

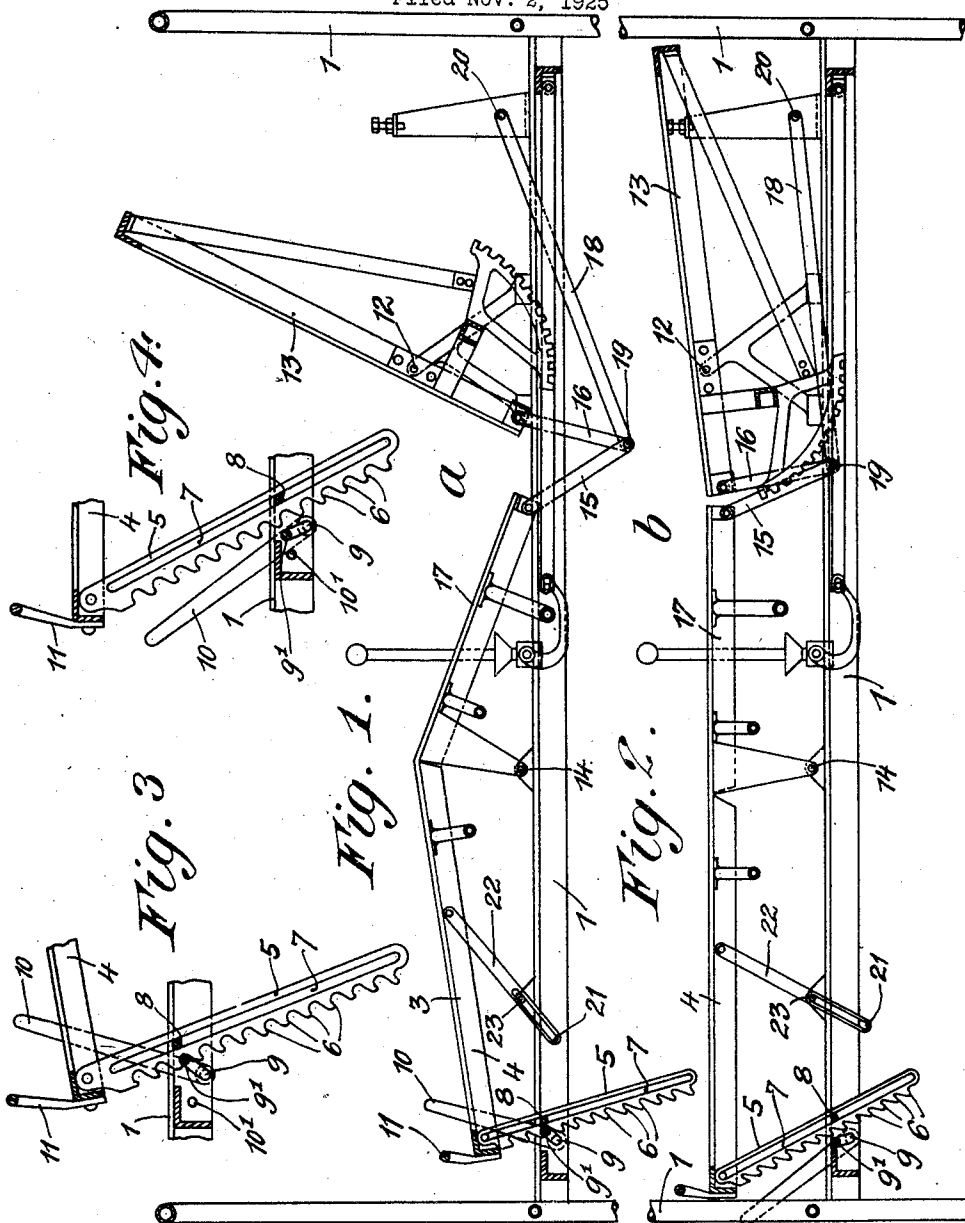
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ADJUSTABLE COUCH AND THE LIKE

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ADJUSTABLE COUCH AND THE LIKE.

