

No. 669,091.

D. G. MARTENS.

Patented Mar. 5, 1901.

APPARATUS FOR DISCHARGING AND CARRYING LINES FOR SAVING LIFE AT SEA.

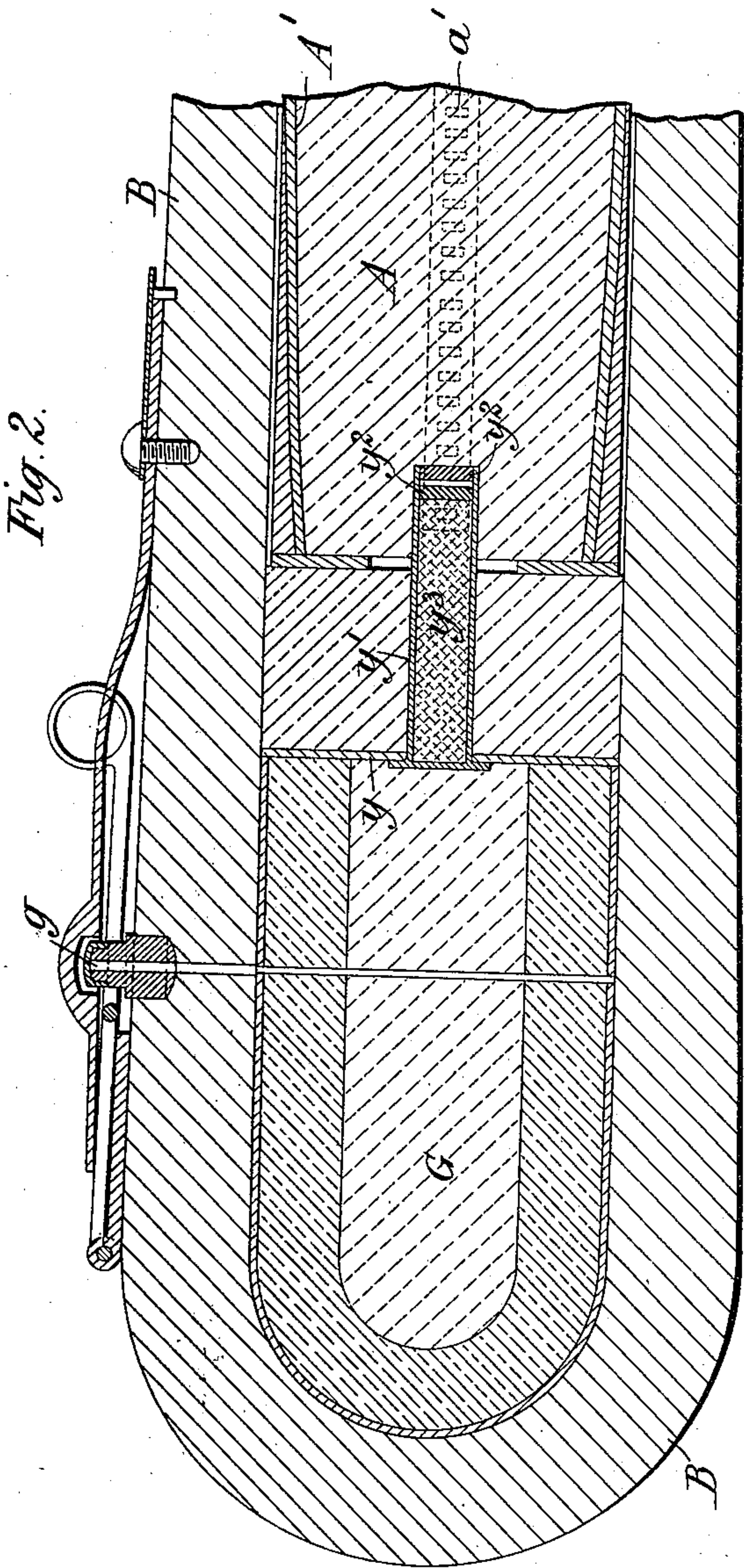
(Application filed June 25, 1900.)

(No Model.)

D. G. MARTENS.

(Application filed June 25, 1900.)

**2 Sheets—Sheet 1.**



Inventor:  
Daniel G. Martens  
By Wm. E. Souther, attorney

No. 669,091.

