March 27, 1951 N. BUCK 2,546,151

SPRING BOARD

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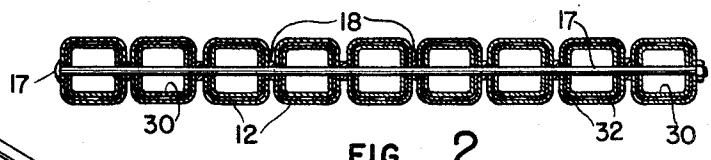

FIG_2

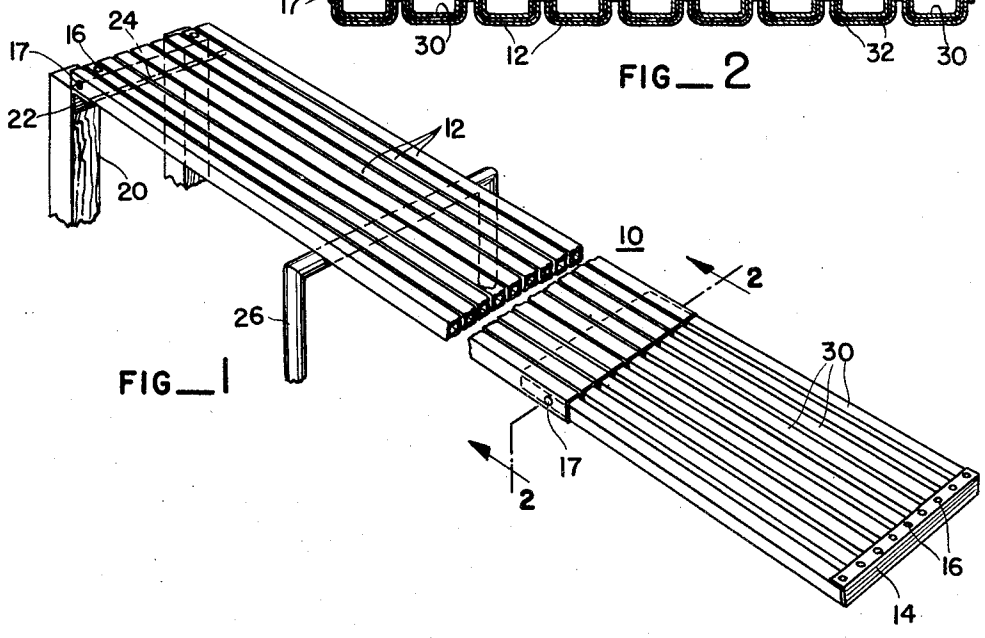

FIG_1

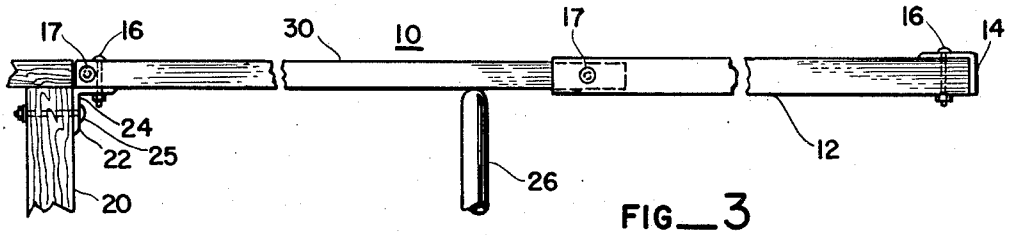

FIG_3

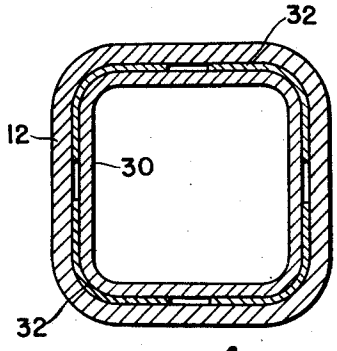

FIG_4

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SPRINGBOARD

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2 Claims. (Cl. 272—66)

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This invention relates to improvements in a spring board used in acrobatics, and, more particularly, has to do with diving boards for aquatic performers.

In the past, it has been customary to employ wooden boards as projectors in diving both for amateurs and profesional or exhibition performers. A simple form of board has usually been a rather wide plank about two inches thick and in length from eight or ten to eighteen or twenty feet. These are mounted with the approach end anchored to a pier or dock with a fulcrum in advance thereof with the board either inclined upward and outward or substantially horizontal. Other boards have been fabricated with both horizontally and vertically associated laminae of wood members adhesively or mechanically joined together. Still other boards, such as those products of the designer seeking longer wear and more uniformity from one board to another, have been formed of metallic elements. However, all of these prior structures have been subject to criticism for any of several reasons, such as, for example, lack of uniformity, checking of the wood grain, twisting due to warping from exposure to the elements in a damp atmosphere, elasticity improperly located and, as with metallic boards, extreme complication in fabricating and mounting, and hence, undue expense. These are only a few of the more obvious objections to the prior art structures which I have overcome with my invention.

Therefore, it has been among the important objects of this invention to provide a diving device which is: simple and easy to construct and mount; has a long and useful life under the most extreme conditions of hard and constant use; can be produced with uniform characteristics as determined to be desirable before construction is started; can be arranged so that the characteristics can be varied with the sacrifice of material or substantial labor; will resist the effects of the elements of nature through long exposure to all the seasons of the year; is light and compact for shipping purposes and can easily be installed even in the large sizes by but a single workman; and will have other and desirable characteristics as will appear more fully from the following description.

