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G. P. NISSEN

3,518,707

MAT FOR FREE EXERCISE OR WRESTLING OR THE LIKE

Filed May 22, 1968

2 Sheets-Sheet 1

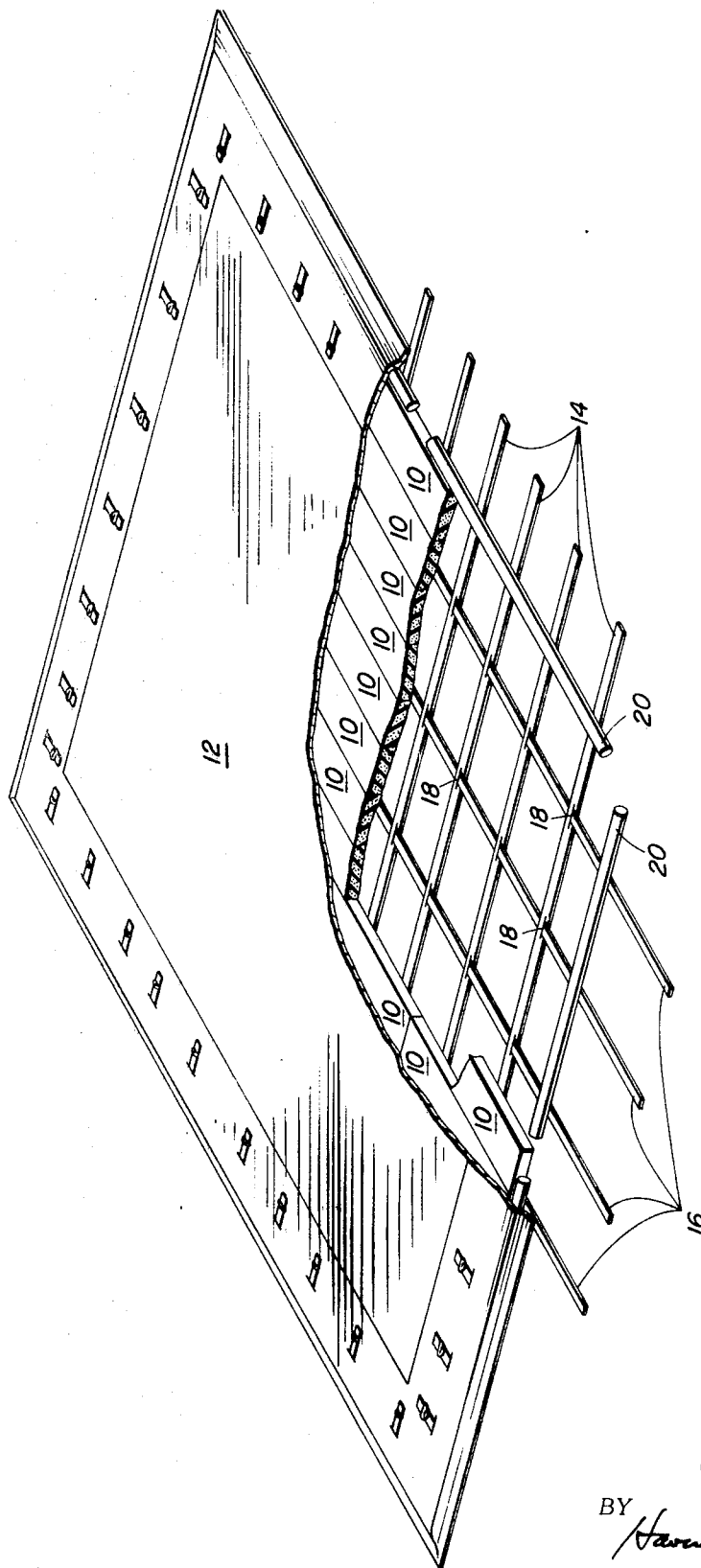


FIG. 1

INVENTOR.
GEORGE P. NISSEN

BY *Harold E. Simmer*
ATTORNEY

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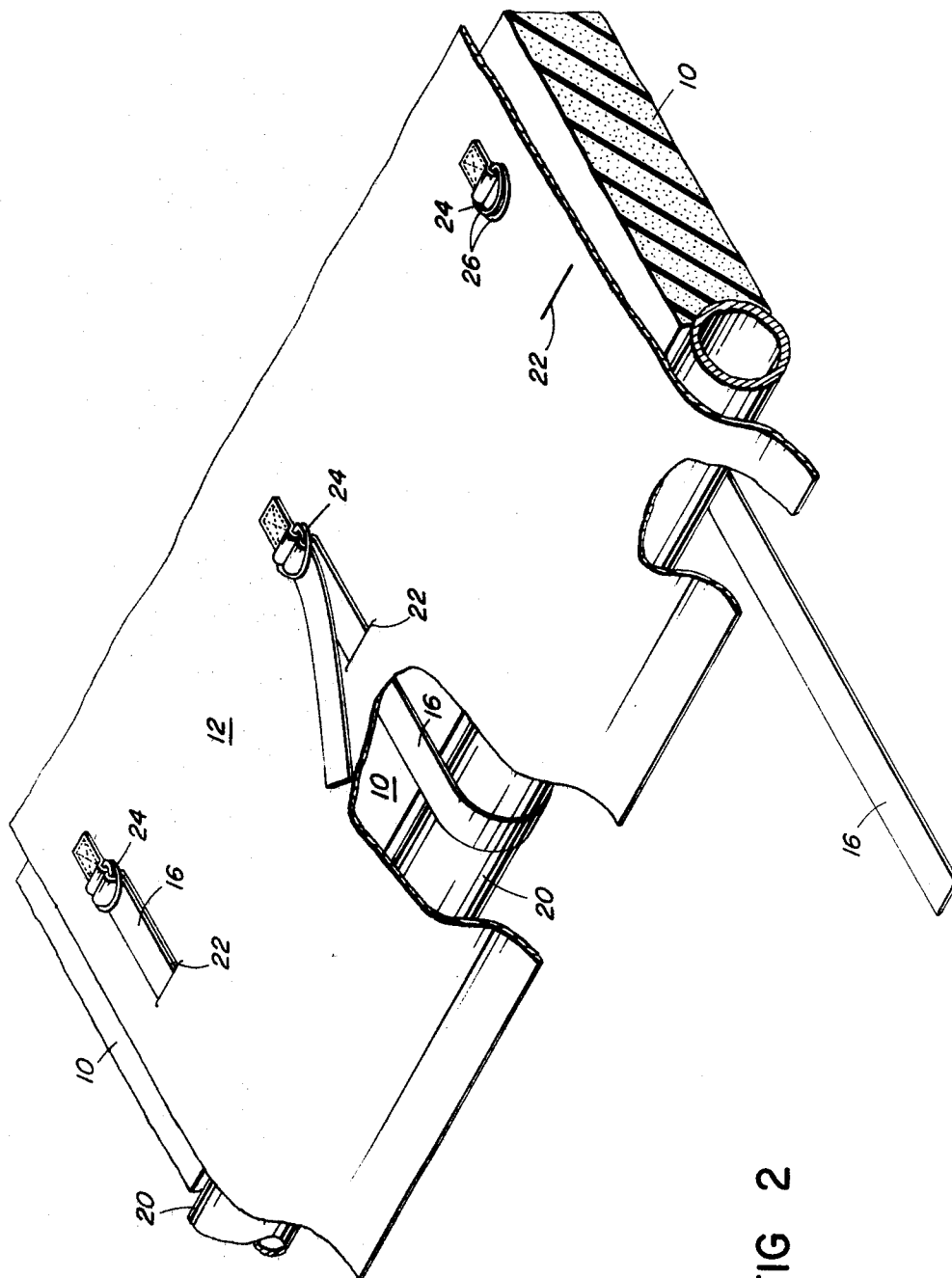


FIG 2

INVENTOR.
GEORGE P. NISSEN

BY *Harold E. Simmons*

ATTORNEY

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MAT FOR FREE EXERCISE OR WRESTLING OR THE LIKE

George P. Nissen, Cedar Rapids, Iowa, assignor to Nissen Corporation, Cedar Rapids, Iowa, a corporation of Iowa

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8 Claims

ABSTRACT OF THE DISCLOSURE

A lightweight mat for free exercise, wrestling or the like made up of sections of lightweight, shock-absorbing material which are held together as a unit by a cover and an interlacing method so that the mat can be quickly assembled and disassembled by a single person.

Background of the invention

Mats are commonly used as a floor covering for wrestling, free exercise and physical training generally so as to provide a shock absorbing or resilient surface to protect the performer. To overcome the disadvantages of the heavy and cumbersome canvas, hair-filled mats formerly used, lightweight mats made up of sections of lightweight shock-absorbing material, such as polyethylene foam were developed. The relatively small sections of this lightweight material are typically taped, tied or otherwise joined together over which, in turn, is placed a large cover in order to provide a smooth top surface free of joints and crevices. The cover is stretched over the assembled sections and then taped to the gymnasium floor to hold the cover in position. Such mats have obvious advantages over their heavy and cumbersome predecessors but require two or more persons for proper assembly since the cover must be stretched very tightly over the assembled sections of resilient material. Taping or otherwise joining the lightweight sections together and taping of the cover to the floor is laborious and time-consuming. Often the tape pulls loose or damages the finish of the floor.

