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(54) Muscular strength training appliance

(57) A muscular strength training appliance (1) comprises a pair of parallel longer gripping bars (2a, 2b) of the same length and a pair of parallel shorter gripping bars (3a, 3b) of the same length, wherein the pair of longer gripping bars (2a, 2b) and the pair of shorter gripping bars (3a, 3b) are assembled in a rectangular frame structure. Desirably, the pair of longer gripping bars and the pair of shorter gripping bars are bars each made of wood material and having a circular cross section. When the muscular strength training appliance (1) is held by gripping the parallel longer or shorter bars with the hands respectively to secure the coordinate movements of the left and right arms through the muscular strength training appliance (1). In this state, when the muscular strength training appliance (1) is turned or moved, the body bends, stretches and twists automatically.

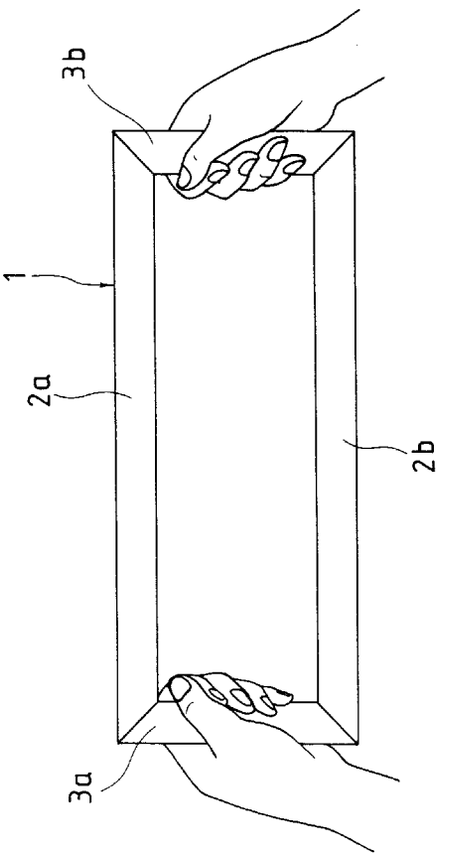

FIG. 4

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Description

This invention relates to a muscular strength training appliance belonging to sporting goods for use in setting-up exercises of the whole body, mainly for use to ease the stiffness in the joints of shoulders, fingers, elbows, wrists and the like of the human body.

Radio gymnastic exercises and setting-up exercises are well known as light physical exercises effective in relieving the parts of the body from fatigue due to long-sustained labor or a straining posture and in training the functions of the body and the muscular strength.

These physical exercises are effective in their own way in recovering from fatigue and in training the muscular strength. However, aged persons whose physical strength is weakened or infirm persons have difficulty in balancing, bending, stretching their bodies and are liable to become unsteady on their feet during physical exercises.

In some physical exercises, an exerciser holds a single bar with the hands to secure the coordinate movements of the left and right parts of the body. In this state, the exerciser bends and twists one's own body or exerts opposite forces by the left and right arms to stretch one's own tendons and muscles. Recently, physical exercises using a towel or a book have been introduced by gymnastic instructors through television broadcasting and newspapers. These introduced physical exercises are considered to have been developed on the basis of the realization of importance of the coordinated movements of the left and right arms in case of taking exercise.

Although those auxiliary appliances facilitate balancing and bending the body, an exerciser whose muscular strength is weakened, such as an aged person, is liable to fail in holding a single bar of a simple shape, and there is the possibility that the exerciser let lose one's hold of the bar, and while the bar is swung around, the bar hits against people or things around the exerciser and is in danger of injuring the people or damaging the things. Further, when the bar is laid down, the bar is liable to roll. In case of taking exercise with an auxiliary appliance such as a bar, towel and book, the exerciser needs to concentrate one's own attention and considerable force on the finger tips continuously during the exercise not to drop the auxiliary appliance or to maintain the coordinated movements of the left and right arms. The tension of the finger tips entails straining on the whole body.

It is an object of the present invention to provide a muscular strength training appliance, which can be held with the hands for various physical exercises to activate an exerciser physically and mentally by relaxing exerciser's strained parts of the body, can train the muscular strength of the parts of the body, can facilitate bending and stretching the body, enables the exerciser to secure the coordinated movements of the left and right parts of the body to prevent the exerciser from staggering, is less liable to fall off the hands even if the exerciser's grip is loosened, is not in danger of injuring people around the exerciser or damaging the things around the exerciser, and is hard to roll when the muscular strength training appliance is laid down on the floor or the like.

