

June 7, 1955

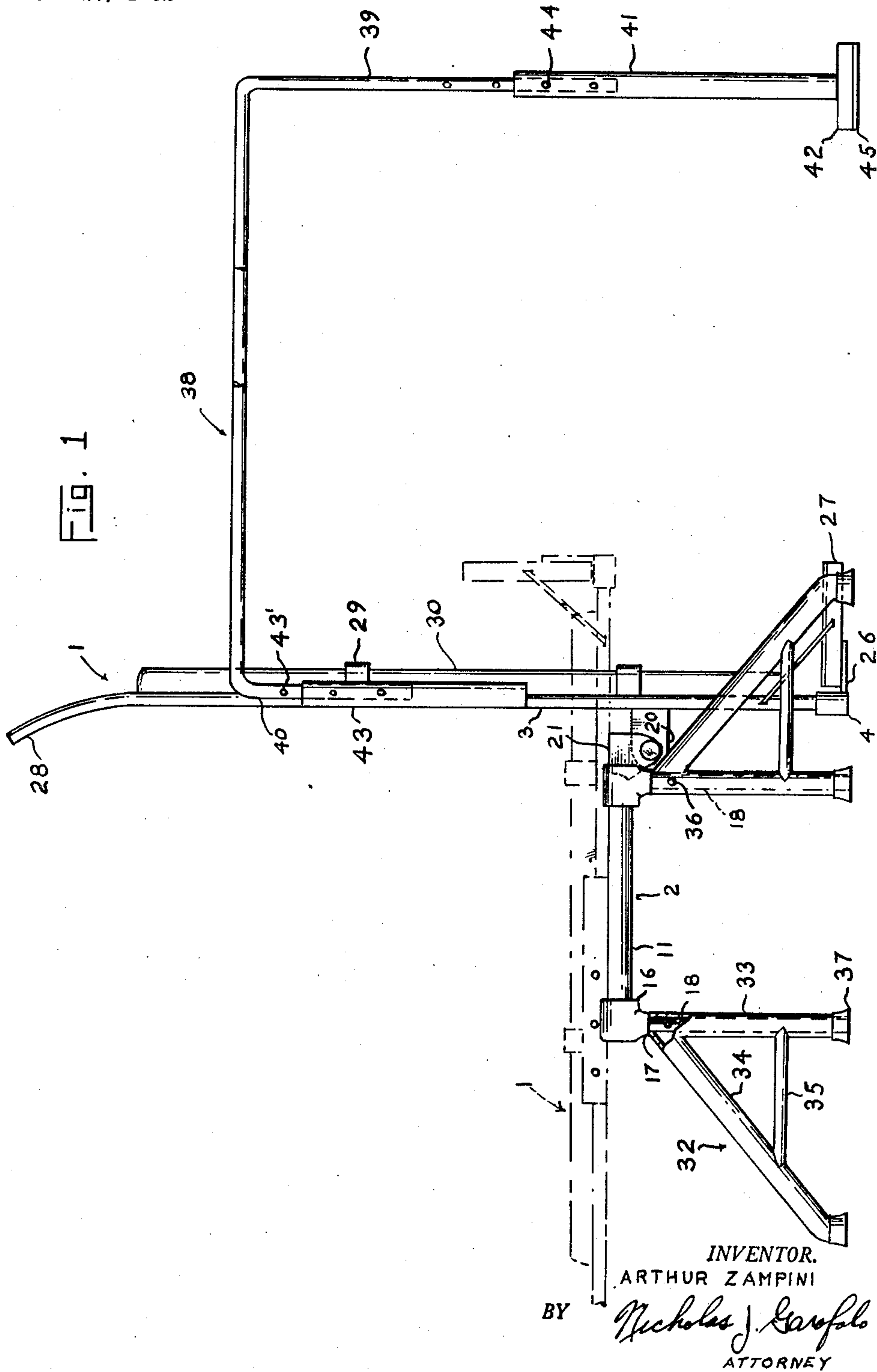
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COMBINED TILT-TABLE AND EXERCISE BAR

