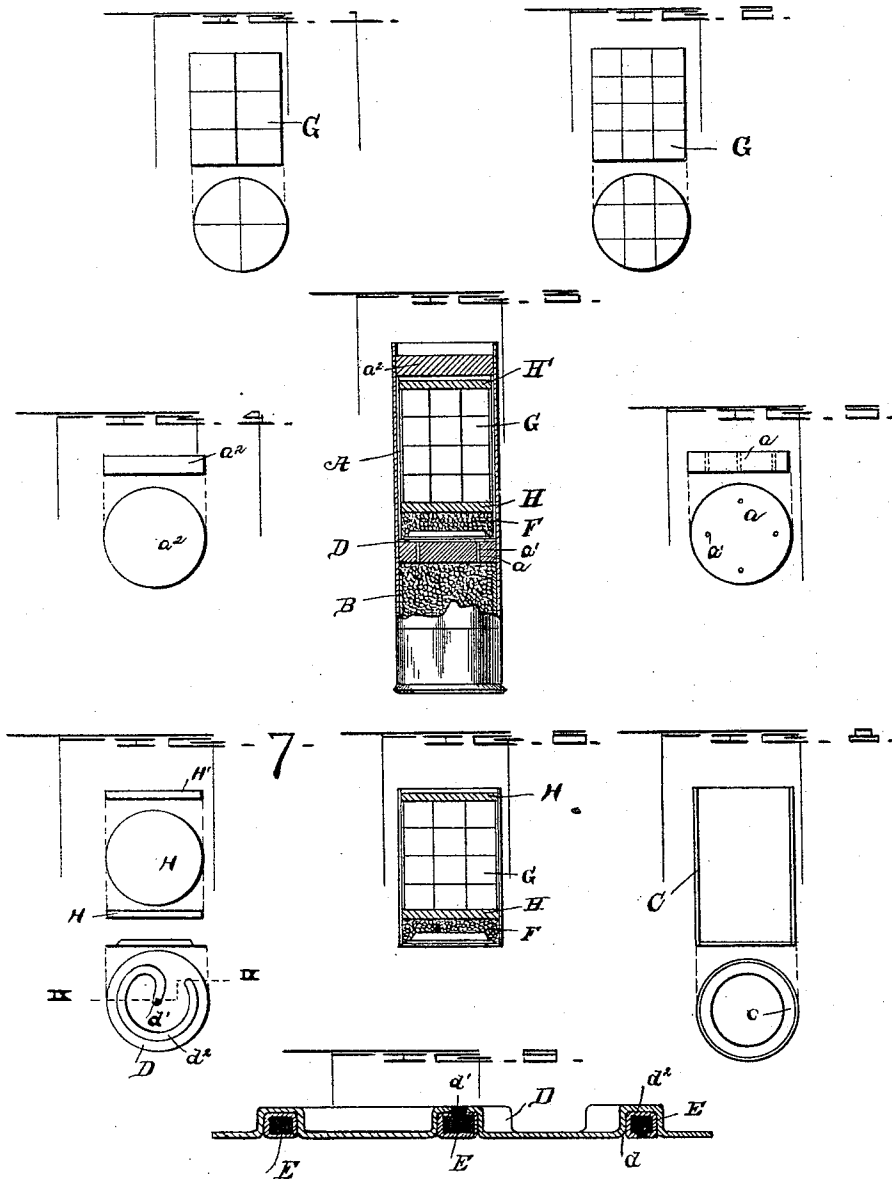


(No Model.)

V. GINALSKY
GUN CARTRIDGE.

No. 487,028.

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GUN-CARTRIDGE.

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To all whom it may concern:

Be it known that I, VLADISLAV GINALSKY, a citizen of Russia, residing at Kiev, in the Government of Kiev, have invented certain new and useful Improvements in Gun-Cartridges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in gun-cartridges; and the object of the invention is to overcome certain objections incident to the use of cartridges of ordinary construction, as hereinafter noted, and to provide an improved cartridge adapted for either short or long distance shooting.

Ordinary shot and grape-shot, which differ in size only, are subject to the following defects: First, on firing the gun ordinary shot are compressed and crushed so as to lose their original shape, thus wasting much of the force produced by the powder; second, in forcing themselves into the interstices between the shot the latter exert a high side pressure on each other and on the barrel, thus producing considerable friction, whereby the force of the powder is partly wasted and dust and other particles of sand accumulating in the barrel are forced against the latter by the shot and greatly increase the wear upon the interior of the gun-barrel; third, the single shot after firing and immediately after leaving the barrel scatter and tend to increase in bulk by spreading over a large surface while retaining but a comparatively small weight, and the shot soon lose their original speed owing to the resistance of the air, thus making long-distance shooting impracticable.

The two first-named defects may be overcome or greatly diminished by using grape-shot or other shot formed or pressed into the shape of a compact cylinder with small or no interstices between, and to this end I propose, in preparing the cartridges, to cut a lead cylinder into the form of squares or to press a certain quantity of shot into cylinders of a diameter corresponding with the caliber of the gun.

To overcome the third defect and to adapt the cartridge to be propelled a long distance, I propose to adopt the shrapnel system, by

which the cartridge may be made so as to permit the shot after firing to be carried a long distance in the form of a bullet or compact mass and then scattered in front of the target or other object.

The invention will first be described with reference to the accompanying drawings and then pointed out in the claims at the end of this specification.