Patented Mar. 5, 1901.

D. G. MARTENS.

APPARATUS FOR DISCHARGING AND CARRYING LINES FOR SAVING LIFE AT SEA.

(Application filed June 25, 1900.)

(No Model.)

2 Sheets—Sheet 2.

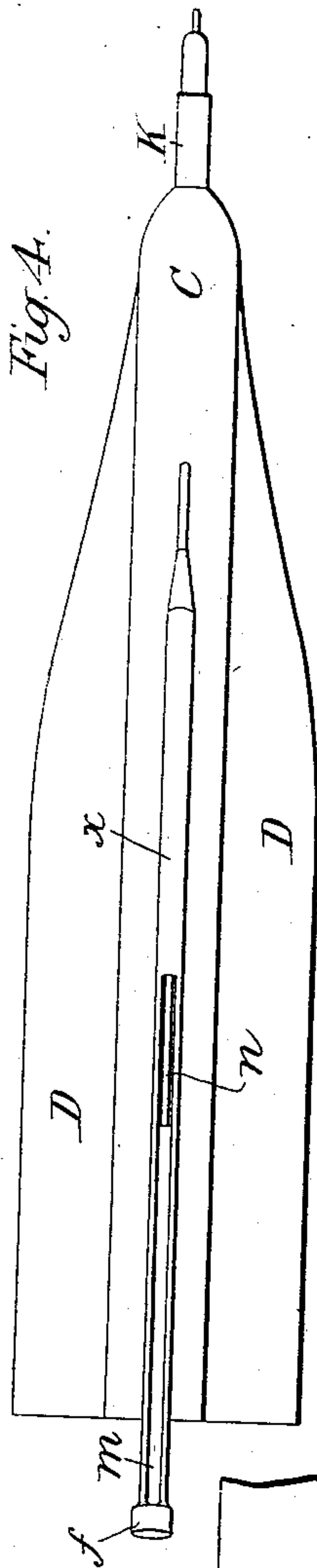


Fig. 3.

