

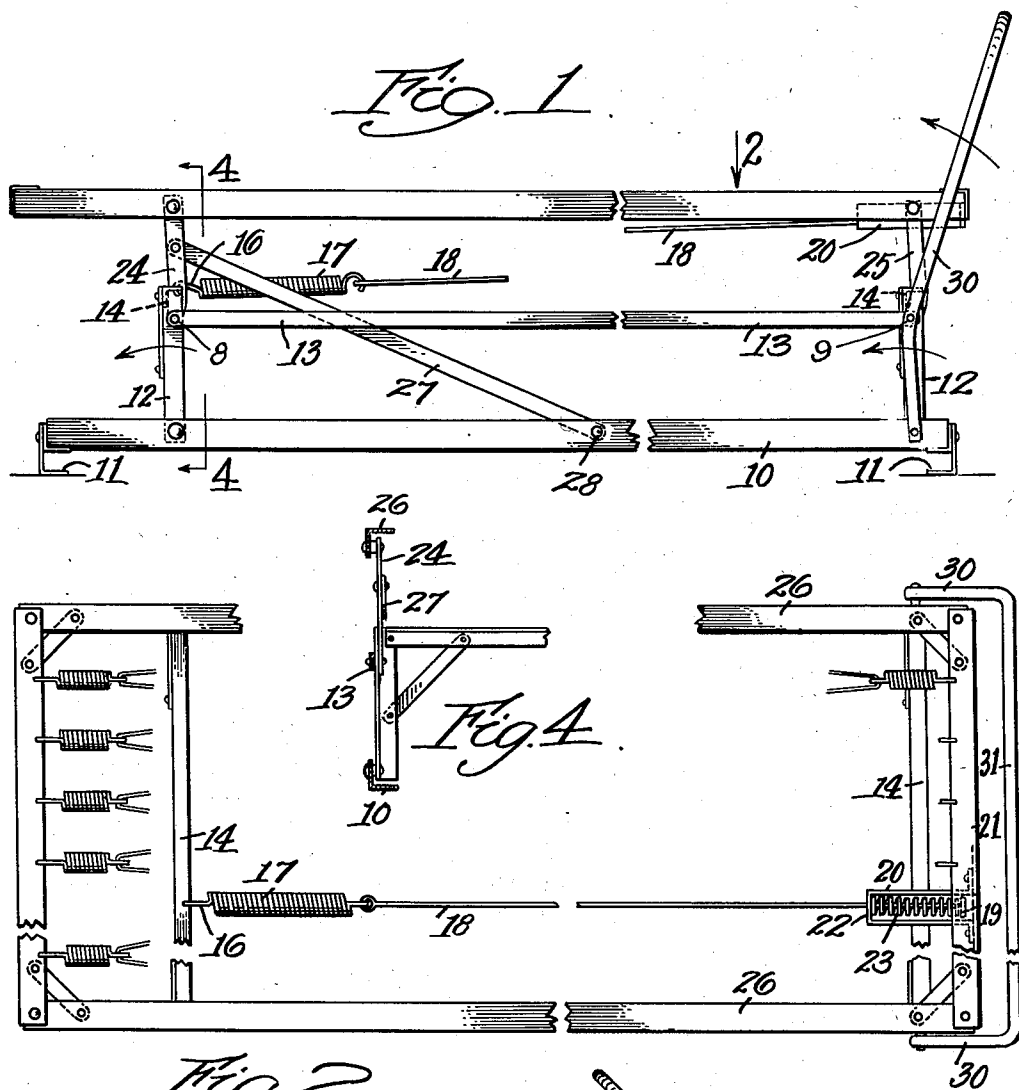
April 21, 1942.

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2,280,444

ELEVATING DEVICE FOR COTS AND THE LIKE

Filed Dec. 17, 1938



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UNITED STATES PATENT OFFICE

2,280,444

ELEVATING DEVICE FOR COTS AND THE LIKE

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Application December 17, 1938, Serial No. 246,399

6 Claims. (Cl. 5—110)

The principal objects of this invention are to provide an extremely simple elevating device for a folding cot in which the spring action is secured along a single central line, preferably with a maximum of two springs which are in alignment and in which the lowering and raising of the cot is performed by a lever at the head of the cot; to provide a construction in which the leverage for raising and lowering will be ample to secure an easy motion and avoid any tendency to let the cot down suddenly; to provide a construction in which there is no likelihood of accidental descent of the spring frame, and to provide positive stops for absolutely preventing any excess motion in raising it.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing, in which

Fig. 1 is a side view of a cot constructed in accordance with this invention and shown in fully elevated position;

Fig. 2 is a plan thereof portions being broken away;

Fig. 3 is a side view showing the cot in a position almost closed, and

Fig. 4 is a sectional view on the line 4—4 of Fig. 1.

