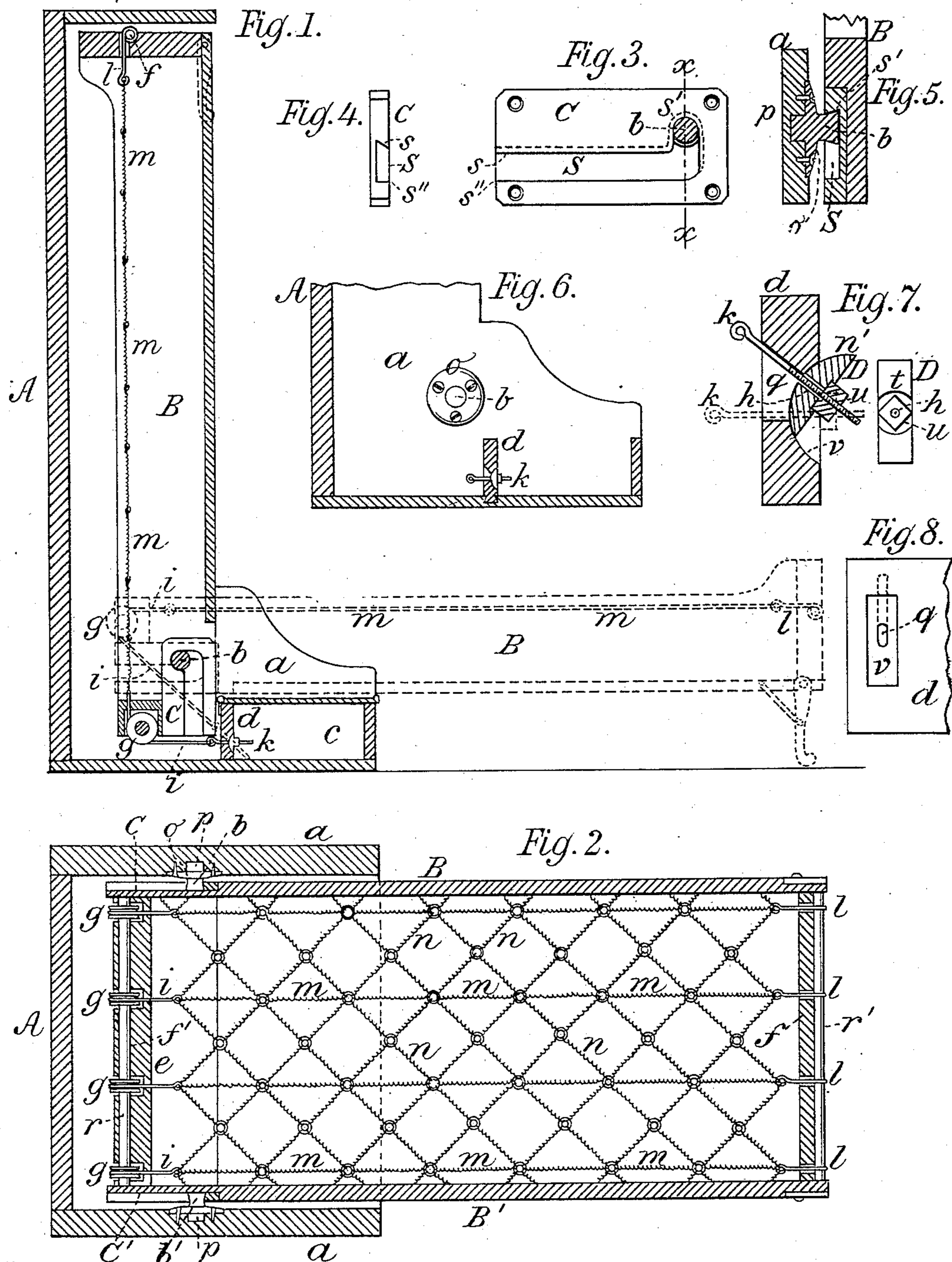


(No Model.)

