Feb. 18, 1936. A. M. SMITH 2,031,284

ADJUSTABLE DROP SIDE FOR CRIBS

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Fig. 1.

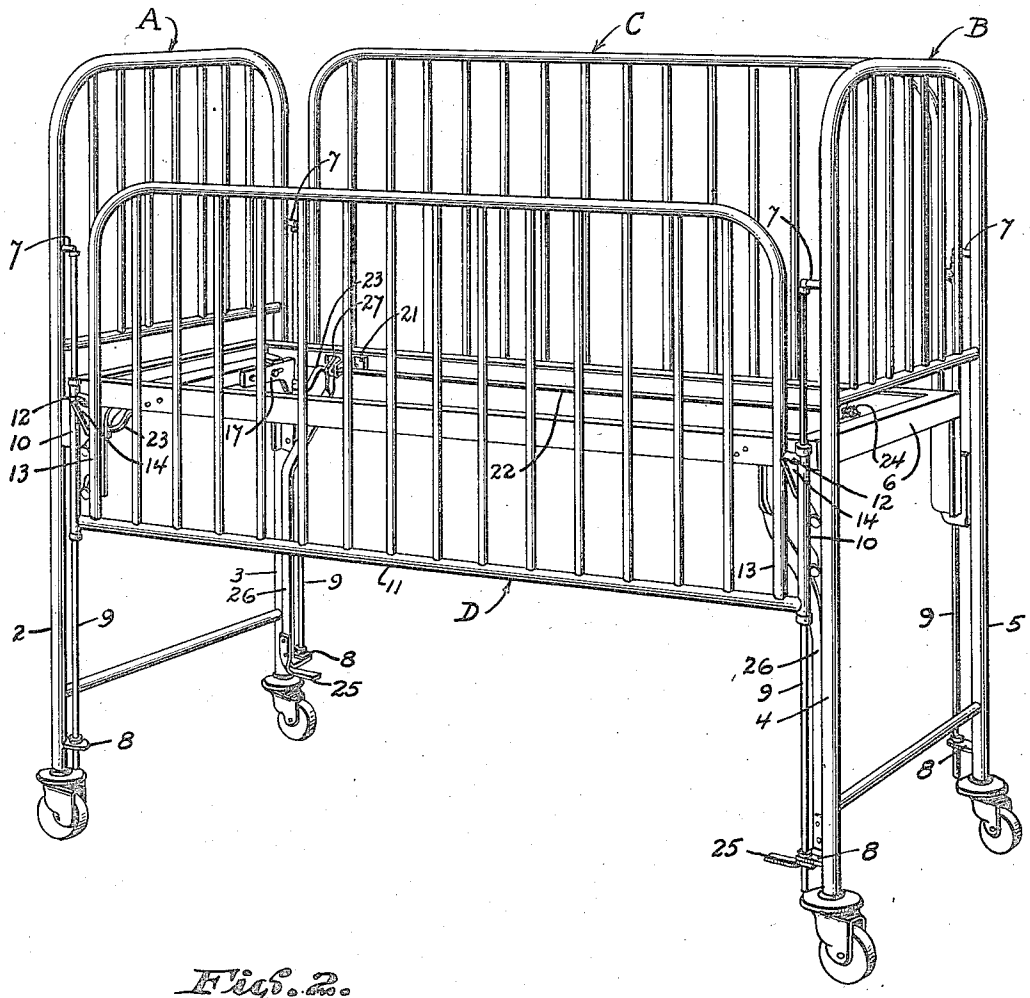

Fig. 2.

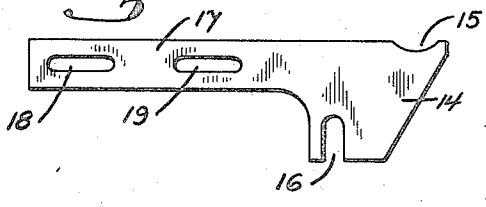

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Fig. 3.

