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COMBINED CHOKE REGULATOR AND RECOIL
COMPENSATOR FOR SHOTGUNS
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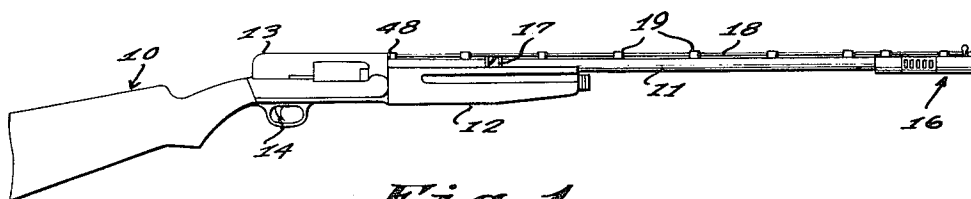


Fig. 1

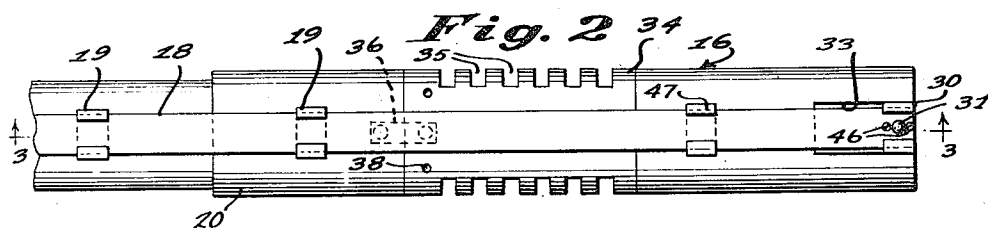


Fig. 2



Fig. 3

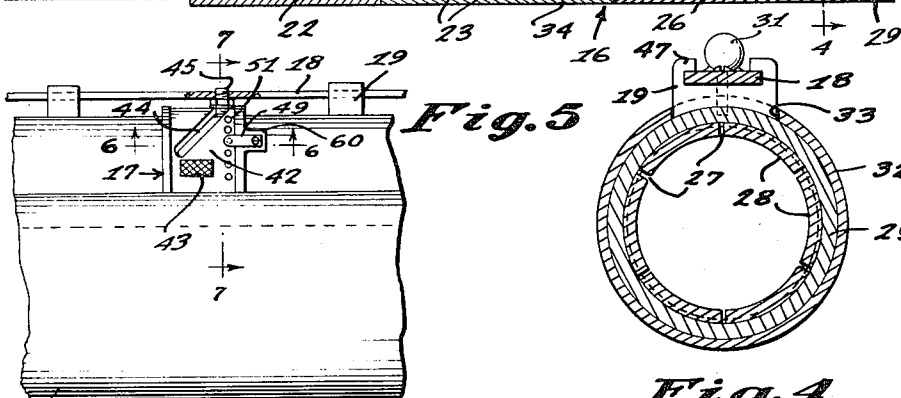


Fig. 4

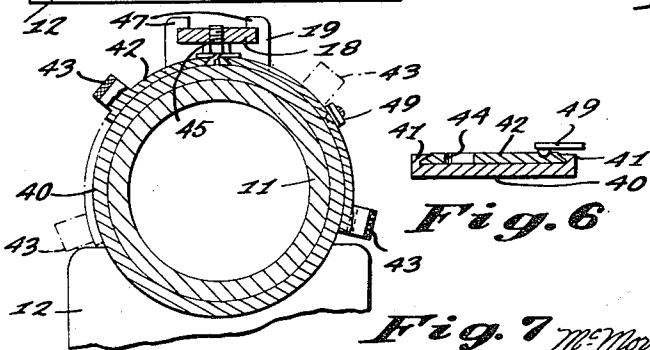


Fig. 5

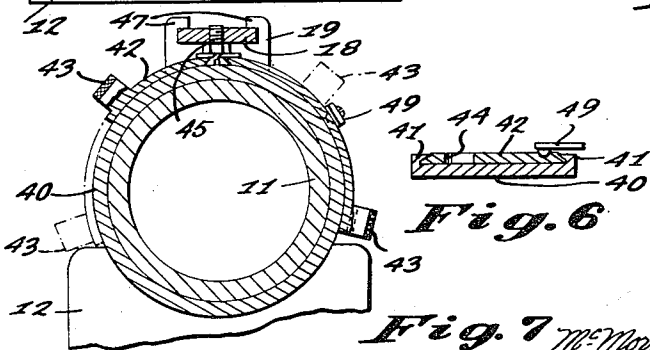


Fig. 6

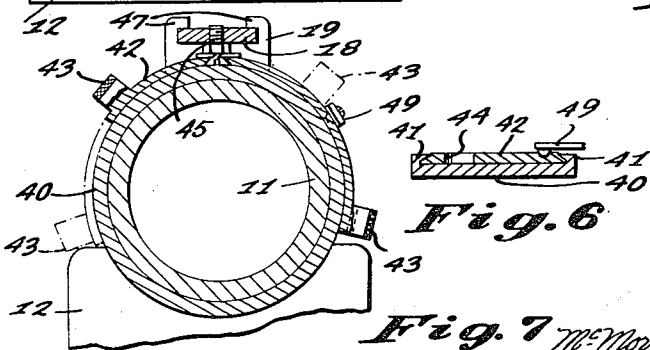


Fig. 7

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COMBINED CHOKE REGULATOR AND RE-COIL COMPENSATOR FOR SHOTGUNS

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1 Claim. (Cl. 42-79)

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This invention relates to improvements in shotgun accessories, and more particularly to an improved choke regulator and recoil compensator for a shotgun.

Among the objects of the invention is to provide an improved choke regulator and adjustable recoil compensator of unitary construction which may be attached, as a single unit, to the barrel of a conventional shotgun, in which the choke regulator is adjustable from a position along the forearm or grip of the shotgun so that the choke may be varied without lowering the gun, and which combined choke regulator and recoil compensator assembly is easily installed on a conventional shotgun, is of simple and durable construction, economical to manufacture, and does not interfere in any way with the normal use of the gun.

Other objects and advantages will become apparent from a consideration of the following description and the appended claims in conjunction with the accompanying drawing, wherein:

