No. 776,919. PATENTED DEC. 6, 1904.

C. LA DOW.

MEANS FOR CONTROLLING THE FLIGHT OF MULTIMISSILE PROJECTILES TO EFFECT CLOSE SHOOTING.

APPLICATION FILED AUG. 8, 1904.

NO MODEL.

Fig. 1.

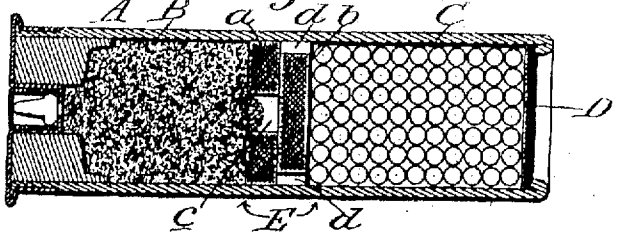


Fig. 2.

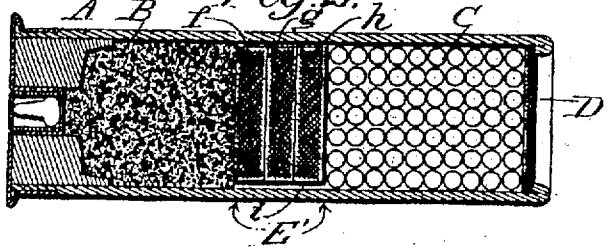


Fig. 3.

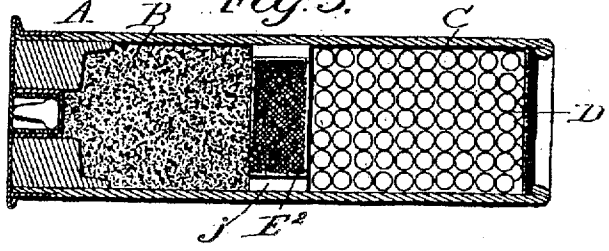


Fig. 4.

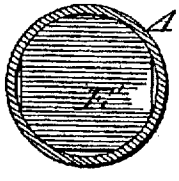


Fig. 5.

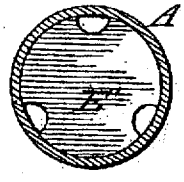


Fig. 6.

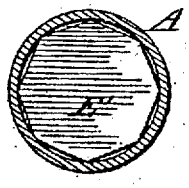


Fig. 7.

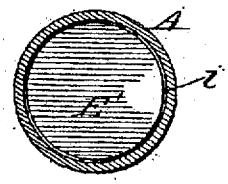


Fig. 8.

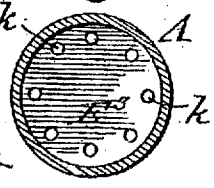
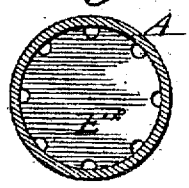


Fig. 9.



Witnesses
M. R. Nourse
D. E. Burdine

Inventor:
Charles La Dow
by Dodger & Sons,
Attorneys

No. 776,919. Patented December 6, 1904

UNITED STATES PATENT OFFICE.

CHARLES LA DOW, OF ALBANY, NEW YORK.

MEANS FOR CONTROLLING THE FLIGHT OF MULTIMISSILE PROJECTILES TO EFFECT CLOSE SHOOTING.

SPECIFICATION forming part of Letters Patent No. 776,919, dated December 6, 1904.

Original application filed January 7, 1904, Serial No. 187,998. Divided and this application filed August 8, 1904. Serial No. 219,972.

(No model.)

To all whom it may concern:

Be it known that I, CHARLES LA DOW, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Means for Controlling the Flight of Multimissile Projectiles to Effect Close Shooting, of which the following is a specification.

This invention relates to means for causing a multimissile projectile to be thrown in relatively compact form or with slight spreading or separation at ordinary ranges.

The present application is a division of another filed in my name on the 7th day of January, 1904, and designated by Serial No. 187,998.

Briefly stated, the invention consists in a wad or separating-body interposed between the shot or other multimissile projectile charge and the powder or propelling charge and adapted to direct a portion of the gases incident to the combustion or explosion of the propelling charge to or into the projectile charge at or near its circumference, so that as the charge leaves the gun the gases shall envelop the projectile charge and by reason of the pressure of the gases in all directions, inward as well as outward, hold together or in compact shape the shot or other missiles making up the projectile charge.

The invention is more conveniently embodied in fixed ammunition, though it may be otherwise utilized—as, for instance, in the loading of an ordinary muzzle-loading gun. In the present case I have elected to illustrate the invention as embodied in a cartridge, believing this to represent the most satisfactory and generally acceptable form.

In the drawings forming part hereof, Figures 1, 2, and 3 are longitudinal sections of cartridges loaded or made up in accordance with the present invention. Figs. 4 to 9, inclusive, represent cross-sections of cartridge-shells, showing different forms of wads or separating-bodies suitable to be placed between the propelling and projectile charges in carrying out my invention.

In the practical use and firing of multimissile charges, whether of relatively small missiles, such as shot fired from an ordinary sporting-rifle or canister fired from ordnance, it is often desirable that the projectile charge be thrown to given distances in relatively compact form or as a practically solid mass, whereas ordinarily it is preferable that the missiles should separate and spread over a comparatively large area at like range.

