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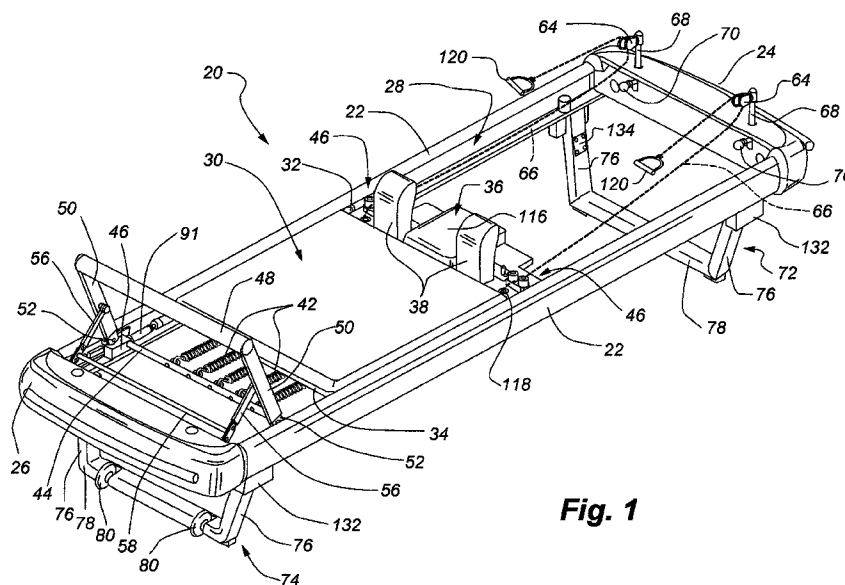


Fig. 1

(57) Abstract: An exercise table which finds use in Pilates exercising includes an outer framework, a slidably movable support platform, and a foot bar against which a user's feet can be engaged while sliding the support platform against the bias of springs by extending and retracting the user's legs. The frame has supporting legs which are tapered inwardly and downwardly so that one exercise table can be nestably stacked on another by inserting the tapered legs of an overlying exercise table through an opening in the frame of an underlying table until the frames themselves are closely adjacent. The foot bar, shoulder blocks, and pulleys used in operation of the table are also movable between elevated use positions and lowered storage positions to facilitate closely adjacent nestable stacking of identical exercise tables.

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EXERCISE TABLE

BACKGROUND OF THE INVENTION

Field of the Invention

5 The present invention relates generally to exercise equipment and more particularly to an exercise table commonly referred to as a “Reformer” and used in Pilates type exercise. The table includes an outer framework with a reciprocating spring-biased support platform or carriage on which a user is supported for reciprocating movement and a foot bar against which the user may engage his or her feet. A pair of legs at the head and foot of the table support the framework with the legs being tapered. An opening through the frame is
10 provided vertically above each leg so inserting the legs of an overlying table through an opening in the frame of an underlying table and into closely adjacent relationship with the legs of the underlying table can nestably stack a plurality of the tables. The table includes other features for facilitating nestable stacking.

Description of the Relevant Art

15 Exercise by human beings has become increasingly popular for health and other related reasons. Such exercise takes numerous forms including aerobics, strengthening, and more recently exercises related to Pilates, Gyrotonics and the like. Some of these exercises can be done without equipment while others require equipment. Some exercises associated with Pilates require a table having a spring-resisted platform on which a user lies. A foot bar
20 against which the user can apply pressure to reciprocally move the platform is provided along with a hand-pulled rope for the same purpose. An exercise table for use in such exercises is commonly referred to as a “Reformer.” Inasmuch as the Reformers can be used in home or in a classroom setting where there are numerous such Reformers, storage for the Reformers becomes an issue. For example, a Reformer, if used in a class setting, requires substantial
25 space for storage because there is a plurality of such Reformers. The Reformers preferably include a generally horizontal frame that is supported by legs, which elevate the frame to an operating height. When the Reformers are stacked for storage purposes, the legs rest on the underlying frame of an adjacent Reformer so the full height of the Reformer is required in a stack of such Reformers. Accordingly, while the Reformer itself serves a very useful
30 purpose, it would be far more desirable if it could be stored in a manner requiring less space

while also being configured at the desired working height, which of course is valuable in exercise facilities such as health clubs.

It is to provide an improved Reformer that can be stored in a relatively small amount of space that the present invention has been developed.

5

SUMMARY OF THE INVENTION

The exercise table or "Reformer" of the present invention is similar to Reformers known in the art in that it includes a peripheral rectangularly-shaped frame defining longitudinal tracks on opposite sides and head and foot end components. Adjacent the foot component of the frame, a pivotal foot bar is adjustably positioned at a location for engagement by a user of the table with the user lying on a reciprocable platform that is spring biased toward the foot end of the frame but supported on rollers which ride in the longitudinal tracks of the frame. In this manner, an individual lying on the platform with his feet against the foot bar can extend his legs causing the platform on which he is seated to roll longitudinally of the table against the spring bias and return when the user's legs are again bent. The foot bar is adjustable between different use positions and also a storage position in which the foot bar rests upon the platform in contiguous relationship therewith and closely adjacent to the horizontal plane of the framework.

The support platform also includes a coplanar head rest and a pair of pivotally mounted shoulder blocks which are movable between a use position wherein they extend vertically upwardly above the plane of the support platform for engagement by a user's shoulders and a folded position where they are substantially coplanar with the support platform and the horizontal plane of the framework for storage purposes.

Vertically adjustable pulleys are also mounted on the head end component of the framework and are telescopically movable between an elevated use position and a lowered storage position with the lowered storage position being closely adjacent to the horizontal plane of the frame. In the elevated position, the pulleys cooperate with hand-manipulated ropes for also moving the support platform against the spring bias.

It will be appreciated from the above that while the foot bar, the shoulder blocks, and the pulleys can be elevated for use in operating the exercise table, they can also be lowered into a storage position closely adjacent to the horizontal level of the frame of the exercise table to minimize the space occupied when the exercise tables are stacked in storage.

The frame for the exercise table is supported at opposite ends with head and foot legs, which have downwardly and inwardly inclined side components and a horizontal bottom component, which interconnects the two side components. An opening is defined in the

framework in vertical alignment with each leg so that exercise tables in accordance with the invention can be stacked on each other with the tapered legs of an overlying table passing through an associated opening of an underlying table and into closely adjacent relationship with the legs of the underlying table. In other words, the tables are allowed to nest and can
5 be closely stacked with each other not only due to the tapered configuration of the legs which permits nesting but also the movable positioning of the foot bar, the shoulder blocks, and the pulleys.

Other aspects, features, and details of the present invention can be more completely understood by reference to the following detailed description of the preferred embodiment,
10 taken in conjunction with the drawings and from the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an isometric view of the exercise table of the present invention in a use position.

Fig. 2 is a fragmentary isometric similar to Fig. 1 looking from a different direction.

15 Fig. 3 is a top plan view of the exercise table as shown in Fig. 1.

Fig. 4 is a front-end elevation of the table of Fig. 3.

Fig. 5 is an enlarged fragmentary section taken along line 5-5 of Fig. 3.

Fig. 5A is an enlarged fragmentary section taken along line 5A-5A of Fig. 3 showing the pulleys of the head end component of the frame in an elevated position.

20 Fig. 5B is a section similar to Fig. 5A showing the pulleys in a lowered position.

Fig. 6 is a fragmentary side elevation illustrating the pivotal movement of the foot bar and the shoulder blocks.

Fig. 7 is an enlarged section taken along line 7-7 of Fig. 6.

25 Fig. 8 is a section similar to Fig. 7 illustrating the lock pin for the shoulder blocks in a retracted position.

Fig. 9 is an isometric similar to Fig. 1 showing the foot bar, shoulder blocks, and pulleys in a lowered storage position.

Fig. 10 is an enlarged section taken along line 10-10 of Fig. 9.

Fig. 11 is an enlarged section taken along line 11-11 of Fig. 9.

30 Fig. 12 is an isometric similar to Fig. 9 showing two identical exercise tables in nestably stacked relationship.

Fig. 13 is an enlarged fragmentary section taken along line 13-13 of Fig. 12.

