Feb. 12, 1929. 1,701,588

H. J. MÜLLER

COUCH HAVING A DIVIDED RECLINING SURFACE

Filed Aug. 27, 1926 3 Sheets-Sheet 1

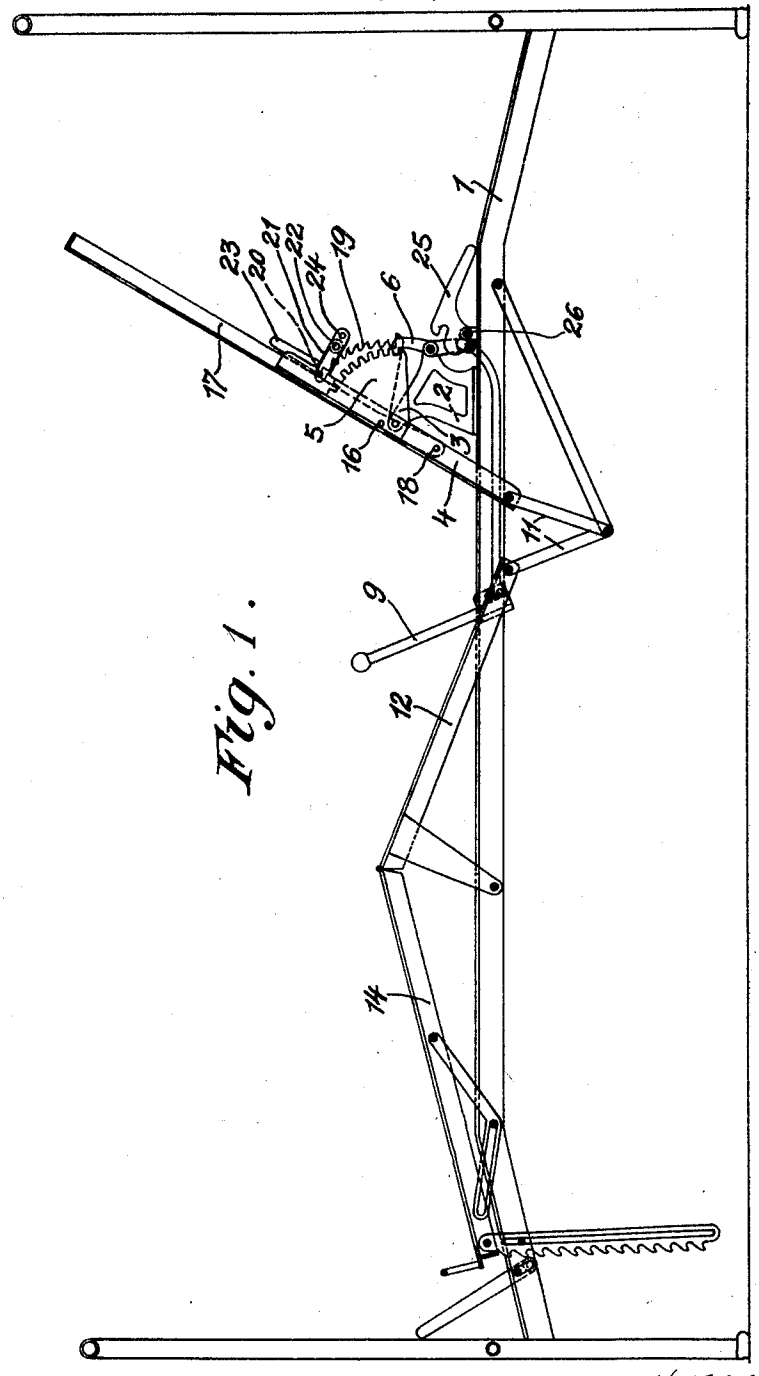


Fig. 1.

