E. TOWNSEND.

Shell.

No. 34,602

Patented Mar. 4, 1862.

Fig. 5.

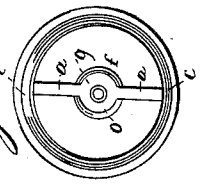


Fig. 6.

Fig. 3.

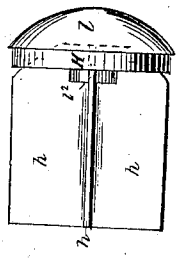


Fig. 4.

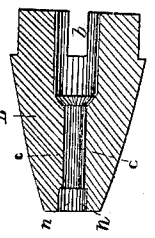


Fig. 1.

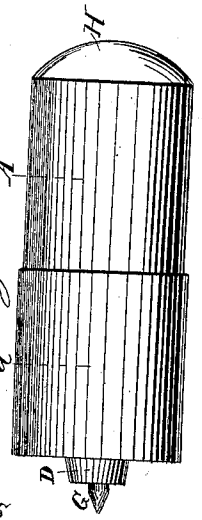
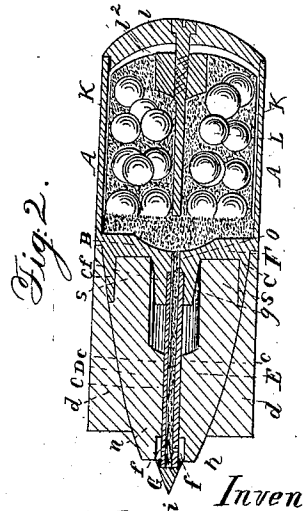


Fig. 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN CANISTER OR CASE SHOT FOR ORDNANCE.

Specification forming part of Letters Patent No. **34,602**, dated March 4, 1862.

*To all whom it may concern:*

Be it known that I, ELMER TOWNSEND, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Projectile or Canister, to be fired from either a rifled or smooth-bored piece of ordnance; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 denotes a side elevation of the said projectile; Fig. 2, a longitudinal section of the same. Fig. 3 is a side elevation of the winged cap-piece, and Fig. 4 a longitudinal section of the wooden sabot. Fig. 5 denotes a rear elevation of the metallic case.

In carrying out my invention I construct the cylindrical shell or case A of the canister of cast-iron, the front end being open, while its rear end is closed by a bottom, B, which is cast in the same. The lower or rear part of the said case is formed with a circular tapering projection or flange, C, which has a bar, *a*, extending across from side to side. To this rear part of the case a wooden sabot, D, is affixed, the same being of a frusto-conical shape, and having a hole, *c*, made axially through it for the fuse-tube F, and the cylindrical projection *g*, which extends backward in the line of the axis of the base of the case A. The upper part or end of the sabot has a slot, *b*, made transversely across it, which is of the same width as the bar *a*, and besides the said upper portion has an annular shoulder formed on it, so that it (the said upper part of the sabot) may enter and be secured in its chamber *s*. The bar *a* when in place in the slot *b* serves to prevent the wood from turning independently of the case A. The outer surface of the sabot forms a regular taper with the metallic flange C. Around the outer surface of the said sabot and the flange C a packing, *d*, of oakum or its equivalent, is wound for the purpose of preventing windage, the packing being of such thickness and so wound as to cause the outer surface to correspond with or be a little greater than the outer surface of the case A, so that when the projectile is placed in a cannon for being discharged therefrom such packing shall perfectly fit the bore of the piece, and thereby prevent all or nearly all windage. The rear part, *n*, of the fuse-hole *c* is enlarged, so as to serve as an air-chamber for the fuse E, the tube of which, being cylindrical and of metal, is closed at its outer extremity by a conical cap, G. This fuse-tube has a series of small holes, *f f f*, &c., made transversely through it, as shown in Figs. 2 and 6, the latter being a side view of the fuse-tube and its cap G. The holes *f f* are made close to the said cap and within the chamber *n*. The said tube communicates with the interior of the case A by means of a hole, *o*, made axially through the projection *g*. This hole, near its front end is enlarged, and forms a chamber, *y*, whose bottom is a shoulder for the inner part or end of the fuse-tube to rest against, so as to prevent the fuse-tube from being blown into the interior of the canister-case when the projectile is discharged from a piece of ordnance.

One feature of my invention is the peculiar construction and arrangement of the fuse—viz., so as to project from the rear end of the projectile—whereby a direct communication is made between the powder of the main and secondary charges. The rear part of the fuse or the cap G is formed with a conical point, *i*, for the purpose of cutting into or through the paper of the cartridge or wad, (which by the force of the explosion may be caused to impinge against it,) so that the gas may readily enter the holes in the fuse-tube and free the combustible material thereof.

