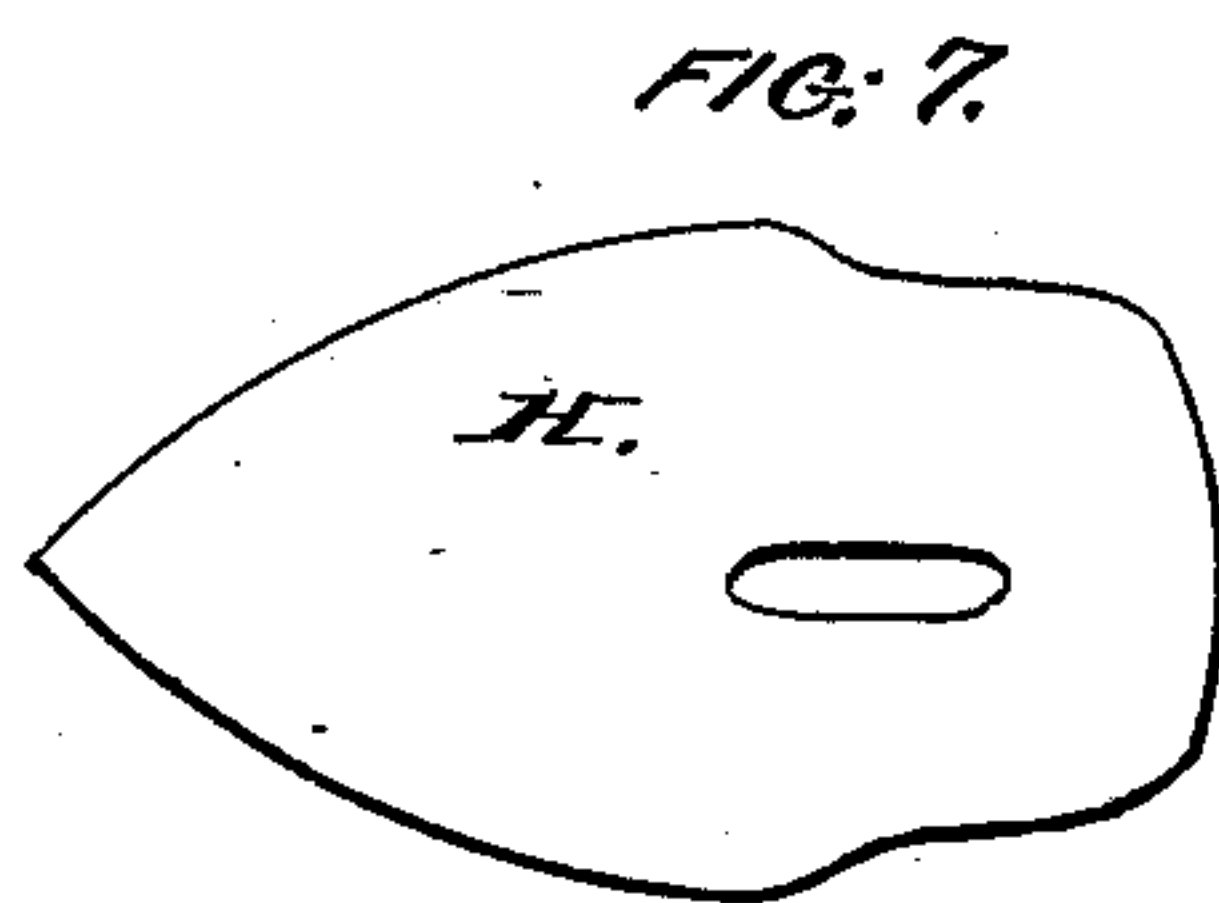
