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(54) **PORTABLE LOW IMPACT EXERCISE
SYSTEM**

(52) **U.S. Cl.**

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(57)

ABSTRACT

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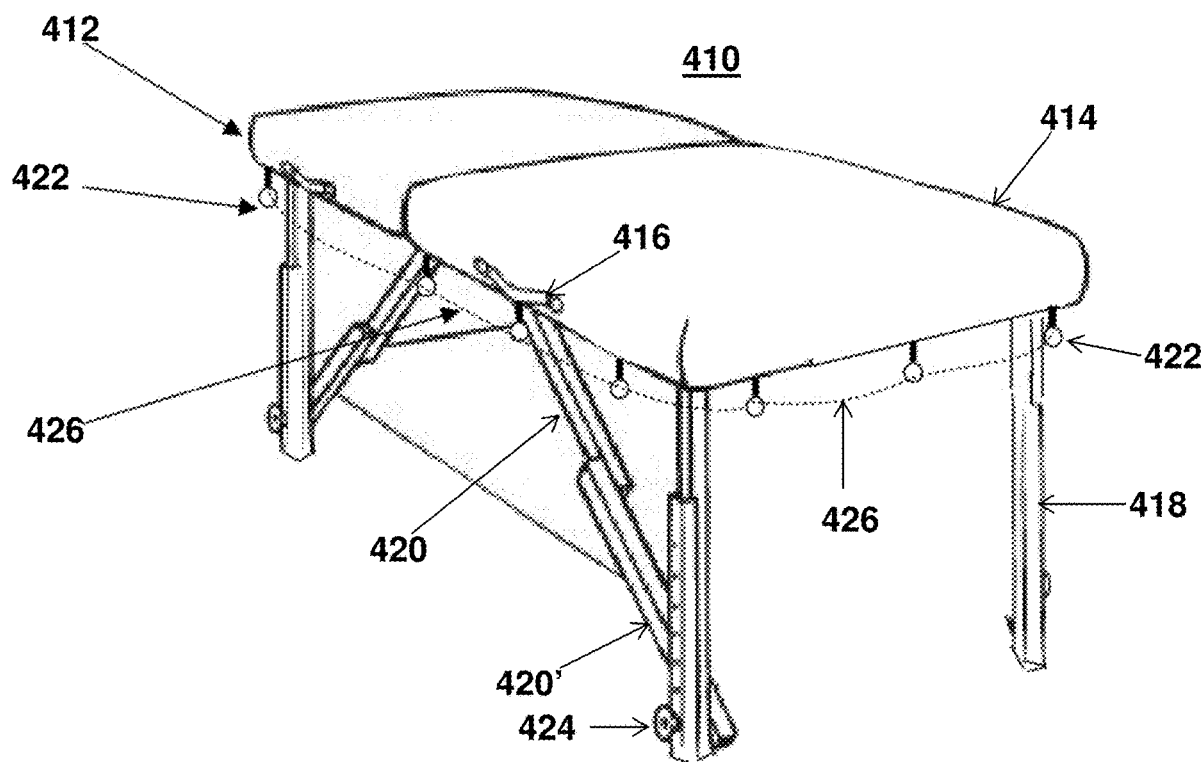
(51) **Int. Cl.**

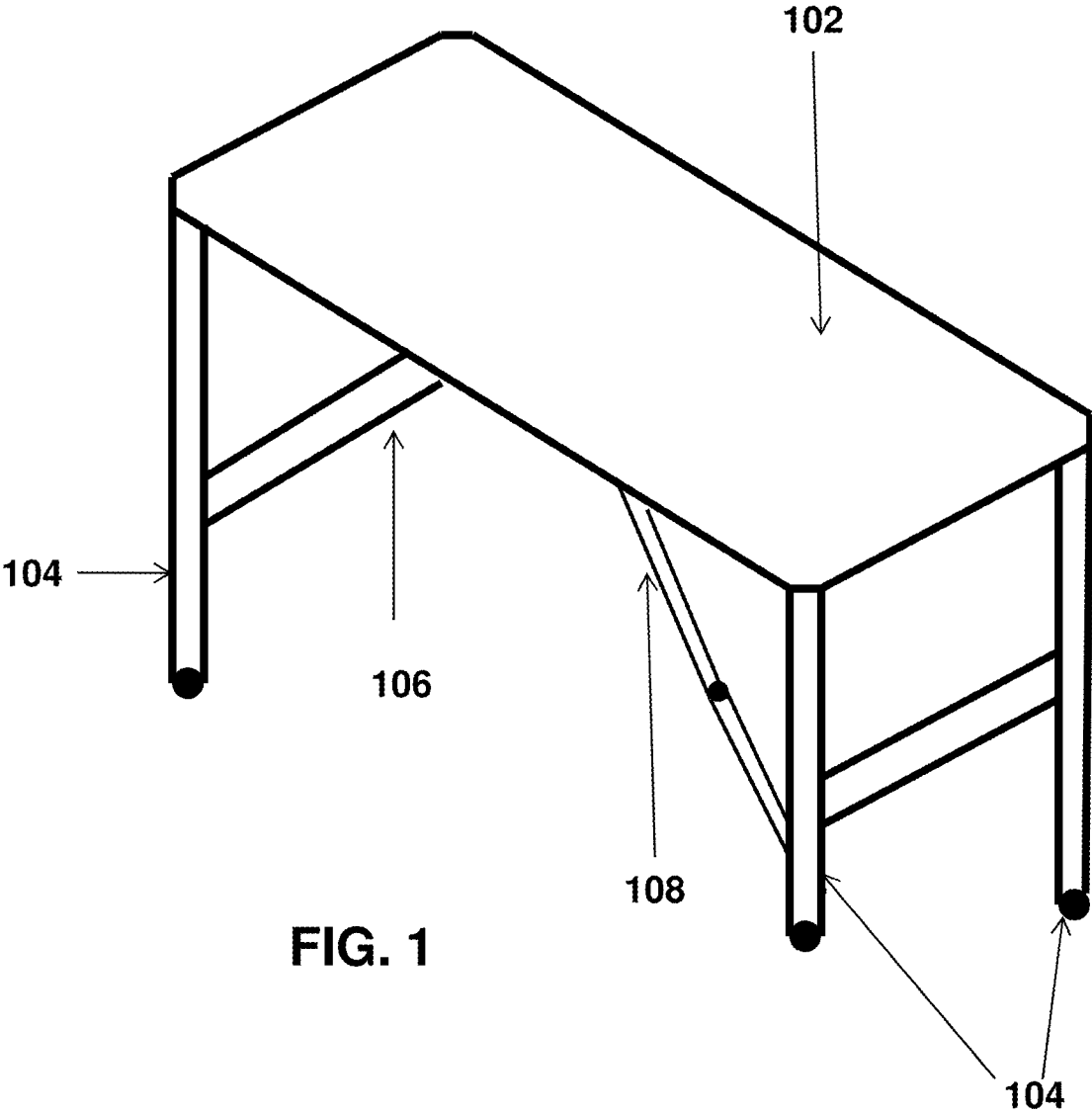
A63B 21/04 (2006.01)

