W. CAMERON.

SHELL.

APPLICATION FILED AUG. 16, 1918.

1,302,008.

Patented Apr. 29, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

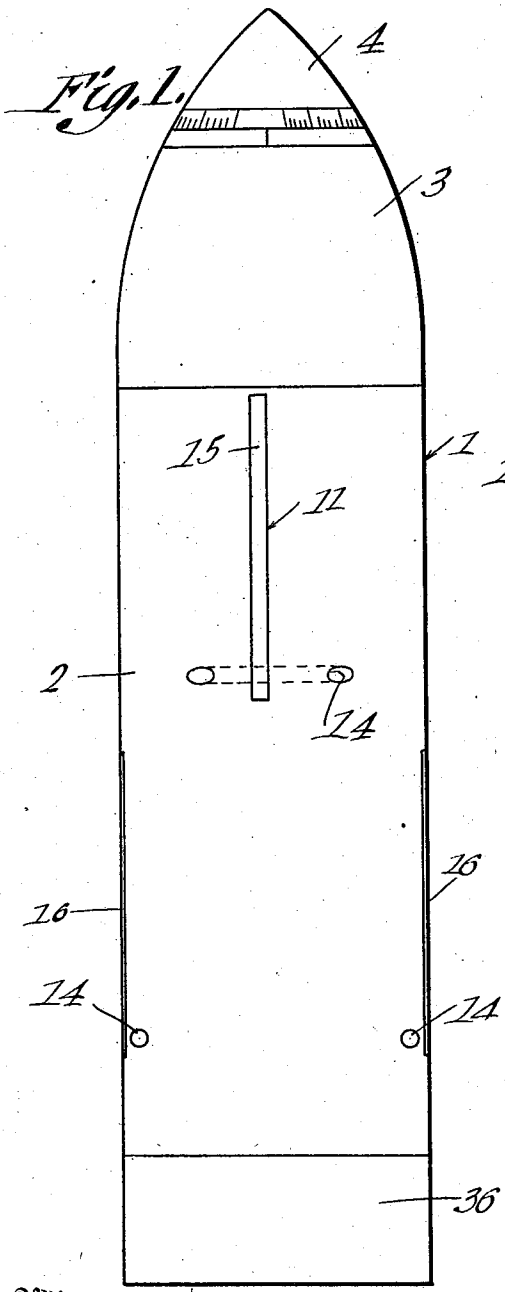



Fig. 4.

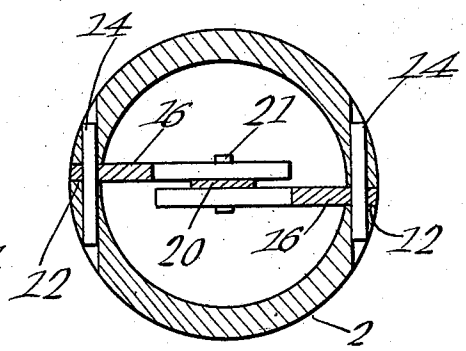
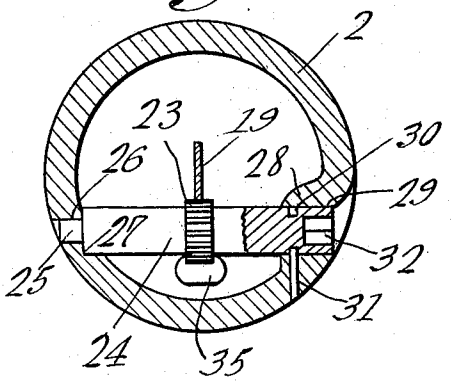



Fig. 5.




Witness

J. R. Gandy

Inventor

W. Cameron

By C. A. Snow & Co.

Attorneys

W. CAMERON.

SHELL.

APPLICATION FILED AUG. 16, 1918.

1,302,008.

Patented Apr. 29, 1919.

2 SHEETS—SHEET 2.

Fig. 2.

