

Sept. 7, 1937.

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2,092,649

AUTOMATIC CHOKE FOR GUNS

Filed June 6, 1936

2 Sheets-Sheet 1

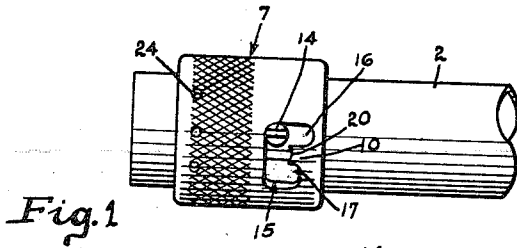


Fig. 1

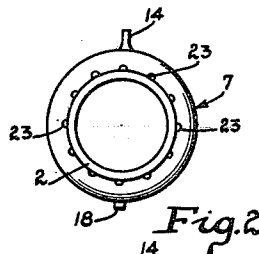


Fig. 2

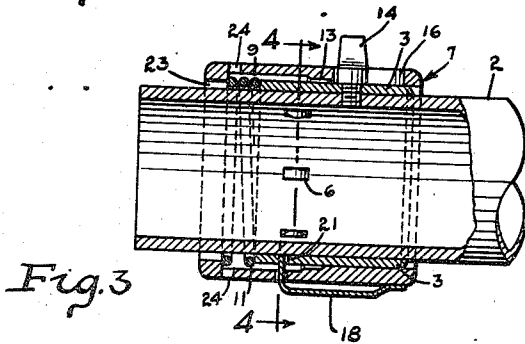


Fig. 3

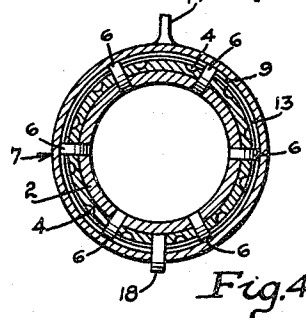


Fig. 4

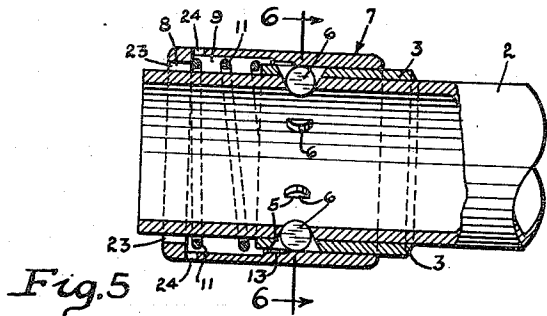


Fig. 5

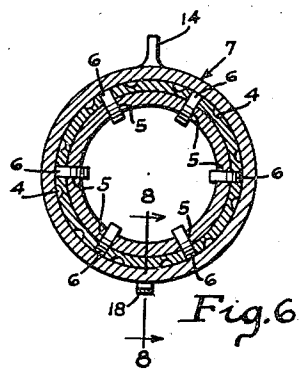


Fig. 6

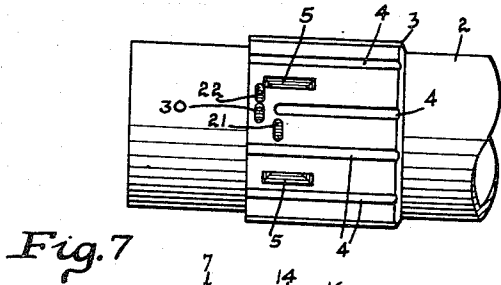


Fig. 7

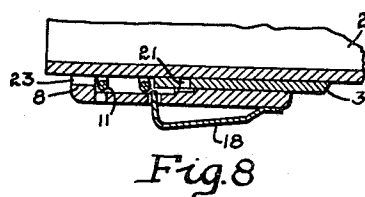


Fig. 8

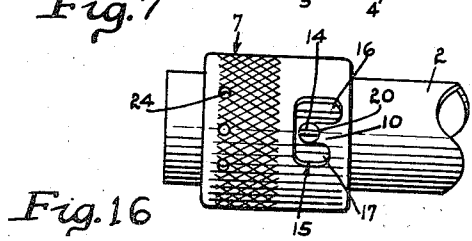


Fig. 16

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AUTOMATIC CHOKE FOR GUNS

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2 Sheets-Sheet 2

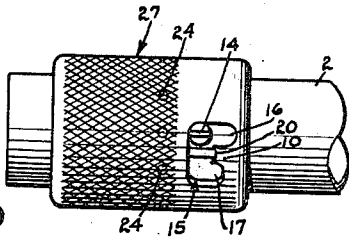


Fig. 9

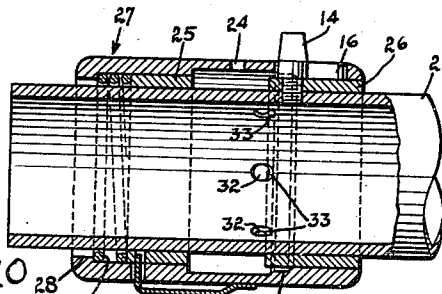


Fig. 10

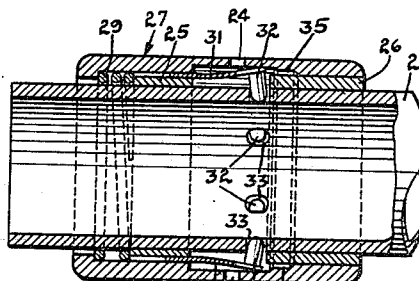


Fig. 11

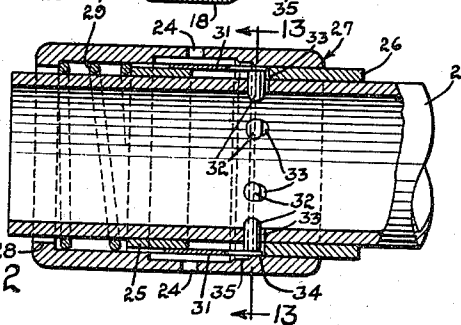


Fig. 12

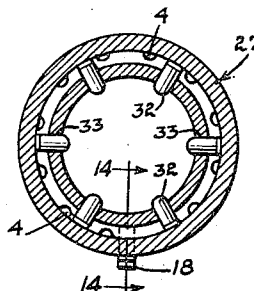


Fig. 13

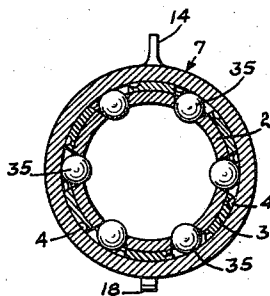


Fig. 15

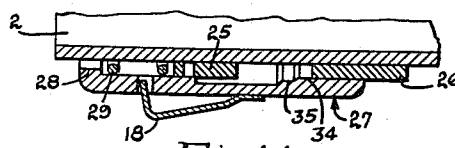


Fig. 14

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UNITED STATES PATENT OFFICE

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AUTOMATIC CHOKE FOR GUNS

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Application June 6, 1936, Serial No. 83,946

15 Claims. (Cl. 42-79)

This invention relates to new and useful improvements in chokes for guns, and more particularly to a choke which is so constructed that it automatically shifts from one position to another by the recoil of the gun, when the latter is fired.

An object of the invention is to provide a simple and inexpensive choke for a gun which may readily be applied to a conventional gun barrel at small cost, whereby the choke of the barrel may be varied, as desired.

A further object is to provide an automatic choke for a gun which is adapted to be actuated by the recoil of the gun, whereby the device will automatically shift from non-choke to choke position, when the gun is initially fired, assuming, of course, that the device has previously been moved to its non-choke position.

