

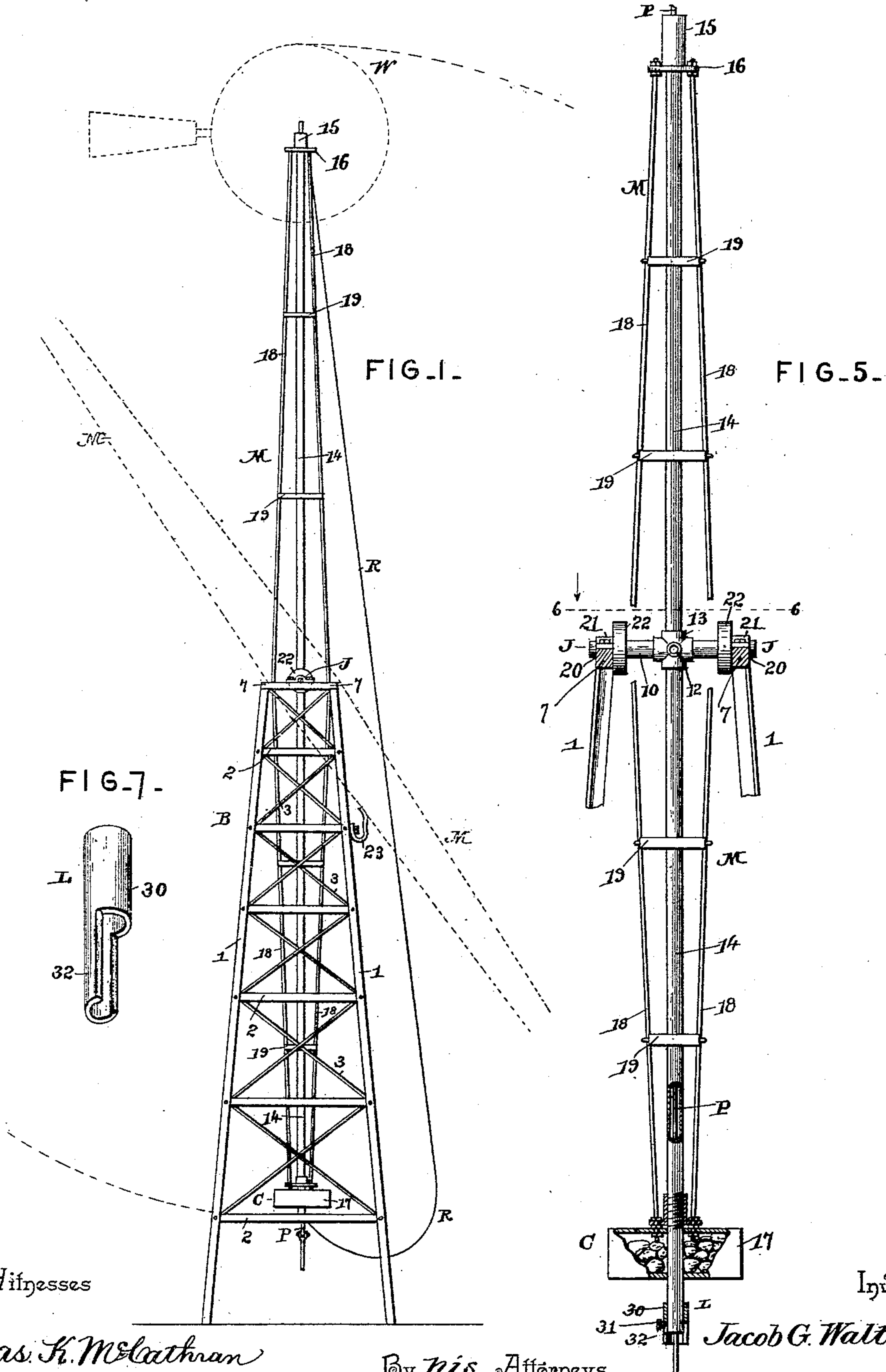
(No Model.)

2 Sheets—Sheet 1.

J. G. WALTON.
WINDMILL TOWER.

No. 465,079.

