

Feb. 1, 1944.

C. E. RUSSELL

2,340,821

SHOT SPREADING DEVICE

Filed Feb. 13, 1940

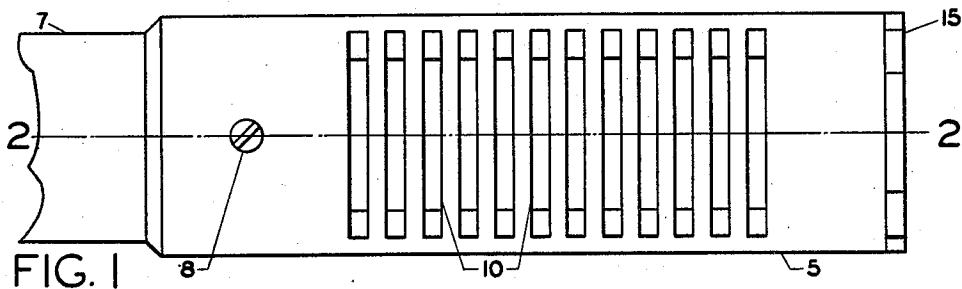


FIG. 1

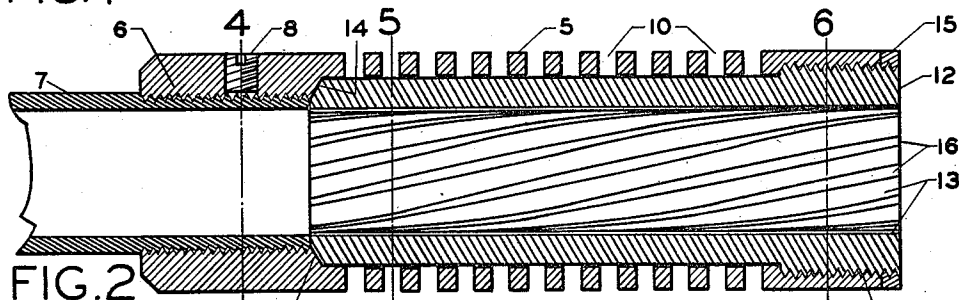


FIG. 2

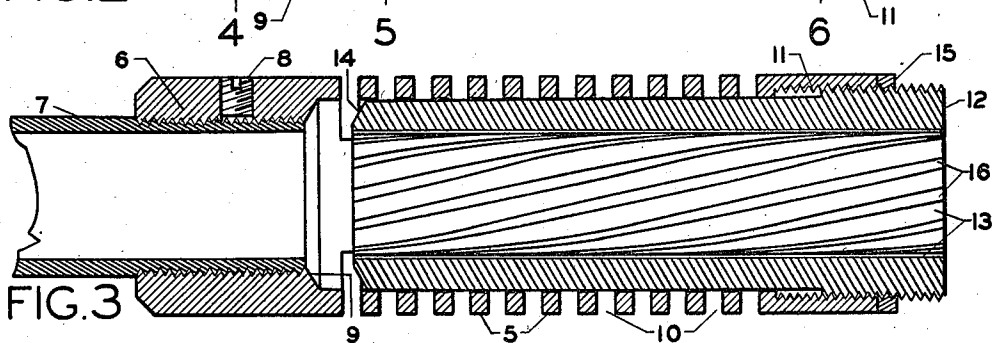


FIG. 3

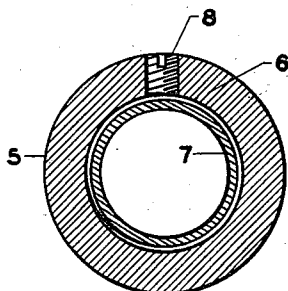


FIG. 4

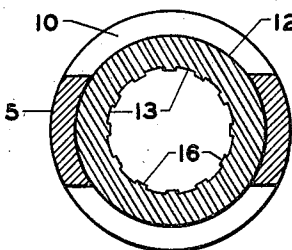


FIG. 5

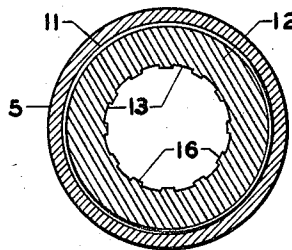


FIG. 6

INVENTOR

CHARLES E. RUSSELL

BY

Samuel B. Reed
HIS ATTORNEY

UNITED STATES PATENT OFFICE

2,340,821

SHOT SPREADING DEVICE

Charles E. Russell, Dayton, Ohio, assignor to
William B. Earnshaw, Dayton, Ohio

Application February 13, 1940, Serial No. 318,735

5 Claims. (Cl. 42-76)

This invention relates to a shot spreading device for a shot gun and more particularly to a shot spreading device which is capable of being attached to a compensator secured to the muzzle of a shot gun.

