

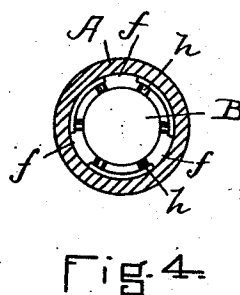
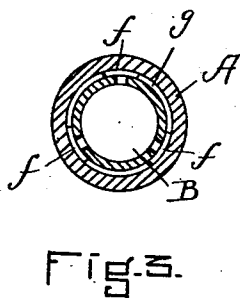
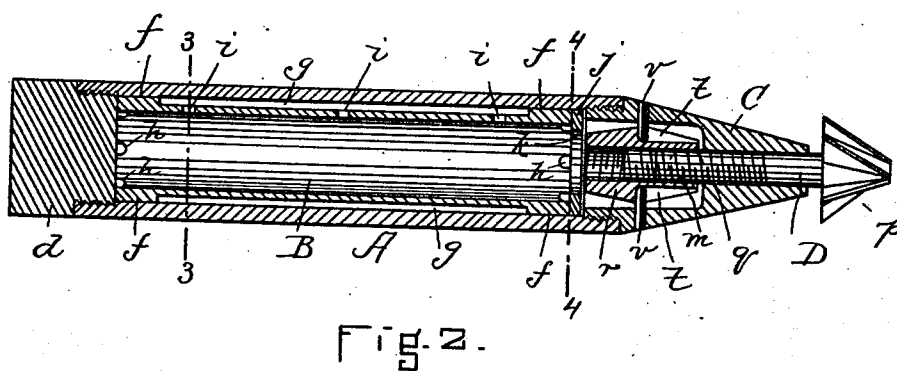
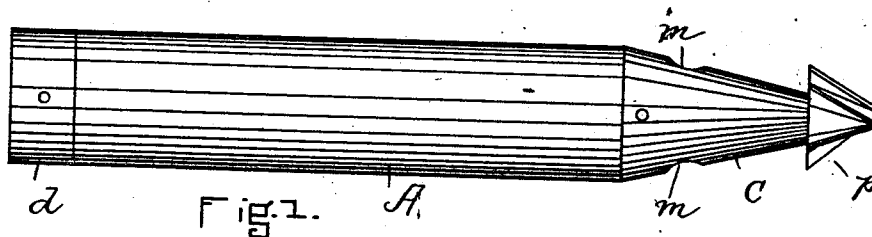
(No Model.)

C. J. CROWLEY.
DYNAMITE SHELL.

2 Sheets—Sheet 1.

No. 536,565.

Patented Mar. 26, 1895.



WITNESSES.
Matthew M. Blunt.
N. Durfee.

INVENTOR.
Charles J. Crowley,
By C. A. Shawales,
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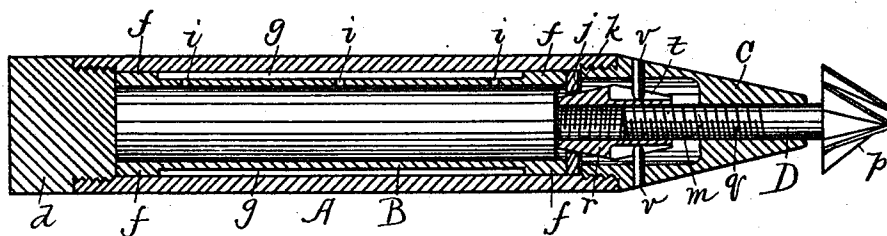
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2 Sheets—Sheet 2.

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Figs.

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Charles J. Crowley
By Ch. Shaw ATT'Y.

UNITED STATES PATENT OFFICE.

CHARLES J. CROWLEY, OF LAWRENCE, MASSACHUSETTS, ASSIGNOR, BY
MESNE ASSIGNMENTS, OF ONE-THIRD TO JOHN T. MCGOVERN, OF SAME
PLACE.

DYNAMITE-SHELL.

SPECIFICATION forming part of Letters Patent No. 536,565, dated March 26, 1895.

Application filed July 26, 1894. Serial No. 518,643. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. CROWLEY, of Lawrence, in the county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Dynamite-Shells, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of my improved shell; Fig. 2, a vertical longitudinal section of the same; Fig. 3, a transverse section taken on line 3, 3, in Fig. 2; Fig. 4, a like view taken on line 4, 4, in Fig. 2, and Fig. 5 a sectional view showing the dynamite charge inclosed in the shell and the valve screwed home.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates especially to a dynamite shell or projectile, the object being to protect the dynamite cartridge from accidentally exploding during the passage of the shell until it contacts with the object at which it is fired and to accomplish this I so construct the shell and cartridge that a space for air circulation is formed between them which acts as a cushion to prevent the recoil from exploding said cartridge.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation:

In the drawings, A represents the outside shell or casing which is a metallic cylinder of suitable thickness one end thereof being closed by a screw butt, d.