Other objects of the invention reside in the simple and inexpensive construction of the device, whereby it may be manufactured at small cost and is extremely simple to operate; in the provision of a novel device adapted to be applied to a gun barrel whereby the first shot fired from the gun will be through an open or non-choke barrel, and succeeding shots will be through a modified or full choke barrel; in the unique construction of the device which comprises a plurality of relatively small elements loosely mounted in suitable apertures provided in the wall of the gun barrel, and which elements are normally concealed by a member mounted for relative movement on the barrel, and which operates to actuate said elements to move them into choke positions within the bore of the gun barrel, when said member is moved in one direction; and, in the provision of a device having means for temporarily retaining it in non-choke position, which retaining means is rendered ineffective to hold said device in non-choke position, when the gun is initially fired, whereby the device automatically returns to its choke position, so that following shots fired from the gun may be through a modified or full choke barrel.

Other objects of the invention will appear from the following description and accompanying drawings and will be pointed out in the annexed claims.

In the accompanying drawings there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the exact features shown as various changes may be made within the scope of the claims which follow.

In the drawings:

Figure 1 is a top view of a portion of a gun barrel showing the device mounted thereon;

Figure 2 is an end view of Figure 1;

Figure 3 is a longitudinal sectional view showing the general construction of the device and showing it in non-choke position;

Figure 4 is a cross-sectional view on the line 4-4 of Figure 3;

Figure 5 is a view similar to Figure 3, but showing the device in choke position;

Figure 6 is a cross-sectional view on the line 6-6 of Figure 5, showing the elements projected into the bore of the barrel;

Figure 7 is a detail view showing the device with the movable member detached therefrom;

Figure 8 is a detail sectional view on the line 8-8 of Figure 6, showing the spring means for temporarily retaining the movable member in non-choke position;

Figure 9 is a view showing a device of slightly modified construction;

Figure 10 is a longitudinal sectional view of the form shown in Figure 9, illustrating the general construction thereof;

Figure 11 is a view similar to Figure 10, showing the inwardly movable elements in non-choke position;

Figure 12 is a view similar to Figure 11, but showing the movable member positioned to inwardly move the elements, whereby their terminals are disposed within the bore of the barrel to provide a choke therefor;

Figure 13 is a cross-sectional view of Figure 12, showing the elements in operative positions with their terminals projecting into the bore of the barrel.

Figure 14 is a detail sectional view on the line 14-14 of Figure 13, showing the means provided for holding the movable member in non-choke position;

Figure 15 is a cross-sectional view showing a modified construction wherein spherical elements are supported in apertures in the wall of the barrel, and are adapted to be partially projected into the bore to provide a choke for the barrel; and

Figure 16 is a view similar to Figure 1, showing the device locked in non-choke position.

In the selected embodiment of the invention here shown, there is illustrated in Figure 1, a portion of a gun barrel, generally indicated by the numeral 2, shown having an enlarged portion 3 which may be formed by suitably securing a cylindrical sleeve to the barrel as, for example,

by welding or brazing. The periphery of the enlarged portion 3 is preferably longitudinally grooved, as shown at 4 in Figure 7, to provide air circulating ducts through which the burnt gases may escape to the atmosphere, and thereby prevent particles of powder and other foreign matter from accumulating within the device, and whereby the device is rendered substantially self-cleaning.

The enlarged portion 3 is shown provided with a plurality of elongated openings or apertures 5 which communicate with the bore of the barrel 2, as best shown in Figure 5. The end walls of the apertures 5 taper inwardly, whereby the bottoms of said apertures are smaller than their outer or upper portions. A plurality of relatively small elements 6 are supported in the apertures 5 and are of such size that they cannot pass completely through the restricted inner ends of the apertures, but whereby they may be projected into the bore of the gun barrel, as clearly illustrated in Figures 5 and 6, thereby to provide a choke for the barrel. When the elements 6, which preferably are disk-like in shape, are positioned as shown in Figures 5 and 6, and the gun is fired, the sealing wad, (not shown), immediately following the charge of shot, will engage the inwardly protruding portion of the elements 6, whereby its forward movement will be temporarily retarded. Such retardation of the sealing wad will cause the column of shot to be projected forwardly without materially spreading, as it travels through the air, with the result that a relatively small or full choke shot pattern is obtained.

