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C. J. ERICKSON

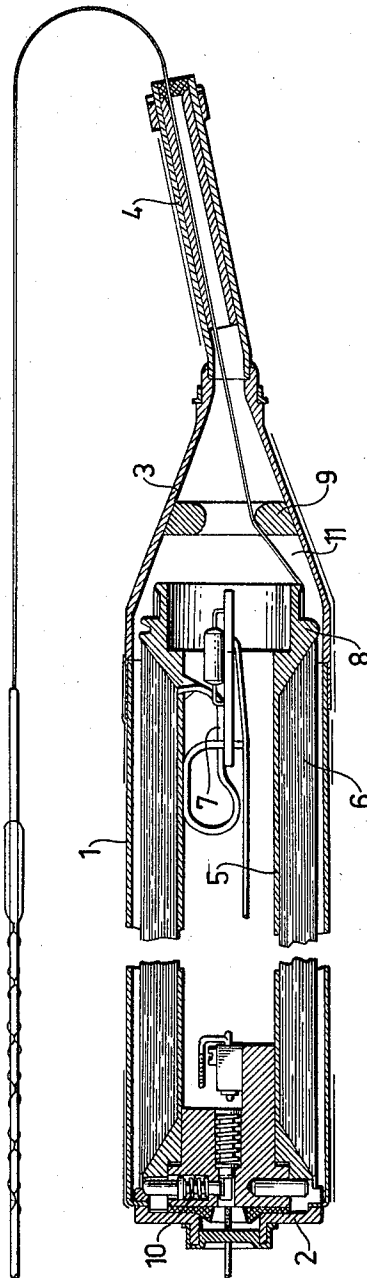
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WIRE MAGAZINE FOR MISSILES

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2 Sheets-Sheet 1

Fig.1



INVENTOR

CARL JULIUS ERICKSON

BY

Hane and Nydick

ATTORNEYS

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C. J. ERICKSON

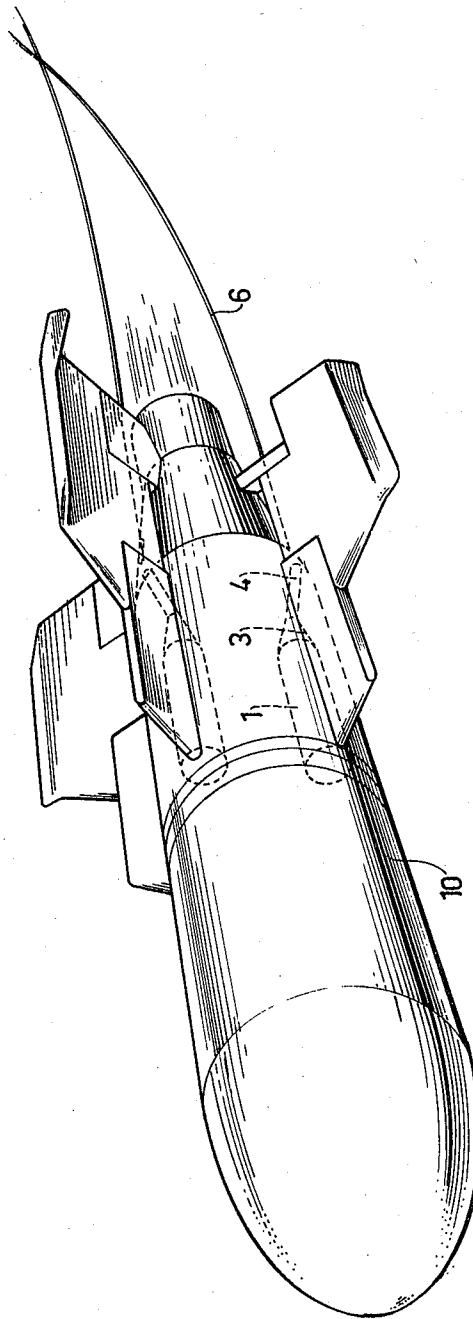
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Fig. 2



INVENTOR

CARL JULIUS ERICKSON

BY

Hane and Nydick

ATTORNEYS

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WIRE MAGAZINE FOR MISSILES

Carl Julius Erickson, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden, a corporation of Sweden

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4 Claims. (Cl. 242—128)

The present invention relates to an improvement in missiles of the type which are guided from a stationary control transmitter through electric wires which during the flight of the missile are wound off from wire magazines disposed in the missile. The magazines have a casing with a funnel-shaped outlet, through which the wire is drawn out, and a stationary spool is arranged in said casing, on which spool the wire is wound and which is arranged so that the wire is reeled off over one end of the spool.

A broad object of the invention is to reduce the danger of rupture of the wire while it is being wound off. It was found that this object can be achieved by arranging in the funnel-shaped outlet of the casing a deflecting member which during winding deflects the wire toward the axis of the funnel.