As above indicated, the present invention is directed to the concentration or holding together of the charge, so that it shall be thrown either as a practically solid mass or so as to spread but little and place all the missiles within a comparatively restricted area. This I accomplish by placing between the propelling and projectile charges wads, diaphragms, or separators of such form and construction that the gases incident to combustion or explosion of the propelling charge shall pass to the circumference or periphery of the projectile charge, but shall not pass to or enter said projectile charge at or close to its longitudinal axis. It is found that by thus directing the gases to the circumference or just within the circumference of the projectile charge it is prevented from quickly spreading out or separating on leaving the muzzle of the gun and, in fact, for very considerable distances therefrom. The form of the separating wad or body may vary within quite wide limits.

In the accompanying drawings I have shown several of the many forms which have been tested and found capable of producing the desired result. These wads or separating mediums may be in a single piece or part or may be made up of several parts, and the different parts (when two or more are used) may be variously arranged.

In Fig. 1, A indicates a cartridge-shell, which may be of any usual or approved form; B, a powder charge; C, a multimissile projectile charge, here represented as ordinary shot; D, a retaining wad or disk placed in advance of the shot and held in position under the present showing by crimping or inturning the end of the shell in a common and well-

known manner. Between the propelling and projectile charges B and C is placed a separating wad or body E, composed in the present instance of two wads *a b*, the wad *a* having a central opening *c* and wad *b* being provided with peripheral notches or recesses *d*, which form passages for the gas. The wads *a b* are placed in surface contact and serve to separate the powder and shot and prevent either from working over to the space belonging to the other. When, however, the powder charge is ignited and gases are generated, some portion of these gases pass through the opening *c* in the wad *a*, between the wads *a* and *b* and through the notches or recesses *d* to the circumference of the projectile charge C. As the projectile charge leaves the muzzle of the gun these gases envelop the charge and apparently move forward more nearly in the line of travel of the projectile charge than is the case where an ordinary close-fitting wad is placed next to the shot or projectile charge. The result, as evidenced by many and varied practical tests, clearly is a holding together of the projectile charge, so that at given range all the missiles making up the charge will be contained or delivered within a circle of smaller radius than would be the case were any of the gases permitted to pass to the center or axis of the charge as is done in scattering. The reason for this is believed to be correctly stated above—that is, it is thought that the gases follow more nearly the line of movement of the charge and more perfectly and effectually envelop and hold together that charge; but whatever may be the correct theory or explanation the action is definitely known to be that above stated—to wit, a holding together of the missiles and a concentration of the same within a smaller space than when the charge is made up or loaded in the ordinary way.

In Fig. 2 I have shown a separating-body E′ made up of three wads *f g h*, which may be of any of the forms illustrated in Figs. 4 to 7, inclusive—that is to say, in any form having the periphery cut away to leave passages *i*, by which the gases or a portion thereof may pass from the rear to the front of the wad or separating-body and be delivered to the projectile charge at or near its circumference while prevented from reaching its center or axis. Fig. 3 shows a similar cartridge having a wad or separating medium E² made in a single piece, with notches *j* in its edges, as shown in Fig. 9. This is the same form substantially as that illustrated in Fig. 5, except that the openings are more numerous, but smaller.

Fig. 8 shows a wad E³ designed to fit and fill the shell or the bore of the gun, as the case may be, and having perforations *k*, arranged a slight distance within its circumference and serving to deliver portions of the gases to the projectile charge near its circumference and at a distance from the center or axis of the charge. By varying the location of these perforations and placing them nearer to or farther from the circumference of the wad the degree of concentration or holding together of the projectile charge may be varied and determined with considerable accuracy but they never approach so near the center or axis as to allow the gases to enter to any considerable extent the central portion of the projectile charge, as in that event scattering or spreading of the charge will result.

Various forms may, as above suggested, be given to the separating wad or body according to the particular purposes for or the peculiar circumstances under which the charge is to be fired. Some of these special forms I contemplate setting forth and claiming in separate applications, the present case being designed to cover, broadly, any means whereby the gases or a portion thereof may be directed to the projectile charge at or near its circumference.

Having thus described my invention, what I claim is—

1. In combination with a propelling charge and a multimissile projectile charge, an interposed wad or separator provided at or near its periphery with passages through which the gases of the propelling charge, or a portion thereof, may pass to the projectile charge at or near its circumference.

2. In combination with a propelling charge and a multimissile projectile charge, an interposed wad or separator adapted to hold apart said charges at their centers or axial portions but to permit a passage of the gases from the propelling to the projectile charge at points radially distant from said centers or axial portions.

3. In combination with a propelling charge and a multimissile projectile charge, an interposed wad or separator provided at its circumference with notches or passages through which the gases of the propelling charge may pass to the circumference of the projectile charge.

4. In combination with a propelling charge and a multimissile projectile charge, an interposed wad or separator comprising a plurality of wads, the wad next to the projectile charge having a closed central portion and being cut away at its circumference, and another of the wads having a central opening, substantially as and for the purpose set forth.

5. A cartridge, comprising a shell or case, a powder or propelling charge, a shot or multimissile projectile charge, and an interposed separator having at or near its circumference passages through which gases may pass from the propelling charge to the circumferential portion of the projectile charge.

6. A cartridge, comprising a shell or case

A, a propelling charge B, a multimissile projectile charge C, a retaining wad or disk D, and a separator E, comprising wads *a* and *b*, wad *a* having a central perforation *c* and being placed next to the propelling charge, and wad *b* being provided with peripheral notches or recesses *d*.

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

CHARLES LA DOW.

Witnesses:
WILLIAM W. DODGE,
FANNIE WISE.