March 7, 1944. E. M. SWEELEY 2,343,818

MULTIMISSILED SHOTGUN SHELL

Filed Nov. 9, 1942 2 Sheets-Sheet 1

Fig. 1.

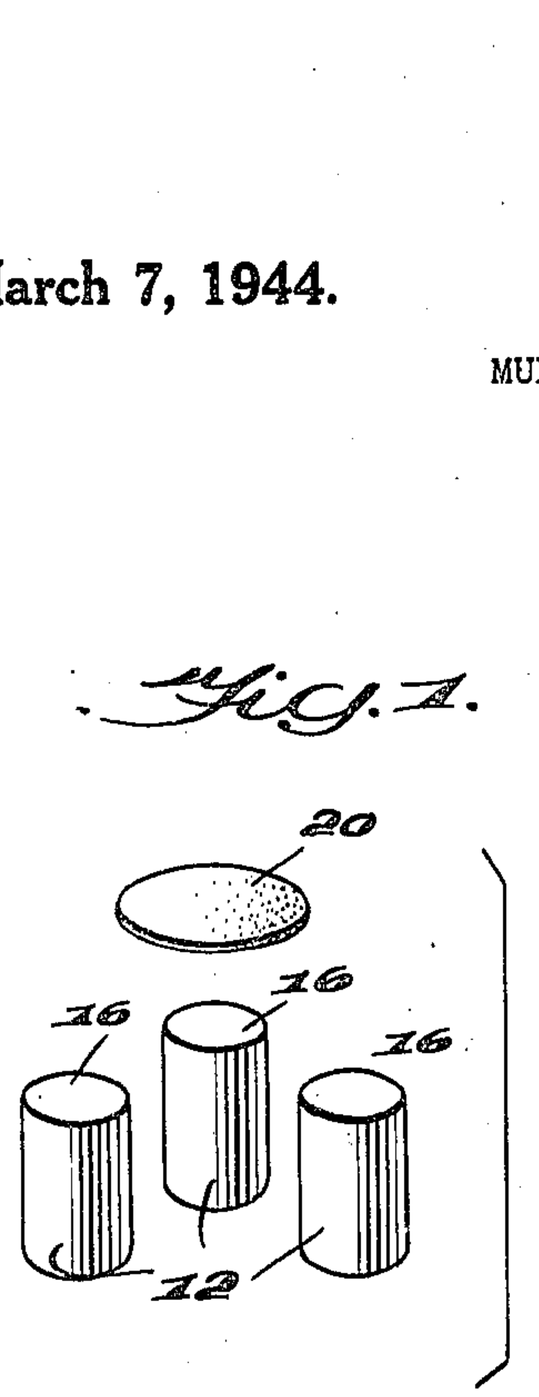


Fig. 2.

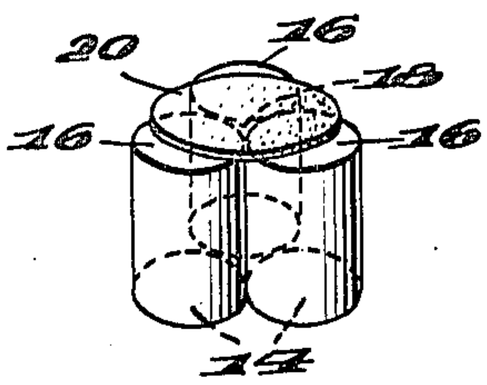


Fig. 6.