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The present invention relates to adjusting means for the hinged parts of reclining surfaces, in which the locking of the rack supports, that is of adjusting rails with locking teeth, is automatically disengaged, when the hinged part is raised, and can be re-engaged with the adjustable rail in any position. The arrangement may also be such that the parts remain locked securely in a position which does not interfere with the swinging movement of the hinged part, even if the hinged part should be capable of sliding.

This object is effected according to the present invention by an adjusting rail with a longitudinal guide and locking teeth being pivoted to the end of the hinged part of the reclining surface at either side of the same, in which teeth the cranked part of a crank shaft having fixed bearings is capable of engaging and, on the hinged part being raised, of automatically disengaging, the arrangement being such that by the co-action of a fixed guide with the guide in the rail the locking teeth of each adjustable rail are equidistant in every position from the crank shaft, when disengaged, for the purpose of adjusting the latter securely in each notch of the adjustable rail and without interfering with the swinging motion of the adjustable rails about the cranked part of the crank shaft as the axis, on the hinged part being slid.

The accompanying drawing shows two constructional examples of a couch according to the invention, in which the leg support (rest for the lower segment of the leg) of a reclining surface, for instance a hospital bed, a reclining chair or the like, represents the hinged part. The hinged part may of course be attached somewhere else, for instance on a machine, as a hinged feed table or the like.

Figures 1 and 2 are longitudinal sectional views of one form of the invention.

Figure 3 is a detail of Figure 1, and Figure 4 is a detail of Figure 2.

In the example shown in Figures 1 to 3, the part 1 is a bedstead with a rigid reclining surface 2, and with a leg rest 3 capable of being swung upwards and downwards. To either side 4 at the lower end of the leg rest (Figures 6 and 7) a straight adjustable rail 5 is pivoted, which is provided with locking teeth 6 and a straight guiding slot 7, hereinafter referred to as a slotted rack. By means of the said slot and a pin 8 fixed

to the bedstead 1 each of the slotted racks 5 is guided. A cranked shaft 9 provided with hand levers 10 is journaled in the bedstead. By turning the cranked shaft by means of the lever 10 the cranked part 9^a of the crank shaft 9 may be caused to engage in the locking teeth 6 of the slotted rack 5 (Figures 2 and 6).

When the cranked shaft 9 is disengaged, the leg rest 3 can be adjusted to the desired height, and be thereupon fixed in position by causing the cranked part 9^a of the shaft 9 to engage in the teeth 6 of the slotted racks 5. If the leg rest 3 is to be moved into another position, it can be readily raised by means of the handle 11, irrespective of whether it is desired to raise or lower it (Figures 1 and 7), whereby the inclined locking teeth 6 lying below the cranked part 9^a cause the shaft 9 to be disengaged from the slotted racks 5 (Figures 1 and 7). The leg rest can thereupon be raised or lowered at will, after which it is fixed in position by causing the crank shaft to engage in the slotted racks 5. A stop pin 10^a is provided for limiting the backward rotation of the shaft 9.

By the slot 7 and the pin 8 of each slotted rack 5 locking teeth are kept at an equal distance from the disengaged cranked shaft 9, whatever the position of the slotted racks and are so guided that the cranked shaft 9 can be caused to engage without fail in any notch in the slotted racks. It is impossible for the slotted racks to bend or break when the parts are being adjusted.

Figures 4 and 5 show the adjusting mechanism as applied to a hinged leg rest, which is attached to a couch of the kind shown in Patent 1,255,208 and which is provided with a back rest 13 pivoted on pins 12 and a suitable seat 17, which is pivoted on pins 14 and is linked to the back rest 13 by intermediate members 15 and 16, and to which the leg rest 3 is pivoted. For guiding the intermediate members 15 and 16 a connecting bar 18 is provided on either side of the couch, one end of which bar is connected to the pivot pin 19 of the two intermediate members and the other end of which is provided on a fixed pin 20 in the bedstead.