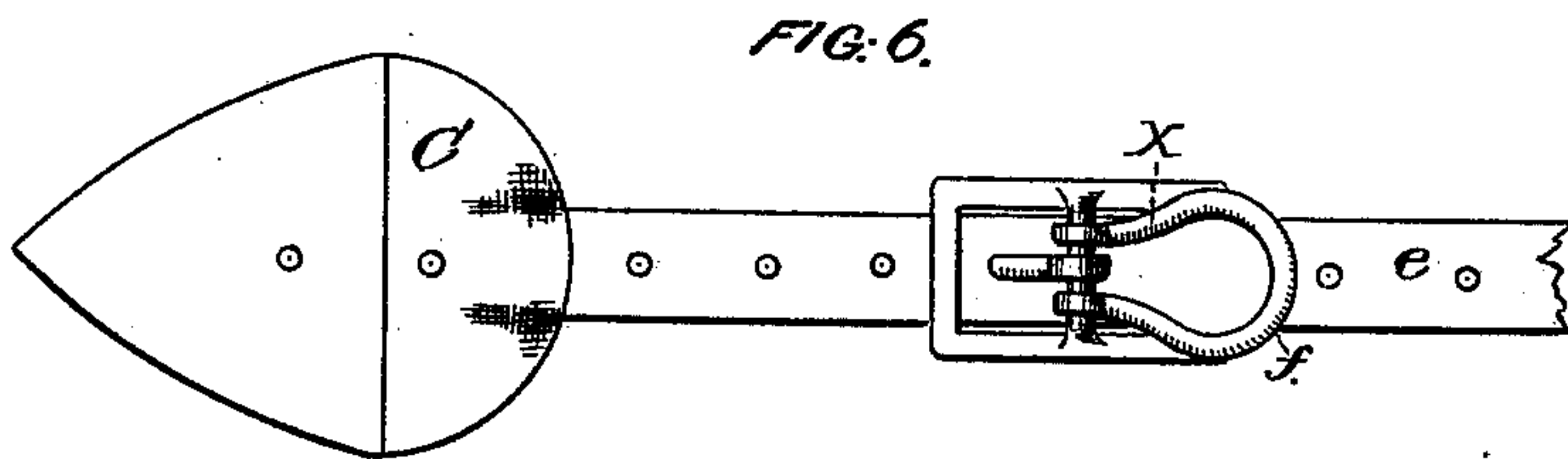
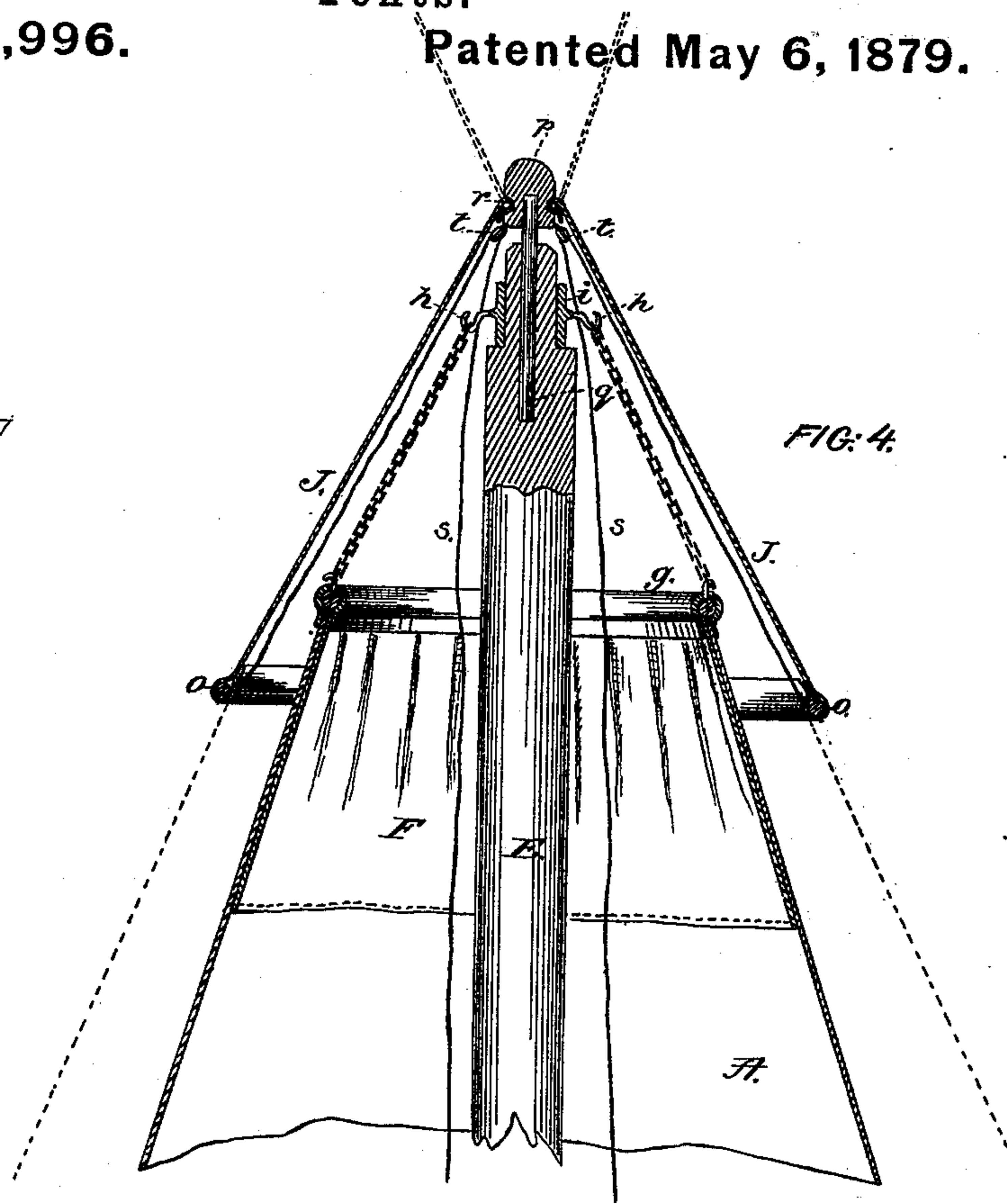