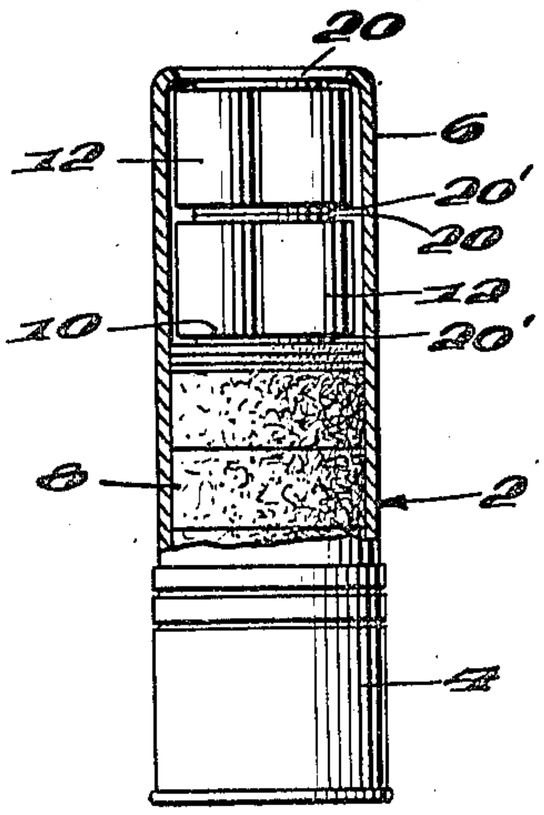


Fig. 3.

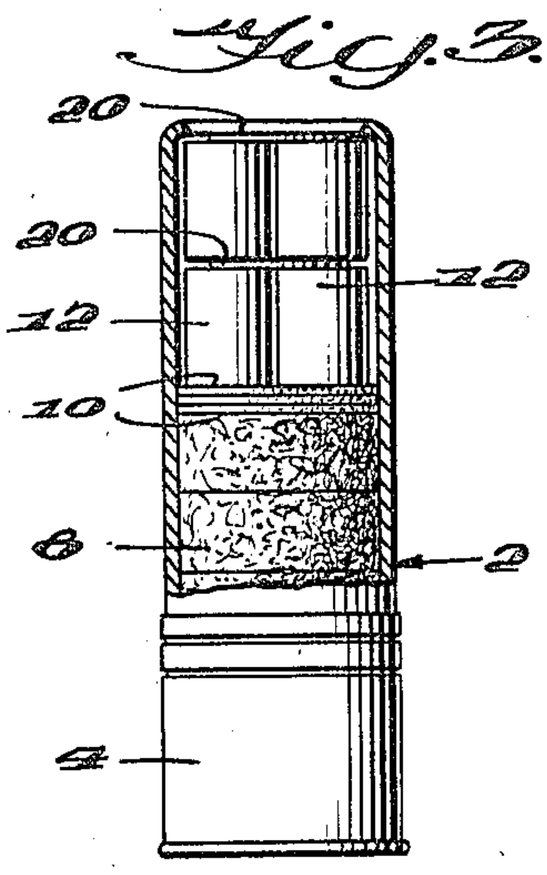


Fig. 4.

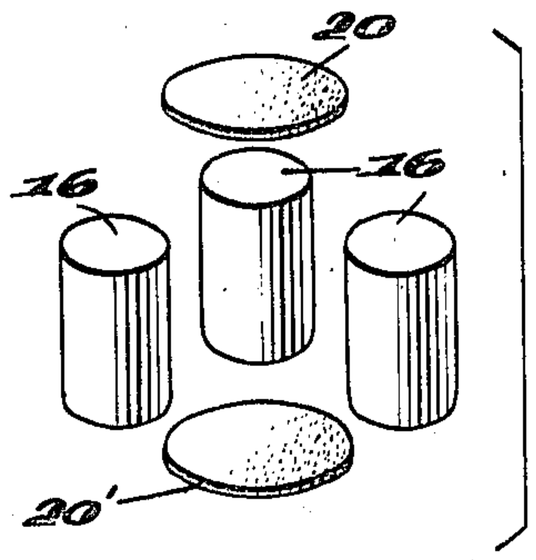
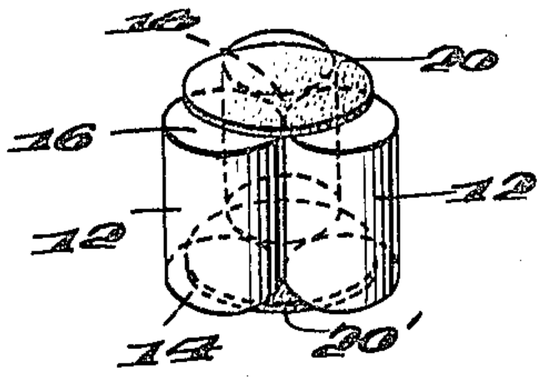


Fig. 5.