Fig. 14 is an enlarged section taken along line 14-14 of Fig. 13.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring first to Fig. 1, an exercise table 20 of the "Reformer" type is illustrated as having a peripheral frame with a pair of longitudinally extending side components 22, a head component 24 and a foot component 26. The side frame components have inwardly opening channels 28 which define tracks on which a support platform 30 is supported with rollers 32 (Fig. 2). The support platform includes a rigid structural panel 34 (Fig. 5) of generally rectangular configuration having a strength and size to substantially support the back of the user of the table. At the head end of the panel, a head support 36 is centrally positioned for supporting a user's head and on opposite sides of the head support are a pair of shoulder blocks 38 which are pivotally mounted in a manner and for a purpose to be described hereafter. Positioned adjacent to the shoulder blocks are conventional rope locks 40 on each side of the panel also for a purpose to be described hereafter. The panel 34 has anchored thereto one end of a plurality of coil springs 42 whose opposite ends are secured to an anchor rod 44 having its opposite ends secured to anchor blocks 46 slidably supported within the channels 28 of the side frame components. In this manner, it will be appreciated the support platform can be moved by rolling it along the side frame components toward the head end of the frame against the bias of the coil springs which will automatically return the platform toward the foot end when the counter bias force is released.

Near the foot end of the frame, a foot bar 48 is mounted on the end of a pair of parallel side links 50 whose lower ends are supported on pivot pins 52 (Fig. 1) secured to brackets 54 anchored to the side frame components 22. The foot bar and side links therefore define a generally inverted U-shaped structure which pivots about the pivot pins in selected ones of a plurality of use positions to be described hereafter and a storage position as shown for example in Fig. 9. Adjustment arms 56 are pivotally connected to the side links at an intermediate location along the length of each side link and have their lower ends interconnected by a support bar 58 with the lower end of each adjustment arm having a hook-shaped catch 60, as seen for example in Fig. 5, for releasable support on one of a plurality of vertically spaced support pins 62 anchored to the foot frame component 26 so the inclination of the side links and the spacing of the foot bar from the support platform 30 can be releasably adjusted. Further, the foot bar can be pivoted into the storage position of Fig. 9 by rotating the foot bar in a clockwise direction, as illustrated in Fig. 6, until it rests on the support platform as shown in Fig. 9.

In the head component 24 of the frame, a pair of vertically adjustable pulleys 64 are mounted for cooperation with flexible ropes 66 (Fig. 1) with the pulleys each being mounted on a vertical post 68 that is movable between an elevated use position, as shown in Fig. 1, and a lowered storage position as shown in Fig. 5B. The pulleys can be locked in their use position with a lock pin 70 in a manner to be described hereafter and will remain in the storage position by gravity.

A head support leg 72 and a foot support leg 74 are secured to and depend downwardly from the side frame components 22 near the head and foot of the frame with each leg having inwardly and downwardly tapered side elements 76, the upper ends of which are anchored to an associated side frame component, and an interconnecting lower element 78 so the support legs are generally trapezoidal in configuration. The support leg 74 at the foot end of the exercise table has a pair of rollers 80 rotatably mounted thereon so the table can be easily rolled between desired locations by lifting the head end of the table and rolling the table along a support surface with the rollers.

As will be appreciated with the more detailed description of the exercise table hereafter, since various components of the exercise table are movable between use and storage positions and the support legs are tapered and vertically aligned with openings through the frame, the tables can be nestably stacked with identical tables to save on storage space.

Looking more particularly at the foot end component 26 of the frame, as probably best seen in Fig. 2, it can be seen to be a substantially hollow generally U-shaped component having openings at opposite ends for frictional receipt of the side components 22 of the frame so the foot end component establishes an end cap at the foot end of the frame, which could also be mechanically secured. Within the foot end component, a pair of brackets 82 (Figs. 2 and 6) are disposed adjacent each end with the brackets supporting the three horizontally disposed but vertically displaced support pins 62 which are adapted to releasably receive the hook-shaped catch 60 of an adjustment arm 56. As mentioned previously, the hook or catch on the end of the adjustment arms can thereby be releasably positioned on any one of the three support pins thereby selectively and temporarily positioning the location of the foot bar 48 at different elevations and spacings from the support platform 30 due to the pivotal mounting of the foot bar. Of course, when the hook-shaped ends of the adjustment arms are completely released from a support pin, the foot bar can be pivoted in a clockwise direction as shown in Fig. 6 until the foot rod rests upon the support platform in the storage position of the foot bar.

The support platform 30 itself is possibly best understood by reference to Fig. 5 where it can be seen to include the generally rectangularly shaped rigid panel 34 upon which is disposed a padded cover 84 on the foot end thereof on which a user of the exercise table 20 can position his or her body. The panel extends beyond the pad toward the head end of the frame so as to define a ledge 86 on which the head support 36 and the shoulder blocks 38 are mounted along with the rope locks 40. An L-shaped bracket or bar 88 is transversely supported underneath the panel 34 and defines an anchor for one end of the coil springs 42 with the opposite end of the coil springs being connected to anchor loops 90 on the transverse anchor rod 44, which as previously noted is secured at its opposite ends in anchor blocks 46 slidably positioned within the side components 22 of the frame. Shock absorbers 91 (Fig. 1) are secured to the foot end of the support platform to cushion contact of the support platform with the sliding blocks 46 and also establish a uniform spacing between the support platform and the anchor bar 44 when the support platform is fully retracted as shown in Fig. 1. In this manner, it will be appreciated the support platform is biased toward the foot end of the frame by the coil springs and the panel itself is supported for rolling movement along the side frame components by rollers 32 at each end and on each side of the panel with only a roller at the head end of the panel being shown for example in Figs. 5 and 6. Horizontal rollers (not seen) for guiding the rolling movement of the support platform are also provided for engagement with vertical walls of the side components 22.

The anchor blocks 46 are slidably mounted (Fig. 5) on a grooved plate 92 in each side frame component 22 with the groove having a longitudinally extending element 94 and four downwardly extending notches 96, for example, in Figs. 5 and 6. A slide pin on the outside of the anchor blocks (not shown) is received within the groove so it can slide along the longitudinal element 94 of the groove and be releasably and selectively positioned in any one of the four downturned notches 96. In Figs. 5 and 6, the slide pin is positioned within the notch closest to the head end of the frame even though, as mentioned, it can be positioned in any of the four notches, which adjusts the position of the foot end of the coil springs 42 so the device can accommodate individuals of different heights. In other words, a shorter individual would probably position the anchor blocks 46 in the notch closest to the foot end of the frame, while a taller individual might position the anchor blocks as illustrated in Figs. 5 and 6 where the support platform 30 is spaced a greater distance from the foot bar 48.

With reference to Figs. 6, 7, and 8, each shoulder block 38 can be seen to include a rigid backing plate 98 on which a pad 100 is mounted and covered. The pad of course faces the foot end of the table so as to engage a user's shoulders when the user is lying on the

support platform 30 on his or her back and with his or her feet resting on the foot bar. As mentioned previously, the shoulder blocks are pivotal between a use position as illustrated in Figs. 6-8, and a storage position as seen in Fig. 9. Each shoulder block has its rigid plate secured along a lower edge to a hinge 102 that is also secured to the panel 34 of the support platform, and each shoulder block includes an arcuate guide 104 which is secured to the rigid plate 98 of the associated shoulder block and extends through a slotted opening 106 provided in the panel of the support platform. The arcuate guide has a transverse hole 108 through a lower end thereof, which selectively and releasably receives a lock pin 110 (Figs. 7 and 8). The lock pin is slidably and transversely mounted within the panel as probably best illustrated in Figs. 7 and 8. It will there be seen that the lock pin has a cylindrical shaft 112 and a handle 114 radially disposed thereon with the handle projecting above the panel for access by a user. The handle can slide the lock pin axially between a locking position shown in Fig. 7 and a release position as shown in Fig. 8. When it is desired to elevate the shoulder blocks so they are useful in operation of the exercise table, the shoulder block can be pivoted into its raised use position and then the lock pin is biased by a spring 115 to the locking position of Fig. 7 so the pin snaps into the hole 108 in the arcuate guide and thereby retains the shoulder block in the elevated use position. Of course, for storage purposes, the lock pins are used to release the associated shoulder blocks so they can be pivoted downwardly into the storage position of Fig. 9 where they remain by gravity.