Means is provided for temporarily locking or securing the elements 6 in their operative choke positions, as shown in Figures 5 and 6, and consists of a member 7, shown mounted for relative sliding movement on the barrel and concealing the elements 6, as best illustrated in Figure 5. One end of the member 7 is bored to fit the periphery of the enlarged portion 3 of the barrel, which thus provides a guide therefor. The opposite end of the member 7 has a portion 8 bored to fit the outside diameter of the barrel 2, whereby it is guidingly supported thereon.

The member 7 is counter-bored as shown at 9 in Figures 3 and 5, to receive a spring 11, one end of which is seated against the shoulder 12 provided by the portion 8 of the member 7, and the opposite end of which is shown seated against the adjacent end of the enlarged portion 3. The spring 11 therefore constantly urges the member 7 in a left hand direction, when viewed as shown in Figures 3 and 5, thereby to move the member into full choke position.

In the form of the invention, as shown in Figures 1 to 8, inclusive, the bore of the member 7 which fits the outside diameter of the enlarged portion 3 of the gun barrel, acts as a cam face to secure or lock the elements 6 in choke position, as is clearly illustrated in Figure 5. When the member 7 is moved to the position shown in Figure 3, the elements 6 will be aligned with the counter-bore 9, which is of such diameter that said elements may move outwardly sufficiently to clear the bore of the barrel, as best illustrated in Figure 4, thereby to provide an open barrel.

In some instances, it may be desirable to use a modified choke, and to accomplish this, I have provided an intermediate cam surface 13 which, when aligned with the elements 6, will cause them to be projected only slightly into the bore of the

barrel. When thus positioned, a modified choke is provided.

The usual sight 14 is shown provided at the end of the barrel and, in the present instance, has a dual function in that it provides a sight gauge and also a stop for the member 7 of the attachment. A suitable slot or opening, generally indicated by the numeral 15, is provided in the wall of the member 7 and has an elongated portion 16 and a relatively shorter portion 17, separated by an inwardly projecting notched portion 18, which has a notch 20, as best shown in Figures 1 and 16. When the member 7 is in the position shown in Figure 1, it is in non-choke position, but when thrust forwardly to the position shown in Figure 5, wherein the right hand end of the elongated portion 16 of the slot 15 engages the sight gauge 14, the attachment will be in full choke position.

When it is desired to use a modified choke, the member 7 is slightly rotated upon the gun barrel until the sight gauge 14 enters the relatively shorter portion 17 of the slot, or opening 15, thereby limiting the forward movement of the member 7 upon the gun barrel so that the intermediate cam face or portion 13 of the member 7 is aligned with the elements 6, thereby to provide a modified choke for the barrel.

Should it be desired to lock the device in open barrel or non-choke position, the member 7 is rotated to align the notch 20 thereof with the sight gauge 14, whereby the member 7 is locked against longitudinal movement upon the barrel, and cannot accidentally change its position when the gun is in use.

Means is provided for temporarily locking or securing the member 7 of the attachment in non-choke position, and as shown in Figures 3 and 8, comprises a spring-actuated detent 19, having one end suitably secured to the member 7, and its free end projecting inwardly through an opening in a wall of the member 7, whereby the terminal thereof may be received in a socket 21 provided in the enlarged portion 3 of the barrel, as best illustrated in Figure 3. The tension in the detent 19 is such that it normally assumes the position shown in Figure 8, whereby it is to be noted that the terminal thereof is disengaged from the socket 21 of the portion 3. An additional socket 22 is provided in the periphery of the portion 3, as shown in Figure 7, adapted to receive the terminal of the spring element or detent 19, when the member 7 is relatively rotated to cause the sight gauge or stop pin to be received in the portion 17 of the slot 15. An intermediate socket 30 may also be provided in the enlarged portion 3 of the barrel adapted to receive the detent 19, when the member 7 is positioned in non-choke position, as shown in Figure 16.