Figure 1 is a side elevation of a conventional shotgun with a combined choke regulator and recoil compensator illustrative of the invention operatively installed thereon;

Figure 2 is a top plan view on an enlarged scale of the muzzle end portion of the shotgun barrel and the improved choke regulator and recoil compensator;

Figure 3 is a longitudinal, medial cross-section of the choke regulator and recoil compensator taken substantially on the line 3-3 of Figure 2;

Figure 4 is a transverse cross-section on a somewhat enlarged scale taken substantially on the line 4-4 of Figure 3;

Figure 5 is a side elevation of a fragmentary portion of the gun showing the installation thereon of a manually-operated choke-adjusting mechanism;

Figure 6 is a transverse cross-section of the mechanism illustrated in Figure 5 and taken substantially on the line 6-6 of Figure 5 and showing a structural detail;

Figure 7 is a transverse cross-section of the gun barrel and choke-regulating mechanism taken substantially on the line 7-7 of Figure 5.

With continued reference to the drawing, the shotgun illustrated is a conventional repeating shotgun of known construction having a stock 10, a barrel 11, a forearm or grip 12 at the forward end of the stock and beneath the barrel 11, a breech mechanism 13 at the breech end of the barrel and supported on the forepart of the stock 10 and a trigger and trigger guard assembly

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14. A more detailed description of the gun is considered unnecessary for the purpose of the present disclosure, except to note that the barrel 11 is provided near its muzzle end with external screw-threads 15, as clearly illustrated in Figure 3.

