

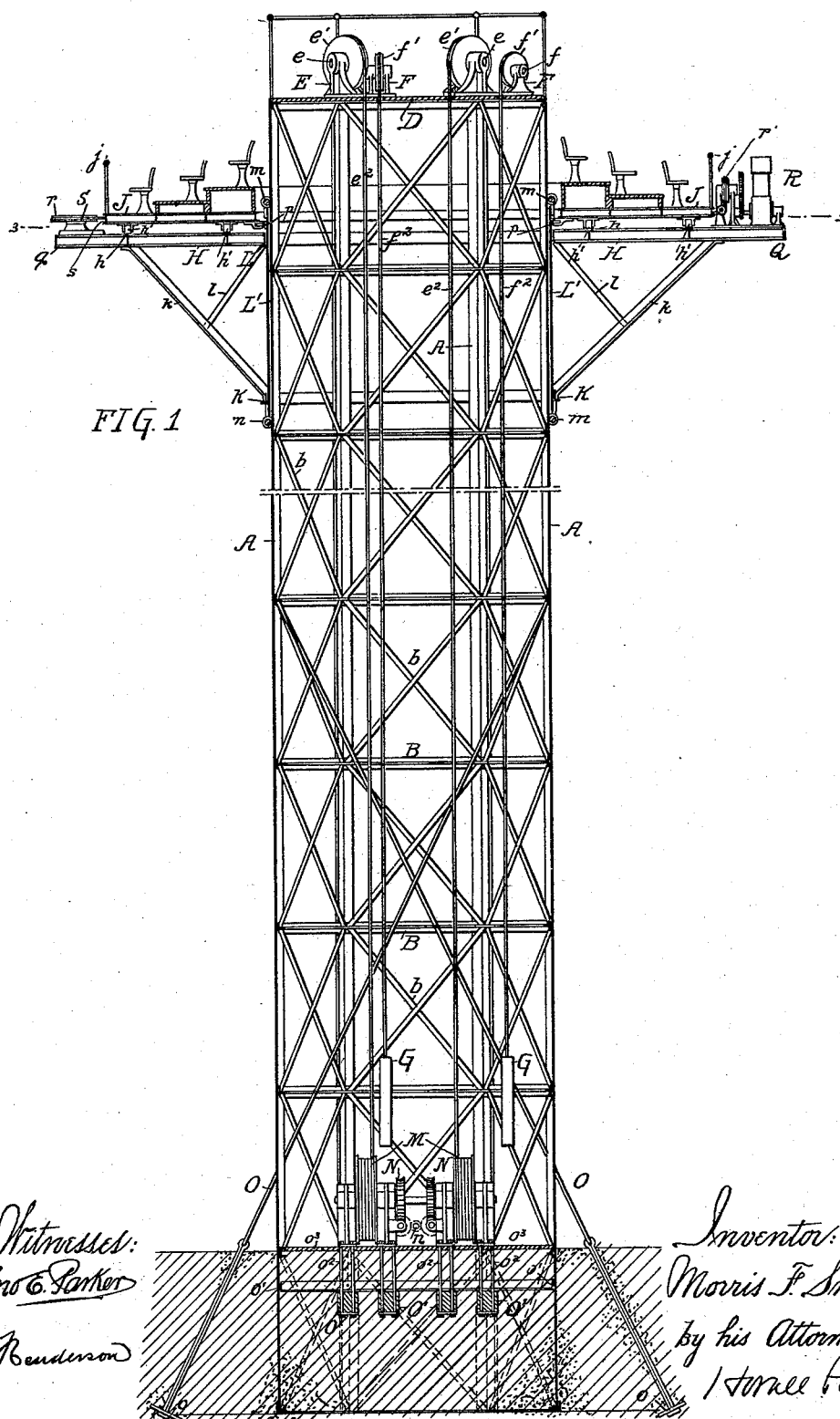
(No Model.)

3 Sheets—Sheet 1.

M. F. SMITH.  
OBSERVATION TOWER.

No. 525,031.

Patented Aug. 28, 1894.



Witnessed:  
Jno C. Parker  
J. R. Anderson

Inventor:  
Morris F. Smith,  
by his Attorney,  
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(No Model.)

