

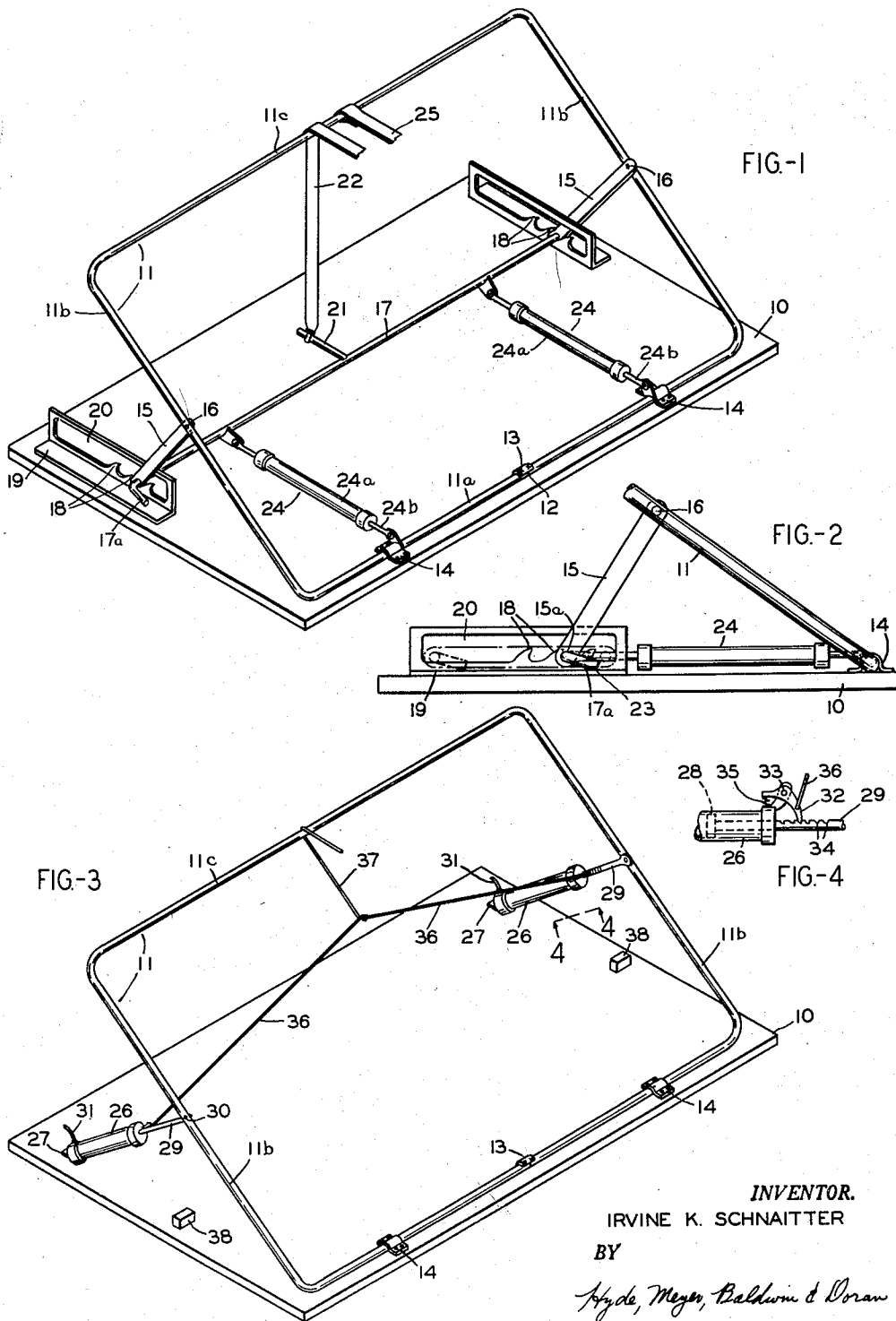
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INCLINED BED REST

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INCLINED BED REST

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This invention relates to improvements in an inclined bed rest and more particularly to a device adapted to be placed beneath a mattress near the head end of a bed for the purpose of raising it to an inclined position for the comfort of the person reclining on the bed.

