

E. LAWSON.
SHIP'S BERTH.

No. 517,462.

Patented Apr. 3, 1894.

Fig. 1.

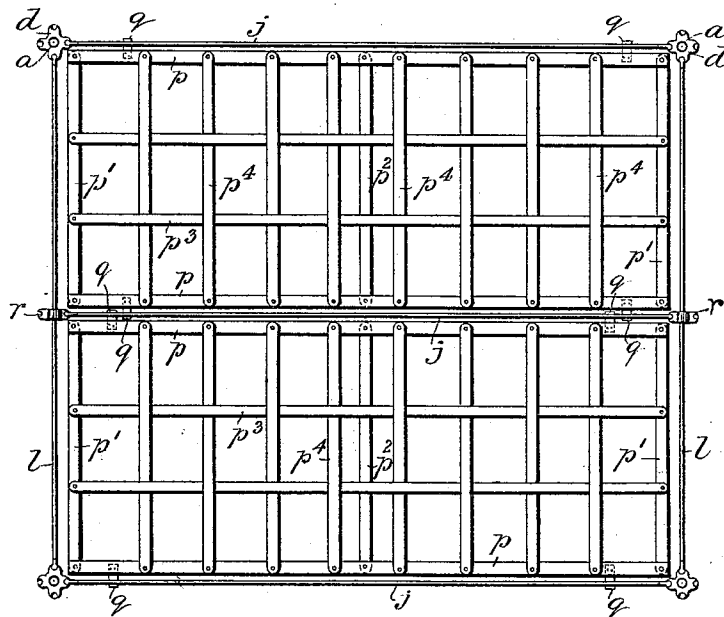
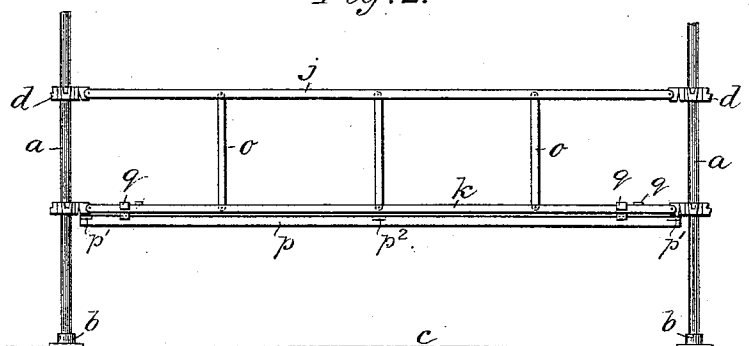


Fig. 2.



WITNESSES:

Fred White
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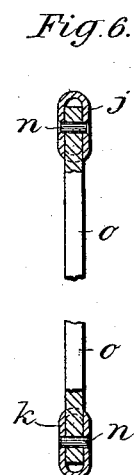
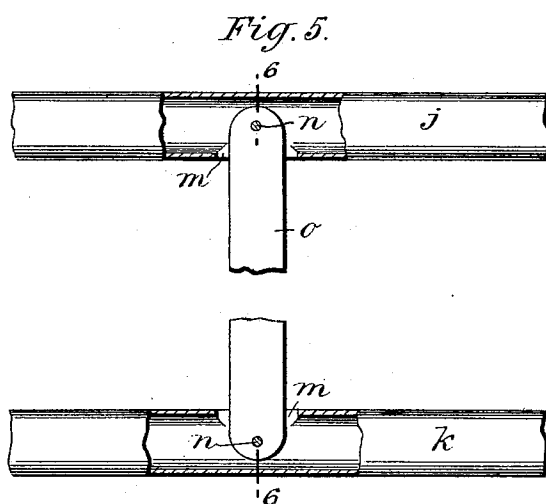
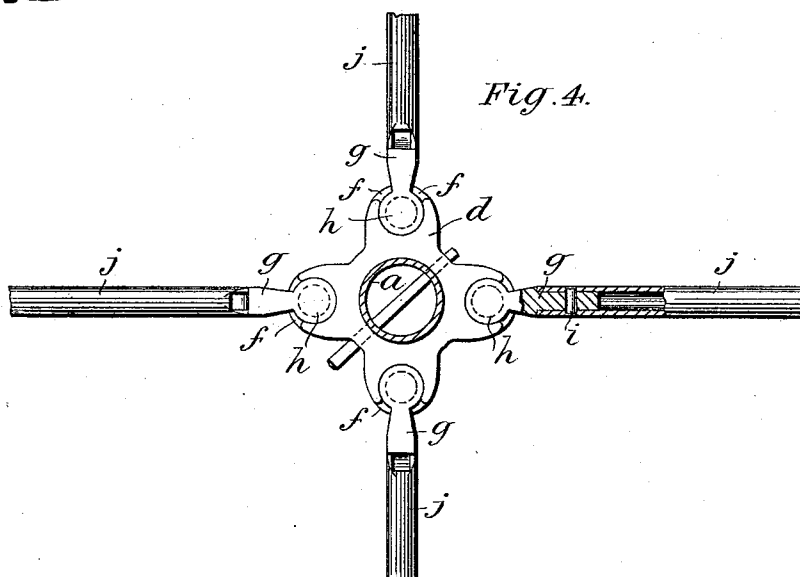
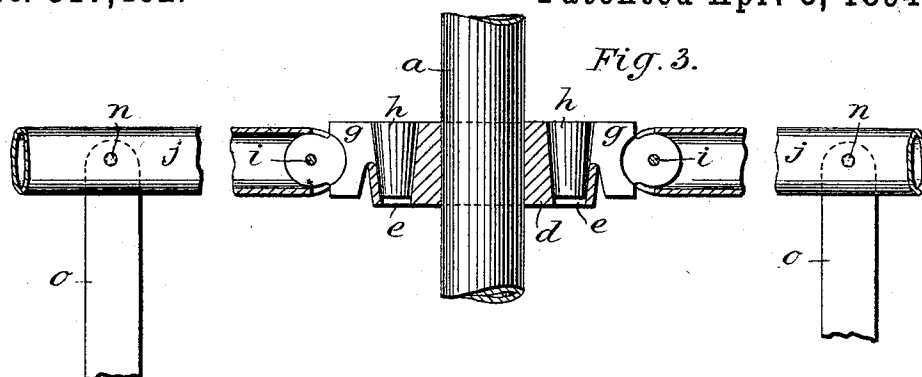
INVENTOR:

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UNITED STATES PATENT OFFICE.

EDWARD LAWSON, OF BIRMINGHAM, ENGLAND.

SHIP'S BERTH.

SPECIFICATION forming part of Letters Patent No. 517,462, dated April 3, 1894.

Application filed February 9, 1893. Serial No. 461,558. (No model.)

To all whom it may concern:

Be it known that I, EDWARD LAWSON, of Birmingham, England, have invented certain new and useful Improvements in or Relating to Ships' and other Berths, (Case B,) of which the following is a specification.

My invention has reference to ships' and other berths of the class which are supported from metallic pillars the upper and lower ends of which fit into sockets which, in the case of berths fitted on board ship, are attached respectively to the beams of the deck overhead and to the deck on which the berths are erected. These berths are usually grouped together in blocks so that each pillar may have to support one corner of each of eight berths, viz.—four in an upper tier and four in a lower tier. Between the pillars are fixed the head and foot rails and the side or lee rails, and the berth bottoms are provided with hooks which engage with the lower bars of the said side or lee rails or of the said head and foot rails, as may be preferred. Heretofore the pillars have been constructed with collars having bulbous shaped sockets cut away opposite the berth bars, and the bars have carried rigid bulb shaped ends of less size than, and entering and loosely fitting these sockets, and when therein projecting through the cut away portions thereof. This arrangement has permitted some slight displacement, both horizontally and vertically of the bars relatively to the posts, but the necessarily loose fit between the sockets and the ends of the bars has permitted much rattling and chattering between these parts. Berths of this class are generally used for the accommodation of steerage passengers.

The objects of my invention are to make better provision for horizontal displacement the berths necessitated by sheer of the sides of of the ship and for vertical displacement of the berths necessitated by sheer or convexity of the decks; to insure a close fit between attached parts and thereby obviate the objectionable clatter or chatter which has hitherto been produced in berths of this class because of imperfectly fitting parts; and to simplify the construction of the berths.

My invention consists in the combination of vertical conical plugs on the ends of the upper and lower bars of the head, foot and

lee rails, and of collars fixed to the supporting pillars, said collars having vertical conical sockets to receive the conical plugs on the ends of those bars of the head, foot and lee rails that are to be fitted thereto, and each of said sockets being partly cut away at the side in the direction of the corresponding bar to allow of horizontal displacement of said bar.

My invention further consists in the combination with a plug adapted to fit into a corresponding socket in a collar fixed to the supporting pillar, of a piece at one side of said plug formed integrally therewith and attached by means of a horizontal pin or pivot to the end of the berth bar that has to carry said plug, whereby said bar can be displaced vertically.