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A63B 21/055 (2006.01)

An improved low-impact exercise system enables one to use household furniture elements such as a table or chair to perform exercise while sitting or standing. The cover can fit over a table surface and has straps, elastic bands or any combination of securing elements to secure the cover to the furniture element. Connectors on the cover enable one to connect elastic bands to the cover. With these bands, one can sit and use their arms to work out and exercise various muscle groups. Leg bands can also be attached to exercise leg muscle groups. At the completion of an exercise session the entire system of table cover, straps, bands and connectors can be removed, packaged and moved are desired for the next use.





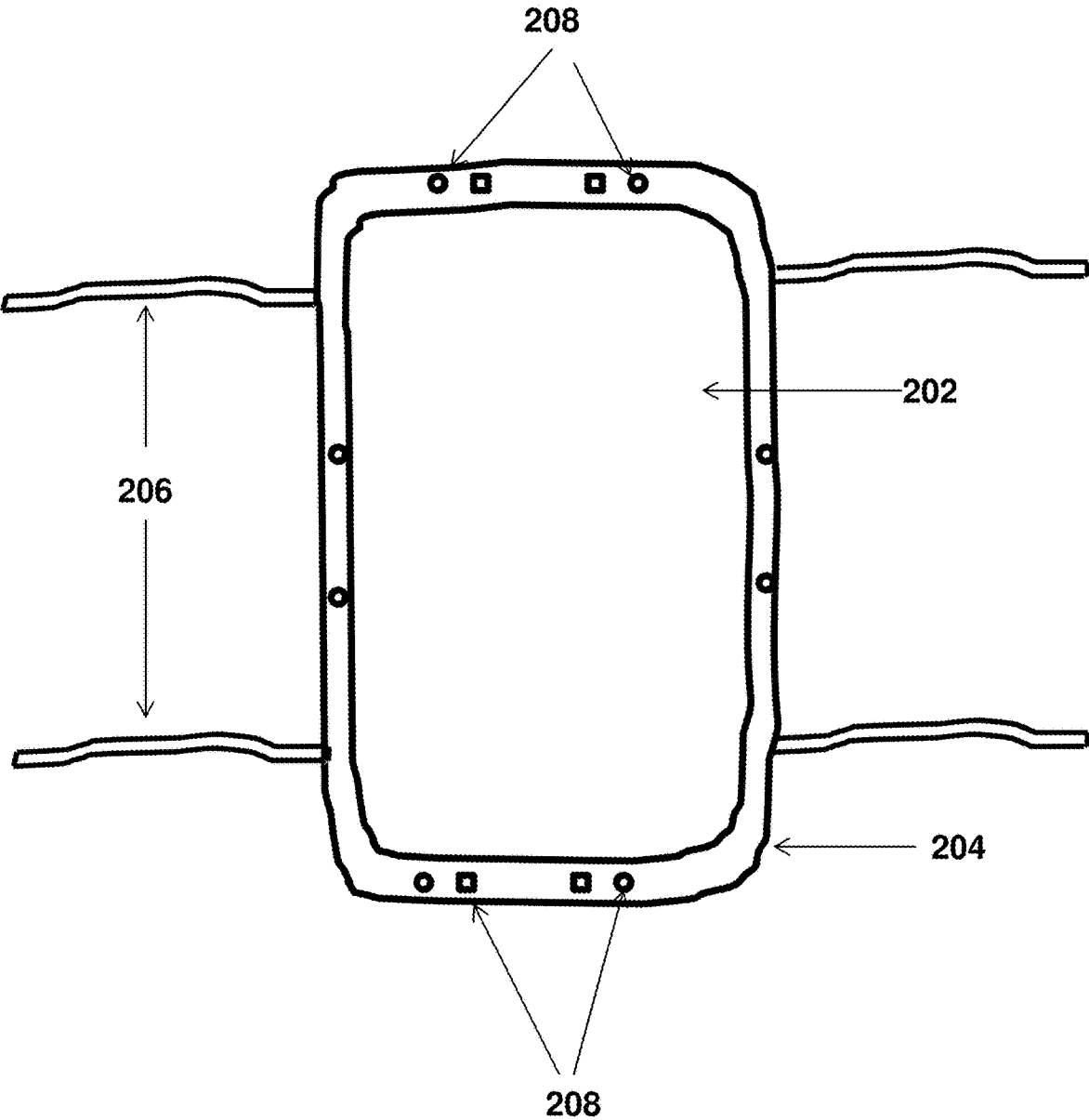


FIG. 2

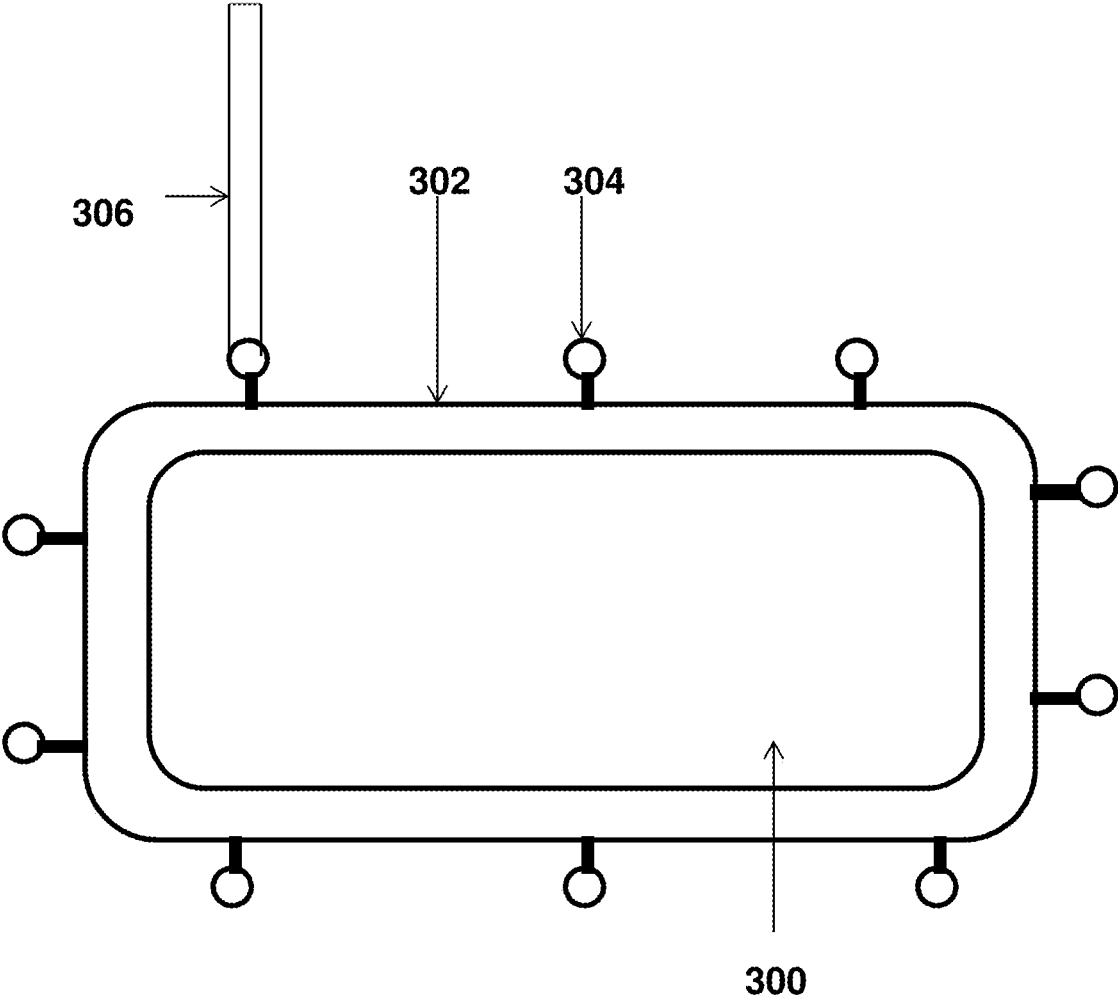


