Sept. 24, 1957 M. FOX 2,807,031

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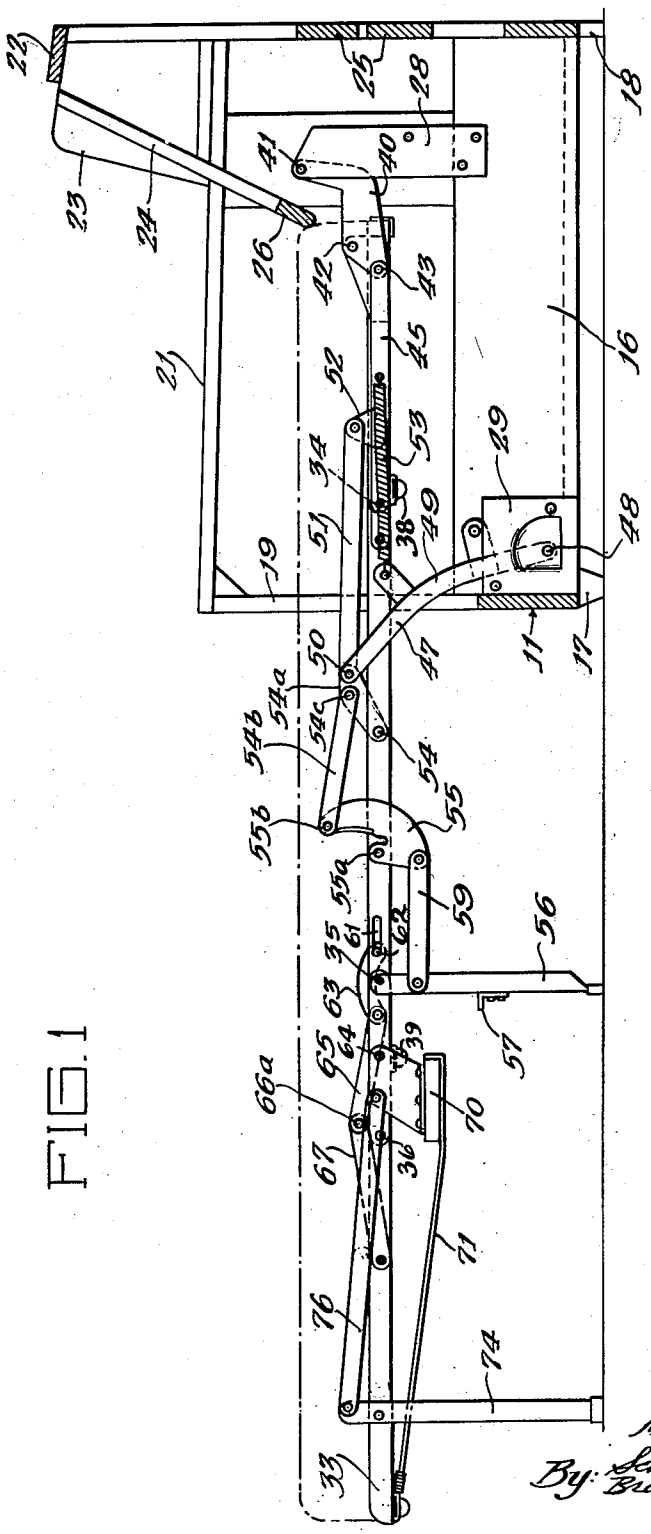


FIG. 1

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Sept. 24, 1957 M. FOX 2,807,031

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Filed July 22, 1955 4 Sheets-Sheet 2

