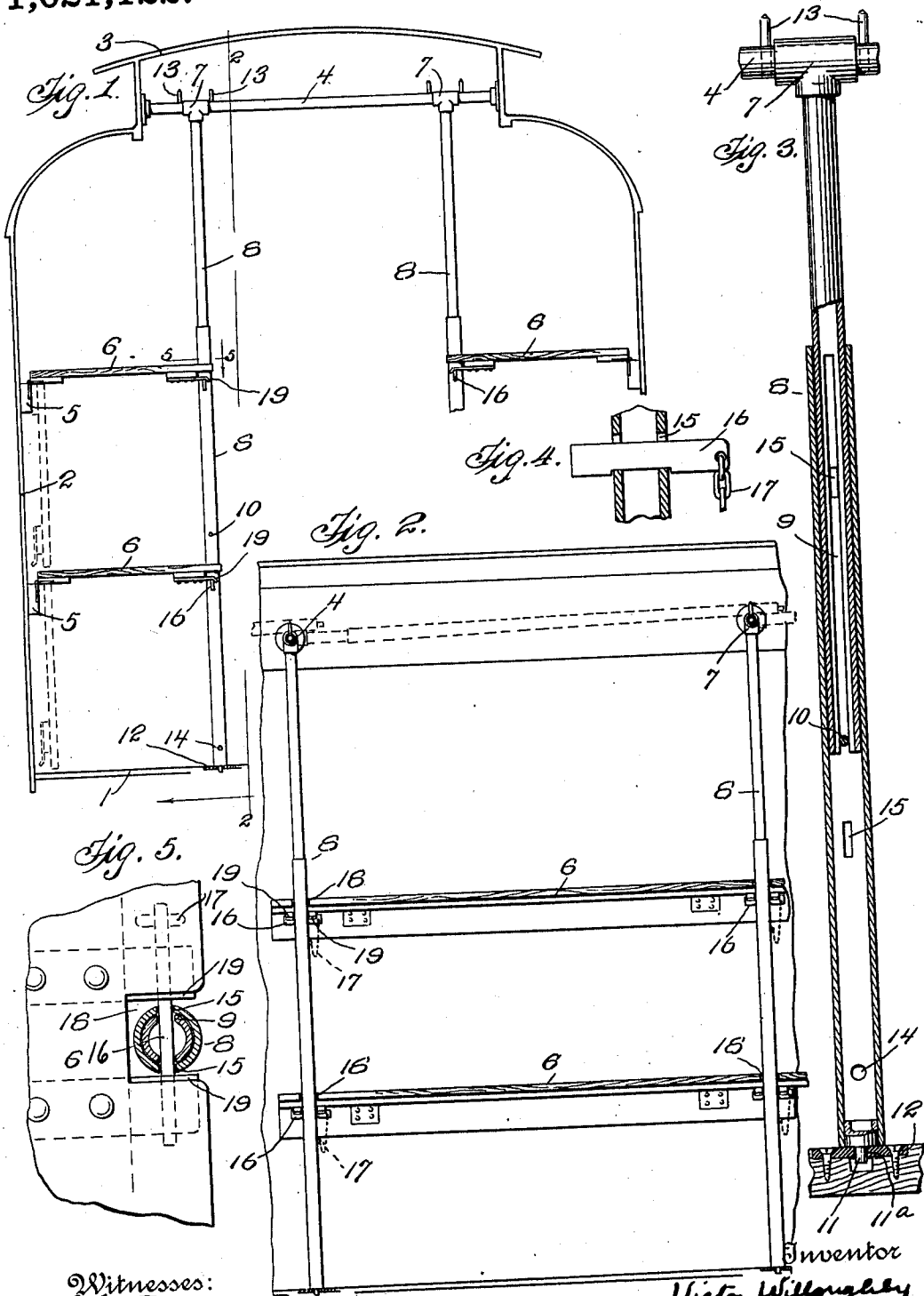


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COLLAPSIBLE SHELVING.
APPLICATION FILED JULY 19, 1910.

