(No Model.) 2 Sheets—Sheet 1.

E. C. BATES.

SKELETON STRUCTURE.

No. 265,301. Patented Oct. 3, 1882.

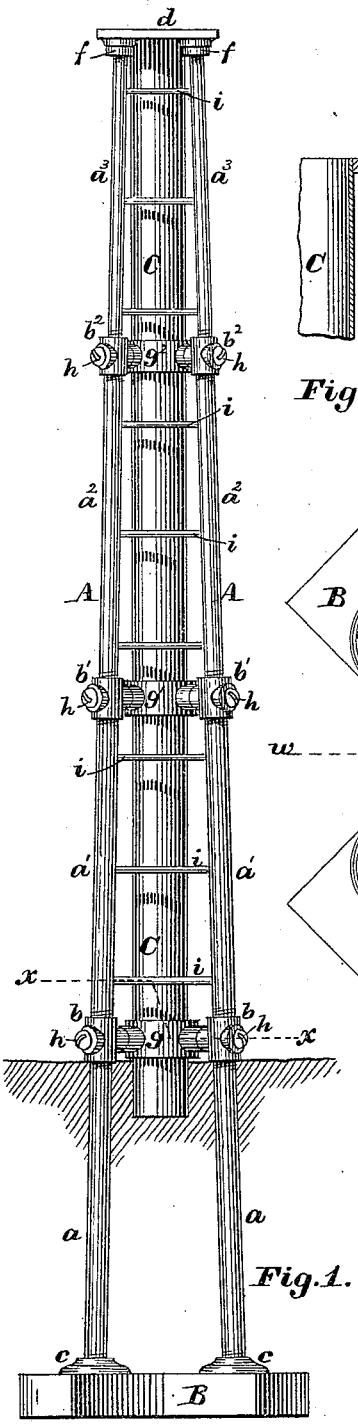

Fig. 1.

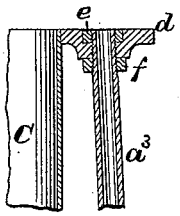

Fig. 5.

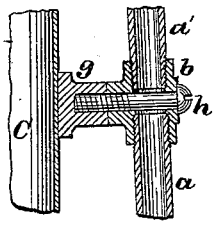

Fig. 4.

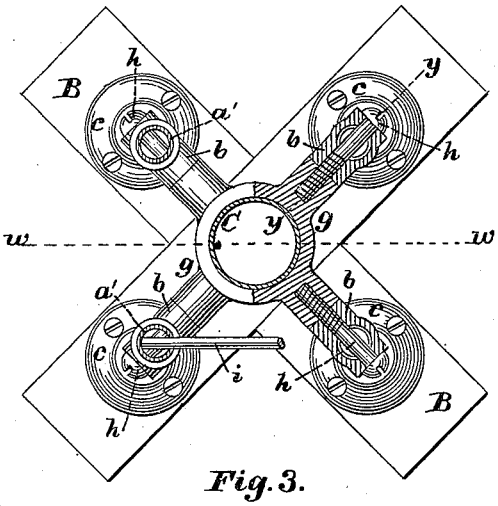

Fig. 3.