In the operation of the attachment, illustrated in Figures 1 to 8, if it is desired to use an open barrel for the first or initial shot fired from the gun, the member 7 will be moved backwardly against the tension of the spring 11, by grasping it with the fingers and at the same time pressing the detent 19 inwardly. When the member 7 reaches the position shown in Figure 3, the terminal of the detent 19 may be pressed into the socket 21, whereby the action of the spring 11 tending to urge the member 7 forwardly will cause the detent 19 to be frictionally retained in locking engagement with a wall of the socket 21, as shown in Figure 3. When the member is thus positioned, the disk-like elements 6 may

move completely out of the bore of the barrel, whereby an open barrel is provided.

When the gun is initially fired, however, with the member 7 positioned as shown in Figure 3, the recoil of the gun will relieve the frictional engagement of the detent 18 with the front wall of the socket 21, whereby the tension in the detent 18 will cause it to move outwardly to the position shown in Figure 8, whereby the spring 11 will thrust the member 7 forwardly upon the gun barrel to the position shown in Figure 5. Such movement of the member 7 will automatically change the bore of the gun from an open to a modified or full choke, without any action on the part of the person handling the gun. Following shots fired from the barrel will be through a modified or full choke barrel, until the member 7 is again manually reset. If it is desired to use a modified choke, the member 7 is rotated to move the sight gauge or stop pin 14 into the portion 17 of the slot 15, whereby the forward movement of the member 7 is limited so that it cannot move into full choke position.

The portion 8 of the member 7, which fits the outer diameter of the barrel is shown provided with a plurality of air circulating passages 23, and suitable air circulating passages 24 are also shown provided in the wall of the member 7. The circulating passages 23 and 24, and the grooves 4 permit a portion of the gases to circulate through the device, when the gun is fired, thereby preventing foreign matter from accumulating in the device. The exterior of the member 7 is preferably knurled as shown in Figure 1 to facilitate rotating it.

Figures 9 to 14, inclusive, illustrate a modified construction wherein spaced sleeves 25 and 26 are shown secured to the barrel 2, and have mounted thereon a member 27 corresponding to the member 7 in the previous figures. The member 27 is shown provided at its front end with a restricted portion 28 which substantially fits the exterior diameter of the barrel and provides a seat for one end of a spring 29, the opposite end of which is seated against the adjacent end of the sleeve 25. A plurality of resilient arms are secured to the sleeve 25 and each carries an inwardly projecting pin 32 received in suitable apertures 33 provided in the wall of the barrel 2.

The member 27 is provided with cam faces 34 and 35, as best shown in Figures 10 and 12. When the cam surface 34 engages the free ends of the arms 31, the elements 32 are thrust inwardly through the apertures 33 to full choke position, as clearly illustrated in Figures 12 and 13. When thus positioned, the sight gauge or pin 14 will be in engagement with the opposite end of the slot 16, shown in Figure 9, in a manner similar to that shown and described with reference to Figures 1 to 8.

When the member 27 is rotated to cause the sight gauge or stop pin 14 to enter the relatively shorter slot 17 of the opening 15, the intermediate cam face 35 will engage the ends of the arms 31 and thereby only partially inwardly move the pins 32, whereby the gun is provided with a modified choke. When the member 27 is in the position shown in Figures 10 and 11, the resilient arms 31 are released sufficiently to permit them to move the pins 32 completely out of the bore of the barrel, whereby an open barrel is provided.

A detent 18, similar to the one shown in Figure 8, is secured to the member 27 and is adapted to temporarily hold the member 27 in either full or

modified choke position until the gun is initially fired. When the gun is initially fired, the detent will move to its normal inoperative position, shown in Figure 14, whereby the member 27 is released and automatically moves or shifts from a modified or open barrel position to the full choke position shown in Figure 12. It will thus be seen that the operation of the attachment shown in Figures 9 to 14, inclusive, is similar to that described with reference to Figures 1 to 8.

Figure 15 illustrates another construction in which spherical elements 36 are utilized in lieu of the disk-like elements 6 and pins 32, shown in the previous figures. The operation of the form shown in Figure 15 is substantially the same as described with reference to the previous figures.