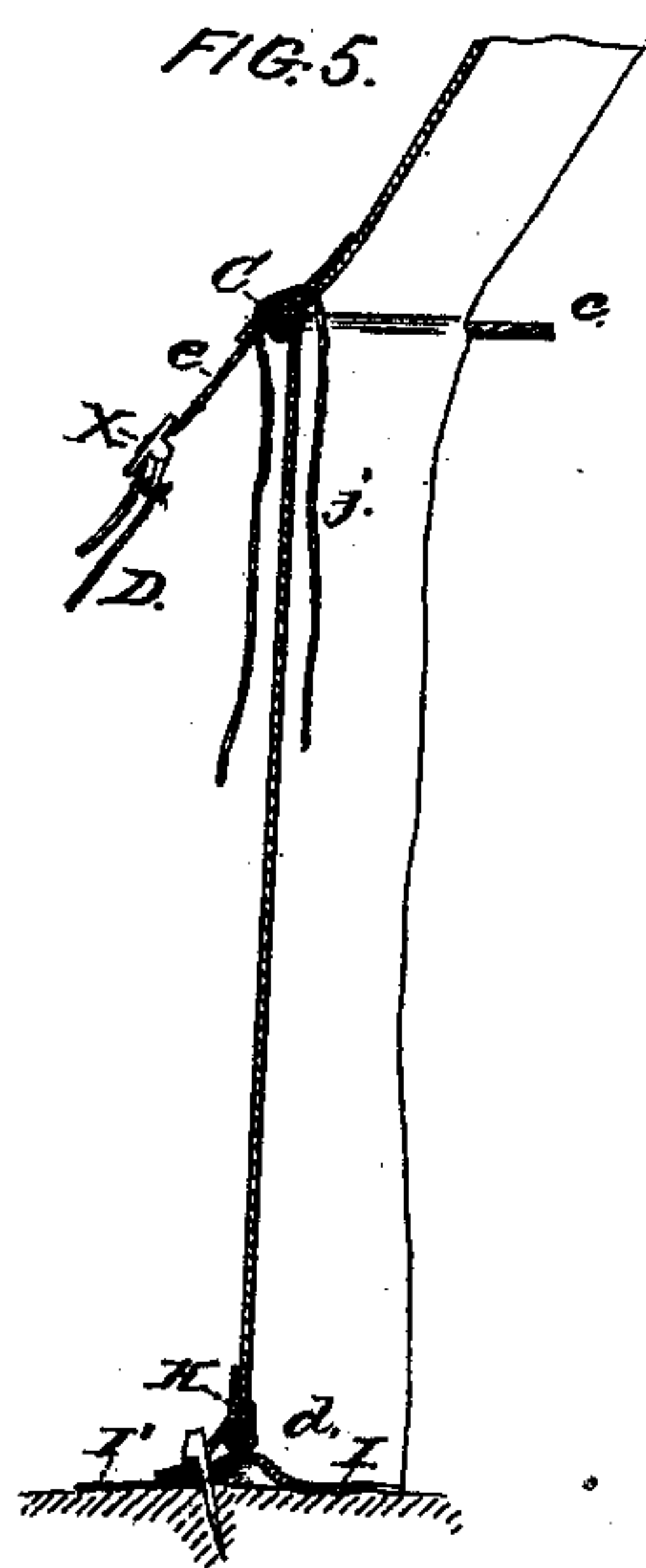