Patented Dec. 15, 1891.



Witnesses

Jas. H. McLaughlin

By his Attorneys,

D. C. Collier.

Inventor

Jacob G. Walton

C. A. Snow & Co.

(No Model.)

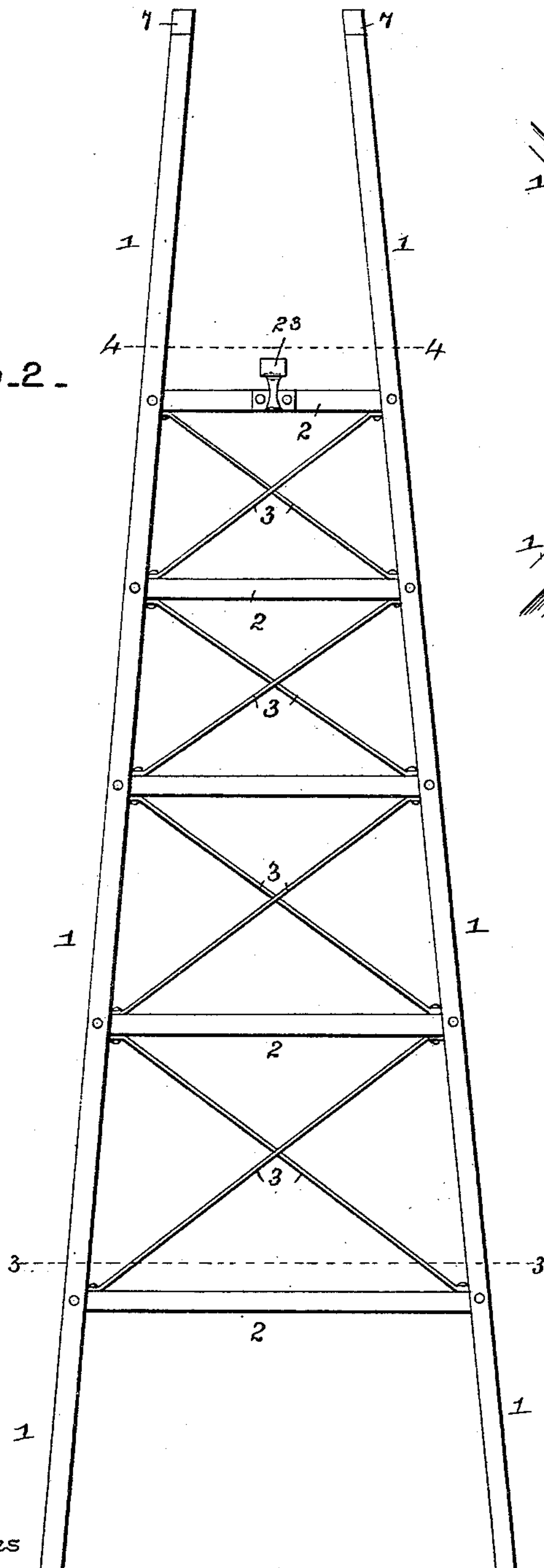
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FIG. 2.



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FIG. 3.