Filed Nov. 20, 1952

2 Sheets-Sheet 1



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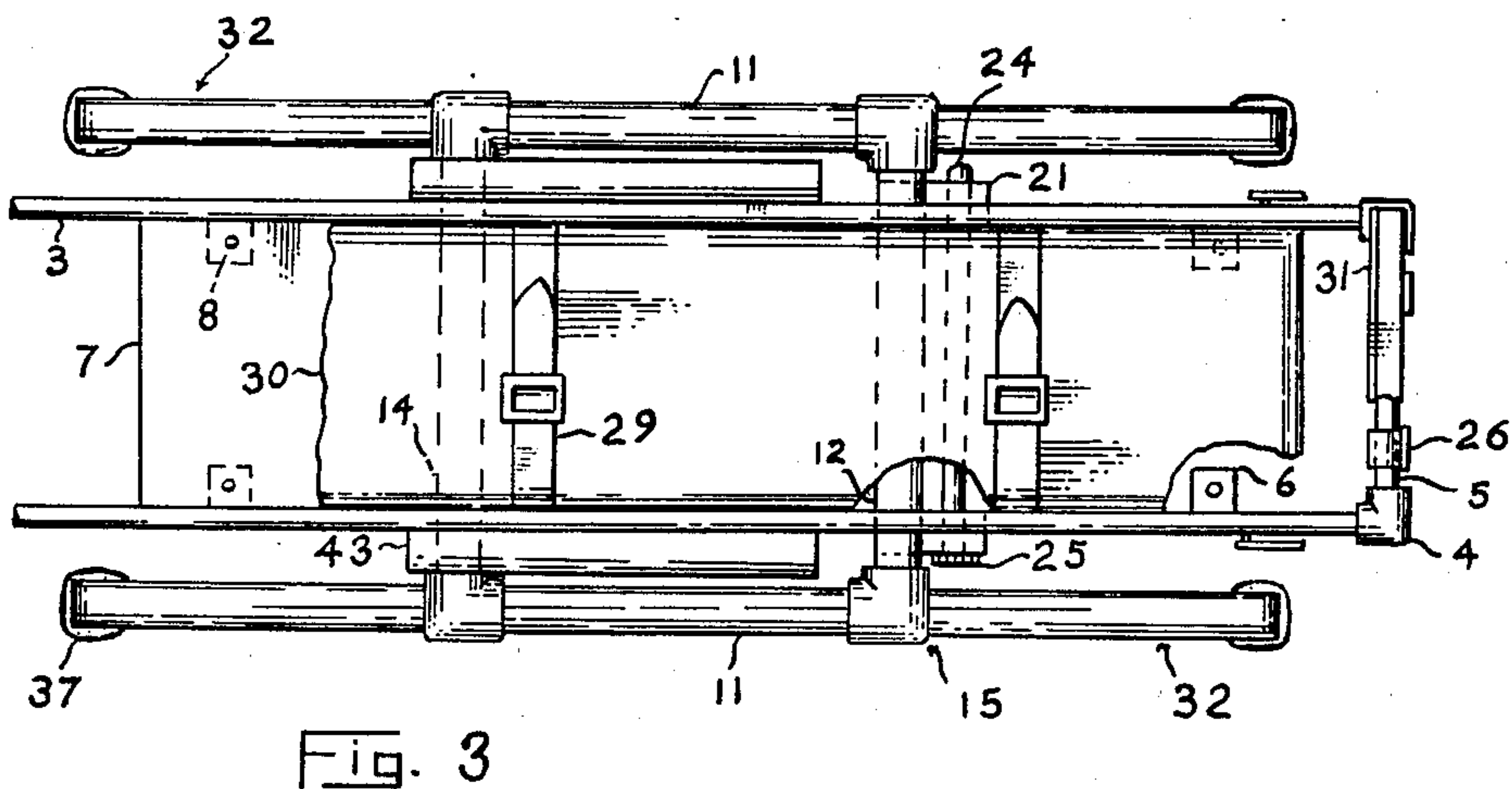
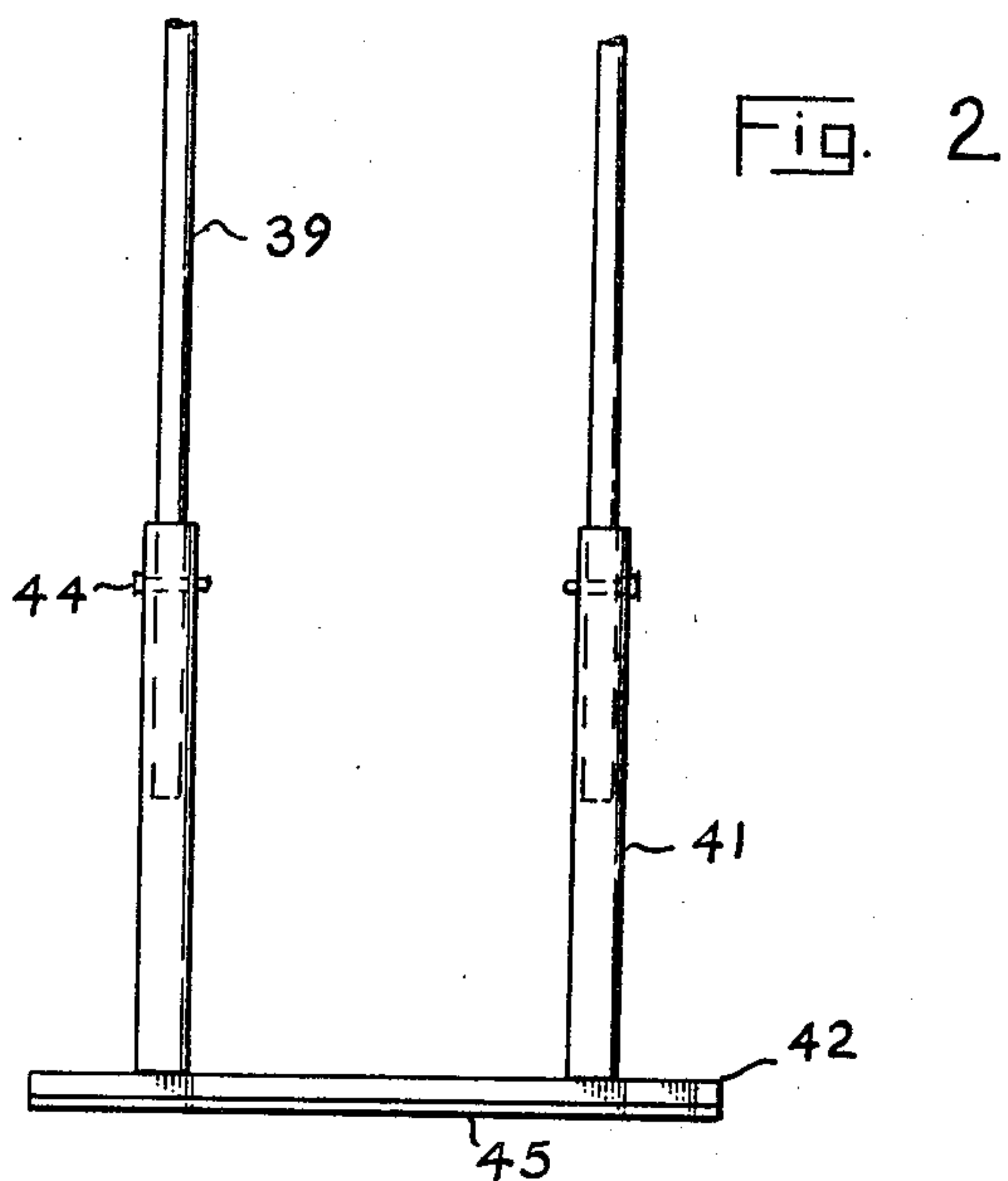
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COMBINED TILT-TABLE AND EXERCISE BAR

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4 Claims. (Cl. 311—2)

My invention relates to new and useful improvements in tilt-tables. It particularly concerns a combined portable tilt-table and exercise bar that is particularly useful in the after massaging and treatment of paralytic patients and the like.