The novel choke attachment herein disclosed, has proven very satisfactory and efficient in operation. When hunting small game, it is desirable in most cases to use an open barrel for the first shot, as when flushing a pheasant or some other upland game, because of the relatively short distance. If necessary to fire a second shot, it is usually desirable to use a choked barrel because of the relatively greater distance the charge must carry to hit its mark. As hereinbefore stated, by the use of this novel device, the bore of the gun is automatically changed from open to full or modified choke, when the gun is initially fired, depending upon the pre-setting of the member 7, as the recoil of the gun automatically effects the release of the device from its non-choke position. The device is so constructed that before the gun can again be fired through an open or non-choke barrel, it must be manually reset for an open barrel, in which position it is retained until the next following shot, which will again effect the automatic shifting of the device from open to modified or full choke position.

The attachment is comparatively simple and inexpensive to manufacture and may readily be applied to conventional guns at small cost. It is very compact and does not mar the appearance of the gun, and is so constructed that the elements will have no effect upon the operation thereof. If desired, means not shown, may be provided for locking the attachment in open barrel position, whereby each shot fired from the gun will be through an open barrel. In most cases, however, I have found it desirable to use an open barrel for the first shot and either a modified or full choke for succeeding shots. The attachment is so constructed that it may readily be adjusted to provide the choke best suited for each individual gun.

While I have herein shown the novel choke device permanently fixed to the gun barrel, it is to be understood that it may be made independently of the barrel and removably secured thereto in the form of an attachment.

I claim as my invention:

1. A choke for a gun comprising means movable into and out of the bore of the gun barrel for varying the choke thereof, a member mounted for relative movement on the barrel and adapted to relatively adjust said choke varying means, means for retaining said member in adjusted position, and means whereby the recoil of the gun will render said retaining means ineffective and permit said member to change from one position to another.

2. A choke for a gun comprising means movable into and out of the bore of the gun barrel for vary-

ing the choke thereof, a member mounted for relative movement on the barrel and adapted to relatively shift said choke varying means from open to choke position, means for normally retaining said member in open position, and means whereby the recoil of the gun will render said retaining means ineffective and permit the member to shift to choke position.

3. A choke for a gun comprising means movable into and out of the bore of the gun barrel for varying the choke thereof, a member mounted for relative movement on the barrel and adapted to shift said choke varying means from one position to another, a spring-actuated detent normally retaining the member in a predetermined position, and means whereby the recoil of the gun will render said detent ineffective and permit the member to automatically shift from one position to another when the gun is fired.

4. A choke for a gun barrel comprising a plurality of elements movable into and out of the bore of the gun barrel for varying the choke thereof, a member mounted for relative movement on the barrel and operatively associated with said elements, a spring constantly urging the member into choke position, means for holding the member in non-choke position, and means whereby said holding means is rendered ineffective to hold said member, when the gun is fired, whereby the spring will move the member to a modified or full choke position.

5. A choke for a gun barrel comprising a plurality of elements movable into and out of the bore of the gun barrel for varying the choke thereof, a member mounted for relative sliding movement on the barrel in a direction lengthwise thereof, said member being operatively associated with said elements, means for normally holding the member in a position to provide a non-choke barrel, and means whereby said holding means is rendered ineffective to hold said member, when the gun is fired, whereby the member is automatically moved from a non-choke to a choke position.

6. A choke for a gun barrel comprising a plurality of elements movable into and out of the bore of the gun barrel for varying the choke thereof, a member mounted for relative movement on the barrel and concealing said elements, said member being operatively associated with said elements, a spring-actuated detent on said member engageable with means fixed on the barrel, thereby to hold the member in non-choke position, and means whereby the tension in said detent will render the detent ineffective to hold said member, when the gun is fired, and whereby the member is automatically moved from a non-choke to a choke position.

7. An automatic choke for a gun barrel comprising a member mounted for relative movement on the barrel, said barrel having a plurality of apertures in the wall thereof, elements loosely supported in said apertures and adapted to be partially projected therethrough into the bore of the barrel to provide a choke therefor, means on said member adapted to engage and inwardly move said elements, when the member is moved in one direction, and means for temporarily holding said member in non-choke position.