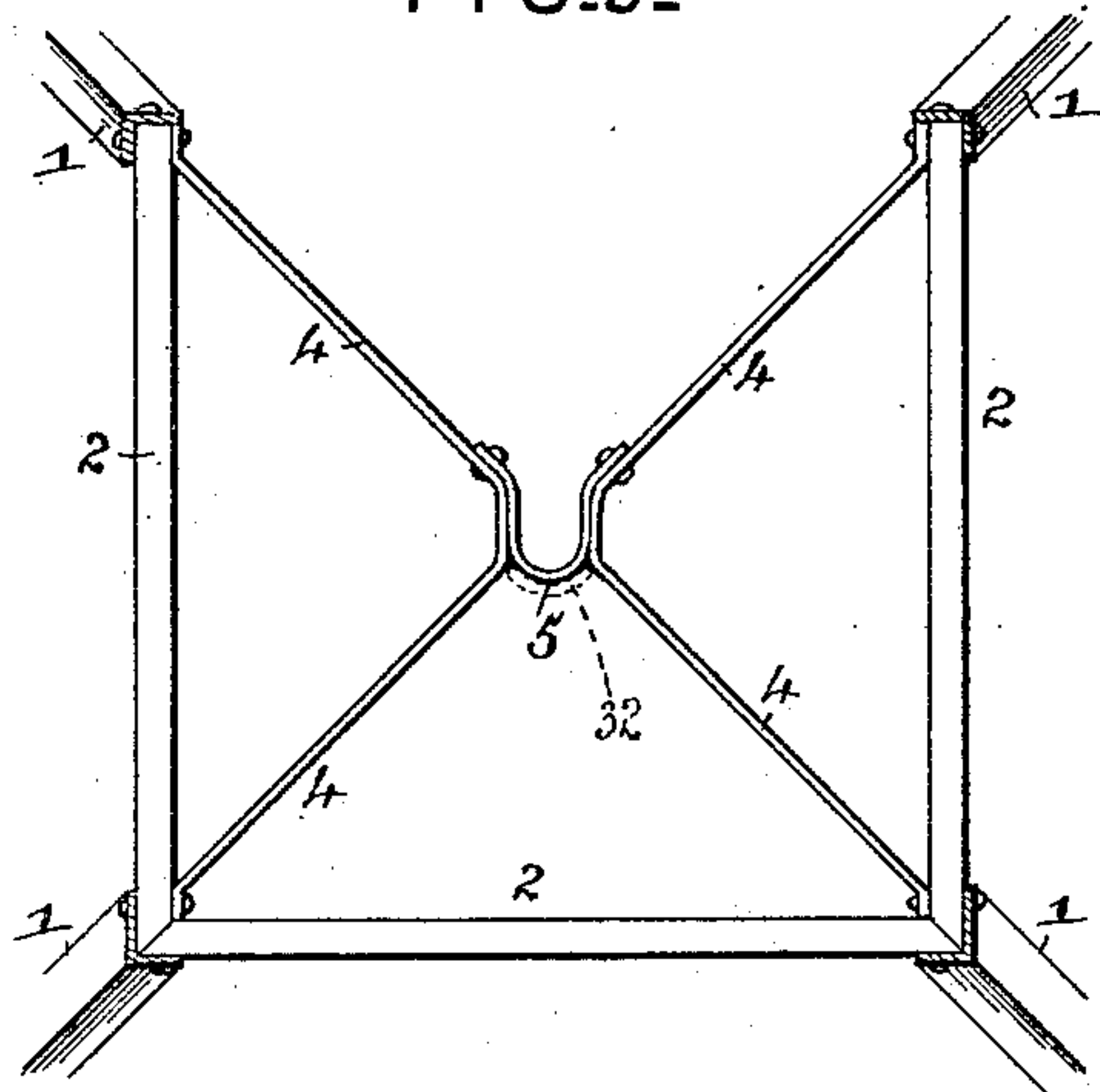


FIG. 4.