3 Sheets—Sheet 2.

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FIG. 2

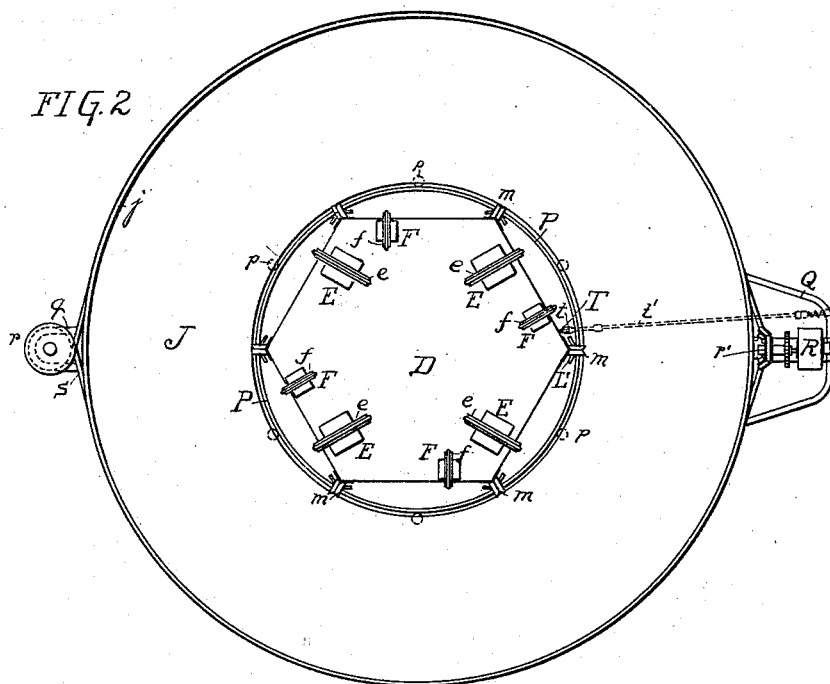
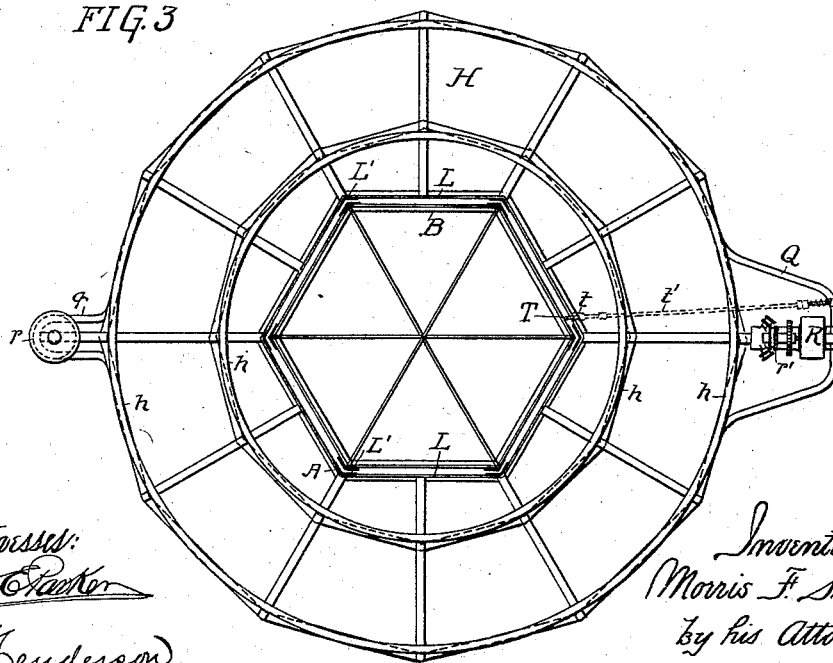