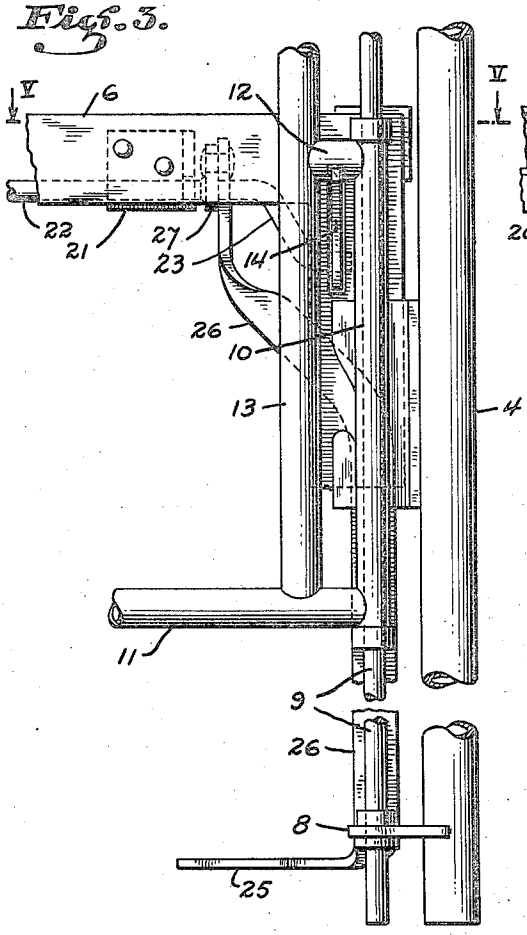


Fig. 4.

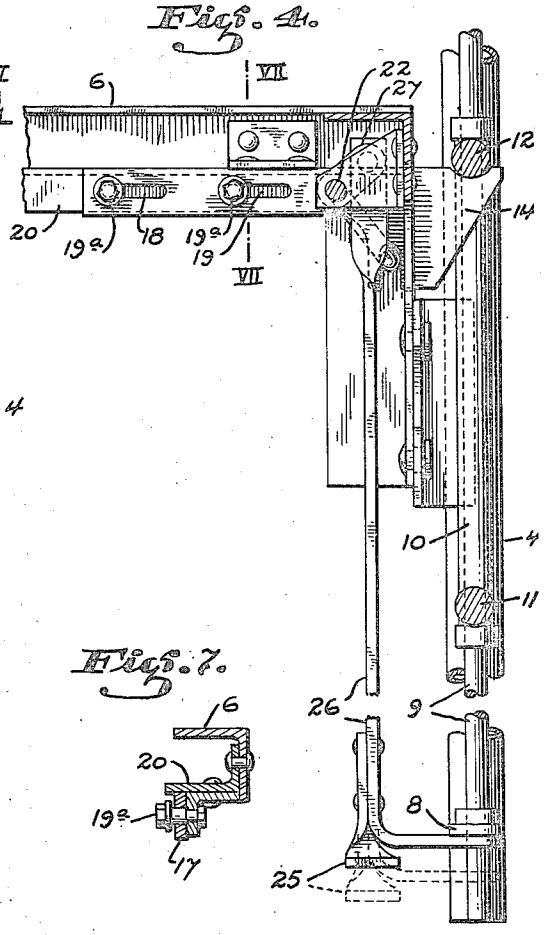


Fig. 7.

Fig. 5.

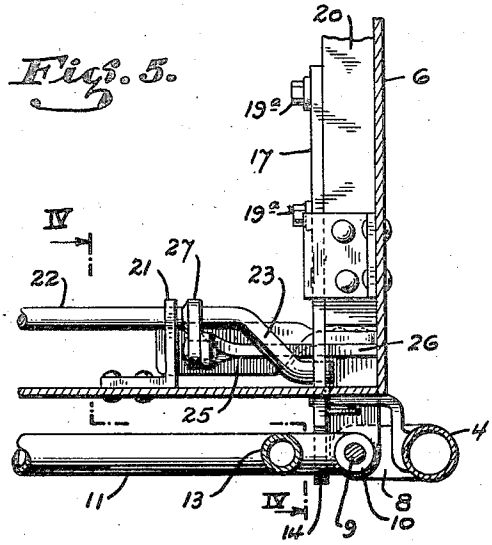
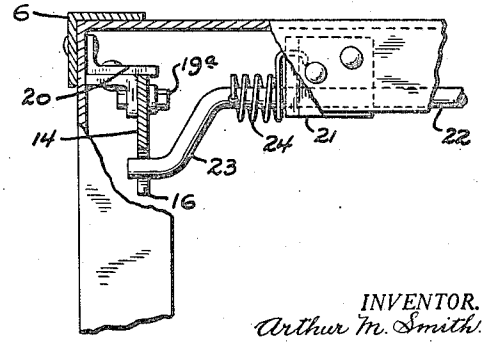


Fig. 6.



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ADJUSTABLE DROP-SIDE FOR CRIBS

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3 Claims. (Cl. 5—100)

This invention relates to bed structures of the type known as baby cribs and especially to an adjustable drop-side for cribs of that character.

Baby cribs are usually provided with enclosing sides and ends which extend above the mattress and bedding to such a height that when a baby is to be placed in or removed from the crib one side or the other must be dropped to permit proper access. Practically all cribs are for this reason provided with drop-sides and latches, or other locking means, are employed to secure the sides in raised position. Many latching and locking devices have proven not only unsatisfactory but in many instances dangerous, as they may be accidentally released thereby permitting the side to drop down and the baby to roll or fall out.

