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SHOT PATTERN CONTROL DEVICE FOR SHOTGUNS

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FIG.1

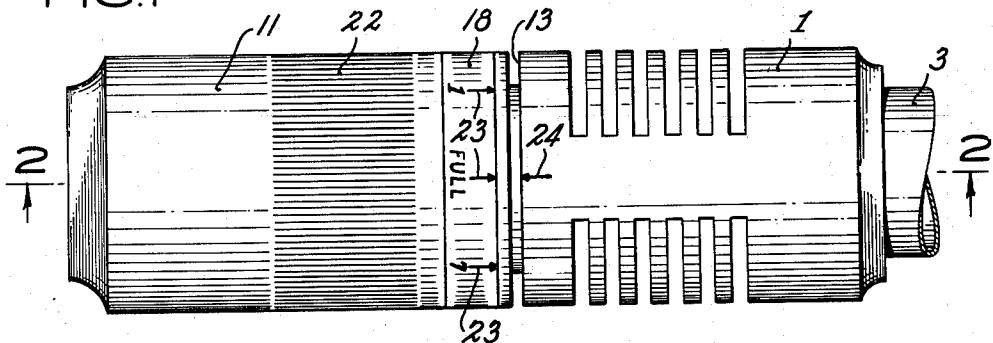


FIG. 2

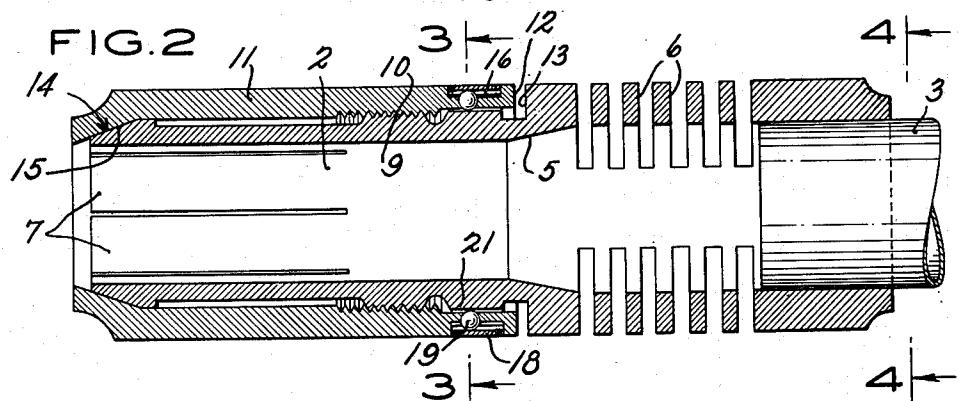


FIG. 3

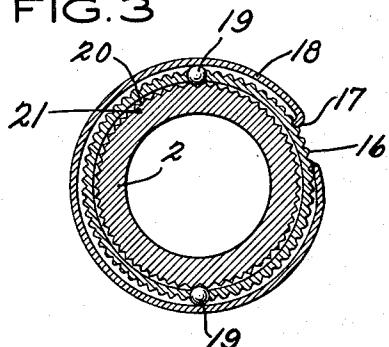
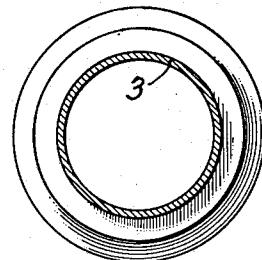


FIG. 4



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SHOT PATTERN CONTROL DEVICE FOR
SHOTGUNS

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2 Claims. (Cl. 42—79)

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This invention relates to improvements in shot pattern control devices for use on shotguns.

A variety of different devices have been provided on shotguns to reduce recoil and to control the pattern of the shot mass for different conditions of hunting and competitive shooting. These different constructions may have expansion chambers provided with gas vents, compression chambers, recompression chambers, and choke chambers to be mounted singly or in combination and in varying forms and arrangements on shotgun barrels. Such devices generally comprise cylindrical members for attachment on the muzzle end of a shotgun barrel, or are formed at the end of the barrel itself and may be a recoil reducing compensator alone, a fixed or a variable shot pattern control choke, or a compensator and a choke arranged in tandem.

