

Feb. 17, 1959

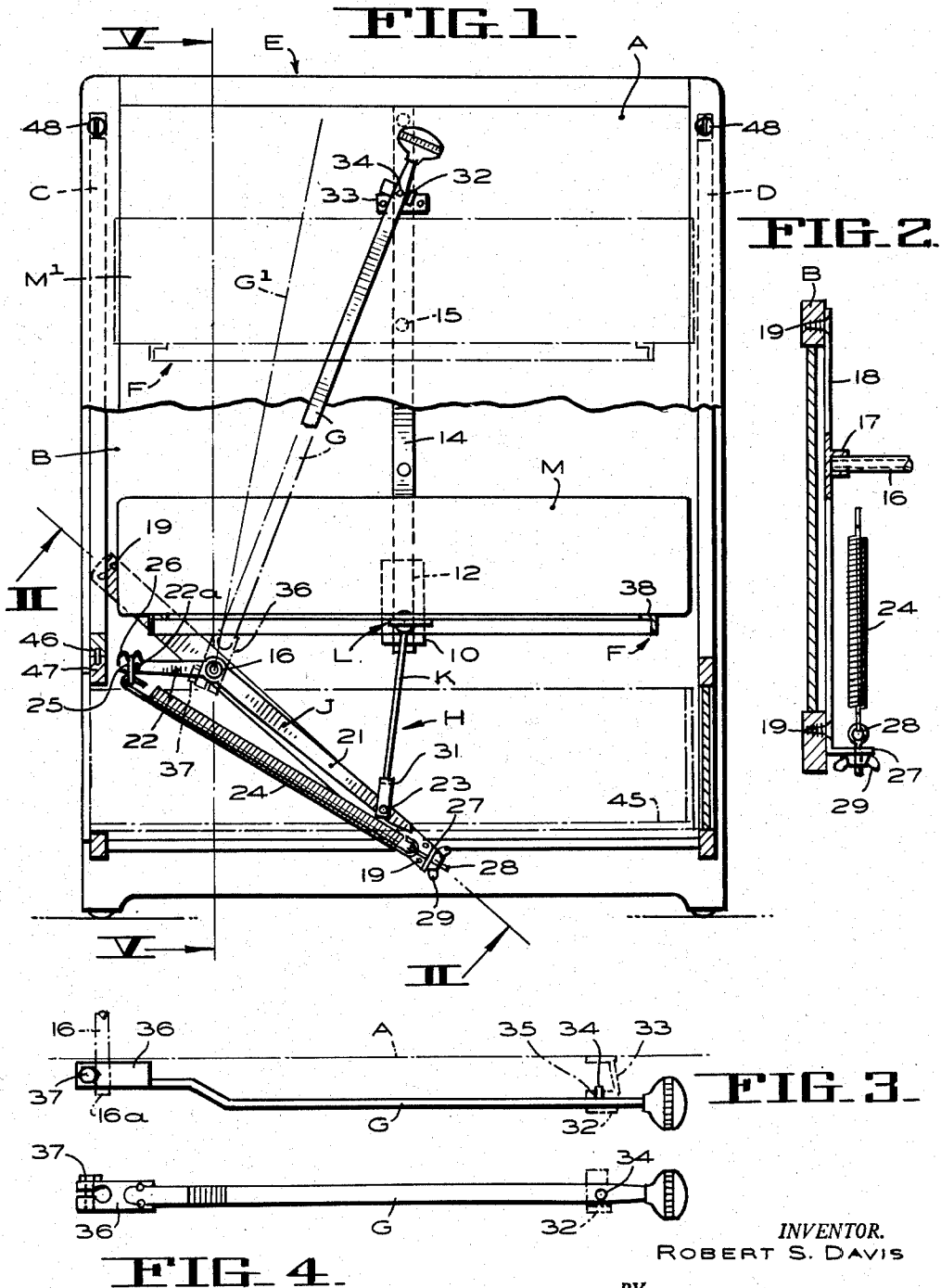
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2,873,455