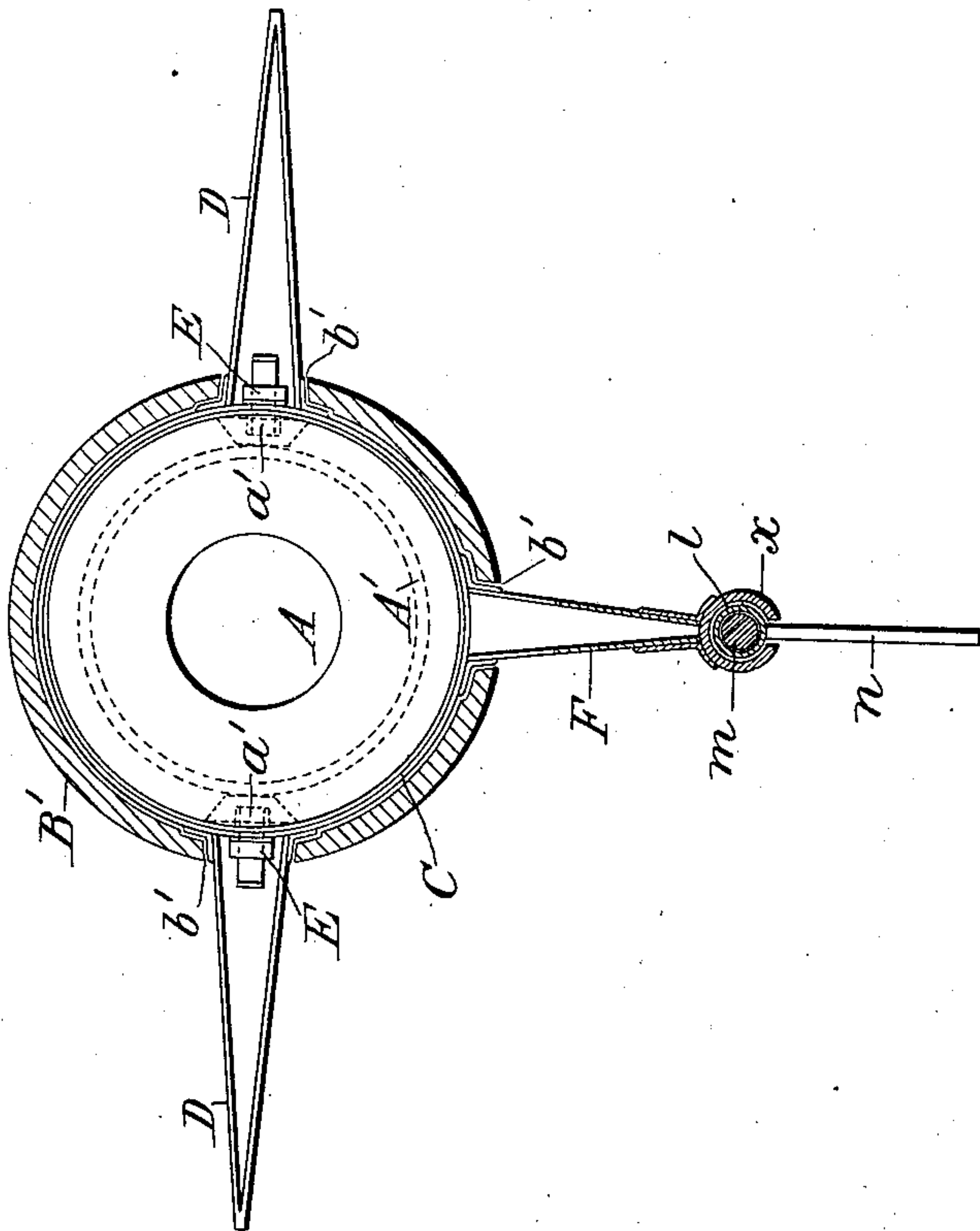
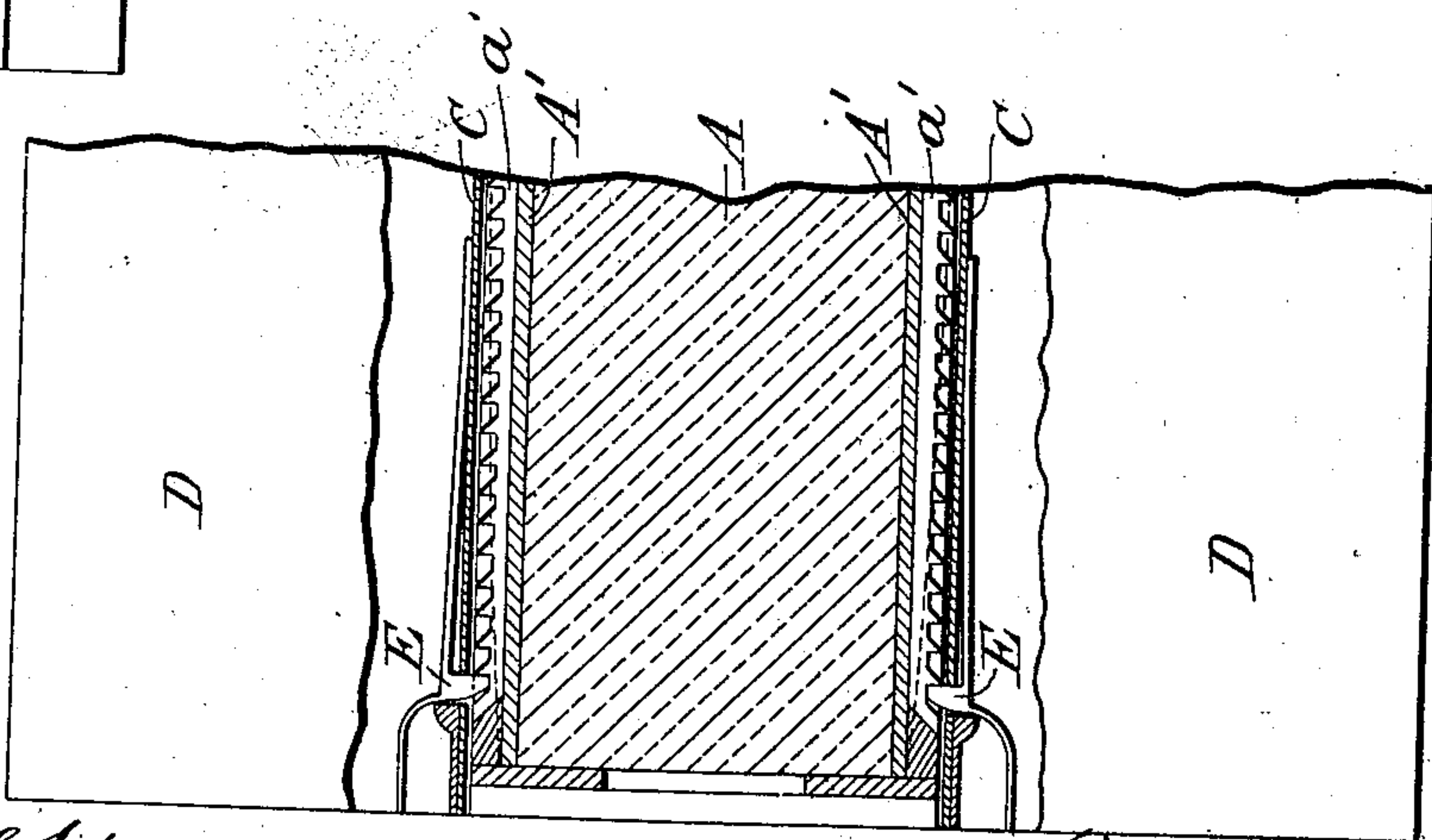