The object of the present invention is to generally improve and simplify the construction and operation of drop-sides for cribs and like structures; to provide a drop-side which is supported in elevated position by slidable retractable latches, one at each end of the crib; to provide a pair of supporting latches which are foot treadle actuated and which cannot be retracted by foot treadle actuation to permit lowering of the drop-side until the drop-side is manually lifted; to provide a pair of supporting latches which are freely yieldable when the drop-side is raised thereby permitting free unobstructed movement when raising the drop-side without operation of the foot treadle; and further, to provide a drop-side which is guided by the bed frame and vertically adjustable to assume one or several vertical elevated positions.

The crib and the drop-side employed are shown by way of illustration in the accompanying drawings, in which—

Fig. 1 is a perspective view of the crib.

Fig. 2 is an enlarged side elevation of one of the retractable latches.

Fig. 3 is an enlarged side elevation of one end of the crib showing one of the latches, the foot treadle and the actuating mechanism connecting the foot treadle and latch, said view also showing a portion of one end of the drop-side.

Fig. 4 is an end view of the foot treadle, one of the latches and the actuating mechanism, said view being in section and being taken on line IV—IV of Fig. 5.

Fig. 5 is a plan view in section taken on line V—V of Fig. 3.

Fig. 6 is a side elevation of one end of the crib frame showing the foot treadle actuated shaft and the crank arm connecting said shaft with one of the retractable latches, said view also showing the spring for retracting the latches.

Fig. 7 is a cross section taken on line VII—VII of Fig. 4.

Referring to the drawings in detail, particularly Fig. 1, A and B indicate the ends of a crib structure, and C and D the drop-sides employed. The ends A and B are provided with legs 2, 3, 4 and 5 forming the four corners or posts of the bed and these posts form a support for a mattress frame generally indicated at 6. Any suitable securing means is employed to secure the mattress frame with relation to said posts. Suitably secured to the respective posts by upper and lower brackets 7 and 8 are guide rods 9, and slidably mounted thereon are tubular sections 10 forming integral parts and extensions of the side sections C and D. These tubes guide the side sections with relation to the rods 9 and thereby permit vertical movement of the drop-side from raised to lowered position as will hereinafter be described. The tubes 10 are connected at their lower ends to the lower rails 11 of the drop-sides while the upper ends of the tubes 10 are connected by short rods 12 with the ends 13 of the drop-sides as clearly shown in Figs. 1 and 3.

The mattress frame 6 forms a support for pairs of retractable latches whereby the drop-sides are supported, there being one pair of latches for each drop-side and the latches arranged one at each end of the mattress frame. The latches are best shown in Figs. 2 to 7, inclusive. The latches are identical in construction and the description of one will accordingly suffice.

By referring to Fig. 2 it will be noted that each latch has a head end 14, the upper surface of which is notched or recessed as indicated at 15. The lower end is slotted as at 16 and formed integral with the head is a bar 17 which is provided with a pair of aligned elongated slots 18 and 19. By referring to Figs. 4, 5 and 6 it will be noted that the bar end 17 of the latch is supported with relation to the mattress frame 6 by means of bolts 19a. These bolts are secured to angle plates 20 secured on the inner side of the mattress frame and they extend through the slots 18 and 19 of the latch, thus forming a support for the latch upon which the latches are slidably mounted; the sliding movement being limited by the length of the slots 18 and 19.

Journaled in bearing brackets, such as indicated at 21, and secured to the inner surface of the mattress frame and at opposite ends thereof, see Figs. 1, 3, 5 and 6, is a shaft 22 and formed on opposite ends thereof are crank arms 23, see

Figs. 1, 5 and 6. These crank arms extend downwardly from the shaft and enter the lower slots 16 formed in the heads of the latches, and when the shaft is rocked or rotated in the bearings 21 sliding movement will be transmitted to the latches to retract them with relation to the drop-sides and when so retracted the drop sides may be lowered. A coil spring 24, see Fig. 6, surrounds the shaft 22. One end of the spring is secured to the shaft and the other to the bearing 21. This spring is under tension and normally maintains the latches in projected position to engage and support the sides, hence if it is desired to retract the latches it is necessary to rotate shaft 22 in a direction opposite to the tension of the spring and this is accomplished in the present instance by means of a foot treadle generally indicated at 25, see Figs. 1, 3 and 4. The foot treadle is slidably mounted on the lower end of one of the guide rods 9 and is connected by means of a strap or link 26 with a crank arm 27 secured adjacent one end of the shaft 22. Hence when the foot treadle is stepped on or depressed shaft 22 is rocked in a direction to cause the latches to be retracted and when the foot treadle is released it will be raised and the latches will be projected due to the tension or action of the spring 24. Plainly speaking the latches are manually retracted by foot treadle action and they are automatically projected by spring action and as such are yieldable to permit the drop-side to be raised without operation of the foot treadle.

