

No. 730,390

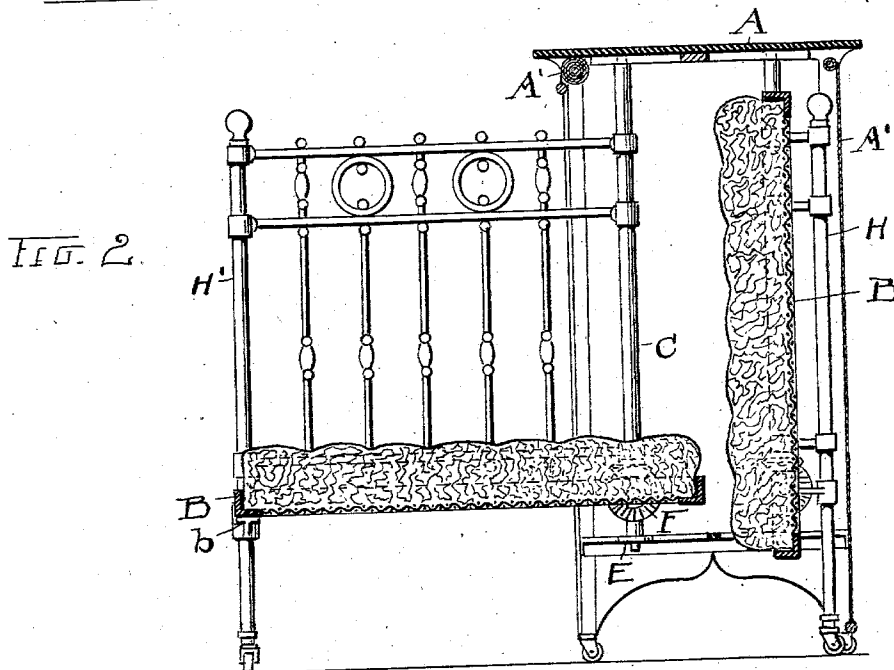
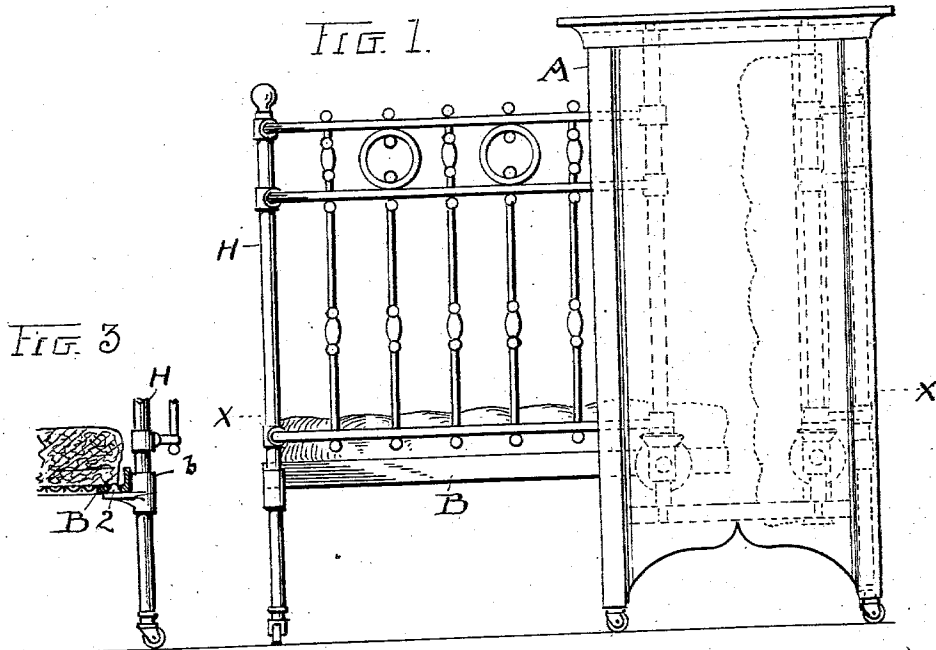
PATENTED JUNE 9, 1903.

D. T. OWEN.
FOLDING BED.

APPLICATION FILED AUG. 22, 1901.

2 SHEETS—SHEET 1.

NO MODEL.



