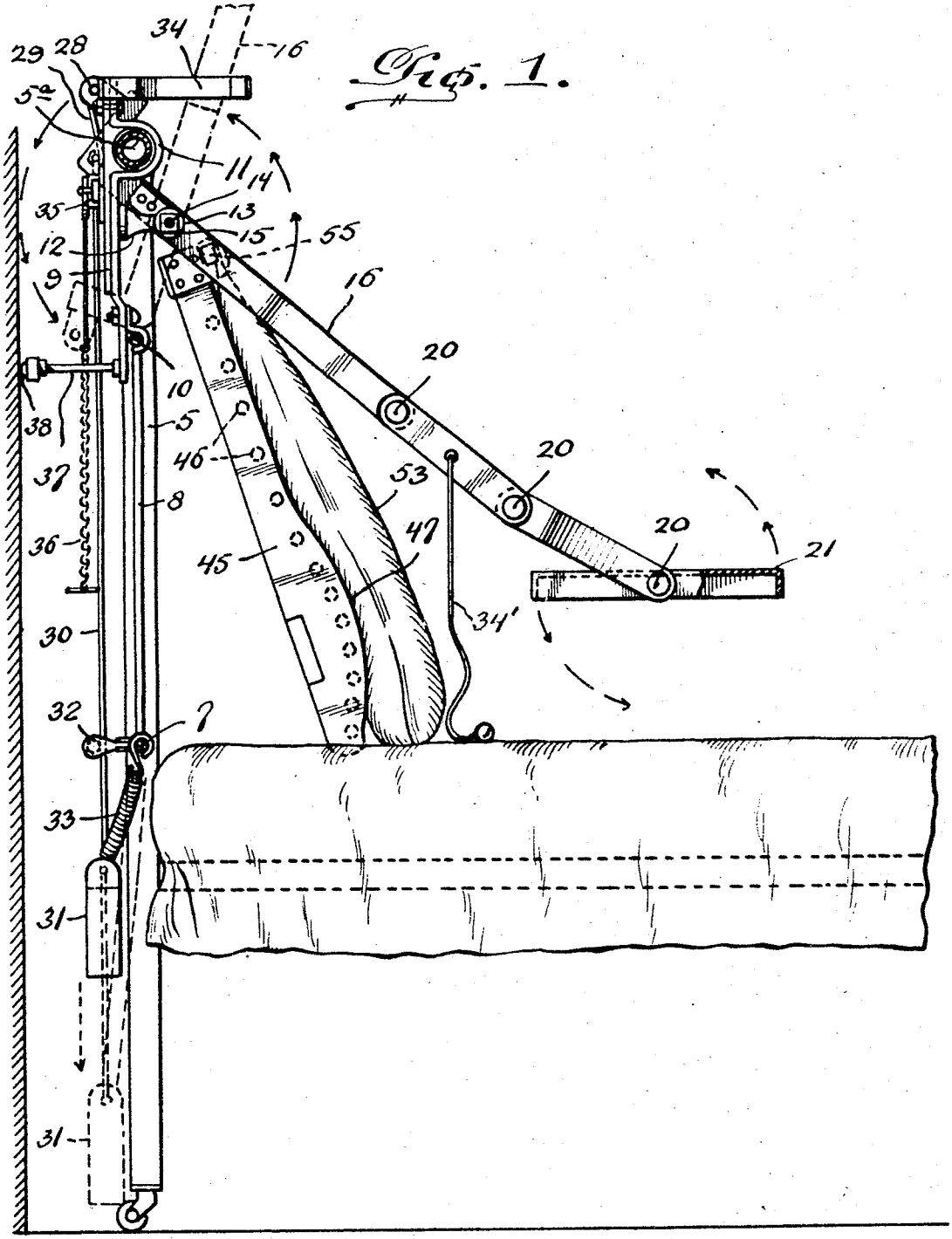
June 10, 1941. W. Y. ABRESCH 2,245,120

ADJUSTABLE TABLE AND BACK REST

Filed July 24, 1939 5 Sheets-Sheet 1

Fig. 1.