FIG. 3



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*Morris F. Smith,*  
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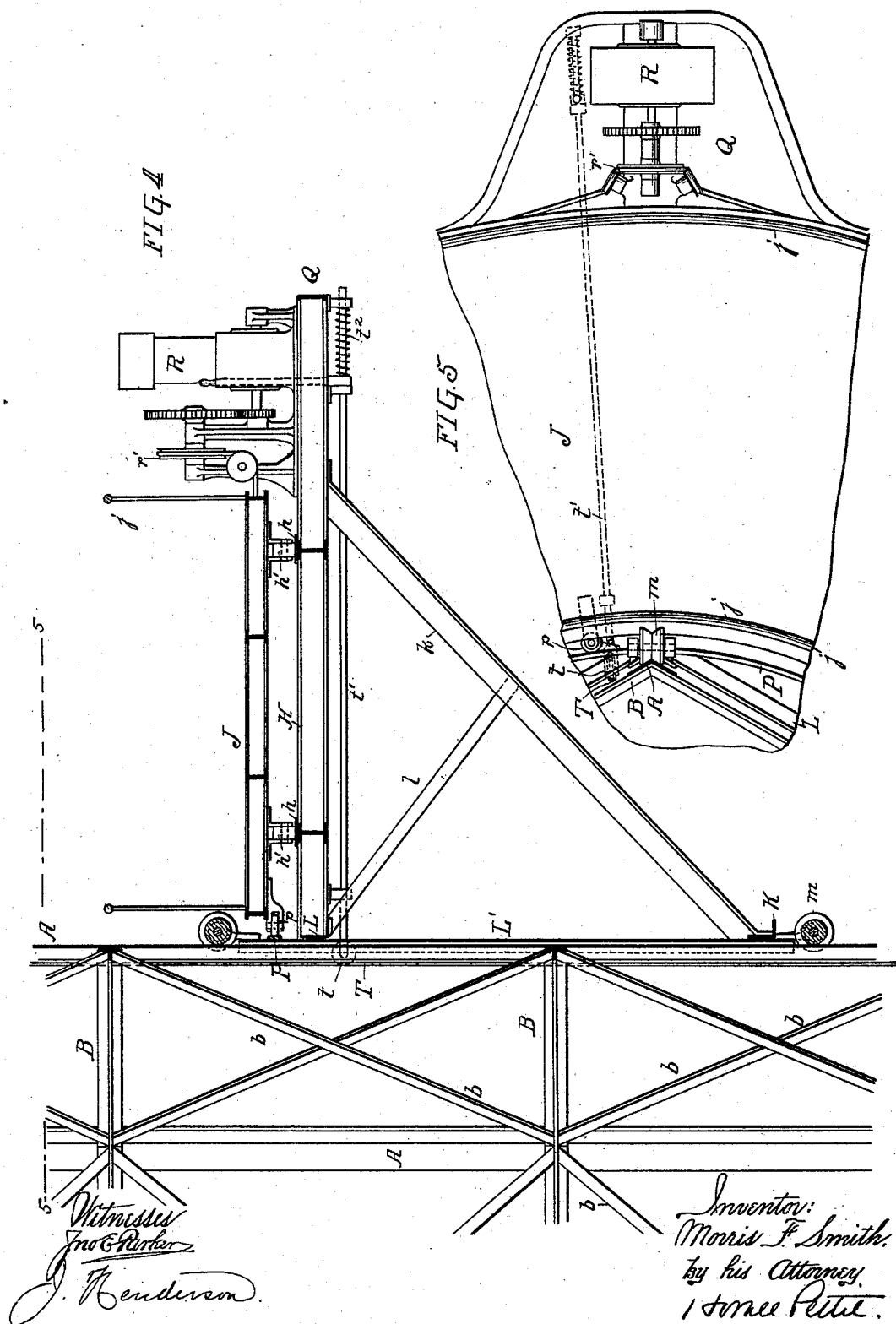
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# UNITED STATES PATENT OFFICE.

MORRIS F. SMITH, OF PHILADELPHIA, PENNSYLVANIA.

## OBSERVATION-TOWER.

SPECIFICATION forming part of Letters Patent No. 525,031, dated August 28, 1894.

Application filed December 8, 1893. Serial No. 493,162. (No model.)

*To all whom it may concern:*

Be it known that I, MORRIS F. SMITH, a citizen of the United States, and a resident of the city of Philadelphia and State of Pennsylvania, have invented a certain new and Improved Observation-Tower, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to provide an observation tower of any desired height having a passenger carrying platform from which an uninterrupted view from all points, may be had during both the ascent and descent of the platform, such a tower being of especial value for seashore and mountain resorts, exhibitions and the like.

To this end I construct a tower of any desired height and arrange around the same a platform which may be raised and lowered upon vertical guides formed preferably by portions of the structural work of the tower, and upon this platform is placed a passenger platform which may be revolved by any suitable mechanism during the ascent and descent of the elevator so that the passengers may have an uninterrupted view from all sides of the tower during the entire time they occupy the same.

In the accompanying drawings:—Figure 1 is a sectional elevation of a tower provided with a passenger platform in accordance with my invention. Fig. 2 is a plan view of the same. Fig. 3 is a sectional plan view on the line 3—3 Fig. 1. Fig. 4 is a sectional elevation, on an enlarged scale of a portion of the tower and the platforms, and Fig. 5 is a sectional plan view on the line 5—5 Fig. 4.