In the preamble of the present specification it was stated that a number of latching and locking devices had been found not only unsatisfactory but in many cases dangerous due to the fact that they might become accidentally released, thereby permitting the drop-side to drop and the baby to roll or fall out of the crib. That is one of the features that has been entirely overcome in the present invention and it is accomplished as follows: First of all it will be noted that the latches can only be retracted by one operation and that is by depression of the foot treadle 25. That might, however, be accidentally accomplished, for instance by a larger child playing around the crib. In the present instance this cannot be accomplished as the latches are not retractable as long as the weight of the drop-side is imposed on the latches. By referring to Figs. 2, 3 and 4 it will be noted that the upper head end of the latch is provided with a notch or recess 15 and that this engages either under the members 12 connecting the upper end of the guide tube 10 with a drop-side or with the underside of the bottom rail 11 of the drop-side. When the rail 11 or the member 12 engages in the notch or depression 15 and the weight of the drop-side is imposed thereon the foot treadle 25 cannot be depressed as too much friction will be imposed on the latches, hence before the foot treadle can be depressed it is necessary for the nurse or individual desiring to remove the baby to first grasp the drop-side with both hands and raise it free of the latches thereby moving the members 11 or 12 out of engagement with the latches, and furthermore relieving the latches of weight, then and then only can the foot treadle be depressed and the latches retracted. Where these several operations are required, accidental retraction of the latches is entirely prevented.

When the drop-side is fully elevated the latches will engage the lower rail 11 of the drop-side and this is the position normally assumed by the drop-side when the crib is occupied and if the drop-side is to be completely lowered the lower ends of the guide tubes 10 will engage the brackets 8. This completely lowered position will be assumed when the baby is to be removed or placed in the crib. It may, however, happen that the nurse or other attendant merely desires to straighten the covers or give the baby some minor attention. In that case it is not necessary to completely lower the drop-side and it is for this reason that the members 12 are provided, and when these members are engaged by the latches the drop-sides will assume an intermediate position permitting the nurse or attendant to perform the service required. In fact, the provision of means for supporting the drop-side in intermediate position is very important as the nurse or attendant may have to step to and away from the crib a number of times while performing certain duties and as the drop-side is partially elevated there is no danger of the baby rolling out when the attendant's back is turned. Also it is possible that the attendant might possibly forget to raise the drop-side after performing the service required and even that would not be dangerous in this instance as the drop-side still assumes a sufficiently elevated position to prevent the baby from rolling out.

The crib illustrated in Fig. 1 shows both sides of the crib provided with adjustable drop-sides. The mechanism employed on each side is identical, hence the description of one should suffice and it is therefore obvious that the mechanism may be placed on one side or both sides as desired, and while certain features of the present invention are more or less specifically described, I wish it understood that various changes may be resorted to within the scope of the appended claims. Similarly, that the materials and finish of the several parts employed may be such as the manufacturer may decide, or varying conditions or uses may demand.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. In a crib structure having a drop-side, a frame, said drop-side comprising a top rail and a bottom rail and end members connecting the same, a pair of latches slidably mounted on the frame and engageable with the bottom rail to support the drop-side in a fully elevated position, a pair of short rods, one at each end of the drop-side, intermediate the top and bottom rails and engageable with the latches to support the drop-side in a position intermediate fully elevated and fully lowered position, and means for withdrawing the latches to permit lowering of the drop-side whether the latches are in engagement with the short rods or the bottom rail.

2. In a crib structure having a drop-side, a frame, said drop-side comprising a top rail and a bottom rail and end members connecting the same, a pair of latches slidably mounted on the frame and engageable with the bottom rail to support the drop-side in a fully elevated position, a pair of short rods, one at each end of the drop-side, intermediate the top and bottom rails and engageable with the latches to support the drop-side in a position intermediate fully elevated and fully lowered position, means for withdrawing the latches to permit lowering of the drop-side whether the latches are in engagement with the short rods or the bottom rail, and means preventing release of the latches until the drop-side is manually lifted clear of the latches.

3. In a crib structure having a drop-side, a

frame, said drop-side comprising a top rail and a bottom rail and end members connecting the same, a pair of latches slidably mounted on the frame and engageable with the bottom rail to support the drop-side in a fully elevated position, a pair of short rods, one at each end of the drop-side, intermediate the top and bottom rails and engageable with the latches to support the drop-side in a position intermediate fully elevated and fully lowered position, means for withdrawing the latches to permit lowering of the drop-side whether the latches are in engagement with the short rods or the bottom rail, said means comprising depressible foot pedals, means actuated by said foot pedals for withdrawing the latches, and means preventing withdrawal of the latches if the drop-side is not manually lifted clear of the latches.

ARTHUR M. SMITH.