FIG. 3

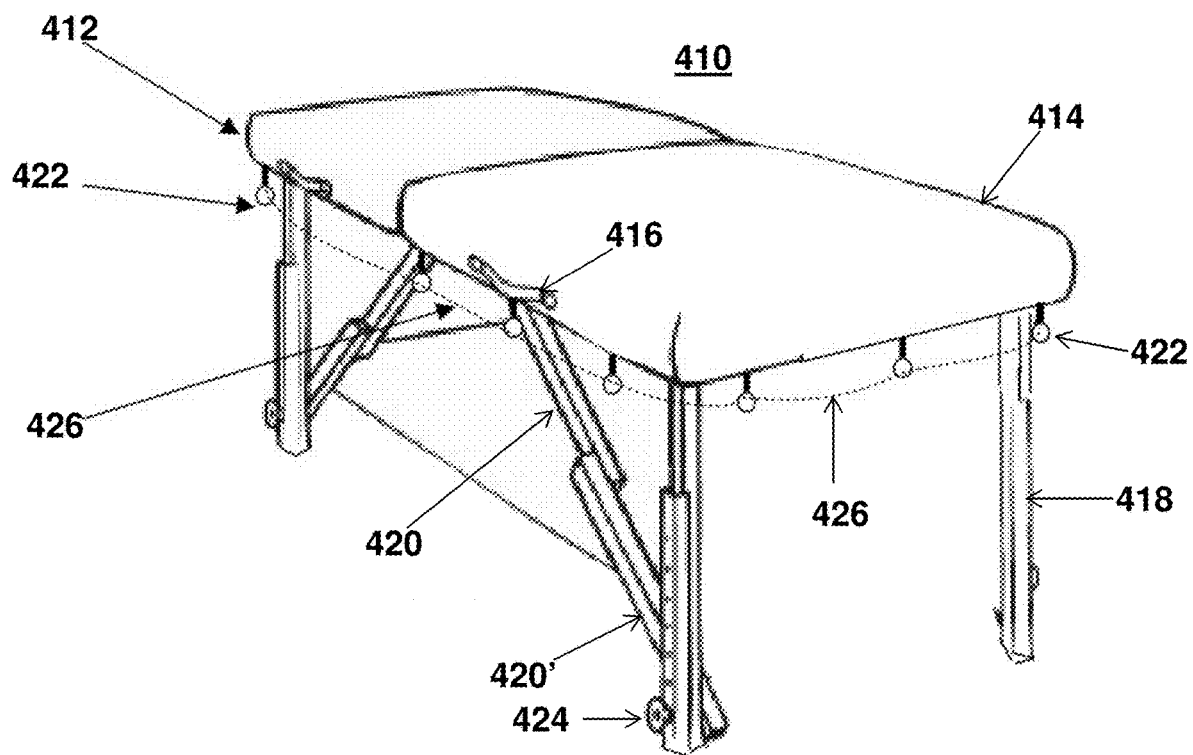


FIG. 4

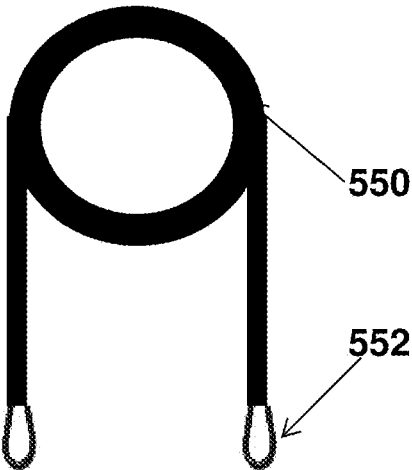


FIG. 5

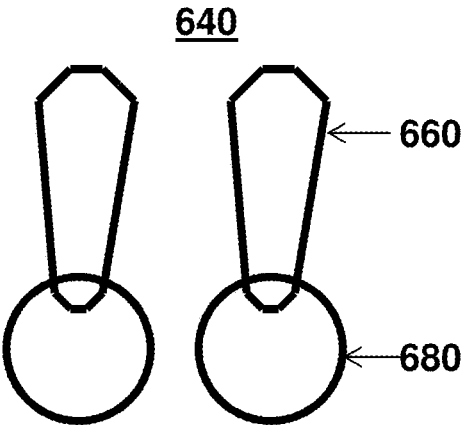


FIG. 6

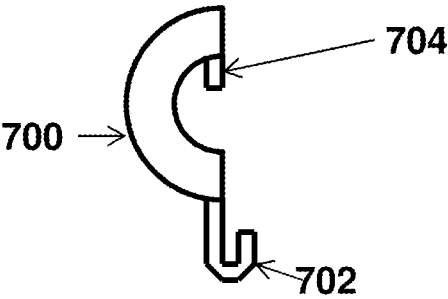
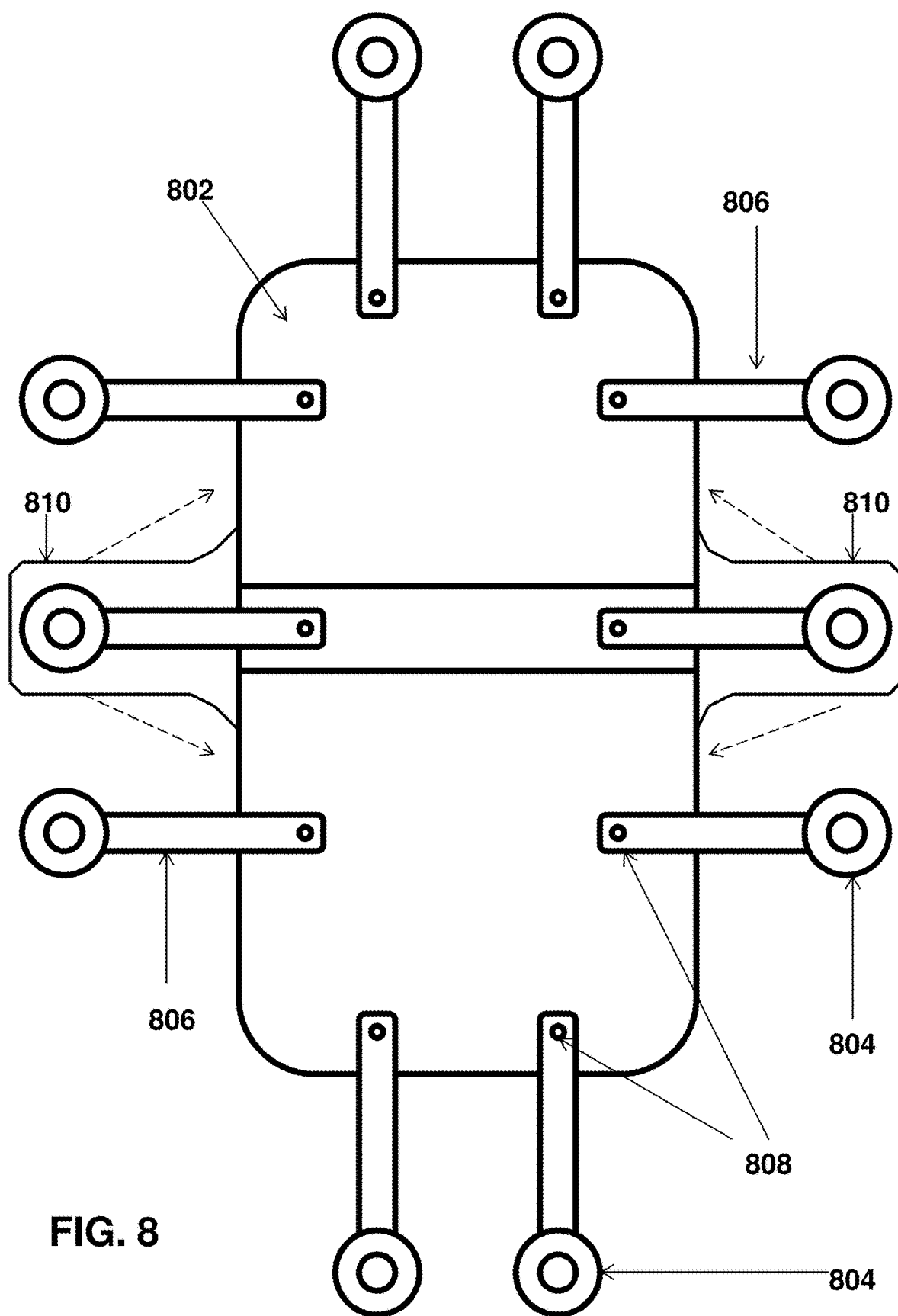
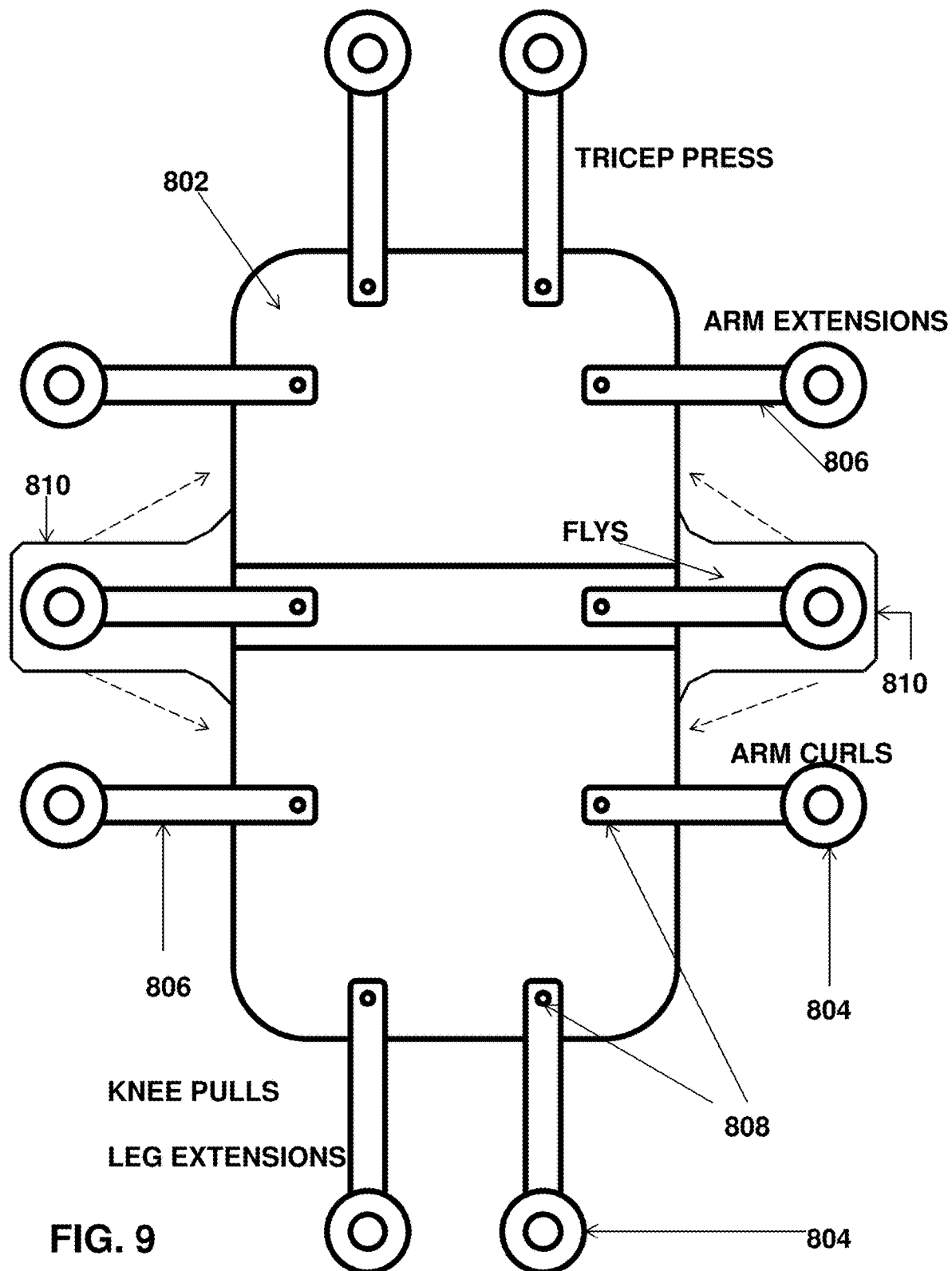


