April 4, 1944. A. BERMAN 2,345,550

AERIAL FENCE

Filed Sept. 3, 1940

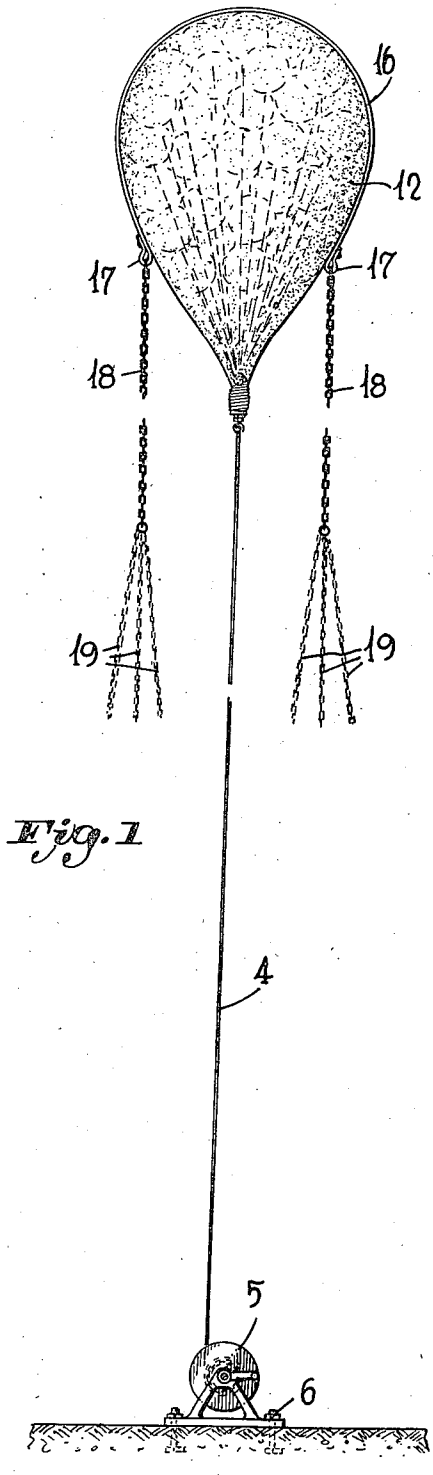


Fig. 1

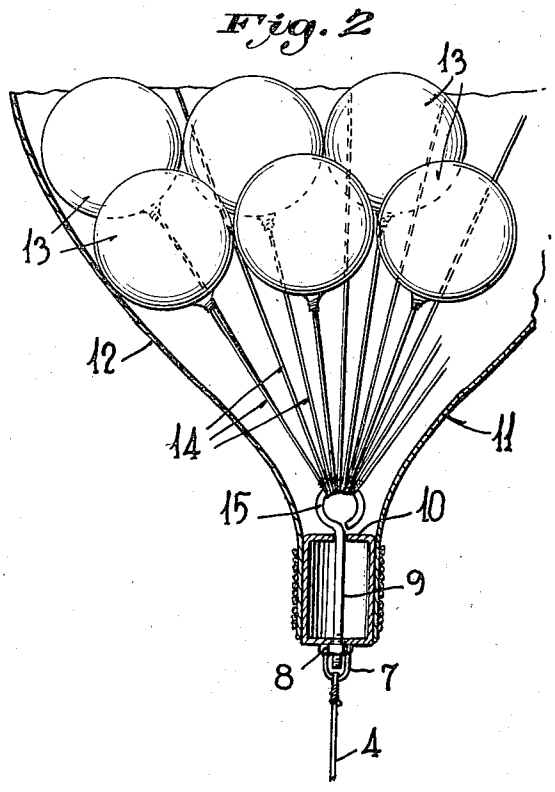


Fig. 2

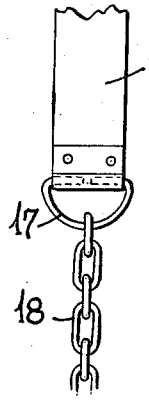


Fig. 3

Inventor

Alex Berman,

By Barry & Cyr

Attorneys

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AERIAL FENCE

Alex Berman, Louisville, Ky.