Since a muscular strength training appliance according to the present invention has a structural feature that it is less liable to fall off the hands and drop, the finger tips need not be strained to hold the muscular strength training appliance, and it is possible to keep on exercising the coordinated movements of the left and right parts of the body, while relaxing the whole body. Thus, the muscular strength training appliance of the present invention is fundamentally different from the conventional auxiliary gymnastic appliances.

With the foregoing object in view, the muscular strength training appliance of the present invention comprises two parallel longer bars of the same length, and two parallel shorter bars of the same length, wherein the two longer bars and the two shorter bars are assembled in a rectangular frame structure.

When an exerciser holds the two parallel bars constituting the rectangular frame structure with the hands to secure the coordinated movements of the left and right arms through the rectangular frame structure, and swings or moves the rectangular frame structure, the exerciser's body bends and twists automatically. In this manner, since the exerciser holds the rectangular frame structure with the hands during exercise, the rectangular frame structure, i.e., the muscular strength training appliance may not fall off the exerciser's hands even if the exerciser's grip on the muscular strength training appliance is loosened.

The invention will now be described by way of example and with reference to the accompanying drawings in which:

Fig. 1 is a perspective view of a muscular strength training appliance as a preferred embodiment of the present invention;

Fig. 2 is a front view of the muscular strength training appliance of Fig. 1;

Fig. 3 is a sectional view taken along line A-A in Fig. 2; and

Fig. 4 is a front view showing the state of the muscular strength training appliance of Fig. 1 when gripped with the exerciser's hands for exercise.

Referring to Figs. 1 and 2, a muscular strength training appliance 1 according to the present invention comprises two longer bars (longer bars for gripping) 2a, 2b of the same length and two shorter bars (shorter bars for gripping) 3a, 3b of the same length, wherein the bars 2a, 2b, 3a and 3b are assembled in a rectangular frame structure.

In a preferred embodiment of the muscular strength training appliance 1 of the present invention, as shown in Fig. 3, the longer bars 2a, 2b and the shorter bars 3a, 3b are easy-to-grip round bars made of wood and hav-

ing the same diameter of about 2. 4 cm.

The length of each of the longer bars 2a, 2b is approximately equal to the distance between the exerciser's hands naturally stretched out forward, namely, to the chest expansion of the exerciser. The opposite ends of each of the longer bars 2a, 2b are cut diagonally so that the length of the outer side thereof is greater than that of the inner side thereof.

The length of each of the shorter bars 3a, 3b is longer than the width of the exerciser's knuckles by 2 to 3 cm so that the fingers are able to slide freely on the shorter bars 3a, 3b when the exerciser grips the shorter bars with the hands, respectively. The opposite ends of each of the shorter bars 3a, 3b are cut diagonally so as to mate exactly with the diagonally cut opposite ends of the longer bars 2a, 2b.

The corresponding opposite ends of the longer bars 2a, 2b and the shorter bars 3a, 3b are butted against each other, and firmly joined together by means of mortise-and-tenon joint or with auxiliary metal fittings or the like at need so that the longer bars 2a, 2b and the shorter bars 3a, 3b may not be separated from each other even if considerably high force is exerted thereon during use.

The weight of the muscular strength training appliance 1 is dependent on the quality of the wood used as the material of the longer and shorter bars and the size thereof. Incidentally, when its weight is set to be about 270 gram, the muscular strength training appliance is easy to handle even by an aged person or an infirm person.

When the opposite longer bars 2a, 2b or the opposite shorter bars 3a, 3b of the muscular strength training appliance 1 are gripped with the left and right hands as shown in Fig. 4, the left and right arms of the exerciser are coordinated in the normal balanced position through the muscular strength training appliance 1, regardless of the exerciser's personal habitual posture. Further, the corresponding fingers of the left and right hands are coordinated through the muscular strength training appliance 1. This coordinated state of the body is naturally maintained both in a state of rest and in a state of exercise.

A description will now be given of how to use the muscular strength training appliance 1.

The following six basic motions are performed using the muscular strength training appliance 1.

