June 30, 1964 L. F. GROOVER 3,138,889

AUXILIARY GUN BARREL

Filed Nov. 15, 1962

Fig. 1

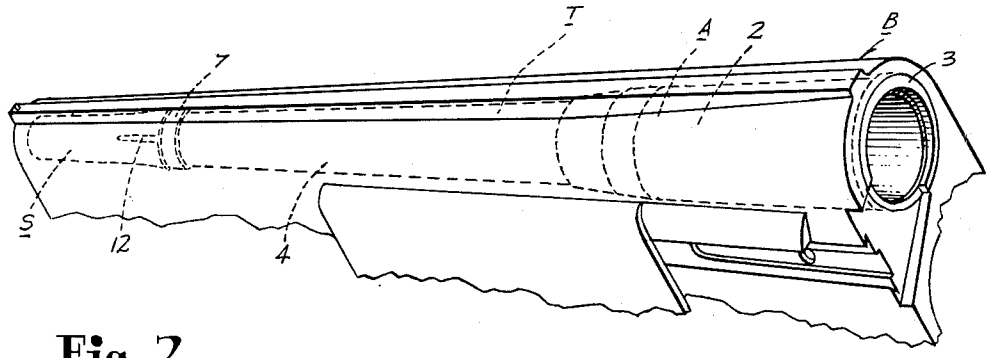


Fig. 2

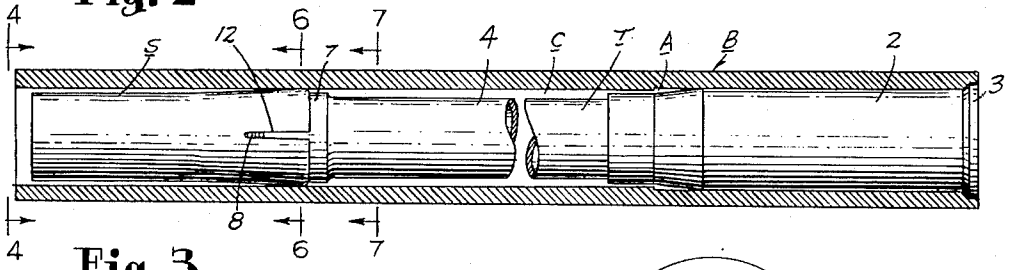
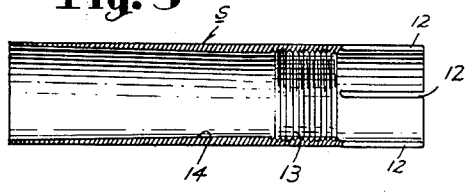


Fig. 3



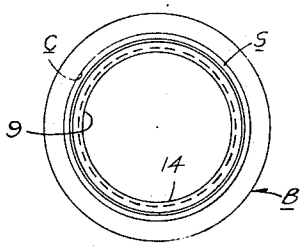


Fig. 4

Fig. 5

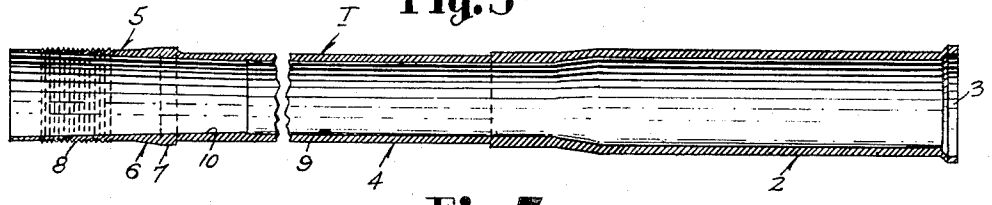


Fig. 6

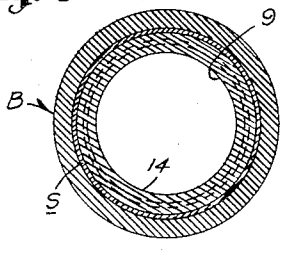
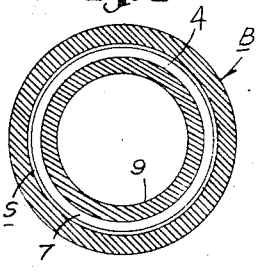


Fig. 7



LAUREN F. GROOVER
INVENTOR.