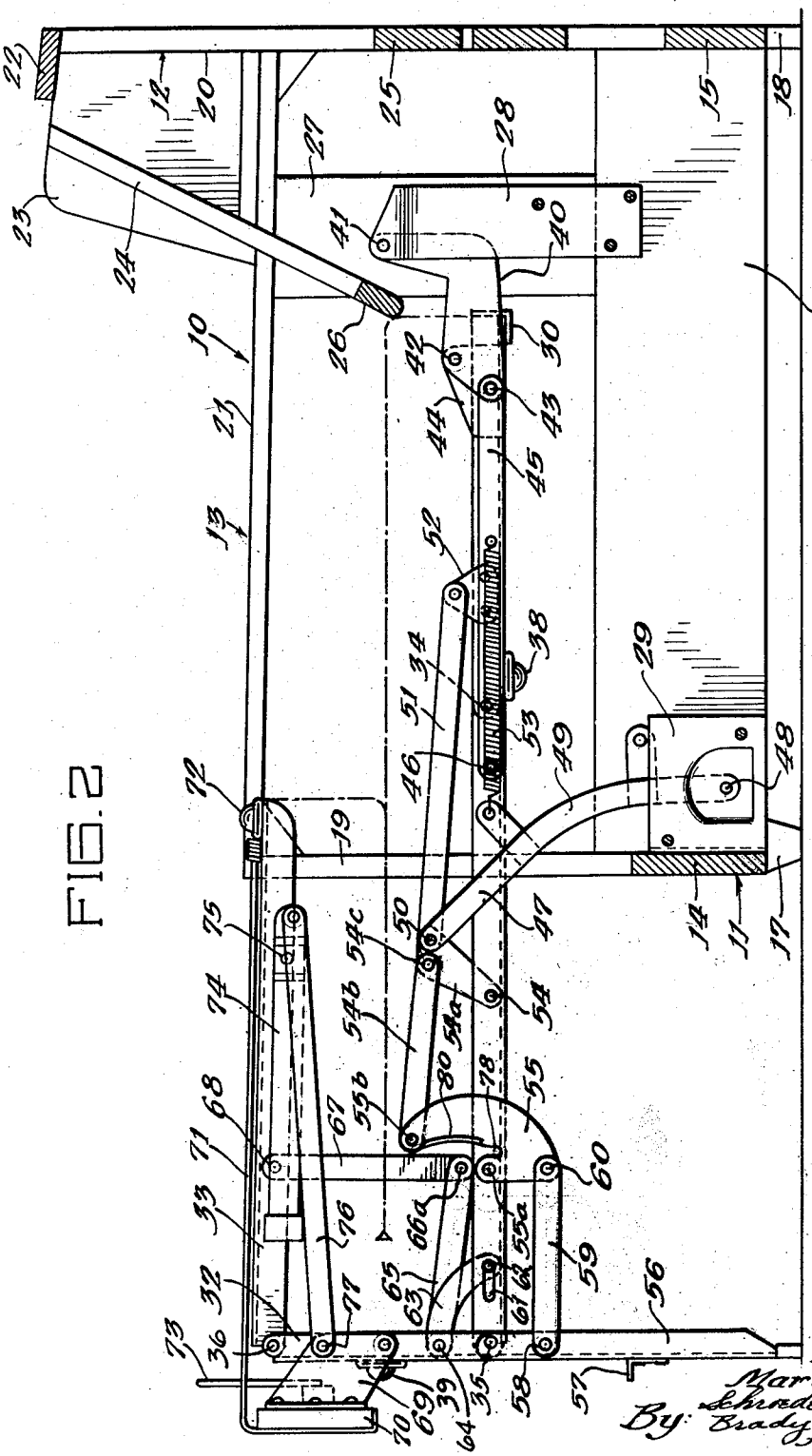


FIG. 2

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Sept. 24, 1957 M. FOX 2,807,031

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Filed July 22, 1955 4 Sheets-Sheet 3

