Dec. 10, 1968 C. D. MATTINGLY 3,415,516

DIVING BOARDS

Filed Feb. 20, 1964 2 Sheets-Sheet 1

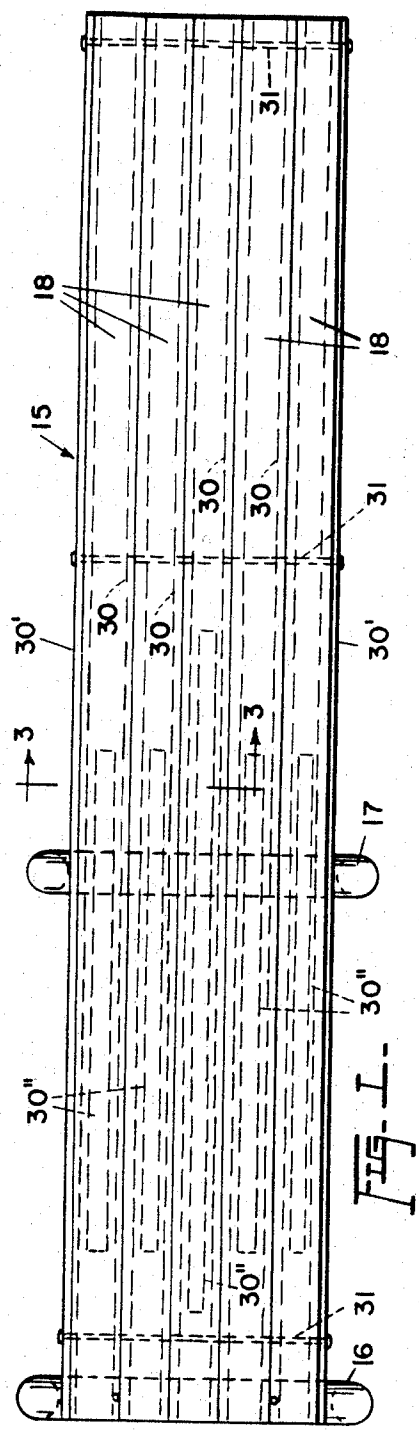



FIG. 1.

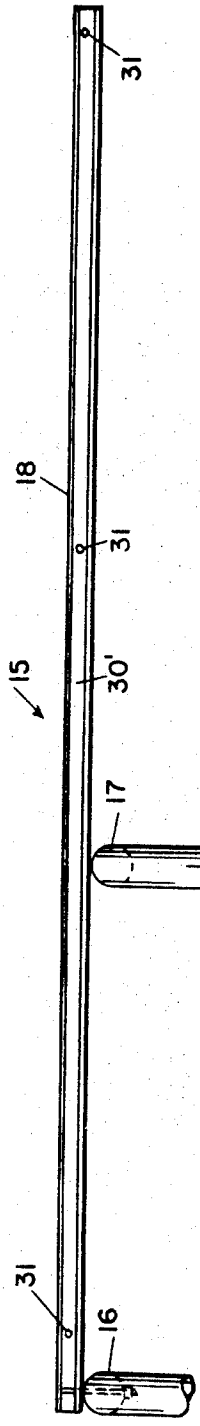



FIG. 2.

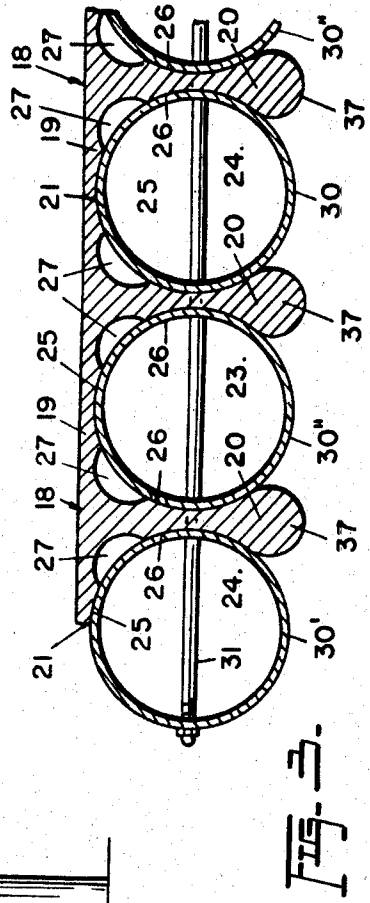



FIG. 3.