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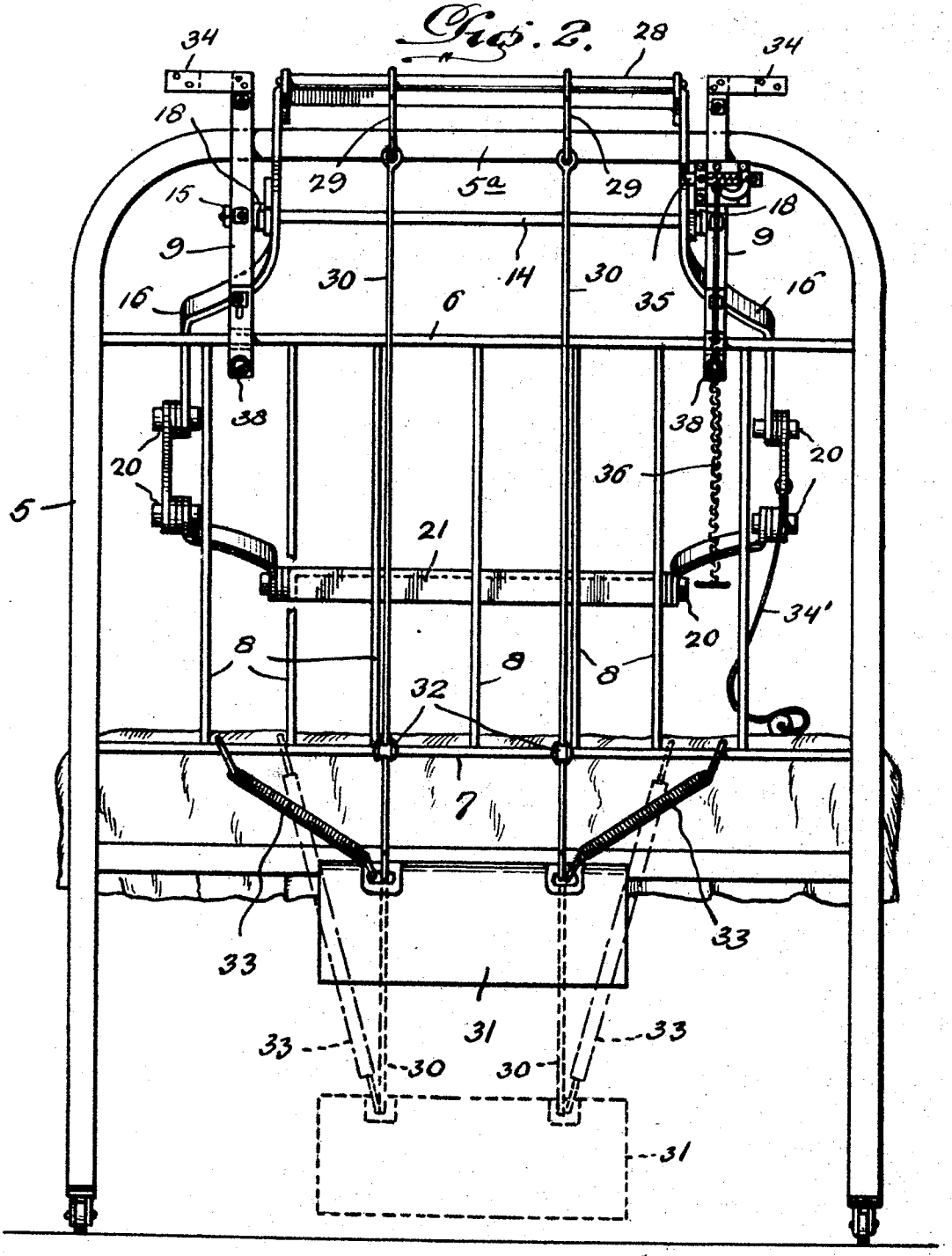
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ADJUSTABLE TABLE AND BACK REST

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Fig. 2.



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ADJUSTABLE TABLE AND BACK REST

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Fig. 3.

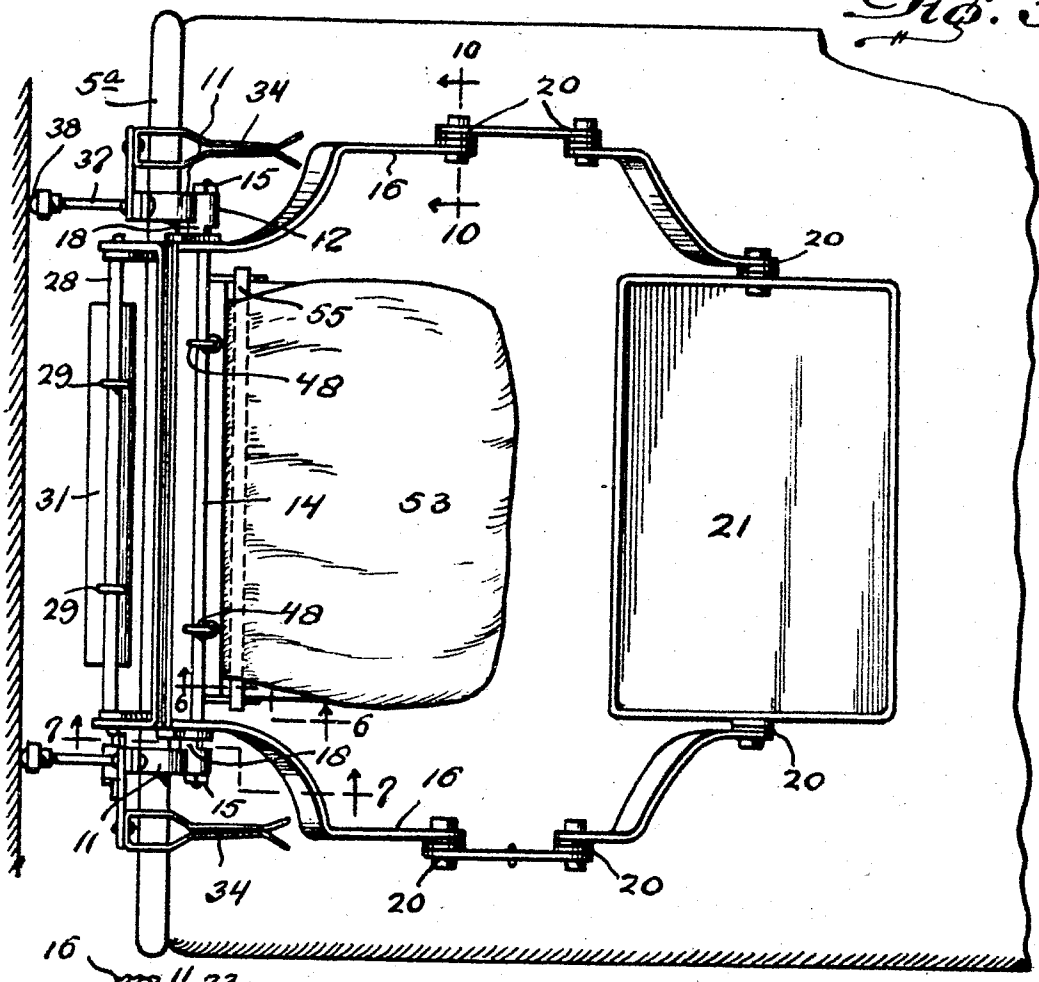


Fig. 10.