In polio and similar cases wherein the patient is left with limited use of various limbs of his body, massaging and movement of the affected muscles and limbs are often required to restore these members to normal. For this purpose a table is necessary, and it is desirable that the table be of the tilt-type, so that the patient may be readily placed thereon without difficulty. It is also desirable that the table be sturdy to support the rough treatment to which it will be subjected during the treatment of the patient. It is further desired that the table be simple to operate, economical to manufacture so as to be within the reach of all who may require its use, and that it be readily portable so that it can be transported or moved from place to place without difficulty. It is also desired that the patient have an opportunity to exercise his limbs, particularly his legs by standing or by taking a step or two each day to regain their normal use.

An object of this invention is, therefore, a combined tilt-table and exercise bar, particularly useful by persons afflicted with a limited use of their limbs.

Another object of this invention is to provide a readily portable, combined tilt-table and exercise bar which is simple, yet sturdy in construction, practical and economical to manufacture.

A further object of this invention is a tilt-table that may be readily assembled and disassembled, whereby it can be moved or transported from place to place without difficulty.

A further object of this invention is a knock-down tilt-table and exercise bar substantially of tubular construction,

For further comprehension of the invention and of the objects and advantages thereof, reference is directed to the following description and to the accompanying drawings, wherein

Fig. 1 is a side elevational view of a combined tilt-table and exercise bar of a portable nature embodying my invention;

Fig. 2 is a detail of the right end of the exercise bar; and

Fig. 3 is a plan view of the table apart from the exercise bar with portions cut away to expose the underlying structure.

In the drawings there is disclosed a tilt-table including a table 1 pivotally mounted upon a supporting structure 2. Table 1 comprises an elongated rectangular frame having a pair of parallel side rails 3 connected to one another at the forward end by elbows 4 and a cross rail 5. It is plain that the cross rail may be formed continuous with the side rails, and that it may be connected to the side rails by solder or other suitable jointing. Along the inner sides of the side rails there is provided a plurality of flanges 6 at suitable spaced intervals. These

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extend inward and serve to support a rectangular table board 7 which is held fast to the flanges by suitable fasteners at 8. The table is adapted to be horizontally supported on the under structure 2, and is provided with means cooperable with complementary means, to be later described, whereby it is rotatable from a horizontal position to a vertical position.

The supporting understructure 2 for the table includes a rectangular central support section having a pair of side rails 11 connected to one another at each end with a pair of cross rails 12 and 14. While the several rails may be formed integral with one another, or connected to each other by solder or other suitable jointing, it is preferred that they be joined to each other by suitable connectors 15 at each of the corners. Connectors 15 each include a pair of arms 16 substantially at right angles to one another and a vertically depending arm 17. Vertically connected to each arm 17 is a leg 18. When assembled upon the supporting structure 2 the table rests upon and is supported by the cross rails 12 and 14.

The table is tiltable from a horizontally normal position as indicated in broken line in Fig. 1 to a vertical position as shown in full line. To enable this the table is provided with a pair of depending ears 20, preferably formed integral with the side rails 3, though they may be carried in other manner such as by fasteners to the side rails or to the table board 7. Each ear is provided with a suitable pintle hole. As complements to the ears 20, the forward cross rail 12 of the structure 2 is provided with a pair of spaced ears 21 also provided with pintle holes. When the table 1 is resting upon cross rails 12 and 14, the holes of ears 20 are in lateral alignment with those of ears 21. A pintle 24 inserted through the holes of the respective ears provides a pivot and effects a hinge whereby the table may be rotated from its horizontal to its vertical position.

Pintle 24 is removably contained in the holes of the ears 20, 21 and it is provided with a roughened or knurled head 25 whereby it may be manually gripped and inserted or removed from the ears when desired. The weight of the table prevents the pin from slipping free of the ears; further, the pin extends a sufficient distance beyond the ears to allow for any slight lateral movement or slipping of the pin.

