

July 9, 1929.

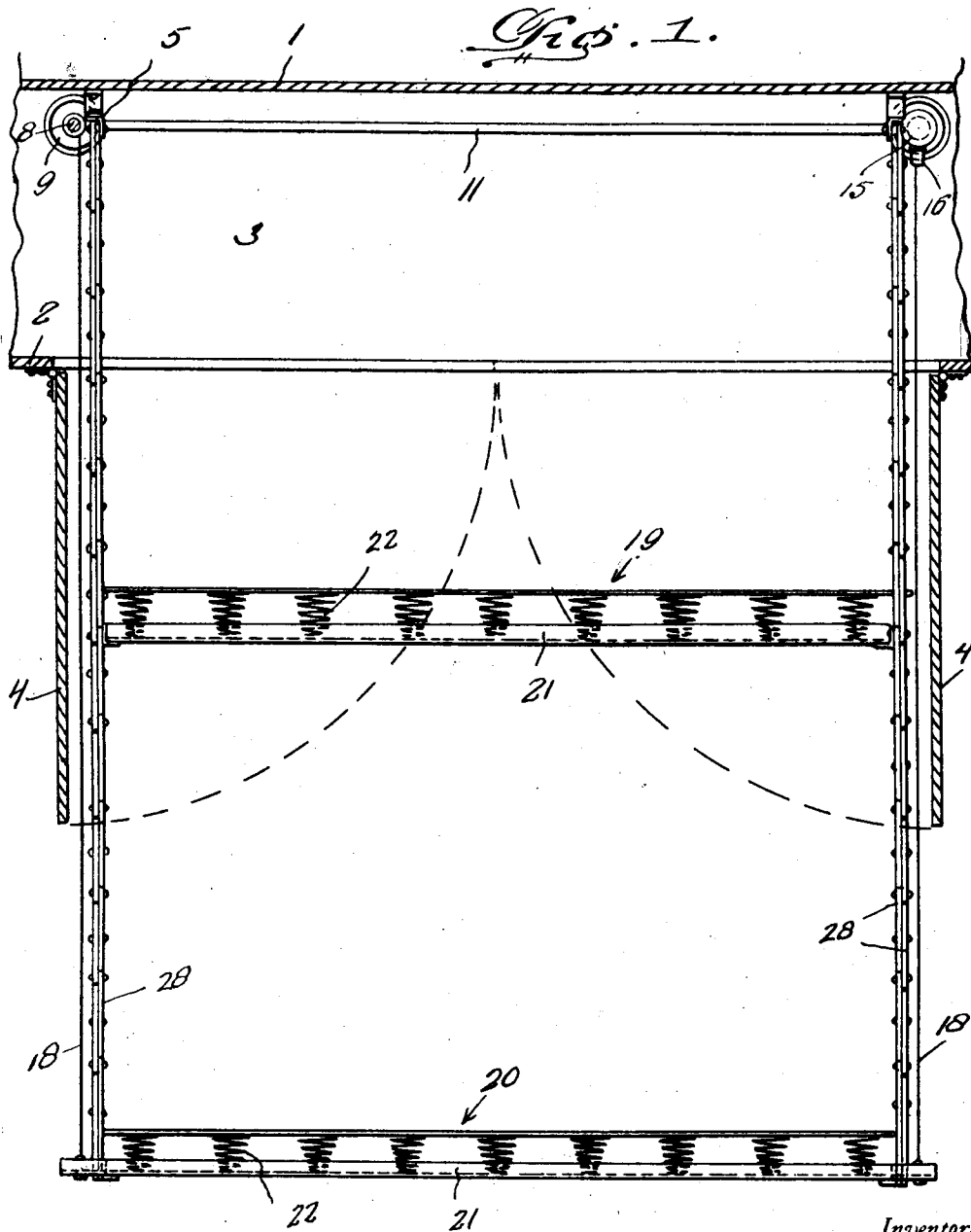
C. C. BROOME ET AL

1,720,116

BERTH CONSTRUCTION

Filed March 17, 1928.