It is an object of this invention to provide, in a shot pattern control device of the type having a variable choke mechanism, an improved and novel means for accurate adjustment to the degree of choke desired.

Another object of the invention is to provide an adjustable choke measuring device of simple yet rugged design so that the device may be more conveniently and readily installed in operative condition on the barrel without the degree of precision work previously necessary.

A further object is to provide means in the variable choke device for resisting inadvertent displacement of a selected degree of choke once the variable choke mechanism has been selectively set.

These as well as other objects and advantages of the invention will be apparent in the following specification and accompanying drawings, in which:

Fig. 1 is a top plan on enlarged scale of a device embodying the invention and fixed on the end of a shotgun barrel;

Fig. 2 is a longitudinal section of the device on line 2—2 of Fig. 1; and

Figs. 3 and 4 are detailed views on lines 3—3 and 4—4 respectively of Fig. 2.

In the drawings the shot pattern control device of the invention includes a compensator 1 providing an expansion chamber with laterally slotted walls, and a contractible longitudinally slotted adjustable choke shell portion indicated at 2 extending integrally from the outer end of the compensator. The device may be fixed to the muzzle end of a shotgun barrel 3 in any suitable manner as by silver soldering or may be integrally formed at the end of the barrel if

desired. Choke shell 2 at its innermost end is provided with a tapered cylindrical wall portion 5 providing a compression chamber, the function of which is to impede the powder wad and to regroup the shot traversing the expansion chamber after the shot mass has been expanded by the escape of part of the expanding gases through vents 6 of the expansion chamber.

As will be appreciated, after the shot mass leaves the compression chamber it enters the choke section provided by the shell 2. The shell is formed with a plurality of annularly arranged resilient segments 7. By constricting segments 7 at the outer ends thereof varying degrees of choke may be obtained. The shot pattern may thus be varied to make one gun suitable for use under different shooting conditions.

Endless screw threads 9 are provided on the outer surface of shell 2 and are spaced from the inner end thereof for cooperation with interior threads 10 of an imperforate cylindrical adjusting sleeve 11. The sleeve fits over the forward end of shell 2 and is turned on threads 9. The end face 12 of the sleeve lies opposite a forwardly facing annular abutment 13 at the inner end portion of shell 2. The inner forward end portion of sleeve 11 is formed with a shouldered cam surface 14 which cooperates with beveled shoulders 15 at the outer ends of segments 7 so as to constrict said segments for a choking effect when the sleeve is turned on threads 9 for inward movement on the shell 2.

A circumferential series of detent ridges, as are provided by the knurling at 16, encircles the exterior of sleeve 11 closely spaced from the face 12 (see Figs. 2 and 3). The knurling is recessed in a groove in the outer wall surface of the sleeve. At an appropriate location between two longitudinally disposed ridges of the knurling 16, as will be described, there is engaged an inwardly hooked end 17 of an annular spring steel clamp ring band 18 received in the groove to lie with its outer surface flush with the surface of the sleeve. The band encircles the knurling and resiliently holds one or more detent elements as balls 19 in openings provided, as shown, in the wall of sleeve 11. The balls 19 project outwardly of the ridges 16 and to a slight degree inwardly of the adjacent inner sleeve wall to engage a knurled circumferential surface 20 having longitudinally disposed ridges on an annular raised rib 21 (see Fig. 2) on shell 2. The openings for the balls 19 are restricted at their inner ends to retain the balls in the openings. Rib 21 is slightly spaced from abutment 13 and lies intermediate said abutment and

threads 9. The engagement of the ball between ridges of the knurling 20 provides a releasable detent for the positioning of sleeve 11 on shell 2 and resists inadvertent rotation of these members on threads 9 and 10. The detent is designed to resist inadvertent displacement of a selected position of the choke once the choke adjusting sleeve 11 has been selectively set as will be described. The sleeve 11 on its outer surface is circumferentially knurled at 22 for a finger grip to turn and adjust sleeve 11 on shell 2 against the resistance of the ball detent.

An indicator scale is provided for setting the degree of choke desired and consists of a series of circumferentially spaced indicia marks 23 on band 18. An indexing mark 24 is provided on the top center line of the compensator 1 immediately adjacent the abutment 13.