Inventor

EVERETT M. SWEELEY

By Robert B Pierson

Attorney

March 7, 1944. E. M. SWEELEY 2,343,818

MULTIMISSILED SHOTGUN SHELL

Filed Nov. 9, 1942 2 Sheets-Sheet 2

Fig. 7.

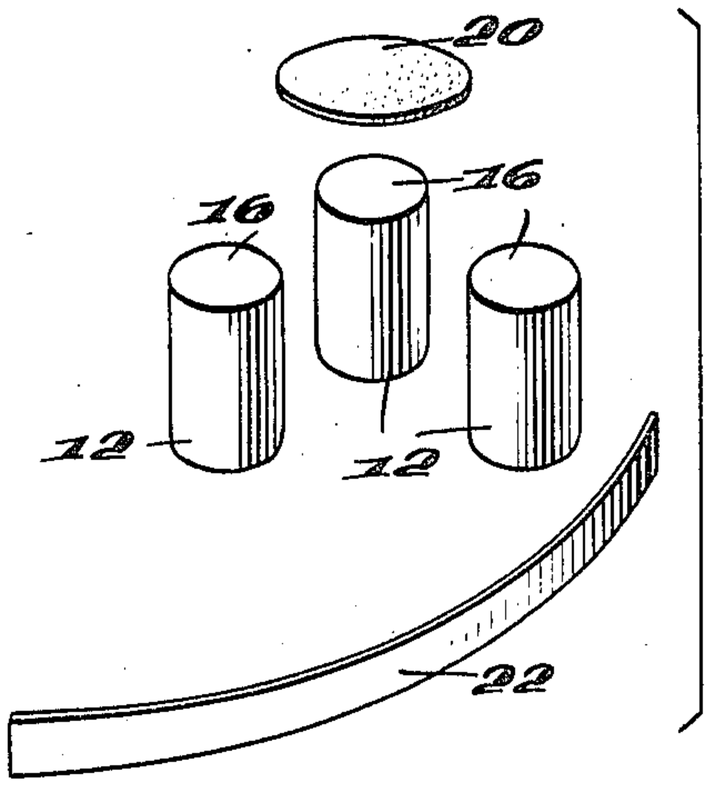


Fig. 8.

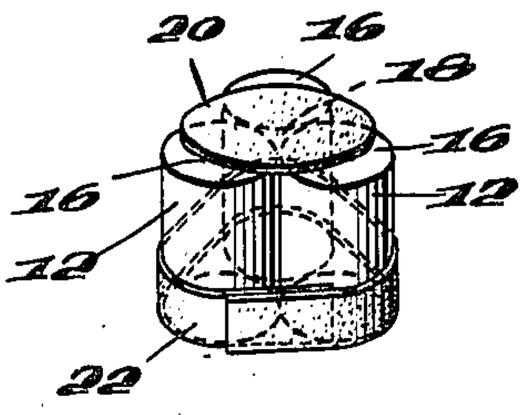


Fig. 9.