The invention will be described more in detail below with reference to the attached drawing, where:

FIGURE 1 shows a wire magazine in longitudinal cross-section, and

FIGURE 2 is a perspective view showing the missile in flight and illustrates how the wire magazines are arranged in the missile.

Referring to FIGURE 1, it will be seen that the wire magazine comprises a cylindrical casing 1, which is closed at one end by an end-wall 2 and is provided at the opposite end with a tapering outlet member 3 with an outlet tube 4 which is arranged at a slight angle to the center axis of the magazine. A spool body 5 is arranged in the casing 1 coaxially therewith and the wire 6 is wound around said body 5 with its end extending through the funnel 3, 4 to be connected to the stationary equipment (not shown) from which the missile is launched in order to provide electrical connection to electrical control means in such stationary equipment. Connection to the electrical guidance means within the missile is achieved by means of electrical connecting members provided in the magazine and indicated at 7. At the inner end of the magazine there are shown mechanical means which are intended to trigger certain functions during the flight of the missile, when a predetermined length of wire has been wound off. These members have no relationship to the present invention and therefore they need not be described in detail.

Referring to FIGURE 2, it will be seen that two wire magazines are disposed in the middle portion of the missile 10 close to its shell and with the outlet tubes 4 opening at its circumferential surface.

During the flight of the missile, the wire 6 which as above mentioned is attached with its free end to the stationary launching equipment to enable control signals to be transmitted to the missile, is reeled off from each spool 5 over the end portion 8 thereof which faces the outlet funnel 3, 4. The wire is very fine (diameter, e.g. about 0.2 millimeter), and the wire is reeled off at a high speed, wherefore the danger that the wire may be torn off is great. It was found, however, in accordance with the present invention, that the danger of rupture of the wire may be essentially reduced by providing in the tapering member 3 a ring 9, of which the inner diameter is less than that of the spool at its end 8 so that the

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wire 6 is compelled to run inwardly toward the magazine axis at a larger angle than that which corresponds to a straight line from the periphery of the spool to the outlet tube 4.

While the advantageous action of the ring 9 has been established by tests, it is not completely ascertained how said ring 9 acts to reduce the danger of a wire rupture. It is to be noted, however, that the wire 6 is provided with an electrically insulating coating which will be in part worn off during its movement, whereby dust is formed. It appears probably that the ring 9, by forming a collecting space at 11 for this dust, prevents the dust from interfering with the movement of the wire.

Although a specific embodiment of the invention has been disclosed and shown, the invention is not limited thereto, but can be varied within the scope of the claims. Thus, any member which acts in a similar way to cause the wire to follow a course which is closer to the axis than that determined by the outlet and the spool during its rotation will have a similar effect.

I claim:

1. A wire magazine for mounting in a missile, controllable by means of a stationary transmitter via electrically conductive thin wires which during the flight of the missile are wound off from the magazine, said magazine comprising a casing continued on one end into a funnel-shaped outlet portion, a wire reel having a wire wound thereupon, said reel being mounted in said casing substantially coaxially therewith and in substantial registry with the wide end of said funnel-shaped outlet portion for unreeling the wire over the periphery of the reel at the end thereof adjacent to the wide end of the outlet portion and guiding the wire while being reeled off through said outlet portion out of the casing, and an annular deflecting member mounted in said outlet portion spaced apart from said reel end in axial direction, said deflecting member constraining the wire into a path closer to the center axis of the casing and the reel than an imaginary straight line connecting any point of the periphery of said reel end with the outer end of said outlet portion.

2. The device of claim 1 in which said deflecting member comprises a ring mounted in the funnel-shaped outlet portion coaxial therewith, the inner diameter of said ring being less than the diameter of the reel at the side thereof over which the wire is wound off.

3. The device of claim 1 in which said casing and said reel are substantially cylindrical, and in which said deflecting member comprises a ring mounted in said funnel-shaped outlet portion coaxially with the casing and the reel, the inner diameter of said ring being less than the diameter of the reel at the end thereof over which the wire is wound off.

4. The device of claim 3 wherein said ring and the adjacent end of the reel define a chamber within the funnel-shaped outlet portion for collecting dust particles abraded from the wire.

References Cited by the Examiner

UNITED STATES PATENTS

995,138	6/1911	Helfrich	114—21
1,793,092	2/1931	Jespersen	242—128 X
1,815,532	7/1931	Vesey	242—128
2,629,566	2/1953	King	242—128
3,156,185	11/1964	Hermann et al.	89—1.7 X
3,163,711	12/1964	Schindler	244—14 X

BENJAMIN A. BORCHELT, *Primary Examiner*.
SAMUEL W. ENGLE, *Examiner*.