My invention further consists in the construction of the head, foot and lee rails with upper and lower bars in the form of hollow tubes of flattened section, the flat portions constituting the sides of the bars, and with vertical bars of solid flat section connecting said upper and lower bars, the ends of said vertical bars entering slots in the edges of said upper and lower bars and being attached thereto by horizontal pins on which they can move or pivot, so that the berth can be inclined if required.

My invention comprises other minor or subsidiary improvements the nature of which will be understood from the description hereinafter given.

In the accompanying drawings Figure 1 is a plan of two berths in the construction and mounting of which my improvements are embodied. Fig. 2 is a side elevation of the same. Fig. 3 is an elevation, the collar and a portion of the horizontal bars being in vertical section, showing in position and on a larger scale than Figs. 1 and 2 a part of a supporting pillar, a collar fixed thereon and a part of two horizontal bars with the corresponding plugs and connecting pieces. Fig. 4 is a plan on the same scale as Fig. 3 showing in position a supporting pillar, a collar fixed thereon and parts of four horizontal bars with the corresponding plugs and connecting pieces, the pillar and a portion of one of the bars and of the corresponding connecting piece being in horizontal section. Fig. 5 is a side elevation on the same scale as Figs. 3

and 4 of a portion of the upper and lower bars of a head, foot or lee rail and of one of the vertical bars connecting said bars, the said upper and lower bars being in section at 5 and near the points of connection. Fig. 6 is a section on the line 6—6 of Fig. 5, part of the vertical bar and the connecting pins being in elevation.

In the drawings *a, a* represent the pillars 10 which support the berths; they fit at their lower ends into sockets *b b* attached to the deck *c*, and their upper ends which are not shown fit into sockets attached to the beams of the deck overhead.

15 *d d* are collars fixed to the pillars *a a* in the same horizontal lines or approximately so as the upper and lower bars of the head, foot and lee rails. These collars are formed with conical sockets *e e*, the larger end of the cones 20 being uppermost; the number of sockets *e e* in each collar *d* will be determined by the number of berths that are to meet at such collar; in the case of a collar at the middle of a block of berths the number will be four, 25 and in the case of a collar at the side of a block only three are required, and in the case of a collar at the corner of a block only two. Each socket is cut away or formed with a gap 30 *f* in the direction of the corresponding berth bar, the said gap extending from the top to about half its depth, and being of sufficient width to not only receive the neck connecting the piece *g* hereinafter described with the corresponding conical plug, but also to allow 35 space for horizontal displacement of this piece to either side.

h h are conical plugs which fit the conical sockets *e e*. Each of them is formed integrally with the neck of a piece *g* which is attached by means of a horizontal pin or pivot 40 *i* to the end of the corresponding bar of the berth. The said bar can therefore be displaced vertically as may be required.

45 *j j* are the upper bars and *k k* the lower bars of the side or lee rails and *l l* the upper bars of the head and foot rails, the lower bars of which are not seen in the figures. The said upper and lower bars of the lee, head and foot rails are constructed of hollow tubes of 50 flattened section, the flat portions constituting the sides as clearly seen in the figures. In the under side of the upper bars, and in the upper side of the lower bars are formed slots *m m* to give passage respectively to the 55 upper and lower ends of the vertical bars *o o* which connect said upper and lower bars. The said vertical bars are of solid flat section, and their ends are attached to the upper and lower bars by horizontal pins *n n* on which 60 they can move or pivot to allow the berth to be inclined if required, for which purpose the slots *m m* are made sufficiently long to permit of the pivotal movement.

65 The berth bottoms, which are best seen in Fig. 1, are shown as composed of two longitudinal angle iron bars *p p*, two end cross bars *p' p'*, and an intermediate cross bar *p²*,

all three being rounded at the ends and riveted under the horizontal portion of the bars *p p* so as to allow the berth bottoms to sheer 70 with the lee rails.

p³ p³ are longitudinal laths jointed at their ends to the end bars *p'*, and *p⁴ p⁴* are cross laths similarly jointed to the longitudinal bars *p p*. The longitudinal bars *p p* have 75 hooks *q q* to enable the berth bottoms to be attached to the lower bars of the side or lee rails, or alternatively the hooks may be on the end bars *p' p'* of the berth bottom so as to hook on to lower bars of the head and foot 80 rails.

In cases where, as shown in Fig. 1, the head and foot rails have to support the ends of an intermediate lee rail instead of this rail being 85 supported by pillars, blocks *r* (Fig. 1) formed with vertical conical sockets like the sockets *e e* in the collars *d* are fixed to the head and foot rails at the center of their length to receive the conical plugs of the lee rail which 90 is to be supported therefrom.

