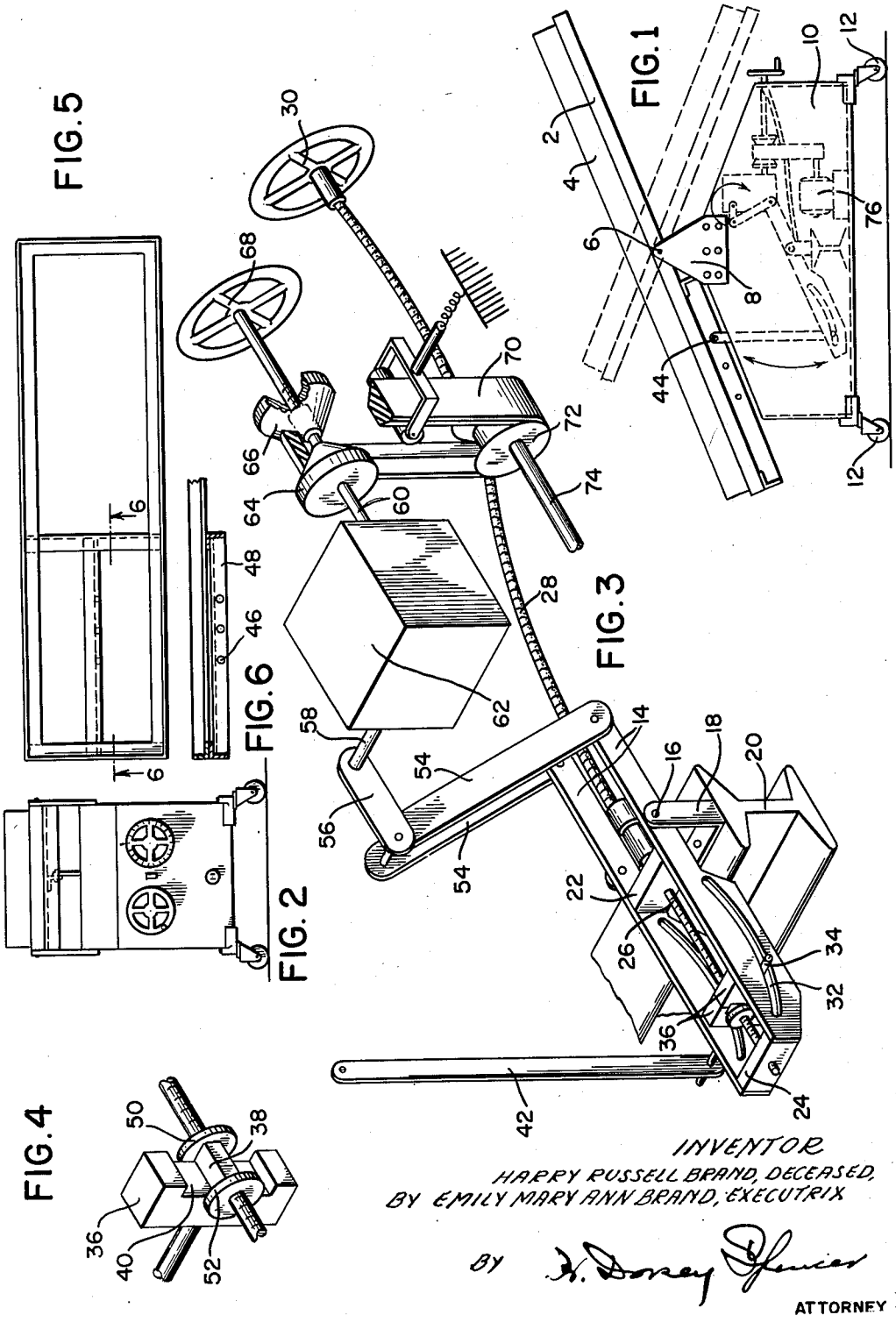
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THERAPEUTIC APPARATUS

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THERAPEUTIC APPARATUS

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2 Claims. (Cl. 128—33)

1

This invention relates to therapeutic appliances and particularly to an appliance which may be used to treat a patient while in a reclining position and in a relaxed condition, both to effect a mild form of exercise of the body muscles and organs and at the same time to assist the circulation of the blood. The invention is particularly directed to a therapeutic appliance which may be used to advantage in the after treatment of patients recovering from poliomyelitis.

A particular object of the invention is to provide a rocking or oscillating couch or bed upon which the patient may recline in a relaxed position and which can be easily adjusted to oscillate through greater or less ranges of movement and with greater or less frequency.

Other objects, advantages and important features of the invention to which reference has not hereinabove specifically been made will appear hereinafter when the following description and claims are considered in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of a therapeutic appliance embodying the present invention, some of the interior mechanism being shown in dotted lines;

Figure 2 is an end elevation of the therapeutic appliance shown in Figure 1;

Figure 3 is an isometric view on a larger scale of the operating mechanism;

Figure 4 is a detail view of an element of the adjusting mechanism;

Figure 5 is a plan view of the oscillating frame, this view being intended to show the different possible points of connection of the link which connects the patient supporting frame to the oscillating mechanism, and

Figure 6 is a section on the line 6—6 of Figure 5.

In the illustrative embodiment of the invention the oscillating frame 2, which supports the mattress 4 on which the patient to be treated rests, is shown as provided with trunnions 6 received in bearings in brackets 8 connected to the side walls of the housing or casing 10 which encloses the operating mechanism. This casing 10 is supported on casters 12 so that the appliance may easily be moved from place to place.