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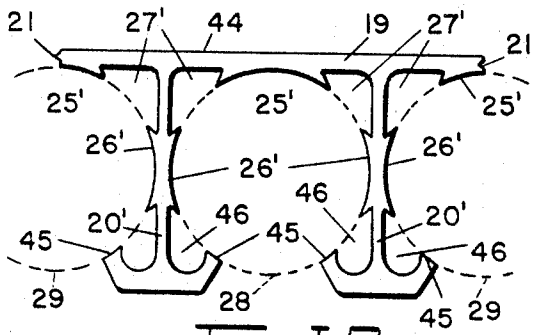



FIG. 10.

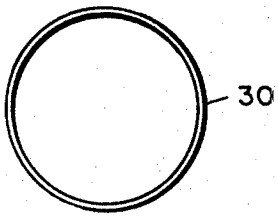



FIG. 5.

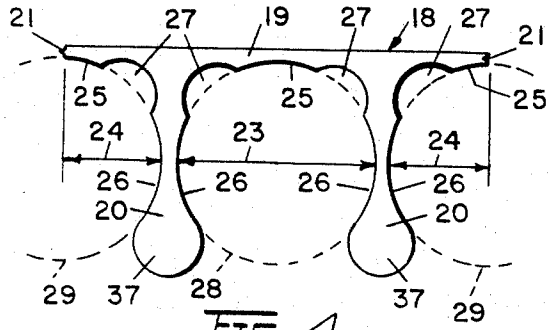



FIG. 4.

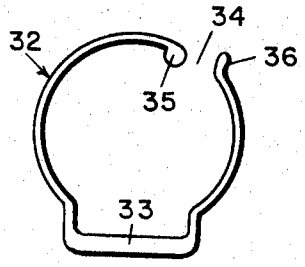



FIG. 6.

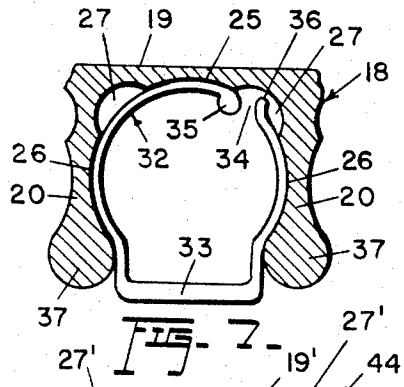



FIG. 7.

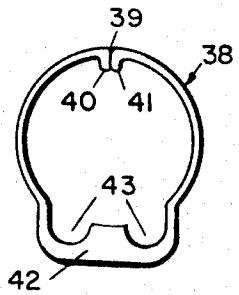



FIG. 8.

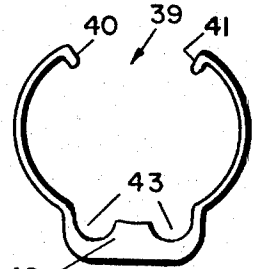



FIG. 9.

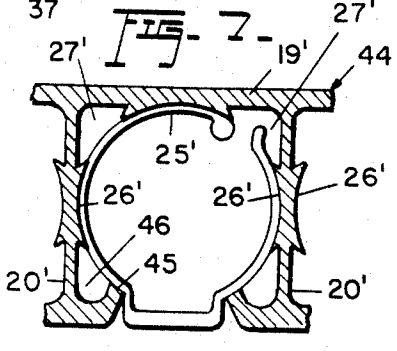



FIG. 11.

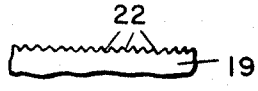



FIG. 12.

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United States Patent Office 3,415,516 Patented Dec. 10, 1968



3,415,516

# DIVING BOARDS

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Filed Feb. 20, 1964, Ser. No. 346,226
16 Claims. (Cl. 272—66)

This invention relates to new and useful improvements in diving boards, particularly diving boards of a metallic construction, and the principal object of the invention is to provide a diving springboard which may be easily and inexpensively constructed of readily available material without the need of special tools for assembly and without any material waste, the board being light in weight, durable against structural failure, and capable of having a predetermined amount of stress inbuilt at any point throughout its length.