INFANT'S CRIB WITH AN ADJUSTABLE MATTRESS-SUPPORTING FRAME

Filed May 10, 1956

3 Sheets-Sheet 1



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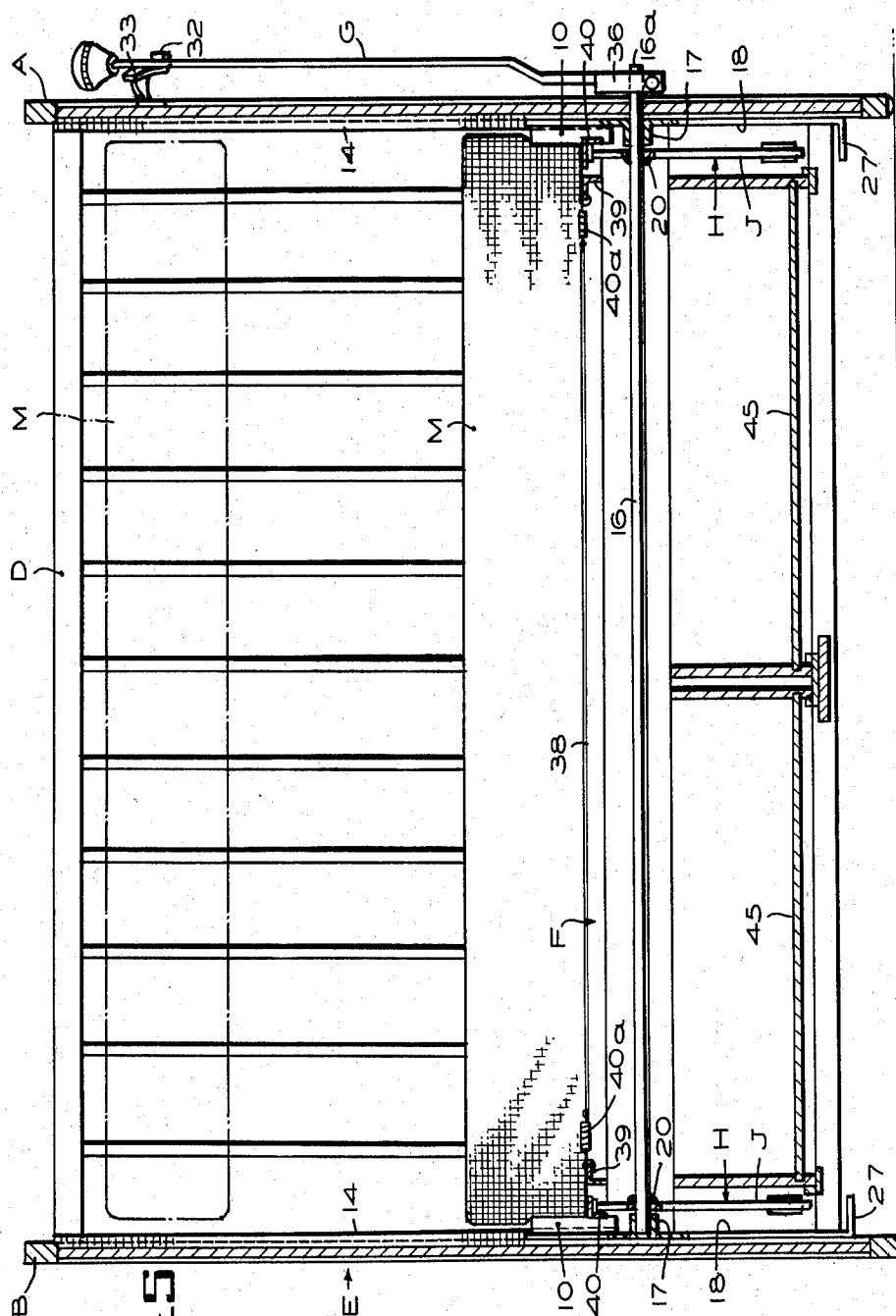