Compensators are attached to the muzzles of shot guns for the purpose of permitting of a lateral expansion of the gases behind the shot charge before the shot charge leaves the compensator. It is unnecessary to discuss the reasons for or advantages of using such a compensator but suffice it to say that they are in extensive use, particularly on guns used for skeet shooting. It has been proposed to provide such a compensator with a shot spreading device. These spreading devices have, for the most part at least, been provided with a smooth forwardly flaring bore and inasmuch as they were attached to the discharge end of the compensator the lateral expansion of the gases before the charge reached the spreading device greatly limited the efficiency of the spreader. Further, it has been proposed heretofore to provide a shot gun barrel with a rifled zone adjacent the muzzle thereof for the purpose of spreading shot but it is not always desirable or practical to rifle shot gun barrels. Compensators are usually rigidly secured in accurate position on the muzzle of the gun barrel by a gunsmith and it is not practical to remove a compensator and substitute a spreading device therefor to enable the gun to be used alternately with the compensator and the spreader.

It is therefore one object of the invention to provide a shot spreader which can be attached to a compensator while the latter is secured to the gun barrel and which will impart to the shot charge a rotary motion which will create therein a centrifugal force which will tend to spread the shot when the shot has passed beyond the spreader.

A further object of the invention is to provide such an attachment which will prevent or limit the lateral expansion of the gases prior to the passage of the same beyond the spreading attachment.

It is also an object of the invention to provide such an attachment which may be adjusted to either entirely prevent the lateral expansion of the gases or to permit a limited expansion thereof, and thus retain in part the function of the compensator while at the same time securing an efficient spreading of the shot.

A further object of the invention is to provide such an attachment which will be simple in its construction, inexpensive to build and which may

be easily attached to or removed from the compensator without the aid of a gunsmith.

Other objects of the invention may appear as the device is described in detail.

In the accompanying drawing Fig. 1 is a side elevation of a portion of a gun barrel and compensator showing my invention applied thereto; Fig. 2 is a longitudinal section taken centrally of Fig. 1, showing the spreading device positioned in the compensator to prevent the lateral expansion of the gases; Fig. 3 is a view similar to Fig. 2, showing the spreading device adjusted to permit of a limited lateral expansion of the gases; Fig. 4 is a transverse sectional view taken on the line 4-4 of Fig. 2; Fig. 5 is a transverse section taken on the line 5-5 of Fig. 2; and Fig. 6 is a transverse section taken on the line 6-6 of Fig. 2.

In the drawing I have illustrated the preferred form of my shot spreader and have shown the same as applied to a compensator of a well known construction. It will be understood, however, that the spreading device may take various forms and may be used in connection with compensators or adapters of various kinds.

As here shown the compensator comprises a cylindrical shell 5 having at its rear end a screw threaded portion 6 which is mounted on the end of a gun barrel 7 and rigidly secured in position thereon by set screws 8. The internal diameter of the shell 5 is enlarged beyond the screw threaded portion 6 to provide the same with a longitudinal chamber of relatively large diameter, and this enlargement of the main portion of the shell provides the compensator with an annular shoulder 9 adjacent to and slightly in front of the muzzle of the barrel 7. The shell 5 is provided with one or more longitudinal series of openings or slots 10 to establish communication between the chamber within the shell and the atmosphere and thus establish communication between the muzzle of the gun barrel and the atmosphere, whereby the gases leaving the barrel in the rear of the shot charge are permitted to immediately expand laterally. This particular compensator is provided at its forward end with an internal screw thread 11 for the purpose of securing an attachment thereto.

The spreading device comprises an elongate element 12 of an overall diameter slightly less than the internal diameter of the chamber in the compensator and adapted to be inserted in that chamber. This elongate element is provided with a longitudinal bore 13 of a diameter approximately equal to the diameter of the bore of the muzzle of the gun barrel. While it is not neces-

sary that the bore of the spreader should be exactly the same as the bore of the muzzle it is preferable that it should not be of a materially greater diameter. The bore of the spreader is rifled, as shown at 16, and this rifling may extend for any desired part of the length of the bore. In the present instance it extends for the full length of the bore and the lands extend into the bore. The spreading device is of such length that when fully inserted in the compensator the rear or inner end thereof will contact with the shoulder 9 and thus interrupt all communication between the gun barrel and the chamber of the compensator or the openings in the latter, thereby preventing the gases from entering the chamber exteriorly of the spreader and preventing any lateral expansion of the gases. Preferably the rear end of the spreader is beveled, as shown at 14, to provide a sealing contact between the same and the shoulder 9, and to accurately center the spreader with relation to the barrel. The spreader is provided near its forward or discharge end with an external screw thread adapted to engage the internal thread 11 of the compensator and thus secure the spreader within the compensator. If desired, means, such as a lock nut 15, may be provided to prevent the unintentional displacement of the spreader. The forward end of the spreader may terminate in any suitable relation to the forward end of the compensator and in the present instance it extends slightly beyond the forward end of the compensator when the spreader is in its fully inserted position, to facilitate the insertion and removal of the spreader and to receive the lock nut. The screw threaded connection between the spreader and the compensator enables the spreader to be forced tightly into engagement with the shoulder of the compensator and also enables the spreader to be adjusted so that its rear end will be spaced from the shoulder 9 to permit a relatively small portion of the gases to pass from the muzzle about the end of the spreader through the chamber to one or more of the openings 10, thus permitting of a limited lateral expansion of the gases.