Basic motion 1:	Turning or moving the muscular strength training appliance 1
Basic motion 2:	Pushing the opposite bars toward each other and pulling the same away from each other
Basic motion 3:	Hitting the body with the muscular strength training appliance 1
Basic motion 4:	Moving the muscular strength training appliance 1 by bending or stretching the body
Basic motion 5:	Lifting up the leg
Basic motion 6:	Resting the body weight on the muscular strength training appliance 1

These basic motions will be described individually as follows.

1. Basic motion 1 to turn or move the muscular strength training appliance 1

a. Motion to turn the muscular strength training appliance 1 in front of the exerciser's body

(a-1) The muscular strength training appliance 1 is held in front of the body with the longer bars 2a, 2b in a horizontal position by gripping the shorter bars 3a, 3b in a vertical position with the palms facing each other. The right palm is turned up and the left arm is moved with the muscular strength training appliance 1 kept horizontally to turn the muscular strength training appliance 1 clockwise. By so doing, when the muscular strength training appliance 1 is turned by an angle of 90°, the right hand is located under the left hand. The muscular strength training appliance 1 is turned by an angle of about 270° at the maximum. Subsequently, the muscular strength training appliance 1 is turned counterclockwise in a similar manner. This motion makes the wrists, elbows and shoulders turn to enhance the flexibility of those parts of the body. Incidentally, when the muscular strength training appliance 1 is turned in such a manner that both the arms are stretched out obliquely upward, the upper body of the exerciser bends naturally backward to result in correction of a bad posture.

(a-2) The muscular strength training appliance 1 is gripped in front of the body similarly to the motion described in (a-1). The muscular strength training appliance 1 is turned counterclockwise round the left hand by moving the right hand upward, and then the right hand is moved to a position above the left elbow. In this state, the left hand turns up and the right hand turns down. Then, the right hand is moved from the position above the left elbow to turn the muscular strength training appliance 1 alternately clockwise and counterclockwise. The muscular strength training appliance 1 can be turned clockwise by an angle of about 180°, and counterclockwise by an angle of about 90°. Subsequently, the muscular strength training appliance 1 is turned clockwise round the right hand by moving the left hand upward, and the left hand is moved to a position above the right elbow. This motion twists forcibly the wrist and elbow about which the muscular strength train-

ing appliance 1 is turned, which improves the flexibility of the wrists and elbows.

(a-3) The muscular strength training appliance 1 is gripped in the same position as those for the motions described in (a-1) and (a-2). After setting the muscular strength training appliance 1 in a horizontal position once, the right hand is moved upward to turn the muscular strength training appliance 1 to an upper vertical position, where the longer bars extend vertically. Then, the right hand is moved from the upper vertical position described above toward the body to turn the muscular strength training appliance 1 by an angle of 180° to a lower vertical position, and the right hand is moved away from the body to turn the muscular strength training appliance 1 further by an angle of about 270° from the upper vertical position to a limit position. Then, the right hand is moved in the opposite direction to turn the muscular strength training appliance 1 to the upper vertical position, and then, the right hand is moved further away from the body to a limit position. Thus, the muscular strength training appliance 1 is turned in an angular range of about 360°. This motion makes the elbow of the arm, which turns the muscular strength training appliance 1, fully stretch, makes the arm fully exert its strength and makes a portion of the upper half of the body on the side of the moving arm rise naturally.

(a-4) The muscular strength training appliance is gripped in the same position as those for the motions described in (a-1) to (a-3). Then, the left hand is moved first toward the body and to the right with the muscular strength training appliance 1 set vertically such that the longer bars extend horizontally, and the muscular strength training appliance 1 is turned until the left hand touches the right shoulder. While the left hand is thus moved, the right hand moves naturally to a position in front of the left side of the body. Then, the muscular strength training appliance 1 is pulled by the right hand so that the elbow moves along the body. Consequently, the left hand is moved to a position behind the right shoulder, and the left shoulder is forcibly turned. Similarly, the right hand is moved first toward the body and to the left, and the muscular strength training appliance 1 is turned until the right hand touches the left shoulder. Then, the muscular strength training appliance 1 is pulled by the left hand so as to pull the right hand. This motion takes the stiffness out of the muscles of the shoulders so that the shoulders are able to turn smoothly.