FIG. 5

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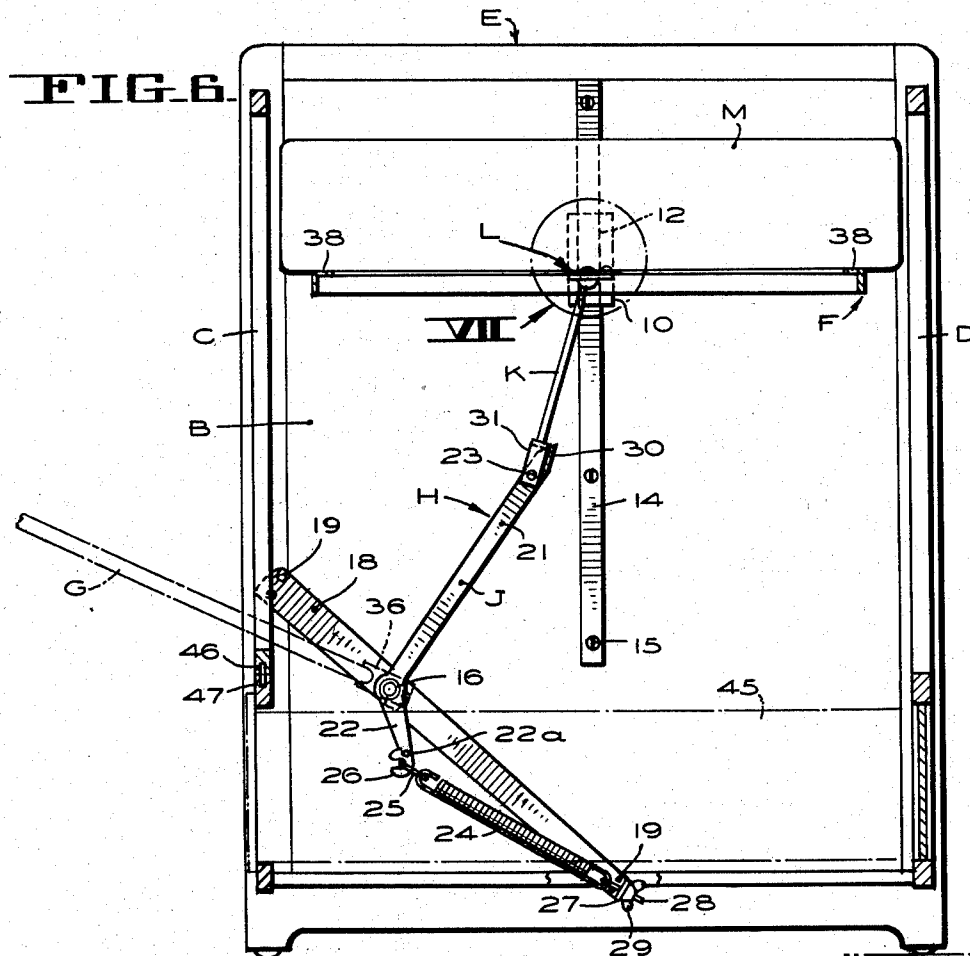
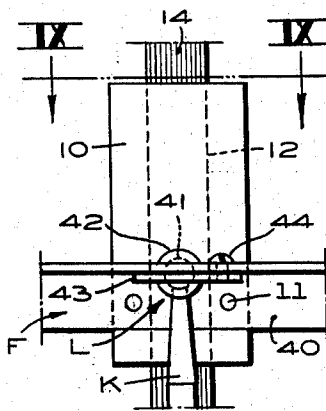


FIG. 7

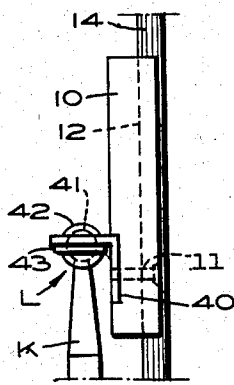
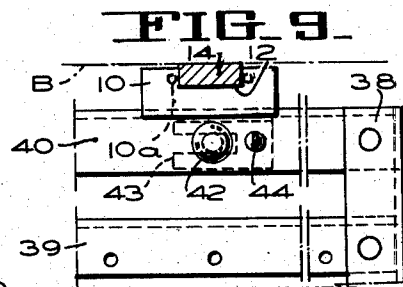


FIG. 8.



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INFANT'S CRIB WITH AN ADJUSTABLE MATTRESS-SUPPORTING FRAME

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Application May 10, 1956, Serial No. 584,021

5 Claims. (Cl. 5—63)

The present invention relates to improvements in an infant's crib with an adjustable mattress-supporting frame, whereby this frame may be readily elevated and depressed relative to the crib structure. Thus, when the frame is raised, the stooping of an attendant to reach the infant is entirely eliminated. At the same time, the bed is accessible at a convenient working height.