2 Sheets-Sheet 1



Inventors
C. C. Broome,
R. M. Meyer,

By *Alvanice A. Brien*
Attorney

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2 Sheets-Sheet 2

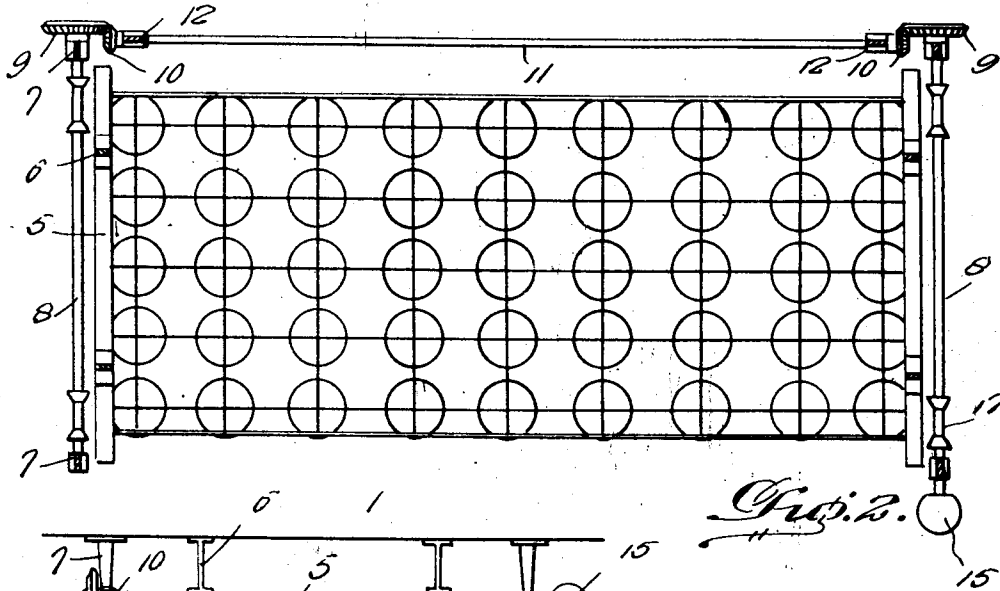


Fig. 2.

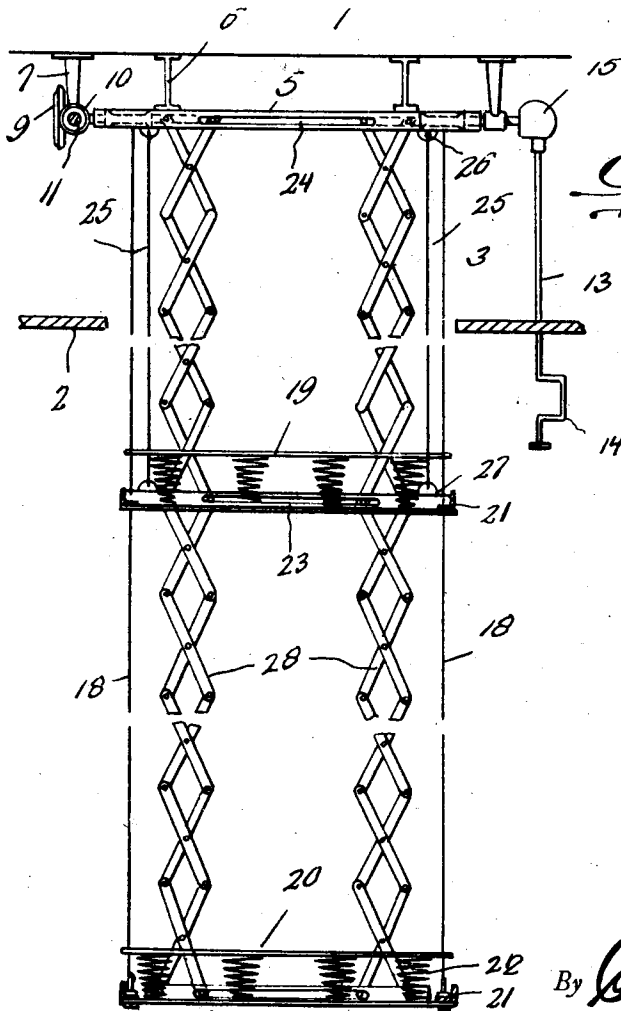


Fig. 3.

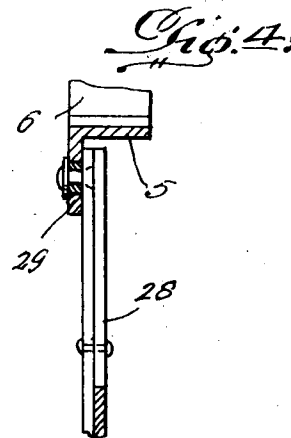


Fig. 4.