Patented Mar. 26, 1912.

1,021,122.



Witnesses:
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UNITED STATES PATENT OFFICE.

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COLLAPSIBLE SHELVING.

1,021,122.

Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed July 19, 1910. Serial No. 572,756.

To all whom it may concern:

Be it known that I, VICTOR WILLOUGHBY, residing at Jeffersonville, Indiana, and being a citizen of the United States, have invented certain new and useful Improvements in Collapsible Shelving, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and to use the same, reference being had to the accompanying drawings, which illustrate the preferred form of the invention; though it is to be understood that the invention is not limited to the exact details of construction shown and described, as it is obvious that various modifications thereof will occur to persons skilled in the art.

In said drawings: Figure 1 represents a transverse sectional view of a railway vehicle with the invention applied thereto, the vehicle being illustrated in outline. Fig. 2 is a longitudinal section of the view shown in Fig. 1, the section being taken on line 2—2 of Fig. 1. Fig. 3 is an enlarged detail sectional view of one of the supporting posts, shown partly in full lines. Fig. 4 is a detail sectional view of a portion of one of the posts and showing a shelf supporting key in position for supporting a shelf. Fig. 5 is a fragmentary view of a portion of one of the shelves taken at a point where the same engages one of the supporting posts, said post being illustrated in section on line 5—5 of Fig. 1.

It will of course be obvious that this invention may be constructed for any purpose and within any building or compartment where collapsible shelving is desired, but for purposes of illustration I have shown the same as being applied to a railway vehicle.

Referring to the drawings, the numerals 1—2— and 3 illustrate respectively the floor, sides, and top of an ordinary vehicle of the class described.

Extending from one side wall to the other, at the top of the car, is arranged a series of pipes or rods 4 which rods are spaced apart throughout the length of the shelving and are designed not only to support the pivot end of the shelf supporting posts, as hereinafter described, but are also arranged to support the free end of said posts when the shelving is collapsed.

Fixed to the walls 2, at opposite sides of the car, are a series of shelf supporting

strips 5, which strips extend preferably throughout the length of the shelves 6 and are spaced one above the other a distance slightly greater than the width of one of the shelves. There may of course be as many strips and shelves as desired on each side of the car, but I have deemed it necessary to illustrate only two. The shelves are hinged to the upper edges of the strips 5 and are adapted to hang vertically against the side of the car, as illustrated in dotted lines in Fig. 1.

Arranged to swing freely about the rods 4 at the top of the car are suitable sleeves 7. Fixed to each of the sleeves 7 is a rod or post 8, each of which posts is preferably formed of telescoping sections, as clearly shown in Fig. 3. The upper section of each post 8 is smaller in diameter than the lower section thereof, and is arranged to slide freely within the lower section. That portion of the upper section, which is at all times inclosed by the lower section, is longitudinally slotted, as at 9, said slot being for the purpose of engaging a transverse pin 10 which is arranged to project across the larger section and through the slot of the smaller section in such manner as to, at all times, maintain a proper non-rotatable relation of one of the sections relative to the other, regardless of whether the sections are in their extended or collapsed condition. At the extreme, free end of the larger section and fixed within the same, is a core with a lug 11 which extends slightly beyond the end of the tube and is designed, when the post is in use or in its vertical position, to fit into an aperture 11^a formed in a suitable floor plate 12. The floor plates 12 are placed one directly beneath each of the sleeves 7 so as to insure a vertical position of each of the posts when the free ends of the same are lowered to engagement with the apertures in the plates.

Each of the sleeves 7 are held against longitudinal movement along the rods 4 by a pair of upwardly extending lugs or pins 13, which pins are placed one at either end of each of said sleeves and fixed to the rods 4.

At the lower end of the larger section of each of the posts 8 is a transverse aperture 14 which aperture is arranged to engage one of the upstanding pins 13 when said post 8 is in its collapsed and raised condition, as illustrated by dotted lines in Fig. 2.

