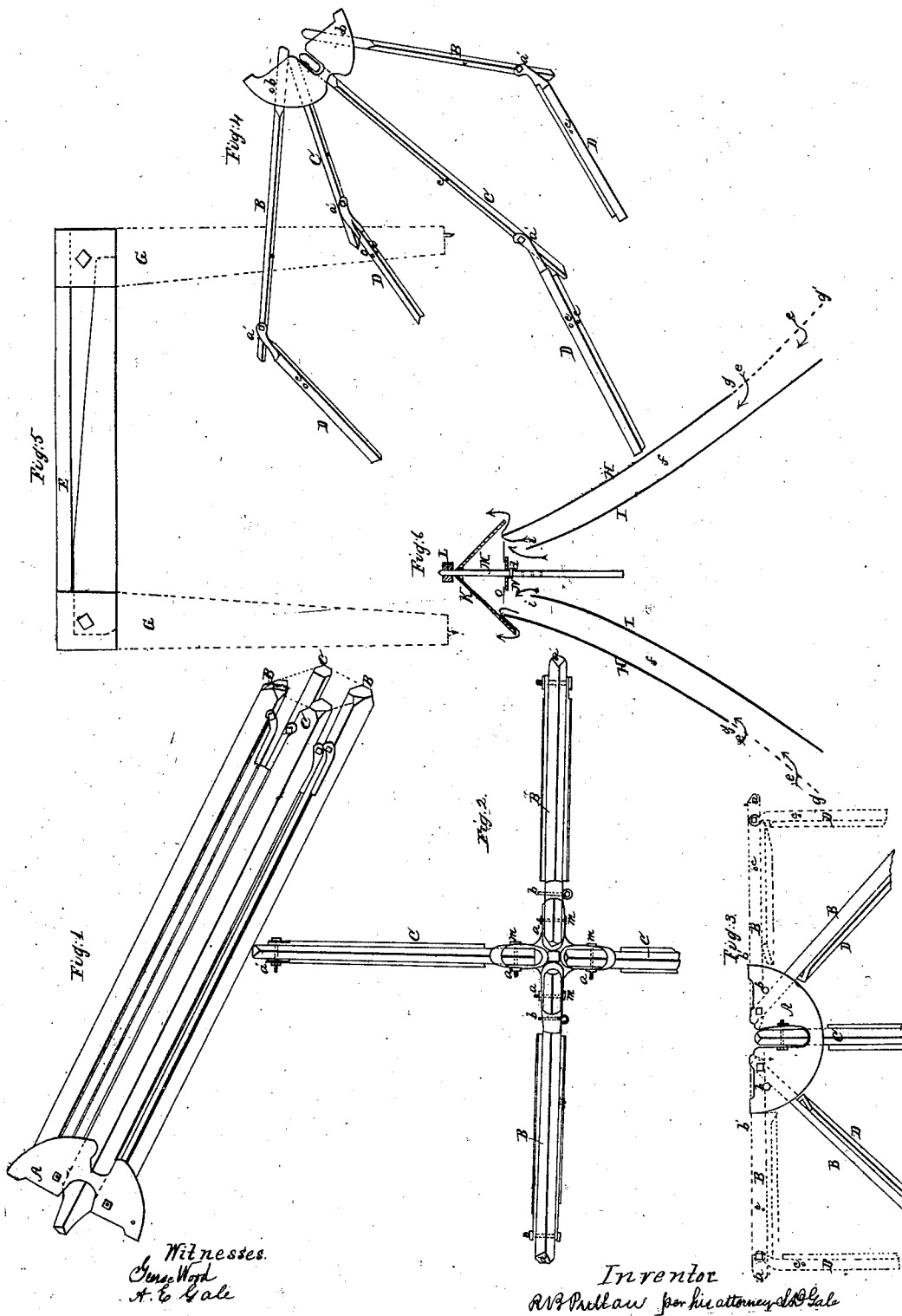


No. 33,959.

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R. B. PULLAN.
TENT.



UNITED STATES PATENT OFFICE.

R. B. PULLAN, OF CINCINNATI, OHIO.

TENT.

Specification of Letters Patent No. 33,959, dated December 17, 1861.