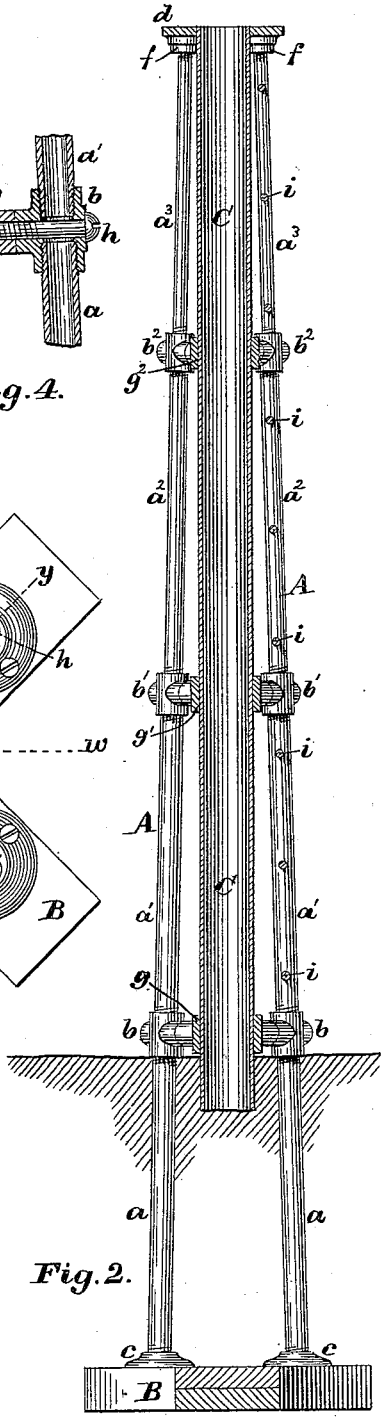

Fig. 2.

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SKELETON STRUCTURE.

No. 265,301. Patented Oct. 3, 1882.

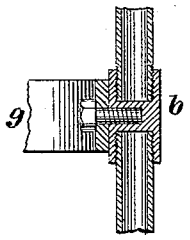

Fig. 9.

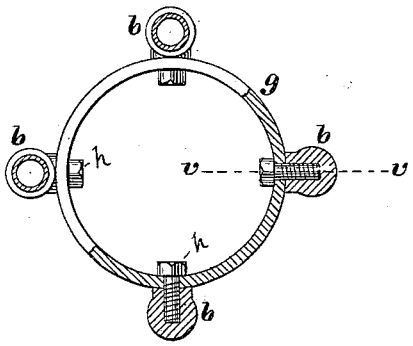

Fig. 8.

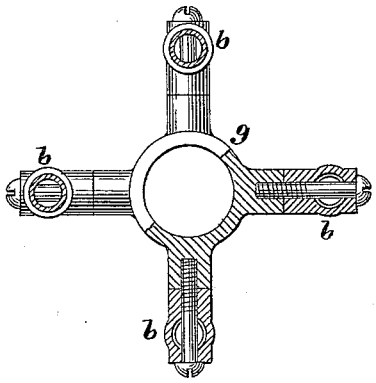

Fig. 7.

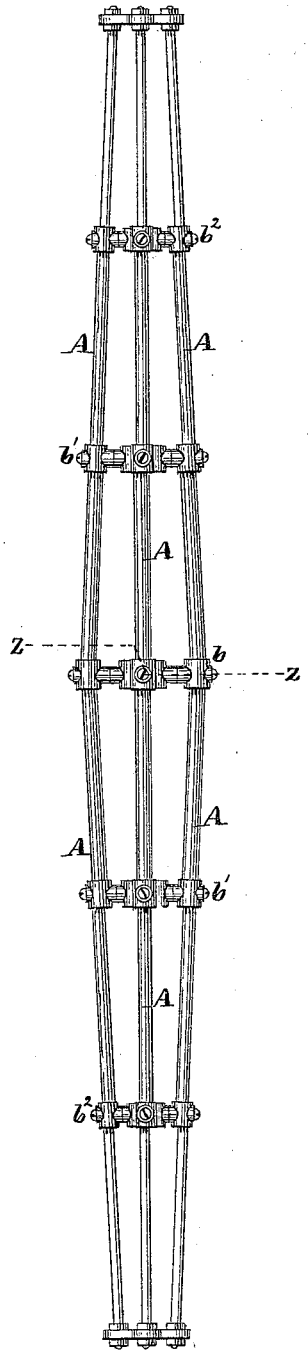

Fig. 6.

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UNITED STATES PATENT OFFICE.

EDWARD C. BATES, OF BOSTON, MASSACHUSETTS.

SKELETON STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 265,301, dated October 3, 1882.

Application filed January 9, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWARD C. BATES, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Skeleton Structures, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to the structure of masts and yards for vessels, posts for railway-signals, electric lights, and other purposes, and other similar articles; and it consists in certain details of construction, which will be readily understood by reference to the description of the drawings and to the claims to be hereinafter given.