Summary of the invention

The invention provides a novel means for locking the lightweight sections of the mat together into a tight unitary structure without gaps or overlapping between the sections and at the same time stretching the cover tightly thereover. The novel means for locking the sections together and stretching the cover eliminates the use of tape for either purpose. Briefly, a rectangular network of strip material is laid out on the floor over which are laid the sections of foam. Lengths of tubing are then placed along the outer four edges of the assembled sections and the cover placed thereover. The ends of the strip material are thereafter brought up around the tubing and passed through slits in the margin of the cover, being secured to D-rings inboard of the slits. When the strips are pulled up tight, the sections of foam are locked tightly together and at the same time the cover is stretched tightly thereover. This novel means of assembly in locking the sections of the mat together is such that a single person can perform both the operations of assembly of the sections and stretching of the mat cover. The assembly operation, as well as the disassembly, can be done relatively rapidly.

Brief description of the drawings

FIG. 1 is a perspective view of an assembled gymnasium mat with a portion of the cover and some of the

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sections broken away to show the details of the locking means; and

FIG. 2 is an enlarged view of a portion of one edge of an assembled mat showing the details of the locking means.

Description of the preferred embodiment

Referring now to the drawings, and particularly to FIG. 1, the mat is comprised basically of a plurality of generally rectangular shaped sections or blocks 10 laid side-by-side and end-to-end to form a resilient or shock absorbing surface of the desired size. The blocks are each preferably of a resilient or shock absorbing material that is also lightweight, such as polyethylene foam. One such material that is suitable and commonly used is "Ethafoam," a product of the Dow Chemical Company. The blocks 10 are completely covered by a suitable one piece covering 12, preferably of canvas or nylon fabric coated with a polyvinyl resin. As will be described more fully hereinafter, the covering 12 serves both to hold the blocks 10 tightly together and to provide a smooth unbroken protective surface over the blocks 10.

In order to hold the blocks 10 together with the covering 12 in a unitary structure, a series of relatively narrow, vinyl impregnated nylon fabric strips are laid on the floor in a grid pattern. A first set of such strips 14 are laid in parallel spaced-apart relationship across an area approximately the area to be covered by the mat when completely assembled. Strips 14, however, are of a length somewhat longer than the dimension of the mat as finally assembled. With the strips 14 in place, a second set of strips 16 is laid crosswise or perpendicular to the strips 14, with the strips 16 also in parallel spaced-apart relationship. Again, the strips 16 cover an area of approximately the area to be covered by the completely assembled mat except that the free ends of the strips 16 extend somewhat beyond that area. Preferably, strips 14 contain slits 18 at intervals spaced according to the desired spacing of the strips 16. Thus, when the strips 16 are laid, they are inserted through the slits 18 so that the two sets of strips 14 and 16 are interlaced.

After the grid formed by strips 14 and 16 has been laid, the blocks 10 are laid side by side and end to end to form a mat of the desired size. The blocks 10 are laid closely together, and as previously indicated, the free ends of the strips 14 and 16 extend beyond the rectangular surface formed by laying the blocks 10. With all of the blocks 10 in place, lengths of tubing 20 are laid along the exposed edges of the blocks 10. The tubing is preferably of approximately the same diameter as the thickness of the blocks 10. It is obvious that, if desired, solid bar stock could be used in place of the tubing 20. Preferably, lightweight aluminum tubing is used because it is easier to handle particularly for the large size mats. The tubing 20 is, of course, laid over the extended ends of the strips 14 and 16, and its ends need not be joined, either along the sides of the mat or at its corners.

After the tubing 20 is in place along each of the four edges formed by the assembled blocks 10, the covering 12 is placed over the blocks 10 and tubing 20. As is best seen in FIG. 2, the covering 12 contains a plurality of slits 22 at a distance inwardly from each edge thereof, the slits being spaced at intervals corresponding to the spacing of the strips 14 and 16. Also, the cover contains a D-ring clamp 24 of well-known design inwardly from each slit 22. As is well known, each D-ring clamp 24 consists of two D-rings 26 whose straight sides are secured to the covering by suitable fastening means such as a strip of material sewn to the covering 12.

