2 Sheets—Sheet 1.

N. C. LOMBARD.

Aerial Observatory.

No. 199,986. **Patented Feb. 5, 1878.**

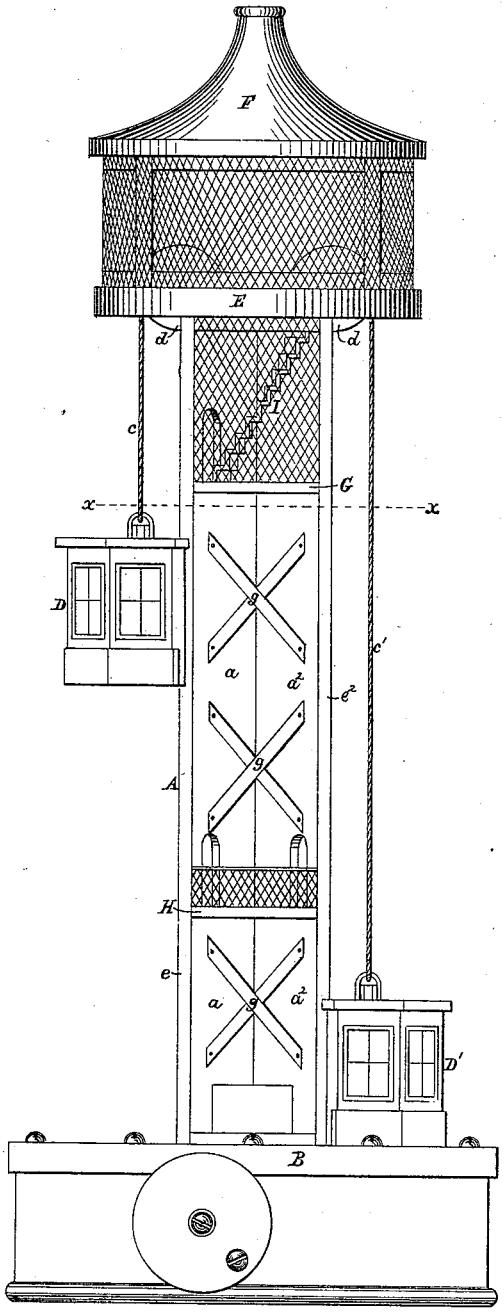

Fig.1.

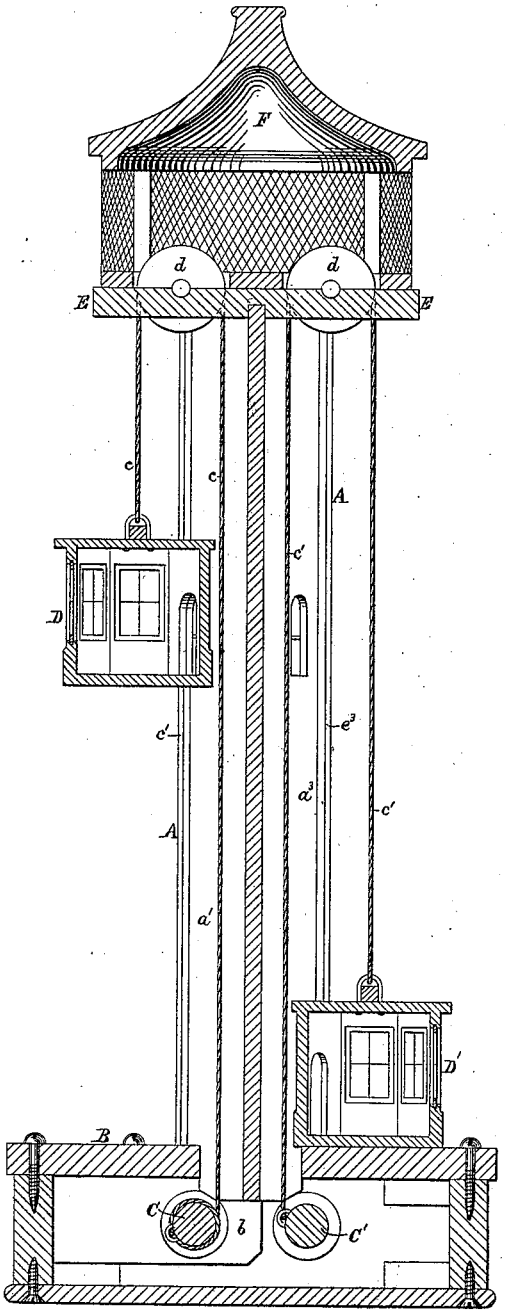

Fig.2.