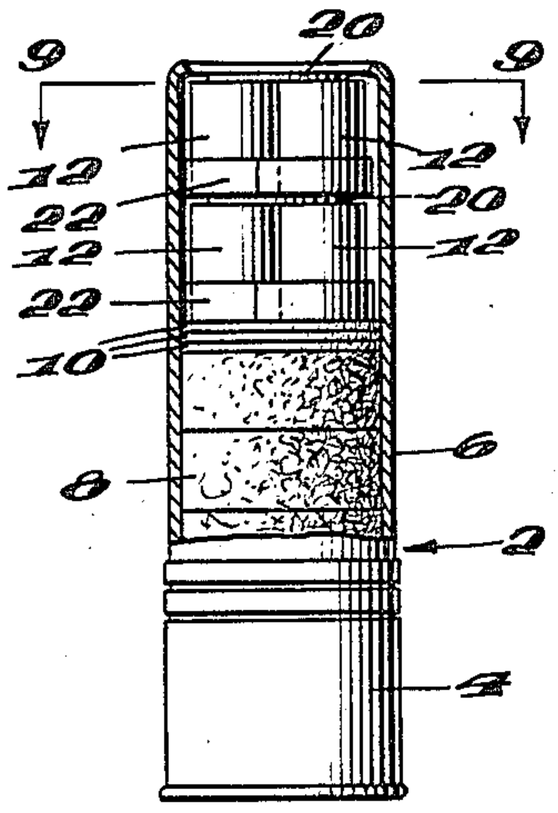


Fig. 10.

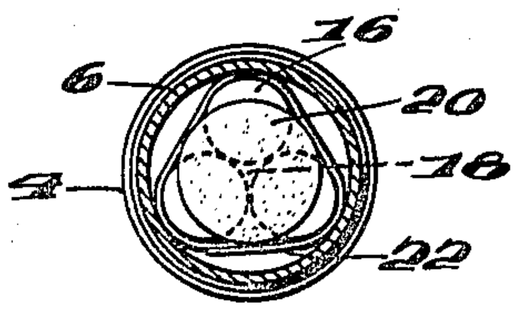
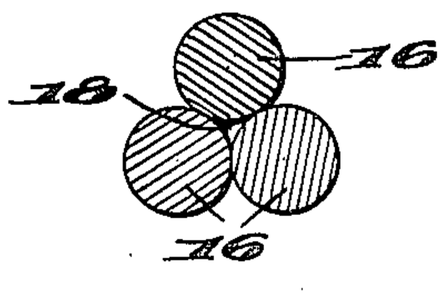


Fig. 11.



Inventor
EVERETT M. SWEELEY,
By Robert B Pearson
Attorney

Patented Mar. 7, 1944

2,343,818

UNITED STATES PATENT OFFICE

2,343,818

MULTIMISSILED SHOTGUN SHELL

Everett M. Sweeley, Twin Falls, Idaho

Application November 9, 1942, Serial No. 465,023

7 Claims. (Cl. 102—42)

This invention relates to shotgun shells, and more specifically to the construction of a shotgun shell wherein the dispersive factors are controlled.

One of the objects of this invention is to control the internal dispersive effect resulting from the size and shape of the multi-missiled projectile.

Another object of this invention is to control the external dispersive effect arising from the force of resistance offered to the flight of a multi-missiled projectile by the surrounding air.

A further object of this invention is to provide a multi-missile shotgun projectile wherein the dispersive effects are held under a rigid control.

A still further object is to provide a multi-missile shotgun projectile having man-stopping effect at comparatively long ranges.

Other and further objects and advantages of this invention will become apparent from the following specification when read in the light of the accompanying drawings in which:

Figure 1 shows a disassembled perspective view of one tier of a multi-missile load for a shotgun shell;

Fig. 2 shows, in perspective, one tier of an assembled multi-missile load for a shotgun shell;

Figure 3 is a view partly in cross section and partly in elevation of a shotgun shell constructed according to this invention;

Figure 4 shows a disassembled perspective view of one tier of a multi-missile load for a shotgun shell constructed according to a modification of this invention;

Figure 5 illustrates, in perspective, one tier of an assembled multi-missile load for a shotgun shell constructed according to the modification shown in Figure 4;

Figure 6 illustrates partly in elevation and partly in cross section a shotgun shell constructed according to the modification shown in Figure 4;

Figure 7 shows a disassembled perspective view of one tier of a multi-missile load for a shotgun shell constructed according to a still further modification of this invention;

Figure 8 illustrates, in perspective, one tier of an assembled multi-missile load for a shotgun shell constructed according to the modification shown in Figure 7;

Figure 9 shows partly in cross section and partly in elevation a shotgun shell assembled according to the modification of Figure 7;

Figure 10 is a cross-sectional view taken on the line 9—9 of Figure 8; and,

Figure 11 is a cross-section view taken on the line 11—11 of Figure 1.

