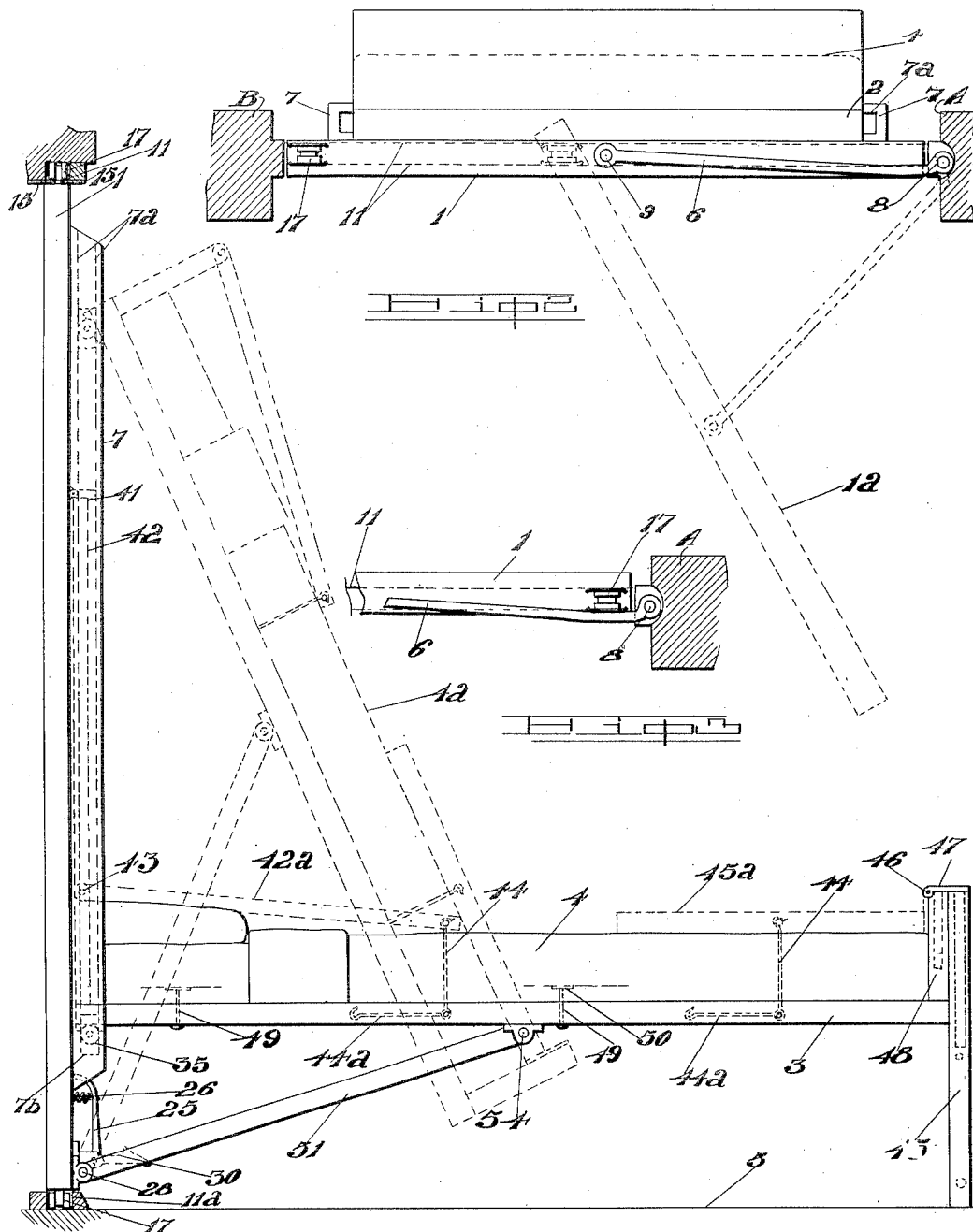


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APPLICATION FILED OCT. 16, 1913.

1,108,335.

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2 SHEETS—SHEET 1.