The dynamite cartridge, B, consists of a cylinder of less exterior diameter than the interior diameter of the shell and open at both ends. Near the end on its outer surface the cartridge cylinder, B, is provided with a series of bosses, f, so that when disposed in the shell an air space, g, is left extending entirely around said cylinder. In each end of said cartridge cylinder, air openings or notches, h, are formed and prick holes, i, are constructed in the side wall of the cartridge cylinder.

A metallic ring or washer, j, is dropped into the shell and butts against the cartridge cylinder. The interior of said ring forms a valve-seat, k, the use of which is hereinafter described. The forward end of the shell is interiorly tapped and screw-threaded and a hollow conical tip, C, is turned therein.

Air-ports or openings, m, are formed in the tip. Through the apex of the tip a spindle, D, is fitted to rotate provided exteriorly of the tip with a fan cap, p, which will actuate said spindle as a shell passes through the air.

The inner end of the spindle is screw-threaded at, q, and a nut, r, is fitted to travel thereon. Said nut forms a valve which will seat on the ring, j, closing the cartridge cylinder. The end is grooved or slotted longitudinally at, t, and guide-pins, v, project through the tip into said slots. The valve, r, fits loosely in the tip and permits the free passage of air through the ports, m, into the cartridge cylinder.

In the use of my improvement, the tip is turned off and a dynamite cartridge inserted in the cylinder, B. The tip is then replaced with the valve, r, withdrawn from its seat. The air space entirely around the cartridge cylinder and the ports, m, permitting the free circulation of air within the shell avoids the danger of accidental explosion of the dynamite when the shell is fired from the gun, or should the shell be dropped in loading the gun. The air forms a cushion which will prevent such shock as the shell receives from the explosion following the discharge of the gun, from prematurely exploding the cartridge. It is essential that this circulation and escape of air be allowed. After the gun is discharged while the shell is on its passage through the air the spindle is rapidly rotated by its fan cap driving the valve, r, thereon against its seat, as soon as the shell is an appreciable distance from the muzzle of the gun. The spindle slides freely in the tip and when the fan cap engages the object at which the shell is fired the impact drives said spindle inward and the concussion of the valve against the dynamite cartridge is sufficient to explode the same the chamber having been rendered air tight by said valve. The notches, h, permit the free circulation of air in the space and around the cartridge at the butt. The car-

tridge is pricked through the holes, *z*, in the usual manner before firing.

Having thus explained my invention, what I claim is—

- 5 1. A dynamite shell comprising an outer shell or casing; an open end cartridge cylinder disposed within said casing in such manner as to leave an air space entirely around it; a conical tip closing the end of the casing; 10 a valve-seat in the tip end of the cylinder; air openings leading through the tip to said space; a screw-valve in said tip for engaging said seat and a fan cap on the tip for actuating said valve, substantially as specified.
- 15 2. In a dynamite shell a casing provided with a conical tip having air ports; a cartridge cylinder disposed within said casing and leaving an air space around it connecting with said ports and devices actuated automatically 20 by the passage of the shell for closing said space.
3. In a dynamite shell a casing provided with a conical tip having air ports; a cartridge cylinder disposed within said casing and leaving an air space around it connecting with 25 said ports; devices actuated automatically by the passage of the shell for closing said space, and mechanism actuated by the impact of the shell for exploding the cartridge in said cylinder. 30

4. In a dynamite shell the combination with the casing and conical tip of an air actuated spindle in said tip; air ports in the tip leading into the casing and a valve actuated by the rotation of the spindle for closing said ports, substantially as and for the purpose set forth. 35

5. In a dynamite shell a casing and conical tip provided with air ports; a cylinder disposed within said casing leaving an air space 40 around it connecting with said ports; a valve seat in the tip end of said cylinder; an air-actuated spindle fitted to rotate in said tip; a screw-valve on said spindle adapted to engage said seat and close said ports all being 45 combined and arranged substantially as set forth.

6. The combination with the casing and tip having air ports, of the cylinder, *B*, provided with notches, *h*, disposed within said casing 50 leaving a space; the valve-seat, *k*, in the outer end of said cylinder; the rotary spindle, *D*, having a fan-cap, *p*, and the valve, *r*, working on said spindle, substantially as described.

CHARLES J. CROWLEY.

Witnesses:

K. DURFEE,
O. M. SHAW.