ATTEST.

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E. M. Fisher

INVENTOR

David T. Owen

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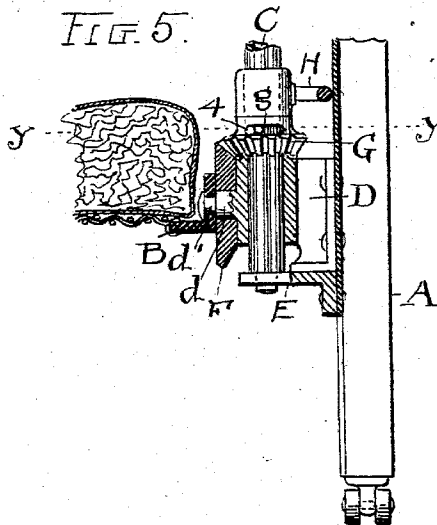
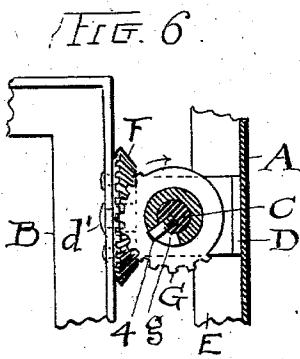
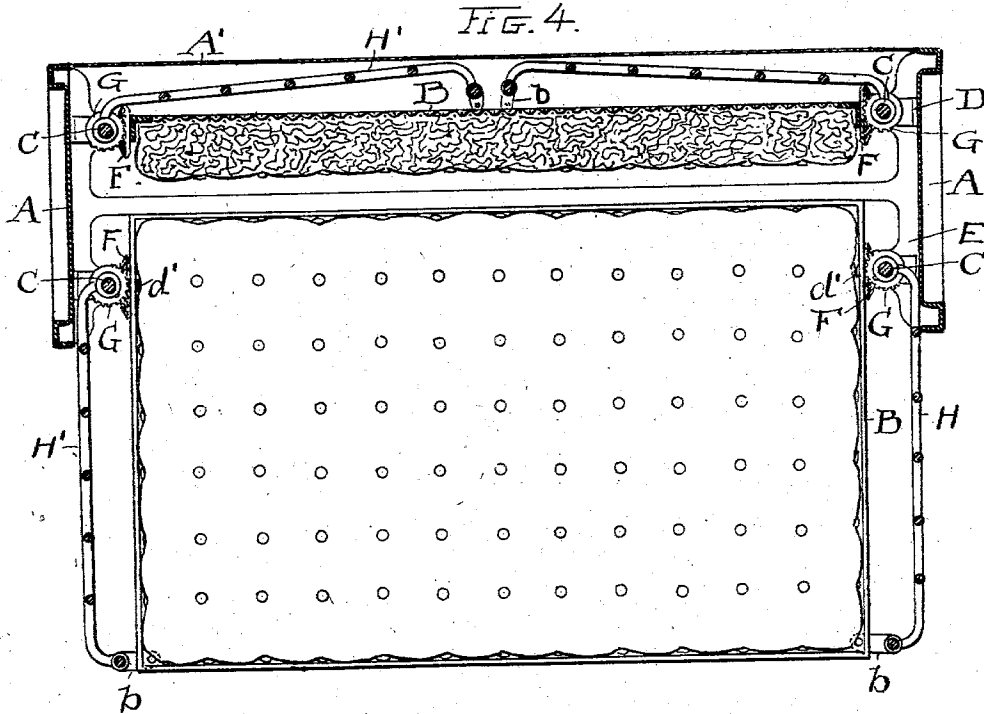
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

DAVID T. OWEN, OF CLEVELAND, OHIO.

FOLDING BED.

SPECIFICATION forming part of Letters Patent No. 730,390, dated June 9, 1903.

Application filed August 22, 1901. Serial No. 72,872. (No model.)

To all whom it may concern:

Be it known that I, DAVID T. OWEN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Folding Beds; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to folding beds; and the object of the invention is to provide a bed, single or double, which can be folded away, so as to be practically out of sight as a bed and leave an otherwise ornamental article of furniture which will be both attractive in appearance and take up comparatively little room or space, all substantially as shown and described, and particularly as pointed out in the claims.