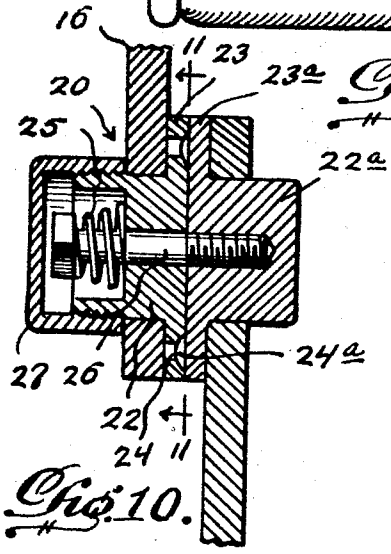


Fig. 11.

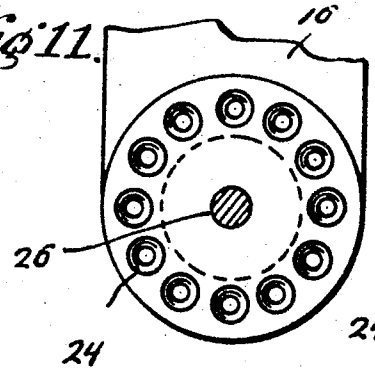
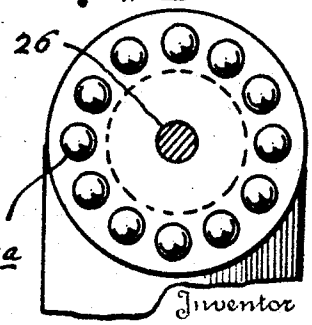


Fig. 12.



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ADJUSTABLE TABLE AND BACK REST

Filed July 24, 1939 5 Sheets-Sheet 4

Fig. 1.

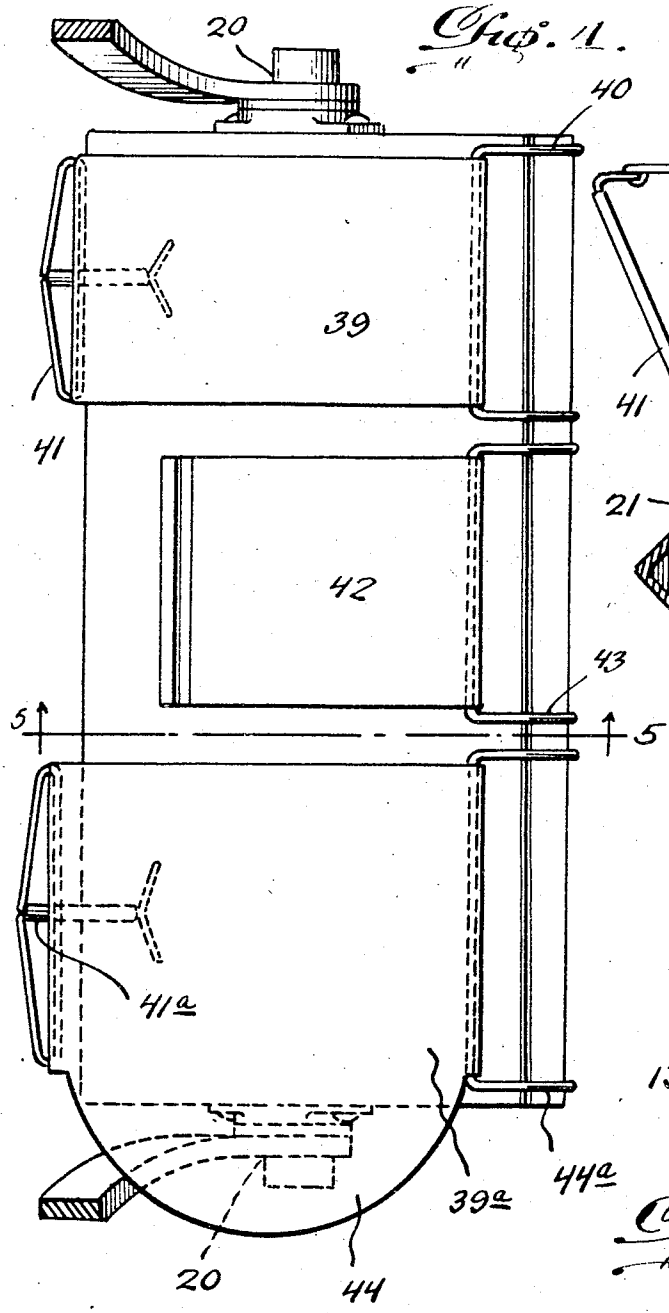


Fig. 5.

