

[72] Inventors **Ephraim Regelson**
Mariposa;
William S. Roney, Ridgecrest, both of Calif.

[21] Appl. No. **838,139**

[22] Filed **July 1, 1969**

[45] Patented **Nov. 30, 1971**

[73] Assignee **The United States of America as**
represented by the Secretary of the Navy

[56] **References Cited**

UNITED STATES PATENTS

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3,041,833	7/1962	Vore	60/39.82
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Primary Examiner—Richard C. Pinkham
Assistant Examiner—Marvin Siskind
Attorneys—R. S. Sciascia and R. Miller

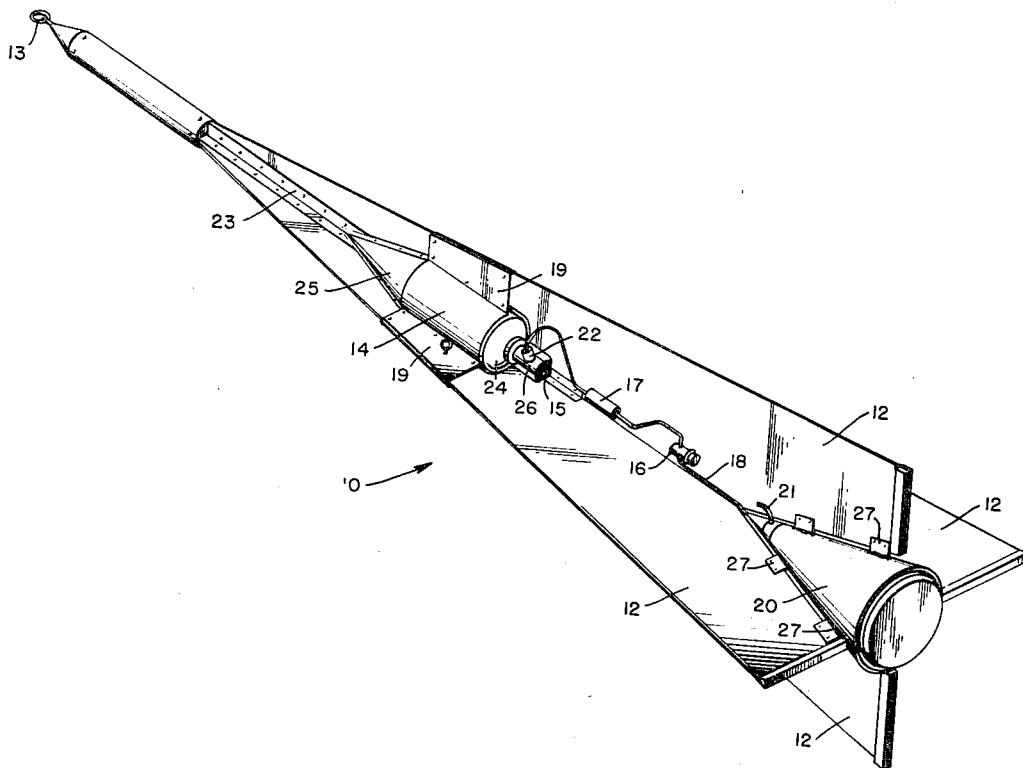
[54] **TOW TARGET INCLUDING A CONTROLLABLE SOURCE OF HEAT RADIATION**
2 Claims, 2 Drawing Figs.

[52] U.S. Cl. **273/105.3**

[51] Int. Cl. **F41j 5/08**

[50] Field of Search 273/105.3;
 60/39.14, 39.48, 39.82

ABSTRACT: An aerial tow target consisting essentially of two orthogonal triangular airframes has been augmented with a butane burner or the like to provide a target for radiation seeking missiles.