It is proposed in this invention to provide a device of the type described in which the mattress-supporting frame may be raised or lowered with the minimum of effort on the part of the attendant. Moreover, this frame may be moved to various heights between its fully elevated and depressed positions.

More specifically stated, it is proposed to provide a shaft, which may be turned in either direction by means of a handle. This shaft is interconnected by toggle mechanisms with the mattress-supporting frame. When the shaft is turned in one direction, the toggle mechanisms will elevate this frame, with the parts of the toggles moving into positions for automatically holding the mattress frame in raised position. However, the toggles may be readily folded and the mattress-supporting frame lowered, merely by turning the shaft in the opposite direction, or by depressing the mattress frame.

A further object is to provide an infant's crib with an adjustable mattress-supporting frame, which is simple in construction, durable and efficient for the purpose intended, and which may be manufactured at a relatively low cost.

Other objects and advantages will appear as the specification continues. The novel features will be particularly pointed out in the claims hereunto appended.

Drawings

For a better understanding of the invention, reference should be had to the accompanying drawings, forming part of this specification, in which:

Figure 1 is a transverse sectional view taken through the crib, parts being shown in elevation, and the mattress-supporting frame being disclosed in depressed position;

Figure 2 is a fragmentary sectional view taken along the inclined plane II—II of Figure 1;

Figures 3 and 4 are top plan and front elevational views, respectively, of the operating handle;

Figure 5 is a longitudinal sectional view taken along the vertical plane V—V of Figure 1;

Figure 6 is a view similar to that shown in Figure 1, but with the mattress-supporting frame moved into elevated position;

Figure 7 is an enlarged view of that portion of the device enclosed within the dot-dash circle VII in Figure 6;

Figure 8 is a side elevational view of Figure 7; and

Figure 9 is a horizontal sectional view taken along the line IX—IX of Figure 7.

While I have shown only the preferred form of my invention, it will be understood that various changes, or modifications, may be made within the scope of the annexed claims without departing from the spirit thereof.

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Detailed description

Referring to the drawings in detail, I provide a pair of spaced-apart end panels A and B, which are interconnected by sides C and D to coact therewith in providing a crib structure indicated generally at E. Within the confines of this crib structure there is mounted a mattress-supporting frame F, which is guided for vertical movement between depressed position (see Figure 1) and elevated position (see Figure 6).

For the purpose of guiding the frame F in vertical movement, a pair of channel-shaped slides 10 are secured to opposite ends of this frame (see Figures 1 and 6-9) by screws 11, or other suitable fastening means. The channels 12 of the slides receive vertically-disposed runners 14, which are fastened to the inner faces of the end panels A and B, for instance, by screws 15. While the slides and runners may be made from any suitable material, they are preferably fashioned from hardwood, since this will avoid any metallic sound when the mattress frame is moved vertically. Anti-friction bearings 10a may be provided between the slides 10 and the runners 14 (see Figure 9).

It will be noted that a shaft 16 extends lengthwise of the crib structure E, and is journaled for turning movement adjacent its ends by bearings 17, the latter being carried by strips 18 that are secured to the inner faces of the end panels A and B, for instance, by screws 19. As shown in Figures 3 and 5, the end 16a of this shaft projects beyond the panel A and has a handle G secured thereto. This handle is operable for turning the shaft 16 in either direction.

As an important structural feature, a pair of toggle mechanisms H are provided for interconnecting the shaft 16 with the mattress-supporting frame F (see Figures 1, 5 and 6). One of these toggle mechanisms is arranged adjacent to each of the end panels to thereby raise or lower the frame F, without binding action between the slides 10 and the runners 14.

Both toggle mechanisms H are identical with one another, and each includes a swingable lever J, which is fixed intermediate of its ends to the shaft 16, as for example, by welding 20 (see Figure 5). These levers define long and short arms 21 and 22, respectively. Moreover, a pair of links K are utilized, each having its lower end pivotally attached by a clevis pin 23 to a long arm 21 of one of the levers. The upper ends of these links are swingably attached by a ball and socket connection L to the mattress-supporting frame F.