(a-5) The muscular strength training appliance 1 is gripped in the same position as those for the motions described in (a-1) to (a-4). Then, the hands are turned so that the backs of the hands are turned down to hold the muscular strength training appliance 1 in a horizontal position. Then, the muscular strength training appliance 1 is turned toward the body by an angle of about 180°. In this state, the backs of the hands are turned up. Ultimately, the muscular strength training appliance 1 is turned by an angle of about 360°. In this state, the backs of the hands are turned toward each other. This motion enhances the flexibility of the wrists. If the muscular strength training appliance 1 is raised over the head and moved further backward with the backs of the hands turned toward each other, the breast is pulled up. If the muscular strength training appliance 1 is then turned in opposite directions after pulling up the breast, the stiffness of the loin due to fatigue is taken out.

b. Motion to turn or move the muscular strength training appliance 1 over the head

(b-1) The shorter bars 3a, 3b are gripped with the arms stretched out, the arms are raised to hold the muscular strength training appliance 1 high over the head in a horizontal position, and then the muscular strength training appliance 1 is turned in opposite directions in a horizontal plane. This motion makes the body twist involuntarily in opposite directions about the spinal column. If the body is twisted in opposite directions without holding the muscular strength training appliance 1, the spinal column bends or leans to the right or to the left and is hardly able to serve as an axis of twisting.

(b-2) The muscular strength training appliance 1 is turned by an angle of 90° from a starting position, which corresponds to the position from which the muscular strength training appliance 1 is turned for the motion described in (b-1). In this state, the muscular strength training appliance 1 is held in a horizontal plane, and the left and right hands are turned toward each other on the opposite sides of the head, respectively. Then, the shorter bar on the front side is pushed backward to push the hand gripping the other shorter bar backward to a position to which the pushed hand is unable to move by its own efforts. This motion turns the arms far backward and corrects the posture.

2. Basic motion 2 to push the opposite bars toward each other and pull the same away from each other

The muscular strength training appliance 1 is held in front of the body with the longer bars 2a, 2b or the

shorter bars 3a, 3b gripped with the hands, or the muscular strength training appliance 1 is laid on the laps with the exerciser in a sitting position. In this state, the following motions are carried out with the strength of the hands or the fingers exerted on the muscular strength training appliance 1.

a. A pulling force is applied to the gripped bars with the hands or the fingers.
b. A pushing force is applied to the gripped bars with the hands or the fingers.

In case of applying force to the muscular strength training appliance 1 with the fingers, it is easy to apply force to the muscular strength training appliance 1 when the muscular strength training appliance 1 is laid on the laps. The muscular strength training appliance 1 is held with the longer bars 2a, 2b resting on the laps in a horizontal position, the hands are placed on the muscular strength training appliance 1 with the backs of the hands turned up and the fingers stretched out. Then, the wrists are turned so that the four fingers excluding the thumb of the right hand and those of the left hand are turned opposite to each other with the thumbs touching the outer sides of the shorter bars 3a, 3b, respectively. Subsequently, pressures are applied to the shorter bars 3a, 3b with the left and right thumbs. In this state, the four fingers excluding the thumb of the right hand and those of the left hand turned toward each other are stretched toward the middle of the muscular strength training appliance 1. Consequently, the thumbs are pulled toward each other so as to press the muscular strength training appliance 1.
c. The fingers of the left and right hands are turned away from each other and the left and right wrists are pushed toward each other for a motion resembling a motion to open a folding fan. On the other hand, the fingers of the left and right hands are turned toward each other, and the left and right wrists are pulled away from each other for a motion resembling a motion to fold a folding fan.

These motions enable the balanced development of the muscular strength of the wrists and fingers, and also enable the correction of the peculiar physical habit of the wrists and fingers, and as a result, it is possible to smooth manipulate writing-utensils. 3. Basic motion 3 to hit the body with the muscular strength training appliance 1

One side of the muscular strength training appliance 1 is held to hit a desired part of the body with the other side thereof. Ordinarily, when the longer bars 2a, 2b are held, the desired part of the body is hit with the shorter bars 3a,3b. On the other hand, when the shorter bars 3a, 3b are held, the desired part of the body is hit with the longer bars 2a, 2b. In an exceptional case for simultaneously hitting the opposite sides of the back, one of the longer bars 2a, 2b of the muscular strength training appliance 1 is held to hit the opposite sides of the back with the other longer bar. This motion stimulates the body to improve the circulation of the blood and takes the stiffness out of the body. According to an opinion, light hitting on the stomach has a favorable effect on a dyspeptic.