In Fig. 1 the upper and lower portions only of the tower are shown and the intervening portion is of the same construction and of any desired height. The tower in the present instance is hexagonal in cross section, but this form of course, may be altered as desired, the form shown, however, being a desirable one, convenient to construct and costing but comparatively little, as the iron employed is that in ordinary commercial use. At the meeting points of the various sides or angles of the tower are angle irons, A, of V-shape in

cross section, extending in sections from top to bottom of the tower and connected and braced by inner horizontally disposed T-bars, B and cross bars, b, extending from the junctions of the horizontal bars, B, with the vertical bars, A. At the top of the tower is a platform, D, upon which the passengers may pass after the passenger platform has reached its highest point but which is intended principally to serve as a support for a number of standards or bearing blocks, E, F, in which are shafts, e, f, the former carrying sheave, e', over which the hoisting ropes, e<sup>2</sup>, for the hoisting platform may pass, and the standards, F, carrying the shafts, f, on which are mounted sheaves, f', over which are guided ropes, f<sup>2</sup>, carrying counter-balance weights, G, which may partially counterbalance the weight of such hoisting platform. Extending around the tower is a platform, H, formed of a series of angle and channel bars, and provided with circular tracks on which are guided wheels, h', carried by the passenger platform, J.

In order to more securely brace the platform, H, I provide at some distance below the same, a ring, K, formed of angle iron encircling the tower from which extend bracing bars or struts, k, to the under side of the platform, H, and from a point about midway from the struts, k, extend bracing bars, l, extending to a second ring, L, which forms the extreme inner portion of the platform, H. The rings K and L are rigidly secured together by vertically disposed angle bars, L', at each angle of the tower, and which also serve to support at points immediately above the ring, L, and below the ring, K, the grooved rollers, m, which are adapted to guide the platform, H, in a vertical path, the rollers resting against the angle irons, A, and preventing any lateral displacement or circular movement of the platform, H. Connected to this platform, H, are the counterbalance ropes, f<sup>2</sup>, extending over the sheave, f', on the platform, D, and carrying at their opposite ends the counterbalance weights, G, as before stated, so that a portion of the weight of the platform will be taken from the main hoisting ropes, e<sup>2</sup>, which extend over the sheaves, e', and at their lower ends pass around winding drums, M, mounted on suit-

able shafts which may be driven synchronously by the worm gearing, N, from a central power shaft, n.

The base of the tower is embedded in the ground to a desired depth and from a distance above the base extend anchoring bars or rods, O, connected to plates, o, embedded in the ground, while the base is further anchored by a series of cross bars, O', extending through the base portion of the tower beneath an inner horizontally disposed ring, o', held in position against the same by bolts, o<sup>2</sup>, extending through a plate, o<sup>3</sup>, placed on the surface of the ground and forming a bed plate for the hoisting machinery.

The passenger platform, J, is annular in form and is provided at each edge with inclosing hand rails, j, and on its under side has supporting wheels, h', adapted to the circular tracks, h, of the hoisting platform, H; in order to prevent any lateral movement of the passenger platform the hoisting platform carries at points just below its upper guiding rollers, m, a circular track, P, against which the anti-friction rollers, p, carried by the passenger platform may travel, these rollers and the track, P, serve to keep the rollers, h', upon their tracks, h, so that it is unnecessary to employ flanged rollers for the purpose.

The mechanism for revolving the passenger platform is of any suitable character, a preferable form being that illustrated wherein the hoisting platform, H, is extended out at diametrically opposite points to form, on one side a support, Q, for an electric motor, R, and on the opposite side to form a support, q, for a grooved idler, r, the motor being geared down and adapted to revolve a pulley, r', from which extends a wire cable belt, S, adapted to a groove, s, in the edge of the platform, J, the cable or belt extending also around the idler, r, so that the pulling strain of the cable will be equalized and the passenger platform will not be pulled over toward the motor. The motor may, however, be carried by the passenger platform and drive a roller or cable operatively connected to the passenger platform or tower, or a gas engine or other motor may be employed for the purpose. In some cases the vertical movement of the platform may be transformed into a revolving motion and the platform be revolved without any auxiliary motor power as will be readily understood. The necessary electric current for the motor may be transmitted through a flexible cable, such as is ordinarily used for lighting purposes in passenger elevators, or it may preferably be supplied by a trolley wire, T, provided vertically upon the outer walls of the tower and against which may bear a trolley wheel, t, carried by an arm, t', pivoted to the under side of the platform, H, and held in contact by a spring or other suitable device. In operation the passengers are assembled on the platform, J, at the base of the tower and after the hoisting drums have been started in motion the