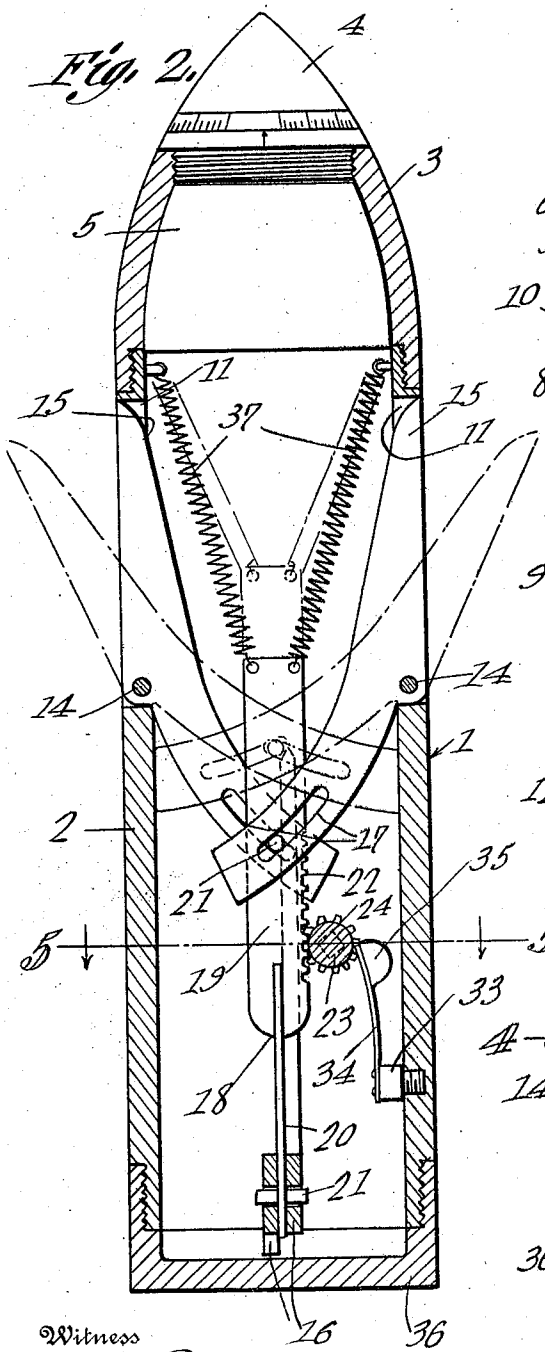
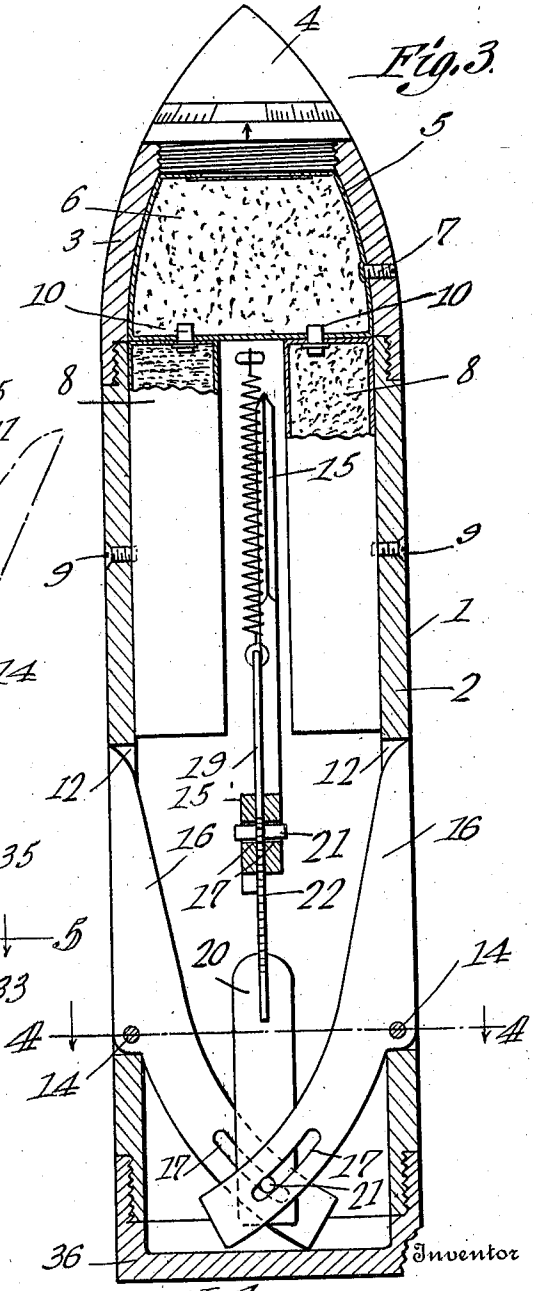



Fig. 3.




Witness

Inventor

W. Cameron

By C. A. Snow & Co.

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

WILLIAM CAMERON, OF OAK GROVE, MICHIGAN.

## SHELL.

1,302,008. Specification of Letters Patent. Patented Apr. 29, 1919.

Application filed August 16, 1918. Serial No. 250,189.

*To all whom it may concern:*

Be it known that I, WILLIAM CAMERON, a citizen of the United States, residing at Oak Grove, in the county of Livingston and State of Michigan, have invented a new and useful Shell, of which the following is a specification.

It is the object of this invention to provide novel means for operating or controlling the laterally movable knives of a projectile, and to improve, generally, devices of the kind hereinafter described. I do not bind myself to the specific construction shown in the drawings, because, within the scope of what is claimed, a mechanic may make changes, without departing from the spirit of the invention.

In the drawings:—Figure 1 is a side elevation; Figs. 2 and 3 are longitudinal sections in rectangularly disposed planes; and Figs. 4 and 5 are cross sections, taken respectively on the line 4—4 of Fig. 3, and 5—5 of Fig. 2.