When vertical displacement of the upper and lower bars of the head, foot and lee rails has not to be provided for the pieces *g* which connect the plugs *h h* to the ends of said bars may be rigidly fixed to said bars, the pins or 95 pivots *i i* being dispensed with. On the other hand the mode of connecting the plugs *h h* with the ends of said bars by means of the pivoted connecting pieces *g g* can be applied to plugs or terminals of other than the vertical 100 conical form shown, and in combination with sockets not of the conical form shown, but the vertical conical form of the plugs or terminals *h h* and the correspondingly shaped sockets *e e* as shown are greatly preferred, because this construction obviates, and is specially 105 designed to obviate, the objectionable clatter or chatter which is more or less inevitable with other forms of terminals and sockets. 110

The flat tubular horizontal bars of the berth rails and the flat solid connecting vertical rails make a strong berth and occupy the minimum space horizontally, while the fact that the horizontal bars are tubular and the vertical bars are solid enables the articulated 115 connections between them to be readily made by means of the pins *n n*.

What I claim, and desire to secure by Letters Patent, is— 120

1. In a berth supported by pillars, the combination with the supporting pillars, of collars fixed thereon and having sockets, the horizontal bars of the berth frame, plugs carried on the ends of said bars and entering and fitting said sockets of said collars, and a pivotal 125 connection *i* between said bars and plugs having a horizontal axis, whereby when said plugs are fitted home in said sockets said bars can be tilted vertically relatively to said 130 plugs on said pivotal connections, substantially as set forth.

2. In a berth supported by pillars, the combination with the supporting pillars, of collars

fixed thereon, having vertical conical sockets, said sockets having at their lower outer portions closed front walls, and having horizontal laterally cut away portions *f* in their walls adjacent to the corresponding berth bars, and said sockets extending downwardly in conical form back of said front walls, the horizontal bars of the head, foot and lee rails, vertical conical plugs carried on the ends of said bars, and necks *g* between said plugs and said bars and of less depth than and fixed to the upper part of said plugs, said plugs having conical lower ends extending downwardly below said necks, and entering and fitting said sockets, and passing behind the closed front walls thereof, and said necks of less width than and entering said cut away portions, whereby when said plugs are fitted home in said sockets a tight joint is obtained at the lower ends of the plugs and thereby all chatter between said plugs and said sockets is obviated, and when said necks are in said cut away portions said bars can be displaced horizontally while said plugs are in said sockets, substantially as set forth.

3. In a berth supported by pillars, the combination with the supporting pillars, collars fixed thereon, and the horizontal bars of the head, foot and lee rails, of vertical conical plugs pivoted on a horizontal axis to the ends of said bars, and vertical conical sockets in said collars, of like taper to, and receiving and fitting said conical plugs, whereby when said plugs are fitted home in said sockets a tight joint is obtained and thereby all chatter between said parts is obviated, and by reason of said pivotal connection between said plugs and bars the latter can be tilted vertically relatively to the former, substantially as set forth.

4. In a berth supported by pillars, the combination with the supporting pillars, and the horizontal head, foot and lee rails, of collars *d* fixed on said pillars, having vertical conical sockets *e*, each formed with a gap *f*, and ver-

tical conical plugs *h* of like taper to and fitting said sockets *e*, and having rigid lateral pieces *g* entering the gaps *f* of said socket, and horizontal pivotal connections between said pieces *g* of said plugs and said rails, substantially as and for the purpose set forth.

5. In a berth supported by pillars, the combination with the supporting pillars, and the horizontal bars of the head, foot and lee rails, of blocks *r* fixed to the head and foot rail bars and having vertical conical sockets having cut away portions in the direction of the lee rail bars, and vertical conical plugs pivotally connected on a horizontal axis to the ends of said lee rail bars, having a like taper to, entering and fitting said sockets, and when therein entering the cut away portions thereof, whereby a tight joint between said plugs and sockets is obtained, and when said plugs are in said sockets said lee rail bars can be tilted vertically relatively to said plugs and can be displaced horizontally or relatively to said sockets, substantially as set forth.

6. In a head, foot or lee rail of a berth supported by pillars, upper and lower bars of flattened tubular section, the flat portion constituting the sides of said bars, slots in the under side of the upper bars and in the upper side of the lower bars, and vertical bars of solid flat section, connecting said upper and lower bars, the upper and lower ends of said vertical bars passing respectively through the slots in the upper and lower bars and being pivotally connected to said bars, substantially as hereinbefore described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EDWARD LAWSON.

Witnesses:

ARTHUR HENRY PORTER,
Solicitor, Birmingham, England.
G. A. C. PETTETT,
His Clerk.