Hingedly connected to the end cross rail 5 of the table as at 26 is a foot-board or rest 27, preferably of firm lightweight material, such as wood.

The foot-board and the pivotal nature of the table are of decided advantage, particularly in those cases where the patient, because of his infirmities cannot climb upon the table and must be lifted or carried to the table. Toward this end the table is pivoted on its hinges to its vertical position. The patient is then made to stand upon the foot-board with his back against the table. The table is then rotated down to its level position. In this manner the burdensome and difficult job of lifting the patient to the table has been eliminated.

To further facilitate the rotatable operation, the table is arranged to pivot on the structure off its center and near its lower end, about the knee portion of the average size patient. By this arrangement, when the patient stands upon the foot rest and leans against the table, the overbalancing weight of the upper part of the patient and the table will help to bring the table down to its horizontal position with little effort on the part of the attendant. While the patient is in a prone position, the greater portion of his body weight will be over the central area of the structure, so that there will be no fear of the table tilting back to the vertical position.

To further aid in tilting the table side rails 3 have slightly curved extended ends 28, serving as hand grips,

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so that the table may be gradually lifted and held during the pivoting.

Suitable straps 29 are provided to secure the patient to the table during the pivoting operation.

The table board is provided with a suitable cushion 30 for the comfort of the patient, and the foot board includes a rubber mat 31 to prevent slipping.

To increase the sturdiness of the table so that the central structure 2 will not topple over either forwardly or rearwardly, there is connected to each leg 18 an auxiliary supporting leg 32. The latter includes an upright portion 33 from the upper end of which there is angularly and downwardly disposed a leg branch 34. The upright 33 and the branch 34 are strengthened by a connecting cross member 35. The legs 32 are pivotally connected to the main legs 18. To this end the upright element 33 is formed of a tubular stock of a diameter sufficient to contain the narrower leg 18, so as to enable the auxiliary leg to pivot thereabout. This pivotal nature of the legs 32 is desired, so that they may be folded crosswise one upon the other, thereby enabling the support structure to be folded into a compact unit for transportation. A removable pin 36 slidable through the uprights 33 and the leg 18 serves to lock the legs against pivoting when the structure is assembled for use. The auxiliary legs may be wholly removed from the structure by removing the lock pins 36 and sliding the uprights 33 free of the legs 18.

The supporting structure is built low from the floor and preferably at a height of about twenty-one inches. This arrangement not only provides a low center of gravity and greater stability, but also enables a patient to be rolled from a bed or wheel chair of similar height on to the table. It is also desired that the pivot point of the table be such that the radius of the arc of rotation be substantially that of the height of the supporting structure, so that when tilted to a vertical position the foot board of the table will rest in close proximity to the floor, thereby enabling the patient to board the foot rest without stepping upwards.

Removable rubber foot pads 37 on the several legs prevent the structure from riding the floor.

The invention is readily portable by removing the pintle pin 24 to separate the table from the supporting structure 2, and the supporting structure is separable from the auxiliary legs by removing the lock pins 36. The separate structures being of light weight material may be readily transported by car or manually carried about and set up at will without difficulty.

A further feature of the invention is an exercise bar combined with the tilt-table in such manner that, when the table is tilted as in Fig. 1 to erect position, the patient thereon may without danger of falling support himself for a brief period in standing position, or he may attempt a step or two. These added advantages are obtainable through a pair of parallel horizontal bars 38, which include at opposite ends depending arms 39 and 40. Arms 39 are slidable and removably contained in a pair of vertical tubular members 41 fixed in parallel spaced relation to one another in a weighted base 42. The other arms 40 are slidable and removably received in a pair of elongated tubular elements 43 carried one on each table side rail 3. Arms 39 and 40 include a plurality of spaced holes 43' alignable with complementary holes in the table tubular elements and the vertical tubular members.