In the accompanying drawings, Figure 1 is an end elevation of my invention, showing one side or section of the bed folded and the other open or down as in use. Fig. 2 is a cross-section of the bed with the parts in the relation shown in Fig. 1. Fig. 3 is a detail of the lower portion of one of the four several corner-posts and showing the mattress-frame in section resting upon a supporting-bracket on said post and engaged thereon. Fig. 4 is a plan view of the bed shown in Figs. 1 and 2, taken on a line corresponding, say, to X X, Fig. 1. Fig. 5 is an enlarged sectional elevation of the mechanism of one of the two pivots for the mattress-frame, showing the parts in the relation they sustain when the mattress-frame is down. Fig. 6 is a plan view of the same mechanism on line Y Y, Fig. 5, and showing the parts in the relation they sustain when the mattress-frame is down.

A represents what may be termed the "cabinet-casing" or main frame of the bed, which in this instance has sufficient depth from side to side to receive and inclose two mattress-frames B B, one on each side, and constituting together what is termed a "double" bed. The frame B may have any preferred width and be adapted to accommodate one or two persons, and if made larger than one person requires it will simply require a correspondingly greater elevation or height with correspond-

ing elevation of main frame. When two are used, the mattress-frames swing into such relation at their adjacent edges that the mattresses will practically cover the gap between them, making the bed substantially continuous across its center. However, if preferred, a curtain or other dividing-wall can be arranged between the two beds, so as to make one exclusive from the other, and either or both beds can be used at the same time, as may be found desirable. Furthermore, the mechanism relating to one is the same as in the other, so that a description of one side or bed answers for a description of both. Both frames B are supported at their inner ends on corresponding uprights, posts, or rods C, which are themselves supported at their ends in the frame A and adapted to rotate within limits as required, and the gears G thereon are likewise adapted to rotate within limits, as we shall see. In the said frame A are lateral projections or arms D, through which rods C pass into their supporting brackets, bars, or parts E below, and these projections D have studs *d* at their ends supporting first the bevel-gears F, which work with bevel-gears G, and on the extremities of said studs are the reduced points *d'*, upon which rest and rotate the mattress-frames B. Each mattress-frame has two of these pivot supports and connections located relatively in the bottom of the main casing A and at the rear portion of the said mattress-frame, leaving a small portion of said frame projecting inward beyond the pivot-point to swing down below the said point when the mattress is folded. At its outer edge or portion the mattress-frame is shown in this instance as resting upon a small bracket *b*, having a lug 2 on its top over which the mattress-frame engages, being provided with a hole or opening at its point to rest down over said lug, and thus receive a sufficient locking-support at this point for the said frame on the post. This or any equivalent means or mechanism for making the engagement of the frame with the post may be adopted.

H and H' represent what may for convenience of description be referred to as the "head" and "foot" frames of the bed, which are each separate from the other and separate from the mattress-frame B, excepting as

they come into connection, as shown in Fig. 3, and both are adapted to be swung inwardly against the mattress and its frame when they are folded, as seen in both Figs. 2 and 4. The posts C, therefore, may be regarded as practically a part of these head and foot frames on which the mattress-frame rests and turns, and in folding the said frame is first turned up into position, and the head and foot frames are then folded in against it, and this is all that is required to fold the bed and get the parts out of the way. In this operation, however, the gears F and G play a part, as will be seen. Gear G is shown as having a slot *g* engaged by a pin 4 on standard C, projecting into said slot and limiting the rotation of the gear to the length of the slot. This compels standard C itself to rotate when the gear G is turned farther than the limitations of the slot allow. Hence when the bed is raised in folding the end of slot *g* is not only reached before the mattress-frame is carried fully back at the top, but a partial rotation of standard C through gears F and G is produced as said frame and its mattress are pressed back into closed position, as seen, for example, in the case of the closed section or side at the right in Fig. 2. Thus it occurs when the mattress-frame and its mattress are folded that the folding causes the posts C to take a limited rotation also, which operates necessarily on the head and foot frames H and H' rigid therewith, and thus compels said frames to close in toward the mattress at the center, much as two wings would close or fold, and in this manner the raising of the mattress and putting it to place in the casing A also in large measure automatically effects the closing of the head frames. If not fully closed, they can then be gripped by the hands and folded back to place. It therefore will appear evident from the foregoing that the function and advantage of gears F and G is to swing or fold the frames H and H' inward as the mattress-frame itself is being pressed up and back into place and that this is their chief function and purpose. If said gears were not used, the said end frames H and H' would have to be closed separately by hand; but I prefer the automatic connections here shown, whereby I am enabled to effect at least a partial closing of said frames, and I can more effectually close them by changing the relative sizes of said gears, making gear G smaller in proportion than here shown.