The head support 36 (Figs. 1 and 2) also has a rigid back plate, which is not seen, and a pad 116 mounted on the upper surface thereof and is secured to the panel 34 of the support platform 30 in any suitable manner.

The rope locks 40 (Figs. 1 and 2) disposed adjacent to the pivotal shoulder blocks 38 are conventional rope lock items having two slightly spaced eccentric cams which are rotatable about vertical axes and cooperate with ropes, cords, or the like in securing the ropes 66 to the rope lock at a desired position along the length of the rope. Such rope locks are commonly used on sailboats or the like. The ropes 66 with which the rope locks cooperate are shown only in Fig. 1 and are passed upwardly through a hole 118 in the panel 34 adjacent a rope lock with one free end of the rope hanging beneath the platform. The other end of the rope is extended through the rope lock, where it can be gripped at any location along its length, then to the head end of the frame where it passes around an associated pulley 64 and returned loosely toward the support platform 30. The end of the rope returned toward the support platform has a handle 120 for gripping by a user. In this manner, a user positioned on the platform can reciprocate the platform by engaging the foot

bar 48 with his or her feet while extending and retracting his/her legs and/or pull and release the ropes 66 to effect the same movement.

It is probably best appreciated by reference to Figs. 5A and 5B, the pulleys 64 at the head end of the frame, as previously mentioned, have vertical support posts 68 which are
5 movable between the elevated position shown in Fig. 5A and a lowered position shown in Fig. 5B. The elevated position, of course, is used when the device is in use so the pulley is free to receive the previously discussed rope 66 and the lowered position of Fig. 5B is used when the table is being stored and stacked on similar tables.

Each support post 68 is generally cylindrical in configuration with the pulley 64 being
10 anchored at the top of the post in a laterally projecting direction toward the foot end of the exercise table in any suitable manner. The lower end of the support post has a circumferential groove 122 formed therein with the groove adapted to cooperate with the lock pin 70 that is mounted within a horizontally disposed cylindrical neck 124 on a receiving cylinder 126 having a vertically extending cylindrical recess 128 for slidably receiving the
15 support post. The lock pin can therefore be moved between a locking position of Fig. 5A and a release position of Fig. 5B so that in the release position, the support post can be moved upwardly or downwardly within the recess. In the raised position of Fig. 5A, the lock pin can be advanced into the circumferential groove 122 to hold the post in an elevated use position but with the lock pin released, the post can be lowered into the storage position of Fig. 5B
20 where it remains by gravity and friction.

As possibly best appreciated by reference to Fig. 3, the frame defines an open space 130 vertically above each support leg 72 and 74 so that identical exercise tables can be stacked on each other as seen in Figs. 12-14 by inserting the legs of an overlying exercise table through the open space above the support legs of an underlying table until four support
25 pads 132 (Figs. 1, 2, and 11-14) on the underside of the side frame components 22 at opposite ends thereof abut the top surface of the side frame component of the underlying exercise table. In this same position, centering pads 134 on the inner surface of the tapered side elements 76 of the legs of the underlying exercise table guide an outer surface of the tapered side elements of the legs of the overlying exercise table as best appreciated by reference to
30 Fig. 14 when tables are being stacked. As also appreciated in Fig. 14, the legs can have support feet 136 secured thereto if desired. As previously mentioned, and as clearly illustrated in Fig. 14, the leg 74 at the foot end of the frame has the rollers 80 which are rotatably mounted so the exercise table can be moved from one location to another by

elevating the head end of the frame and rolling the frame on a support surface with the rollers.

As can be appreciated by reference to Figs. 12-14, when one exercise table is nestably stacked in another, they are in closely adjacent relationship partially due to the fact that the support legs 72 and 74 are nestable and also due to the fact that the foot bar 48, shoulder blocks 38, and pulleys 64 can be lowered into storage positions that are very close to the top surface of the frame. In fact, the foot bar, shoulder blocks, and pulleys only extend above the horizontal plane of the frame by a distance which corresponds with the height of the support pads 132 on which one frame rests on another frame. It will also be appreciated that when the tables are nestably stacked they occupy far less space than if they could not be nestably stacked and, accordingly, a significant number of the exercise tables can be stored in a health club or the like in a relatively small space.

Although the present invention has been described with a certain degree of particularity, it is understood the disclosure has been made by way of example and changes in detail or structure may be made without departing from the spirit of the invention as defined in the appended claims.

CLAIMS

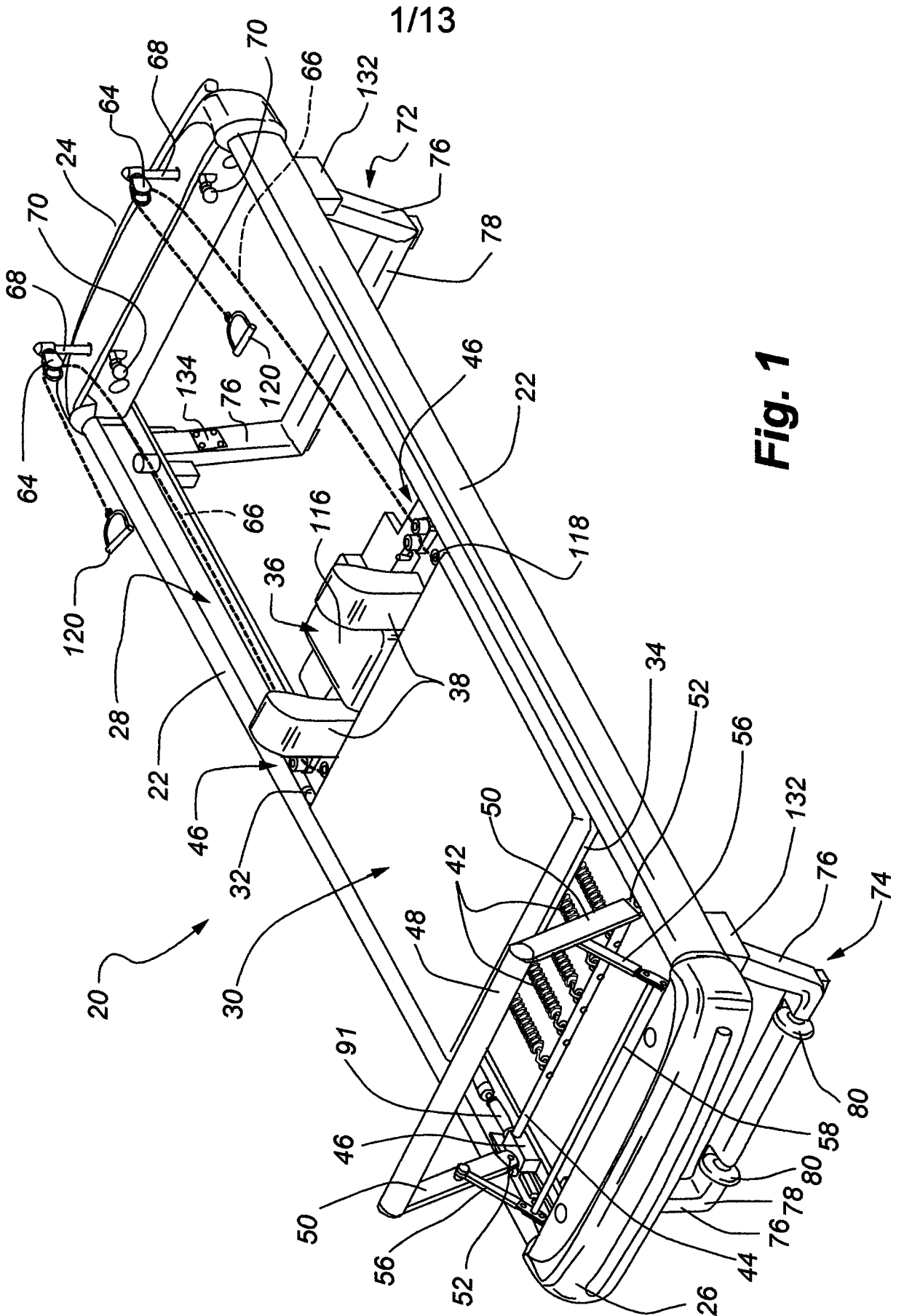
1. An exercise table comprising in combination:
 - a substantially horizontally disposed frame defining tracks along opposite longitudinal sides thereof and having a head and foot end,
 - a support platform mounted for reciprocal movement along said tracks.
 - a foot bar near said foot end of said frame, and
 - legs near said head and foot end of said frame, said legs being downwardly and inwardly tapering, wherein said frame includes openings in vertical alignment with said legs whereby identical tables can be nestably stacked with the legs of an overlying table projecting through said openings of an underlying frame into adjacent relationship with the legs of said underlying table.
2. The table of claim 1 wherein said legs further include a substantially horizontal component and downwardly and inwardly tapering side components interconnected with said substantially horizontal components.
3. An exercise table comprising in combination:
 - a substantially horizontally disposed frame defining tracks along opposite longitudinal sides thereof and having a head and a foot end,
 - a support platform mounted for reciprocal movement along said tracks, said platform including shoulder rests normally projecting substantially above the remainder of said platform, said shoulder rests being movable to a position close in height to the height of the remainder of said platform such that the frames of vertically stacked identical tables can be positioned in parallel closely adjacent relationship.
4. The table of claim 3 wherein said shoulder rests are hingedly connected to the remainder of said platform.
5. The table of claim 4 further including legs near said head and foot end of said frame, said legs tapering inwardly and downwardly from said frame, and said frame including openings vertically above said legs whereby identical tables can be nestably stacked with the legs of an overlying table projecting through said openings of an underlying table into adjacent relationship with the legs of said underlying table.
6. The table of claim 1 further including pulleys projecting above said frame, said pulleys being vertically movable to adjust the elevation of said pulleys above said frame.