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Filed Aug. 27, 1926 3 Sheets-Sheet 2

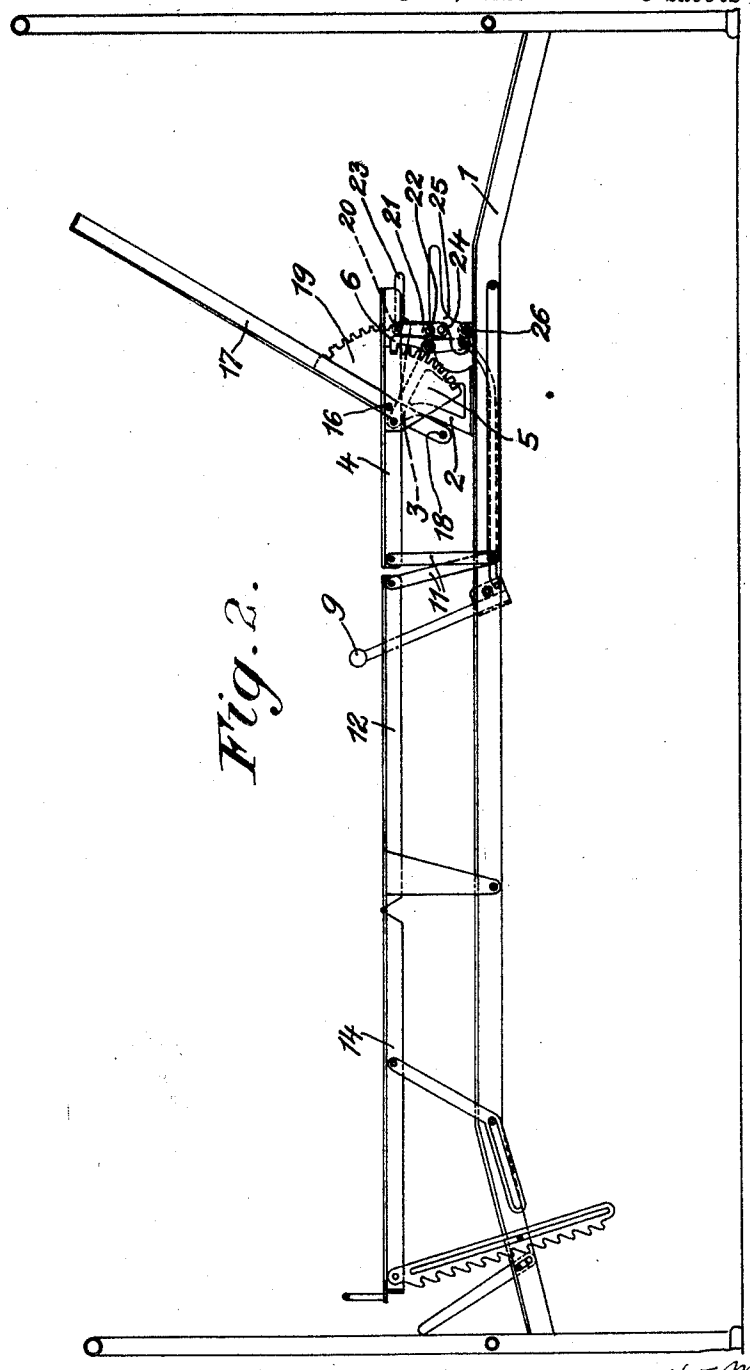


Fig. 2.