Referring now more specifically to Figure 3 of the drawings, the reference numeral 2 indicates a shotgun shell which is provided with the usual metallic base 4 having an upper cylindrical shell 6 constructed of heavy paper or other suitable material.

A powder charge 8 is placed in the base 4, the charge extending upwardly therefrom to fill the lower portion of the cylindrical paper shell 6, as shown in Figure 3.

One or more disks 10 constituting the packing are inserted within the cylindrical shell 6. These disks have a diameter substantially equal to the inner diameter of the shell 6, and are positioned therein on the top of the powder charge 8.

A tier of substantially cylindrical metallic missiles or slugs 12 arranged in a group of three is inserted within the cylindrical shell 6. As is clearly shown in Figures 1 and 2 the tier comprises three substantially cylindrical missiles having approximately the same diameters and lengths. Each of the missiles is provided with flattened end portions 14 and 16 which lie in spaced parallel planes perpendicular to the longitudinal axis of the missile 12. Each of the missiles 12 when assembled in the manner shown in Figure 2 has a line of tangency on the external surface thereof with each of the other two missiles. In so grouping the missiles 12, a centrally located interstice 18 is formed. As shown in Figures 2 and 3, this interstice is sealed at the top or leading surface 16 of each of the missiles by means of an impermeable disk 20 which is provided with an adherent on the underside thereof.

As shown in Figure 3, the tier of missiles is inserted within the paper shell 6 so that the base surfaces 14 rest on the packing 10. A second tier of missiles 12 assembled in the manner described is then inserted within the cylindrical paper shell 6. The bases 14 thereof rest on the disk 20 affixed to the top of the lower tier. The paper shell 6 is then crimped over the top or leading surfaces 16 of the second tier to hold the component elements of the shell in their respective positions.

Figures 4, 5 and 6 illustrate a modification of this invention. The device shown therein is identical in construction to the multi-missiled shell described above and illustrated in Figures 1, 2 and 3, except that in the modification a second adherent, impermeable disk 20′ has been affixed to the bases of each tier of missiles. The disk 20′, as illustrated, closes the lower end of the interstice 18. The addition of the disk 20′ holds the assembled missiles in their relative positions

and thereby facilitates the loading of the shell 2.

Figures 7, 8, 9 and 10 disclose a still further modification of this invention. This modification is quite similar to the invention shown in Figures 1 to 3, inclusive, but departs therefrom in that a band 22 is secured around the base of the assembled tier. This type of shotgun shell is adapted for use in guns having choked barrels. In such cases, the diameter of a circle circumscribed around the assembled tier must be smaller than the diameter of the choke to permit the tier to pass through the choke without doing injury thereto. The band 22 is employed to centrally position the tier within the cylindrical shell 6 and also serves for loading convenience.

It will be understood that in all of the above modifications the explosive force of the powder charge is transmitted to the base of the first or lower tier and then to the base of the second or upper tier.

In multi-missiled shotgun shells now in general use, many factors exist which produce a dispersion of the load. For example, a projectile charge of spherical, ogival pointed cylinders or hexagons, the firing force tends to cause each missile to act upon the others with which it is in contact which results in a wedging action forcing the missile apart. The dispersional effect is, of course, prevented from occurring until the charge leaves the gun barrel at the muzzle. Since all projectile materials are resilient to a certain degree, the dispersive force generated in the projectile column by reason of the shape of the projectile load is inherent in loads of this type. By using flat-ended cylinders of the type described above this wedging action is avoided as the firing thrust is transmitted through the flat ends which have no wedging propensities.