R. H. GARLAND.
FOLDING BED.

No. 308,764.

Patented Dec. 2, 1884.



Witnesses:

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UNITED STATES PATENT OFFICE.

RICHARD H. GARLAND, OF CHICAGO, ILLINOIS.

FOLDING BED.

SPECIFICATION forming part of Letters Patent No. 308,764, dated December 2, 1884.

Application filed August 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, RICHARD HARRISON GARLAND, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Wardrobe Folding Beds, of which the following is a specification.

My invention relates to that class of folding beds known as "cabinet-beds;" and the objects of my improvements are to improve the construction, to render it durable, and to provide for safety, maintaining the bed in folded relation to the case by utilizing the gravity of the folded bed-frame within the case, and thus avoid special fastening appliances to hold the bed-frame in folded position.

Referring to the accompanying drawings, Figure 1 represents in vertical section my improved cabinet-bed in folded position, its unfolded position being shown by dotted lines; Fig. 2, a horizontal section of the same as unfolded for use, the bed-bottom being shown in top view; Fig. 3, an enlarged view of one of the grooved plates for the bedstead-pivots; Fig. 4, an end view of the same; Fig. 5, a sectional view of one of the bedstead-pivot connections on the vertical line through the pivot, as at *xx* in Fig. 3; Fig. 6, a vertical section of the base portion of the wardrobe-case, showing one of the pivot-bearings and the fixed cross-rail of the case to which the bed-springs are adjustably connected. Fig. 7 are enlarged sectional views of the adjusting-connections of the bed-springs with the fixed-case cross-rail; and Fig. 8 shows the concave recess in the fixed cross-rail for the convex washer of one of the adjusting-screws for bed-springs.

The wardrobe-case *A* is open at its front side, and stands vertical upon a base, *a*, having a compartment, *c*, for the storage of bed-clothes. To the inner vertical sides of the base are firmly secured pivots *b b'*, in horizontal coincident relation upon which the bed-frame is mounted at one end. A cross-rail or partition, *d*, forms the inner side of the compartment *c*, being firmly fastened to the base and sides of the case, and serves as an abutment to which the head ends of the bed-springs are attached, as shown in Fig. 1, as will be presently described. The bed-frame side

rails, *B B'*, are connected by a head cross-rail, *e*, and a foot-rail, *f*, a cross-rod, *r r'*, being mounted in each, by which the bed-bottom springs are supported. The head ends of these side rails, *B B'*, are provided on their outer sides with plates *C*, bolted each in a recess in said rails, and having an L-shaped groove, *S*, open at the outer end of said plate, as shown in Fig. 3, and adapted to receive the bed-frame-supporting pivots. These pivots and their receiving-grooves are of peculiar construction. The pivots *b b'* are of the form of truncated cones, the base of the cone being its outer end, or that part which fits within the groove of the plate *C*, and they project from flanges *O*, by which they are bolted to the case *a*, each flange having a convex outer face, and a center pin, *p*, entering the case to brace the flange and pivot. Each groove *S* has a short right-angled part terminating in a semicircular cavity or recess, *s'*, the walls of which are beveled or inclined to correspond with the conical form of the pivot. The long side *s* of the groove *S* is also beveled or inclined to correspond with the conical form of the pivots, the object of which construction is to hold the pivots in place in the grooves of the bed-frame, so that the latter can be raised and lowered upon the wall-pivots without danger of the latter slipping out of the grooves. This construction also prevents the case from spreading at the sides, because the conical pivots *b b'* cannot be withdrawn endwise from their confining-grooves. The grooves being open at the ends of the plates gives the advantage of readily setting the bed-frame in place upon them. The grooved plates are placed at that corner of the head of the bed-frame which is next the cross-rail *d*, and the pivots *b b'* will stand in the grooves nearer the front side of the bed-frame when the latter is closed, so that its gravity will constantly tend to press it forward into the case and to hold it safely against falling down. This arrangement of the pivots places them to one side of the width of the side rails of the bed-frame, and consequently gives the preponderance of gravity in its upright position toward the case, so that it requires some effort to pull the bed-frame down out of the case when once closed therein. When so closed, it will be

supported against the fixed base cross-rail *d*, and may rest at its top against the inner side of the case.