7. The table of claim 6 wherein said pulleys are telescopically movable relative to said frame.

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1. An exercise table comprising in combination:
 - a substantially horizontally disposed frame defining tracks along opposite longitudinal sides thereof and having a head and foot end,
 - a support platform mounted for reciprocal movement along said tracks.
 - a foot bar near said foot end of said frame, and
 - legs near said head and foot end of said frame, said legs being downwardly and inwardly tapering, wherein said frame includes openings in vertical alignment with said legs whereby identical tables can be nestably stacked with the legs of an overlying table projecting through said openings of an underlying frame into adjacent relationship with the legs of said underlying table.
2. The table of claim 1 wherein said legs further include a substantially horizontal component and downwardly and inwardly tapering side components interconnected with said substantially horizontal components.
3. An exercise table comprising in combination:
 - a substantially horizontally disposed frame defining tracks along opposite longitudinal sides thereof and having a head and a foot end,
 - a support platform mounted for reciprocal movement along said tracks, said platform including hingedly mounted shoulder rests normally projecting substantially above the remainder of said platform, said shoulder rests being pivotally movable to a position close in height to the height of the remainder of said platform such that the frames of vertically stacked identical tables can be positioned in parallel closely adjacent relationship.
4. *Cancelled.*
5. The table of claim 3 further including legs near said head and foot end of said frame, said legs tapering inwardly and downwardly from said frame, and said frame including openings vertically above said legs whereby identical tables can be nestably stacked with the legs of an overlying table projecting through said openings of an underlying table into adjacent relationship with the legs of said underlying table.
6. The table of claim 1 further including pulleys between extended and retracted positions on said frame, said pulleys being vertically movable to adjust the elevation of said pulleys above said frame, and wherein in said retracted position said pulleys lie beneath the frame of an identical table stacked vertically thereon.

7. The table of claim 6 wherein said pulleys are telescopically movable relative to said frame.



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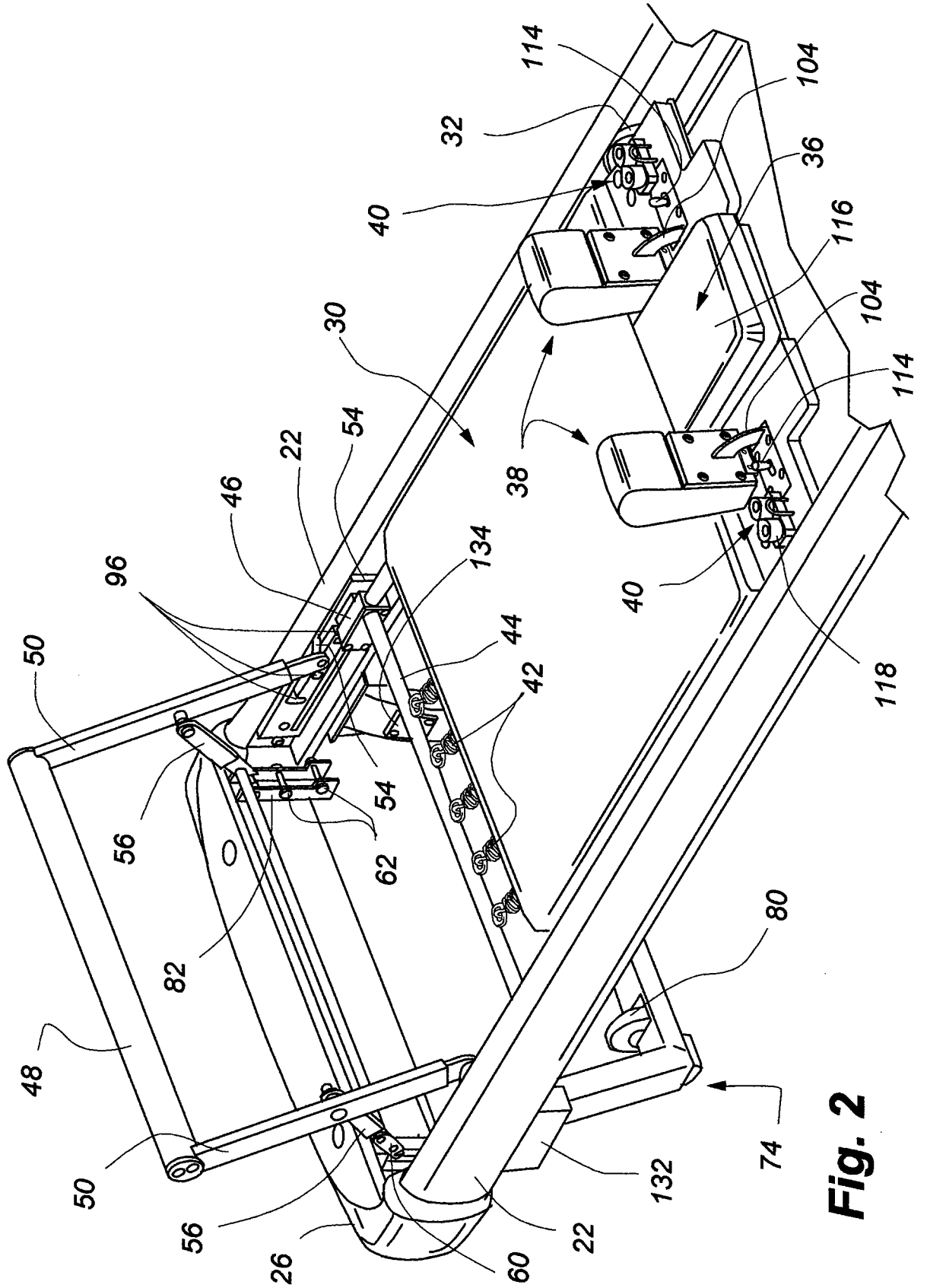
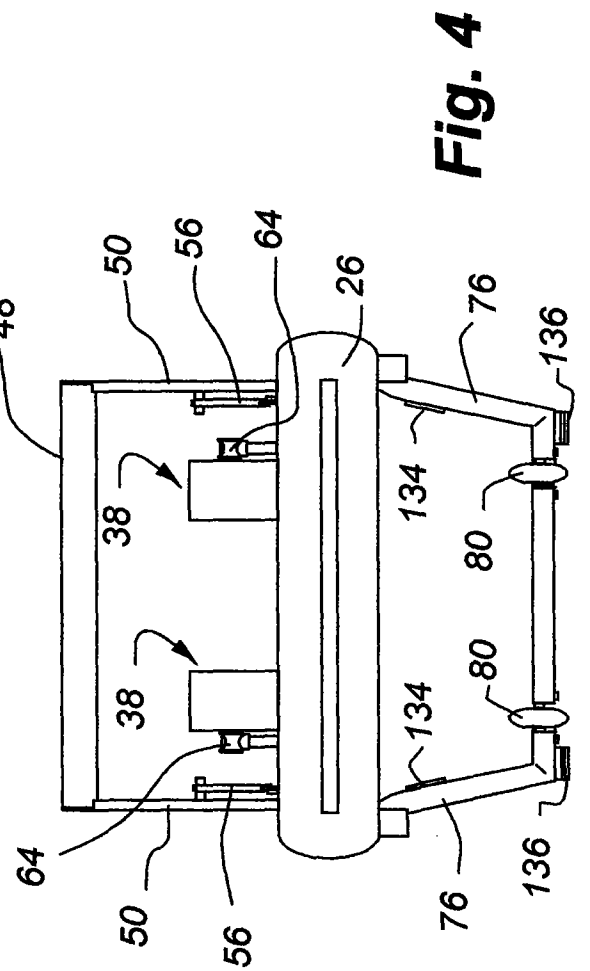
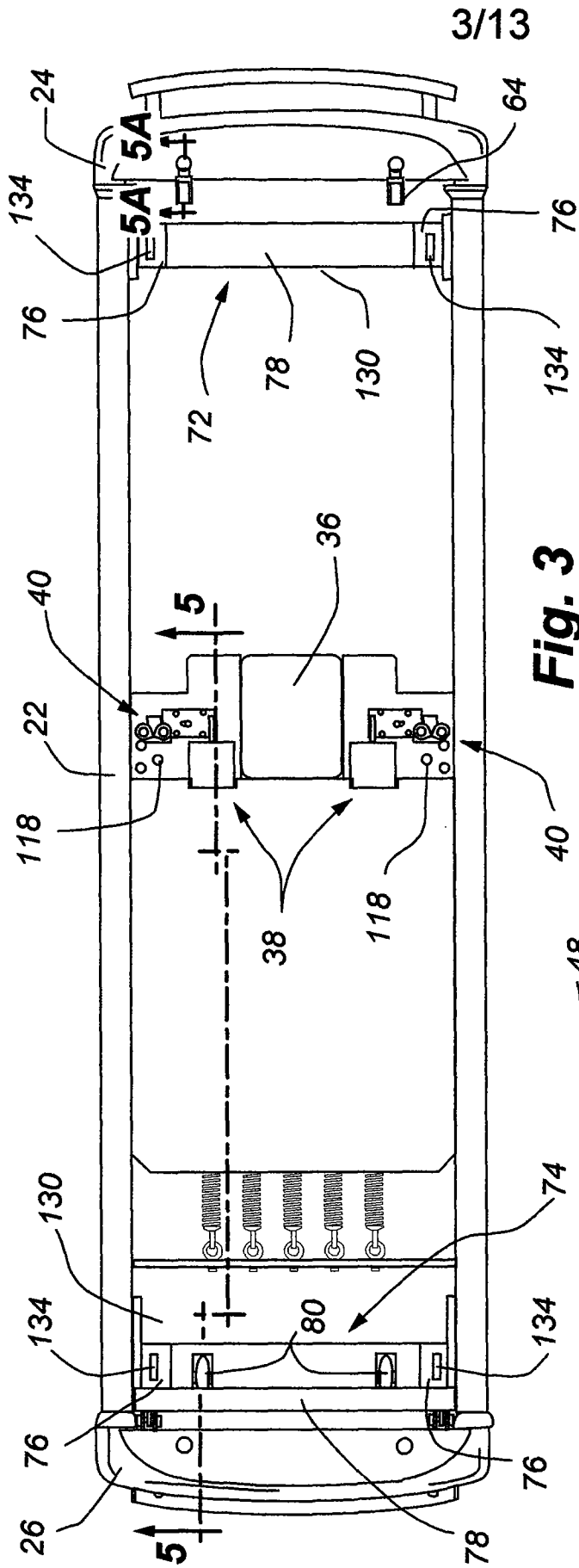