As is well known, in the usual shot gun shell the powder and shot are separated by one or more felt wads fitted tightly within the shell and the shot is held in engagement with the foremost wad by a front wad which is pressed into the shell and which is usually relatively thin. When such a shell is inserted in the breech of a shot gun and the gun fired the gases resulting from the explosion of the powder force the shot charge, that is, the mass of shot and the wads, out through the muzzle of the barrel. The pressure of the gas on the rear wads presses the shot against the front wad and the combined action of these wads retains the shot in a compact mass until it leaves the muzzle. When the muzzle is provided with my shot spreader the shot charge, with the shot in a compact mass, enters the bore of the spreader and the engagement of the rifling with the wads, and with the outer layer of shot, imparts to the shot charge as a whole a rotary movement, which attains high speed as the charge approaches the discharge end of the spreader and thereby imparts to the shot a centrifugal force which causes the same to spread after it leaves the spreader. The lands of the rifling preferably project into the bore of the spreader so that they will bite into the wads and effect a positive rotation of the shot charge. Communication having been interrupted between the muzzle of the barrel and the chamber in the compensator there will be no lateral expansion of the gases and the full force thereof

will act on the shot charge to move the same forwardly and to rotate the same in the spreader. If it is desired to retain a portion of the function of the compensator the spreader may be adjusted, by means of its screw threaded connection with the compensator, to space the inner end thereof from the shoulder 9 of the compensator, and this establishes a communication with the expansion chamber which will permit of a limited lateral expansion of the gases without materially decreasing the spreading action of the spreader.

It will be noted that the spreader in its preferred form comprises a single piece of metal shaped to fit within the compensator and rifled to effect the spreading of the shot. It is attached to the compensator by merely inserting the same through the forward end of the latter and screwing it into place and then applying the lock nut to hold it in its adjusted position, and this can be accomplished without the aid of a gun smith or other skilled mechanic.

While I have shown and described one embodiment of my invention I wish it to be understood that I do not desire to be limited to the details thereof as various modifications may occur to a person skilled in the art.

Having now fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In combination with a tubular compensator having means whereby it may be attached to the muzzle of a shot gun in axial alinement therewith, and formed with lateral passageways and with an internal shoulder adjacent that end thereof which is to be attached to said gun barrel and with internal screw threads at the other end thereof, a shot spreading device comprising an elongate element extending into the tubular compensator and formed with an axial bore to receive the shot and gases from said gun barrel and with screw threads engaging the threads of said compensator, said element being of such length that when fully inserted in said compensator the inner end thereof engages said shoulder, and the bore of said element being rifled for at least a portion of its length.

2. In combination with a tubular compensator having means whereby it may be attached to the muzzle of a shot gun in axial alinement therewith, and formed with lateral passages through which gases from said gun barrel may expand, a shot spreading device comprising an elongate element extending into said tubular compensator and formed with an axial shot and gas receiving bore, said element being of such length that when fully inserted in said compensator it extends beyond and closes said lateral passages, the bore of said element being rifled for at least a portion of its length, and means for removably securing said element in said compensator.

3. In combination with a tubular compensator having means whereby it may be attached to the muzzle of a shot gun barrel in axial alinement therewith, and formed with lateral passages, an elongate cylindrical element extending into said compensator and formed with an axial shot and gas receiving bore, said element having an external diameter approximating the internal diameter of said compensator and closing at least the major portion of the lateral passages in said compensator, the bore of said element being formed to cause the shot to spread as it passes beyond the end thereof, and means for removably securing said element in said compensator.

4. A shot spreading device for insertion in a shot gun compensator of the type which is formed with a cylindrical axial shot and gas receiving bore and with lateral passages for the expansion of the gases, said device comprising a cylindrical element formed with an axial shot and gas receiving bore and having an external diameter approximating the diameter of the bore of said compensator, the bore of said element being formed to cause the shot to spread as it passes beyond the forward end thereof, said element being of such length that when inserted in the bore of said compensator it will close at least the major portion of said lateral passages, and means for removably securing said element in a fixed position in said compensator.

5. A shot spreading device for insertion in a

shot gun compensator of the type which is formed with a cylindrical axial shot and gas receiving bore, with lateral passages through which the gases may expand and with an annular shoulder in the rear of said passages, said device comprising a cylindrical element having an external diameter approximating the diameter of the bore of said compensator and formed with an axial shot and gas receiving rifled bore, said element being of such length that when fully inserted in the bore of said compensator it will engage said shoulder and prevent the lateral expansion of gases through said passages, said element being formed at its forward end with means whereby it may be secured to said compensator.

CHARLES E. RUSSELL.