

(No Model.)

R. S. ELLIOTT.
SHOT DISTRIBUTING WAD.

No. 579,429.

Patented Mar. 23, 1897.

Fig. 1.

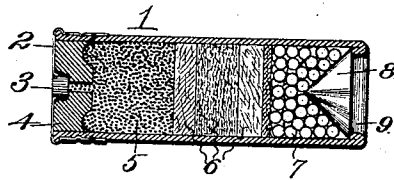


Fig. 2.

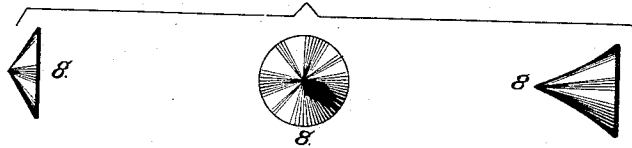
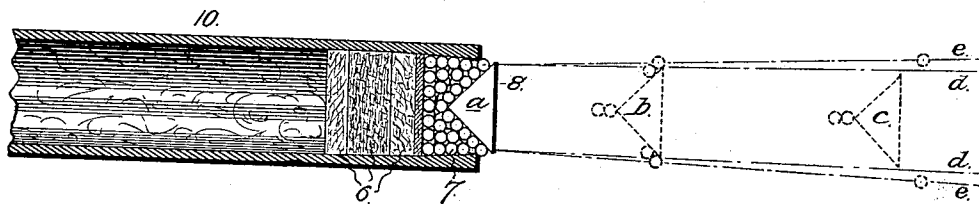


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

ROBERT S. ELLIOTT, OF KANSAS CITY, MISSOURI.

SHOT-DISTRIBUTING WAD.

SPECIFICATION forming part of Letters Patent No. 579,429, dated March 23, 1897.

Application filed December 26, 1896. Serial No. 616,986. (No model.)

To all whom it may concern:

Be it known that I, ROBERT S. ELLIOTT, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Shot-Distributing Wads, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to shot-distributing wads. As well known, the customary wad for this purpose is of disk form and exerts no influence on the course or direction the shots travel as the gun is fired. When used in connection with a choke-bore gun, the shell is presumed to have a sure killing capacity up to forty-five yards, more or less, and upon investigation and experiment it has been demonstrated that the shot is rarely distributed over a greater surface than thirty inches at that distance. That is to say, when the shot penetrates a board or other target at that distance all of the shot-holes may be surrounded by a circle of about thirty inches in diameter. Because of the fact that the shot scatters so little when hunting quail or such like game, which are usually killed at from fifteen to twenty yards, it is the exception and not the rule when the bird is fit for the table, owing to the fact that so much shot enters its body that it is almost torn to shreds. Of course if the aim is poor and only the outer margin of the ring of shot strikes the bird this is not the case, but the great majority of birds shot at at that distance are either missed entirely or receive the greater part of the shot in their bodies, and are therefore cut up to such an extent as to be unfit for the table.

My invention is designed to remedy this defect of the ordinary wad by providing a wad of conical form which will exert more or less influence in shaping the course of travel of all of the shot except those immediately behind and in the line of the apex of said wad, as will hereinafter appear.

To this end the invention consists in its peculiar and novel features of construction and arrangement, as will be hereinafter described, and pointed out in the appended claims.

In order that the invention may be fully understood, reference is to be had to the accompanying drawings, in which—

Figure 1 represents a vertical longitudinal

section of a shotgun-shell embodying my invention. Fig. 2 represents in side elevation a couple of my improved shot-wads detached and of different altitudes, and also represents a plan or end view of either of said wads. Fig. 3 represents a vertical longitudinal section of the muzzle of a choke-bore gun, and also illustrates in full lines the relative positions of the load as the foremost or shot wad is in the act of leaving the gun. It also illustrates in dotted lines the changing positions of shot with reference to said wad as they get farther from the gun.

In said drawings the shell comprises the shell proper, 1, of the usual construction. 2 designates the metallic cap or sleeve thereof. 3 designates the percussion-cap secured therein.

4 designates the molded or stamped disk, which forms a backing for the powder and is provided with a central hole or opening connecting the powder and the cap.

5 designates the powder.

6 designates the customary powder-wad.

7 designates the shot.

8 designates my improved conical shot-wad, which is composed of paper or any other suitable material and is arranged in position in the shell with its conical surface in contact with the shot and its apex centrally of the shell, as shown. It is held in position by turning inward, as at 9, the end of the shell proper in the customary manner. The depth of the wad, or rather its altitude from its apex to its base, determines the spread of the shot and also determines the quantity of shot spread—that is to say, the greater the altitude of the conical wad the greater the deflection and consequent spread of the shot, and vice versa.

Referring particularly to Figs. 1 and 2, it will be noticed that only two shot are shown directly in rear of the apex, which shot, when the gun is fired, are not influenced in their course by the conical wad any more than the volume of shot is influenced by the ordinary wad of disk form—that is to say, the shot immediately in rear of and in line with the apex of the cone travel directly in the direction in which the gun is pointed irrespective of the form of the wad. All of the shot, however, at any side of the apex of the cone are influ-