Fig. 2



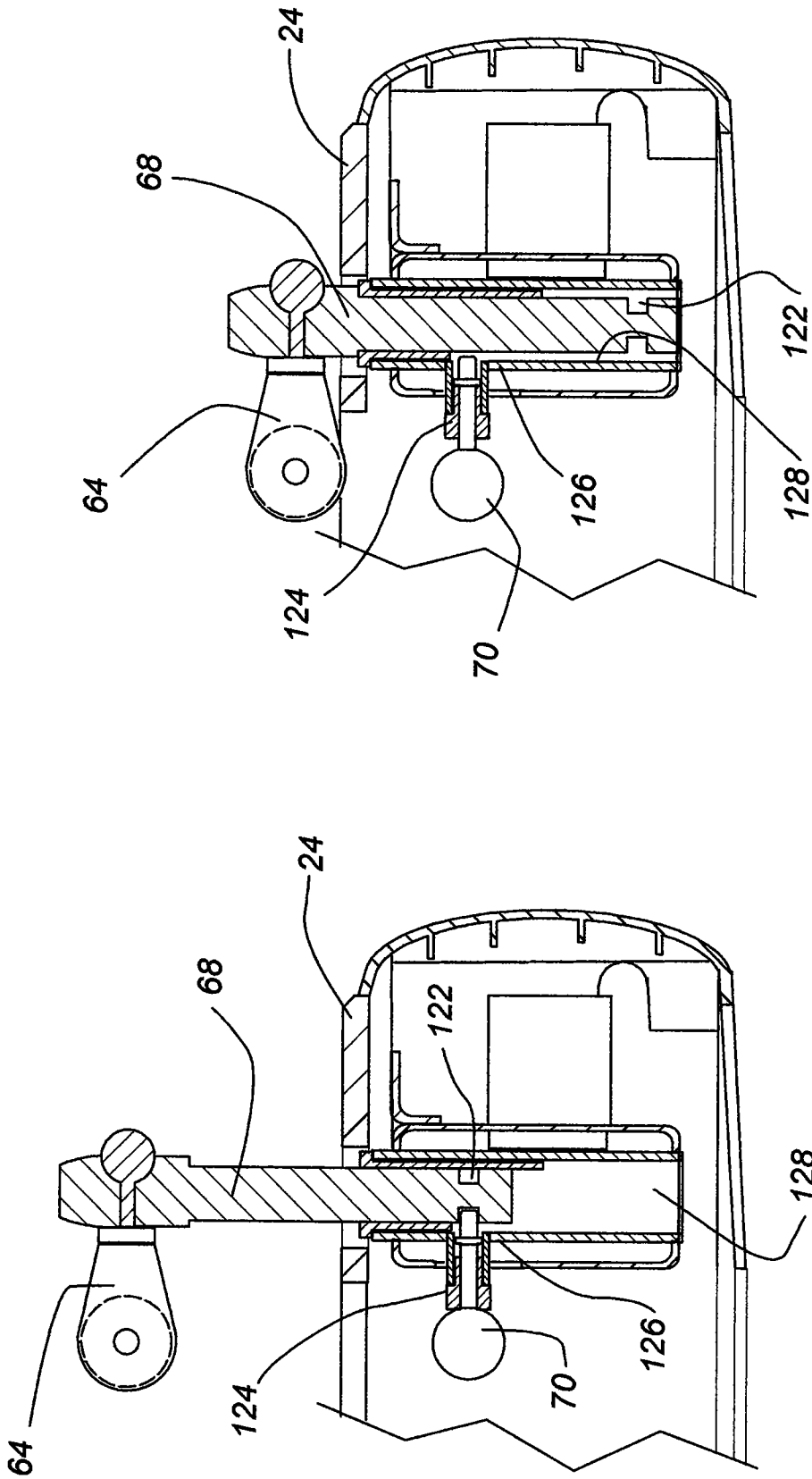


Fig. 5B

Fig. 5A

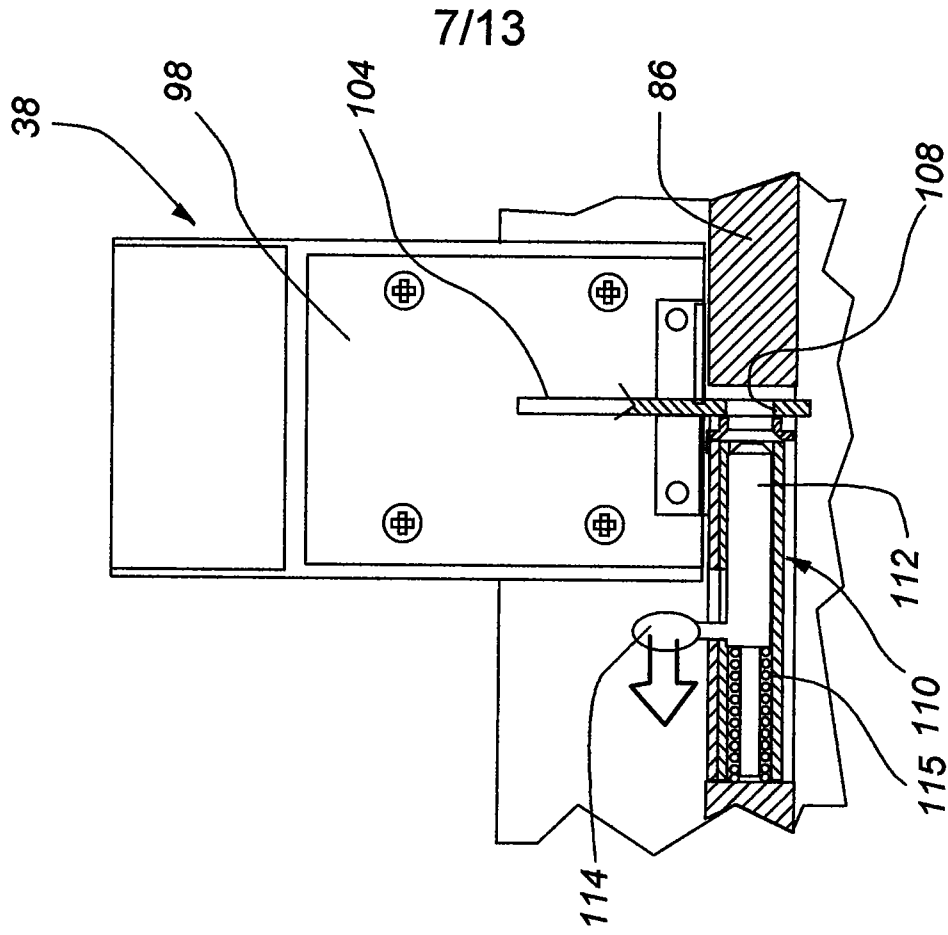


Fig. 8