Removable pins 44 enable the arms 39 and 40 to be adjusted to various heights to accommodate the height or bending movements of the patient. A rubber mat 45 secured to the underside of the weighted base 42 prevents the base from riding the floor. The several rails of the combined tilt-table and exercise bar are formed of light-weight material, preferably of metal tubing.

While I have described a desirable embodiment of my invention, it is plain that some changes in form could

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be made without departing from the spirit and scope of the invention, and I therefore do not limit myself to the one form shown and described, nor to anything less than the whole of my invention as herein set forth and as hereinafter claimed, and it is my intention to claim all that may reasonably be included within the spirit of the invention and the scope of the appended claims.

I claim:

1. In a tilt-table of the character described, the combination of a supporting structure with a tilt-table and an exercise bar, wherein the supporting structure comprises opposed vertical legs connected to one another at the upper ends thereof by transverse cross bars and one of the latter carries a pair of hinge ears, the tilt-table comprises a pair of parallel spaced side bars having a foot rest at one end thereof and between which bars is supported a table member and the parallel bars are arranged for horizontal support on the cross bars of the supporting structure, a pair of hinge ears depending one from each parallel bar and having pintle holes aligned with pintle holes in the first mentioned hinge ears, a pintle removably inserted in the pintle holes of the several hinge ears, and a pair of tubular open ended members fixed one to each parallel bar, whereby the supported table is adapted to be tilted from a horizontal position on said supporting structure to a vertical position with its foot rest in close proximity to the floor, and the exercise bar comprises a pair of U bars in parallel arrangement, each having a short arm and an opposed long arm, the short arms being adjustably receivable in the said open ended tubular members and the long arms being adjustably receivable in a pair of floor supported members, the parallel U bars serving to permit limited walking movement of a patient leaving the vertically tilted table.

2. In a tilt-table as set forth in claim 1, wherein the vertical legs of the supporting structure each include a triangular leg member for further support, the latter member having a vertical sleeve portion removably received on the related vertical leg and an angularly disposed arm portion adapted to contact the floor.

3. A tilt-table of the character described, comprising a supporting structure including a box like frame having opposed pairs of vertical legs connected to one another at their upper ends by bars forming a rectangular frame, one of said connecting bars having a pair of hinge ears provided with pintle holes, a table member including a pair of hinge ears provided with pintle holes aligned with those holes of the first mentioned ears and a pintle received in the pintle holes of the aligned ears, the table being adapted to rest in a horizontal position on a pair of the connecting bars, a foot rest at one end of the table, the pintle serving as a pivot for the table and the distance of the pivot from the foot rest being concentric with the distance of the pivot point from the floor and so arranged that the table may be pivoted from a horizontal position to a vertical position so as to bring the foot rest in close proximity to the floor, and the pintle element being readily slidable out of the pintle holes whereby the table may be separated from the supporting structure for easy portage thereof; wherein the vertical legs of the supporting structure each include an auxiliary supporting leg, the latter having a pair of arms meeting at a vertex and one of the arms is slidably received upon the vertical leg and the free ends of both arms of the auxiliary leg are adapted to rest upon the ground, the auxiliary legs serving to prevent the supporting structure from tilting over under any overhanging weight of a patient supported on the table.

4. In a knockdown portable tilt-table comprising a supporting structure of light weight tubular material including two pairs of opposed parallel legs connected to one another by cross bars at the top thereof, one of the cross bars carrying a pair of hinge ears adapted to receive a pintle, a light weight elongated table adapted to rest upon a pair of said cross bars and having on its un-

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derside a pair of hinge ears complementary to those previously mentioned, and a pintle removably received in the said complemented ears and so arranged that the table is pivotable on such pintle from a horizontal position to a vertical position, and the table is separable by removal of the pintle from the ears for separate portage of the table and supporting structure, wherein the table includes a pair of parallel side bars, each bar having a tubular element adapted to assume a vertical position when the table is pivoted to a vertical position, an exercise member including a pair of parallel disposed U bars,

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each having a short arm removably and adjustably received in said tubular element and a long arm adjustably received in a floor stand.

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