To all whom it may concern:

Be it known that I, JAMES S. JOHNSTON, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Gas-Delayers for Firearms, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to a gas delay for firearms and I declare the following to be a full, clear, concise and exact description thereof sufficient to enable anyone skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings in which like reference characters refer to like parts throughout.

The object of the invention is to provide a simple, efficient device for delaying the progress of the gases of explosion of a firearm for a sufficient length of time in order that they may actuate at the proper instant the piston which controls the mechanism for automatically reloading the gun. Herefore, in fire arms, the gas chamber has received the gases directly from the barrel through a port or conduit located near the muzzle. This construction has its disadvantages in that the gas chamber interferes with the proper attachments for cooling the barrel and moreover, taps the barrel to form the conduit at its weakest portion, whereas the said conduit should be formed, as here shown, at its thickest portion. Still further the present construction materially lightens the weight of the firearm.

This object will be understood by referring to the drawings in which:

Figure 1 is a vertical section of a barrel, shown broken away, and the gas chamber attached;

Fig. 2 is an enlarged detail view showing a perspective view of the gas delay;

Fig. 3 is a transverse section taken on the line 3—3 of Fig. 1;

Fig. 4 is an enlarged detail view showing a vertical section of the gas delay.

Referring more particularly to the drawings, a barrel of a machine gun such as shown in my application for Letters Patent filed in the United States Patent Office, Nov. 3, 1915, and numbered serially 59346 is represented by —1—. The barrel —1— has a mortise 2 whose opposite sides converge. A hollow cylinder or tube 3 provided with a tenon 4 is adapted to be attached to the barrel —1— by the insertion of the tenon 4 into the mortise 2 of the barrel and held in position by a screw 5 having an aperture adapted to align with the aperture 6 of the barrel —1—

The aperture 6 in the barrel 1 communicates with the spiral groove 7 formed in the cylinder 8 disposed in a removable manner within the hollow cylinder or tube 3. The cylinder 8 is headed at 9 and provided with the threads 10 adapted to engage the corresponding threads of the hollow cylinder 3.

The end of the spiral groove 7, adjacent the breech of the gun, terminates in a radially disposed bore or conduit 11 that is in communication with the axially disposed channel 12, whereby the gases of explosion of the firearm will be given a continuous passage from the bore 6 of the barrel —1— to the interior of the hollow cylinder or tube 3 or to the chamber 17, in order to act against the piston head 15, which controls the mechanism for automatically reloading the gun, as more fully described in the above referred to application.

The end of the cylinder 8 has an annular recess 20 adapted to form an air cushion to resist the impact of the returning piston head 15.

When the gun is fired, the gases of explosion will expand through the aperture 6, spiral groove 7, conduit 11 and channel 12 to the chamber 17 of the cylinder or tube 8, whereby to push the piston 15 rearwardly to reload the gun. Immediately the piston 15 reaches its rearmost position as indicated by dotted lines in Fig. 1, the gases will be permitted to escape through the port 21 that opens into the port 22 whose opposite ends communicate with the outer atmosphere.

By manipulating the head 9 of the cylinder 8, the end of the spiral groove 7 can be located more or less out of alignment with the aperture in the screw 5 and the aperture 6 in the barrel —1—, whereby to control the amount of gas entering the spiral groove 7.

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

1. In a gas delay for firearms, a tube having a tenon, a barrel having a mortise adapted to receive the tenon of said tube, a cylinder disposed in said tube, a spiral
groove formed in said cylinder, whereby to delay the progress of the gases of explosion for actuating the reloading mechanism of the firearm, and an annular recess in said cylinder adapted to form an air cushion.

2. In a gas delay for firearms, a tube, a removable cylinder disposed in said tube, a spiral groove formed in said cylinder, whereby to delay the progress of the gases of explosion for actuating the reloading mechanism of the firearm, and an annular recess in said cylinder adapted to form an air cushion.

In testimony whereof I have affixed my signature.

JAMES S. JOHNSTON.