4. Basic motion 4 to move the muscular training appliance 1 by bending and stretching the body

The whole body is moved with the right and left hands gripping the shorter bars 3a, 3b of the muscular strength training appliance 1 to carry the muscular strength training appliance 1 vertically and transversely to the remotest possible positions including positions between the legs and behind the body, and then, the muscular strength training appliance 1 is returned to the initial position. These motions are performed continuously or intermittently. The motion to move the muscular strength training appliance 1 transversely makes the leading hand pull the following hand through the muscular strength training appliance 1. The motion to swing the muscular strength training appliance 1 backward over the head and to bend the body backward is performed with one of the longer bars 2a, 2b gripped with both the left and right hands to use the centrifugal force. When swinging the muscular strength training appliance 1 backward through the space between the legs, one of the longer bars 2a, 2b of the muscular strength training appliance 1 is held with both the left and right hands.

These motions make the whole body perform various movements including bending, stretching and twisting as the arms are moved. Although these motions are similar to gymnastic exercises to be performed without using any gymnastic appliance, the coordinated movements of the left and right arms can be maintained, the body does not stagger, the whole body moves continuously and more smoothly and the exerciser does not become fatigued easily and does not become weary soon, when those motions are performed with the muscular strength training appliance 1 gripped with the hands. The muscular strength training appliance 1 will not fall off the hands even if the arms are stretched out to a limit because the bars of the muscular strength training appliance 1 are caught by the fingers. The following arm is pulled through the muscular strength training appliance 1 by the leading arm, and consequently, the following arm is able to reach easily a space to which the following arm is unable to move by its own efforts. Particularly, when the muscular strength training appliance 1 is held high over the head and then moved transversely, the muscles of the following arm and the associated muscles around the spinal column are stretched without requiring any efforts for bending the body.

5. Motion 5 to lift up the leg

The muscular strength training appliance 1 is held in front of the body and then one of the thighs is slowly lifted up to stand on one leg. The leg can be easily lifted

up without tilting the body, and the exerciser is able to keep standing on one leg comparatively easily as compared with a case of lifting up the leg to stand on one leg without holding the muscular strength training appliance 1 in hand. When this posture of standing on one leg is kept not to fall down by straining the sole of the foot of the leg supporting the body, parts of the sole are activated naturally.

6. Basic motion 6 to rest the body weight on the muscular strength training appliance 1

The exerciser lies on one's back with the longer bars 2a, 2b of the muscular strength training appliance 1 transversely underlying a desired part to be pressed, such as the neck vertebra, the dorsal vertebra and the sacrum, and then, the body weight is rested on the longer bars 2a, 2b. Consequently, a considerably intense effect of finger-pressure therapy is exerted on the desired part of the body without requiring straining the body. Since the pressure is distributed over the two longer bars 2a, 2b, the pressure is applied moderately to the body, and the pressure distribution can be delicately changed by shifting the body weight to the other portion. Since the muscular strength training appliance 1 does not roll whereas a single bar is liable to roll, the longer bars 2a, 2b are hardly dislocated from the desired part. Further, the longer bars 2a, 2b can be easily shifted to another desired part to be pressed.

As is apparent from the foregoing description, the muscular strength training appliance of the present invention coordinates both the arms naturally when the muscular strength training appliance is held simply by gripping the opposite bars thereof with the hands, and the coordinated movements of the arms holding the muscular strength training appliance for various motions can correct the peculiar physical habit of the body gradually, can take the stiffness out of the body, can relieve the fatigue and can strengthen the muscular strength.

Further, the coordinated movements of the left and right parts of the body can be secured. Thus, the muscular strength training appliance enables even an aged person whose physical strength is weakened or an infirm person to take exercise without losing one's balance and staggering, and also to bend or stretch the body more easily as compared with a case of taking exercise without using any gymnastic appliance.

Since the muscular strength training appliance is a rectangular frame structure, the fingers on the inner side of the muscular strength training appliance catch the bar forming the upper side of the muscular strength training appliance to prevent the muscular strength training appliance from falling off the hands even if the fingers of the hands holding the bars are loosened to slide the muscular strength training appliance downward due to the bending or stretching of the body to a limit. Therefore, there is no danger of seriously injuring people around the exerciser or damaging things around the exerciser even if the muscular strength training appliance is swung around and, by any chance, hits against people or things around the exerciser. Further, there is no possibility that the muscular strength training appliance rolls when being laid down on the floor or the like.