FIG. 3

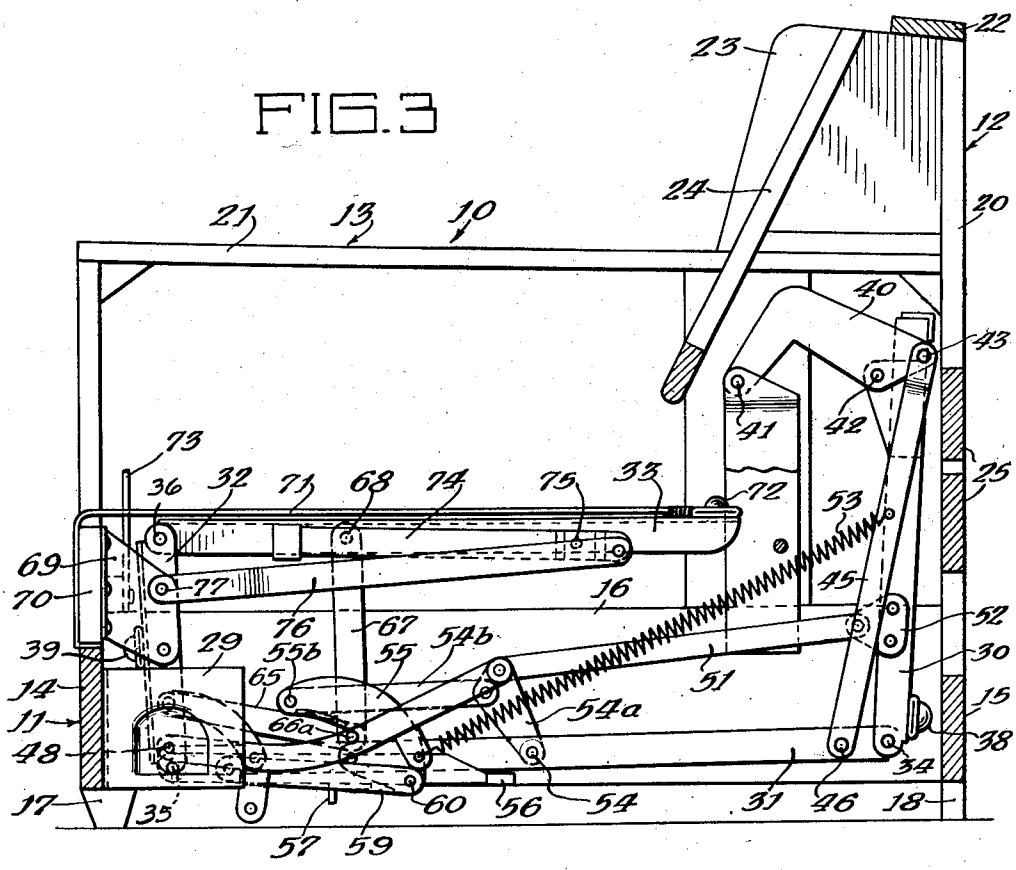
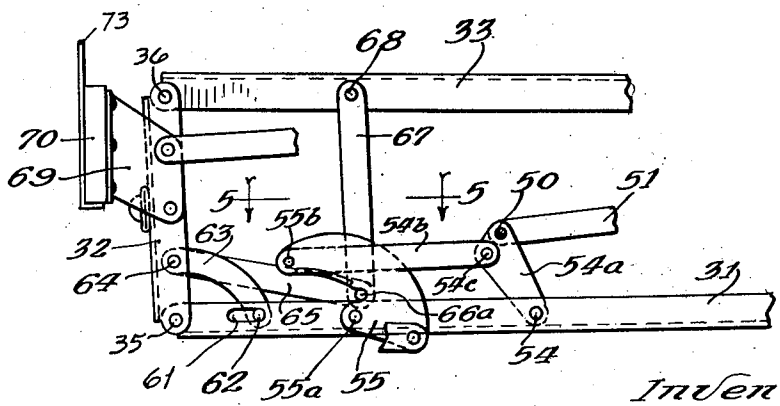


FIG. 4



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Sept. 24, 1957 M. FOX 2,807,031