FIG. 7





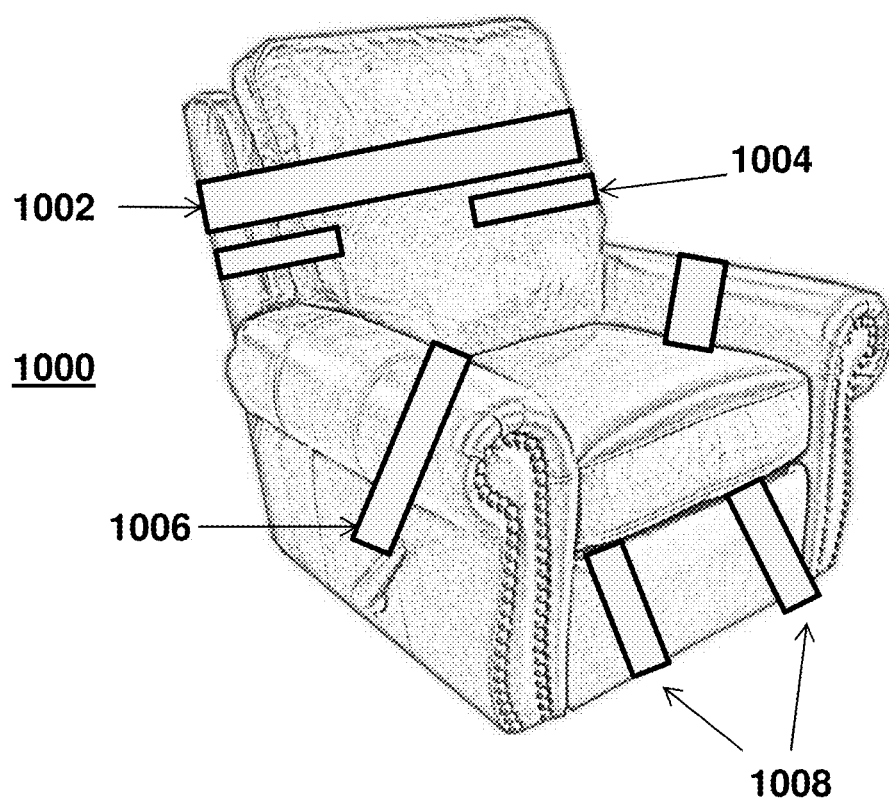


FIG. 10

PORTABLE LOW IMPACT EXERCISE SYSTEM

CROSS REFERENCE TO RELATED APPLICATION

[0001] This patent application relates to and claims priority from provisional patent application No. 63/546,867 filed on Nov. 1, 2023. The contents of which are incorporated herein by reference.

FIELD

[0002] This invention relates to an exercise system that can be implemented using an exercise over for a table that will allow persons with physical challenges to participate in various exercises for better physical conditioning. In particular, this invention relates to an exercise cover that creates an improved therapy or training table or an improved chair-like structure that enable persons to participate in multiple movements, maneuvers, or drills using the table. This invention allows a person, especially those of advanced age, to engage in these various exercises while in a sitting position.

BACKGROUND

[0003] Physical exercise has benefits for persons of all ages. One cannot overstate the importance of regular physical activities for children. An obvious benefit is a child's physical development and health. For example, regular exercise helps a child maintain an appropriate weight and can prevent childhood obesity, heart disease, and diabetes. Regular exercise also helps children develop their muscular and bone structure. Children are more active in participating in activities such as sports and other extracurricular activities, including band, drama, and agricultural programs. Regular participation in these events contributes to the overall physical and mental health of the child.

[0004] The need for physical fitness does not decrease as a person grows older. Exercise increases one's physical endurance and strength. Various benefits result from starting and maintaining a consistent physical exercise regimen. One benefit of exercise in mature people is an increase in bone density and a decrease in the chance of injury when participating in various events. Physical fitness helps one maintain one's balance and reduces the possibility of accidental falling. People who exercise have more energy and fewer adverse effects of stress on their body and mind. Exercise can help people who have difficulties sleeping and help them sleep more soundly. Physical fitness can help maintain and improve one's independence with daily activities.

[0005] Although exercise and physical fitness are beneficial to people of all ages, there can be challenges and barriers to people getting sufficient physical exercise. These exercise barriers are physical and mental in nature. These barriers can be personal barriers or environmental barriers. Some of these barriers include insufficient time to exercise, inconvenience of exercising, lack of motivation, and no one to give encouragement or support.

[0006] A past study was done aimed to identify external and internal barriers to physical activity and exercise participation among middle-aged and elderly individuals. The most common external barriers among the middle-aged and elderly respondents were 'not enough time,' 'no one to exercise with,' and 'lack of facilities.' The most common

internal barriers for middle-aged respondents were 'too tired,' 'already active enough,' 'do not know how to do it,' and 'too lazy.' At the same time, the reasons for elderly respondents were 'too tired,' 'lack of motivation,' and 'already active enough.' One barrier to sufficient exercise people have, especially elderly persons, is a lack of mobility. [0007] Many opportunities for physical fitness require people to leave their homes and travel to some location. An activity such as walking to a local park involves leaving home. As a result of leaving home, other factors come into play. These factors can include traffic and availability of public transportation. In many instances, elderly persons become a target of crime. As a result, many people choose to stay at home or in a location where they are comfortable and feel safe. However, that decision can mean a lack of physical exercise.

[0008] Another challenge that goes with exercise for middle age and elderly persons is the physical strain on joints during exercising. Option for persons to regularly exercise even with chronic joint issues is to participate in low-impact exercises. For seniors in particular, there are several reasons to remain physically active. Adequate exercise benefits the circulatory system and helps the heart remain in good condition. Exercise makes bones strong, keeps muscles flexible, and improves balance and helps avoid falls. Regular exercise helps release endorphins into the bloodstream which improves mood.

[0009] For seniors, low impact exercises can play a vital role in enabling them to preserve their fitness. For example, incur more impact during high-intensity workouts. For persons experiencing arthritis or other chronic illnesses, high-impact activities are not appropriate for them. To avoid pain, Low-impact exercises are desirable to avoid pain and discomfort. Low-impact exercises can also improve joint mobility and flexibility, cardiovascular health, better sleep and weight management.

[0010] Currently, to facilitate low-impact exercises, several options are available. Treadmill walking is a popular choice for seniors looking to maintain or improve their cardiovascular health through walking. For seniors, walking on a treadmill provides a controlled and safe environment where they can manage the intensity of their exercise activities. Simple walks provide form of cardiovascular exercise that helps strengthen the heart, lowers blood pressure, and improves circulation. Stationary bikes offer another practical option for low-impact cardio workouts. For some advanced persons, elliptical machines are popular because they can give you a full-body workout while minimizing stress on your joints.

[0011] These mentioned activities focus largely on building and maintaining cardiovascular health. However, there are other important benefits for exercising. It is also to maintain the muscular system. In addition, muscular exercises enable a person to maintain physical strength. This condition is important to, for example, reduce or prevent a person from failing.

[0012] In some cases, persons may spend extended periods in the hospital or laying down. During this time, they lose muscular strength and their muscles can atrophy. These patients can also lose control of bodily functions. These patients usually spent periods in rehabilitation centers before returning home.