BY R. C. Mecch
ATTORNEYS.

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3,138,889

AUXILIARY GUN BARREL

Lauren F. Groover, Sheakleyville, Pa., assignor to The Poly-Choke Company, Inc., East Hartford, Conn., a corporation of Connecticut

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This invention relates to auxiliary barrels for shotguns, and more particularly to a tubular member which is positioned within the gun barrel and so constructed and arranged as to adapt the gun for use in firing therefrom of shotgun shells of smaller caliber than the barrel gauge and adapted primarily for practice shooting with breech-loading shotguns.

The present invention comprehends an auxiliary barrel in the nature of an elongated tubular member having a concentric shell chamber arranged in the rear end thereof which is adapted to receive shotgun shells of smaller diameter than the gun barrel gauge.

Various types of removable auxiliary barrels have been heretofore suggested and used for incorporation with shotgun barrels of a given gauge to permit the use of smaller gauge ammunition. While some of these auxiliary barrels have been satisfactory most of them have been unsatisfactory primarily for the reason that they were so constructed and arranged that a lead build-up resulted and accumulated in the muzzle of the gun at the end of the auxiliary barrel or tube which was objectionable. It is to an improved auxiliary gun barrel so constructed and arranged to eliminate this lead build-up in the muzzle of the gun that the present invention relates.

Accordingly, it is the general object of the present invention to provide an improved auxiliary barrel primarily for use with breech loading shotguns which not only eliminates lead build-up in the gun barrel but which combines all the essential qualities and advantages of an accurate, thoroughly reliable, and efficient fire-arm.

It is another object of the invention to provide an improved auxiliary barrel for shotguns which is light in weight and consists of a minimum number of parts whereby the auxiliary barrel can be easily and quickly inserted in the gun barrel and removed therefrom.

It is a further object of this invention to provide an improved auxiliary barrel having means arranged therewith for convenient adjustment to the gun barrel so that the auxiliary barrel is held snugly and securely in position therein so as to obtain accuracy in shooting.

Various other objects and advantages of this invention will be more apparent in the course of the following specification, and will be particularly pointed out in the appended claims.

In the accompanying drawings, there is shown for the purpose of illustration, an embodimnt which my invention may assume in practice.

In these drawings:

FIG. 1 is a fragmentary perspective view of the breech end of a shotgun barrel showing the improved auxiliary barrel, in accordance with the present invention, assembled therein,

FIG. 2 is a fragmentary side view of the auxiliary barrel constructed in accordance with the present invention showing the sleeve or adapter assembled thereon and positioned in the gun barrel,

FIG. 3 is a longitudinal sectional view through the adjustable sleeve or adapter,

FIG. 4 is an enlarged end view of the outer end of the adjustable sleeve or adapter as shown in FIG. 2,

FIG. 5 is a longitudinal sectional view through the tubular member with the sleeve or adapter removed therefrom,

FIG. 6 is an enlarged sectional view taken on line 6—6 of FIG. 2, and

FIG. 7 is an enlarged sectional view taken on line 7—7 of FIG. 2.

Referring more particularly to the drawings, there is shown in FIG. 1, a shotgun barrel B having the usual shell chamber A in the rear end thereof and a bore C extending from the shell chamber to the forward end or muzzle. There is shown assembled in this barrel B, the improved auxiliary barrel constructed in accordance with the present invention.