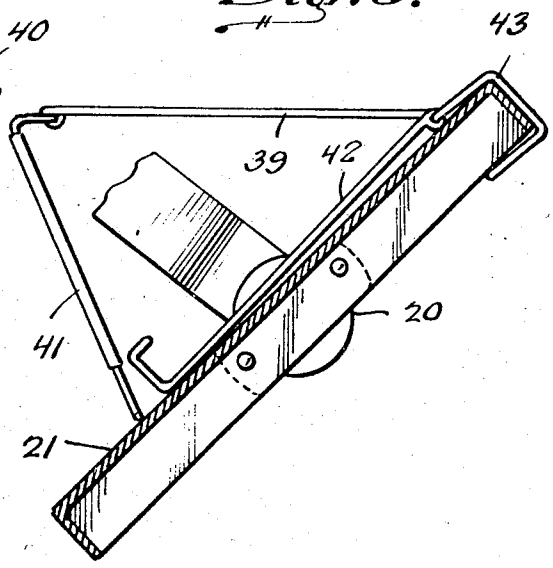


Fig. 8.

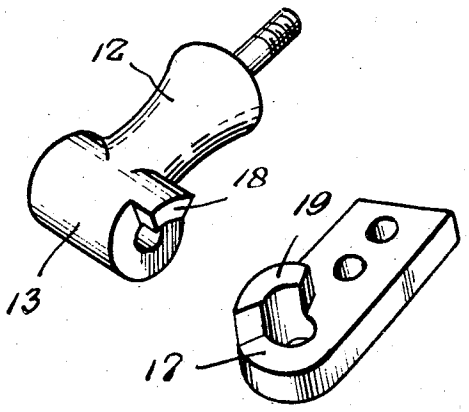


Fig. 9.

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ADJUSTABLE TABLE AND BACK REST

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Fig. 13.

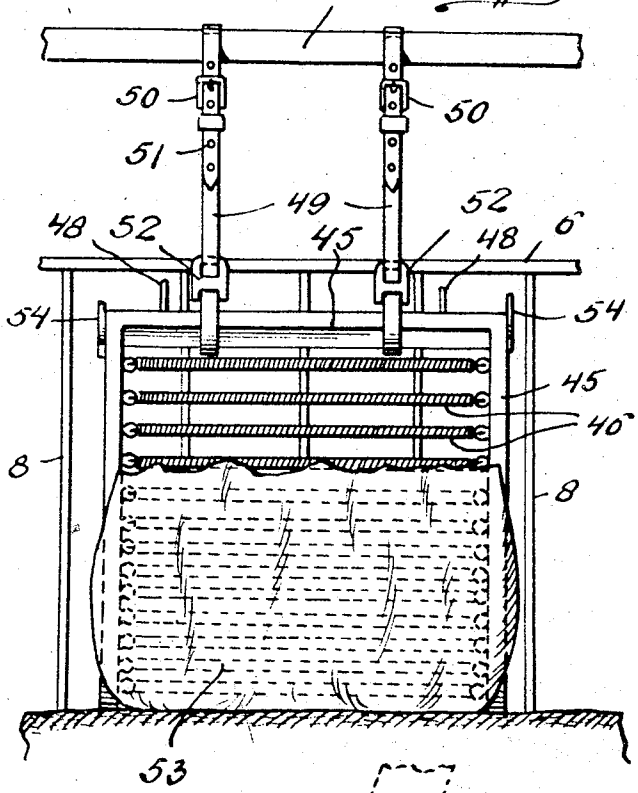
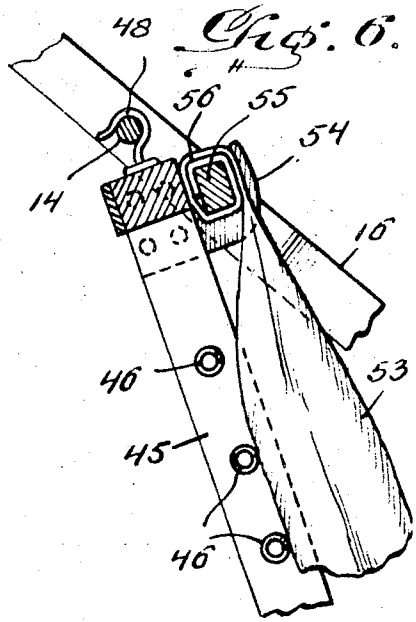


Fig. 6.



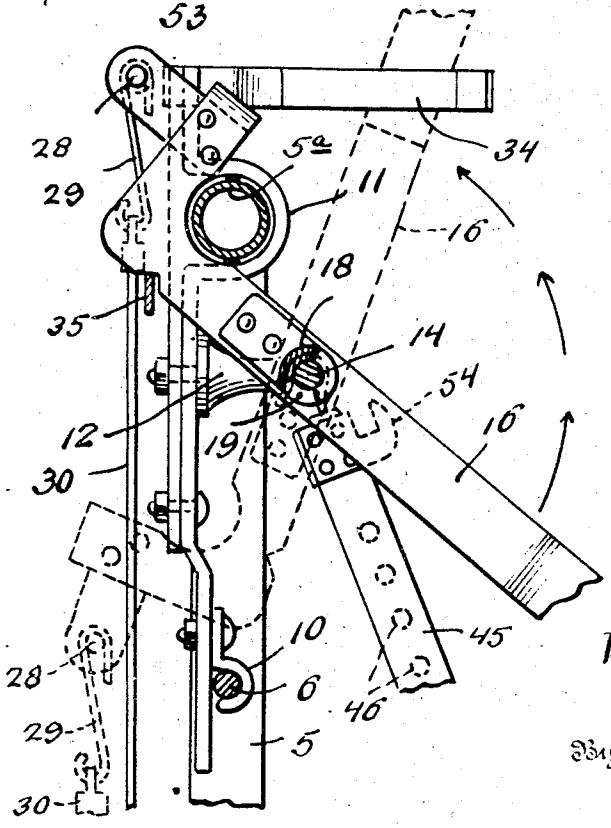


Fig. 7.