WITNESSES;

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E. Earl Pike

INVENTOR;

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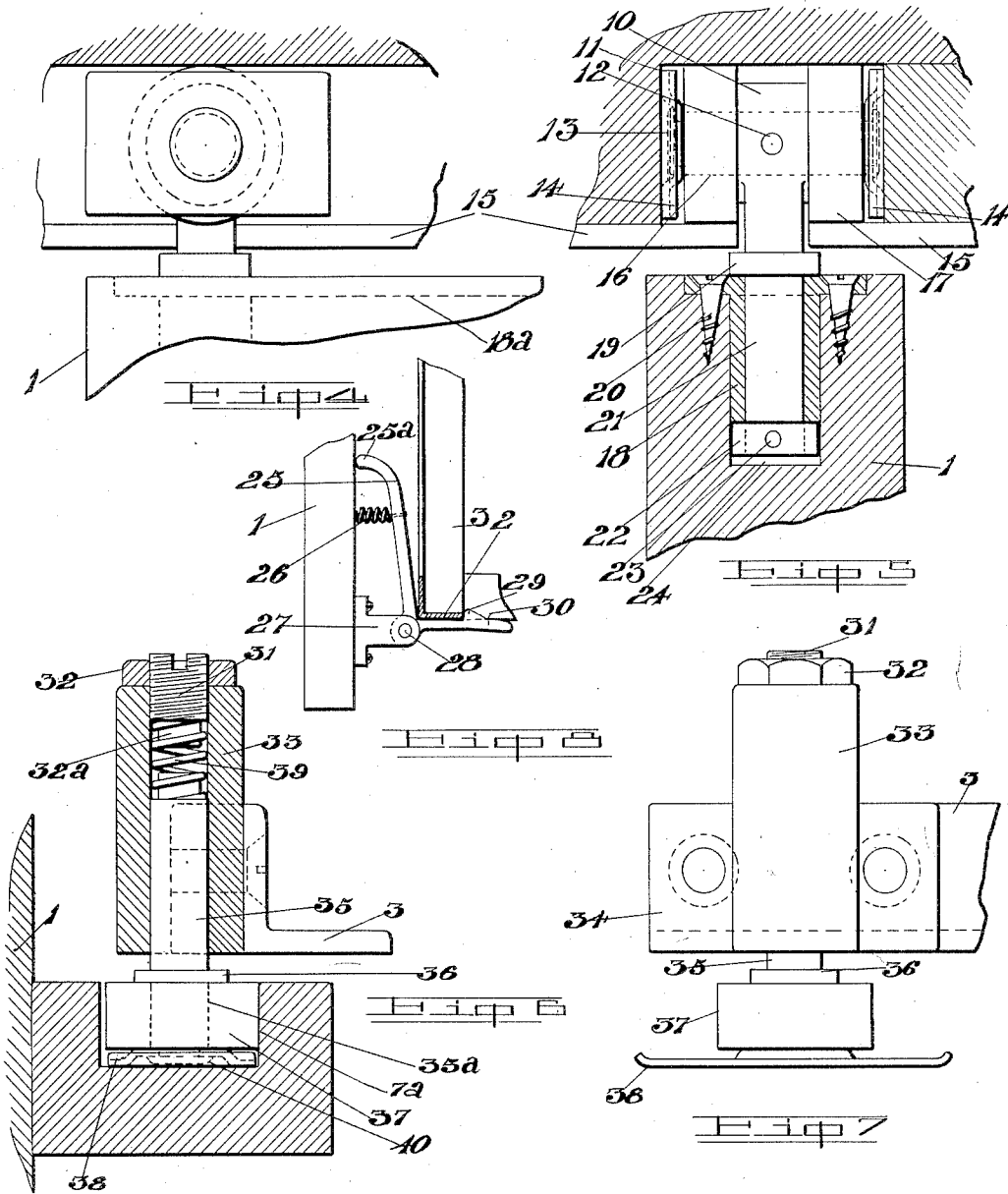
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UNITED STATES PATENT OFFICE.

HORACE D. CARTER, OF PORTLAND, OREGON.

FOLDING BED AND FOLDING MECHANISM.

1,108,335.

Specification of Letters Patent.

Patented Aug. 25, 1914.

Application filed October 16, 1913. Serial No. 795,476.

To all whom it may concern:

Be it known that I, HORACE D. CARTER, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Folding Beds and Folding Mechanism, of which the following is a specification.

My invention relates to improvements in folding beds and folding mechanism and has for its object the production of such a bed which can be easily manipulated, which affords entire safety to the occupant, and which when not in service may be readily and effectually concealed from view.

What constitutes my invention will be hereinafter described in detail and succinctly set forth in the accompanying claims.

In the accompanying drawings: Figure 1 is a side elevation of a preferred form of embodiment of my invention, partly in section, showing the same in full lines, open for service, and, in dotted lines, in the partially closed position. Fig. 2 is a top plan view of the subject matter of Fig. 1, but in the closed and concealed position, the partially open portion being shown in dotted lines. Fig. 3 is a detail view of a part of Fig. 2. Fig. 4 is a detail view in side elevation partially in section showing one of the sliding swivel supports of the carrying frame of my device illustrated in previous figures. Fig. 5 is a view corresponding to Fig. 4, but shown in section, and taken at right angles thereto. Fig. 6 is a sectional detail, partially in elevation, illustrating the bed frame head guiding mechanism in connection with the guide rail. Fig. 7 is an elevation of the head guiding mechanism detached. Fig. 8 is a detail view in side elevation of the bed-frame latch with a fragment of the latter detached.