The improved choke-regulating and recoil-compensating assembly comprises a unitary assembly mounted on the muzzle end of the gun barrel and generally indicated at 16, a manually-operated choke-regulating mechanism mounted on the barrel near the breech end thereof and generally indicated at 17 and a rod 18 extending along the gun barrel from the mechanism 17 to the assembly 16 and supported above the gun barrel and flush with the top of the breech mechanism 13 by a plurality of lugs 19 spaced apart longitudinally of the gun barrel and rigidly secured thereto.

The unitary assembly 16 comprises a tube 20 having in one end an internally screw-threaded counterbore 21 which threadedly receives the screw-threads 15 on the muzzle end of the gun barrel to secure the tube on the barrel. This tube has a concentric bore 22 of the same diameter as the bore of the gun barrel 11. Intermediate its length tube 20 has two oppositely-disposed series of openings 23 extending through the tube wall and spaced apart longitudinally of the tube. These openings are preferably in the form of circumferentially-extending, rectangular slots having a length not exceeding one-fourth of the total circumference of the tube. Near the end of these series of slots adjacent the counterbored end of the tube, the tube is provided with an external, annular shoulder 24, and near the opposite end of the series of slots, the tube is provided with external screw-threads 25. Outwardly of the screw-threads 25, the tube is provided with a relatively shallow, circumferential groove 26 and with longitudinally-extending slots 27 disposed at equally-spaced angular intervals around the tube and extending from the groove 26 to the muzzle end of the tube to provide a series of separate spring tongues 28. From the screw-threads 25 to the muzzle end thereof the tube is externally tapered so that the tongues 28 have a reduced wall thickness and the material of the tube is so tempered that the tongues 28 are given sufficient resiliency so that when compressed inwardly to increase the choke at the muzzle end of the tube, they will not break or become permanently set, but will move outwardly by their own resiliency when the compressing pressure is released.

An internally-tapered ring 29 is slidably mounted on the longitudinally-slotted muzzle end

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portion of the tube 20 for sliding movement thereon to compress the fingers 28 and thereby increase the choke of the tube bore when the ring is moved inwardly or rearwardly of the tube and to release the pressure on these fingers to thereby reduce the choke when the ring is moved outwardly toward the muzzle end of the tube. This ring is provided at one side with a lug 30 extending radially outwardly therefrom and a sight bead 31 is mounted on the outer end of this lug. A thin walled sleeve 32 is threaded at one end onto the external screw-threads 25 on tube 20 and overlies the spring tongues 28 and the tapered ring 29 and is provided in one side thereof with a longitudinally-extending slot 33 which slidably receives the lug 30. A sleeve 34 is rotatably mounted on the tube between the shoulder 24 and the adjacent end of sleeve 32 and is provided with two diametrically-opposed series of openings 35 spaced apart longitudinally of the sleeve and of substantially the same size and shape as the openings or slots 23 in the wall of the tube 20. When the sleeve 34 is in one operative position on the tube, the slots 35 in the sleeve register with the slots 23 in the tube so that the propellant gas behind a charge of shot passing through the tube will be released through these registering openings and the drag of the charge in the choked muzzle end of the tube will exert a forward pull on the gun to compensate the kick or recoil of the gun. Sleeve 34 may be rotated to a different operative position in which the portions thereof between the two opposed series of slots 35 overlie the slots 23 in the tube wall covering the latter, whereupon the pressure of the propellant gas will be maintained behind the shot charge until the charge is ejected from the muzzle end of the tube and there will be little or no compensation for the recoil of the gun.

Sleeve 34 is releasably maintained in any one of its operative positions by a releasable latch mechanism including a flat, leaf spring 36 secured at one end to the tube adjacent the annular shoulder 24 and extending longitudinally of the tube over the adjacent end portion of sleeve 34. At its free end, the spring 36 carries a semispherical detent 37 which is seatable in one or the other of a plurality of angularly-spaced-apart recesses 38 provided in sleeve 34 to determine the operative position of the sleeve.

