(No Model.) 2 Sheets—Sheet 1.

J. T. MURPHY.

SPRING CRADLE.

No. 555,258. Patented Feb. 25, 1896.

Fig. 1.

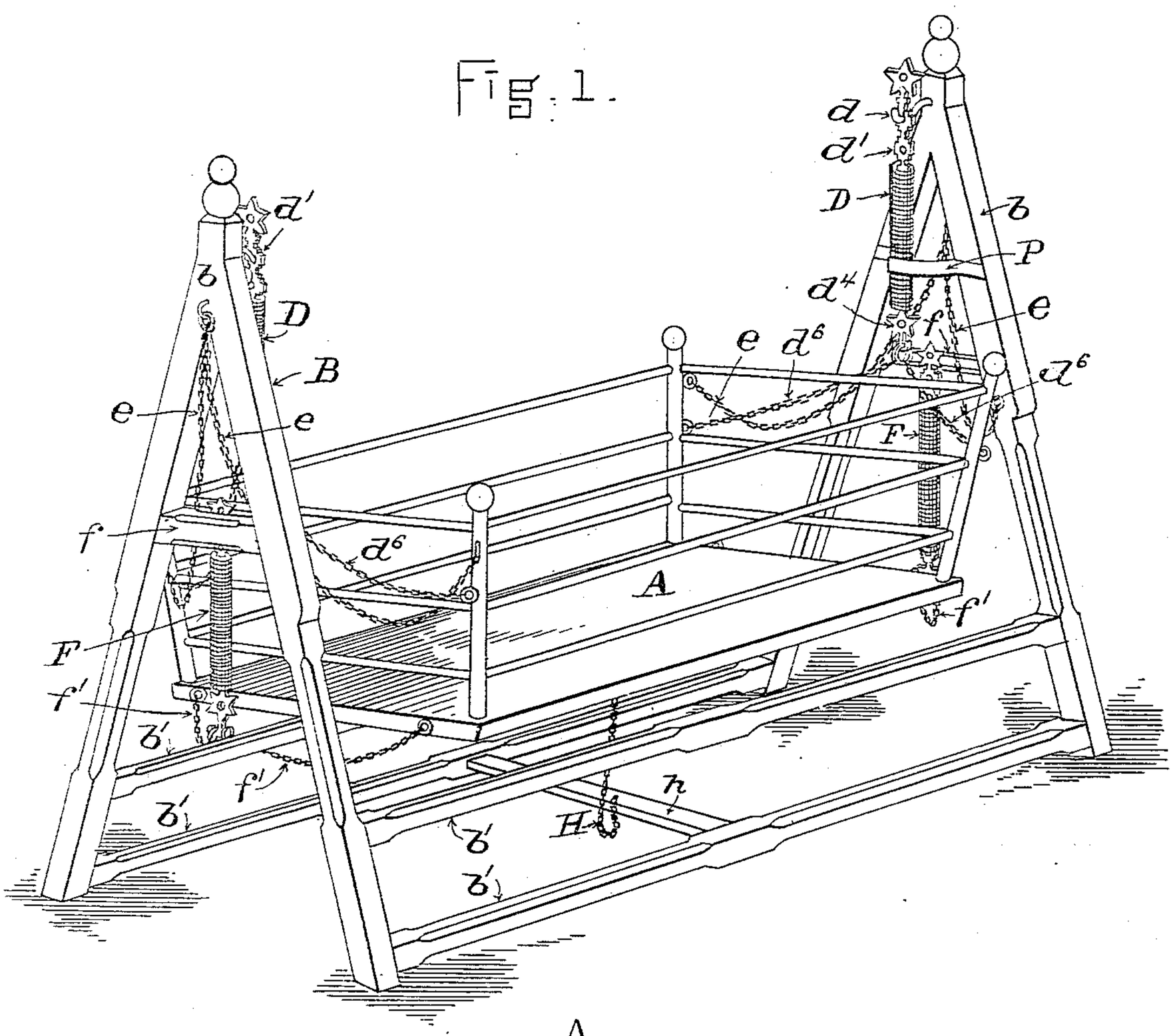


Fig. 2.