Referring to the numerals on the drawings, 1 indicates a door or swinging door-like member that is vertically supported upon and hinged to a frame piece A. The frame piece may be a member of a movable structure or is preferably a door jamb as of a closet to which the door is fitted and whose corresponding jamb, shown in Fig. 2, is indicated at B.

At its top and bottom, respectively, the door 1 is provided with a hinge member 6 that is pivoted at one end to the jamb A at 8 and at the other end to the middle of the

door as indicated at 9. See Fig. 2. The two hinge members 6 thus serve to hang the door upon pivots fixed in the ends thereof at its longitudinal center and to provide for its swinging about and to a position at right angles to the jamb A in the manner indicated in dotted lines in Fig. 2, wherein the edge of the door adjacent, when closed, to the jamb A is shown as swinging away from it into the open position it occupies when the bed is in service. For securing the door with stability in the open position and for guiding its movements back and forth between the open and closed positions, I provide a top grooved rail 11 and a bottom grooved rail 11^a in the grooves of which respectively, work sliding swivel supports whose operative relations are clearly indicated in Figs. 1 to 5, inclusive of the drawings.

One construction of the grooved rails 11 and 11^a is sufficiently indicated in Fig. 1, but any construction which will provide operative accommodation for the sliding swivel supports, aforesaid, will suffice. The said supports are shown in preferred form of embodiment, particularly in Figs. 4 and 5, wherein 18 indicates a countersunk box set into a recess fitted to it in the edge of the door 1, and secured in place as by screws 20 inserted through apertures provided for them in the face flange 18^a. Swiveled within the bearing of the box 18 is the shank 21 of the support which is longitudinally confined within the box as by collars 19 and 22, the latter being removably secured to the shank as by a pin 23. The shank carries a head 10 through an aperture in which is transversely disposed and removably secured, as by a pin 12, a journal-pin 16, whose journals carry the rollers 17 upon opposite sides of the head. The rollers respectively ride upon the floor 5 beneath the groove of rail 11^a and upon plates 15 that coextend with and underhang the groove of rail 11. A frictional engagement between each swivel support and its slotted rail may be afforded for retarding its movement endwise of its slot, by providing upon opposite ends of each journal-pin 16 a friction shoe 14. Each shoe is preferably dishd for the accommodation of a rivet like head 13 upon the journal pin. Engagement between each pair of shoes 11 and the opposing faces of the slot in which they work accomplishes the desired retarding function.

In practice, in from the closed position shown in full lines in Fig. 2, the edges of the door 1, therein adjacent to the jamb A, be swung outwardly, the door moving upon its hinge member 6, the opposite side of the door will through its movement cause the respective swivel supports to travel in their respective slotted rails toward the location vacated by the movement of the edge of the door referred to, in a manner indicated in dotted lines in Fig. 2, until the door reaches a position reversed from that shown in full lines in said figure. It is then in position for service upon the letting down of the bed frame which it carries and which, as next in order, will now be described.

In respect to my invention, it is the function of the door 1 to serve as a supporting member to carry a bed frame, whose side bars are indicated by the numeral 3, and which is, in use, adapted to be folded or closed, not only by its movement in respect to the door 1 but also by the movement of the door 1 in the manner hereinbefore set forth. For opening and closing the bed frame with respect to the door 1, I prefer to hinge the one to the other by struts 51, one upon each side of the bed frame, pivoted respectively to the door 1 as indicated at 36 and to a rail 3 near its middle as indicated at 54. The struts described in conjunction with a vertically movable pivotal connection between the head of the bed frame and the door, afford means for lending stable support to the bed frame, when it is closed adjacent the door as indicated in Fig. 2, or when it is opened at right angles thereto as shown in Fig. 1.