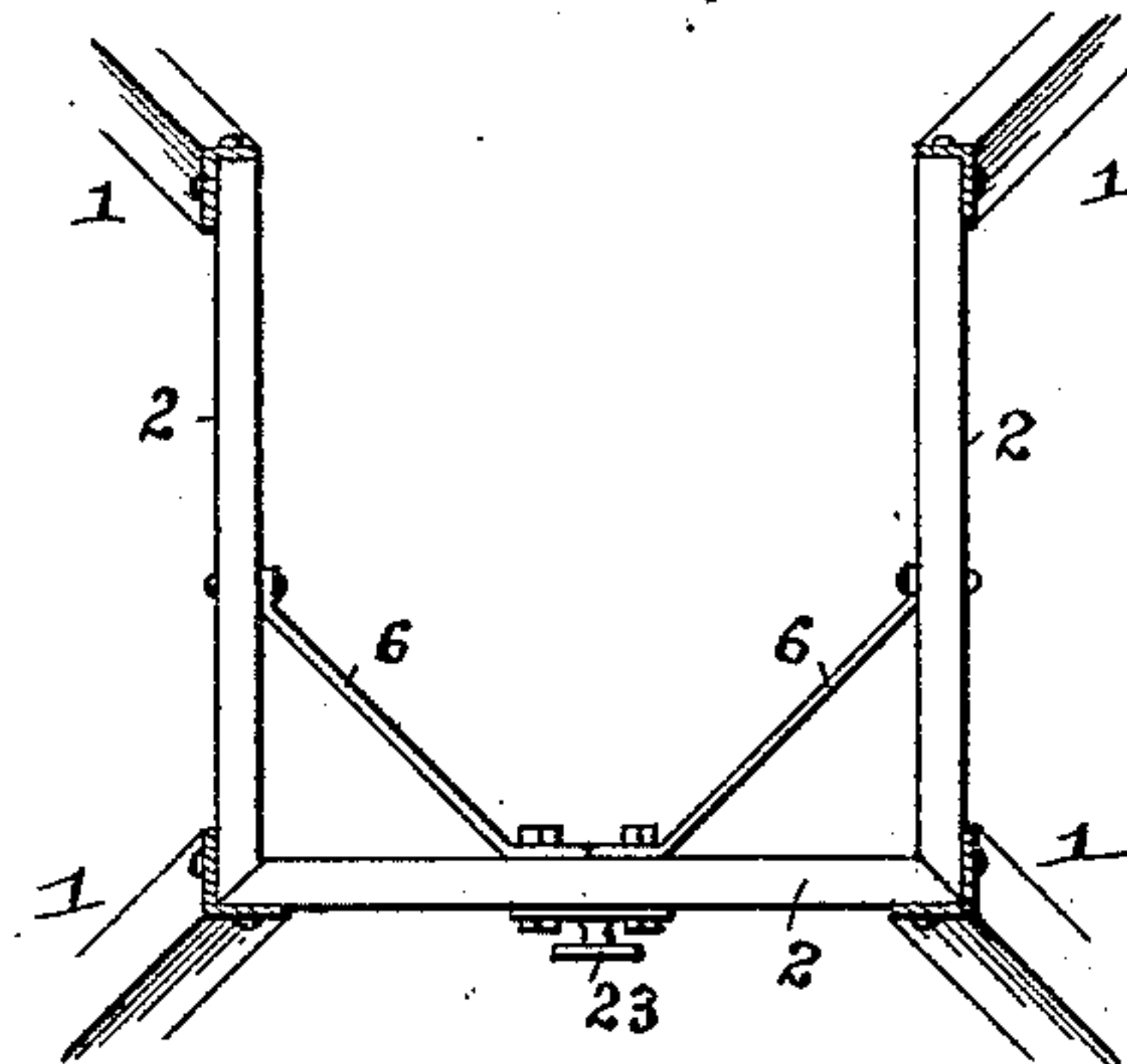
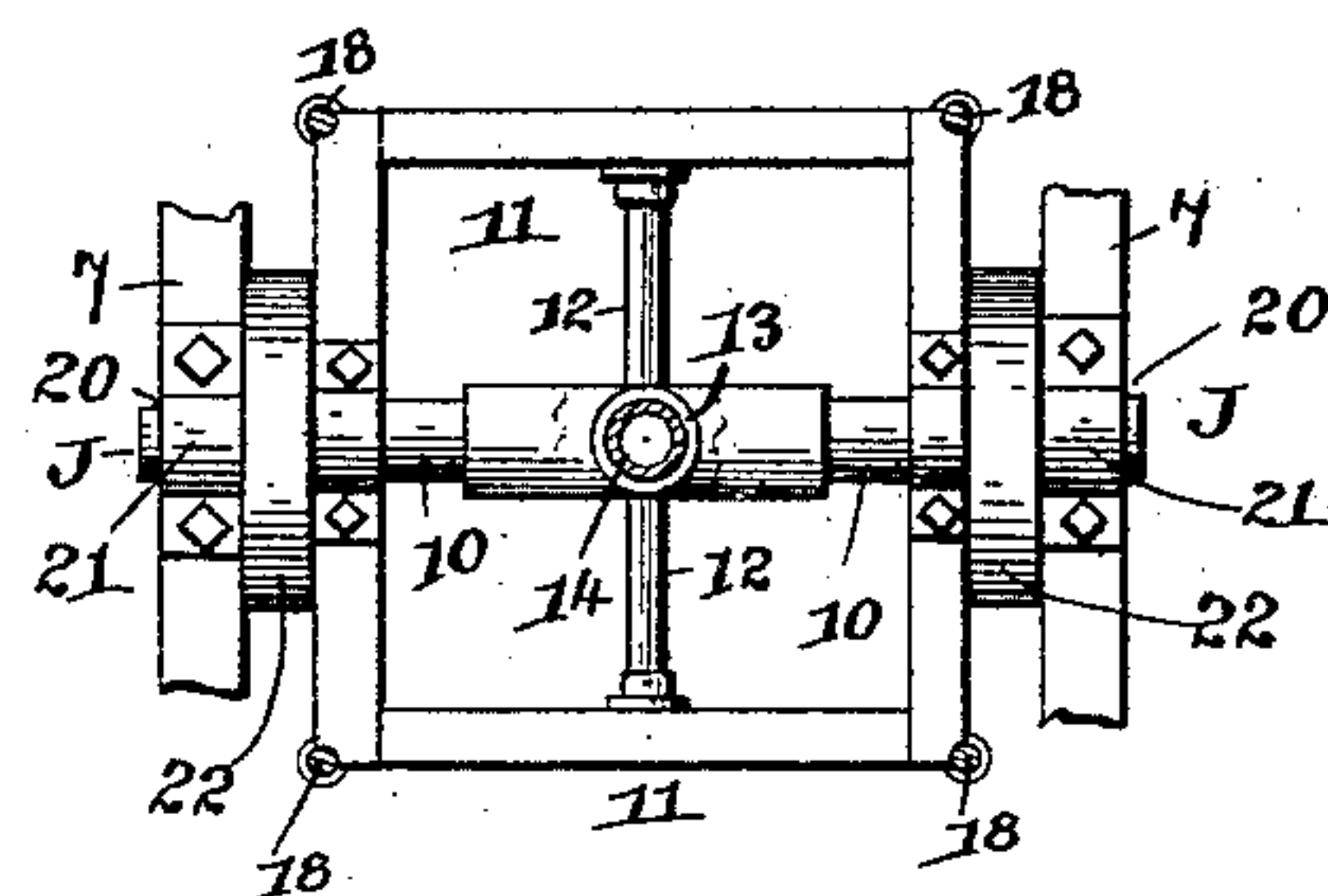