Inventors
C. C. Broome,
R. M. Meyer,

By *Alance A. O'Brien*
Attorney

UNITED STATES PATENT OFFICE.

CHARLES C. BROOME AND RICHARD M. MEYER, OF SANTA FE, NEW MEXICO.

BERTH CONSTRUCTION.

Application filed March 17, 1928. Serial No. 262,445.

The present invention relates to improvements in berth constructions for use upon aeroplanes, motor vehicles, railway sleeping cars, and ships and has for its principal object to provide an arrangement whereby upper and lower berths may be readily and easily lowered for use, the berths being folded into a compact arrangement and adapted to be concealed in a space provided therefor above the ceiling when not in use.

One of the important objects of the present invention is to provide a berth construction that can be readily and easily installed without necessitating any material alterations of the car or vehicle with which the same is to be associated.

A still further object is to provide a berth construction which is simple in construction, inexpensive, strong and durable and further well adapted to the purpose for which it is designed.

Other objects and advantages of the invention will become apparent during the course of the following description when taken in connection with the accompanying drawings.

In the accompanying drawings wherein like reference characters indicate corresponding parts throughout the several views:

Figure 1 is a side elevation of the berth construction embodying our invention showing the upper and lower berths lowered for use.

Figure 2 is a top plan view, parts being shown in section.

Figure 3 is an end elevation showing the berths in their lowered operative position, and

Figure 4 is a fragmentary detail view of the lazy tong structure.

In the drawings wherein for the purpose of illustration is shown the preferred embodiment of our invention, the numeral 1 designates the top of a car, the sub-ceiling 2 being spaced with respect to the top whereby to provide a compartment 3 for a purpose to be presently described.

The sub-ceiling is formed with an enlarged opening that is closed by the hinged doors 4 and any appropriate fastening means may be associated with the free ends of the hinged sections of the door to hold the same in a closed position.

A pair of transversely extending parallel spaced angle iron bars 5 are suspended from the top 1 by the supporting brackets 6 adjacent the respective ends of the opening

formed in the sub-ceiling 2. Also suspended from the top 1 in suitable hangers 7 are the transversely extending shafts 8 the same being arranged outwardly of the respective angle iron bars 5, as clearly shown in Figure 2. Each of the driven shafts 8 has secured on the rear end thereof a beveled gear 9 that meshes with the driving pinion 10 carried by each end of the longitudinally extending drive shaft 11 that is suspended from the top 1 by the hangers 12.

All of the aforementioned shafts are driven simultaneously through the medium of the vertically disposed actuating member 13 that extends through the sub-ceiling 2 and has formed on its lower end the handle 14.

The upper end of this actuating member extends into a housing 15 supported in any appropriate manner over the forward end of one of the transverse shafts 8 and arranged in this housing are complementary bevel gears one of which is carried by the forward end of said transverse shaft while the other is mounted in the gear housing in such a manner as to cooperate with the upper end of the actuating member 13, by the provision of the socket member 16 that is associated with said gear and with which the upper end of the actuating member engages.

Each of the transversely extending shafts 8 is provided with a pair of spool forming portions denoted by the numeral 17. A pair of elongated cables 18 are secured at their upper ends on the respective spools on each transverse shaft and are adapted to be wound therearound. The manner in which these cables function will be more fully described later on in the specification.

The upper and lower berths are designated by the numerals 19 and 20 respectively, and each includes an angle iron frame 21 on which is supported in any appropriate manner the spring unit 22. The vertical sides of the end portions of each frame are formed with longitudinally extending slots 23 and similar slots are formed in the depending vertical sides of the transversely extending angle iron bars 5 that are suspended from the top 1 and the last mentioned slots are designated at 24.

The purpose of the slots will also be presently apparent.

The berths 19 and 20 are of such size as to be freely movable through the opening formed in the sub-ceiling 2 and suspension cables 25 that are much shorter than the cables 18 are secured at their upper ends to

suitable depending lugs 26 formed on the transverse angle bars 5, the other ends of the suspension cables 25 being secured to similar lugs 27 that extend upwardly from the respective ends of the frame of the upper berth 19 and this is clearly shown in Figure 3 of the drawings. The cables 25 are arranged in pairs, two being on each end. The first mentioned cables 18 extend downwardly through suitable openings provided therefor in the frame of the upper berth 19, and the lower ends of these cables 18 are secured to the respective corners of the frame of the lower berth 20 in any appropriate manner.