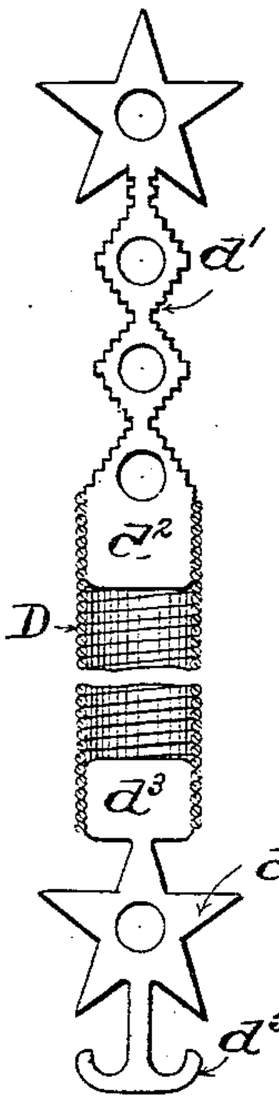
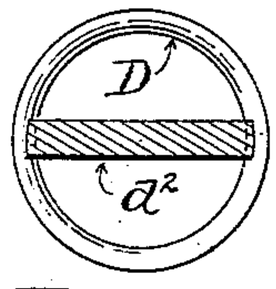


Fig. 3.



WITNESSES.

Fred V. Hart.
Leonard A. Virill

INVENTOR.

John T. Murphy
By his Attorney
Benjamin Phillips

(No Model.) 2 Sheets—Sheet 2.

J. T. MURPHY.

SPRING CRADLE.

No. 555,258. Patented Feb. 25, 1896.

Fig. 4.

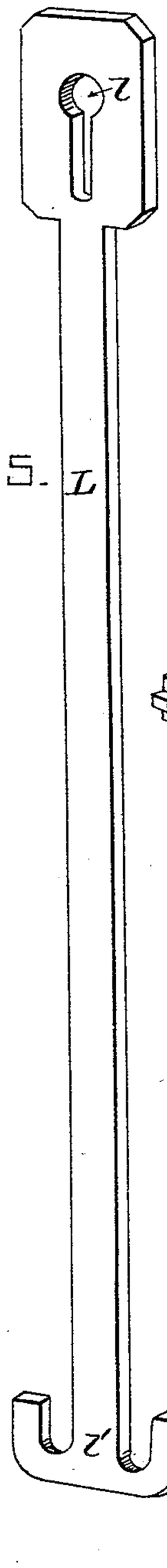


Fig. 5.

