(No Model.)

J. H. CAMPBELL.

METALLIC COLUMN, POLE, &c.

No. 535,161. Patented Mar. 5, 1895.

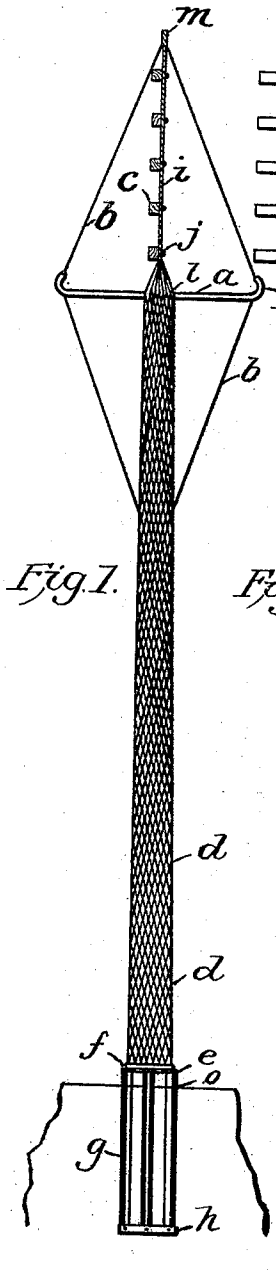

Fig. 1.

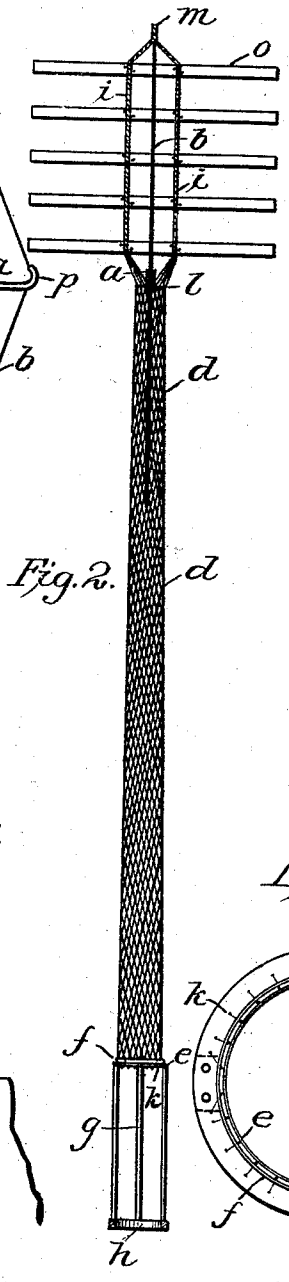

Fig. 2.

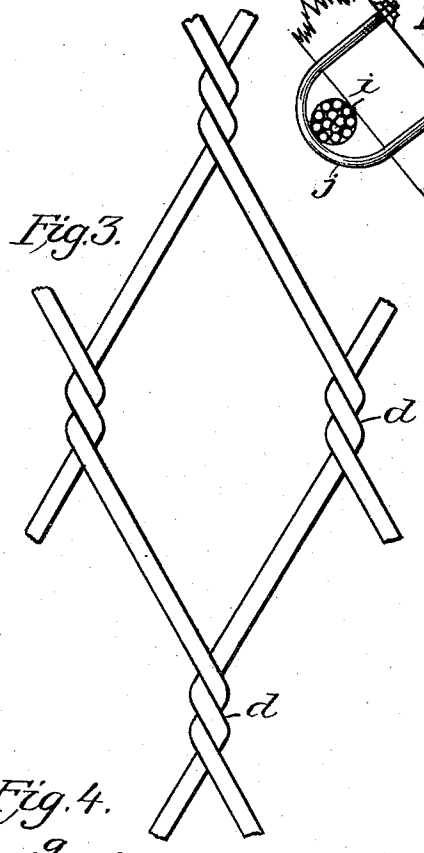

Fig. 3.

Fig. 6.

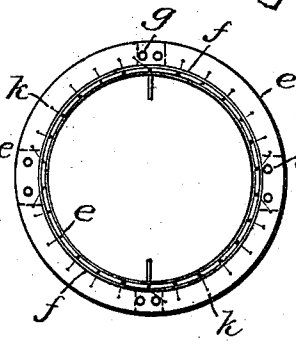

Fig. 4.

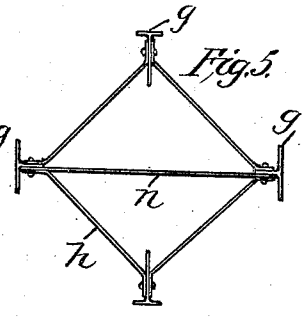

Fig. 5.

Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH H. CAMPBELL, OF CHICAGO, ILLINOIS.

METALLIC COLUMN, POLE, &c.

SPECIFICATION forming part of Letters Patent No. 535,161, dated March 5, 1895.

Application filed August 3, 1894. Serial No. 519,419. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. CAMPBELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful article of manufacture for use and application as a tower, column, pole, or post for structural work, telegraph-poles, lamp-posts, or other purposes, of which the following is a specification.

My invention relates to improvements which are classed properly under the designation of towers and columns, but more especially to that class of elevations known as telegraph poles, lamp posts, &c.

The object of my invention is to provide a new article of manufacture in the line of structural elevations, towers, columns, poles, and posts which shall be light and strong and simple in its manufacture or erection, and shall be possessed of the greatest possible strength in the proportion to the material used, and at the same time present the least possible surface subjected to the pressure of wind.

My invention is an entirely new departure from the usual line of designs, which are at present being used in that class of structural elevations; and there is great need of improvements in that direction more especially in its application to telegraph poles, lamp posts, &c. I have found from practice, that we are now manufacturing materials, admirably adapted to this class of constructions. More especially is this true of steel. We can now get spring steel wire of great elasticity and strength, and at the same time the wires can be cabled or twisted together quite readily when cold; which could not be successfully done five years ago but it is now a practical fact that a good sample of spring steel wire can be twisted, so as to give us anything we need in this particular line of structural manufactures. With this practical knowledge, and with this end in view, I have been enabled to perfect my invention, which consists in the construction and combination of parts as hereinafter described and claimed.

This invention relates to that class of structural elevations known as towers, columns, poles, and posts, and more especially to that class known as telegraph poles and lamp posts.

It consists of a substructure of suitable size to give it sufficient stability as a foundation for the superstructure. This substructure or anchorage is surmounted by a suitable cap which is rigidly fastened to the anchorage legs, and the wires of the tower are fastened to and rise from this cap the wires being reinforced and protected at the base of the column, by iron or other suitable bands. The tower rising from this base is made in any suitable design, and is constructed or manufactured by means of forming the wires or rods into meshes; by means of interlocking or twisting them together at the junction of the meshes, thus netting or intertwining the column up to any suitable height. At the apex of this column I have placed in this design for a telegraph pole or lamp post a loop or extension of the tower, and which is designed and adapted to sustain insulator cross bars, or a lamp, and to which they are fastened by any suitable means.

It is pertinent and proper here to say that it is not my intention to limit this invention to the manufacture of telegraph poles and lamp posts but it is intended to be applied to the manufacture of any other design of structural elevation for which its application is desirable.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference are used to designate corresponding parts in all the figures.

Figure 1 is a side view of the column designed for a telegraph pole or electric light or lamp post looking broadside at the line of poles, showing the strut, *a*, in position, and the guy, *b*, for supporting the loop, and with insulator bars in position. Fig. 2, is a cross view of the same. Fig. 3, is a plan of the meshes, showing the intertwining of the wires, at their intersections at, *d*. Fig. 4, is a plan of the anchorage cap, *e*, showing the plan of fastening the wires, and the reinforcement or shrink ring, *f*, and the fastening of the anchorage legs, *g*. Fig. 5, is a plan of the anchorage ties, *h*, at the feet of the legs, *g*. Fig.

6 is a plan for fastening insulator bars, *c*, or other supports as required, to the verticals of the loop, *i*, by means of the stirrup, *j*.

The body of the column is formed of spring steel or other suitable wire, rising from and fastened to the base ring or cap, *e*, of the anchorage, by means of passing the ends of the wires through perforations in the lower member of the cap as at K, and fastening them there, the wires rising from this fastening and crossing each other in symmetrical design, and at their intersections, *d*, twisted or intertwined around each other one half or a whole turn as may be necessary. The column woven or interlaced in this manner is carried up as far as necessary to its apex at, *l*, from which point the wires are assembled into two equal parts and twisted or braided into the form of a cable and carried up in the shape of the loop, *i*, as an extension of the pole, to which insulator bars, *c*, are fastened by means of the stirrup, *j*, the ends of the loop being brought together at the top, *m*, to a finale.