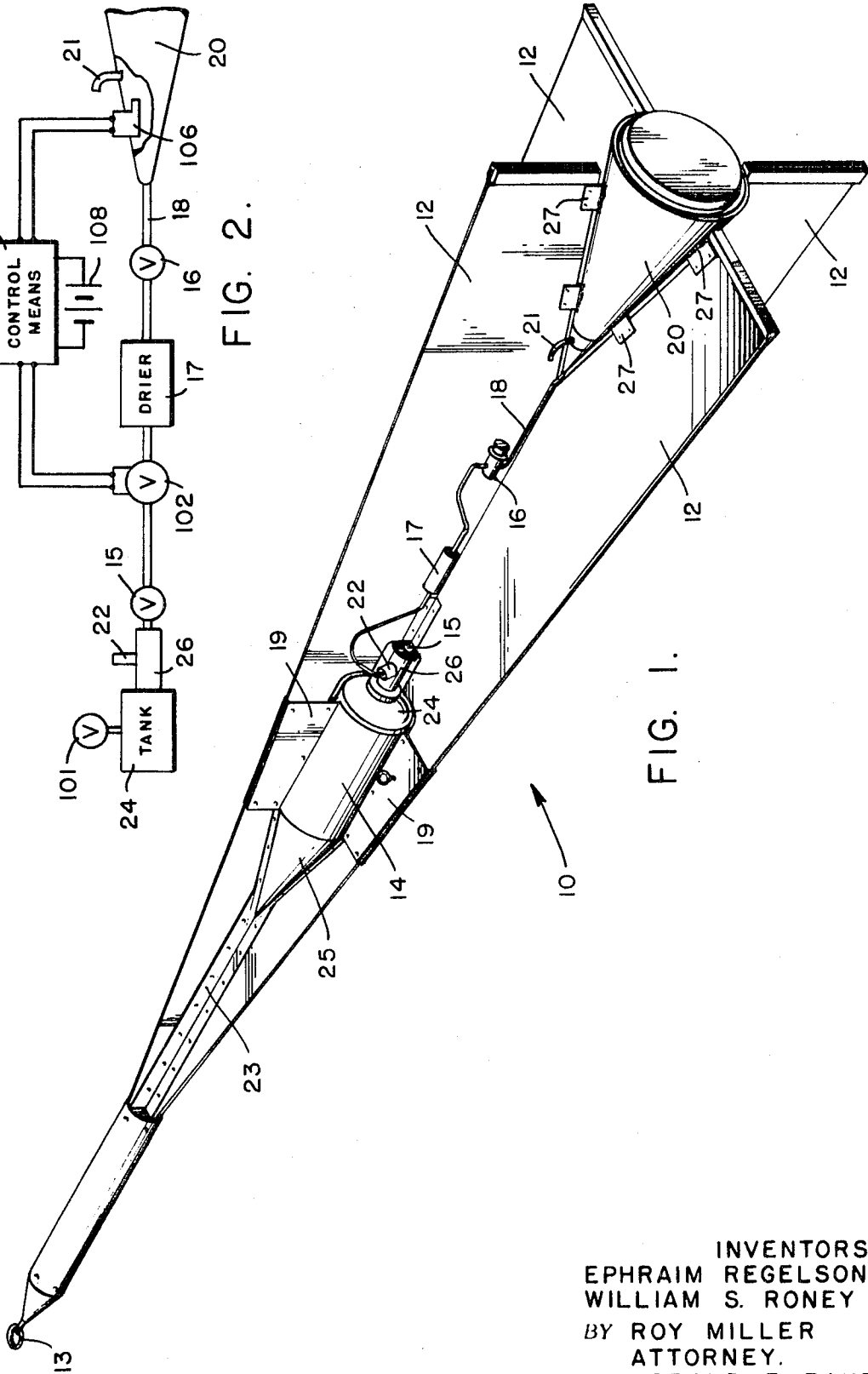
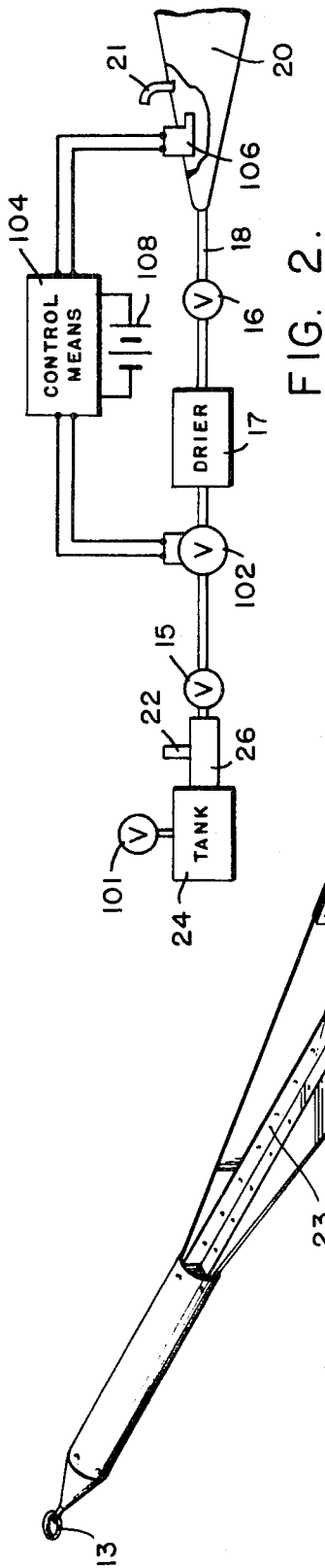