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Patented June 10, 1941 2,245,120

UNITED STATES PATENT OFFICE

2,245,120

ADJUSTABLE TABLE AND BACK REST

William Y. Abresch, Gastonia, N. C.

Application July 24, 1939, Serial No. 286,292

8 Claims. (Cl. 311—27)

This invention relates to an attachment for invalid bedsteads in the nature of an adjustable table and back rest.

An object of the present invention is to provide a device of the above kind wherein the table is so mounted that the patient may readily swing the same down into position for use, wherein means is provided to automatically latch the table in this operative position, and wherein the patient occupying the bedstead may readily release the latch for permitting the table to automatically swing upwardly to an inoperative out-of-the-way position.

Another object of the present invention is to provide means for retarding the upward movement of the table as it approaches its upward limit of movement, and to provide for lowering of the table to operative position with the expenditure of little strength.

Still another object of the present invention is to provide swinging arms which carry the table and which are composed of sections adjustably jointed together so that they may be swung into different positions of angular adjustment relative to each other for positioning the table to best suit each individual need.

A still further object of the present invention is to provide a back rest of novel construction for supporting the patient in a sitting position while occupying the bedstead, said back rest being constructed to afford maximum comfort to the user and being provided with novel means for securing a pillow in position against the front of the back rest without danger of the pillow settling down and becoming uncomfortably bunched at the bottom of the back rest. The present invention further contemplates the provision of a device of the above kind which is so constructed as to be readily manufactured and installed, and so constituted as to insure efficient operation and otherwise meet with the requirements for a successful commercial use.

Other objects and features of the present invention will become apparent from the following description when considered in connection with the accompanying drawings, in which:

Figure 1 is a view partly in side elevation and partly in vertical section, showing an attachment constructed in accordance with the present invention and applied to an invalid bedstead, the table being in its lowered operative position.

Figure 2 is a rear elevational view thereof.

Figure 3 is a top plan view of the same with the table inverted.

Figure 4 is an enlarged fragmentary view showing the table in top plan and having certain attachments applied thereto useful in aiding the patient to shave while in bed.

Figure 5 is a vertical section on line 5—5 of Figure 4.

Figure 6 is an enlarged fragmentary vertical section taken on line 6—6 of Figure 3 to show details of the back rest.

Figure 7 is an enlarged fragmentary vertical section taken on line 7—7 of Figure 3 to illustrate details of the attaching and mounting means for the swinging arms which carry the table.

Figure 8 is a perspective view of one of the supporting brackets which receive the ends of the horizontal supporting bar on which are hinged the arms which carry the table.

Figure 9 is a perspective view of one of the bearings carried by the arms which support the table; this view and Figure 8 illustrate the means for limiting the swinging movement of the table-carrying arms.

Figure 10 is an enlarged fragmentary sectional view illustrating the form of adjustable hinge joint provided between the sections of the swinging table-carrying arms and between such arms and the table, the plane of section being indicated by line 10—10 in Figure 3.

Figure 11 is an inner face view of one of the flanged members forming part of the adjustable hinge joint shown in Figure 10.

Figure 12 is a similar view of the other flange member of said joint, Figure 11 being taken on line 11—11 of Figure 10 and Figure 12 being taken on the same plane but looking in the opposite direction; and

Figure 13 is a fragmentary front elevation, partly broken away, showing the back rest suspended by straps from the top of the head member of the bedstead.

Referring in detail to the drawings, the invalid bedstead has been shown as including the usual head member composed of an inverted U-shaped frame 5 whose intermediate portion forms an upper horizontal bar 5a, and whose side portions are connected by a panel composed of upper and lower horizontal rods 6 and 7 connected at intervals by uniformly spaced vertical rods 8.

The present attachment includes mounting means embodying a pair of spaced vertical attaching bars 9 firmly secured near their lower ends to the upper rod 6 of the panel of the head member of the bedstead, by means of clips 10 bolted to the bars 9 as shown clearly in Figure 1. The attaching bars 9 are preferably composed of

two sections bolted together and formed to receive and be bolted rigidly to the upper horizontal member 5a of the frame of the bedstead as is also shown in Figure 1. This is preferably accomplished by having one section of each attaching bar forwardly offset near its upper end as at 11 to receive the frame portion 5a, the other section of the attaching bar extending upwardly at the back of the member 5a so as to secure the frame portion 5a in this offset 11. Thus, the attaching bars 9 are firmly or rigidly fastened in spaced relation to the upper portion of the head member of the bedstead. Bolted to and projecting forwardly from the intermediate portions of the attaching bars 9 are brackets 12 of the form shown in Figure 8 having tubular transverse members 13 on the forward ends thereof which receive the ends of a transverse rod 14 whose terminals are threaded and receive nuts 15 whereby the rod is retained in place. In this way, the attaching bars 9 are effectively connected and braced.

