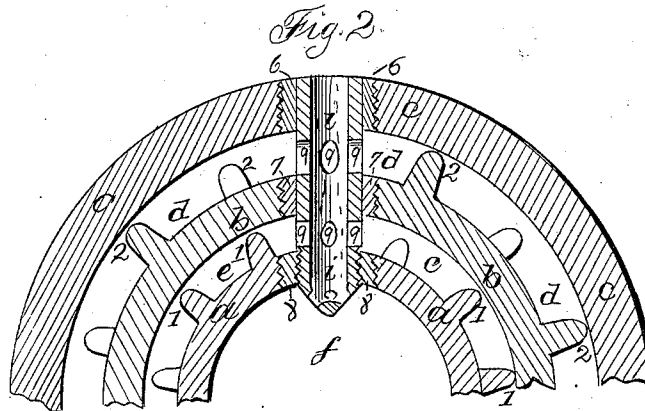
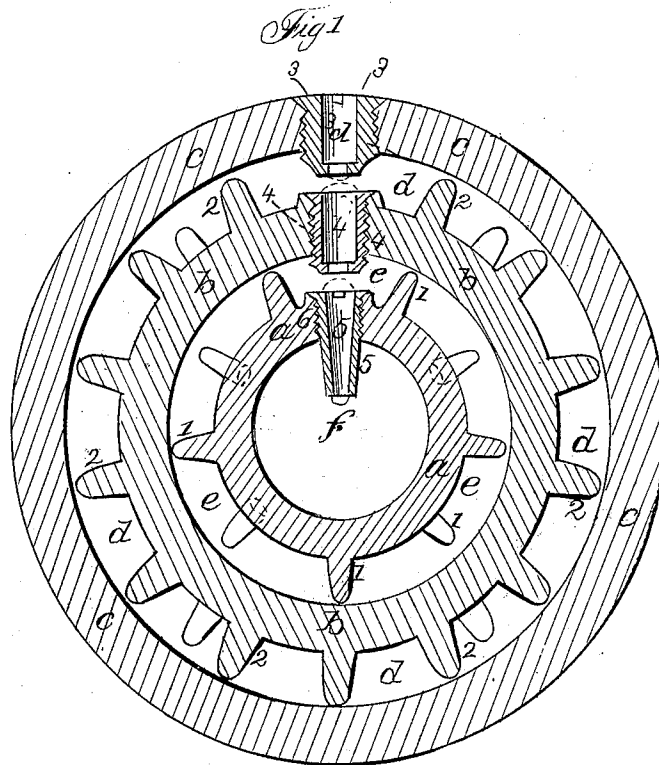


J. MCINTYRE.

Shell.

No. } 1,698, {
32,702. }

Patented July 2, 1861.



Witness.

Lemuel A. Sewell

Wm. H. Boardman

Jesse W. McIntyre

UNITED STATES PATENT OFFICE.

JAMES MCINTYRE, OF NEW YORK, N. Y.

IMPROVEMENT IN BOMB-SHELLS.

Specification forming part of Letters Patent No. 32,702, dated July 2, 1861.

To all whom it may concern:

Be it known that I, JAMES MCINTYRE, of the city and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Bomb-Shell; and I do hereby declare that the following is a full, clear, and exact description of my said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a vertical section of my bomb-shell, and Fig. 2 is a section of a variation in the mode of fitting in the fuse.

Similar marks of reference denote the same parts.

The nature of my said invention consists in forming bomb-shells of two or more casings or shells kept apart by projections, so that several separate and annular compartments are formed for containing explosive or inflammable material. These charges being exploded successively render the bomb very destructive, because the outer space first exploding throws the shell off in many fragments with great violence, and this explosion generally causes the inner shells to jump and fall in a new position where the second explosion takes place, and so on.

In the drawings *a* is the inner or smallest shell that is first to be cast, with projections surrounding it at suitable distances apart; as seen at 1 1. This shell is to be enveloped in sand and form the core for the next shell, and as the projections 1 1 take the inside of the shell *b*, in cooling, the two shells are firmly held in position with each other, and so likewise of the outer shell, *c*, which, in contracting, takes the ends of the projections 2 2. These projections may be cast either on the outside of the inner casing, or on the inner sides of the outer casings, or both, but I prefer the manner shown.

d is the hole, at which the fuse is to be introduced, and this fuse is to be made in any usual or well-known method.

I have shown in Fig. 1 separate screw-plugs 3, 4, and 5, in each of which a piece of fuse is introduced, in order that the first fuse may ex-

plode the powder in the space *d* between the shells *b* and *c*, and also light the fuse 4, which in turn explodes the contents of the chamber *e*, and from thence the fire communicates to the chamber *f* through the fuse 5.

In Fig. 2 I have represented a variation in the mode of fitting in the fuse. In this case 6, 7, and 8 are brass bushes screwed into the holes in the respective shells *c b a*, and each bush 6 and 7 has a straight or slightly-tapering hole, receiving the metal fuse-carrier *i*, that is filled with the fuse powder or composition, and is screwed into the bush 8, so that neither the first or second discharges can pull out the fuse-carrier *i*. The fire is to communicate to the respective chambers *d e f*, by side openings at 9 9 9 in the fuse-carrier *i*.

It will be evident that this shell can be made of any desired size, and contain two or more shells, according to the use for which it is intended. Hand-grenades as well as the largest bombs may be made in this manner. The length of fuse and the mode of introduction will depend upon circumstances.

It will be evident that the projections 1 1 and 2 2 render any motion to the inner shells impossible; but that they become an impediment to the breaking of the successive shells, and at the same time render the shell more deadly, because liable to break into many more pieces than the ordinary bombs, and the powder acting upon the inner shells throws them from place to place each explosion.

The bomb may be either globular or elongated.

What I claim, and desire to secure by Letters Patent, is—

The employment of two or more shells, *a b c*, kept apart by the projections 1 and 2, in the manner specified, and forming a bomb, for the purposes and as set forth.

In witness whereof I have hereunto set my signature this 16th day of May, 1861.

JAMES MCINTYRE.

Witnesses:

LEMUEL W. SERRELL,
THOS. GEO. HAROLD.