Furthermore, the round bars forming the muscular strength training appliance give a smooth, soft feel to the touch and does not injure the hands even if the bars are gripped firmly. The wood bars forming the muscular strength training appliance give a warm, soft feel to the touch, have a moderate frictional resistance against slipping, and form a muscular strength training appliance of an appropriate weight.

Claims

1. A muscular strength training appliance (1), comprising:

   a pair of longer gripping bars (2a, 2b) of the same length; and
   a pair of shorter gripping bars (3a, 3b) of the same length;
   wherein said pair of longer gripping bars (2a, 2b) and said pair of shorter gripping bars (3a, 3b) are assembled in a rectangular frame structure.

2. A muscular strength training appliance according to claim 1, wherein said pair of longer gripping bars (2a, 2b) and said pair of shorter gripping bars (3a, 3b) are round bars.

3. A muscular strength training appliance according to claim 1 or 2, wherein said pair of longer gripping bars (2a, 2b) and said pair of shorter gripping bars (3a, 3b) are made of wood material.

4. A muscular strength training appliance (1), comprising a rectangular frame consisting of two longer bars (2a,2b) and two shorter bars (3a,3b), the shorter bars (3a,3b) being grippable by the user's hands.

5. A muscular strength training appliance as claimed in any of claims 1 to 4, wherein the length of the longer bars (2a,2b) is such that, when the user's arms are outstretched and the user's hands are gripping the shorter bars (3a,3b), the user's arms are approximately parallel.

6. A muscular strength training appliance as claimed in any of claims 1 to 5, wherein the shorter bars (3a, 3b) are less than 20 cm long, preferably 10 to 15 cm long.

7. A muscular strength training appliance as claimed in any of claims 1 to 6, wherein the longer bars (2a,

2b) are 30 to 100 cm long, preferably at least 40 cm and at most 80 cm.

8. A muscular strength training appliance as claimed in any of claims 1 to 7, wherein the frame weighs less than 1 kg, preferably less than 500 g.

9. A muscular strength training appliance as claimed in any of claims 1 to 8, wherein at least the shorter bars (3a,3b) have a diameter of less than 5 cm.