The vertically movable pivotal connection above named is provided for in the preferred form of embodiment of my invention illustrated wherein is comprised near opposite edges of the door 1 channeled rails 7 whose channels are preferably open at the top as indicated at 7^a and closed at the bottom as indicated at 7^b. Within the respective channels of the rails 7 works an anti-friction roller 37 journaled as indicated at 35^a upon the end of a stud 35 against a collar 36 thereon. The rollers 37 being carried by the bed frame serve to allow free up and down movement of the head of the bed frame with respect to the door 1, but in order to limit the freedom of said movement within proper bounds and thereby to prevent a movement too abrupt, I prefer to mount the studs 35 in socket piece 33 provided for them respectively upon the opposite corners of the bed-frame and to impart to each a controllable yielding end-thrust whereby they may be driven into frictional engagement with the bottoms of the channels of their respective rails 7. To that end I provide a screw plug 31, threaded into the end of the bow at each socket piece 33, and

between it and the end of its stud 35 a coiled spring 39. A reduced wired end 32^a upon the plug 31 and a corresponding reduction upon the opposite end of the stud serve for the proper seating of the spring. A lock nut 32 may be threaded to the projecting kerfed head of the plug 31 and by abutment against the face of the socket piece to lock the plug to required adjustment. A brake shoe 38 riveted as indicated at 40 to the end of the stud 35 within the channel of rail 7 may be provided for operatively applying the end thrust of the stud against the bottom of the channels of rails 7, respectively, and the force of such engagement may be regulated by turning the plug in one direction or the other and thereby increasing or diminishing compression of spring 39. When the bed frame is raised to the closed position it may be held thereby by engagement of a latch 29 with the pivot rail 2 of the bed frame. In order to facilitate releasing of the bed frame from the latch 29, I prefer to pivot it upon a base 27 as by a pin- tle 28, and to provide at an angle to it and integral with it an arm 25 whose curved end 25^a acts as a stop piece to its movement under actuation of a retractile spring 26. A forwardly projecting nose 30 serves as a toe piece for actuating the catch 29 against the force of its spring 26 to release it from engagement with the rail 2, and at the same time, by impulse communicated to the arm 25, to impart initial movement to the bed frame toward its open position.

Clothes holders are preferably provided upon the bed frame for holding the bed clothes in place when the bed is folded. For that purpose I prefer to employ a foot piece 45 having a top-cross over 47 hinged, as indicated, at 46 to corners 48 respectively of the bed frame. Folded back upon the bed clothes as indicated by numeral 45^a the foot piece becomes a clothes holder, through engagement with it of a hook 44. 44^a indicates the idle position of the hook 44. Bars 42^a serve, in like manner, to confine the clothes at the head of the bed, each being provided with its hook 44. Each bar 42^a is pivoted to a head corner post as indicated at 43, and it is secured in position out of the way in service as by a simple hook 41 upon the door 1.

In addition to the clothes confining foot piece, bars, and their respective hooks, I prefer as additional means of security to the mattress to provide it upon its bottom with plate 50 secured to it and in connection with each of said plates a headed rod 49, which, working longitudinally in an aperture, provided for it in the bed frame, will serve to secure the mattress in place without detracting from its vertically yielding resiliency in use.

Assuming the parts to be in the several

relative positions shown in full lines in Fig. 1, with the clothes holders in positions indicated at 42^a and 45^a and that one wishes to fold the bed, all that is necessary is to lift the head of the bed until the side bars 3 of the bed frame are inclined a little above the horizontal, when slight pushing force applied endwise of the same will by coacting toggle leverwise with the struts 51 suffice to elevate the bed frame into close juxtaposition with the door 1 as indicated in Fig. 2. Thereupon the door, following the direction of movement indicated by dotted lines in that figure, may be shut as indicated in full lines therein, and so secured either by its own weight or by any other means convenient and preferred.

The operation of opening the bed to adapt it to service is accomplished by reverse movement, having first opened the door and liberated the bed frame by a quick blow delivered to the toe piece 30, with the effect of disengaging the hook 29 and driving the bed frame away from the door by initial impulse from the arm 25.

It is observed that in use all tendency of the bed frame to close accidentally is eliminated, the weight of the occupant operating to keep it open.

What I claim is—

1. The combination with a supporting member provided with a pair of channeled

rails, of a bed frame provided with rollers working in the channels of said rails, struts pivotally connected with said member and midwise with the bed frame, and a latch for securing the parts together.

2. The combination with a supporting member provided with a pair of channeled rails, of a bed frame provided with rollers working in the channels of said rails, struts pivotally connected with said member and midwise with the bed frame, and means for retarding the movement of said rollers in said channels.

3. The combination with a supporting member and a bed-frame carried by and movable to and from said member, of a latch for securing said parts together, and an arm coöperating with said latch to impart an impulse to the frame when the latch is operated to release the frame.

4. As a part of folding bed mechanism a supporting member, channeled ways formed therein, rollers adapted to work within said ways, and a shoe coöperating with said ways to retard movement of said rollers therein.

In testimony whereof I affix my signature in presence of two witnesses.

HORACE D. CARTER.

Witnesses:

E. EARL FEIKE,
J. F. HEWITT.