DAVENPORT BED

Filed July 22, 1955 4 Sheets-Sheet 4

FIG. 7

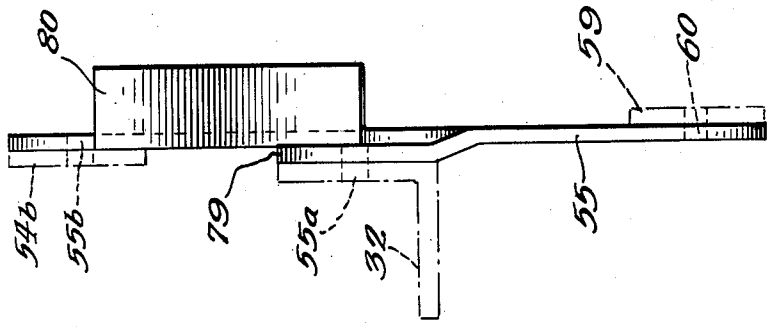


FIG. 6

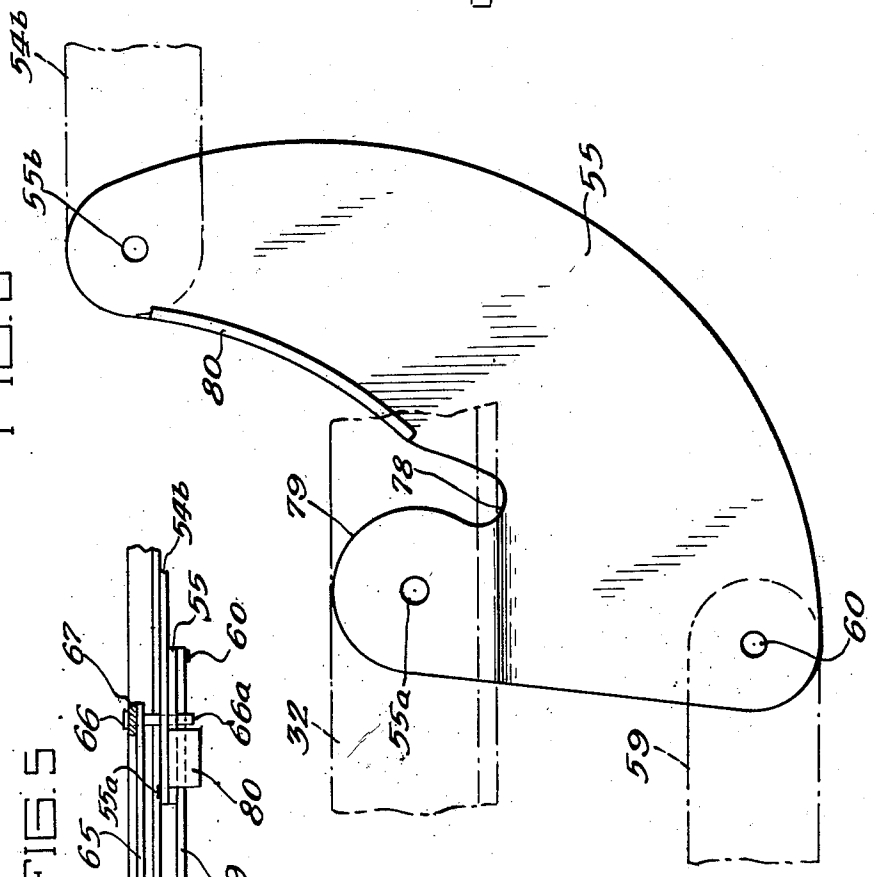


FIG. 5

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2,807,031

DAVENPORT BED

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Application July 22, 1955, Serial No. 523,774

2 Claims. (Cl. 5—13)

This invention relates to an improvement in davenport bed constructions, and in particular it relates to the type of davenport bed in which the front section of a plurality of articulated bed sections is inverted to serve as a seat frame in davenport position.

The principal object of the invention is to provide a davenport bed structure in which the front bed section, when it is inverted to serve as the seat frame in davenport position, is firmly locked down by a rocking lock and linkage arrangement.

A further object is to provide a davenport bed in which the lock arrangement is operative even though a thick mattress and a considerable amount of bedding are on the bed when it is folded.

The invention is illustrated in a preferred embodiment in the accompanying drawings, in which:

Fig. 1 is a longitudinal sectional view of a davenport bed constructed in accordance with the invention with the articulated bed section in bed position, the bed sections and bed linkage mechanism being shown in elevation;

Fig. 2 is a view similar to Fig. 1 on an enlarged scale with the bed sections in an intermediate position which they occupy during movement from bed position to davenport position or the reverse;

Fig. 3 is a view similar to Fig. 2 with the bed sections in davenport position;

Fig. 4 is a fragmentary side elevational view of a portion of the bed mechanism with the supporting linkage eliminated to more clearly show the look construction;

Fig. 5 is a fragmentary section taken as indicated along the line 5—5 of Fig. 4;

Fig. 6 is a side elevational view on an enlarged scale of the locking plate used in the locking mechanism; and

Fig. 7 is a front elevational view of the locking mechanism viewing Fig. 6 from the left.

Referring to the drawings in greater detail, and referring first to Figs. 1–4, inclusive, the davenport bed of this invention is provided with a wooden davenport frame, indicated generally at **10**, said frame including a base portion **11**, back portion **12**, and arm portions **13**. The base portion includes a front rail **14**, a back rail **15**, end members **16** and front and rear feet **17** and **18**, respectively. Extending upwardly at each end of the front rail **14** is an arm front member **19**, and at each end of the back rail **15** is an upright back end frame member **20**. Arm top frame pieces **21** extend from front to rear of the frame at the upper ends of the arm front frame pieces **19** and are secured at their rear ends to the back frame **12**.

The back frame also includes a top bar **22**, end boards **23**, end rails **24**, rear cross pieces **25** and a front cross piece **26**.

Adjacent the forward portion of the back frame at each end of the frame structure is an upright bed-supporting frame piece **27** onto which is screwed a fixed bed mounting bracket **28**. Secured to the front rail **14** and

to the base end members **16** are a pair of front pivot plates **29**.