G. C. DOANE.
Tents.

No. 214,996.

Patented May 6, 1879.



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UNITED STATES PATENT OFFICE.

GUSTAVUS C. DOANE, FIRST LIEUTENANT, SECOND CAVALRY, U. S. ARMY.

IMPROVEMENT IN TENTS.

Specification forming part of Letters Patent No. 214,996, dated May 6, 1879; application filed March 29, 1879.

To all whom it may concern:

Be it known that I, GUSTAVUS C. DOANE, First Lieutenant, Second Cavalry, United States Army, have invented a new and Improved Army-Tent; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of the tent with the door detached at one edge. Fig. 2 is a view, on an enlarged scale, looking down upon a section through line *x x*, Fig. 1, showing the relation of the edges of the door to the adjacent edges of the wall and the double flap at the base of the wall. Fig. 3 is a detail outside view of the fastening for the door. Fig. 4 is an enlarged sectional view of the cap and upper portion of the tent. Fig. 5 is a detached section taken vertically through the wall of the tent, showing the connections at the top and bottom of the wall. Fig. 6 is an underneath view of one of the re-enforcements, with buckle for attaching the guys. Fig. 7 is a view of one of the leather re-enforcements, through which the pins are driven at the bottom of the wall.

My invention relates to certain improvements in army-tents adapted to shelter a detachment of men.

The form of tent in which my improvements are incorporated is that in which a vertical circular wall of canvas is spanned by a pointed pyramidal roof of the same material distended by a central pole, and pitched by means of pins and guy-ropes without the use of a frame.

The improvements consist, first, of means for equalizing and distributing the strain of the guy-ropes upon the tent, to which end a cord or rope is incorporated in the edge of the roof portion, running around the whole tent, and a leather re-enforcement fastened at the juncture of the radiating seams in the roof and vertical seams of the wall with the circular cord at the eaves of the tent, which re-enforcement furnishes an attachment to the guy-rope, and permits the whole strain of the latter to be borne upon the said circular cord and vertical seams without imparting any tearing or damaging strain to the canvas.

The improvements also consist in the pecu-

liar construction and arrangement of a re-enforcement at the apex of the tent; the peculiar construction and arrangement of a set of reefing-cords for reefing up the side walls; in the means for attaching the re-enforcement straps to the guy-rope; in the peculiar arrangement and fastenings for the door in the side wall; in the means for forming a tight joint between the ground and the bottom of the side wall; and in the peculiar construction and arrangement of the cap at the top of the tent for covering the ventilation-opening, all as hereinafter more fully described.

In the drawings is shown a tent embodying my improvements, in which A is the pointed conical or pyramidal roof, and B the vertical circular wall, both of which are made of canvas.

In constructing this tent the best proportions to be observed are four feet six inches for the height of the wall, thirteen feet six inches slant height of roof, and eighteen feet six inches diameter of tent inside.

This tent is composed of a series of triangular sections, *a*, forming the roof, and a corresponding series of rectangular portions, *b*, forming the wall. In connecting the side wall and roof portions, a cord or rope, *c*, Figs. 1 and 5, is incorporated in a fold of the canvas at such joint, and runs circularly around the tent. A similar cord or rope, *d*, is also arranged in a seam at the bottom of the side wall.