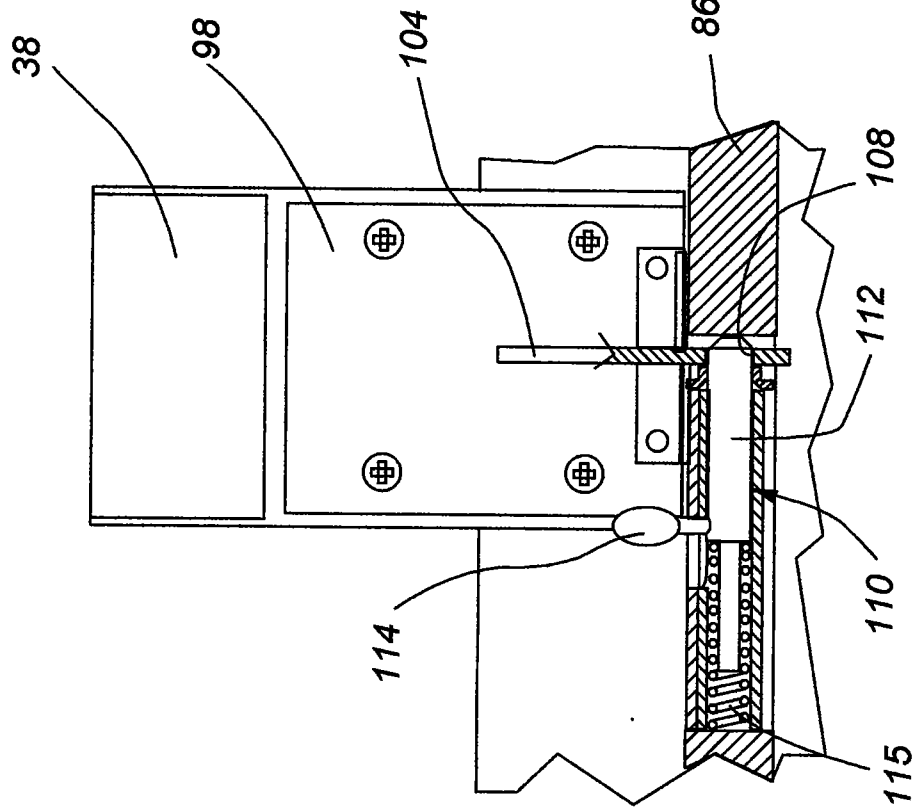


Fig. 7

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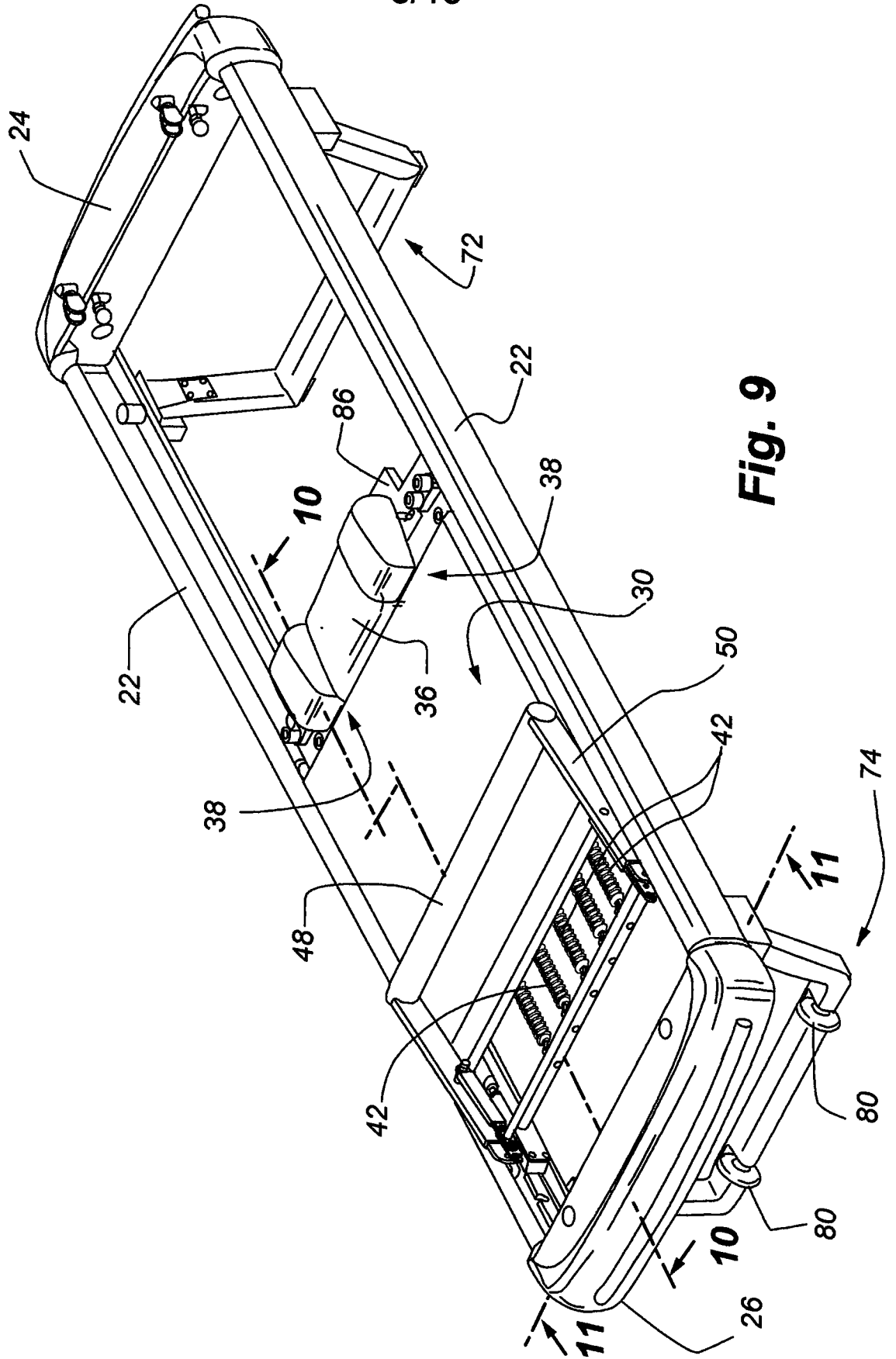