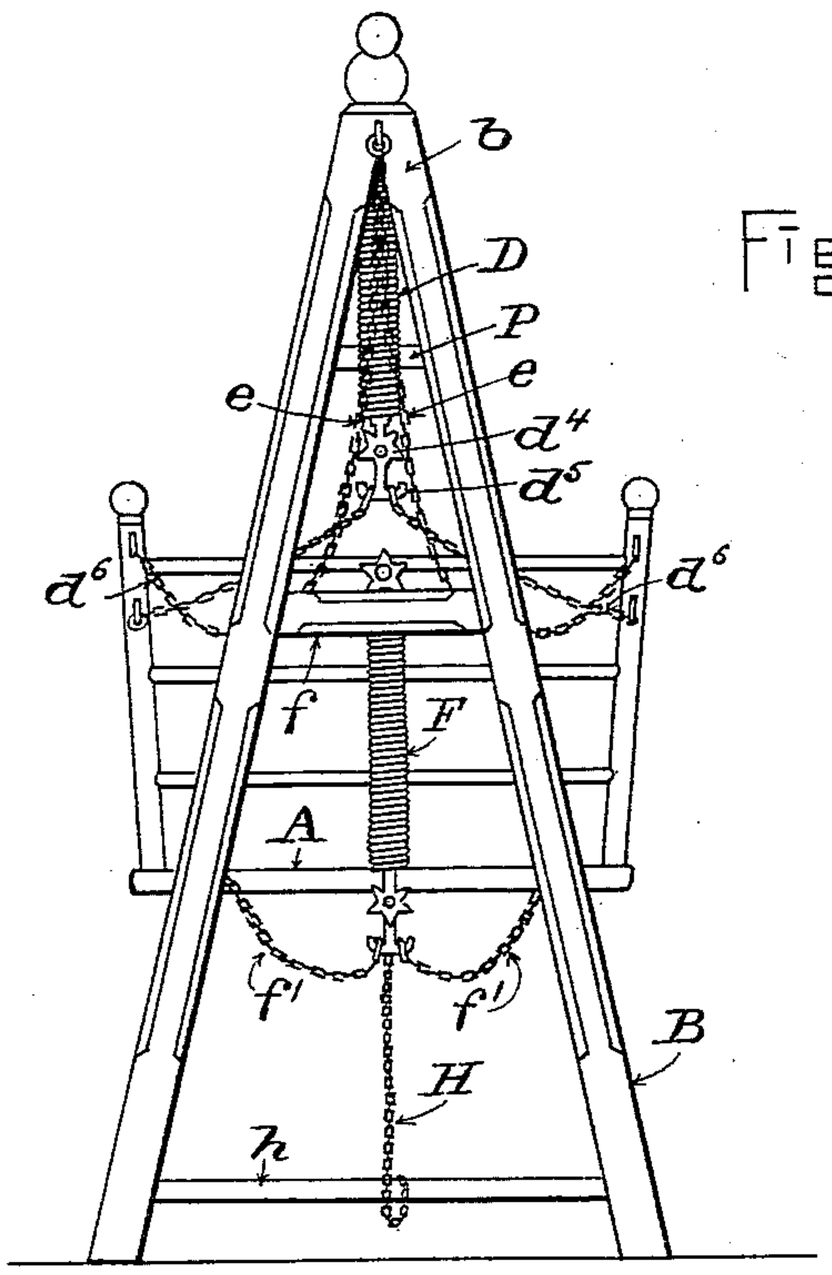
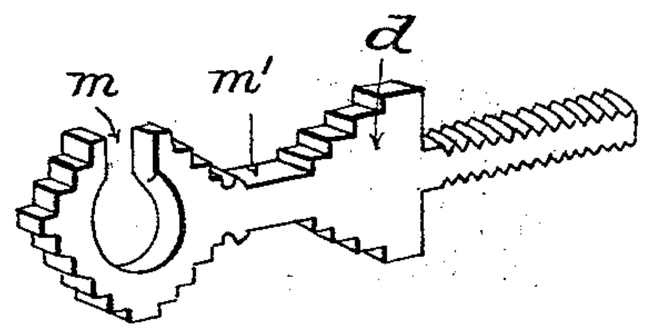


Fig. 6.



WITNESSES.

Fred C. Hart.
Leonard A. Tirrill

INVENTOR.

John T. Murphy
By his Attorney
Benjamin Phillips

UNITED STATES PATENT OFFICE.

JOHN T. MURPHY, OF HAVERHILL, MASSACHUSETTS.

SPRING-CRADLE.

SPECIFICATION forming part of Letters Patent No. 555,258, dated February 25, 1896.

Application filed August 28, 1895. Serial No. 560,836. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. MURPHY, a citizen of the United States, and a resident of Haverhill, in the county of Essex and Commonwealth of Massachusetts, have invented a new and useful Improvement in Spring-Cradles, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to improvements in devices of the above class; and it consists of an improved arrangement of the springs and their connections whereby the cradle is elastically supported and rendered practical for children of different weight, of the form and arrangement of the safety devices whereby the action of the cradle is limited and the cradle prevented from falling in case of the breaking of the springs supporting the same, and, further, of the several devices and their combinations, as hereinafter set forth and claimed.