FIG. 6.



Inventor

Jacob G. Walton

UNITED STATES PATENT OFFICE.

JACOB GIPSON WALTON, OF DAVILLA, TEXAS.

WINDMILL-TOWER.

SPECIFICATION forming part of Letters Patent No. 465,079, dated December 15, 1891.

Application filed August 22, 1891. Serial No. 403,468. (No model.)

To all whom it may concern:

Be it known that I, JACOB GIPSON WALTON, a citizen of the United States, residing at Davilla, in the county of Milam and State of Texas, have invented a new and useful Windmill-Tower, of which the following is a specification.

This invention relates to skeleton towers of a character more especially adapted to support a wind-wheel; and the object of the same is to produce a tower of this character wherein the wheel or whatever is supported thereby may be lowered to the ground.

To this end the invention consists in a skeleton base, a mast or pole pivoted at about the center of its length to the upper end of said base, and the specific details and construction of these elements and the various features thereof, all as hereinafter more fully described and claimed, and as illustrated on the two sheets of drawings, wherein—

Figure 1 is a general elevation of my invention, showing the mast as raised and a wind-wheel as supported at the upper end thereof. Fig. 2 is a front elevation of the base. Figs. 3 and 4 are cross-sections of the base on the lines 3 3 and 4 4, respectively, of Fig. 2. Fig. 5 is a front elevation of the mast. Fig. 6 is an enlarged cross-section on the line 6 6 of Fig. 5. Fig. 7 is a perspective detail of the lock at the lower end of the mast.