In order to substantially counterbalance the weight of the frame F, the mattress M and the infant, coil springs 24 have been provided. Each of these springs has one of its ends connected to a short arm 22 of a lever J by a loop-shaped link 25, the latter engaging over a hook 26 fashioned on the short arm of the lever (see Figures 1 and 6). The other end of each spring is anchored to a fixed bracket 27 by an adjustable eyelet bolt 28 and a wing nut 29 (see Figure 2). These brackets may be formed as part of the lower portion of the strips 18. Obviously, when the nuts 29 are turned in one direction or the other, the tension of the springs 24 may be varied.

When the handle G is swung into the dot-dash line position shown in Figure 6, thereby elevating the mattress-carrying frame F, each lever J and the link K attached thereto are moved into substantial alignment with one another. This arrangement will hold the frame F in elevated position. At this time, the outer end 30 of each lever will abut the clevis 31 on the link K associated therewith, thereby automatically holding the mattress frame in raised position. However, the toggles H may be folded by raising the handle G or by depressing the mat-

tress frame. The lever end 30 precludes the toggle from actually locking when the frame F is elevated.

Referring now to Figure 1, it will be noted that the short arm 22 of the lever J is provided with a pin 22a, which is disposed to serve as a stop to hold the loop-shaped link 25 vertical when the mattress-supporting frame F occupies its lowest position. This arrangement will give more or increased leverage, i. e., with the frame F fully depressed and to some distance upward, by increasing the distance of the spring hook-up on the short arm from the shaft 16. This pin is only necessary, if the infant is left in bed and raised regularly after it has attained considerable more weight than normal. The increased leverage provided by utilizing the pin acts as a booster to assist in lifting additional weight.

As illustrated in Figure 1, when the mattress frame F is fully depressed, the upper portion of the handle G abuts a fixed stop 32. The latter is carried by a bracket 33 which is secured to the end panel A. At this time, a pin 34 on the handle enters an opening 35 provided in this bracket (see Figure 3), thereby holding the handle G against the stop.

With particular reference to Figures 1, 3 and 4, it will be seen that the handle G is secured to the shaft 16 by an adjustable clamp 36, whereby the handle may be shifted into various angular positions around this shaft. As disclosed in the drawings, a bolt 37 has been provided for securing the clamp in adjusted position on the shaft.

In Figure 6, the mattress M is shown at its highest position, and will support the infant at a level where the attendant can take care of the infant without bending over. Assuming that a person desires the mattress to occupy the dot-dash line position M¹, as suggested in Figure 1, when the frame F reaches its lowest position, instead of the fully-depressed position illustrated by full lines in this view, the change may be readily accomplished by shifting the shaft 16 relative to the handle G.

In Figure 1, the mattress is shown in the position M¹, and this theoretically is about four inches down from the top position shown in Figure 6. The mattress will be in the position M¹ when the infant is in the bassinet stage. The handle G may be unclamped from the shaft 16 and the mattress depressed from the position M in Figure 6 into the position M¹ in Figure 1. With the handle G arranged against the stop 32, the handle may be reclamped to the shaft. Thereafter, when the attendant wishes to raise the mattress from the position M¹ into the position M, it is merely necessary to swing the handle G from the full-line position shown in Figure 1 into the dot-dash line position G¹ shown in this view.

As the infant grows older, and it is desired to lower the mattress to a greater extent than the M¹ position, it is merely necessary to again loosen the handle G from the shaft 16 and depress the mattress to the desired position, after which the handle may be reclamped to the shaft. When the attendant raises the mattress to the position M in Figure 6, it will only be necessary to swing the handle G to a greater extent from its locked position shown in Figure 1.

It is possible to periodically lower the mattress to new positions as the infant grows, until the mattress reaches the lowermost position shown in the full lines in Figure 1. When this takes place, the handle G must be swung to the dot-dash line position shown in Figure 6 in order to raise the mattress to its top position.

The usual mattress-supporting frame F includes longitudinal angle irons 38 at its sides, which are interconnected by transversely extending angle irons 39 to which the coils 40a of the springs are attached (see Figure 5). A second pair of end angle irons 40 have been added in order to reinforce the frame and thus preclude the slides 10 from becoming disengaged from

the runners 14, when weight is applied to the mattress M.