One of the objects of the present invention is to provide a simple but strong device for accomplishing the above mentioned purpose and one which is readily manipulated by a person while lying in bed.

Another object of the present invention is to provide an inclined support to lie beneath a mattress with adjustable means for varying the incline which includes a ratchet device, together with a simple means for releasing the holding device from the ratchet so as to permit the inclined device to fall back to a flat position.

A further object of the present invention is to provide novel means for snubbing the action of the inclined rest as it returns toward a flat position so as to prevent a sudden falling of the mattress with the weight of the person on it.

A further object of the present invention is to provide novel power means for raising the inclined rest to an inclined position, novel means for holding the power operated device in any adjusted position, and novel means for releasing the device so as to return the rest toward its flat position.

Other objects and advantages of my invention will be apparent from the accompanying drawings, and the description thereof and the essential features will be set forth in the appended claims.

In the drawings,

Fig. 1 is a perspective view of one form of my device intended to be operated by hand;

Fig. 2 is an enlarged fragmental elevational view of the device of Fig. 1 taken from the left-hand end of Fig. 1;

Fig. 3 is a perspective view of a modified form of my device intended to be operated by power; while

Fig. 4 is an enlarged fragmental view taken generally from the position of the line 4-4 of Fig. 3.

A person lying in bed often desires to support his body at an incline so as to read more easily or to accomplish some other purpose while remaining in bed. I have provided a simple device for this purpose which, as shown in Figs. 1 and 2, comprises a base planar member 10 which in one form of my device consists of laminated wood, fiber board or the like, and in any case is

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stiff rigid material and not too heavy to handle. While this board 10 might extend for some distance down the bed, I find it is unnecessary to extend the same very much beyond the confines of my device. Near the forward edge of the board 10 I provide a pivotal mounting for the inclined rest 11. A strong but simple and cheap structure is formed as shown in the drawings by taking a continuous length of metal tubing and bending the same smoothly at the four corners as shown in the drawings to provide a parallelogram, the ends being abutted to each other at the point 12 and preferably spot welded together as by means of the clip 13. This provides a rigid support. The pivotal connection with the board 10 is then provided by securing two arcuate hinge clips 14 to the board by suitable screws, rivets or bolts as shown in Fig. 1. These clips 14 embrace the run 11a of the inclined rest and hold this leg of the rest pivotally to the board 10.

Means is provided for holding the rest frame 11 at various angles relative to the board 10. In Figs. 1 and 2, the means here shown comprises a pair of links 15, each of which is pivotally secured to one of the sides 11b of the frame 11 at points indicated at 16. The ends of the struts 15 remote from the pivots 16 are connected together by a rod 17. As shown in Figs. 1 and 2, each end of rod 17 passes freely through an opening 15a in the strut 15 and each end of the rod 17 is bent at right-angles as indicated at 17a which serves the purpose of holding the struts 15 assembled to the rod 17 and serves a further purpose as will later appear. I utilize a ratchet device for holding the struts 15 in various positions so as to hold the inclined rest at various angles relative to the normal plane of the bed. In Figs. 1 and 2, I have shown ratchets 18, each formed in an angle bracket 19, one leg of each bracket being firmly secured to the board 10 by bolts, nuts or rivets and the upstanding leg being hollowed out to provide the ratchet 18 and a space 20 in which the rod 17 moves back and forth. As shown in Figs. 1 and 2, the struts 15 are on the laterally outside faces of the L-shape bracket so that the struts are prevented moving inwardly by the bracket and are prevented from moving outwardly by the ends 17a of rod 17. This brings a portion of the rod 17 adjacent each link 15 in engagement with the ratchets 18. Obviously, as the frame 11 is moved upwardly the rod 17 and the lower ends of struts 15 are dragged forwardly and ride over the teeth 18 to any position desired, after which the weight of the frame 11 with the mattress and bed clothes

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on top of it pushes the struts 15 backwardly so that the rod 17 drops into one of the notches of the ratchet 18 and holds the device firmly in the desired position.