The invention is shown as applied to a cot having a base 10 formed of four angle irons provided at their corners with slides 11 for resting on the floor. Pivotaly connected to the longitudinal irons of the base are two frames 12 which are practically alike and extend about half way from bottom to the top when unfolded. These two frames extend across the cot and are connected by two opposite links 13 so that a parallel motion is secured.

The frames 12 are built with members 14, one of which, located at the foot, is provided with a perforation to receive a hook 16 of a heavy expansion spring 17. This spring is connected with a longitudinal rod 18 having a head 19 movable in a space in a bracket 20 located at the head end and fixed at 21 on a spring frame 26. This space is covered on its foot end by a wall 22 perforated to receive and guide the rod 18. Therefore, a light compression spring 23 in the said space bears on the head 19 and on the inner side of this wall 22. This system of springs with the rod 18 tends to help to pull the parts back to the open position shown in Fig. 1 and to cushion their descent into the position shown in Fig. 3, spring 23 providing a lost motion connection so that the spring frame may be started on its downward movement prior to expansion of spring 17.

Pivoted to the opposite ends of the longitudinal links 13 as at 8 and 9 are two pairs of links 24 and 25 which are also pivoted to the mattress frame 26 which constitutes the top of the cot.

On account of this pivotal action these two links 24 and 25 on each side, being the same length and the pivots on the spring frame 26 being just as far apart as the pivots on the rod 13, provide another parallel motion. Each link 24 is pivoted to a rod 27, one on each side, which also is pivoted to the bottom frame 10 at the point 28. These rods 27 being inextensible and pivoted at stationary points limit the action of the two links 24.

Pivoted on the bottom frame 10 at a point in axial alignment with the pivot of the head frame 12 is an operating handle 30. This is also fixed to the link 13. This handle extends up above the cot and extends across having an operating bar 31 constituting the means by which the device is moved back and forth between the two positions shown in Figs. 1 and 3. The handle constitutes the head of the cot.

Starting in the position shown in Fig. 1, this operating handle is moved in the direction of the arrow, taking directly with it the head frame 12 and moving the links 13 backwardly and the foot links 12 downwardly in a parallel motion against the resistance of both the spring 17 and the spring 23, in other words, first compressing the spring 23 and then expanding the spring 17. The tension is adjusted by adjusting the compression of the spring 23. When this spring is compressed to its limit, it, of course, acts as if solid so that the spring 17 supplies all the yield. When completely folded the parts 26, 13 and 10 come substantially into contact.

On the upward motion these springs assist in moving these parts up and they move up until the links 24 are engaged by the frames 14 which are slotted to receive these links and constitute stops to prevent their moving too far. Furthermore, the links 27 also limit this action and likewise the links 25 cooperating with the slots in each end of the head frame 12 further would constitute stops so that the device cannot be pushed beyond its upright position shown in Fig. 1. The links 27 act as braces and positively prevent the swinging of the links 12, 24 and 25 toward the head of the cot from the position shown in Fig. 1.

This constitutes a very simple device, easy to assemble, having few parts likely to get out of order, and capable of being manufactured at a minimum cost. The operation is simple and easy and not of such a nature as to make it likely that the spring frame will drop with a bang on the bottom frame. The structure involving the springs 17 and 23 provides nothing extending beyond the top frame. Also it is operated from either side with equal ease and by a person standing at the head and cannot, by any possibility, be moved too far over toward the head end. Neither is it likely to be collapsed accidentally. The main advantage of the spring construction,

17 and 23, is that in opening or closing it, the springs act at the right time to efficiently help carry the lever 30 over, thus making this operation materially less onerous. The point of greatest resistance to the swing of the lever 30 is compensated for to a large extent by the compressible spring and the expansible spring and presents very little more resistance at that point than is presented just beyond it and just before it.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. In a folding cot, or the like, the combination with a bottom frame supporting the cot and a top frame carrying springs, of two pairs of links pivoted to the bottom frame and extending upwardly about half the distance to the top frame when the cot is expanded, two pairs of links pivoted to the top frame, extending downwardly, and pivoted to the first named two pairs of links, two longitudinal links pivoted to said four pairs of links at the points at which they are pivoted together, yielding means connected near said last named pivot points at the foot of the cot and to the spring frame at the head of the cot for resisting the folding up of the cot and cushioning the descent of the top frame, front and rear links each pivoted to the bottom frame intermediate the head and foot thereof and to an intermediate point of one of the links of the second mentioned pair which is near the foot of the cot.