The shell comprises a case 1 including a body 2 on which is threaded a forward cap 3 and a butt cap 36, the cap 3 carrying a time fuse 4 communicating with a container 5 carrying an explosive 6 and held in the cap 3 by a screw 7. Explosive containers 8 are located in the body 2 behind the container 5 and are held in the body by screws 9. The containers 8 are connected with the container 5 by time fuses 10. The container 5 ordinarily holds a bursting charge, whereas, the containers 8 may hold gas charges or the like.

The body 2 of the case has longitudinal forward slots 11 and longitudinal rear slots 12, the slots 11, and the slots 12, preferably being located in planes which are at right angles to each other. Pivot members 14 are mounted in the body 2 and extend across the slots 11 and 12. Forward knives 15 operate in the slots 11, and rear knives 16 operate in the slots 12. The knives 15 and 16 are fulcrumed intermediate their ends on the pivot members 14. There are longitudinal slots 17 in the inner ends of the knives 15 and 16.

An actuating member 18, in the form of a strip or bar, moves longitudinally in the body 2. The actuating member includes a forward part 19 extended between the inner ends of the knives 15, and a rear part 20 extended between the inner ends of the knives 16, the parts 19 and 20 being disposed at right angles to each other and carrying projections 21 operating in the slots 17 of the knives. Retractile springs 37 are connected, each, at one end, to the forward part 19 of the actuating member 18, and at their other ends are connected to the body 2.

The part 19 of the actuating member 18 has a rack 22 in one edge engaged by a pinion 23 on a transverse shaft 24 supplied at one end with a reduced tip 25 journaled in a bearing opening 26 in the body 2 and forming a shoulder 27 which prevents the shaft from moving endwise in one direction. The body 2 is bulged inwardly to form a bearing 28 and an external recess 29. The shaft 24 is journaled in the bearing 28, and the outer end of the shaft, which projects into the recess 29, has a seat 32 adapted to receive a key. The shaft 24 is provided with a circumscribing groove 30, receiving the inner end of a retainer or pin 31 in the body, the shaft thus being held in the body for rotation but against endwise movement.

The body 2 supports a stud 33 on which is mounted a spring pawl 34 engaging the pinion 23, the pawl being provided adjacent its free end with a weight 35.

A key is inserted into the seat 32 and the shaft 24 is rotated, the pinion 23 meshing into the rack 22 and retracting the actuating member 18, the projections 21 swinging the knives 15 and 16 inwardly within the contour of the body 2, into the solid line positions of Fig. 2, the knives tilting on the pivot members 14. The pawl 34 engages the pinion 23 and holds the knives 15 and 16 retracted against the action of the springs 37. When the projectile is fired out of a gun, the rifling causes the projectile to rotate, whereupon, the weighted pawls 34, acting centrifugally, will be disengaged from the pinion 23. The actuating member 18 then moves forwardly responsive to the pull of the springs 37, until the outer ends of the knives 15 and 16 extend beyond the body 2, at an angle thereto, the inner ends of the knives abutting against the inside of the body 2, as shown in dotted line in Fig. 2. It will be obvious that the projecting knives will cut wire barriers and work havoc with anything which they may encounter.

I claim:—

1. A projectile comprising a case; knives fulcrumed intermediate their ends on the case; an actuating member movable longitudinally in the case; means for connecting the actuating member with the inner ends of

the knives; means for moving the actuating member in one direction to advance the knives; means for moving the actuating member in an opposite direction to retract the knives; and centrifugally releasable means responsive to the rotation of the projectile for holding the actuating member and the knives releasably retracted.

2. A projectile comprising a case; knives fulcrumed intermediate their ends on the case; an actuating member movable longitudinally in the case; means for connecting the actuating member with the inner ends of the knives; means for advancing the actuating member and the knives; a shaft journaled in the case and accessible from the exterior thereof; coöperating elements comprising a rack on the actuating member, and a pinion on the shaft meshing into the rack; and a releasable holding device on the case and engaging one of said coöperating elements.

3. A projectile constructed in accordance with claim 2, and further characterized by the fact that the holding device comprises an automatically releasable pawl on the case and engaging the pinion.

4. A projectile constructed in accordance with claim 2, and further characterized by the fact that the holding device comprises a weighted pawl on the case and releasable by centrifugal action from that one of the said coöperating elements wherewith the pawl engages.

5. A projectile comprising a case; a time fuse on the forward end of the case; an explosive container in the case and responsive to the time fuse; second explosive containers in the case behind the first specified container; time fuses connecting the first specified container with the second containers; knives pivoted to the case and having their inner ends operating between the second containers; means between the second containers for advancing the knives; and means for holding the knives retracted.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM CAMERON.

Witnesses:
WM. MCPHERSON, III,
H. A. MCPHERSON.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**