I have provided a novel but simple device for positively releasing the rod 17 from each of the ratchets 18 when it is desired to allow the frame 11 to again go backward toward its flat position. As clearly shown in Fig. 1, a pin 21 is rigidly attached to the rod 17 at its mid portion with the pin extending rearwardly at right angles to the rod 17 as shown in Fig. 1. One manner of manipulating this pin is by means of a strap 22 secured to the rear end of the pin and extending upwardly over the crossbar 11c at the top of the frame 11. The person in bed may pull upon the end of the strap 22 which will cause the pin 21 and rod 17 to oscillate in a clockwise manner, as viewed from the left in Fig. 1, thus causing each end or leg 17a to engage the bottom leg 20 of bracket 19 at the point 23 as shown in Fig. 2, and this will lift the rod 17 out of the ratchet 18 into the free space 20 above the ratchet and the rod 17 will ride backward over the ratchet because of the bearing of the end 17a at the points 23 upon the lower leg of each bracket. Thus the ratchet is released and the struts will ride rearwardly, allowing the frame 11 to again return to a flat position.

While it is not necessary to the operation of my device, snubbing means may be provided to permit the frame 11 to return toward a flat position gradually rather than abruptly. To this end, I have shown in Fig. 1 dashpot devices 24 wherein a cylinder 24a has a pivotal connection with rod 17 and is provided with a dashpot piston having a rod 24b which is pivotally connected near the front end of the board 10 in fixed position. The dashpot is constructed in the usual manner such as the rod 17 moves toward the front end of board 10 or toward the right as viewed in Figs. 1 and 2, the dashpot piston moves freely. Then when the inclined rest is dropped toward the flat position, as the rod 17 moves away from the front end of the board 10, the dashpot devices work slowly so as to permit the device to return gradually toward the flat position.

If desired, helical springs may be placed in the position of the dashpots 24 of Figs. 1 and 2 so that the springs are loaded as the inclined frame 11 moves toward the flat position, which will slow down the movement of the rest as it moves toward the flat position and will aid slightly in raising the rest to its inclined position.

The operation of the device of Figs. 1 and 2 should now be apparent. A strap 25 is secured to the top bar 11c of the frame 11 and the person desiring to raise the inclined bed rest, does so by pulling upon the strap 25 until the struts 15 have pulled the rod 17 as far forward as desired whereupon release of the strap 25 will allow the rod 17 to drop into the ratchets 18 at the desired position so as to hold the frame 11 inclined as shown in Figs. 1 and 2. When it is desired to return the device toward a flatter position, or indeed completely flat, then the strap 22 is pulled until the pin 21 oscillates the rod 17 about the ends 17a causing the rod 17 to be lifted out of the ratchet 18 and permitting the same to return to the rear end of the space 20 as indicated in dot-dash lines in Fig. 2. The various parts 11b, 15, 19 and so forth are so arranged that the parts lie substantially flat along the board 10 when the device is collapsed.

A modified form of my device is shown in Figs. 3 and 4. Here the frame 11 is mounted on the

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board 10 by the hinge clips 14 in the manner previously described. The abutting ends of the tubular frame 11 are spot welded together at the clip 13 as previously described. Here, power means is provided for raising the frame 11 to the inclined position. This takes the form of a pair of power cylinders 26, each of which is pivotally mounted at 27 on the board 10. In each cylinder is a piston 28 having a piston rod 29, which in turn is pivotally connected at 30 with one of the sides 11b of the frame 11. A source of pressure fluid is connected to the lower end of each cylinder by the connections indicated at 31. This might be either compressed air or oil or water under pressure. Means is provided for holding each of the power devices in any position to which it is extended. While I might use a cocked washer biting into the piston rod 29 for this purpose, I have chosen for simplicity to show in Fig. 4, a dog 32 having a pivotal mounting at 33 on the cylinder 26. I have then formed ratchet grooves 34 in one side of each piston rod 29 in position to engage with the dog 32. Means not shown is provided for keeping the piston and piston rod 29 from turning in the cylinder 26 so that the ratchet teeth 34 are always in alignment with the dog 32. A spring 35 urges the dog into engagement with the ratchet. As the power devices 26 raise the frame 11 to inclined position, the dogs 32 ride down the ratchet 34 and engage in the ratchet teeth so as to hold the device at any angle to which it is raised by the application of power. The power may then be released and the device will stay in the inclined position of Fig. 3.