2. In a folding cot, or the like, the combination with a bottom frame and a top spring frame, of two pairs of parallel motion frames pivotally connected respectively with said top and bottom frames and with each other, for raising and lowering the spring frame, means connecting said parallel motion frames adjacent their mutual pivot points, and yielding means extending from adjacent the pivotal connection between one pair of parallel motion frames at one end to the spring top frame at the other end and resisting the lowering of the spring top frame, said yielding means comprising a heavy extension coil spring, a link connected therewith, a light compression spring connected to the other end of the link, a bracket on the spring frame for receiving the thrust of the compression spring, and means to maintain said bottom and top frames in separated condition.

3. In a folding cot, or the like, the combination of a bottom frame, a pair of frames pivoted thereto, links pivotally connected with said frames in a parallel motion relationship, a spring frame constituting the top of the cot, two pairs of links pivotally depending from the spring frame, each said pair of links being pivotally connected with a frame to provide parallel motion structures, yielding means tending to urge both parallel motion structures to vertical position, a link pivotally connected to said bottom frame and to one of said depending links, means for folding the cot by overcoming the resistance of the yielding means, said folding means comprising an operating lever pivoted at the head end of the cot on said bottom frame on the same axis as the pivoted frame at the head end and fixed to the top of said pivoted head frame and extending up above the spring frame beyond the head end of it across the cot, and stop means located adjacent the pivot point of the depending links and the frames connected to the bottom cot frame, to limit the motion of the parallel motion devices

so that they cannot move past a generally vertical position under influence of said yielding means.

4. In a folding cot, or the like, the combination with a bottom frame and a top spring frame, of two pairs of parallel motion frames pivotally connected respectively with said top and bottom frames and with each other, for raising and lowering the spring frame, means connecting said pairs of parallel motion frames adjacent their mutual pivot points, yielding means extending from adjacent the pivotal connection between one pair of parallel motion frames at one end to the spring top frame at the other end and resisting the lowering of the spring top frame, a stop formed between the parallel motion frames of one pair to limit the motion of the parallel motion frames, and an inclined link extending from the bottom frame at a point near the middle thereof to the upper parallel motion frame of one pair and pivoted to the frames between which it extends to limit and control the motion of the parallel motion frame.

5. In a folding cot, or the like, the combination of a bottom frame, a pair of frames pivoted thereto, links pivotally connected with said frames in a parallel motion relationship, a spring frame constituting the top of the cot, two pairs of links pivotally depending from the spring frame, each pair pivotally connected with one of said frames to provide parallel motion structures, yielding means tending to urge the parallel motion structures to vertical position, a link pivotally connected between one of said pair of depending links and said bottom frame, means for folding the cot by overcoming the resistance of the yielding means, said folding means comprising an operating lever pivoted at the head end of the cot on said bottom frame head end and fixed to the top of said pivoted head frame and extending across the cot, and stop means located adjacent the pivot point of the depending links and the frames connected to the bottom cot frames to limit the motion of the parallel motion devices so that they cannot move past a generally vertical position under influence of said yielding means.

6. In a folding cot or the like, the combination of a bottom support and a top support, a pair of frames pivoted to said bottom support, pairs of links pivoted to said top support, a pivot connection between one of the frames which is pivoted to the bottom support and one of the pairs of links pivoted to the top support, a pivot connection between the other frame pivoted to the bottom support and another pair of links pivoted to the top support, a link connected adjacent both said pivot connections at spaced points on said last named link, and means to selectively maintain said pivoted frames in substantially extended condition, said means including brace links connected between the bottom support and one of said pairs of links pivoted to the top support, whereby said top frame may be held in raised position relative to said bottom support; with spring means tending to extend said inter-pivoted frames and links to thus separate said supports, said spring means also tending to resist collapse thereof, and a lost motion device associated with said spring means to permit partial collapse of said inter-pivoted frames and links just prior to the action of said spring means in resisting said collapse.

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