 8 being equal to that of the gun barrel 10. The inner end of the bore 7 of the tube 17 is flared, as at 18, to a substantially feathered edge, which abuts the shoulder 6 connecting the different bore sections of the outer tube 11, and the tube length 17 when the tube 17 is disposed at its innermost position and forms a variable chamber 9 between the shoulder 6 and the reduced bore 7. Equidistantly spaced along an intermediate length of the tube 17, is a series of circumferentially extending grooves 19, which indicates different positions of its adjustment relatively to the outer tube 11. The extreme outer end of the

tube 17 is knurled, as at 20, to facilitate its manipulation relatively to the tube 11.

Engaged about the forward end portion of the tube 17, and with the screw thread on the forward end of the tube 11, is a clamp nut 21 which, when tightened up on the segments 15, forces the beads 16 at the ends of the segments into engagement with one of the annular grooves 19, of the tube 17, thus securing the latter tube in any one of its selective positions of adjustment relatively to the tube 11.

In use, and with the outer tube 11 attached to the muzzle of the gun barrel 10, the clamp nut 21 is loosened on the segments 15 to permit the free ends with the beads 16 of the latter to move outwardly from their engagement with the annular groove 19 occupied by the same at the moment, when the inner tube 17 is manually adjusted relatively to the outer tube 11, to any one of its choke forming positions, as indicated by the annular grooves 19 registering with the beads 16 of the segments 15. When adjusted as desired, tightening up on the clamp nut 21 forces the segment beads 16 into engagement with the particular groove 19 registering therewith, so that the inner tube 17 is rigidly secured to the outer tube 11. From this, it will be obvious that the inner tube 17 constitutes a firing pattern control and that each of the annular grooves 19 represents a different choke formation. The choke tube 17, being positioned at the extreme end of the gun barrel forms the muzzle thereof and therefore, influences the pattern, and in combination with the exhaust openings a slight adjustment lengthwise obviously governs the amount of relief of pressure on the charge prior to its leaving the choke tube, thereby varying the pattern.

Having thus fully described my invention, it is to be understood that minor changes in the design and construction of the parts of the variable choke attachment forming the subject-matter thereof may be resorted to, without departing from the spirit of the invention or its scope as claimed.

What I claim is:

In a choke attachment for the muzzles of gun barrels, the combination, which comprises, a mounting tube having internal threads in one end for connecting the attachment to the muzzle of a gun barrel and threads on the outer surface

of the opposite end, said tube having spaced radially positioned exhaust openings therethrough spaced from the inner end of the internal threads providing escape of a limited amount of charge propellant gases therethrough for relieving the pressure energy at this point, an internal shoulder spaced from said exhaust openings with the bore of the tube from the shoulder to the end thereof slightly larger than the bore of the section thereof from the shoulder to the inner end of the internal threads, and spaced longitudinally disposed kerfs extending inward from the outer end through the said threads on the outer surface thereof providing spring sections with beads on the inner surfaces of the ends thereof, an inner choke tube longitudinally slidable in the said mounting tube, said choke tube having an internally beveled inner end and spaced adjusting circumferential grooves in the peripheral surface, and a clamp nut threaded on the threaded outer end of the mounting tube having a converging inner surface positioned to coact with the outer ends of the said spring sections of the mounting tube to wedge the beads on the inner surfaces thereof into the said circumferential grooves of the choke tube, whereby the choke tube may be locked in desired longitudinal adjusted positions thereby governing the amount of relief of pressure on the charge prior to its leaving the device and accordingly varying the pattern.

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