The bed structure itself is formed of four articulated bed sections **30**, **31**, **32** and **33** which are pivotally connected at **34**, **35** and **36**, the pivots for said connections being mounted in nylon bearings. Each of the articulated bed sections is formed in the conventional manner from angle members which are riveted together, and a continuous wire spring structure of conventional type (not shown) is supported in said bed sections. The front bed section **33** occupies an inverted position to serve as a seat frame when the mechanism is in davenport position, and will therefore sometimes be referred to herein as the seat frame. Transverse brace members **38** and **39** are positioned adjacent the pivots **34**, and about midway between the pivots **35** and **36**, respectively, to resist twisting of the bed frame as it is folded or unfolded.

The bed sections are supported in the davenport frame **10** by means of a pair of tri-pivot links **40** which are pivoted to support brackets **28** at **41** and have intermediate pivots **42** and pitman pivots **43**. The tri-pivot links **40** are pivotally connected to the rear bed section **30** by means of pins which form the intermediate pivots **42** and impale hollow bosses of pivot extension brackets **44** on the bed section **30**. Pitmans **45** are connected to the pitman pivots **43** on the tri-pivot links **40** and are pivotally connected to the bed section **31** by pivots **46** which are a short distance forward of the pivots **34** which connect the bed sections **30** and **31**.

A pair of supporting arms **47** are pivoted at **48** on the front mounting plates **29**, and said supporting arms are bent at **49** so that in bed position they extend further forward of the front rail **14** than they would if they were straight. At the outer end of each supporting arm **47** is a pivot **50** which provides the connection for a link **51** which has its opposite end pivoted to a bracket **52** on the bed section **30**. A tension spring **53** extends from each supporting arm **47** to the adjacent pitman **45** to assist initial movement of the mechanism from davenport position.

On the bed section **31** immediately forward of each supporting arm **47** is a pivot **54** for a short truss link **54***a* which has its upper end also connected to the pivot **50** on the support arm **47**. The truss link **54***a* cooperates with the link **51** and the support arm **47** to form a truss linkage which prevents collapse of the bed sections **30** and **31** at the pivot **34**.

About halfway from the pivots **54** for the truss links **54***a* to the pivots **35** between the bed section **31** and the bed section **32** are pivots **55***a* for locking plates **55** which are part of the locking mechanism for the davenport bed. As best seen in Figs. 2, 3 and 4, the locking plate **55** is beneath the forward portion of the seat frame which is provided by the foot bed section **33** when the bed structure is in the davenport position of Fig. 3. The locking plate **55** is designed to rock on its pivot **55***a*, and in order to provide the necessary rocking action as the bed sections are moved from the intermediate position of Fig. 2 to the davenport position of Fig. 3 an actuating link **54***b* for the locking plate **55** is pivotally connected at **54***c* to the truss link **54***a* and at **55***b* to the locking plate **55**.

The pivots **35** between the bed sections **31** and **32** also serve as mounting pivots for folding intermediate legs **56** which are connected together by a transverse cross brace **57** and which are provided with pivots **58** for links **59** by means of which the intermediate legs **56** are linked to the locking plates **55** through pivots **60** on said locking plates.

In the bed frame **31** immediately to the rear of the pivots **35** are slots **61** to receive sliding studs **62** for short bracing links **63**, best seen in Figs. 2 and 3, which have

their other ends pivotally connected to the bed section 32 at 64.

Also connected to the pivots 64 are guide links 65 which have pivots 66 at their outer ends to make pivotal connection with latch pitmans 67 which in turn are pivoted at 68 to the front bed section 33. The guide links 65 and latch pitmans 67 constitute the other major portion of the locking mechanism, and cooperate in this respect with the locking plates 55. Mounted on the bed frame 32 is a pair of angle brackets 69 to receive a front trim board 70 which surmounts the front rail 14 of the base frame 11 when the mechanism is in davenport position, as seen in Fig. 3. Spring covering fabric 71 extends loosely from the front trim board 70 to the end rail 72 of the front bed section 33 so that the davenport cushions do not rest directly upon the spring. At the rear of the trim board 70 is a flexible pull strap 73 which extends through eyelets (not shown) in the fabric 71 so that it may be grasped in folding or unfolding the mechanism.

A pair of front legs 74 are pivoted on the bed section 33 at 75, and leg actuating links 76 connect the upper ends of the leg 74 to pivots 77 on the brackets 69 for the trim board 70.