The strut, *a*, is made of angle bar or other suitable design of material with the ends formed over in circular form, so that the guy, *b*, will have easy bearing in the angle of the strut. The strut is carried through the column at its apex, *l*, and fastened there in the meshes. The guy, *b*, is formed by leaving out one or more wires, at any suitable height, of the column, or if of independent wires fastened there and carried up around the end of the strut, *a*, and fastened to the loop at, *m*, the wires at the base of this column are reinforced and protected by means of the ring or band, *f*, and hold them rigidly in their initial positions. The anchorage or substructure of this column as at Fig. 5, has its pecularities of construction. It is made with four or as many as necessary legs, *g*, of T shaped materials of suitable dimensions, the greater surface of which are placed, so that the broadest surface of all the legs, shall present their full face to the resistance of the soil, thus presenting the greatest area possible to the lateral leverage of the pole caused by wind pressure or otherwise. These anchorage legs, *g*, are held at their feet in the direction of the stress, by one or more tie bars, *n*, connecting the two opposite feet which are further secured from spreading by the diagonal braces, *h*, thus securely tying and bracing the foot of the anchorage. Upon the top of the anchorage is placed the cap Fig. 4, securely fastened to the anchorage legs as at, *g*, and this cap, or base ring for the column is placed at a sufficient height above the soil as at, *o*, for the prevention of rust, and to facilitate painting, &c. I shall without doubt have to change the form of the surmounting loop as designed, to suit other circumstances in the application of this invention. Thus to observatory towers, and other light structural elevations, the trolley pole will require a different construction at the apex of the column for guying purposes. For arc lights and lamp posts a modification is necessary. Therefore I reserve the right to make the necessary changes above the apex of the column, to adapt the invention to the services required.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A metallic structural elevation, tower, column, pole, or post; woven of meshed intertwined, spring steel wire or other suitable wire or rods; said tower or elevation being composed of a constructed base or anchorage, a meshed intertwined wire superstructure, rising from said anchorage, a cabled wire loop or other necessary extension surmounting said superstructure, and struts and brace guys as necessary for the support of said loop or extension substantially as described.

2. In a metallic structural elevation, tower, column, pole, or post, the combination of the meshed or latticed column, woven of spring steel or other suitable wire or rods, the cabled or braided wire loop or other suitable extension, the struts and brace guys, and a constructed base or anchorage composed of a cap plate or fastening base for the wires of the column, the keep or reinforcement ring, the substructural legs, and the ties and diagonal braces at the foot of said legs, substantially as described.

3. In a metallic column; telegraph pole or lamp post, the combination of the meshed wire column; the cabled loop or other extension; the struts and brace guys and the anchorage, composed of the cap, the reinforcement ring and the substructural legs; the section of said legs, being of T or angular form, and said legs being so placed, that their greatest surfaces, shall stand at right angles to the lateral stress imposed upon said pole, and the ties and braces at the foot of said legs substantially as described.

4. In a metallic column, pole or post, the combination of the meshed wire column the surmounting loop or other extension, the struts and guys and the anchorage, said anchorage composed of a cap plate, a reinforcement ring, the substructural legs, and the ties and braces at the foot of said legs, said ties composed of one or more bars, placed transversely and in the direction of the stress of the pole as, at, *n*, and the diagonal braces, *h*, between said legs substantially as described.

5. In a metallic structural elevation, tower, column, pole or post, the combination of the meshed wire superstructure, the surmounting loop or extension, the struts and guys, and the anchorage, composed of the foot ties and braces the substructural legs, and the cap plate, formed to suit the shape of the superstructure at the base; said cap plate being provided with perforations for the reception and fastening of the base end of the wires, and the shrink ring, *f*, for the reinforcement

and protection of said wires; said cap plate being rigidly fastened to the top of the anchorage legs, substantially as described.

6. In a metallic column, telegraph pole or lamp post, the combination of the meshed wire column fastened at its base to the anchorage cap plate, the cabled loop or other extension, the struts and guys, and the anchorage; said meshed wire column being either tapering or parallel in its elevation to its apex at the junction of the loop substantially as described.

7. In a metallic column, telegraph or trolley pole or lamp post; the combination of the meshed wire column; the anchorage; the struts and guys; and the surmounting loop, *i*, for supporting insulator bars, or arc lights or gas jets, the sides of said loop rising from the apex of the column and extending upward, parallel or otherwise and converging at the top, substantially as described.

8. In a metallic telegraph pole or lamp post; the combination of the meshed wire column, the loop; the anchorage; and the struts and guys; said struts being circular curved at each end as at, *p*, and passing through the column near its apex; and the guys passing around the ends of the struts from the body of the column, to the upper part of the loop or other extension substantially as described.

JOSEPH H. CAMPBELL.

Witnesses:
GEORGE DE MING WRIGHT,
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