A simple release means is provided for the dogs 32. This consists of a pair of cords 36 each secured to one of the dogs 32 as indicated in Fig. 4. These are joined at the center to a cord 37 which passes upwardly over the bar 11c of the frame 11 so as to be within reach of a person on the bed. The device of Figs. 3 and 4 is so constructed that when the frame 11 is lying in its lowered position, it is held at a slight angle to the horizontal by means of the blocks 38 attached to the board 10 in a position to lie beneath the sides 11b of the frame 11. This permits the piston rod 29 to act on the frame 11 at a slight angle to the horizontal so as to start the lifting action properly.

The operation of the device of Figs. 3 and 4 is very simple. The person lying upon the bed manipulates a valve connected to the pressure fluid source which is connected to the pipes 31 which are clearly shown in Fig. 3. This raises the rest to the inclined position where it is held in any desired spot by means of the dogs 32. When release is desired, the cord 37 is pulled upon which causes each dog to oscillate in a counterclockwise direction as shown in Fig. 4, thus permitting the pressure of the mattress and bed clothes and return the piston 28 backwardly in the cylinder until the device has resumed a substantially flat position.

What I claim is:

1. An inclined bed comprising a flat base, a frame adapted to support one end of a mattress and having a hinge connection with said base, a strut at each side of said frame, each strut having one end pivotally connected to said frame at a point spaced from said hinge connection, a rod connecting the other ends of said struts, a ratchet toothed bracket secured to said base and adapted to receive and hold said rod, a leg rigid with and extending laterally from said rod, said leg being longer than the depth of said ratchet

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teeth, and means for tilting said rod over on said leg to lift said rod clear of said teeth.

2. An inclined bed rest comprising a flat base, a frame adapted to support one end of a mattress and having a hinge connection with said base, a strut at each side of said frame, each strut having one end pivotally connected to said frame at a point spaced from said hinge connection, a rod connecting the other ends of said struts, the ends of said rod extending through said struts and being then bent over at right angles to retain said struts on said rod, a ratchet toothed bracket secured to said base and adapted to receive and hold said rod, said bent over ends of said rod being longer than the depth of said ratchet teeth, and means for tilting said rod over on its ends to lift said rod clear of said teeth.

3. The combination of claim 2 wherein said last named means comprises a pin rigid with said rod and extending therefrom in a direction opposite from said bent over ends, and a pull member extending from said pin over the top of said frame for quick release of said rod by a person on the mattress.

4. The combination of claim 1 including snubbing means connected between said rod and said base for retarding the movement of said rod after release from said ratchet teeth.

5. An inclined bed rest comprising a flat base, a frame adapted to support one end of a mattress and having a hinge connection with said base, a strut at each side of said frame, each strut having one end pivotally connected to said frame

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at a point spaced from said hinge connection, a rod connecting the other ends of said struts, a bracket with upwardly extending teeth secured to said base and adapted to receive and hold said rod, the tooth edges normally engaging the rod being substantially vertical, and a pull member attached to said rod and extending substantially vertically over the free edge of said frame so that said pull member will vertically lift the rod from between the ratchet teeth.

6. An inclined bed rest comprising a flat base, a frame adapted to support one end of a mattress and having a hinge connection with said base, a strut at each side of said frame, each strut having one end pivotally connected to said frame at a point spaced from said hinge connection, a rod connecting the other ends of said struts, a ratchet toothed bracket secured to said base and adapted to receive and hold said rod, a rotatable base engaging member carried by said rod so as to lift said rod as said member rotates, and means for rotating said member.

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