To all whom it may concern:

Be it known that I, R. B. PULLAN, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and Improved Devices in the construction of Military Tents; and I hereby declare the following to be a full and sufficient description, reference being had to the accompanying drawings, making part of the description.

The nature of the invention respects the mode of constructing the supports of the tent by means of a so-called central joint that admits of three distinct forms of tents, and secondly a mode of ventilating the tent by the arrangement of a double covering in a particular manner, so as to be cool in summer and warm in winter.

In the accompanying drawings Figure 1, represents a perspective view of the tent frame folded for transportation; Fig. 2, the same, with the supports extended so as to present a top view of the central joint; Fig. 3, an elevation, the supports standing at an angle of about 45°, two of which being shown in dotted lines as raised into the horizontal position to form a ridge pole tent. Fig. 4, a perspective of the frame extended so as to form a quadrangular tent; Fig. 5, represents a modification of the folding frame work, exhibiting a variety of ridge pole tent; Fig. 6 the manner of arranging the tent coverings for establishing ventilation, and is a vertical section through the center of the tent.

Similar letters and figure refer to the same parts in all the drawings.

The design of the inventor is to construct a tent for military purposes, of sufficient strength for all common purposes, but which shall be at the same time, light, and capable of being packed and folded so as to be transported in any common wagon.

There are two series of joints in the frame—the central joint, shown with the radial supports extended, in Fig. 2, and represented by the letters (*a, a, a, a,*) and the so-called knee joints represented by letters (*a', a', a', a'.*)

A represents, as shown in Fig. 3, a side elevation of the metal plate, which, while it enters into, and makes a part of the central joint, gives a peculiarity to the joint, by means of the pins (*b, b*) designed to sustain the supports B, B, (hereinafter described) at, or in, the inclined position shown in the figure above named; and also

by means of the upper corners, projections, or horns, (*b', b',*) of the metal plate A, which is of a semilunar form, part (*b', b',*) of which extends up, on each side and meets its fellow at the top; and being firmly united together, form a strong metallic bearing for sustaining the horizontally elevated supports, B, B, shown in dotted lines in Fig. 3.

B B represent two, of the four, supports which enter into, and are combined with, the central joint, (as already named) by means of the projections (*b' b'*), in order that they may perform the extra function of converting the frame of an upright tent, represented in Fig. 4, into the frame of a low ridge pole tent, represented in Fig. 3. This is accomplished, by taking frame, shown in Fig. 4; parts B, B, and C, C, of which are denominated thighs by analogy; and D, D, D, D, legs thereof, and folding together legs D, D, on thighs C, C, and at the same time withdrawing pins (*b, b,*) parts B, B, fall into the horizontal position, turning on the joint pins (*m, m,*) as their pivots, thus forming a low ridge pole tent frame, in which the inclined sides of thighs C, C, will constitute the measure of the inclination of the two anticlinal roofs of the tent covering, and the two unfolded legs D, D, will be the measure of the height, and sustain the weight of the ridge pole and covering of the tent. Besides the extra functions of the central joint above described, this joint has a general or common function, in which all the thighs, and all the legs, have the same relative position with regard to each other. That is, they all turn on pivots (*m, m, m, m,*) by which, and on which, they are opened and folded up. When the pins (*b, b,*) are inserted in their places, these pins sustain the thigh pieces B, B, at an inclination of 45° or thereabout, while (*b², b²,*) the bearing parts of the central joint piece, in combination with thigh pieces C, C, perform a similar office to that of pins (*b, b,*) in combination with thigh pieces B, B. The leg pieces D, D, D, D, are all capable of being folded on their several thigh pieces with which they are connected, each to each.

(*c, c,*) are the small pins and holes which hold the legs firmly together when folded on their thighs.

(*d*) is the pin which sustains the block N and canopy H, H, in place.

I, I, are the inner canopy and H, H, the

outer canopy, the former resting on the frame work of the tent, that is, on the supports B, B, C, C, while the latter rest directly on block N, or an intervening open work frame (O) of suitable form to allow a free passage of a ventilating current of air.

K, is the fly or parachute top; L, the apex block; M, the central rod that sustains the fly; N, the support block for sustaining open work, O, which keeps a space between canopy H, and I; (*e, e, e, e,*) arrows showing the course of the ventilating current.