A pair of swinging arms 16 are pivoted near their rear or upper ends upon the rod 14 at the inner sides of the brackets 12, and said arms 16 are provided with bearing brackets 17 of the form shown in Figure 9, through which the pivot rod 14 extends. The brackets 12 have arcuate lugs 18 at the inner sides thereof cooperating with similar lugs 19 on the outer sides of the bearing brackets 17 for limiting the swinging movement of the arms 16 to the full line position of Figure 1 or the dotted line position thereof in this figure.

As shown clearly in Figures 1 to 3 inclusive, the swinging arms 16 are composed of a plurality of sections adjustably jointed together by means of adjustable hinge joints 20, and pivoted between the forward or lower ends of the arms 16 by means of similar adjustable hinge joints 20 is a table member 21. These hinge joints permit the arm sections to be readily angularly adjusted relative to each other to insure positioning of the table 21 to best suit any individual need, and permit tilting of the table 21 at any desired inclination to suit various requirements in use. As shown clearly in Figures 10 to 12 inclusive, the adjustable hinge joints preferably consist of cooperating members 22 and 22a fitted and secured in openings of the hingedly connected members or arm sections and provided at their adjacent inner ends with flanges 23 and 23a respectively formed with a circular series of recesses 24 and a circular series of projections 24a receivable in said recesses. The members 22 and 22a are yieldingly urged together to seat the projections 24a in the recesses 24, by means of a helical compression spring 25 encircling the projecting outer end portion of a bolt 26 freely passing through the member 22 and threaded into the member 22a. A suitable cover or cap 27 may be applied to the member 22 to cover the projecting end of bolt 26 and the spring 25. By simply forcibly swinging one arm section relative to another, the outermost section will yield outwardly and permit the projections 24a to pass out of and then into recesses 24, automatically securing the arm sections in the angular position to which they have been adjusted. The same action takes place when the table 21 is forcibly swung to the desired horizontal or tilted position, as is generally well known in connection with this type of adjustable hinge joint. As shown, the table 21 is preferably in the form of a shallow tray.

The rearwardly projecting ends of arms 16 are connected by a transverse rod 28, and suspended by means of hooks 29 and rods 30 from the connecting rod 28 is a weight 31 which normally acts to swing the arms 16 and table 21 upwardly to an out-of-the-way position as indicated by dotted lines in Figure 1. Attached to the lower panel rod 7 are pulleys or other suitable guides 32 which guide the suspension rods 30 in their vertical movement at the back of the head member of the bedstead. Ordinarily, after the arms 16 pass upwardly beyond a horizontal position, the weight 31 would act to accelerate the upward movement of said arms 14 and bring about an objectionable and noisy operation. Accordingly, normally inactive helical tension springs 33 are provided to retard the upward movement of the arms 16 as they approach their upward limit of movement. As shown, these springs are connected at their lower ends to the weight 31 and at their upper ends to the lower horizontal panel rod 7 of the head member of the bedstead. These springs 33 are so positioned that they do not begin to be placed under tension until after the weight 31 has lowered partially and the arms 16 have passed upwardly beyond their horizontal position. Upon further lowering of the weight 31 and further upward movement of the arms 16 under the influence of said weight, the springs 33 are placed under increasing tension so as to counterbalance the weight 31 and thereby insure slow quiet movement of the arms 16 to their final upward limit of movement. Obviously, this tension of the springs 33 will facilitate easy lowering of the arms 16 by initially offsetting much of the weight imposed by the weight member 31. Thus, the arms 16 may be swung downwardly to position the table 21 as shown by full lines in Figure 1, with the expenditure of little effort. To facilitate this downward swinging of arms 16 and the table 21 carried thereby, a pull cord 34' may be attached to one of the arms 16 within convenient reach of the invalid occupying the bedstead. The upward movement of the arms 16 may be further retarded by means of check members in the form of spring clips 34 attached to and projecting forwardly from the upper ends of the attaching bars 9 in the path of the arms 16 so that the latter will pass between the jaws of the clips 34 as said arms approach their upward limit of movement. The spring tension of the clips 34 is such that their jaws will impose friction on opposite sides of the arms 16 so as to give this retarding action.

Means is provided for latching the arms 16 in their downwardly swung position so as to retain the table 21 in position for use. This latching means may consist of a spring projected latch bolt 35 suitably mounted on one of the attaching bars 9 as shown in Figure 2 and arranged to pass under the adjacent rearwardly projecting upper end of the adjacent arm 16 when said arms 16 have been swung downwardly to their downward limit of movement as shown by full lines in Figure 1. The latch bolt 35 may have suitable operating means including a depending pull cord 36 within convenient reach of the occupant of the bed. By pulling on the cord 36, the latch bolt 35 may be released so that the weight 31 will operate to swing the arms 16 and table 21 to the upward out-of-the-way position. The engaging end of the latch bolt 35 is suitably beveled so that this latch bolt will not interfere with manual lowering of the arms 16 due to ready passage of the pro-

jecting upper end of the adjacent arm 16 by said latch bolt.

It will be apparent that a bedstead equipped with the present device must be maintained in spaced relation to the wall of the room adjacent the head member of the bedstead, thereby giving sufficient clearance for the moving parts in back of the head member of the bedstead. In order to insure this spaced relation between the wall and the head member of the bedstead, rearwardly projecting stop members 37 are fixed to the lower ends of the attaching bars 9 and are provided on their rear ends with cushions 38 adapted to contact the wall of the room without marring the finish thereof. It might here be noted that the operation of the latch bolt 35 will be more clearly apparent when considering Figure 7 in connection with Figures 1 to 3 inclusive.