[0013] In physical rehabilitation, a standard piece of equipment used is a therapy table. Therapy tables come in

many designs, and many of them have varying features. Generally, these tables comprise a flat surface supported by vertical structures (legs). The flat surfaces are padded. The surface has two sections to enable one to reconfigure the table for various applications. For example, the multiple sections allow one to reconfigure the table surface for someone to partially or fully recline or set up in a chair-like manner. Some of these tables come with height-adjustable legs to vary the height of the table as desired. As mentioned, these tables have many applications in physical rehabilitation. However, as designed, these tables do not fully provide means for persons to adequately address a person's upper body.

[0014] Many therapeutic tables currently exist to assist persons in all types of physical therapy and exercise. One such product, U.S. Pat. No. 6,692,451 to Splane, describes a passive motion exercise and treatment apparatus, which includes a main support assembly for supporting at least part of the body of a user of the apparatus. The assembly consists of a first support member and a second support member disposed in a common plane. The second support member is pivotably connected to the main support member and is movable relative to it to provide passive movement of a part of a user's body supported by the second support member relative to a part of the body supported by the first support member. A separable leg support assembly is adapted to be connected, in use, to the main support assembly at either end so as to support the calves of the legs of the user in a plane parallel to and elevated with respect to the common plane. At the same time, the apparatus provides the passive body movement referred to above. A motorized drive arrangement is used to provide the aforementioned relative movement of the second support member. This table type has many uses but is challenging for an older person. Using this type of table by an elderly or physically limited person would be difficult. Home exercises do exist to enable elderly persons to engage in some form of physical fitness. Some of these exercises include chair yoga, resistance band workouts, sit-to-stand, and tandem stance.

[0015] Home exercises also exist as part of physical therapy. During these therapy sessions, one often uses a therapy table to assist in the activities. These tables, known as static treatment mats, mat tables, physical therapy tables, or mat platforms, are highly versatile pieces of equipment used in various settings. Therapists use these tables in laying and standing exercises to help people.

[0016] Although these tables are essential and valuable in the physical therapy of people, these tables have the potential for additional uses that can expand opportunities for in-home physical exercises of some individuals. There remains a need for a physical therapy-type table product one can use to perform various sitting exercises.

SUMMARY

[0017] This present invention provides a system enabling a person to transform a table, such as a conventional table or therapeutic table, to a table that allows elderly or physically limited persons to perform low-impact exercises. An exercise cover with connections for various exercise devices fits over and secures to a table to enable a person to perform multiple exercise activities while standing or sitting. In addition to a table cover, the present invention comprises a plurality of rings or clips or other connectors secured to the table at various locations along the edge of the table. The

user will attach elastic straps or bands to the connectors to perform various low-impact exercises. For example, once straps are connected to the rings which are secured to the table cover, the user can perform various upper-body exercises through this table system. Once an individual has completed their exercise activities, the cover can be removed from the table, transported and secured to a different device such as a chair where exercises can be performed while sitting or standing.

DESCRIPTION OF DRAWINGS

[0018] FIG. 1 shows a conventional table used for various functions and activities.

[0019] FIG. 2 a portable exercise cover of the present invention capable of fitting over a conventional table or chair and having and having table securing straps and connectors for various exercise devices.

[0020] FIG. 3 shows a band device that can be attached and secured to a table with ring or clips elements in the band for use in exercises in the present invention.

[0021] FIG. 4 shows a view of an embodiment of the table exercise system of the present invention.

[0022] FIG. 5 shows an elastic strap or band one attaches to the secured rings or bands the will be used in the exercises.

[0023] FIG. 6 shows a close-up view of the rings or clips secured to the table element of the invention.

[0024] FIG. 7 shows a close-up view of a hook element for attachment to a table element.

[0025] FIG. 8 shows an exercise cover of the present invention with exercise bans connected to cover connectors for low impact exercises.

[0026] FIG. 9 shows various types of exercises one can perform from the exercise configuration of FIG. 8.

[0027] FIG. 10 shows the exercise cover of the present invention positioned on and connected to chair to facilitate exercises while sitting.

DETAILED DESCRIPTION OF THE INVENTION

[0028] Low-impact exercises such as walking can benefit one's legs and lower body. However, unless one carries small weights or other forms of resistance, the upper body does not receive a similar level of benefit. Therefore, even though one's legs receive exercise, the same does not apply to the person's arms, legs, and chest areas. In addition, for some persons of various ages, putting weigh on their knees, legs and ankles can be painful or difficult. Because of severe health conditions, some persons do not have the physical strength to stand and exercise. Some of these individuals are categorized as "fall risk." However, they still to exercise to maintain some form of muscular integrity. Physical therapy sessions enable persons to get some form of exercise, but these sessions often require them to travel to a facility or to have a person visit their home. In addition, these sessions can become costly if not covered by health insurance plans.

[0029] The present invention provides a system that will enable a person to perform low impact exercises that focus on the upper body (chest, arms, and shoulders). Exercises for the lower body are also possible. This invention allows people to sit or stand and exercise muscles in different parts

of their body. This invention incorporates elastic bands to provide the resistance needed to achieve meaningful upper-body exercise.

[0030] In one embodiment of the invention, a convention table can be used for the exercises. In this invention, a table with a flat surface **102**, legs **104**, braces **106** and folding arms **108** is sufficient. A therapy table and other conventional table are also devices to use to implement this invention.

[0031] The present invention comprises a cover that fits over the table surface. As shown in FIG. 2, this cover has surface **202**, with continuous edges **204**. The continuous edge is sealed to prevent fraying. This seal can also create an internal channel through which elastic or other material is contained to help facilitate securing the cover to the table surface. Securing straps **206** also secure the cover to the table surface. These straps can be one piece and elastic to stretch and contract to create tension for securing the table. As shown, these straps can also be in multiple parts that connect together. With connecting straps, one can tighten then (similar to a belt) to create the tension for securing the cover to the table. Along the edges **204**, are connecting elements **208**. These connecting elements enable the user to connect exercise bands or other exercise elements to the cover. The cover surface **202** has an upper or outer surface and an inner surface. The outer and inner surfaces can also be of different materials. Preferably, the inner material should be stronger or more durable to also facilitate securing the cover to the table while a person is exercising. The outer surface can be of a more flexible material such as cloth or vinyl.