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Benj. Andrews, Jr.

INVENTOR:

Nathan C. Lombard

2 Sheets—Sheet 2.

N. C. LOMBARD.

Aerial Observatory.

No. 199,986. Patented Feb. 5, 1878.

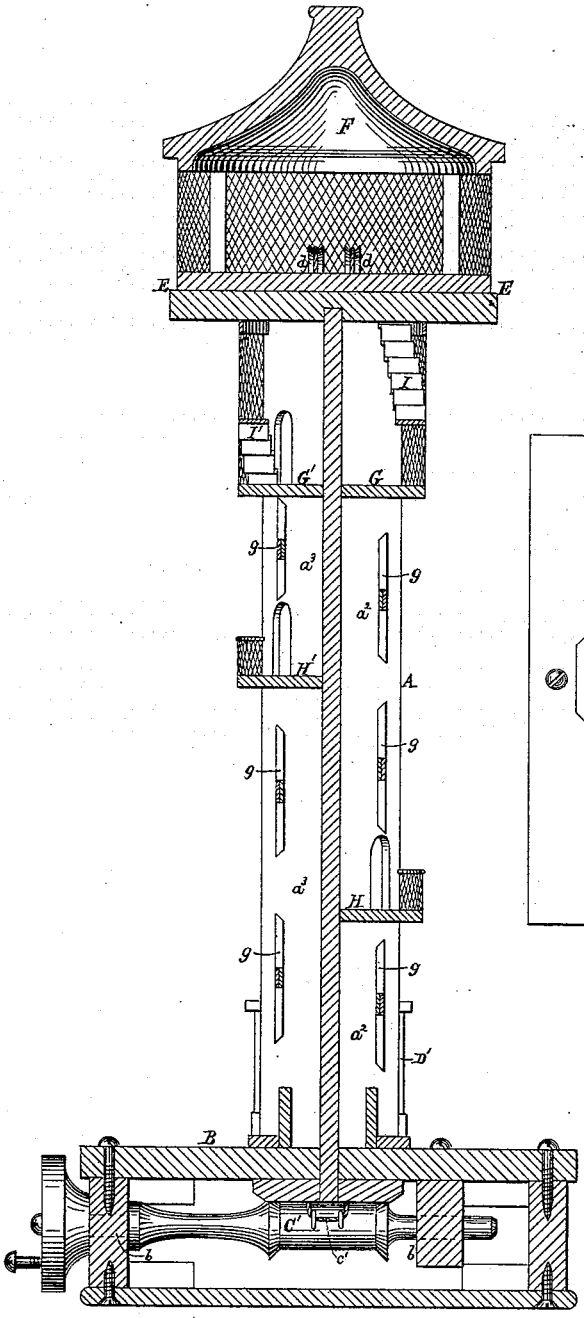

Fig.3.

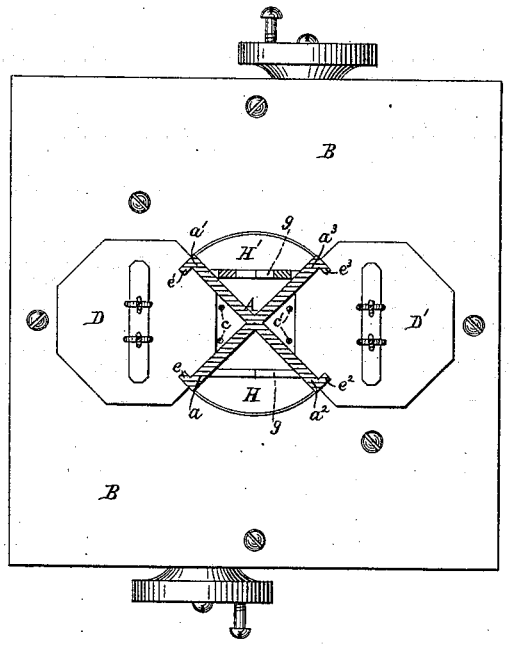

Fig.4.

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UNITED STATES PATENT OFFICE.

NATHAN C. LOMBARD, OF CAMBRIDGEPORT, ASSIGNOR TO ABBY A. SAWYER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN AERIAL OBSERVATORIES.

Specification forming part of Letters Patent No. **199,986,** dated February 5, 1878; application filed January 16, 1878.