Fig. 5.



Witnesses:

W. H. Bonney  
A. M. Bonney

Inventor:

Daniel G. Martens  
By O. M. Boulter, at



# UNITED STATES PATENT OFFICE.

DANIEL GEORGE MARTENS, OF COLCHESTER, ENGLAND.

APPARATUS FOR DISCHARGING AND CARRYING LINES FOR SAVING LIFE AT SEA.

SPECIFICATION forming part of Letters Patent No. 669,091, dated March 5, 1901.

Application filed June 25, 1900. Serial No. 21,556. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL GEORGE MARTENS, engineer, a subject of the King of Sweden and Norway, formerly of Roselands, Broom road, Teddington, in the county of Middlesex, but at present residing at 1 Sussex road, Colchester, in the county of Essex, England, have invented certain new and useful Improvements in Apparatus for Discharging and Carrying Lines for Saving Life at Sea; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to apparatus for discharging and carrying lines for saving life at sea so constructed as to carry the line to a greater distance than with the apparatus heretofore in use and at the same time minimizing the risk of the breakage of the line by the shock of discharge.

In the accompanying drawings, Figure 1 is a central vertical section of my improved line-discharging apparatus complete, ready to be discharged by firing. Fig. 2 is a similar view of the breech of the gun and showing part of the rocket apparatus on an enlarged scale. Fig. 3 is an enlarged vertical section taken on the line 3 3 of Fig. 1. Fig. 4 is an under side plan of the forward or line-carrying part of the apparatus shown in Fig. 1, and Fig. 5 is an enlarged detail view showing in section part of the lock-spring between the rocket and the outer tube.

The same letters of reference where they occur are used to denote the same or corresponding parts in all the figures of the drawings.

The line discharging and carrying apparatus which forms the subject of this invention comprises a gun B, having a muzzle prolongation B', of slightly larger internal diameter, as shown at *b* in Fig. 1, and provided with three longitudinal slots *b'* to receive the wings or blades D and the web F of the line-carrying tube C, (see Fig. 3,) so as to hold the said tube until the rocket is inserted therein and the air-pressure between the rocket, and the tube C is great enough to force the line-carrying tube C out of the gun.

The gun B is fitted with the usual firing mechanism *g* for the explosive G, which latter when fired acts on the wad-base *y*, which

is a compressible wadding between the rocket A and the explosive G and which fits the bore of the gun B. The rocket A also fits the bore of the gun B and telescopes into the line-carrying tube C. The firing of the explosive G causes the rocket A to enter the line-carrying tube C, and the latter is projected out of the gun by means of the rocket A. Simultaneously the heat of the explosion has heated the tube *y'*, one end of which is closed and secured to the wad-base *y*, while the other end is open to the interior of the rocket A, which is lined inside with a layer of asbestos A'. (See Fig. 2.) This tube *y'* contains gunpowder or other substance or mixture *y<sup>3</sup>*, adapted to be exploded by heat, and is also provided with one or more felt wads *y<sup>2</sup>*, which are driven out by the firing of the gunpowder or other explosive *y<sup>3</sup>* in the tube *y'*. Consequently the heat evolved by the firing of the gun explosive G heats the tube *y'*, thereby firing the explosive *y<sup>3</sup>*, which latter fires the explosive in the rocket A. By this means no escape of the gases developed by the firing of the explosive G can occur. The rocket therefore has two successive impulses given to it. The first, that of the gun explosive G, drives it out of the gun and partly into the line-carrying tube C, and the second, that of its own explosive, drives it farther into the line-carrying tubes C, in the manner to be hereinafter explained.