8. An automatic choke for a gun barrel comprising a member mounted for relative sliding movement on the barrel, said barrel having a plurality of apertures in the wall thereof, elements loosely supported in said apertures and adapted to be partially projected therethrough into the bore of the barrel, means on said member

adapted to engage and inwardly move said elements, when the member is moved in one direction, and means for holding said member in non-choke position, said means being rendered inoperative by the recoil of the gun, whereby the barrel is automatically changed from an open to a modified or full choke.

9. A choke for a gun barrel comprising an enlarged portion on the barrel having a plurality of apertures in the wall thereof communicating with the bore of the barrel, a plurality of elements loosely supported in said apertures, a member fitting over said enlarged portion and relatively movable thereon to actuate said elements, a spring constantly urging said member into a choke position, and a detent for holding said member in non-choke position, said detent being adapted to release the member, when the gun is fired, whereby the member is automatically shifted to choke position.

10. A choke for a gun barrel comprising an enlarged portion on the barrel having a plurality of apertures in the wall thereof, a plurality of elements loosely supported in said apertures, a member fitting over said enlarged portion and relatively movable thereon, said member having a cam face adapted to actuate said elements, when moved in one direction, thereby to partially project said elements into the bore of the barrel to provide a choke therefor, a spring constantly urging said member in a direction to force said elements into the bore of the barrel, and resilient means manually operable to secure the member in non-choke position, said resilient means automatically becoming effective to retain said member in non-choke position, when the gun is fired, whereby said member is automatically moved into choke position.

11. A choke for a gun barrel comprising an enlargement on the barrel having a plurality of elongated apertures therein communicating with the bore of the gun, disk-like elements loosely supported in said apertures, a member movably fitted over said enlargement and concealing the disk-like elements supported therein, said member having a cam face adapted to engage and move said elements into operative positions within the bore of the barrel, thereby to provide a choke for the gun, a spring constantly urging said member into choke position, and a spring-actuated detent carried by said member and adapted to secure it in non-choke position, said spring-actuated detent being adapted to release said member, when the gun is fired, whereby it will automatically move into a choke position.

12. A choke for a gun comprising a plurality of resilient arms fixed to the barrel and having projections thereon received in apertures provided in the wall of the barrel, said arms tending normally to support said projections in non-choke position, a member fitting over and concealing said arms and having means adapted to engage said arms and move them inwardly, when said member is relatively moved in one direction on the barrel, whereby said projections are extended into the bore of the barrel to provide a choke therefor.

13. A choke for a gun comprising a plurality of resilient arms disposed lengthwise of the barrel and each carrying an element, said barrel having a plurality of apertures in the wall thereof through which said elements may be projected into the bore of the barrel, a member fitting over and concealing said arms, a spring constantly urging said member in a direction to actuate said

arms and move the elements into the bore of the barrel, thereby to provide a choke therefor, and means for temporarily locking said member in non-choke position and adapted, by the recoil of the gun, to automatically release said member and permit it to return to a choke position.

14. A choke for a gun comprising a plurality of resilient arms disposed lengthwise of the barrel and each carrying an element, said barrel having a plurality of apertures in the wall thereof through which said elements may be projected into the bore of the barrel, a member fitted over and concealing said arms, a spring constantly urging said member in a direction to move said arms inwardly, whereby the elements carried thereby are projected into the bore of the barrel to provide a choke therefor, and means for locking said member in non-choke position, comprising a

spring-actuated detent secured to the member and adapted to be moved into engagement with means on the barrel, thereby to secure the member in non-choke position.

15. A choke for a gun comprising a plurality of elements adapted to be projected through apertures in the wall of the barrel to provide a choke therefor, spring means normally urging said elements into non-choke position, a member fitted onto the barrel for actuating said elements, a spring constantly urging said member into choke position, and means for locking said member in non-choke position, comprising a detent adapted to be manually moved in one direction to secure the member in non-choke position and adapted, upon firing of the gun, to release said member and permit it to return to a choke position.

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