Another feature of my invention consists in combining with the metallic case A and its charge of balls and powder a winged cap-piece or missile, H, which, when discharged from the case by the explosive force of the powder therein, shall be impelled forward in a direct line through the air. The said missile I construct of two parts, the cap-piece *l* and the wing portion $l^2$, the latter having four wings or flanges, *h h h h*, arranged longitudinally and at right angles to each other, as seen in Fig. 3. The two parts *l* $l^2$ are connected together by a screw, $l^3$. The object of making such in two portions is to facilitate the operation of loading the case A, it being customary to place the winged part within the case before applying the cap both to the case and the said winged part, the balls L being also inserted in the case previous to fixing the cap to it.

In order to prevent any displacement of the

balls—such as would tend during the flight of the projectile to change the position of the center of gravity of the mass or the projectile, and thereby produce an improper modification of its course—I form the inner surface of the ball-chamber of the case with one or more ribs, *k k*, for either or all the wings *h h* to rest against, such ribs being so arranged as to prevent the winged head-piece from being revolved while the wings may be in contact with the ribs. The flanges *h h*, &c., of the rear or wing portion are to rest against the said projections or ribs *k k*, so that when the charge of powder, the balls, and their packing are placed in the case A and the cap is put in its place the same shall remain fixed in position while the projectile is flying through the air or until the powder or accelerating-charge shall force them (the said balls and cap-piece) out of the case.

In loading my improved projectile I first place a small charge of powder in the bottom of the case A. Next I place the winged portion of the missile H in the case A, with its wings resting against the ribs *k*. Next I dispose the balls in layers in the spaces between the wings and pack them firmly by means of brimstone or any other suitable material until the case is full. Next I screw the cap *l* to the part *l'*, and then secure the cap to the case A by means of wooden pegs, which pass through sides of the case into the edge of the cap. Next the fuse-tube is to be changed and placed in the axial hole *c* in the rear part of the sabot and pressed forward until its front end shall rest against the shoulder formed in the projection *g*, whereby a communication will be made between the powder of the case A and the powder or explosive material of the fuse.

The packing may be applied or affixed to the projectile before the latter is charged, and, if desirable, such packing may have a coating of oil or any other suitable lubricating material applied to it.

In operating with my improved projectile after having been charged as above set forth, it is to be placed in a piece of ordnance, (either rifled or smooth-bored, (so that the rear or fuse portion shall rest upon the cartridge or charge of powder in the piece and be rammed firmly home. Under these circumstances, should the piece of ordnance be discharged, the gas of the main charge will enter the air-chamber in the rear part of the sabot and fire the fuse, which, burning down, will inflame the secondary charge and cause both the balls and the missile H to be discharged from the case A. Thus it will be evident that my improved projectile unites both the advantages of the canister and the cannon-ball, and, in addition thereto, has an auxiliary death-dealing missile, which, combined in manner as set forth, renders my invention very effective for the purpose for which it is intended.

I would also observe that the arrangement of the pointed cap G, the air-chamber *n*, and the vent-holes *f* of the fuse-tube is one which is very advantageous in preventing the fuse-charge from being blown through the fuse-tube and into the main chamber of the projectile.

While the chamber *y* sustains the fuse-tube and its cap G against the explosion of the cartridge, the strain on the fuse composition will be in lateral or radial directions rather than in a longitudinal one; consequently we not only have the fuse-tube but the fuse composition protected from being driven into the charge-chamber of the case.

While the annulus or part C serves as a means of fixing the sabot to the case A, it also answers, by its arrangement with the packing and sabot, to prevent the gases of the explosion of the charge from working into the recess *y*, and from thence passing into and setting fire to the gunpowder charge of the case A.

I claim—

1. The arrangement and combination of the wings *h* with the head H, the case A, and the charge of balls thereof, the whole being to operate together substantially as and for the purpose or purposes as specified.

2. The combination and arrangement of the part C with the shell-case A, the sabot D, and the packing *d*.

3. The combination and arrangement of the cap G and one or more lateral orifices, *f*, with the fuse-tube and a chamber, *n*, formed in the rear end of the sabot, as specified.

4. The combination of one or more flanges, *k k*, or the equivalent therefor with the loading-chamber and the winged head applied thereto.

5. The construction of the cap *l* and the wings *h*—viz., in two separate parts—substantially in manner and so as to be combined together as described.

ELMER TOWNSEND.

Witnesses:

F. P. HALE, JR.,

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