(*f, f,*) are the ventilating spaces between the inner and outer covering of the tent.

(*i, i,*) are the upper extremity of the inner covering of the tent resting on the supports B, B, C, C.

(*g, g,*) represent the cords which hold the outer covering H, H, in its place and secures a perfect ventilation, in a manner presently to be shown.

E represents a modified ridge pole tent frame G, G, being the folding legs thereof.

Of the three distinct forms of a tent, of which the frame herein named and represented is susceptible of assuming, the first or low ridgepole tent as sufficiently indicated in Fig. 3, has already been described, under the description of the extra functions of the central joint.

The second form of tent of which this frame is susceptible, is that in which legs D are folded on thigh pieces B, and C, in like manner as represented in Fig. 2. When the entire covering adapted to the upright tent, is used, the lower portions of it are folded inward upon themselves, the knee projections (*a'*) are firmly planted in the ground, having been first drawn outward sufficiently both to meet the capacity of the covering, and the whole is to be fastened to the ground by cords and stakes in the usual way. If a special covering be provided for this form of tent, then it will of course be adapted to the size and proportions of the frame and no special instructions need be given as the manner of using it will be obvious to those skilled in the art of making and using the same. This tent is specially adapted to exposed situations and where the upright tent could not be safely trusted, and also where protection for only a few individuals is required.

The third form of tent of which this frame is susceptible is the upright tent represented in Fig. 4. In this form of the frame, all the legs and thighs are extended to their full capacity, bringing into requisition the general functions of the central joint, but not those which are brought into play in the low ridgepole tent, first described; nor indeed are the devices used in the same manner, nor do they produce the same result, that is, the same form of tent

as is produced in the 2d description, herein named.

The fourth and last point involved in the present description, respects the arrangement of the coverings of the tent substantially as represented in Fig. 6, the design being to show a new and special mode of ventilating a tent, equally adapted for cooling the inmates in summer and sustaining the animal heat in winter. The space between the inner covering L, L, and the outer covering H, H, is preserved the same from top to bottom; but even this provision would have been of no value without a free egress of air at the top, as well as the bottom of this ventilating passage. For this purpose the open work frame at O, and the elevation of the fly above, secure a full and free ventilation through the upper part of the tent, both within and without the inner covering, as indicated by the arrow. The cooling effect of this double covering as here arranged is produced in the following manner: During the heat of summer, the sun striking on the external covering warms it and at the same time warms the contiguous air in the space between the inner and outer covering; which air as soon as warmed begins to ascend, and brings along a cooler current of air from the lower space near the ground; and this current will continue so long as the sun or external atmosphere continues to warm the external covering. This current of air passing along in contact with the internal covering has the effect constantly to reduce the temperature of the inner chamber of the tent, and thus increase the comfort of the inmates. It must be born in mind however in the explanation here given, that the current of air through the ventilating passage cools not by its conducting power, but by its carrying power. It is a good carrier but a very poor conductor of heat. On this principle the double covering is made to act the part, and produce the effect of surrounding the inner covering as with a casing of flannel or other non conducting substance. To accomplish this, all that is necessary to be done, is, to bring the lower edge of the external covering, H, into contact with covering, I, which stops the circulation, and retains a stratum of confined air between the inner and outer covering of the tent, which acts as a nonconducting coat surrounding the tent chamber. Thus the tent which ventilates and cools in the summer may be used as a warming agent in the winter.

Having described the nature of the invention and the several modes of applying the same, what I claim as my invention and desire to secure by Letters Patent is—

1. So constructing the center joint, in combination with the folding thighs and

legs, as to produce three different forms of tent, all as described and represented.

2. I also claim the double parallel cover-
ings H and I when the ventilating space
5 between them is made with a free and un-
obstructed egress at the top, as described
and represented, but I disclaim all modes of
ventilating the space between the inner and
outer tent, where the current is taken

through hollow ventilating tent poles, and 10
all other modes of ventilating such double
tents, except where the upper part of said
passage is left open, free and unobstructed
as set forth.

R. B. PULLAN.

Witnesses:

A. M. SEARLES,
T. D. WILLIAMS.