After the covering 12 is in place, the person assembling the mat wraps each strip 14 (or 16) around the tubing

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20 at one edge of the mat, underneath the covering 12, through the slit 22 in the covering and fastens the free end of the strip to the D-ring clamp 24 in a well-known manner. When this has been completed along one edge of the mat, the person assembling the mat then proceeds to an adjacent side and repeats the process. The assembler then proceeds to one of the sides opposite to a side where the strips have been secured to the covering 12 and again repeats the process of wrapping the strips around the tubing 20, through the slits 22 and fastening them to the D-ring clamps 24. However, since the opposite edge is secured, the assembler will draw up the strips 14 or 16 tightly so that the covering 12 is stretched smoothly and tightly across the blocks 10. With the three sides now secured, the assembler can proceed to the last side and repeat the process of wrapping the strips around the tubing 20, through the slits 22 and fastening them to the D-ring clamps 24. Again, the assembler will draw the strips 14 or 16 very tightly so that the covering is stretched smoothly and tightly over the blocks 10.

The described means of locking the blocks 10 together will assure that the blocks are drawn together snugly and the covering 12 stretched tightly so that a smooth uninterrupted resilient shock absorbing mat is assembled. The tubing 20 provides a rigid edge that permits the blocks 10 to be squeezed between the tubing 20 to assure that there are no gaps between them. When completely assembled, the mat becomes a unitary structure which a single person can easily assemble. The technique is as applicable to the large size of mat used for free exercise, as it is to the smaller size used for wrestling, or to any other mat used, for instance, for judo or for physical training generally. Likewise, the technique may be easily adapted to mats of shapes other than square or rectangular.

Accordingly, it will be obvious to those skilled in the art that various modifications can be made in the preferred embodiment described herein without departing from the spirit and scope of the invention. It is my invention, however, that all such modifications will be included within the scope of the following claims.

I claim:

1. A free exercise or wrestling mat that provides a smooth, flat performing surface, said mat comprising a plurality of flat, uniformly thick blocks of resilient material, said blocks being grouped together in side-by-side relationship to form the resilient base of said mat, said base having an exposed outer edge, a covering large enough to extend over the performing surface of the mat, rigid means abutting said outer edge along substantially its entire length, and restraining means adjustably secured to said covering at a plurality of opposite points thereof and engaging said rigid means at a corresponding plurality of opposite locations thereon along the outer edge of said base so as to draw said rigid means inwardly thereby to press said blocks together and to draw said covering outwardly to stretch it over said blocks.

2. The mat of claim 1 in which said restraining means includes a plurality of strips of flexible material, the ends of each strip being secured to said covering at said opposite points thereof, and each strip passing around said rigid means at opposite edges of said base and beneath said blocks.

3. The mat of claim 2 in which said blocks form a rectangular base having first and second edges substantially parallel to each other and normal to third and fourth edges, and a plurality of said strips extend in

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spaced-apart parallel relationship between said first and second edges and also between said third and fourth edges.

4. The mat of claim 3 in which each of the strips extending between said first and second edges contains a plurality of slits spaced apart a distance to receive the strips extending between said third and fourth edges thereby to interlace said strips.

5. The mat of claim 1 in which said rigid means is a rigid tubular member having an outside diameter no greater than the thickness of said blocks.

6. A free exercise or wrestling mat of flat rectangular shape and having first and second edges substantially parallel to each other and normal to third and fourth substantially parallel edges, said mat comprising a plurality of flat uniformly thick rectangular blocks of resilient material, a plurality of flexible first strips arranged in spaced-apart substantially parallel relationship between and parallel to said first and second edges, a plurality of flexible second strips arranged in spaced-apart substantially parallel relationship between and parallel to said third and fourth edges, said blocks being positioned on top of all of said strips and in abutting relationship to one another so as to form said rectangular shape with the exposed edges of said blocks forming said first, second, third and fourth edges of the mat, a rigid member positioned on top of the respective strips and abutting said blocks along each of said first, second, third and fourth edges, said members being of a height no greater than the thickness of said blocks, a covering extending over said blocks, a plurality of fastening means on said covering spaced therealong inwardly from said edges of said blocks to which respective one of said strips can be affixed, said first strips being wrapped around the rigid members positioned along said third and fourth edges and then secured to their respective ones of said fastening means on said covering, and said second strips being wrapped around the rigid members positioned along said first and second edges and then secure to their respective ones of said fastening means on said covering.

7. The mat of claim 6 in which each of said first strips contains a plurality of spaced-apart slits, said slits being located so as to receive said second strips there-through whereby said first and second strips are interlaced.

8. The mat of claim 6 in which said covering extends beyond said rigid members on all four edges of said mat, said fastening means being located on top of said covering when said covering is in place over said blocks, said covering containing a plurality of slits, one such slit located outwardly from each of said fastening means, said strips being passed through respective ones of said slits before being secured to the fastening means.

References Cited

UNITED STATES PATENTS

1,276,361	8/1918	Hobert	5—357
1,644,852	10/1927	Ness	5—344 XR
3,380,088	4/1968	D'Adesky	5—344

BOBBY R. GAY, Primary Examiner

A. M. CALVERT, Assistant Examiner

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