The object of the present invention is to provide a spring-cradle which can be easily operated by a child of any usual weight and which is so arranged as to prevent any liability of injury to the child by being thrown from the cradle by the action of the springs or from the breakage of any mechanism connected therewith.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a cradle and its supports embodying the same. Figs. 2 and 3 are detail views of the supporting-springs and their connections. Fig. 4 is an end view. Fig. 5 is a perspective view of a rigid support to replace the springs when an elastic support for the cradle is not desirable. Fig. 6 is a perspective view of a modified form of the spring-supporting fixture, showing provision for adjusting the rigid support without removing the spring.

Similar letters of reference refer to similar parts throughout the several views.

In the drawings, A represents a cradle-body which may be of any desired form suitable for the purposes hereinafter stated.

B represents a frame suitable to support the cradle and working parts of the apparatus, and which, as shown, consists of the standards *b b* connected and braced from each other by the longitudinal braces *b' b'* and *b' b'*, but any other suitable form of supporting-frame may be substituted therefor. From each of the standards *b b* is projected a fixture *d*, which may be of any suitable form to support the pendant *d'*, a preferred form of which will be hereinafter more fully described.

d' d' represent pendants supported by and free to swing upon the fixtures *d d*. The lower portion, d^2, of each of the pendants *d' d'* is grooved, (see Figs. 2 and 3,) and said grooved portions engage one or more of the upper coils of a coiled spring D, one or more of the lower coils of which engage grooves formed upon the upper portion, d^3, of a lower pendant, d^4, upon which is formed the double hook d^5 (see Fig. 2) or other suitable device whereby the supports d^6 d^6 may be secured thereto. The supports d^6 d^6 are preferably flexible, consisting in practice of suitable chains or cords secured to the pendant d^4 and attached to opposite corners of the cradle-body A.

It will be noted that the grooved pendants form a very secure method of attaching the springs D to the apparatus and that the flexible supports d^6 d^6 and d^6 d^6, in connection with the springs D D, allow the cradle to receive almost every variety of movement, as hereinafter set forth.

As a safety device to prevent the falling of the cradle in case its supports, as hereinbefore and hereinafter described, become broken, I have provided the flexible supports (preferably chains) *e e*, which are secured to opposite corners of the cradle-body A and to the standards *b b*. The safety-chains *e e* are so arranged that they normally hang loosely from their supports and in no way interfere with the action of the cradle, but if the supports become broken the safety-chains *e e* are drawn taut and support the cradle-body A.

It will be noted that the chains *e e* perform the further function of limiting the down extension of the springs D D, and with a proper arrangement thereof it is practically impossible to so expand springs D D as to cause them to break.

It will be further noted in connection with the construction hereinbefore described that to have the cradle move easily by the movements of a child therein the springs D D can-

not be made too stiff, but must yield easily when the child moves, and it is further evident that if the springs D D are of suitable construction for a small or light child they will be too yielding for a heavier one, and the movements of the heavier child would throw the cradle-body A against the chains *e e*, causing a sudden jar, which might cause injury to the child. To remedy such a defect and to adapt the cradle to children of different weights, I have provided what I call "relief-springs," which consist of the coiled springs F, each of which is secured to a cross-bar *f* or other suitable support on the frame B and to a pendant upon the lower end of which are secured the flexible supports *f' f'*, preferably chains, which are secured to opposite corners of the cradle-body A.

The springs F and chains *f' f'* are so arranged that they do not interfere with the movements of the cradle-body as actuated by the springs D D and sustain none of the weight of the cradle-body until after the springs D D have been expanded beyond a given limit, which is before the weight of the cradle-body A has been thrown upon the safety-chains *e e*, when the chains *f' f'* are drawn taut and with the springs F assume a part of the weight of the cradle-body. By regulating the length of the chains *f' f'* the springs F may be arranged to come into action at any time, and the cradle is thus adapted for a child of any usual weight.

To prevent the cradle from being overturned by a violent movement of the child therein, I have provided beneath the cradle a safety-chain H, preferably secured to the bottom of the cradle-body A and to a cross brace or bar *h*, supported by the braces *b' b'* on frame B.