At the juncture of the roof-seams and wall-seams with the rope *c* a leather re-enforcement, C, is secured, Figs. 1, 5, and 6, the same being firmly attached to the canvas, and secured also to the ropes *c*. These leather re-enforcements are provided with straps *e* and buckles X, by which the tension of the guy-ropes D is applied to the tent. This arrangement of the cord or rope *c* and location of the leather re-enforcements C at the juncture of the vertical seams with the same causes the strain of the guy-ropes to be equally distributed throughout the tent, the longitudinal strain being borne by seams in the roof, and the lateral strain by the circular rope C, so that no tearing strains are permitted to come upon the canvas.

In providing a suitable form of buckle for

connecting the straps of the re-enforcements to the guy-ropes, a plain Spanish buckle, *X*, is provided with a metal loop, *f*, Figs. 5 and 6, whose ends are loosely pivoted to the pintle-bar of the buckle. This supplies means for connecting a strap to a rope without injury to either, the tongue of the buckle forming a connection for the strap, and the loop *f* forming an attachment to which the rope can be securely fastened without being cut or worn in two.

At the top of the tent is arranged in the canvas the chain-ring *g*, Fig. 4, attached by chains to hooks *h* of the pole-ring *i*, which pole-ring is carried upon a shoulder of the pole *E*, and by which devices the tent is raised and its apex held in a distended elevated position with an open space for free ventilation.

Now, as the material in the tent decreases at the top it will be seen that the strain of the pole in stretching the tent is most severe at this point.

To compensate for this I attach to the inside of the tent a re-enforcement, *F*, which is not cut bias and conical, as in other re-enforcements at this point, but is cut straight and cylindrical, and the fullness of which at the top is taken up by gathers evenly distributed at the top. This gathered re-enforcement provides an increased strength in the apex of the tent for resisting the strain of the pole, which increased strength is proportional to the increased amount of material which the gathers permit to be employed. This upper gathered end is left loose from the canvas of the tent, but is securely fastened to the chain-ring.

For reefing the side wall of the tent each one of the leather re-enforcements *C* is perforated at two points and provided with a cord, *j*, Figs. 1 and 5, which is passed through one hole and back through the other, so that one end of the cord hangs down upon the outside of the side wall, and the other end of which hangs down upon the inside of the tent. These cords are preferably made of whang leather. Now, when the walls are to be reefed they are raised in folds and the cords tied around the same, so as to hold them in elevated position, and render the tent open below.

The door of the tent consists of a rectangular piece of canvas, *G*, Figs. 1 and 2, permanently sewed to the eaves of the roof portion, but detached from the walls upon each side. The edges of this door upon the sides are made in the nature of double flaps *k*¹ *k*², one of which, *k*¹, laps upon the outside, and the other, *k*², upon the inside of the adjacent edge of the tent-wall. In both sides of this door, and also in the sides of the walls of the tent, upon the outside, are fixed leather disks *l* *l*¹, one row of which (those on the tent-wall) are made with vertical slits to receive straps *l*², attached to the outside flap, which strap, after passing through said slitted disk, is buckled to another strap, *l*³, upon the inside of the door by means of a buckle, *m*. This serves to securely connect the sides of the door to the

sides of the wall by a lap-joint, keeping the buckle inside and under the control of the occupants.

To secure the bottom of the wall leather re-enforcements *H*, Figs. 1, 2, 5, 7, are attached to the canvas at the points where the seams join the ground-rope *d*, and these re-enforcements have in them oblong holes to permit pins to be driven through into the ground.

In making the bottom edge of the tent-wall tight, so as to exclude cold air, I provide a double flap, *I* *I*¹, Figs. 2 and 5.

With respect to this feature I would state that I am aware that a flap has been attached to the lower edge of the wall of a tent, and allowed to extend inside of the tent and rest horizontally upon the surface of the ground; but such flap was not made in sections, and did not have bias seams, and hence it had in its inner edge so much fullness as to cause it to wrinkle and pucker.

To obviate this difficulty I make the flap in sections, and cut the said sections to correspond with the sections of the wall, with bias seams at the seams of the wall-sections, so that the flap rests perfectly flat against the ground and does not wrinkle.