Referring now particularly to Figs. 6 and 7, each of the locking plates 55 is stamped from a single piece of sheet metal, and has a notch 78 one margin 79 of which is arcuate and the other margin of which includes a long dished guide flange 80 which extends upwardly as a continuation of the rear margin of the notch 78. As best seen in Fig. 1, the notch 78 is upwardly open in bed position and the guide flange 80 is in an upright position, while as seen in Figs. 3 and 4 in davenport position the notch 78 is faced generally forward, and the guide flange 80 extends generally longitudinally of the structure and is engaged with a projecting stud-like portion 66*a* of the pivot 66 between the latch pitman 67 and the guide link 65. Thus, when the mechanism is in davenport position as seen in Figs. 3 and 4, the latch pitman 67 extends downwardly from the seat frame 33, and the stud-like projecting portion of the pivot 66 is firmly engaged in the notch 78 of the locking plate 55 so that all the bed sections, and particularly the front bed section 33 which forms the seat frame, are firmly locked together. The guide link 65, pivoted on the bed section 32 and 64, assures that the stud-like projection on the pivot 66 is properly positioned to be engaged by the latch notch 78 as the mechanism is moved from intermediate position toward davenport position.

The operation of the locking mechanism is believed to be clear from the foregoing description. As the davenport bed mechanism is shifted from the bed position of Fig. 1 to the intermediate position of Fig. 2 the guide link 65 swings the latch pitman 67 from the generally longitudinal position of Fig. 1 to the upright position of Fig. 2 and positions the latch stud 66*a* adjacent the locking plate 55. On subsequent movement from the intermediate position of Fig. 2 to the davenport position of Fig. 3, as the bed sections 31 and 32 are folded about the pivots 34, the link 51 of the truss linkage and the support arms 47 cooperate to cause the truss links 54*a* to rock forwardly, and the operating links 54*b* roll the latch plates 55 forwardly over the studs 66*a* to the locked position shown in Figs. 3 and 4.

The location of the locking plates 55 under the forward portion of the seat frame 33 permits the locking mechanism to accommodate a substantial amount more bedding and thickness of mattress than would be possible if, for example, the locking plate 55 were positioned more rearwardly, as in the location of the truss link 54*a*. At the same time, the locking mechanism can function properly even though the upright camming flange 80 is not very long. In order for the locking mechanism to accommodate as great a thickness of mattress and bedding with the locking plate 55 occupying the position now occupied by the truss link 54*a* it would be necessary for the camming surface 80 to be a great deal higher than is necessary with the locking plate 55 in its present location. This added height is undesirable because of the fact that a person sitting on the edge of the bed may bruise himself on the upstanding end of the locking plate if it projects too high.

The foregoing detailed description is given for clearness of understanding only and no unnecessary limitations are to be understood therefrom, as some modifications will be obvious to those skilled in the art.

I claim:

1. In a davenport bed having a davenport frame: a plurality of articulated bed sections including a foot bed section and a rearward bed section which are movable from a coplanar bed position to an intermediate position with said foot bed section inverted above and generally parallel to said rearward bed section; supporting linkage means mounting the bed sections in the davenport frame for swinging movement from said intermediate position to a davenport position folded in the davenport frame with said foot bed section serving as a seat frame; a latch member pivotally mounted on said rearward bed section at a point which is beneath the forward portion of said seat frame and spaced a substantial distance forward of said supporting linkage, said latch member having an elongated camming surface which is generally upright in intermediate position and terminates at its lower end in an upwardly open notch; a latch pitman pivotally mounted on said seat frame, said pitman having a stud adjacent its free end; guide means connected to said pitman to locate it in an intermediate position with said stud adjacent the latch plate; and operating link means connecting said latch plate to a portion of said supporting linkage means to rock said latch plate over the stud during said second movement.

2. In a davenport bed having a davenport frame: a plurality of articulated bed sections including a foot bed section and a rearward bed section which are movable from a coplanar bed position to an intermediate position with said foot bed section inverted above and generally parallel to said rearward bed section; supporting linkage means mounting the bed sections in the davenport frame for swinging movement from said intermediate position to a davenport position folded in the davenport frame with said foot bed section serving as a seat frame, said supporting linkage means including a support arm pivoted on the forward portion of the davenport frame and truss links connecting said arm to said rearward bed section and to another bed section; a latch member pivotally mounted on said rearward bed section at a point which is beneath the forward portion of said seat frame, said latch member having an elongated camming surface which is generally upright in intermediate position and terminates at its lower end in an upwardly open notch; a latch pitman pivotally mounted on said seat frame, said pitman having a stud adjacent its free end; guide means connected to said pitman to locate it in an intermediate position with said stud adjacent the latch plate; and a link connecting said latch plate to one of said truss links to rock said latch plate over the stud during said second movement.

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