In the drawings, forming a part of this specification:

Fig. 1 is a perspective view showing a preferred form of the diving device as it appears ready for use;

Fig. 2 is an enlarged cross-sectional view taken in the plane indicated by line 2—2 of Fig. 1;

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Fig. 3 is a side view of a modified form of diving board embodying the principles of my invention; and

Fig. 4 is a substantially enlarged cross-section of the point of joinder between multi-sized tubular elements used in my diving device.

As has been indicated before, most diving devices embody an elongated flexible element upon which the performer walks, runs or jumps to deflect and thereby produce a resulting springing return action to throw his body into the air. My flexible element is indicated as a whole by the numeral 10 and includes a plurality of juxtaposed metallic tubes 12 that may be secured together at the ends by cross member 14 and fasteners 16, or by through-bolts 17, as shown in Figure 1, intermediate the ends.

The tubular members 12 are best formed of heat-treated or tempered aluminum alloy extrusions of substantially square cross-section, as shown in Figs. 2 and 4. Such material has great strength for its weight and very desirable characteristics as to modulus of elasticity, high tensile strength, and suitable elongation factors. I have used, with great success, a round-cornered tubular extrusion member formed of 24S–T aluminum alloy that has been annealed and has a wall thickness of ⅛ inch and outside dimensions of approximately $2\frac{3}{16}$ by $2\frac{3}{16}$ inches. As shown in the drawings, these tubes are assembled in side-by-side relationship to the width desired for a particular diving board. Ordinarily, such boards are about eighteen to twenty inches wide and such variations can easily be accommodated by adding or omitting a tube or two. These tubes are most simply joined together by cross-boring an assembly and inserting a through-bolt 17. Spacers 18 may be used to vary the width of the board and on occasion reduce friction between the tubes during flexing motions.

The diving device is usually mounted with its approach end elevated, as when it is at the end of a swimming tank. For this reason, I show the horse 20 which is rigidly positioned in an upright manner. Flange 22 of the cross-member 24 is secured to the horse 20 by bolts 25, or the like. The board is bolted to the other flange of member 24 by fasteners 16. In spaced-apart relation to horse 20 is positioned the fulcrum 26 which is also rigid. The board overlies the fulcrum and is preferably not secured thereto in any manner, although under certain circumstances rockers may be applied on the fulcrum or hold-down devices may be used. The important consideration is that the approach end of the board be secure and that

the remainder be suitably cantilevered over the fulcrum, either in a horizontal plane as shown, or in inclination as is often desired.

It will be understood that even though in Fig. 1 the device is shown to have a section of smaller tubes 30 extending outboard from the outer ends of the tubes 12, there are occasions when only the larger tubes may be used. Such, of course, would produce a relatively stiff board. The use of the smaller tubes in the outer end section produces a board that has a softer action when jumped upon, as in diving. The end of a smaller tube 30 is inserted into the end of a larger tube 12, and shims 32, as shown in Fig. 4, are placed in position at the corners and driven tightly into place. These shims insure proper alignment and preclude twisting or warping of the one section relative the other.

In Fig. 3, I have shown a modification of the multiple section assembly of Fig. 1, the main difference residing in the placement of the section having the larger tubes 12 in the outboard position and the section having the smaller tubes 30 in the approach end of the device. This arrangement varies the characteristics in that more flexure is allowed at the approach end of the board when the outer end is deflected downward.

I have found that it is most desirable that the substantially square tubes be assembled so that their lateral medians lie horizontally so that the upper and under face of the assembly is rather flat and easy to walk upon. On the upper face, I have used non-skid adhesively applied tape with great success for boards for use in public pools where they are subject to constant usage by less skilled and possibly more rough performers. Where great premium is placed upon form, and the like, or it is desired to give a softer yet no-skid surface, I use cocoa matting or carpeting that may be secured around the outer end of the board and extend therefrom toward the fulcrum as desired. Usually only the last 50 or 60 inches are covered with the non-skid material.

Although I have shown and described certain specific embodiments of my invention, I am fully aware that many modifications thereof are possible. My invention, therefore, is not to be restricted except insofar as is necessitated by the prior art and by the spirit of the appended claims.

I claim:

1. A diving board device comprising a fulcrum; an elongated metallic springboard element fixedly secured at one end portion, supported intermediate its length by said fulcrum, and terminating at the other end portion thereof in a plurality of longitudinally extending rectangular passageways, said springboard element comprising a plurality of longitudinally extending metallic flexible elements positioned alongside each other, and normally lying substantially in a common horizontal plane, and laterally extending securing means securing said longitudinally extending metallic elements together against independent flexing movement; and a second springboard element connected with said first springboard element comprising a plurality of metallic flexible rectangular tubular members positioned alongside each other, normally lying substantially in a common horizontal plane, and having their end portions telescopically disposed in said rectangular passageways in said first springboard element and laterally extending securing means securing said tubular members together against independent flexing movement.

2. A diving board device comprising a fulcrum; an elongated metallic springboard element fixedly secured at one end portion, supported intermediate its length by said fulcrum, and terminating at the other end portion thereof in a plurality of longitudinally extending rectangular passageways, said springboard element comprising a plurality of longitudinally extending metallic flexible rectangular tubular members positioned alongside each other, and normally lying substantially in a common horizontal plane, and laterally extending securing means securing said longitudinally extending metallic elements together against independent flexing movement; and a second springboard element connected with said first springboard element comprising a plurality of metallic flexible rectangular tubular members positioned alongside each other, normally lying substantially in a common horizontal plane, and having their end portions telescopically disposed in said rectangular passageways in said first springboard element and laterally extending securing means securing said tubular members together against independent flexing movement.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
962,691	Anderson	June 28, 1910
1,635,204	Brown	July 12, 1927