As before stated, the table 21 may be in the nature of a shallow tray which may be arranged as shown in Figure 1 with the rim thereof depending, or as shown in Figure 2 with the rim thereof projecting upwardly. When the table is in the first-mentioned position, it may be tilted at an inclination as shown in Figure 5 for use in connection with certain article supporting attachments as shown in Figures 4 and 5, whereby the patient may conveniently shave, wash, etc. The attachments in question include a supporting plate 39 having an angular wire clip 40 pivoted to one end thereof for engagement over the upper edge of the table 21, and an angular pivoted support 41 at the other end thereof adapted to rest upon the table 21 so as to support the plate 39 in a horizontal position when the table 21 is tilted at an inclination, as shown. Suitable shaving articles, such as a razor, shaving brush, shaving soap and the like may then be conveniently placed on the plate 39. Another attachment consists of a mirror 42 which may be arranged flatly on the inclined table 21 in proper position for the user to see the image of his face therein while shaving. This mirror also has an angular clip 43 pivoted to the upper end thereof for engagement over the upper edge of the table so as to hold the mirror in position on the table. Another attachment or supporting device for attachment to the table 21 may also be provided including supporting plate 39a, angular attaching clip 44a and supporting leg 41a similar to the parts 39, 40 and 41 of the attachment first described. However, in the last described attachment, the supporting plate 39a may have an extension 44 on the outer edge thereof so that the same will effectively provide for supporting reception of a large basin of water or the like, necessary in the shaving or washing operations.

Of course, the patient occupying the bedstead will be in a sitting position when making use of the table 21 or its attachment. Accordingly, the present invention provides for a very efficient back rest whereby the invalid or occupant of the bed may be comfortably supported in this sitting position. As shown, the back rest consists of a vertically elongated open rectangular frame 45, the side members of which are connected at intervals by means of transverse or horizontal helical tension springs 46. These springs give yieldable support to the back, and the lower portions of the side members of the frame 5 are curved forwardly as shown at 47 and the springs 45 are positioned to follow this curvature so as to give restful and comfortable support to the small of the back. Also, the springs 46 are arranged closer together at this curved portion 47 so that less yielding will be allowed as is necessary for best results. The back rest is adapted to be disposed with its lower end resting upon the mattress and with its upper end supported in a suitable manner to position the back rest at the desired inclination in back of the table 21 and between the arms 16. As shown in Figures 1, 3, 6 and 7, the back rest frame may be provided at the top with suitable hooks 48 that may be engaged over the pivot rod 14 so as to support the back rest in a desirable position. However, for reclining, the back rest may be supported at a more nearly horizontal position and at various inclinations by means of adjustable suspension straps 49 as shown in Figure 13. These suspension straps may be passed about the top rail of the frame 45 of the back rest and looped around the upper portion 5a of the frame of the head member of the bedstead. By adjusting the straps 49, the inclination of the back rest may be changed. To provide for this adjustment, the ends of the straps 49 may be adjustably connected by suitable buckles 50 engageable with the desired one of a series of openings or apertures 51 in the other ends of the straps. The strands of the straps 49 may be placed in contiguous relation after encircling the top rail of the back rest frame, by means of suitable slides 52.

In order to give more comfortable and soft support to the user, means is provided for sustaining a pillow 53 in front of the back rest and against the springs 46 of the latter, so that the pillow will be retained in position extending from top to bottom of the back rest and without any danger of falling and bunching at the bottom of the back rest. For this purpose, slotted brackets 54 are attached to and project from opposite sides of the back rest frame at the top of the latter, and a retaining rod 55 has its ends removably positioned in the slots of these brackets. In use, the open end of the case of pillow 53 is wound about the bar 55 as indicated at 56 and more clearly shown in Figure 6, whereupon the bar 55 is engaged with the brackets 54 so that the wound end of the pillow case is effectively clamped between the bar 55 and the frame of the back rest. The end of the pillow case cannot become detached from the bar 55 when the latter is engaged in the brackets 54, and in this way the pillow is effectively suspended in place. While the back rest may be used in conjunction with the table as shown in Figures 1 and 6, it may be used alone by engaging the hooks 48 with the upper panel rod 6, or by suspending the back rest through the use of straps 49 as shown in Figure 13.

In operation, assuming that the table is lowered as shown by full lines in Figure 1, and that said table is no longer required for use, the patient may pull on the cord 36 so as to release the latch bolt 35 and permit the weight 31 to swing the arms 16 upwardly to the dotted line position of Figure 1 and thereby move the table and arms 16 to an out-of-the-way position. Initially, the full weight of the weight 31 is imposed on the rods 30 for raising the arms 16 and the table 21. As the arms 16 approach their upward limit of movement, however, the springs 33 will be placed under increasing tension so as to retard the upward movement of said arms 16. This is immediately followed by engagement of the arms 16 with the check clips 34, whereby the arms 16 are slowly and quietly brought to a stop in a position wherein the lugs 18 and

18 are engaged. When use of the table is again required, the patient simply exerts a downward pull on the cord 34'. The springs 33 then assist in elevation of the weight 31 so that the arms 16 and table 21 will be lowered without the expenditure of a great amount of effort. When the arms 16 have lowered to a point wherein the opposite edges of lugs 19 engage the opposite edges of lugs 18, the latch bolt 35 will have snapped beneath the rearwardly projecting upper end of an arm 16 so as to retain the arms in the downwardly swung position of Figure 1 wherein the table 21 is properly located for use. The table will remain in this position as long as the latch bolt is in its engaged position. It will of course be apparent that the elevation of the table 21 as well as its inclination may be regulated to suit requirements after the arms 16 have been fully lowered by tilting the table or by angularly adjusting the sections of the arms 16 relative to each other.