Fig. 9

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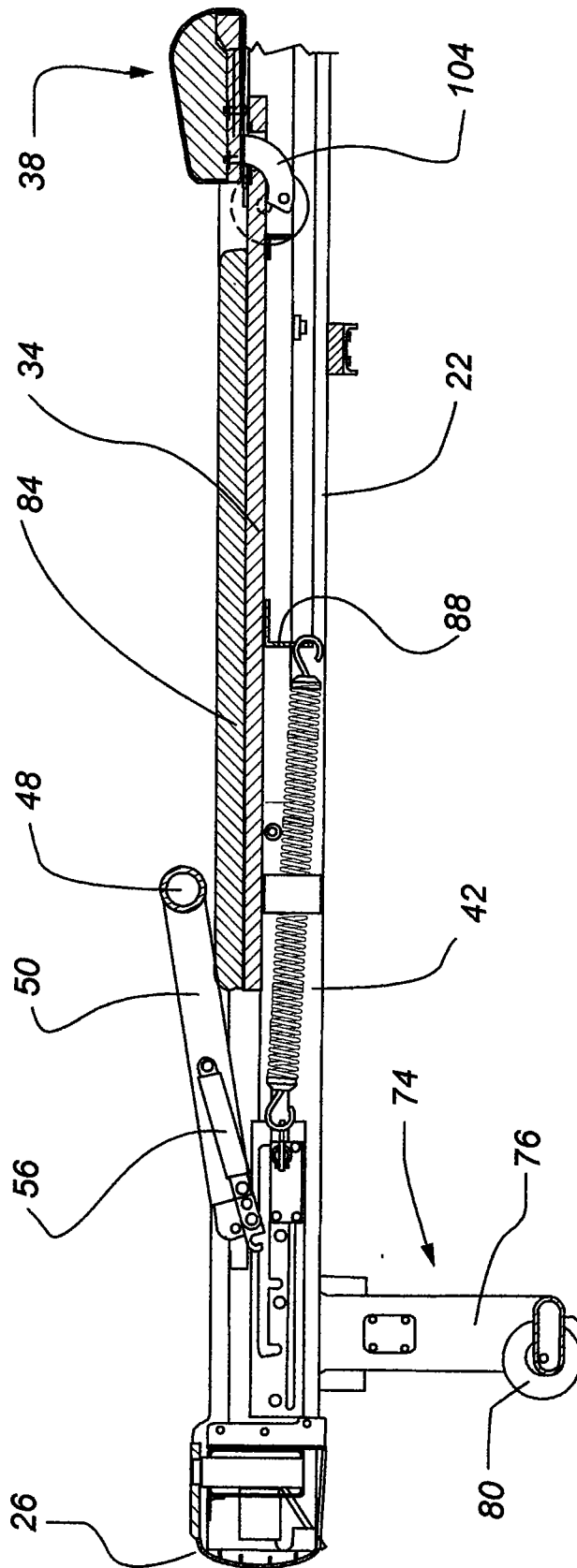