This auxiliary barrel consists of an elongated tubular member T made of any suitable metallic material, and either rifled or smooth bore, the rear portion 2 of which has an outer diameter or cross sectional size which fits snugly the shell chamber A of the gun barrel B and which is provided at its extreme rear end with a substantially semi-circular flange portion 3 for engagement with the annular rabbet or chamber at the rear end of the shell chamber. This tubular member T is provided with a forwardly projecting reduced intermediate portion 4 extending into the rear portion of the bore C adjacent the shell chamber A having an outer diameter substantially less than the diameter of the bore.

As more clearly shown in FIGS. 5, 6 and 7 of the drawings, forwardly of this intermediate projection portion 4, there is provided a forward portion 5 having an outer tapered portion 6 which extends from a point adjacent the forward end of the tube and terminates in an enlarged annular portion 7 having a diameter slightly less than the bore C of the gun barrel B. The forward end of this forward portion is exteriorly threaded, as at 8, which threaded portion extends from a point adjacent the forward end to a point adjacent the outer end of the tapered portion 6. The bore 9 of this tubular member T at the forward portion thereof is tapered, as at 10, which taper extends from the forward end of the tubular member to a point in the intermediate portion 4 preferably beyond the enlarged annular portion 7, as more clearly shown in FIG. 5 of the drawings.

There is provided an elongated and adjustable sleeve or adapter S having an outer diameter slightly less than the bore C of the gun barrel B. On this sleeve S there is arranged around the periphery thereof, a plurality of spaced-apart longitudinally extending slits 12 which extend from the rear end thereof to a point intermediate its length so as to permit expansion of the rear end portion of the sleeve for a purpose hereinafter to be described. Inwardly of the sleeve and adjacent the slits 12, the bore thereof is threaded, as at 13, which threads cooperate with the threads 8 on the forward end of the tube T for a purpose and in a manner hereinafter to be described. The bore of this sleeve S is tapered, as at 14, which taper extends from the forward end thereof to a point adjacent the interiorly threaded portion 13.

Having described the construction of the improved auxiliary barrel of my invention, it is used in the following manner.

It will be understood that the auxiliary barrels may be made in various sizes to fit a twelve, twenty or any other gauge shotgun. In assembling, it will be assumed that the gun is broken at the breech for reception of the auxiliary barrel. The sleeve or adapter S is first screwed on to the forward end of the tubular member T and initially adjusted thereon to fit the bore of the barrel B of the gun. The auxiliary barrel is then inserted into the rear end of the barrel B of the gun at the breech with the rear portion thereof snugly fitted into the shell chamber A.

In the event that the expansible portion of the sleeve or adapter does not snugly fit the gun bore, the auxiliary barrel is removed and the sleeve S screwed further

onto the forward portion 5 of the tube so as to further adjust the sleeve thereon. It is then reinserted into the gun barrel as before. If the sleeve or adapter S which is now expanded due to its cooperation with the tapered portion 6 of the forward portion 5 of the tubular member still does not fit snugly the bore of the gun, it is again removed and the sleeve S again screwed thereon to further adjust the same on the forward portion and the auxiliary barrel is again reinserted. This procedure is followed until the sleeve C is positioned correctly on the tubular member to fit snugly the bore of the gun. When a snug fit is obtained the gun is in readiness for use with the auxiliary barrel positioned firmly and securely in the gun barrel.

It will be understood that the tapered position 14 in the bore of the sleeve or adapter S and the tapered portion 6 of the bore on the forward portion 5 of the tubular member T are the most important aspects of the present invention in that any danger of lead build-up, which is objectionable, is eliminated in the forward end or muzzle of the gun barrel when the gun is in use.

It will thus be seen that when a shell is fired the load or shot is guided and discharged substantially at the center of the bore of the gun from whence it is guided therethrough to the muzzle and caused to be uniformly spread so as to obtain a desirable shot pattern. If the shotgun is of the double barrel type, it will be understood that each barrel may be provided with like auxiliary barrels in accordance with the present invention.