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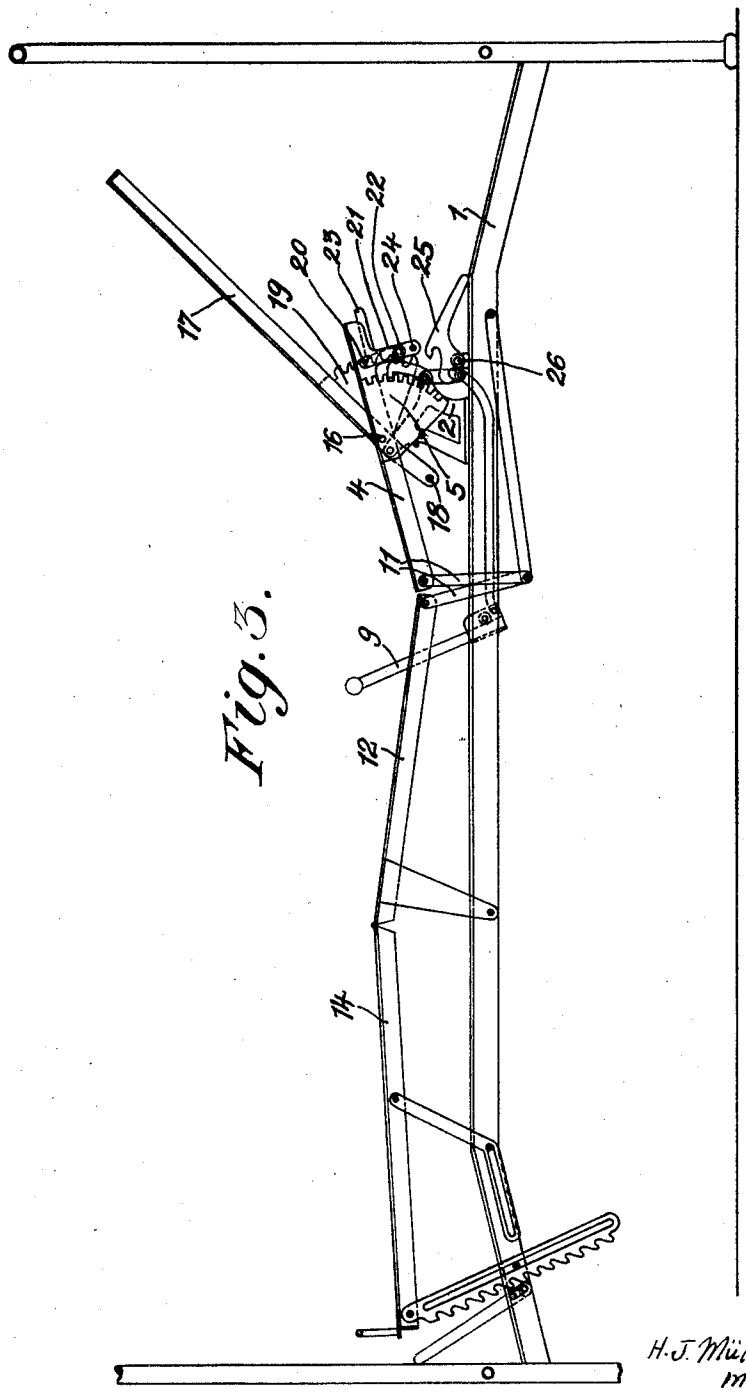


Fig. 5.

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Patented Feb. 12, 1929. 1,701,588

UNITED STATES PATENT OFFICE.

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COUCH HAVING A DIVIDED RECLINING SURFACE.

Application filed August 27, 1926, Serial No. 132,013, and in Switzerland March 9, 1926.

The invention relates to couches and more particularly to the kind having a divided reclining surface.

In known kinds of couches or invalid couches a locking segment was provided under the head piece for fixing the latter in position, the back rest being thus locked at a relatively considerable distance (about 230 mm.) from its axis of rotation. Both circumstances involve the disadvantage, that it was impossible to engage and disengage, the detent in the locking segment easily and smoothly, the operation being necessarily jerky and accompanied by a disturbing noise. This inconvenience was more particularly evident, when the person lying on the couch was not exactly in the position of equilibrium with respect to the axis of rotation of the back rest.

A further disadvantage was that the fixing of the locking segment under the back rest necessitated the couch being made so high that it projected above the level of an ordinary bedstead in an unsightly manner.

In the couch with a divided reclining surface according to the present invention the disadvantages referred to above are overcome by a toothed segment being fixed on either side piece of the movable back rest, the teeth on which are concentric with the axis of rotation of the head piece and have such a small pitch circle radius that the occurrence of jerks and shocks is prevented in locking and unlocking the back rest, which is effected very easily, smoothly and absolutely without noise.

This is even the case, when the person using the couch is not exactly in the position of equilibrium with respect to the axis of rotation of the back rest, the weight of the part of the body lying on the back rest, not acting so heavily on the locking and unlocking means as has been the case heretofore and therefore not causing the same amount of noise.

The couch according to the present invention is so low that it disappears in the bedstead and therefore does not in any way change the appearance of the same as compared with ordinary bedsteads with an immovable mattress.

In a preferred modification it becomes possible to use a water cushion, an advantage which is of great importance where the couch is to be used for persons operated on, persons suffering from bed-sores and the like.