enced in their course by the latter, as is explained hereinafter with reference to Fig. 3. Should the conical wad be of such depth or altitude as to have its apex against the front end of the powder-wad, all of the shot will then be to one side of the apex, and all will consequently be influenced or deflected by the bevel or conical configuration of the wad. If the wad be of only slight depth or altitude, as illustrated at the left-hand side of Fig. 2, a greater quantity of shot may be directly in rear of its apex and therefore be uninfluenced by the peculiar configuration of the wad. One might conclude, at first, that the shallower the cone the greater the deflection will be, but this, upon reflection, is seen to be erroneous, because the wad travels with the shot for some distance and almost at an equal speed. If the said shallow cone were fixed or immovable, the shot of course would be deflected at a greater angle by contact therewith than it would be by striking the deeper cone at the right-hand side of Fig. 2; but as the wad travels with the shot the only function it performs is to cause the shot as it travels to vary its position upon and relative to the wad—that is to say, within the limited space, say of a few inches after it leaves the muzzle of the gun, the shot, or rather that to one side of the apex of the cone, will move a little faster than the wad, and therefore rolls or slides upon the inclined surface thereof until it ultimately clears the margin of the base, and being now unopposed by the wad, which has a tendency to lag behind owing to the resistance of the air to its comparatively large surface or base, advances beyond the wad and in a direct line, it being devoid of any further deflection after leaving the wad other than that possibly caused by the wind.

The varying positions of some of the shot and the wad it has been attempted to illustrate in Fig. 3. In the said figure the charge is shown at the muzzle end of the gun, the cone and the most advanced ring of shot just emerging therefrom, as at *a*. Immediately the cone assumes this position, the advanced ring of shot are free to move outwardly upon the cone, and do, because, being heavier, their tendency is to travel faster than the cone, which thus acts to deflect the shot outwardly, and they roll or slide in that direction, at the same time moving forward under the power exerted by the exploded powder or other source of energy. Owing to this tendency of the shot to move faster than the wad, by the time the latter has moved only a slight distance from the end of the gun, as illustrated at *b*, the most advanced ring of shot have probably gained positions at the base of the cone, having been deflected from their original position, as shown at Fig. 1, to such position by contact with the cone, together with the impelling force behind. All the other shot that is not directly in line with the apex of the cone is affected in like manner and of course advances outwardly at the same time,

the second ring of shot being shown in contact with and in rear of the first ring in said illustration *b*, while the shot immediately in rear of the apex still occupies its original position, as also illustrated in said figure. By the time the wad has moved a little farther from the end of the gun, as at *c*, the foremost or advance ring of shot has passed the wad and of course travels thereafter in a direct line, as after the contact between them ceases the cone of course exerts no further influence upon the shot. The other shot of course has been deflected in the same manner and successively clears and passes beyond the wad, which may travel from twenty to thirty yards. Before it has quite gone that distance of course the resistance of the air, the impelling power of the shot immediately behind, or the wind blowing in one direction or the other has removed it from the path of the shot shown in the rear of its apex, and consequently the latter proceed onward unaffected by the shape or configuration of the wad.

When an ordinary shell is fired from a choke-bore gun at a distance of about forty yards, more or less, substantially all of the shot will strike within a surface thirty inches in diameter and will travel within the dotted lines *d* of Fig. 3. When a shell provided with the same quantity of powder and shot, but also with my improved or conical shot-wad, is fired from the same gun at the same distance, the spread of shot will be about forty inches in diameter, more or less, accordingly as the altitude, depth, or length of the cone is greater or less, and will take substantially the course shown by the outer dotted lines of Fig. 3. The proportions between said lines are of course only relative.

Another objectionable feature of the ordinary shells when used in a choke-bore gun is the frequency with which some of the shot "ball" or mobilize, the result being, in technical language, a poor "pattern," which means that the shot scattered irregularly, so as to leave unpenetrated on the pattern-surface one or more spaces large enough to completely surround a pigeon or other bird without touching it. The consequence of this is that many birds escape at a pigeon-shooting contest when the aim is perfectly true. This fault has long been recognized, and there have been many unsuccessful attempts to rectify it.

As a result of many experiments my improved shot-wad has demonstrated the fact that this "balling" of the shot never takes place when my improved shells are used, because of the conical formation of the shot-wad. With the choke-bore gun at from twenty to forty-five yards, more or less, one can make any pattern desired, both with respect to the surface area covered by the shot and the uniformity and equal distribution of the spread of the shot.

By "uniformity of spread" is meant that the shot will so scatter that it will be utterly

impossible for a pigeon or other bird within the circumference of the pattern to escape being hit by one or more shot, and at the same time it will be equally impossible for it to be struck by a great number of shot. This balling of the shot occurs frequently in the use of shells loaded with nitro-powder.

With a very shallow cone the shot from a choke-bore gun is scattered but little more than when an ordinary shell is used, but it has (like the deeper cone) the satisfactory effect of effectively and reliably overcoming the balling of shot, and the desired effect of distributing them uniformly with the usual result that a pigeon within the circle of shot cannot escape, as frequently happens when the ordinary shells are used, because of the mobilization of some of the shot.

With shells provided with my improved shot-wad it is obvious from the above description that one may hunt quail or other game and kill them at a distance of fifteen to twenty-five yards without tearing them to shreds and rendering them unfit for the table by reason of filling them too full of shot. It is also obvious that they improve the chances of the hunter in great measure for bagging game, owing to the fact that the shot is more uniformly distributed, and its spread is much

in excess of what can be obtained with the ordinary shells. 30

The shells of course will be provided with wads of different altitudes or depths, according to the kinds of birds or other game which are hunted. 35

Thus it will be seen that I have produced a gun-wad which in some respects will revolutionize hunting, and which is especially and particularly adapted for use in connection with choke-bore guns, but may be used in any other connection to which it is applicable. 40

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is— 45

1. A cone-shaped or conical shot-distributing gun-wad.

2. In combination with a shell, loaded with shot in the customary manner, a conical wad which is secured in the shell in advance of the shot, and with its apex entering the shot charge, substantially as described. 50

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT S. ELLIOTT.

Witnesses:

G. Y. THORPE,
M. R. REMLEY.