As a result of my invention, it will be seen that there is provided an adjustable auxiliary barrel or tube which can be easily and quickly assembled or removed from the barrel of a gun in the field with the least amount of effort and which can be conveniently cased and stored for future use.

While I have shown and described an embodiment which my invention may assume in practice, it will be understood that this embodiment is merely for the purpose of illustration and description, and that other forms may be devised within the scope of my invention as defined in the appended claims.

What I claim as my invention is:

1. In combination with a breech-loading shotgun,
an auxiliary barrel adapted to be inserted within the gun barrel consisting of an elongated tubular member having a rear portion and a forward portion interconnected by an intermediate portion of reduced cross-sectional size,
said rear portion having an outer diameter of such dimensions that it fits snugly within the shell chamber of the gun barrel,
said forward portion having an enlarged annular forwardly tapered portion arranged at a spaced distance from the forward end of said tubular member having an outer diameter slightly less than the inner diameter of the gun barrel,
said forward portion being exteriorly threaded from a point adjacent the forward end of said tubular member to a point adjacent said annular tapered portion, and
an elongated adjustable sleeve being so constructed and arranged that it will expand,
said sleeve being internally threaded, which threads cooperate with the threads on the forward portion of said tubular member whereby the outer diameter of said sleeve is increased when the sleeve is screwed on the forward end of said tubular member so that the outer sides of said sleeve are forced radially outwardly against the inner wall of the bore of the gun barrel.

2. The combination as defined in claim 1, wherein the bore of the tubular member is tapered from the forward end thereof to a point intermediate the tubular member and extending to a point beyond the enlarged annular portion.

3. The combination as defined in claim 1, wherein the bore of the sleeve is tapered from the forward end thereof to a point adjacent the interiorly threaded portion thereof.

4. The combination as defined in claim 1, wherein the bore of the tubular member is tapered from the forward end thereof to a point intermediate the tubular member and extending to a point beyond the enlarged annular portion, and the bore of the sleeve is tapered from the forward end to a point adjacent the interiorly threaded portion thereof.

5. In combination with a breech-loading shotgun,
an auxiliary barrel adapted to be inserted within the gun barrel consisting of an elongated tubular member having a rear portion and a forward portion interconnected by an intermediate portion of reduced cross-sectional size,
said rear portion having an outer diameter of such dimensions that it fits snugly within the shell chamber of the gun barrel,
said forward portion having an enlarged annular forwardly tapered portion arranged at a spaced distance from the forward end of said tubular member having an outer diameter slightly less than the inner diameter of the gun barrel,
said forward portion being exteriorly threaded from a point adjacent the forward end to a point adjacent said annular tapered portion, and
an elongated removable and adjustable sleeve having an outer diameter slightly less than the inner diameter of the gun barrel,
said sleeve being interiorly threaded at the rear portion thereof which threads cooperate with the threads on the forward portion of said tubular member,
said sleeve having a plurality of spaced-apart longitudinally extending slits arranged around the periphery thereof extending from the rear end thereof to a point intermediate the length of said sleeve so as to permit expansion thereof and an increase in diameter of the rear end of said sleeve when said sleeve is screwed on the forward end of said tubular member whereby the outer sides of the rear portion of the sleeve are forced radially outwardly by the annular tapered portion of said tubular member against the inner wall of the bore of the gun barrel.

6. The combination as defined in claim 5, wherein the bore of the tubular member is tapered from the forward end thereof to a point intermediate the tubular member and extending to a point beyond the enlarged annular portion.

7. The combination as defined in claim 5, wherein the bore of the sleeve is tapered from the forward end thereof to a point adjacent the interiorly threaded portion thereof.

8. The combination as defined in claim 5, wherein the bore of the tubular member is tapered from the forward end thereof to a point intermediate the tubular member and extending to a point beyond the enlarged annular portion, and the bore of the sleeve is tapered from the forward end to a point adjacent the interiorly threaded portion thereof.

No references cited.