FIG. 1.

INVENTORS.
EPHRAIM REGELSON
WILLIAM S. RONEY
BY ROY MILLER
ATTORNEY.
GERALD F. BAKER
AGENT.

TOW TARGET INCLUDING A CONTROLLABLE SOURCE OF HEAT RADIATION

BACKGROUND OF THE INVENTION

This invention relates to improvements and modifications in Aerial Tow Targets such as disclosed in assignee's prior U.S. Pat. Nos. 2,821,396, issued Jan. 28, 1959 and 2,978,700, issued Apr. 4, 1961 to L. W. Seeley and to Lewis A. Stevens and William S. Roney respectively.

Previous attempts to provide a heat radiation augmented tow target for testing of missiles consisted mainly of attaching flares to the target airframe. Flares, however, are notably unpredictable, uncontrollable, erratic and of short duration.

The tow target according to the present invention provides a reliable, predictable and controllable heat source target having a heat duration sufficient for several passes at the target if necessary.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of one modification of the invention; and

FIG. 2 is a schematic representation of the burner, fuel supply and controls for a second embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

The target system 10 includes a target airframe comprising four fins 12 with appropriate towing gear and a forward counterweight member 13. A pressure tank 14 adapted to be filled with a combustible fuel is fastened to the fins amidships so that the center of gravity of the tank is approximately at the center of gravity of the assembled device. The tank 24 is provided with a fill valve 26 controlled by handwheel 15. A burner 20 is fastened to fins 12 at the aft end of the airframe and is connected to tank 24 through a pipe 18, expansion valve 16 and drier 17.

The burner may be remotely operated by providing remote control for valve 16 and ignition device 22, see FIG. 2. The airframe members 12 are of light material and the target, in

order to support the tank 24, is reinforced by a steel rib 23 and plates 19. These reinforcing members are connected together by means of a conical steel fairing 25. Burner 20 is fastened to each of ribs 12 by means of lugs 27 welded to the burner 20 and riveted to each fin 12.

Just before takeoff valve 26 is opened by turning handwheel 15 sufficiently to allow fuel to flow from fitting 22 through drier 17 and expansion valve 16 to burner 20 which may then be manually ignited. Burning is relatively inefficient before takeoff but efficiency increases rapidly as ram air is forced through tubes 21 (at least one in each quadrant) to supply oxygen to the fuel.

By addition of a solenoid valve 102 and an electrically actuated ignition device 106 (See FIG. 2) the burner may be automatically fired at a predetermined time or may be fired at will by control means 104. In the latter case, a self contained source of power 108 may be included in the system.

What is claimed is:

1. In a target device having an airframe body consisting of two orthogonal airframe members intersecting along an axis of symmetry and means for connecting the airframe to towing means; the improvement comprising:

fuel burner means on said airframe for producing radiant heat;

storage means on said airframe for storing a supply of fuel; and

means for supplying fuel to said burner means;

said burner means and said storage means having respective longitudinal axes coincident with said airframe axis;

said burner means being attached to the end of said airframe opposite to said connecting means and said storage means being situated midway between the designated ends such that the center of gravity of said storage means approximately coincides with the center of gravity of the assembled device.

2. In a target device according to claim 1, said burner means further comprising

forwardly opening ram air tubes between said airframe members for supplying air to said burner.

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