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4 Claims. (Cl. 244—33)

This invention relates to improvements in means for protecting towns, buildings, ships, etc., against attack by aircraft, and more particularly to a novel air fence.

One of the objects of the invention is to provide an air fence made up of a plurality of tethered balloons designed to encircle the area to be protected, and to entangle dive bombers and the like. Another object is to supply an air fence, each picket of which will include a main balloon or envelope enclosing a number of smaller balloons, so that if one or more of the smaller balloons become deflated through shell fire or the like, the main balloon will still remain up and thus hold the protecting wires and chains at an elevation where they will effectively protect the town, etc. to be shielded.

A further object is to supply an aerial fence, each picket of which will be topped by a main balloon having a strap saddled over the same in such manner as to carry suspended chains which will equalize strains on the balloon and thus tend to maintain the latter in a stable position.

A further object of the invention is to produce a simple and inexpensive air fence, and yet one which will be exceedingly effective for the purpose for which it is designed.

With the foregoing objects outlined and with other objects in view which will appear as the description proceeds, the invention consists in the novel features hereinafter described, illustrated in the accompanying drawing, and more particularly pointed out in the appended claims.

In the drawing:

Fig. 1 is a side elevation of one of the pickets of the aerial fence.

Fig. 2 is an enlarged vertical sectional view of the balloon portion of the picket.

Fig. 3 is a side elevation of a detail.

Referring to the drawing, 4 designates a wire cable or the like, designed to be wound about any suitable type of reel or winch 5, anchored to the earth or other suitable foundation by means of bolts 6 or the like.

The end of the cable that is not connected to the winch, is secured, as best shown in Fig. 2, to an eye 7 which may be integral with a nut 8. The nut is threaded on the lower end portion of an eye-bolt 9 swiveled in a drum 10. The latter is surrounded by and firmly secured to the lower end of the envelope 11 of a main balloon 12. The latter may not only be inflated, but it contains a number of smaller balloons or buoyant elements 13 each of which is tethered by a rope 14 to the eye 15 of the bolt 9. Due to this construction, if one or more of the small balloons is punctured, the main balloon will remain up, and should the deflation of some of the smaller balloons cause uneven pull on the bolt 9, the latter can readily swivel so as to prevent upsetting the equilibrium of the main balloon.

With each main balloon I employ a saddle strap 16 which passes over the top of the envelope 11 and is secured to the latter by stitching or the like (not shown). The ends 17 of the strap terminate at the same elevation, and each end of the strap supports a main suspended chain 18. Depending from the lower end of each main chain are a number of smaller chains 19 which due to wind and the sway of the balloon are adapted to spread apart so as to provide a more effective barrier than would a single chain or the like. I intend to employ chains for this purpose, rather than suspended wires or cables, as the latter not only tend to become entangled with one another, but they can readily slide over a moving object, such as an airplane. A chain tends to wrap itself about a moving object and to therefore effectively halt the movement thereof.

From the foregoing, it is believed that the construction, operation and advantages of my improved device may be readily understood, and I am aware that changes may be made in the details disclosed without departing from the spirit of the invention as expressed in the claims.

What I claim and desire to secure by Letters Patent is:

1. In an aerial fence of the type comprising a cable having an inflatable and deflatable collapsible balloon at its upper end and a winding winch at its lower end, the improvement which comprises a swivel connected to the upper end of the cable and extending into the balloon, a number of smaller balloons within the main balloon, and means connecting the small balloons to the swivel.

2. In an aerial fence, a tethered cable having a bolt at the upper end thereof, a drum in which the bolt is swiveled, a main balloon envelope having its lower end surrounding and secured to the drum, a number of smaller balloons arranged within the envelope, and cords connecting the smaller balloons to said bolt.

3. In an aerial fence, a tethered balloon having a substantially semi-spherical upper half, a strap extending over the middle portion of the top of said balloon and having its ends terminating at substantially the same elevation, and a loosely hanging chain suspended from each end of the strap.

4. In an aerial fence, a tethered balloon having a substantially semi-spherical upper half, a strap extending over the middle portion of the top of said balloon and having its ends terminating at substantially the same elevation, a loosely hanging chain suspended from each end of the strap, and a plurality of loosely hanging auxiliary chains connected to the lower end thereof each of the first-mentioned chains.

ALEX BERMAN.