Figure 1 of the drawings is a side elevation of a railway signal-post constructed in accordance with my invention. Fig. 2 is a central vertical section of the same on line *w w* on Fig. 3. Fig. 3 is a horizontal section on line *x x* on Fig. 1, enlarged. Fig. 4 is a partial vertical section through one of the spiders and couplings on line *y y* on Fig. 3. Fig. 5 is a similar vertical section through a portion of cap or head of the post and one of the tie-rods or supports. Fig. 6 is an elevation of a yard for a vessel embodying my invention. Fig. 7 is a transverse section on line *z z* on Fig. 6, enlarged. Fig. 8 is a similar section, illustrating a modification of the spiders or stays which connect the several longitudinal T's or rods together, and Fig. 9 is a partial vertical section on line *v v* on Fig. 8.

In the post illustrated in Figs. 1, 2, 3, 4, and 5, A A are the supporting-bars, made in sections, a, a', a^2, and a^3 of metal rods or tubing, screwed into couplings $b\ b'\ b^2$, end to end, the lower end of each of the lower sections being screwed into a step, *c*, secured upon the base B, which is buried in the ground. As a suitable mode of firmly connecting the standards together, I have shown at the upper end of the upper sections (which in this case is the top of the tower) a plate or head, *d*, secured to the said standards by nuts *e* and *f* or equivalent means. A series of spiders or stays, g, g', and g^2, are placed within the circle of the supports A A, and are connected thereto by screw-bolts *h*. The sections a', a^2, and a^3 of the supports A, which are above the ground-line B, are made of different diameters, a' being the largest and a^3 the smallest, and I prefer to make all of the sections a, a', a^2, and a^3 of said supports of tubing, as shown in Figs. 3, 4, and 5. The spiders g, g', and g^2 may in one construction be composed of a ring of metal, upon the exterior of which are formed three or more outwardly-projecting bosses of greater or less length, according to the position which the particular spider is to occupy, so that when the supports A A are secured thereto they shall all incline toward a common center, and thus produce a gradually-tapering structure.

When the post or column is to be used for a railway-signal a thin sheet-metal tube, C, is secured within the rings of the spiders g, g', and g^2, to receive the counterbalance-weight; but said tube is not a necessary part of the structure, or, in other words, does not add to the strength or stiffness of the column, and is only used as a sort of screen or guide for the counter-weight when such is used.

When the post or column is to be used for supporting an electric light the tube C may, if not required in connection therewith, be dispensed with.

Between two of the supports A A, I place the horizontal rods *i i* to form a ladder, by means of which the top of the column is rendered easily accessible.

Four supports are shown in the post illustrated; but it is obvious that a greater number may be used; or the number may be reduced to three without affecting the principles of my invention; and it is also obvious that the post or column may be made of any desired height or any desired degree of taper to adapt it to the various uses to which it may be applied.

In Fig. 6 is illustrated a double-tapered structure adapted to use as a beam or a yard of a vessel, which is constructed in all respects like the column shown in Figs. 1 and 2, except that it tapers in both directions from the center of its length and that the tube C is not used.

In cases where the tube C is not used the spiders may consist of plain rings of wrought-iron both in the post or column and the double-tapered structure, said rings being made of different diameters and secured to the supports A by bolts connecting them with the couplings, substantially as shown in Figs. 8 and 9. This

makes a very strong and durable structure, presenting but a small area of surface to the action of the wind, and one that is comparatively inexpensive when considered in the light of its durability.

The application of my invention to yards of vessels, beams, or trusses I will reserve for another application later.

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

1. The combination of the pipes, the T-fittings, the spiders, and the bolts uniting the couplings and the spiders, substantially as and for the purpose described.

2. The combination, in a skeleton structure, of the pipes, the T-couplings, the spiders, the bolts uniting the couplings and the spiders, and the ladder-rounds, substantially as and for the purpose described.

3. The combination, in a skeleton structure, of the supports A, each made in sections of different diameters, the couplings b, b', and b^2, the spiders g, g', and g^2, bolts h, the cap or head d, nuts e and f, and the central tube, C, all constructed, arranged, and adapted to operate substantially as described.

Executed at Boston, Massachusetts, this 6th day of January, A. D. 1882.

EDWARD C. BATES.

Witnesses:

E. A. HEMMENWAY,

WALTER E. LOMBARD.