To further exclude the weather, also, I make this flap double, one part, *I*, resting flat upon the ground inside of the tent, and the other part, *I*¹, resting flat on the ground outside of the tent.

For excluding rain and snow at the ventilating-opening in the top of the tent, I employ a conveniently-manipulated cap, *J*, Figs. 1 and 4, which consists of a conical cap of canvas, having in its lower marginal hem a metal (galvanized iron) ring, *o*. The apex of the cap is connected to an acorn or socket-piece, *p*, made of wood, which acorn has a socket fitting over a projecting pin, *q*, in the top of the tent-pole, so as to be easily detachable. In securing the apex of this cap to the acorn or socket-piece, a circular groove, *r*, is formed a little above the lower edge of the same. The edges of the canvas of the cap are then placed around this end of the acorn, as shown in dotted lines, at a reverse inclination to its normal position, a cord wrapped tightly around the canvas forcing the same into the groove, and the cap then reversed, so as to bring it to the inclination shown. This mode not only makes a perfectly tight joint, but it conceals the attachment and causes the cap to present a finished exterior.

To secure enlarged ventilating-spaces at the top, I make the skirt of the cap vertically adjustable, and for this purpose cords *s* *s* are extended thence around pulley-blocks *tt*, attached to the acorn, and down into the tent into convenient position for operating the same. By pulling upon these cords it will be seen that the weighted skirt of the cap may be raised to any desired height, the weight of the metal ring serving to restore it to its position again whenever the cords are slackened. If, in case of violent storms, the cap requires to be held

to its place, the ropes *s s* may be disconnected from the pulleys, and be extended and secured upon the outside of the tent from the marginal ring, so as to act as guys to the same, as shown in dotted lines. In the latter position a free annular ventilating-space is still left for the tent, for the reason that the ring *o* is made larger than the opening in the top of the tent, and its rigid character does not allow it to be flattened against the walls of the tent by the tension of its guys.

Having thus described my invention, what I claim as new is—

1. The combination, with a tent having radiating seams in the roof, coincident vertical seams in the walls, and a circular cord or rope, *c*, at the juncture of said wall and roof, of a re-enforcement, *C*, attached to the tent at the junction of said seams and cords, and provided with an attachment for the guy-ropes, substantially as described.

2. The combination, with the tent, of a re-enforcement, *F*, attached to the upper portion or apex of the tent upon the inside, and having the fullness of its upper end gathered into folds, substantially as described.

3. The combination, with the side walls of the tent, of the re-enforcement *C*, having reefing-cords extended twice through the same, with one end of said cords extending to the inside and the other to the outside of the tent, substantially as described.

4. The combination, with the walls *B* of a tent having re-enforced eyelets, of a door, *G*, forming one of the sections of said wall, and permanently attached to the roof portion, and having upon each side double flaps, with

straps and buckles for securing the same, substantially as described.

5. A tent having at its lower edge a flap, *I*, formed of sections corresponding to the sections of the wall, and united by a bias seam at the juncture of the said wall-sections, substantially as and for the purpose described.

6. A tent having at its lower edge an inside flap, *I*, and an outside flap, *I'*, substantially as shown and described.

7. The combination, with the re-enforcement straps and the guy-ropes, of the buckle *X*, having a loop, *f*, pivoted about the pintle-bar, as and for the purpose described.

8. In a tent, the acorn or socket-piece *p*, attached to the apex of the cap, combined with the tent-pole having a projecting pin, so as to be detachable therefrom, as shown and described.

9. In a tent, the combination, with the acorn or socket-piece having a circular groove around the same, of the conical cap having its upper end tied by a cord about such groove, and returned or reversed, so as to conceal such attachment, as described.

10. The combination, with the cap *J*, having weighted ring *o* at its skirt, and an acorn, *p*, at the apex, of the pulleys *t*, attached to said acorn, and the ropes *s*, passing around said pulleys and descending to and connecting with the marginal ring, for the purpose of adjusting the cap, as described.

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1st Lt., 2d Cavalry, U. S. Army.

Witnesses:

EDW. W. BYRN,

CHAS. A. PETTIT.