A pair of lazy tong units 28 are arranged at each end of the berth construction, the upper end of each of the units having one of its arms pivotally connected to the depending vertical side of the respective angle iron bar 5 while the upper end of the complementary arm carries a roller 29 that is slidable in the slot 24 and this feature is clearly shown in Figure 4 of the drawings.

The lower ends of the lazy tong units are connected to the frame of the lower berth in a similar manner and also the intermediate portions of the lazy tong units are operatively connected to the frame of the upper berth 19 in a similar manner.

These lazy tong units cooperate to maintain the berths in their proper spaced relation when the berth mechanism is lowered and when the parts are arranged as shown in Figures 1 and 3 it will be readily apparent that the berths are in their lower operative position, and the rollers carried by certain of the arms of the lazy tong units are at the respective ends of the slots formed in the frames of the upper and lower berths as well as the slots formed in the transverse stationary angle iron bars. The berths when in this position may be easily accessible for use.

When not in use the berths may be raised to an inoperative position for disposition in the compartment 3 above the sub-ceiling out of view and this operation is carried out by actuating the member 13 in one direction to wind the cables 18 around the respective spools 17 so that the lower berth 19 will be raised. The lazy tong units will cooperate with the cables 18 to effect the raising of both berths and it is readily obvious that the lower berth will travel faster than the upper berth. When the lower berth has reached the bottom of the upper berth 19 a further winding of the cables 18 upon the respective spools will raise both berths, and at the same time collapse the lazy tong units.

When the upper and lower berths have been moved to a position within the compartment 3 so that the same are above the sub-ceiling 2, the hinged doors 4 may be swung upwardly to close the opening in the sub-ceiling, thus entirely concealing the berths and permitting the car to be occupied by persons who may

be seated in any appropriate seat construction.

The provision of a device of the above mentioned character will enable a day coach or the like to be readily and easily converted into a sleeping car, and the berths may be quickly moved to an operative lowered position without any difficulty.

A device of this character may be used upon aeroplanes, boats, and motor vehicles, provided of course there is sufficient room to accommodate the installation of such a device whereby sleeping accommodations may be provided for the passengers.

While we have shown the preferred embodiment of our invention, it is to be understood that various changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention and the scope of the appended claims.

Having thus described the invention, what we claim as new is:—

1. The combination with a supporting structure including a top, and a sub-ceiling therebelow in spaced relation thereto to provide a compartment, the sub-ceiling being formed with an opening, a removable closure therefor, a pair of transverse members supported within the compartment adjacent the top and adjacent the ends of the opening, transverse shafts supported within the compartment adjacent the respective supporting members, each of said supporting members being formed with a longitudinal slot, a berth, lazy tong units operatively connecting the berth with the respective supporting members, the ends of the berth being formed with longitudinal slots, each of the lazy tong units having the upper end of one of its arms pivotally connected to the respective supporting member in said compartment, the upper end of the complementary arm carrying a roller that is slidable in the slot formed in the respective supporting member, the lower ends of the arms of the lazy tong units being similarly connected with the respective ends of the berth, suspension cables attached at their upper ends to the respective transverse shaft and at their lower ends to the respective ends of the berth, and means for rotating the shaft for raising and lowering the berth, the berth being confined within the compartment when the cables are wound around the respective shafts.

2. A berth mechanism of the class described including a pair of spaced supporting members each of which is formed with a longitudinal slot, shafts arranged parallel with and adjacent the respective supporting members, upper and lower berths, the ends of each berth being formed with longitudinal slots, said berths being disposed between the spaced shafts and the adjacent supporting members, extension cables attached at their upper ends to each of the supporting mem-

bers and at their lower ends to the respective
ends of the upper berth, additional suspen-
sion cables attached at their upper ends to the
shafts and at their lower ends to the respec-
5 tive corners of the lower berth, means for
actuating the shafts to wind the last men-
tioned cables thereon, and lazy tong units
associated with the supporting members and
the ends of the respective berths to assist in
10 raising and lowering the berth, the upper end
of each of the lazy tong units having one of
its arms pivotally connected to a respective

supporting member, the upper end of the com-
plementary arm of each lazy tong unit carry-
ing a roller that is operable within the slot in 15
the respective supporting member, the lower
ends and intermediate portions of the lazy
tongs being similarly connected with the ends
of the upper and lower berths.

In testimony whereof we affix our signa- 20
tures.

CHARLES C. BROOME.
RICHARD M. MEYER.