WSWC,

United States Patent [19]

[11] Patent Number: 5,010,804

[45] Date of Patent: Apr. 30, 1991

[54] LAUNCHING PROJECTILES WITH HYDROGEN GAS GENERATED FROM TITANIUM-WATER REACTIONS

[75] Inventor:

[73] Assignee: The United States of America as represented by the Secretary of the Navy, Washington, D.C.

[21] Appl. No.: 564,892

[22] Filed: Aug. 6, 1990

[51] Int. Cl.[5] F41F 1/00

[52] U.S. Cl. 89/7; 89/8

[58] Field of Search 89/7, 8; 73/147

[56] References Cited

U.S. PATENT DOCUMENTS

2,899,864	8/1959	Bloxsom	89/7
3,267,720	8/1966	Escallier et al.	73/147
4,658,699	4/1987	Dahm	89/8
4,895,062	1/1990	Chryssomallis et al.	89/7
4,974,487	12/1990	Goldstein et al.	89/7

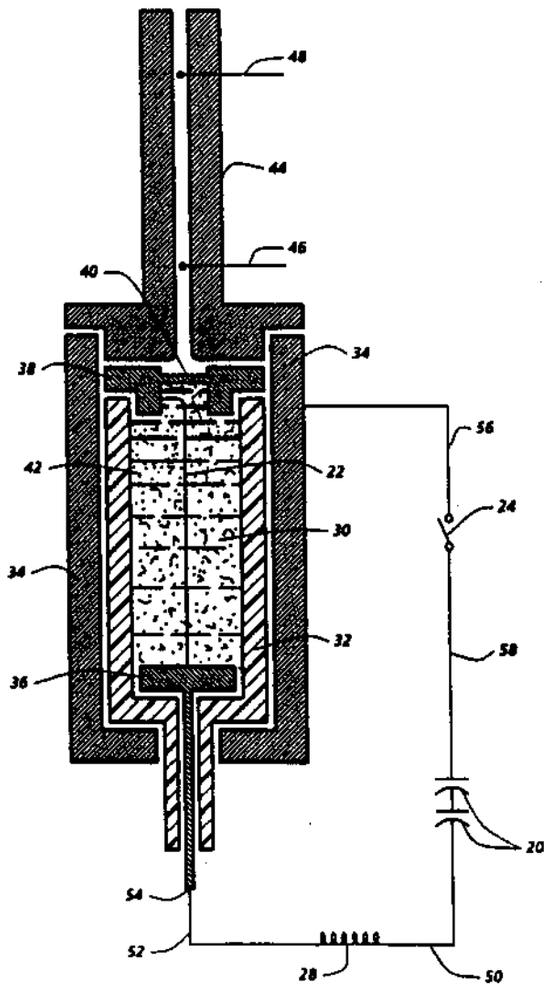
OTHER PUBLICATIONS

Scherrer, Victor E., "An Exploding Wire Hypervelocity Projector", *Exploding Wires*, vol. II, ed. Chace et al, 1062, pp. 235–244.

Primary Examiner—David H. Brown

Attorney, Agent, or Firm—Kenneth E. Walden; Roger D. Johnson

[57] ABSTRACT

A method of propelling a projectile from a device by applying a high power pulse of electrical current to a thin metal conductor wire causing the wire to explode and disperse hot spots of molten metal throughout a titanium fuel/powder/water mixture which reacts to generate hydrogen gas at high pressure in a chamber. The hydrogen gas is used to push the projectile from the device.

21 Claims, 2 Drawing Sheets