To each side bar 4 of the leg rest 3 a link 22 is pivoted which is provided with a longitudinal slot 21, in which slot a pin 23 engages, which is fixed to the bedstead. The slotted racks 5 and the cranked shafts 9 are

similar to those described in the first example.

On the back rest 13 of the bed being raised (Figure 4), the leg rest 3 slides towards the head end of the bed, the slotted racks 5 turning about the cranked part 9¹ of the shaft 9 as a pivot and the links 22 also being drawn towards the head end of the bed and lowered. On the back rest 13 being lowered, the leg rest 3 together with the links 22 is slid towards the foot end of the bed and the slotted racks 5 are swung towards the foot end about the cranked part 9¹. As soon as the upper end of the slot 21 of each link 22 rests on the corresponding pin 23, each link 22 is erected at the same time raising the leg rest 3 with the slotted racks 5 whereby the crank shaft 9 is disengaged from the teeth 6 as in the first example. After the cranked shaft 9 has been automatically disengaged the leg-rest sinks automatically into the lowest position and, on the back rest being lowered still further into the reclining position, is raised automatically by the links 22 into the horizontal position (Figure 5). As long as the cranked shaft 9 remains disengaged, the leg-rest 3 can be raised or lowered automatically by the back rest or by pulling the handle 11 and be thus adapted to the desired position for the lower segments of the legs. While the slotted racks 5 are guided in a perfectly reliable manner there is nothing to interfere with the rotary and the sliding motion of the leg rest and an automatic disengagement of the locking cranked shaft 9, on the back rest 13 being lowered and the leg rest 3 being pushed back is provided for.

If the lever 10 be connected to a bar the other end of which can be grasped by the person using the couch, the cranked shaft 9 can be operated by the said person. If a flexible pull member, for instance a wire rope, be fixed to the lower end of the leg rest, and guided over a roller mounted above the leg rest on a fixed bar and be extended so as to be within reach of the person using the couch, the raising and lowering of the leg rest can be effected by the said person, thus making him independent of another person. The arrangement is preferably such, that one hand can operate the pull member for the leg rest and the other hand the adjusting

bar for the cranked shaft. Instead of the pull rope a system of levers may be provided for raising and lowering the leg rest, which is adapted to be operated by the person lying on the couch.

Instead of having a longitudinal slot 7 the member 5 may be provided with a curved edge opposite the teeth 6 over which a fixed hook-shaped piece of sheet metal engages for guiding the member 5, in place of the fixed pin 8.

The member 5 may be curved and be provided with teeth on the edge facing the back rest of the couch, which necessitates a suitable modification of the cranked shaft 9, 9¹. This curved member 5 may also be guided either by means of a slot and a fixed pin or by means of a bent over flange and a fixed hook-shaped sheet metal part.

What I claim is:—

In an arrangement for adjusting the leg rest of reclining surfaces and the like, a regulating rail at either side of the end of the leg rest of a reclining surface, pivotally attached to said leg rest and forming a support for the foot end of this leg rest, a longitudinal guide and downwardly directed ratchet teeth on said regulating rail, a bedstead carrying the reclining surface, a crankshaft journaled in the lateral portions of the bedstead, a cranked part on this shaft capable of directly engaging in said ratchet teeth and of being automatically disengaged by upward movement of the said teeth, a hand lever fixed to the said crankshaft to turn the cranked part of the crank shaft into engagement with the ratchet teeth of the regulating rails, a pin fixed to the lateral portions of the bedstead and adapted to coact with the said longitudinal guide, a seat pivotally attached to the leg rest of the reclining surface, forming a support for the outer end of the leg rest and carried by arms pivoted at their lower ends to the lateral portions of the bedstead, a back rest, means pivotally supporting the back rest on the bedstead, means connecting the back rest and seat whereby changing the position of the back rest will adjust the position of the seat.

In testimony whereof I have affixed my signature.

HEINRICH JULIUS MÜLLER.