Fig. 10

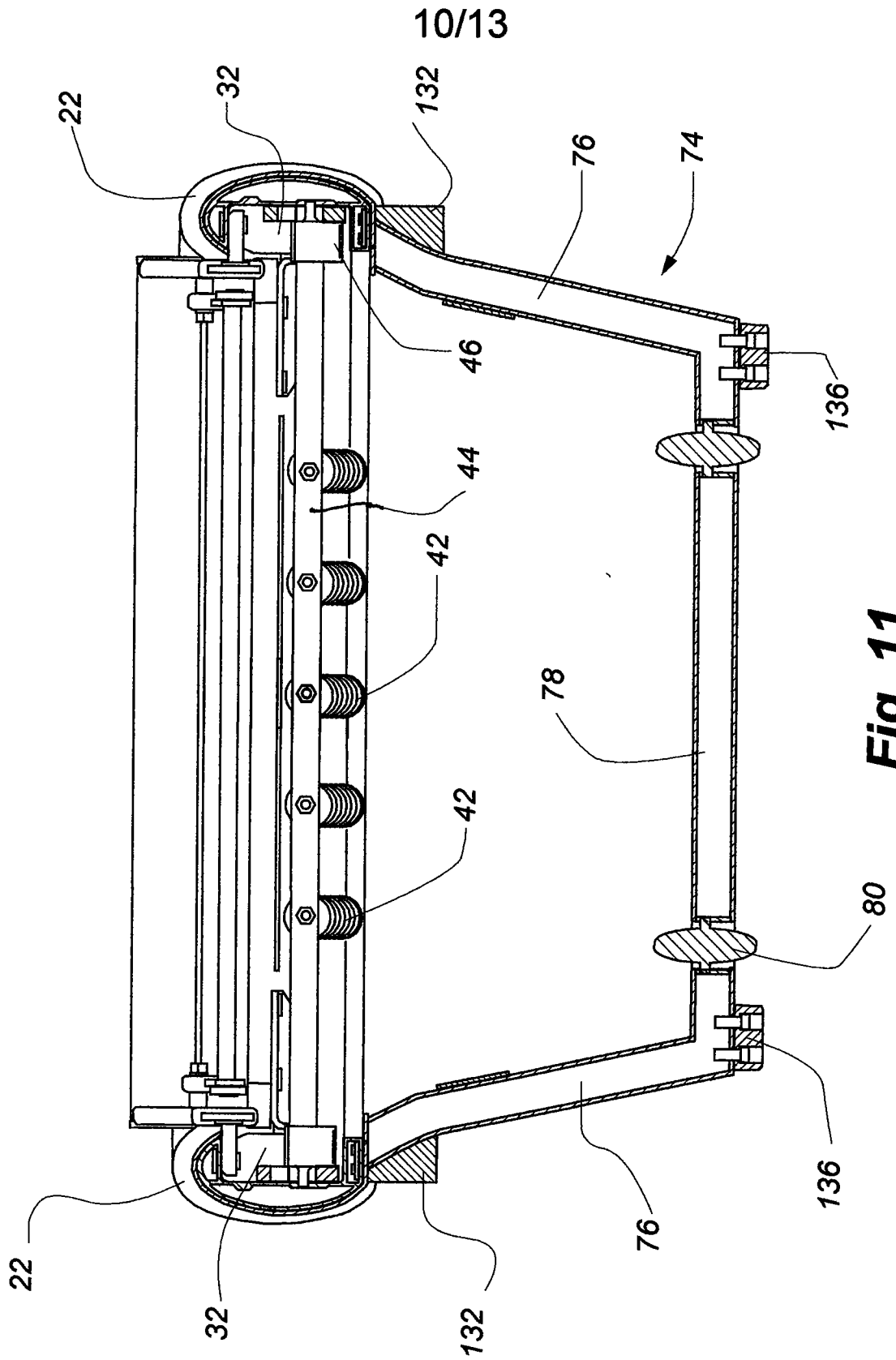


Fig. 11

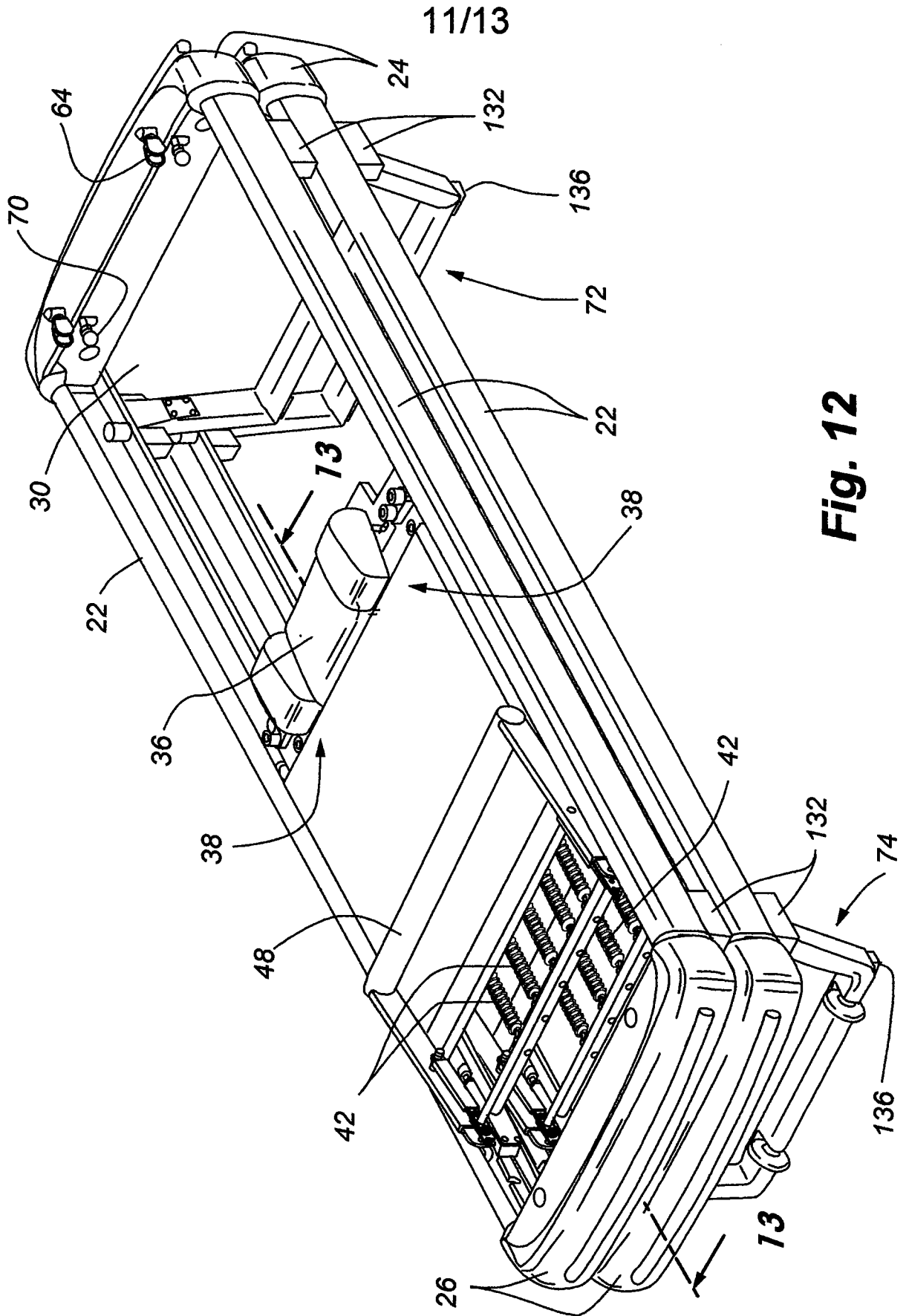


Fig. 12

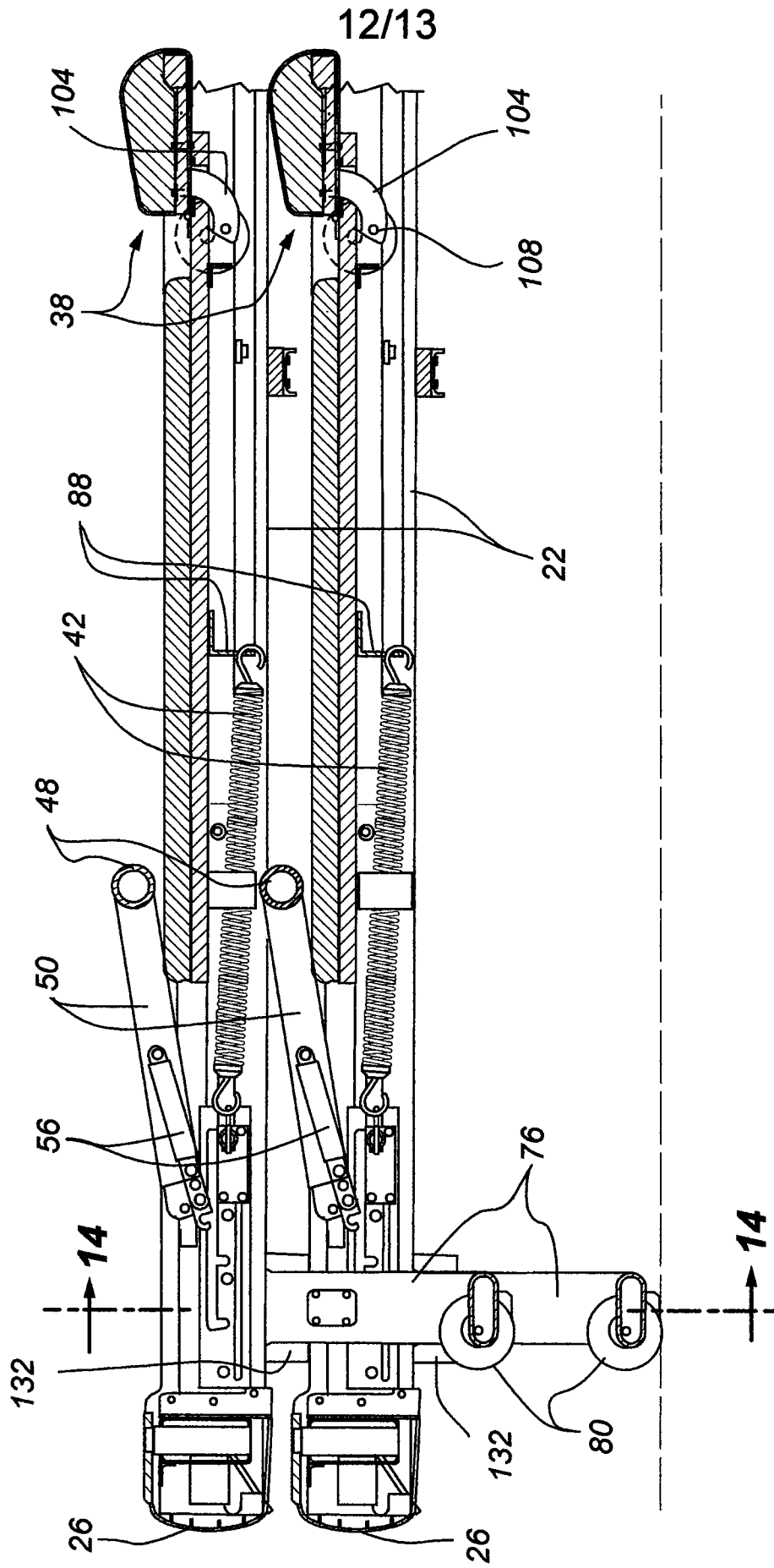


Fig.13

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/84230

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A63B 21/00 (2008.04)

USPC - 482/121

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) - A63B 21/00 (2008.04)

USPC - 482/121

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PatBase

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2001/0056011 A1 (ENDELMAN et al) 27 December 2001 (27.12.2001) entire document	1, 3-7
Y		2
Y	US 5,792,033 A (MERRITHEW) 11 August 1998 (11.08.1998) entire document	2

 Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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Date of the actual completion of the international search

07 May 2008

Date of mailing of the international search report

23 MAY 2008

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