Referring particularly to the drawings which form a part of this specification, and in which similar letters of reference are used to denote similar parts, Figures 1 and 2 are diagrams, each representing a side elevation and a plan of a lead cylinder cut so as to form a compact mass of shot without the usual interstices between. Fig. 3 is a sectional elevation of a cartridge of the usual size supplied with a shrapnel containing cut grape-shot. Fig. 4 represents an edge and a top view of the wadding used above the cut-shot shrapnel. Fig. 5 is a similar view of the perforated wadding which separates the shrapnel from the usual charge of powder. Fig. 6 is a sectional elevation of a shrapnel with a cylinder of cut grape-shot. Fig. 7 is a detail of the wadding and false bottom, with distance-tube attached, used in forming the shrapnel. Fig. 8 is a sectional elevation and plan of the shrapnel-cylinder, and Fig. 9 is a transverse section of the shrapnel-bottom on line IX IX of Fig. 7.

In Fig. 3 of the drawings is shown a gun-cartridge of the usual size supplied with a shrapnel containing cut grape-shot. These shot may be formed by cutting a lead cylinder of the desired size, according to the caliber of the gun, both vertically and horizontally, as indicated in Figs. 1 and 2, the number of parts depending upon the number and size of the shot which it is desired to produce, or a quantity of ordinary shot may be pressed into cylinders having a diameter corresponding with the caliber of the gun. These cylinders of cut lead or pressed shot may be wrapped in a single or double case of common paper, preferably writing-paper, with turned or gummed ends, and may be thus used for shooting. In making cartridges for breech-loaders the cut grape-shot and pressed shot may be inserted in the cartridge without being wrapped in paper.

In order to overcome the third defect and to adapt the shot after firing to be carried a long distance in the form of a bullet or compact mass and then scattered in front of the target or other object, I supply the cartridge with a shrapnel, Fig. 6, applied in the manner indicated in Fig. 3.

A in the last-mentioned figure denotes the cartridge-case, which may be provided in the usual manner with a charge of powder, as indicated at B, above which is placed a perforated wadding *a*.

C denotes a tin-plate cylinder or shell of any suitable material, having its lower edges turned inwardly or flanged, as at *c*, to provide a seat for the shrapnel-bottom D. The bottom D of the shrapnel may consist of tin-plate or other suitable material having a spiral groove *d* underneath the same and apertured centrally of the plate, as at *d'*. Within this spiral groove is fitted a lead or other suitable distance-tube *d*², which is filled with pulverized powder, as indicated at E in Fig. 9. The perforation *d'* in the shrapnel-bottom communicates with one terminal of the distance-tube and opens into the space containing the powder F for effecting the explosion of the shrapnel at the proper time.

G denotes a lead cylinder of cut grape-shot fitted within the cylinder C, a wadding H being interposed between the shot and powder F. H' denotes a similar wadding placed over the shot G within the shrapnel-cylinder C.

The shrapnel as thus constructed is fitted within the cartridge-case A and secured therein above the perforated wadding *a* by means of a suitable wadding *a*². By this arrangement when the gun is fired the flame will reach the exposed end of the distance-tube beneath the shrapnel-bottom through one or more of the perforations *a'* in the wadding *a* and ignite the pulverized powder therein, and as this powder is gradually consumed until the flame reaches the aperture *d'* the compact mass of shot will have traveled the desired distance before the explosion of the shrapnel occurs.

In preparing the various distance-tubes the composition and strength of the powder, the manner of compressing it, and the length of the spiral groove and tube may be varied to adapt the shrapnel to travel the desired distance before exploding. By cutting off the lead tube of a long-distance shrapnel more or less the time for the explosion may be shortened at will, and in order to facilitate such uses it is desirable to make certain divisions on the bottom of the shrapnel which may indicate different periods of time, corresponding with the time required for the

shrapnel to travel a certain distance before the explosion occurs, and by cutting off the tube at any one of such divisions the time required for the explosion may be accurately determined.

In order to secure an accurate effect of the shrapnel, the distance-tube, as well as the whole shot, must be made carefully and in uniformity and by carefully-constructed machinery.

The gun-shrapnel can be applied not only to smooth-bore guns, but also to rifles, thus making it very important for hunting.

The above-named improvements may be applied together or separately. The shrapnel can be made of ordinary shot or grape-shot and the cylinders of cut grape-shot, and pressed shot can be applied to the ordinary cartridges without shrapnel. In preparing all of these cartridges it is important to use a strong tightly-fitting wadding covering the powder in order to avoid the escaping of the gas, and thus securing a direct and uniform escape of the shot through the barrel.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A projectile for guns, cartridges, &c., consisting of a cylinder of separate cut or compressed shot having the angular contiguous portions in close contact, so as to form a compact mass without the usual interstices between the shot, substantially as described.

2. In a cartridge, the shrapnel provided with a distance-tube and a cylinder of cut or compressed shot having their contiguous angular portions or sides in close contact, so as to form a compact mass without interstices between the shot, substantially as described.

3. In combination with the cartridge having the cylindrical case with perforated wadding therein, the shrapnel fitted over said wadding and provided with a spirally-grooved bottom having a distance-tube therein, and a cylinder of cut or compressed shot, substantially as described.

4. In a shrapnel for guns and cartridges, a cylindrical case or covering adapted to contain a charge of shot, suitable wadding therefor, a charge of powder, and a bottom plate provided with a time-fuse or distance-tube for regulating the time of explosion, substantially as described.

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

VLADISLAV GINALSKY.

Witnesses:

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