The impermeable, adherent disk sealing the top of each tier serves a dual purpose. First, it is easily understood that the loading of a shotgun shell of the instant type would be facilitated if each tier could be assembled before it is placed within the cylindrical shell 6. The adhesive disk 20 secures the cylinders 12 in their relative positions thereby obtaining the desired result. Secondly, the disk 20 serves to further control the dispersive effect. In the ordinary type of shotgun shell, immediately after the projectile charge leaves the gun muzzle an external dispersive factor is encountered. The top wad which closes the shell and holds the projectile charge in place is quickly stripped away by the air resistance and the muzzle blast of released powder gases. This, of course, leaves the leading surface of the projectile assembly exposed to the air resistance which is of a rather high order. The highly resistant air enters each interstice in the leading surface of the projectile assembly and forces the units apart. This action is violent while the units are close together so that the air has a play and action between them.

The provision of the disk 20 on the leading surfaces of the projectiles employed in the present invention obviates the above-noted disadvantages. The disk 20 seals the central interstice 18 thereby preventing the air from entering therein. The occlusion of the air from the interstice prevents the cylinders from being thrown widely apart to produce an unpredictable and uncontrollable dispersion, and instead, permits the projectile charge to spread normally and dependably.

Hence, it is seen that the novel shape of the projectile missiles and the advantages obtained by sealing the interstice give rise to a control and practically eliminates or reduces to a minimum the internal dispersive factor arising from the shape of the missiles and the external dispersive factor arising from the air resistance and reaction.

It is to be understood that the dispersive effect results after the projectile charge has been fired from the gun barrel and occurs during flight at some point at a distance from the point of discharge. The dispersion takes place due to the force offered by the resistance of the air upon the exterior wall surfaces of the cylinders 12.

The invention as described herein and illustrated in the attached drawings are offered merely by way of example, the invention being limited only by the scope of the following claims.

I claim:

1. A projectile having leading and trailing end surfaces comprising a group of three parallel elongated and substantially cylindrically shaped missiles, each of said cylinders being provided with an exterior wall surface adapted to be held in contact with the exterior wall surface of each of the other two cylinders thereby forming a centrally located interstice, the leading and trailing end surfaces of each of said cylinders lying in planes perpendicular to the longitudinal axes of said cylinders, and means secured to the leading end surface of said group and extending across the mouth of said interstice for sealing one end of said interstice against the entry of air.

2. A projectile as defined in claim 1, said means comprising an impermeable disk having adhesive means on one side thereof, said means adapted to secure said disk to the leading surfaces of said cylinders across the mouth of said interstice.

3. A projectile comprising a plurality of groups of missiles, each of said groups comprising three elongated parallel and substantially cylindrically shaped missiles having leading and trailing end surfaces, each of said cylinders being provided with an exterior wall surface adapted to be held in contact with the exterior wall surface of each of the other two cylinders thereby forming a centrally located interstice, said leading and trailing end surfaces of each of said cylinders lying in planes perpendicular to the longitudinal axes of said cylinders, a plurality of disks, means adapted to secure one side of said disks to the leading surfaces of said cylinders across the mouth of said interstices, said groups being arranged in symmetrical alignment with respect to the others of said groups, said trailing surfaces of each successive group abutting the other sides of said disks.

4. A projectile having leading and trailing end surfaces comprising at least three elongated cylindrical missiles, said leading and trailing end surfaces being disposed in parallel planes perpendicular to the longitudinal axis of said cylindrical missiles, the exterior surface of each of said missiles making a line contact with the exterior surfaces of at least two adjacent cylinders thereby forming an interstice, means secured to the leading end surfaces of said missiles and extending across the mouth of said interstice for preventing air from entering one end of said interstice, and means adjacent the trailing surface and positioned intermediate the leading and trailing surfaces for maintaining the trailing ends of said missiles in their respective relative positions.

5. A projectile comprising at least two substan-

tially cylindrical missiles, the exterior surface of each of said missiles contacting the exterior surface of the other of said missiles on at least one line, the adjacent surfaces of each of said missiles forming at least one interstice, and means for sealing at least one end of said interstice against the entry of air.

6. A projectile as defined in claim 4, said last recited means comprising a band encircling at least three elongated cylindrical missiles.

7. A projectile as defined in claim 1, said last named means comprising a disc, said disc being smaller in diameter than the diameter of a circle circumscribed around said group of missiles.

EVERETT M. SWEELEY.