In its structural details, each ball and socket connection L includes a ball 41, which is fashioned on the upper ends of the links K (see Figures 7 and 8). These balls are held in inverted cup-shaped bearings 42, which are formed in the end angle bars 40, by means of bifurcated clips 43. The latter are removably attached to the bars 40 by screws 44, which are inserted from above the bars 40 as shown in Figures 7 and 9 of the drawings.

Drawers 45 have been provided in the lower portion of the crib structure E, wherein bedding and other supplies may be conveniently stored, and thus are readily accessible.

As shown in Figures 1 and 6, the side C may be removed from the crib structure in order to allow the infant to get into or out of the crib as it grows older. For this purpose, the side C may have dowel pins 46 at its bottom, which are arranged to be inserted into bores formed in a side rail 47 of the crib structure. Bolts 48 have been shown in Figure 1 for removably anchoring the upper portion of the side C to the end panels.

Figure 5 shows the bracket 33 as being curved so the handle G or pin 34 will not strike the end of the bracket, but the pin will strike the curved portion of the bracket and be guided toward the opening 35 and reach it when the handle strikes the stop 32. The handle G has sufficient resiliency that it will flex slightly as the pin 34 on the upper end of the handle moves over the curved portion of the bracket 33 before reaching the opening 35. When the pin 34 does reach the opening 35, the resiliency of the handle will cause the pin to enter the opening and secure the handle in place. The anti-friction bearings 10a in Figure 9 permit the slides 10 to move along the runners 14 without any tendency of binding.

I claim:

1. In an infant's crib with a height adjustable mattress-supporting frame: a pair of spaced-apart end panels arranged parallel with one another; sides interconnecting these panels and coacting therewith to provide a crib structure; a vertically-extending runner secured to the inner surface of each end panel, substantially midway between the sides of the crib structure; a mattress-supporting frame disposed in the crib structure and having slides secured thereto; the slides engaging with the runners for guiding the mattress-supporting frame between depressed and elevated positions; a shaft extending lengthwise of the crib structure, and being supported by the end panels for turning movement; a pair of swingable levers fixed intermediate their ends to the shaft so as to swing in unison; these levers being swingable in planes extending transversely of the crib structure; each lever defining long and short arms; a pair of links, each having a lower end pivotally attached to the long arm of one of the swingable levers; each of these links having an upper end swingably attached to the mattress-supporting frame adjacent to one of the slides; a pair of fixed brackets secured to the end panels; and a pair of counterbalancing springs, each having one of its ends connected to a short arm of one of the swingable levers and its other end anchored to one of the fixed brackets; each lever and its link being movable into substantial alignment with one another, when the mattress-supporting frame is fully elevated, to thereby hold said frame in elevated position.

2. The infant's crib with a height adjustable mattress-supporting frame, as defined in claim 1; and in which the shaft is disposed between the runners and one side of the crib structure; and said links are arranged substantially vertically when the mattress-supporting frame occupies its lowered and elevated positions.

3. The infant's crib with a height adjustable mattress-supporting frame, as defined in claim 1; and in which the

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lower end of each link is pivotally attached by a clevis to the long arm of one of the swingable levers; the long arm of each swingable lever having an outer end which is arranged to abut the clevis associated therewith and prevent the long arm from moving into full alignment with its link, when the mattress-supporting frame is fully elevated, whereby this frame may be manually depressed.

4. The infant's crib with a height adjustable mattress-supporting frame, as defined in claim 1; and in which each of the short arms of the swingable levers is fashioned with a hook; each of the counterbalancing springs having one of its ends connected by a loop-shaped link to one of the hooks; each hook being provided with a pin which is disposed to serve as a stop to hold the loop-shaped link substantially vertical, when the mattress-supporting frame occupies its lowermost position, so as to increase the distance of the spring hook-up on the short arm from said shaft.

5. The infant's crib with a height adjustable mattress-supporting frame, as defined in claim 1; and in which the mattress-supporting frame includes longitudinal mem-

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bers at its sides, which are interconnected inwardly from their ends by a first pair of transverse end members to which coils of mattress-sustaining springs are attached; and a second pair of transverse end members secured to the ends of the longitudinal members outwardly beyond the first pair of said transverse end members; the slides being mounted on the second pair of said transverse end members, whereby the slides will not become disengaged from the runners, when weight is applied to said mattress-sustaining springs.

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