The line-carrying tube C fits into the diameter of the gun-muzzle prolongation B' and is provided with a spring-controlled safety-valve K, two lateral wings or blades D, and a downwardly-projecting vertical web F. (See Fig. 3.) These wings D and the web F fit into the longitudinal slots *b'* in the muzzle prolongation B', as shown in Fig. 3, and the web F carries a fixed rod or piston *m*, secured to the part *f* of said web, (see Fig. 1,) over which rod or piston *m* slides a cylinder *l*, onto which is formed or secured a piece *n*. To this piece *n* the end of the line is secured, and the cylinder *l* is inclosed in an outer or guide tube *x*, fast to the web F and provided with a slot underneath, through which the piece *n* protrudes. (See Fig. 3.)

The forward end of the rocket A is partly inserted in the rear end of the line-carrying tube C and carries a rubber or other washer



or the like device *h* for effecting an air-tight closure with the internal walls of the line-carrying tube *C*, into which the said rocket *A* telescopes. Consequently the air in the forward end of the line-carrying tube *C* is compressed by the forward travel of the rocket *A* as it telescopes thereinto at the first impulse, whereby the air compressed between the rocket and the tube *C* acts as an air-cushion for the rocket-line, taking up the shock of the explosive fired by the explosive *G*, and the air is further compressed by its further entry at the second impulse, the safety-valve *K* permitting the compressed air to gradually escape.

To provide for the second impulse given to the rocket *A* by the explosion of its own charge being effective in driving the said rocket further into the line-carrying tube *C*, or, in other words, to prevent the return of the rocket *A* after it has telescoped into the line-carrying tube *C*, the exterior of said rocket *A* is provided at suitable positions with a toothed rack *a'*, (see Figs. 2, 3, and 5,) with which engages a spring-controlled tooth or pawl *E* on the interior of the line-carrying tube *C*, or vice versa.

The drag of the line during the flight is conveyed to the cylinder *l*, which is thereby drawn back over the fixed piston *m*, and the air in said cylinder *l* is gradually compressed, thus acting as a second air-cushion and preventing shock.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. Line-discharging and line-carrying apparatus comprising a gun with an enlarged muzzle prolongation, a line-carrying tube fitting said prolongation, wings or blade on said tube, a rocket fitting said line-carrying tube and adapted to be telescoped thereinto by the firing of the explosive in the gun, means to

prevent the return of said rocket after it has telescoped into the line-carrying tube; a washer or the like device on the rocket to compress the air in the line-carrying tube, and a spring air safety-valve on the forward end of the line-carrying tube, substantially as described.

2. In line-discharging apparatus comprising a gun and a rocket fired therefrom by an explosive, means for igniting the rocket charge, consisting in a firing-tube closed at one end and open at the other end which projects through the rocket-base, and is open to the rocket charge, said firing-tube being charged with an explosive adapted to be fired by heat, substantially as described.

3. Line-carrying apparatus projected by an explosive from a gun, comprising a rocket fitting a line-carrying tube and partially telescoped thereinto by the firing of the gun and further telescoped thereinto by the firing of the rocket charge, a rack on the rocket, a pawl on the line-carrying tube to prevent the return of the rocket, a washer or like device on the forward end of the rocket air-tightly fitting the line-carrying tube, and a spring-controlled air-escape valve on the line-carrying tube, arranged substantially as described.

4. Line-carrying apparatus projected by an explosive from a gun, comprising a line-carrying tube with lateral wings or blades and a vertical web; a slotted tube carried by said web, a cylinder in said slotted tube telescoping over a fixed rod or piston carried by the web aforesaid, and a line loop or piece secured to said cylinder, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL GEORGE MARTENS.

Witnesses:

F. W. GOLBY,

GEO. J. B. FRANKLIN.