For correct alignment of the scale marks of clamping band 18 with index 24 so that sleeve 11 may be set accurately to any desired degree of choke, sleeve 11 is turned inwardly on the shell and the segments 1 constricted tightly on a plug gauge so that a condition of full choke exists in the shell. The band 18 is then snapped into the groove on the sleeve substantially covering the ridges 16. The mark 23 which indicates full choke is then longitudinally aligned with the index 24 and the hook 17 is engaged to hold the band securely positioned.

The mark 23 aligned with index 24 is distinguished from the other marks 23 by a legend such as "Full" indicating the position of full choke or full bore condition. It will be understood that as is common in variable choke devices threads 9 and 10 are provided with a pitch to give in one complete revolution of the sleeve all the various degrees of choke from full choke to full bore condition of the device. The other scale marks are previously calibrated on band 18 and may be appropriately marked to indicate the degrees of choke obtained when the shell is turned to bring said marks into alignment with index 24. The band 18 thus provides a choke indicator which is quickly and easily set and which is at the same time firmly locked in position by engagement of the hooked end between ridges 16. This method of providing the indexed choke mechanism eliminates much precision work previously necessary in such devices.

In the drawings the marks 23 for other than full choke are shown as indicated by numerical symbols as in a series from one to seven to indicate various degrees of modified choking positions ranging from full choke to full bore. It will be understood, however, that there may be a greater or lesser number of marks 23 and the marks themselves may be in any desired terms such as the number of yards at which the shot mass will provide a given diameter of shot pattern at the various degrees of choke. It will also be understood that the indexing means for registration of the various indicator marks may be otherwise provided for on the stationary member of the device, a sight being one example of such an alternative reference point sometimes used.

What is claimed is:

1. In a shot pattern control device for gun barrels, of the type having a choke shell with the forward portion thereof longitudinally slotted to form longitudinal segments and an imperforate adjusting sleeve fitted over and bearing against the forward segmented end of the shell, said sleeve being in threaded engagement with the shell for longitudinal movement on said shell to

contract the forward end thereof; a circumferential groove in the exterior wall of said sleeve adjacent the inner end thereof, a series of knurled ridges in said groove, an opening through the sleeve wall intersecting said groove and having a restriction at its inner end, a detent element in said opening projecting inwardly beyond the interior cylindrical surface of said shell adjacent the restricted end of the opening and projecting outwardly into said groove beyond said ridges, a spring clamp band received by said groove and urging said detent inwardly of said opening, said shell having a knurled circumferential surface for registration with the inner end of said detent element and releasably receiving the same in any position of choke adjustment to which said sleeve is turned, said clamp band on its outer surface having calibrated indicator marks thereon and for alignment therewith an indexing means on said shell, and means to releasably lock said clamp band in said groove in any desired position circumferentially of said shell.

2. In a shot pattern control device for gun barrels, of the type having a choke shell with the forward portion thereof longitudinally slotted to form longitudinal segments and an imperforate adjusting sleeve fitted over and bearing against the forward segmented end of the shell, said sleeve being in threaded engagement with the shell for longitudinal movement on said shell to contract the forward end thereof; a multiplicity of closely spaced recessed portions circumferentially arranged in a series encircling the exterior of the shell rearwardly of the inner end of said segments, a multiplicity of closely spaced recessed portions circumferentially arranged in a series encircling the exterior of said sleeve in corresponding position to said series on the shell, a movable detent element mounted in the wall of said sleeve removably engaging at its inner end one of the recessed portions of said shell and intersecting at its outer end the series of recessed portions on said sleeve, a split ring spring clamp member having a hook at one end removably seated in one of said recessed portions of the sleeve and being clamped over said series of recessed portions with the ring member retaining the detent element pressed against said shell, said split ring member having spaced calibrated indicator marks thereon and for alignment therewith an index reference mark on said shell, whereby when said shell is contracted against a full choke gauge said split ring may be clamped around said sleeve over the recessed portions thereof with a full choke indicator mark of the split ring in registration with said index reference mark of the shell and with said hook engaging the recessed portion adjacent thereto in said registered position of the clamp member.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,892,522	White	Dec. 27, 1932
2,453,747	Eggleston	Nov. 16, 1948
2,476,438	Wright	July 19, 1949
2,490,829	Noll	Dec. 13, 1949