The chain H normally hangs slack from the bottom of the cradle-body A, and is of such length and so arranged that it does not interfere with any safe movement of the cradle, but prevents the same from overturning or tipping sufficiently to throw out the child.

It is often desirable, especially at night, to so arrange the cradle that it will not be subject to the action of the springs, and for that purpose I have provided what I call a "substitute pendant" L, which conveniently consists of a rod of suitable strength having at its upper end an eye *l* or other suitable device, by means of which it may be hung on the fixture *d*, and upon its lower end the double hook *l'* or other suitable device to receive the chains d^6 d^6. For convenience in adjusting the pendant L the fixture *d* may be conveniently formed, as shown in Fig. 6, having provision, as shown at *m* and *m'*, for receiving both pendants L and *d'*. With such arrangement the pendant L may be adjusted while the pendant *d'* is in position by simply transferring the chains d^6 d^6 from the double hook d^5 to the double hook *l'*, which may be readily accomplished while the child is in the cradle. The pendant L may be left in position upon the fixture *d* when not in use, or may be removed therefrom if desired.

To prevent any of the parts above the cradle from falling into the same in case of their being broken or detached from their supports, I have provided a guard P, which consists of a strap or band of metal or other suitable material secured to the standard *b* and partially surrounding the spring D, and the pendant L if in position, on the side toward the cradle-body.

The operation of my improved cradle has been fully described in connection with the description of the form and arrangement of its several parts. I, however, desire to add that the motion of a child in the cradle may impart thereto either a rocking or vertical motion, or a combination thereof, and that such motions are so limited by the arrangements of safety-chains hereinbefore described that all danger of the child being thrown from the cradle or otherwise injured thereby is removed.

I am aware that it is not broadly new to support a cradle from a supporting-frame by a series of springs, but the devices of this nature as heretofore provided have not embodied the method of attaching the springs or the arrangement of the relief-springs or safety devices as hereinbefore described and for the lack of such devices or their equivalents have been found to be dangerous and impractical.

The device as constructed in accordance with the present invention has all the variety of motion furnished by other forms of spring-cradle, while being perfectly safe for children of any usual weight.

Having thus described my invention, I claim as novel and desire to secure by Letters Patent of the United States—

1. In a spring-cradle the combination of a suitable cradle-body, a supporting-frame, supporting-springs secured to the supporting-frame for supporting the cradle-body, and flexible supports depending from the supporting-frame and secured to the cradle-body, arranged to hang loosely until the springs are expanded beyond a predetermined limit or broken when said supports receive the weight of the cradle, substantially as described.

2. In a spring-cradle the combination of a cradle-body, a supporting-frame, a series of springs secured to the supporting-frame for supporting the cradle, and a series of relief-springs also secured to the supporting-frame and connected with the cradle-body by loose flexible connections whereby said relief-springs are brought into action to support the cradle-body when the supporting-springs are expanded beyond a predetermined limit, substantially as described.

3. As a new article of manufacture, a spring-cradle comprising a suitable cradle-body, a supporting-frame, interchangeable elastic and non-elastic supports for the cradle-body, and provision upon the cradle-body and supporting-frame where said supports may be inter-

changeably adjusted to support the cradle, substantially as described.

4. In a spring-cradle the combination, with a suitable supporting-frame, of a cradle-body, a pair of laterally-projected fixtures on the frame at opposite ends of the body and substantially in the plane of the medial line thereof, a supporting-spring dependent from and free to swing on each fixture, a pendant secured to the lower end of each spring, and a pair of flexible supports loosely held by each pendant and connecting the same with opposite sides of the cradle-body, whereby the cradle-body has a long swinging movement with the springs and a short tipping movement independently thereof, substantially as described.

Witness my hand in the presence of two attesting witnesses this 20th day of August, 1895.

JOHN T. MURPHY.

Witnesses:
ROBERT D. TRASK,
GEORGE I. DAVIS.