Mechanism 17 comprises a flat band 40 secured around the gun barrel 11 near the breech end of the barrel and provided along each edge with a respective inturned flange 41. The flanges 41 extend around the band from the top side of the forearm 12 at one side of the barrel to the top side of the forearm at the opposite side of the barrel, which, as illustrated in Figure 7, includes an angular extent somewhat greater than a semi-circle, but materially less than the entire circumference of the band. An arcuately-curved slide plate 42 overlies the band 40 with its edges engaged beneath the inturned flanges 41, this slide plate having a circumferential extent materially less than the circumferential extent of the flanges so that the slide plate is movable around the upper portion of the band to a limited angular extent. This slide plate has two lugs or buttons 43 projecting radially outwardly therefrom, one near each end thereof, and the outer ends of these buttons are preferably knurled or roughened to provide a secure finger grip thereon. Between the buttons 43 the slide plate is provided with a diagonally-extending slot 44 and a pin 45 se-

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cured at its outer end to rod 18 projects at its inner end into this slot so that the pin will be moved longitudinally of the barrel when the slide plate 42 is moved around the band 40 and will thus impart longitudinal movement to the rod 18 either forwardly or rearwardly of the barrel depending upon the relative direction of movement of the slide plate.

The rod 18 is a flat strip of metal, preferably of rectangular cross-section, and is secured at its front end to the lug 30 by suitable means, such as a pair of screws 46 extending through respective apertures in the rod and into screw-threaded wells provided in the lug. Each of the lugs or brackets 19 is provided at each end, circumferentially of the gun barrel, with an inturned flange or shoulder 47 overlying the corresponding edge of the flat rod 18 to secure the rod to the bracket lugs for relative sliding movement.

The rod extends rearwardly of the device 17 toward the breech end of the barrel and has its rear end received in a tube 48 projecting forwardly from the front end of the breech cover 13 so that the rear end of the rod will not become disassociated from the breech of the gun.

With the above-described construction, when the finger button 43 is moved upwardly from its position illustrated in Figure 5, the diagonal slot 44 will force the pin 45 rearwardly moving the rod 18 and tapered ring 29 rearwardly to increase the choke at the muzzle end of tube 20. Conversely, when the button 43 is moved downwardly, the rod will be moved forwardly moving the ring toward the muzzle end of the tube to reduce the choke. The degree of choke is indicated by a suitable clicker comprising a flat leaf spring 49 secured at one end to an extension 50 on the band 40 and provided at its free end with a hemispherical detent engaging in spaced-apart recesses 51 provided along one edge of the slide plate 42 to indicate the amount of movement of the slide plate relative to the band.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claim rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claim are, therefore, intended to be embraced therein.

For instance, while I have shown a particular connection 18 between the ring 29 and the regulating means 17 and guides 19 therefor, it is obvious that other forms of connection and guides could be used. Thus, the connection might be slidable on the usual matted rib found on some shotguns. Likewise, such matter rib could be longitudinally bored and the connection 18 could be slidable in the bore of the rib.

I claim:

In combination with a shotgun barrel having external screw-threads adjacent its muzzle end, an adjustable choke regulator comprising a tube having near one end internal screw-threads threaded onto the threaded portion of said barrel and having near its opposite end an externally-tapered portion provided with spaced-apart, longitudinally-extending slots dividing said tapered portion into a series of contiguous spring tongues compressible to increase the choke of said tube, a tapered ring slidable on the tapered portion of said tube to compress and release said

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spring tongues, a rod secured at one end to said tapered ring and extending longitudinally of said barrel to a location adjacent the breech end of the latter, and manually-operated means mounted on the barrel near said breech end and operatively connected to said rod to impart longitudinal movement in either direction to the latter, said manually-operated means comprising a curved guide plate extending around said barrel and having a flange along each edge, a curved slide plate slidably mounted on said guide plate and retained in operative association with the latter by said flanges, said slide plate having an elongated, diagonal slot therein and being shorter than said guide plate, a pin secured to said rod and projecting into said diagonal slot, and a pair of finger buttons on said slide plate disposed one

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near each end of the latter for sliding said slide plate on said guide plate.

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