The bed-bottom consists of longitudinal coiled springs *m*, joined together by diagonal running springs *n*, the former being connected at each end to the cross-bars of the head and foot rails in a manner to adjust and equalize the strain of the bottom, which I will now describe. The cross-rod *r* of the head-rail is provided with a number of loose pulleys, *g*, over which pass short cables or cords *i*, each being connected at one end to the ends of the coiled springs *m*, and at the other end to an adjusting screw-bolt, *k*, arranged in the fixed base-rail *d*. The other ends of the coiled springs are attached to hooks *l* on the foot-rail rod *r'*. The bolts *k* pass through a slot or opening, *g*, in the fixed base cross-rail *d*, and through a washer, *D*, which has a convex bearing side fitted into a corresponding concave recess, *v*, in the rail. A nut, *u*, fastens the screw-bolt *k* to the washer *D*, and serves to adjust the bolt to give the required tension to its connected spring *m*. As the strain of the bed-springs is directly upon these adjusting screw-bolts, and as the changing positions of the bed-frame when turned down will bring the strain sidewise upon these bolts and be liable to bend them, I have provided the convex washers as a means for permitting these bolts to turn to one side, so as to constantly maintain a direct line with the cables *i*, the slot *g* allowing such side movement of the bolt. It will be understood that each longitudinal coil-spring has such an adjusting attachment, and that the tension of the springs is made by the cord-connections over the loose pulleys.

In turning down the bed-frame to a horizontal position, its inner end turning upon the pivots *b b'* will cause the loose pulleys to describe an arc from a position below the pivots to a position above them of which the pivot-axis is the center, and thus increase the tension of the springs. In this movement the pulleys turn loosely upon their supporting cross-rods *r*, and the spring connecting-cords operate upon the pulleys so as to draw the cords in

oblique positions. (Shown by dotted lines in Fig. 1.) It is this action of the cords over the pulleys which causes the cords to change their position with respect to their connecting-bolts, and thus increase the tension of the springs, and at the same time keep the pivots secure in the holding ends of the confining-plates. In turning the bed-frame into the case the springs contract, diminishing their tension, and as the greater portion of the bed-frame stands in front of its pivots its gravity tends to keep it secure within the case. The free end of the bed-frame is supported by pivoted legs when turned down for use.

I claim—

1. The combination of the case, the bed-frame, and their pivot-connections with the spring-bottom, the adjusting-screws *k*, the self-adjusting washers *D*, the roller *g*, carried by said bed-frame, and flexible connections for the bed-springs and the adjusting-screws *k*, substantially as described, for the purpose specified.

2. The combination, in a wardrobe-bedstead, of the case *A*, having the fixed pivots of conical form, with a bed-frame having side grooved plates to receive and confine said conical pivots, a bottom of coil-springs, loose pulleys *g*, the adjusting screw-bolts *k*, and the self-adjusting bearing-washers *D*, the said spring-bottom being connected with said adjusting screw-bolts by the cords *i*, passing over the said loose pulleys, substantially as described, for the purpose specified.

3. The combination of the case *A*, having the conical pivots *b b'* and the base cross-rail *d*, with the bed-frame having the side plates, *C C*, formed with surface grooves of *L* shape, and beveled walls to receive and confine said pivots, the coil-springs *m n*, the loose pulleys *g*, the cords *i*, adjusting screw-bolts, and self-adjusting washers, all constructed and arranged for use as shown and described.

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Witnesses:

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