This advantage is obtained according to the preferred modification by the head piece, which is pivoted about the pins engaging in its side members and is capable of being adjusted by the toothed locking segments, having pivoted to it at either side a part which is capable of being operated by hand, acts as a wedge-shaped cushion and is capable of being adjusted and fixed in position by segmental racks and locking members, and by the said locking members, when in engagement with the racks, at the same time coupling the head piece and the wedge-shaped cushion part together, such that the latter part can be optionally adjusted firstly by hand by itself alone, secondly in the initial position mechanically together with the head piece and thirdly to begin with by hand by itself alone and thereupon to the extent of a few teeth together with the said piece, the use of a water cushion being possible with the first and third method of adjustment.

The accompanying drawing illustrates a constructional example of the couch according to the present invention, Figs. 1, 2 and 3 are longitudinal sections showing the preferred modification in three positions.

On each side member 1 of the frame of the couch a bracket 2 having a bearing arm 3 is fixed. To this arm 3 is pivoted the movable head-piece 4, which is in this form shortened to two short side rails, with the segmental rack 5 which is capable of being locked by the pawl 6 connected through a link 7 with a hand lever 9. Each side member of the head-piece 4 has a pivot 16 on which pivots a stirrup shaped part 17 serving as a wedge cushion is journaled. Each side member of the part 17 is provided with a pin 18, which pins by striking against the brackets 2 limit the extent to which the part 17 can be erected. To each side member of the part 17 a segmental rack 19 is fixed, the teeth of which are concentric with the pivotal point 16. In each of these sets of teeth there engages a locking member 20 which is fixed on a shaft 22 which is journalled at 22 in downwardly directed arms 21 on the side members of the head piece 4. A spring which is not shown seeks to make the locking members 20 engage in the segmental racks 19, while each locking member 20 can be disengaged from its segmental rack 19 by pressure being exerted on a handle 23 fixed to it. It will be obvious that the locking members 20 when in engagement with the racks not only secure the part

17 in the position, into which it has been set by hand, but also couple it with the head piece 4.

On an arm 21 a pin 24 is fixed over which a locking member 25 can engage when the head piece 4 is completely lowered, for securing the head piece 4, the seat portion 12 connected to the part 4 by the links 11 and the foot part 14 which is hinged to the part 12 all in the horizontal position. The two locking members 25 are connected together by a shaft 26.

When the couch is in the position shown in Fig. 2, the head part 4, the seat part 12 and the foot part 14, are all in the horizontal position and are located in this position not only by the locking members 6, which are capable of being operated mechanically by the lever 9, but also by the locking members 25, so that any inadvertent alteration in the position of the couch which might be injurious to the patient, is prevented. The part 17 has been raised by hand into its most erect position and is secured in this position by the locking members 20. With the head piece 4, the seat piece 12 and the foot piece 14 in this horizontal position it is possible to use a water cushion.

In Fig. 1 the part 17 has not been moved by hand out of its initial position with respect to the head part 4, and the two parts 4 and 17 are coupled together by the locking members 20. The head part 4 together with the part 17 has been raised into the most erect position by the person lying on the couch, the locking member 6 being out of engagement, whereby the seat part 12 has been lowered. With the parts in this position it is not possible to use a water cushion as the water would flow downwards towards the seat portion. The locking members 25 are out of engagement.

In Figure 3 the part 17 has been raised by hand to the extent of several teeth and has been secured again by the locking members 20. The head piece 4 together with the part 17 has then been raised to the extent of a few teeth of the segments 5 by the person lying on the couch and secured in position by the pawls 20. The locking members 25 are out of engagement. With the parts in this position the seat portion 12 is only slightly inclined and the use of a water cushion is possible.

The adjustability of the foot part 14 in addition to that of the other parts, already described, increases the adjustability of the whole couch to such an extent that the patient can be placed in any desired position as regards back, seat and feet, to suit all movements of the body.

What I claim is:—

In a couch having a pivoted surface, a frame, a sectional backrest pivoted to said frame, a locking-rack concentric with the pivot of the backrest and carried by one section of the backrest, the other section of said backrest being pivoted to the first mentioned section, a locking-rack carried by the second mentioned section and disposed concentric with its pivot, a hand operable locking member pivotally mounted on the first mentioned backrest and engaging in the locking member carried by the latter whereby to couple both the sections, and means for locking the first mentioned section in horizontal position independently of the first mentioned rack.

In testimony whereof I have affixed my signature.

HEINRICH JULIUS MÜLLER.