Should the back rest not be required, such as when the patient desires to assume a position flatly lying on the bed, said back rest may be readily detached and removed either by removing the straps 49 or disengaging the hooks 41 from the rod 14. The bar 55 may then be disengaged from the brackets 54 of the back rest so as to permit detachment of the pillow 53 from the back rest for ordinary use upon the bed.

While I have shown and described a very practical and preferred form of the present invention, it will be understood that the structural details may be varied without departing from the spirit and scope of the invention as claimed.

What I claim as new is:

1. A bedstead attachment of the character described comprising a pair of spaced vertically swinging arms pivotally mounted near corresponding ends upon the head member of the bedstead near the top of the latter, weight means for normally swinging the arms upwardly to an out-of-the-way position, manually releasable means for latching the arms in downwardly swung position, and a table arranged between and carried by the other ends of said arms.

2. A bedstead attachment of the character described comprising a pair of spaced vertically swinging arms pivotally mounted near corresponding ends upon the head member of the bedstead near the top of the latter, weight means for normally swinging the arms upwardly to an out-of-the-way position, manually releasable means for latching the arms in downwardly swung position, a table arranged between and carried by the other ends of said arms, and yieldable means to partially counteract the action of the weight and retard the upward movement of the arms as they approach their upward limit of movement.

3. A bedstead attachment of the character described comprising a pair of spaced vertically swinging arms pivotally mounted near corresponding ends upon the head member of the bedstead near the top of the latter, weight means for normally swinging the arms upwardly to an out-of-the-way position, manually releasable means for latching the arms in downwardly swung position, a table arranged between and carried by the other ends of said arms, and yieldable means to partially counteract the action of the weight and retard the upward movement of the arms as they approach their upward limit of movement, said last-named means comprising helical tension springs acting to partially counterbalance the weight means and permit lowering of the arms with the expenditure of little effort.

4. An attachment for bedsteads comprising mounting means adapted to be secured to the head member of the bedstead at the top of the latter, a pair of spaced vertically swinging arms pivoted on said mounting means near corresponding ends, vertically movable rods arranged rearwardly of said head member and connected at their upper ends to said ends of the arms, a weight carried by the lower ends of said rods and acting to normally elevate the arms to an out-of-the-way position, a table arranged between and carried by the other ends of said arms, and means engageable with the first-mentioned end of one of said arms for latching said arms in downwardly swung position against the action of said weight.

5. An attachment for bedsteads comprising mounting means adapted to be secured to the head member of the bedstead at the top of the latter, a pair of spaced vertically swinging arms pivoted on said mounting means near corresponding ends, vertically movable rods arranged rearwardly of said head member and connected at their upper ends to said ends of the arms, a weight carried by the lower ends of said rods and acting to normally elevate the arms to an out-of-the-way position, a table arranged between and carried by the other ends of said arms, means engageable with the first-mentioned end of one of said arms for latching said arms in downwardly swung position against the action of said weight, and helical tension springs connected to the weight and to the head member for opposing the lowering of the weight and retarding the upward movement of the arms as the latter approach their upward limit of movement.

6. An attachment for bedsteads comprising mounting means adapted to be secured to the head member of the bedstead at the top of the latter, a pair of spaced vertically swinging arms pivoted on said mounting means near corresponding ends, vertically movable rods arranged rearwardly of said head member and connected at their upper ends to said ends of the arms, a weight carried by the lower ends of said rods and acting to normally elevate the arms to an out-of-the-way position, a table arranged between and carried by the other ends of said arms, means engageable with the first-mentioned end of one of said arms for latching said arms in downwardly swung position against the action of said weight, helical tension springs connected to the weight and to the head member for opposing the lowering of the weight and retarding the upward movement of the arms as the latter approach their upward limit of movement, and further check devices carried by the mounting means and engageable by the arms for further retarding the upward movement of the latter as they complete their upward movement.

7. An attachment for bedsteads comprising a pair of spaced vertical attaching bars engageable with horizontal members at the top of the head member of the bedstead, a pivot rod connecting said attaching bars, vertically swinging spaced arms pivotally mounted near corresponding ends upon said pivot rod and projecting rearwardly beyond the latter, means for limiting the upward and downward swinging movement of said arms, vertically movable rods arranged rearwardly of the head member of the bedstead and connected at their upper ends to the rearwardly project-

ing ends of said arms, a weight carried by the lower ends of said rods and acting to normally elevate the arms to an out-of-the-way position, and manually releasable means for latching the arms in downwardly swung position, and a table arranged between and carried by the other ends of said arms.

8. A bedstead attachment of the character described comprising a pair of spaced vertically swinging arms pivotally mounted near corresponding ends upon the head member of the bedstead near the top of the latter, weight means for normally swinging the arms upwardly to an out-of-the-way position, manually releasable means for latching the arms in downwardly swung position, a table arranged between and carried by the other ends of said arms, said arms comprising a plurality of sections adjustably jointed together for angular adjustment relative to each other, and said table being pivotally carried by the arms by adjustable hinged joints whereby the table may be adjustably tilted about a transverse horizontal axis.

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