electric motor upon the platform, H, is set in operation and as the hoisting platform is raised to the top of the tower and with it the passenger platform, the latter is revolved at any desired speed by means of the motor and its cable, S, so that the passengers while ascending or descending will at the same time also be rotated horizontally and during the ascent and descent of the platform may have an uninterrupted view from all sides of the tower; the platform at the extreme top of the tower may be employed when the passengers desire to remain at the top, and there may, if necessary, be intervening platforms at various heights within the tower proper when the latter is of any great height.

For the convenience of passengers I may provide a number of revoluble or other seats, and the platform may be stepped, as illustrated in Fig. 1.

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

1. In combination, a tower, a platform encircling the same with mechanism for raising and lowering and for revolving said platform, substantially as specified.

2. In combination, a tower, a hoisting platform encircling the same, mechanism for elevating and lowering the said platform, a passenger platform supported upon the hoisting platform and mechanism for revolving said passenger platform, substantially as specified.

3. In combination, a tower, a hoisting platform encircling said tower and having supporting tracks, mechanism for elevating and lowering said platform, a passenger platform having rollers or wheels adapted to said tracks, with mechanism for revolving said passenger platform, substantially as specified.

4. The combination of the tower, the hoisting platform, mechanism for raising and lowering said platform, supporting tracks on said platform, a guiding track also carried by said platform and a passenger platform having supporting and guiding wheels adapted to the tracks of the hoisting platform, with mechanism for revolving said passenger platform, substantially as specified.

5. In combination, a tower having vertical guides, a hoisting platform encircling said tower and having wheels adapted to said guides, a passenger platform mounted upon the hoisting platform and mechanism for revolving said passenger platform, substantially as specified.

6. In combination, the tower having vertical guides, a hoisting platform encircling said tower and having wheels adapted to said guides, an engine or motor carried by said hoisting platform, a passenger platform mounted upon the hoisting platform, said passenger platform being operatively connected to and revolved by said engine or motor, substantially as specified.

7. The combination of the tower, a hoisting platform encircling said tower, a lower sup-

porting ring beneath said platform and also encircling said tower, bracing bars extending from said ring to the under side of the platform, guiding wheels carried by said platform and ring adapted to vertical guides on or forming part of the tower, supporting tracks, as *h*, on said hoisting platform, a circular guiding track, *P*, carried by the hoisting platform, a passenger platform having supporting wheels adapted to travel on the tracks, *h*, and guiding wheels, *p*, adapted to the circular track, *P*, with mechanism for revolving said passenger platform, substantially as specified.

8. The combination of the tower, a hoisting platform encircling the same, hoisting mechanism, an electric motor supported upon said hoisting platform, a passenger platform mounted upon the hoisting platform and adapted to be revolved by said electric motor, an electric conductor or trolley extending from the bottom to the top of the tower and a trolley arm carried by the hoisting platform and adapted to conduct the current from the trolley to the electric motor, substantially as specified.

9. An observation tower of the same diameter from its base to its top, vertical guides formed on the exterior of such tower, a plat-

form encircling said tower and adapted to such guides, mechanism for raising and lowering said platform, and a passenger platform mounted upon the hoisting platform, with mechanism for revolving said passenger platform, substantially as specified.

10. The combination of the tower, angle bars, as *A*, forming vertical guides, a hoisting platform, as *H*, a supporting frame therefor comprising angle bars, *L'*, arranged at the angles of the tower, encircling rings, *K* and *L*, secured to said angle bars, *L'*, bracing bars connecting the rings and platform, guiding wheels, as *m*, secured to the angle bars, *L'*, and guided upon the bars, *A*, a circular guiding track, as *P*, carried by the angle bars *L'*, a passenger platform mounted upon the hoisting platform, guiding rollers on the passenger platform, adapted to said track *P*, and mechanism for revolving said passenger platform, substantially as specified.

In witness whereof I have hereunto set my hand this 2d day of December, A. D. 1893.

MORRIS F. SMITH.

Witnesses:

J. BAYARD HENRY,  
HORACE PETTIT.