In the said drawings, B is a skeleton base rising from the ground. M is a mast journaled at J to the top of the base and at the center of the mast. W is the device supported by the mast and adapted to be raised high into the air, (in the present case being a wind-wheel.) C is a counterbalancing-weight for the wind-wheel, and L is the latch or lock for holding the mast upright when it is raised by the rope R, these parts being respectively of the following construction:

The base B comprises, preferably, four corner-posts 1, which may be of L-iron, as seen in Figs. 3 and 4, and which posts converge from their lower to their upper ends and form a square truncated cone. The posts are braced at various points throughout the height of the base by stringers 2, which close all sides of the base save one, and the several stringer-frames thus formed are connected

by inclined struts 3, as shown. Within the lowermost stringer-frame, Fig. 3, are two V-shaped rods 4, standing in a horizontal plane and with their angles slightly separated, and such angles are connected by a curved rod 5, for a purpose to appear hereinafter, the inwardly-curved side of the rod facing the open side of the base, as seen. The other stringer-frames in the base are constructed, as best seen in Fig. 4—that is to say, the stringers 2 are connected by inclined braces 6 across the angles inside the base and remote from its open side. The upper ends of the posts 1 are connected in pairs by two horizontal bars 7 for supporting the journal J, described below.

The mast M comprises the following elements: 10 is a shaft extending across the center of a rectangular frame 11 and preferably braced therein by a transverse bar 12, extending across the frame at right angles to the shaft. At the center of the shaft threaded bosses or sockets 13 extend upward and downward, and into these sockets are screwed the inner ends of two long pipes or tubes 14, which constitute the mast proper. The outer end of one tube is screwed into a stub-shaft 15, which has a horizontal perforated flange 16, and on which is supported and pivoted the wind-wheel or other device W, which is to be carried by this improved tower. The outer end of the other tube passes through a box or casing 17, which contains stones or other weights and constitutes the counter-balance C for the wind-wheel W, the casing being rigidly secured on the tube. Four truss-rods 18 lead from the holes in the flange 16 through notches in the corners of the rectangular frame 11 and connect with the inner face of the casing 17, these rods being drawn very taut and bracing the tubes against deflection in any direction from their proper alignment. The rods may be connected at suitable points by braces 19 to prevent their being stretched and rendered slack under the influence of strong winds.

The journal J between the center of the mast and the upper end of the base is constructed as follows: The ends of the shaft 10 project beyond the frame 11 and form bearing-journals 20, which turn in journal-boxes

21, located at the centers of the horizontal top bars 7 of the base. Inside each bearing a large disk or ring 22 is mounted concentrically around the journal of the shaft with which it turns, this ring preventing the accidental dislocation of the journals from their boxes, which might occur when the mast is swung during a high wind. Such swinging of the mast is accomplished by means of the rope R in a manner which will be obvious, and as the mast is drawn down around its journal it strikes a buffer-spring 23, secured to one of the stringer-frames, whereby the jarring of parts is cushioned.

The latch or lock L for holding the mast raised is best seen in Fig. 7. It comprises a tubular body 30, sliding on the mast proper between the outer face of the casing 17 and a stud or set-screw 31 inserted in the mast, and the body 30 has a depending tongue 32, which is adapted to be dropped over the curved rod 5, which connects the angles of the V-rods 4, as above described. Thus it will be seen that as the mast swings into upright position its weighted end passes into the open side of the base and the outer end of the then lowermost tube 14 is guided into the curved rod 5. As soon as it strikes against said rod the tubular body 30 is moved downward, so that its tongue 32 engages over the rod and the mast is held upright.

Every part of this tower is preferably of metal, except the weights and the rope, which may be of any desired material. By having the mast tubular, as seen, the pump-rod P of the windmill W (when the latter is supported by the mast) may pass downward through the two tubes 14 and be detachably connected in any suitable manner at its lower end with the pump or other machinery which the mill is to operate, the connection being necessarily a detachable one, in order that it may be disconnected when it is desired to lower the mast. However, this feature I have not described, as it forms no part of the present invention. Such a tubular guide for the pump-rod will prevent it from being swayed in the wind or from exposure to the other elements.