It will be noted that the casing 10, and particularly the side walls thereof, is so shaped as to permit the oscillation of the frame 2 between the full line position shown in Figure 1 and the dotted line position, the illustrative embodiment of the invention showing a maximum angle

2

of swing of each end of the frame 2 of approximately 45°. It will be understood, however, that oscillation through the total angle possible is not necessary and is, of course, not required or desirable for all patients. To this end the connections between the mechanism for producing the oscillations and the oscillating frame 2 have provision for various adjustments to vary the overall angle of swing. As hereinabove suggested there is also provision for adjusting the operation of the mechanism to vary the frequency of the oscillations.

The illustrative mechanism for effecting the oscillation of the frame 2 and thereby the rocking of the patient reclining on the mattress 4 comprises a rocking lever made up of side bars 14 fulcrumed at 16 in a bracket 18, here shown as supported on a section of an I beam 20, the side bars 14 being connected by two cross-bars 22 and 24 in which a screw-threaded shaft or lead screw 26 has its bearings, this shaft having a flexible extension through a flexible housing 28 to a hand wheel 30 mounted upon an end wall of the casing 10, by which wheel 30 the shaft may be turned to effect the adjustment now to be described.

Each of the side bars 14 is provided with a curved slot 32 in which travels a stud 34 carried on one of two blocks 36 making up a carrier or slide for an internally threaded block 38 through which the screw threaded shaft 26 is screwed. Each of the blocks 36 is provided with one half of a vertical slot 40 in which the internally threaded block 38 may move vertically as the slide, made up of the blocks 36, is moved along the shaft 26 to vary the length of the lever arm which transmits motion through the link 42 to the oscillating frame 2. It will be seen that the link 42 is pivotally connected at one end to the stud 34 on one of the blocks 36 and at its other end to a pivot 44 located in one of the pivot receiving openings 46 in an angle bar 48 constituting a part of the oscillating frame 2 and located substantially midway between the sides thereof. Movement of the slide made up of the blocks 36 with the internally threaded block 38 is compelled by the flanges 50 and 52 connected to the ends of the blocks 38 and overlapping the edges of the slot 40.

The other arm of the rocking lever, that is, the arm comprising those parts of the side bars 14 which are on the other side of the fulcrum trunnions 16 from the slide made up of the blocks 36 just described, is connected by links 54 to a crank arm 56 on a shaft 58 between which and

the driving shaft **60** is a reduction gear train, not shown in detail, contained in a reduction gear housing **62**. The shaft **60** has thereon adjustable cones **64** and **66** adjustable through a hand wheel **68** to constitute a variable speed mechanism, the adjustment of the cones **64** and **66** toward each other increasing the diameter of the V-belt pulley thus formed and reducing the speed of transmission through the V-belt **70** from the V-belt pulley **72** of fixed diameter. Adjustment of the cones **64** and **66** away from each other obviously reduces the diameter of the V-belt pulley thus provided and increases the speed of drive of the shaft **60**. The V-belt pulley **72** is mounted on the shaft **74** of the electric motor **76** and is therefore driven by said motor.

From the foregoing description it will be seen that, by adjustment of the slide made up of blocks **36** along the slots **32**, the length of the stroke imparted to the link **42** by each oscillation of the rocking lever can be varied. The slots **32** provide for such adjustment of the stroke of the link **42** without substantial variation in the angular position of the frame **2**, the arc of the slots **32** being substantially the arc of swing of the link **42** about its pivot **44** in the position shown in Figure 1. If, however, the pivot **44** be moved to one of the other openings **46** in the angle bar **48**, a slight angular movement of the frame **2** may take place in the adjustment. It will be seen that, when the parts are in the position shown in Figure 1, that is, with the stud **34** substantially at the left hand end of the slot **32**, approximately the maximum oscillation of the frame **2** will be obtained. Movement of the pivot **34** toward the right hand end of the slot will obviously reduce this angle of oscillation somewhat since the lever arm which acts upon the link **42** will be shortened. A similar reduction in the angle of oscillation can be obtained by moving the pivot **44** to one of the holes **46** on the left hand side of the position thereof shown in Figure 1. This adjustment of the oscillating

stroke of the mechanism is, of course, not so readily made as the adjustment through the hand wheel **30** and is an adjustment that is usually only made when adapting the apparatus to a special patient.

What is claimed as new is:

1. A therapeutic appliance for the purposes set forth having, in combination, a bed and a support therefor on which said bed is pivotally mounted to rock about a horizontal axis of oscillation substantially midway of its length, mechanism in said support for effecting the oscillation of said bed, said mechanism including a rocking lever, a link connecting an arm of said lever with the under side of said bed at one side of the axis of oscillation thereof, means for effecting the rocking of said lever, and means for varying the length of the lever arm between the fulcrum of said rocking lever and the link connection thereto, including a pivot-carrying block, and a guideway therefor concentric with the pivotal connection of the link to the under side of the bed.

2. A therapeutic appliance according to claim 1 in which means for adjusting the pivot-carrying block comprise a lead screw having a vertically slidable connection with said block, and a flexible shaft extending to the outside of said support for turning said lead screw.

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Executrix of the last will and testament of Harry Russell Brand, deceased.

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