F I G. 1

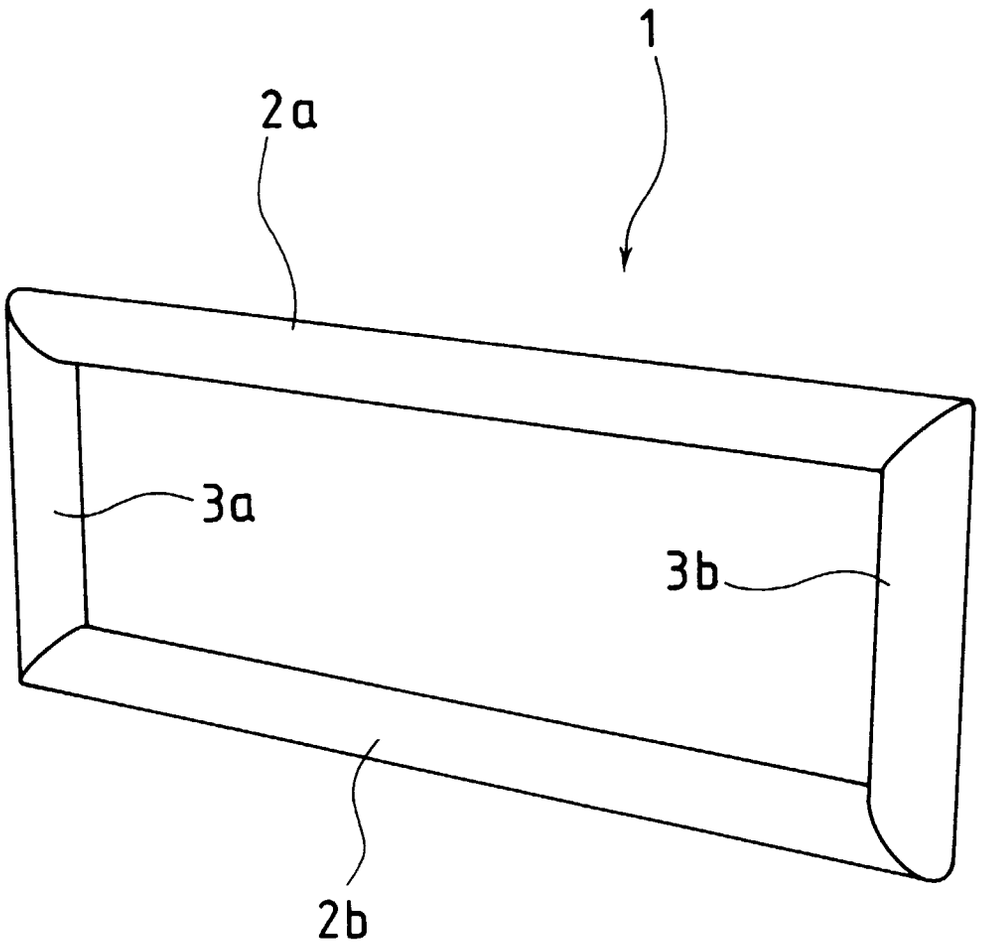


FIG. 2

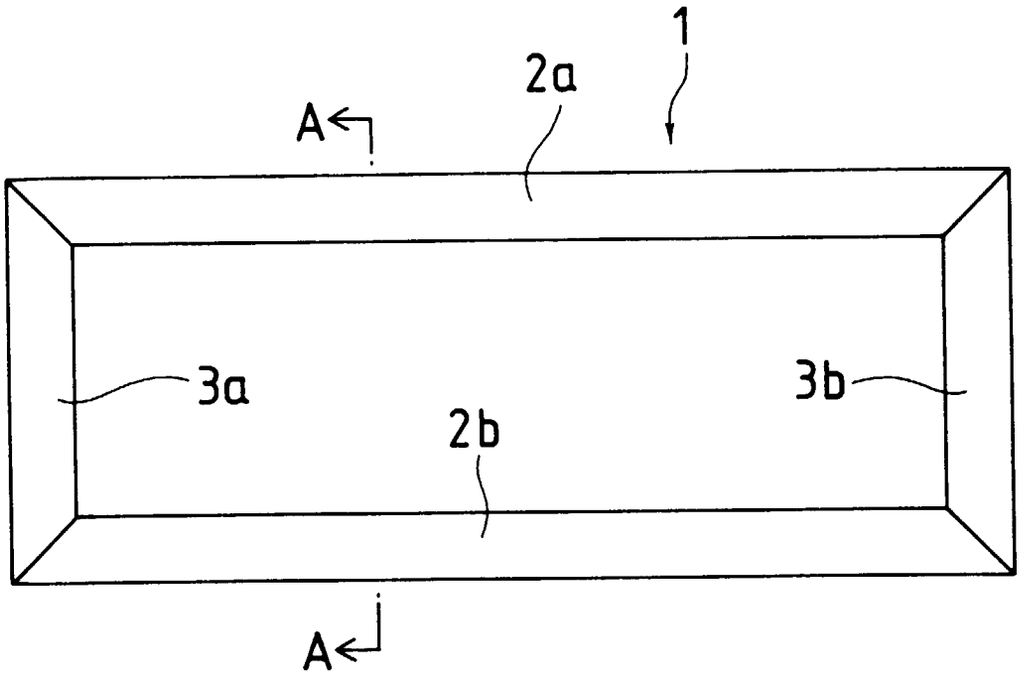


FIG. 3

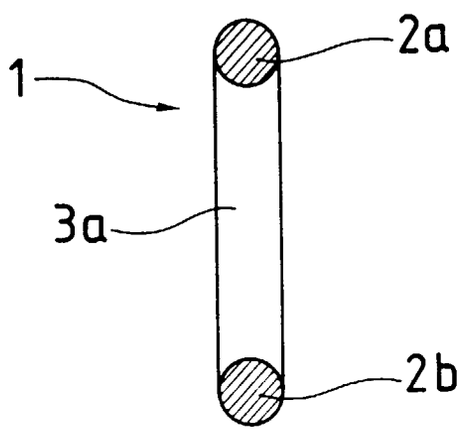
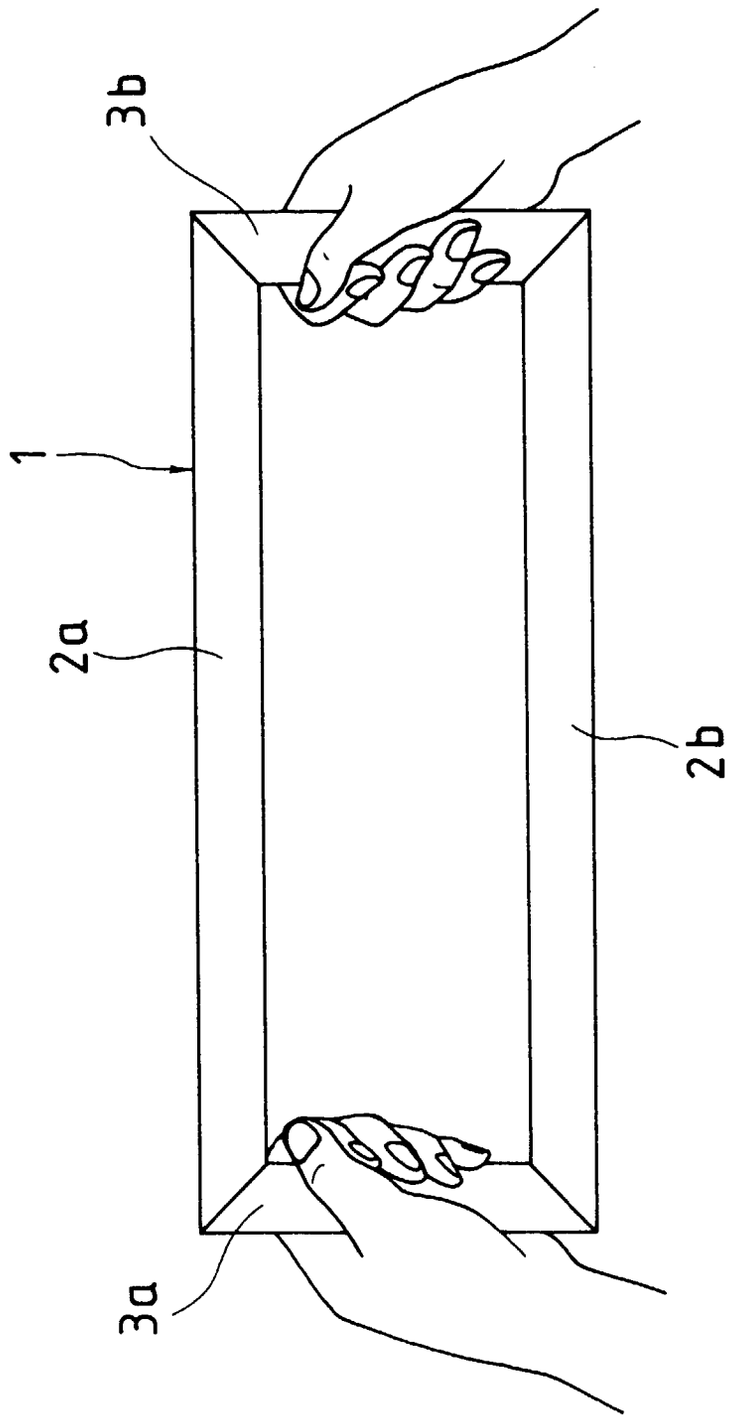


FIG. 4



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EUROPEAN SEARCH REPORT

Application Number
EP 96 30 1330

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP-A-0 176 982 (KIERNER JOSEFINE) 9 April 1986 * abstract; figures 1,2E *	1,2,4,5	A63B23/12
X	US-A-4 515 364 (ROTELLA THOMAS B) 7 May 1985 * claims 1,3; figures *	1,4	
Y		2,5-7,9	
Y	GB-A-1 534 737 (TURNER D) 6 December 1978 * page 1, line 57 - line 84; figures * * page 2, line 63 - line 65 *	2,5-7,9	
A		1,4	
A	DE-U-84 14 908 (DRESSLER) 9 January 1992 * claims; figures *	1,2,4-9	
A	US-A-4 018 442 (GALLER WILLIAM J) 19 April 1977 * abstract; figures *	1,2,4	
A	DE-A-42 22 691 (KARL GEORG) 13 January 1994 * column 1, line 47 - line 51; claim 8; figure 2 *	1,3	TECHNICAL FIELDS SEARCHED (Int.Cl.6) A63B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	29 May 1996	Neumann, E

CATEGORY OF CITED DOCUMENTS

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