

T. C. JOHNSON.  
SHOTGUN.  
APPLICATION FILED FEB. 9, 1912.

1,028,358.

Patented June 4, 1912.

Fig. 1.

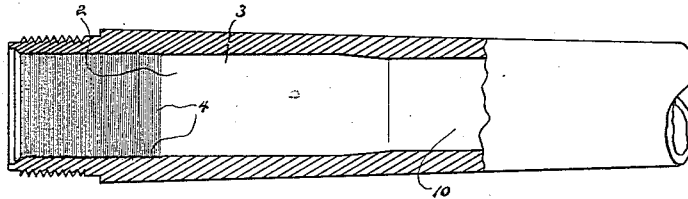


Fig. 2.

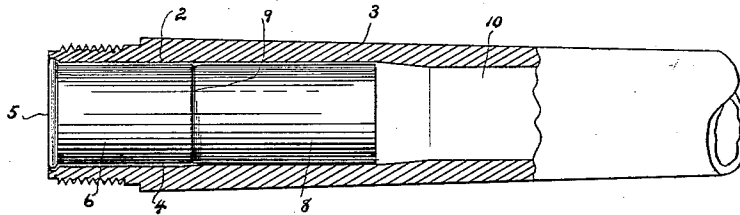


Fig. 3.

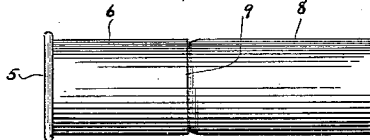
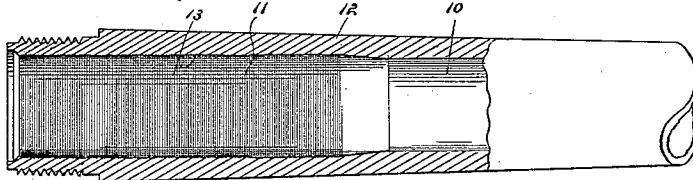


Fig. 4.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## SHOTGUN.

1,028,358.

Specification of Letters Patent.

Patented June 4, 1912.

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*To all whom it may concern:*

Be it known that I, THOMAS C. JOHNSON, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Shotguns; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this application, and represent, in—

Figure 1 a broken view partly in elevation, and partly in longitudinal section of a shot-gun barrel constructed in accordance with my invention. Fig. 2 a similar view showing a paper-shell cartridge in position in the barrel. Fig. 3 a detached view in side elevation of a paper-shell cartridge. Fig. 4 a view corresponding to Fig. 1, but showing the cartridge-chamber of the barrel roughened throughout its length.

For many years last past, users of paper shell cartridges have experienced serious difficulty with them on account of the cutting off of their paper tubes from their sheet metal heads at the time of firing. The paper tube being thus cut off in the cartridge-chamber of the gun-barrel is left behind when the metal head is extracted, and the user of the gun must remove it as best he can since the mechanism of the gun makes no provision for extracting the paper tube independent of the metal head. I may explain in this connection that the cutting off, so called, of the paper tube from the metal head takes place generally on a clean line where the tube enters the head. This difficulty with paper-shell cartridges has materially increased since the advent of smokeless powders by which high pressures are developed. Manufacturers of paper-shell cartridges have resorted to a great variety of expedients to overcome this difficulty. Thus far their efforts have been entirely concerned, so far as I am aware, with modifications of the cartridges themselves, but these expedients have been only partially successful in avoiding cut-offs and have materially increased the cost of producing the cartridges.

The object of my invention is to obviate "cut offs" in the use of paper shot shell ammunition by changing the construction of

the guns in which such ammunition is used without in any way changing the construction of the cartridges themselves.

With these ends in view, my invention consists in a shot gun for use with paper shell cartridges, having the rear portion of the cartridge-chamber of its gun-barrel roughened to grip the metal head of a paper shell cartridge and prevent the longitudinal rearward movement of the said head at the time of firing, whereby the paper tube of the cartridge is prevented from being "cut off" from the said head and left in the said chamber when the head is extracted therefrom.

In carrying out my invention as shown in Figs. 1 and 2 of the drawings, the walls of the cartridge-chamber 2 of the gun-barrel 3 are roughened as at 4 from its rear end forward for a distance approximately corresponding to the length of the longest metal heads used in this class cartridges which, as is well known, have metal heads varying in length according to the load. By extending the roughened area 4 far enough forward to cover the longest metal heads used, the gun will thus be adapted to prevent cut-offs in the use of paper-shell cartridges having metal heads from the shortest to the longest. The cartridge 5 shown herein has a metal head 6 of the maximum length and a paper tube 8 forming a joint with the metal head 6 on a line 9 coincident with the edge of the said head 6.

I do not limit myself to any way of roughening the walls of the cartridge-chamber 2 as it may be done in a variety of ways, it being understood that the walls of the chamber 2 and the walls of the bore 10 of the gun-barrel 3 are practically as smooth as glass at all points in front of the roughened area 4.

When any paper-shell cartridge, such as the cartridge 5, is introduced into the chamber 2 in the gun-barrel 3 and fired, the pressure developed at the instant of explosion, particularly within its metal head 6, causes the same to expand so that its external periphery is brought into contact with the roughened area 4 of the cartridge-chamber 2, whereby the head is gripped, as it were, for an instant of time, and held against rearward longitudinal movement, and the cutting off of the paper tube 8 along the line 9 is prevented so that when the spent or fired shell is extracted the tube 8 will be extracted

with the head 6. On the other hand, when the metal head 6 is not gripped, as described, by such a roughened area as the area 4, at the rear end of the cartridge-chamber 2 in the gun-barrel, the said head 6 will move longitudinally rearward at the instant of explosion for a distance sufficient to in many cases tear it away from the far weaker paper tube 8 which is also expanded at the instant of explosion and thus caused to cling to the walls of the forward portion of the said cartridge-chamber 2.

If desired, the roughening of the interior walls of the cartridge-chamber may be carried forward of the point indicated by metal heads of maximum length and even to the forward end of the paper-tube as shown by Fig. 4 in which the cartridge-chamber 11 of the gun-barrel 12 has its walls roughened as at 13 throughout the length of said chamber, but I have found

that roughening the rear portion of the cartridge-chamber for the length of the metal heads of the cartridges prevents the rearward movement of the metal heads at the time of firing and meets all of the requirements of avoiding "cutting off".

I claim:—

A shot-gun having the walls of the rear portion of the cartridge-chamber of its gun-barrel roughened to be gripped by the metal heads of paper shell cartridges at the instant of firing to prevent the heads from longitudinal rearward movement and separation from the paper portions of the shells.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

THOMAS C. JOHNSON.

Witnesses:

DANIEL H. VEADER,  
FRANK A. PAUL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."