When the bed is opened for use, the head and foot frames are first swung outward into position, and then the mattress-frame is lowered thereon and engaged at the corners *b*, and there is nothing more to do than to make up the bed, if this has not already been done. Usually the making up of the bed occurs before the bed is folded, and the free and open ventilation that remains between the two mattresses, if two be used, is sufficient for all the needed ventilation of the bed. Such

ventilation, furthermore, is found ample, because the bed is open at its bottom and has openings about its top as well to create circulation and freshen the bed.

I can of course use spring or weight and lever mechanism for assisting in the folding and unfolding of the parts, if desired; but this is not of the present invention.

A' represents a curtain supported on a suitable roller and adapted to be run up and down like a window-shade; but it may be substituted by ornamental panels or doors or the like.

In this connection reference is made to concurrent application, Serial No. 98,907, filed March 19, 1902, and claims 6, 7, and 8 therein, which are disclaimed in this application.

What I claim is—

1. In a folding bed of the kind described, a main frame, and vertically-arranged rotatable shafts having end bearings in the front portion of said frame, in combination with a mattress-frame pivoted at its rear in said main frame, separate entire head and foot frames rigid with said shafts, and engaging mechanism between said mattress-frame and said shafts constructed to rotate the shafts when the said frame is raised and lowered, substantially as described.

2. In a folding bed, a rigid main frame for supporting and inclosing the folding parts, in combination with a mattress-frame having fixed pivots in the said main frame and adapted to fold therein, and rigid head and foot frames having separate pivots and adapted to be folded independently at right angles to the direction of folding of the mattress-frame, and means connecting said several frames to fold the head and foot frames when the mattress-frame is folded, said means comprising rotatable interengaging parts between said mattress-frame and the supports for the head and foot frames, substantially as described.

3. In folding beds, a main frame in which the bed is folded, head and foot frames and an upright support in each end of the main frame on which said head and foot frames are fixed, in combination with a mattress-frame pivoted in said main frame, and mechanism operatively connecting said mattress-frame and said upright supports, substantially as described.

4. In folding beds, a main frame and a vertically-arranged rotatable shaft at each end of the said frame and head and foot frames thereon, in combination with a mattress-frame pivoted in said main frame, and intermeshing mechanism on said shafts and mattress-frame, respectively, constructed to permit a partial raising of the mattress-frame without rotating the said shafts, substantially as described.

5. The main frame and the mattress-frame pivoted therein, in combination with head and foot frames pivoted in the ends of the main frame, and mechanism operatively connecting the mattress-frame and said head and

foot frames and constructed to automatically fold the said head and foot frames when the mattress-frame is folded, substantially as described.

5 6. In a folding bed, a main frame, in combination with a mattress-frame pivoted on said main frame to be turned sidewise into vertical position, an end frame, and mechanism connecting said end frame and said
10 mattress-frame and constructed to automatically fold the end frame against the mattress-frame, substantially as described.

7. In a folding bed, a main frame, a mattress-frame pivoted therein and adapted to
15 be turned into a horizontal position, in combination with a pivotally-supported end frame and mechanism connecting the same operatively with the mattress-frame, said mechanism constructed to automatically open the

end frame as the mattress-frame is lowered 20 to horizontal position, substantially as described.

8. In folding beds, in combination with a main frame, a mattress-frame pivoted in said main frame, head and foot frames and mechanism for closing the same operatively connected with the mattress-frame, said mechanism adapted to allow the partial raising of the mattress-frame in advance of the closing of the said head and foot frames, substantially as described. 30

Witness my hand to the foregoing specification this 14th day of August, 1901.

DAVID T. OWEN.

Witnesses:

R. B. MOSER,
H. T. FISHER.