Formed in the larger section of each post

8 and arranged to coincide with the slot 9 in the smaller section thereof, are a series of relatively short slots 15, one for each of the shelves 6. A suitable key 16 is adapted to be thrust through each of the slots 15 and to project from each side of the respective post for directly supporting the shelf in a raised or horizontal position. Formed in the under edge of each of the keys is a slight recess for engaging the material of the post at the lower edge of the slot so as to prevent accidental displacement of the keys from the slots. Each of the keys is held in position adjacent its respective slot by a suitable cord or chain 17.

A series of notches 18 is formed along the outer or free edge of each of the shelves, and fixed to the underside of each of the shelves at the opposite sides of each of said notches 18, are fingers 19, which fingers are arranged to straddle the posts, when said posts are vertical and said shelves are raised, and to engage over the top edge of the keys 16 when the same are thrust into the slots 15, so as to directly support the shelves upon said keys.

When it is desired to erect the device, the rods 8 are disengaged from the pins 13 and dropped from their upper or horizontal position to a position where their lugs 11 engage the apertures in the floor plates. Each shelf is then raised so as to bring the notches 18 into position straddling the posts, and the pins or keys 16 are inserted through the slots 15 so as to engage beneath the fingers 19 and support the free edge of the respective shelves. The straddling of the posts by the fingers 19 prevents buckling of said posts when under load, and prevents bending of said posts when the same are struck by foreign objects, and also assists in maintaining a vertical position of said posts. Removal of the keys from their slots will permit lowering of the shelves to a vertical position, whereupon the posts may be telescoped and swung to bring their free ends above the adjoining rod 4, and the apertures 14 may be engaged over the respective pins 13, and thus held from accidental displacement.

What I claim is:

1. The combination of a swinging shelf, supports therefor, a pivot for each of said supports above said shelf, means for sustaining said supports above said shelf, and means for preventing accidental lowering of said supports, said last mentioned means serving also to prevent longitudinal movement of said supports along said pivot.

2. In a device of the class described, a se-

ries of horizontal rods, shelf supporting posts pivoted upon said rods, shelves adapted to engage said posts, and means carried upon one of said rods for at times holding the posts of another rod in a horizontal position.

3. In a device of the class described, a post comprising telescoping sections, means between the sections for preventing rotation of one of said sections relative to the other, a swinging shelf adapted for engaging said post, means upon said shelf for straddling said post, and detachable means upon said post for engaging said straddling means.

4. In a device of the class described, the combination, with a support, of a post pivotally sustained thereby, said post comprising telescoping sections, and a collapsible shelf adapted to be sustained by said post.

5. In a device of the class described, the combination, with a support, of a post pivoted thereto at the upper end of the post and adapted to swing on its pivot from a vertical to a horizontal position, said post comprising telescoping sections, and a collapsible shelf adapted to be sustained by said post.

6. The combination with collapsible shelving, of a plurality of supporting pivot shafts spaced apart, a post pivotally connected adjacent its upper end to each of the shafts and adapted to sustain said shelving when extended downwardly from the shafts, and each of said posts being adapted to be swung upon its pivot shaft and being adjustable longitudinally for disposing its free end in position to be supported by an adjacent pivot shaft.

7. The combination with collapsible shelving, of a plurality of supporting pivot shafts spaced apart, a post pivotally connected adjacent its upper end to each of the shafts and adapted to sustain said shelving when extended downwardly from the shafts, and each of said posts being adapted to be swung upon its pivot shaft and being adjustable longitudinally for disposing its free end in position to be supported by an adjacent pivot shaft, and each of said pivot shafts being provided with means adapted to be engaged by the free ends of said posts for retaining said posts substantially horizontal.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

VICTOR WILLOUGHBY.

Witnesses:

JOHN J. SNYDER,
J. H. BALDWIN.