To all whom it may concern:

Be it known that I, NATHAN C. LOMBARD, of Cambridgeport, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Aerial Observatories or Lookout-Towers, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to that class of aerial observatories or lookout-towers in which elevator-cars, operated by steam or other suitable power, are used to convey passengers to the tops of said towers; and it relates especially to the construction of the supporting-column and the arrangement of the elevator-cars relative thereto; and it consists in constructing the supporting-column of a cruciform shape in cross-section, or with four wings projecting radially from a common center at angles of ninety degrees from each other, said wings being formed of plate-iron, firmly secured together at their inner and contiguous edges, and strengthened and stiffened by suitable stays, ties, and braces, in combination with one or two elevator-cars arranged within, or partially within, the angle formed by two of said wings, and suitable mechanism for raising said car or cars from the base to the top of said column.

My invention further consists in the combination of a supporting-column of cruciform shape in cross-section, two elevator-cars arranged upon opposite sides of said column, each within, or partially within, one of the angles formed by two of the wings of said cruciform column, and adapted to be guided in its ascent and descent by said column, and one or more landings or platforms located at intermediate points between the base and top of said column, and occupying the angles between the wings of the cruciform column not occupied by the ascending and descending cars.

Figure 1 of the drawings is an elevation of my improved aerial observatory. Fig. 2 is a central vertical section cutting through the center of the elevator-cars. Fig. 3 is a central vertical section, the cutting plane being at right angles to that of Fig. 2. Fig. 4 is a horizontal section on line *x x* on Fig. 1.

A is the supporting-column, made up of the four wings *a*, a^1, a^2, and a^3, arranged radially about a common center, at an angle of ninety degrees to each, and firmly secured together at their inner and contiguous edges, so as to form a rigid structure of cruciform shape in cross-section.

The column A is firmly secured to the bed-plate B, which may be secured to a suitable foundation in any well-known manner, care being taken to provide suitable space below the bed-plate B for the hoisting-drums C and C′, which are mounted in bearings *b b*, in which they may be revolved to raise and lower the cars D and D′, which are connected thereto by the ropes *c* and *c′*, one end of each of which is attached to the car, and, after passing over the sheave or pulley *d*, suitably mounted at the top of the column. The other end is secured to the drum C or C′.

The cars D and D′ are preferably made octagonal in form, and each is fitted to and occupies a large portion of the angular space between two of the wings or buttresses of the column, and is guided in its ascent and descent by lips *e* and e^1, or e^2 and e^3, formed upon or secured to the outer edges of the wings *a*, a^1, a^2, and a^3, as shown in Fig. 4.

At the top of the column a suitable flooring, E, is constructed, of considerably larger diameter than the column, upon which is erected a light frame-work of iron, to support a roof or awning, F, to protect persons occupying the floor from the direct rays of the sun.

A short distance below the floor E are the landing-platforms G and G′, and at intermediate points between said platforms and the base of the column are similar landings, H and H′, all of which are in the angular spaces between the wings *a* and a^2, and a^1 and a^3, or the angular spaces not occupied by the elevator-cars. From the platforms G and G′ rise the stairs I and I′, respectively, leading to the floor E, in a well-known manner.

A great advantage is obtained in constructing the column in the manner herein described, and in the arrangement of the cars as set forth, as compared with the cylindrical or tubular column and annular car, in that there is much less liability to annoyance from accidental

stoppage of the cars during their ascent or descent, and in the great reduction in the cost of construction, as compared with the structures heretofore built in which two cars are used.

The wings a, a^1, a^2, and a^3 are tied together by horizontal ties, as at the platforms G, G′, H, and H′, and are braced by diagonal braces g g, sufficient to prevent all possible chance of said wings crippling; and said wings may be further stiffened by the addition of vertical angle-irons upon the sides of said wings toward the angular spaces occupied by the landings.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. An elevated lookout-tower, the supporting-column of which is made cruciform in shape in cross-section, in combination with one or more passenger elevator-cars, each fitted to and occupying the angular space between two of the wings or arms of said cruciform column, and suitable mechanism for raising said car or cars to the top of said column, substantially as described.

2. The combination, in a lookout-tower, of a supporting-column of cruciform shape in cross-section, two elevator-cars arranged upon opposite sides of said column, each within, or partially within, one of the angles formed between two of the wings of said column, and adapted to be guided in its ascent or descent by said column, and one or more landings, located at intermediate points between the base and the top of the column, and occupying the angles between the wings of said column not occupied by the ascending and descending cars, substantially as described.

Executed at Boston, Massachusetts, this 14th day of January, A. D. 1878.

NATHAN C. LOMBARD.

Witnesses:

BENJ. ANDREWS, Jr.,

C. H. DODD.