[0032] FIG. 3 shows band device **306** such as an arm band that can be attached and secured to a table cover **300** with ring or clips elements **304** in the band for use in exercises in the present invention. The bands can be configured in the shape of a loop of various sizes. The clip **304** is attached to the table edge **302** via connecting elements **208** in the table cover edge. Persons can sit at the table and use the bands for arm exercises. The bands have elasticity which provides tension for the exercise. Because these exercises are mainly low impact not much tension is needed to accomplish the objective. However, this invention can be used with any level of tension one desires to have.

[0033] FIG. 4 shows an embodiment of the present invention implemented on a conventional therapy table. Table **410** comprises a padded surface with two sections, **412** and **414**. A plurality of support legs **418**, support the padded surfaces. The legs and surfaces form the conventional features of a table. Additional leg support-type elements attach to the leg supports **418** and padded surfaces **412** and **414**. These support legs comprise two pieces **420** and **420'**, connected to each other. A hinge component attaches these pieces and provides a pivot point such that the legs are movable and rotatable. Attached at the bottom of the padded surfaces are band connecting elements **422**. These elements affixed to the bottom side of the padded surfaces enable one to attach or connect an elastic exercise band **426** to them or through them. Once secured to the connecting elements, one can use the band to perform various are, shoulder, and chest exercises.

[0034] Another feature of the exercise system of the present invention is height adjustable legs **424**. The height adjustable element **424** enables a user to vary the vertical length of the support legs **418** and thereby change the height

of the table as desired. The capability to adjust the height of the table will allow persons to perform exercises while sitting or standing. Some standing activities and exercises can also impact a person's mid-section, such as the abdomen and back. Handles **416** on the sides of the padded surfaces are helpful to facilitate carrying of the table when not in use.

[0035] FIG. 5 shows the elastic band one can use during these exercises. The band consists of an elastic or flexible body **550** with connector loops **532** that will engage connecting elements **208** attached to the table.

[0036] FIG. 6 shows a close-up view of the rings or clips secured to the table element of the invention. Clip **640** comprises a section **642** connected to an engagement section **644**. Clip **680** attaches to the bottom of the table surface **412** and **414**. The engagement section **444** connects to the elastic band loop **432**.

[0037] FIG. 7 shows a close-up view of a hook element **700** for attachment to a table element. This connection element has similarities to a clamp. It has an attaching section **704** that engages the table surfaces **412** and **414** and a hook section **702** that engages the elastic band loop **32**. A fastener **444** secures the attaching section **704** to the table surface.

[0038] FIG. 5 shows a band device that can be attached and secured to a table with ring or clip elements in the band for use in exercises in the present invention. This embodiment enables one to configure various types of tables to be used in accordance with the present invention. An elastic band can be attached to the edges of a table. Secured to this elastic band are connectors which are the same as the previously discussed connectors in FIGS. 6 and 7. This elastic band with attached connectors provides a convenient way for persons to engage in various exercises in various settings.

[0039] FIG. 8 shows an exercise cover of the present invention with exercise bans connected to cover connectors for low impact exercises. The table cover **802** extends over the table with the outer cover surface exposed. Various exercise devices **804** attach to the bands **806** which are connected to the connecting elements **808**. Straps **810** secure the cover to the table. FIG. 9 shows various types of exercises one can perform from the exercise configuration of FIG. 8. As shown, some sitting and standing exercises one can perform with these bands while sitting at the table or even standing include the tricep press, arm extensions, arm curls, flies, knee pulls and leg extensions.

[0040] FIG. 10 shows the exercise cover of the present invention positioned on and connected to chair to facilitate exercises while sitting. This chair **1000** can be a recliner or other suitable chair such as a wheel chair. The cover will fit over the chair and be secured with one or more securing straps **1002**. The chest pull band **1004** attached to the back or upper portion of the chair can facilitate chest exercises. Arm bands **1006** attached to the side of the chair allow for arm pull exercises. Leg bands **1008** attached to the button of the chair are for leg and thigh exercises. The leg bands can be attached to the chair with hooks or can be attached to the chair legs if desired or if available. The arm bands **1006** can also be attached to the chair with hooks or other fastening devices.

[0041] While the present invention has been illustrated by the description of embodiments thereof, and while the embodiments have been described in some detail, it is not the intention of the applicant to restrict or in any way limit

the scope of the invention to such details. Additional advantages and modifications will readily appear to those skilled in the art. The invention, in its broader aspects, is not limited to the specific details, representative apparatus and methods, and illustrative examples shown and described. Accordingly, departures may be made from such details without departing from the spirit or scope of the applicant's general inventive concept.

1. A portable exercise system to facilitate low-impact exercising comprising:

an exercising cover of flexible material having an upper and a lower surface, the upper surface being expose to an exercise user, said exercising cover having a continuous edge that is sealed to prevent fraying and to provide additional structural integrity for said cover;
one or more straps attached to the cover at the edges to secure said cover to an exercising object being covered by said exercising cover;

one or more exercising bands attached to said exercising cover, said exercising bands having elasticity properties for creating tension during exercises; and
connectors attached to said exercising cover for connecting said one or more exercising bands to said exercising cover.

2. The portable exercise system as described in claim 1 further comprising exercise equipment attached to said one or more exercising bands.

3. The portable exercise system as described in claim 1 further comprising an elastic material contained in the continuous edge of said exercising cover to further facilitate securing of said exercising cover to the exercising element.

4. The portable exercise system as described in claim 3 wherein tension in said elastic material contained in the continuous edge of said exercising cover can be adjusted.

* * * * *