The use and advantage of a tilting tower to support a windmill are too obvious to need elaboration here. By the construction described the base and the mast are each braced against deflection in any direction, the mast occupying a position at the center of the base and of its braces, which consist of the frame and truss-rods.

I do not describe in detail the manner of connecting the various members, although it will preferably be by bolts, and I reserve the right to make such changes in the construction as may come within the spirit of my invention, one of which will include the substitution of wood or other material for some of the parts of this device.

What is claimed as new is—

1. The herein-described tower, the same

comprising a skeleton base of rectangular cross-section and with one side open, horizontal bars at the top of said base having oppositely-disposed journal-boxes, a shaft having bearings mounted in said boxes, aligned bosses at the center of said shaft, a mast having its center secured in said bosses, a rectangular frame secured to said shaft, and truss-rods connecting the ends of the masts and leading over the corners of the frame, as set forth.

2. The herein-described tower, the same comprising an upwardly-tapering skeleton base of rectangular cross-section and with one open side, two parallel bars at the top of said base having opposite journal-boxes, a shaft having bearings mounted in said boxes, a mast secured at its center to the center of said shaft, a rectangular frame secured to the shaft, truss-rods connecting the ends of the masts and leading over the corners of the frame, a stringer-frame in the base, and means for locking the lower end of the mast to said frame, as and for the purpose set forth.

3. In a tower, the combination, with a skeleton base having opposite journal-boxes at its upper end and one open side, of a shaft journaled in said boxes, a mast centrally secured through said shaft, truss-braces for the mast, and disks or rings surrounding the shaft just inside the journals thereof, as and for the purpose set forth.

4. In a tower, the combination, with an upwardly-tapering skeleton base open at one side, two V-shaped rods connected at their ends to the corners of the base, and a curved rod connecting the angles of said V-shaped rods with its inwardly-curved side facing the open side of the base, of a mast pivoted at its center to the upper end of the base, with its lower end adapted to swing into the open side thereof and against said curved rod, a lock on said mast, comprising a tubular body sliding on the mast, and a depending tongue adapted to engage over said curved rod, as and for the purpose set forth.

5. In a tower, the combination, with a skeleton base comprising corner-posts, horizontal stringer-frames all open at one side, inclined struts, a curved rod supported at the center of the lowermost stringer-frame, and inclined braces across the angles of the other stringer-frames, of a mast pivoted at its center to the upper end of the base and adapted to swing into the open side thereof with its lower end against said curved rod, a lock between said lower end and rod, and truss-braces for the mast, as set forth.

6. In a tower, the combination, with a skeleton base open at one side and having opposite journal-boxes at its upper end, and a stringer-frame in said base, having a curved rod at its center facing toward said open side, of a mast having at its center a shaft journaled in said boxes, a wind-wheel at the upper end of the mast, a counterbalancing-weight

near the lower end thereof adapted to pass over said stringer-frame, and a lock, substantially as described, detachably connecting the lower end of the mast with said curved rod, as
5 and for the purpose set forth.

7. In a tower, the combination, with a base open at one side, of a mast pivoted at its center to the upper end of the base and adapted to swing into said open side, a stub-shaft on
10 one end of the mast, a wind-wheel mounted thereon, a weight-casing surrounding the mast near its other end and of a size to pass into the open side of the base, weights in said casing counterbalancing the wheel, means for
15 locking the mast in raised position, and a buffer-spring for cushioning the descent of the mast, as set forth.

8. In a tower, the combination, with a base open at one side and having opposite journal-
20 boxes at its upper end, of a shaft journaled in

said boxes, aligned interiorly-threaded bosses at the center of said shaft, tubes projecting from said bosses, braces for holding the tubes in alignment, a stub-shaft secured on the outer end of one tube and having a perforated flange, 25 a wind-wheel mounted on said stub-shaft, and a weight-casing surrounding the outer end of the other tube and containing the counterbalancing-weight, said braces being connected at their ends to the flange of the stub-shaft and 30 the body of the casing, as and for the purpose hereinbefore set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JACOB GIPSON WALTON.

Witnesses:

G. A. RISTER,

G. F. PATTERSON.