Other objects, features and advantages of the invention will become apparent from the following description taken in conjunction with the accompanying drawings, wherein like characters of reference are used to designate like parts, and wherein:

FIGURE 1 is a top plan view of a diving springboard in accordance with the invention;

FIGURE 2 is a side elevation thereof, partially broken away;

FIGURE 3 is an enlarged, fragmentary sectional view, taken substantially in the plane of the line 3—3 in FIGURE 1;

FIGURE 4 is an end view of one of the longitudinal members of the board;

FIGURE 5 is an end view of one of the supporting or reinforcing elements;

FIGURE 6 is an end view of a modified embodiment of the supporting or reinforcing elements;

FIGURE 7 is a fragmentary detail showing the element of FIGURE 6 installed in one of the longitudinal board members, the latter being shown in cross-section;

FIGURE 8 is an end view of another modified embodiment of the supporting or reinforcing elements;

FIGURE 9 is an end view of the element of FIGURE 8 partially formed;

FIGURE 10 is an end view of a modified embodiment of the longitudinal board members;

FIGURE 11 is a fragmentary detail showing the element form of FIGURE 6 in the longitudinal board member of FIGURE 10; and

FIGURE 12 is a fragmentary detail, on an enlarged scale, showing grooves in the top surface of the longitudinal board members.

Referring now to the acompanying drawings in detail, the general reference numeral **15** in FIGURES 1 and 2 designates a diving springboard, supported in the usual manner by a conventional rear support bar **16** and a fulcrum bar **17**, as will be apparent.

The board **15** is of a metallic construction and consists of a plurality of longitudinal members **18** disposed in juxtaposed, contacting relation. As is best shown in FIGURE 4, each of the members **18** has a horizontal top flange **19** and a pair of vertically elongated ribs **20** which depend from the top flange. The member **18** preferably is a metallic extrusion, of aluminum for example, in which the ribs **20** and the top flange **19** are integrally formed. The side edges of the top flanges **19** of the several members **18** are in abutment as shown in FIGURES 1 and 3, and the upper surfaces of the flanges **19** constitute the deck of the diving board. It is preferred that these side edges of the top flanges be provided with interlocking tongue-and-groove means as indicated at **21**, whereby to maintain the top flanges **19** of the several members **18** in coplanar relation. It is also preferred that the top surface of



the flanges **19** which forms the deck of the board be provided with longitudinally extending V-shaped grooves as indicated at **22** in FIGURE 12, so as to afford a non-slip surface and facilitate paint adhesion if or when the deck of the board is painted.

Referring again to FIGURE 4, it will be observed that the two ribs **20** are transversely spaced from each other as indicated at **23**, and that they are also spaced inwardly from the side edges of the top flange **19**, as indicated at **24**. The underside of the top flange and the opposing side surfaces of the ribs are formed with concentrically concave seating surfaces **25**, **26**, respectively, and portions of the extruston between these surfaces are recessed as at **27** for a reduction in weight. The surfaces **25**, **26** as well as the recesses **27**, of course, extend throughout the length of the extrusion. The concentric arrangement of the seating surfaces **25**, **26** in the space **23** between the two ribs **20** is shown by the dotted circle **28** in FIGURE 4. Similarly, the seating surfaces **25**, **26** at the open, outer sides of the ribs **20** coact with corresponding surfaces of juxtaposed members **18** in a concentric arrangement, as indicated by the dotted lines **29**.

The board **15** also embodies in its construction a plurality of longitudinally extending tube like reinforcing or supporting elements **30** which, as shown in FIGURE 5, are of simple, closed tubular form. The outside diameter of these tubes corresponds to the circle diameter **28**, **29** of the seating surfaces **25**, **26**, so that the elements **30** may be installed in the spaces **24** between the adjacent members **18** as shown in FIGURES 1 and 3, in supporting engagement with the seating surfaces **25**, **26** existing in such spaces. The supporting elements **30** extend throughout the length of the board, it being noted that such elements are also provided at the outside edges of the board as indicated at **30'**, and that the reinforcing or supporting elements **30**, **30'** and the board members **18** are secured together, as for example, by transversely extending tie bolts **31**, or the like. Also, the elements and board members may be secured together by adhesive applied to the seating surfaces **25**, **26** in contact with the supporting elements, in which event the tie bolts **31** need not be employed.

In the construction thus far described, the reinforcing or supporting elements **30**, **30'** are located only in the spaces **24** which are directly under the side edges of the top flanges **19** of the members **18**, while the spaces **23** between the ribs **20** of the members are unoccupied. However, lengths of the reinforcing or supporting elements **30** may also be installed in the spaces **23** as indicated at **30''**, so as to provide additional reinforcement at selected regions of the board and permit the board to have a predetermined amount of stress at any point along its length. As examplified in FIGURE 1, the elements **30''** may be of various lengths and disposed at various locations along the length of the board, it being understood that the board structure is inherently resiliently flexible to provide the desired spring, and that use of the elements **30''** at selected regions of the board decreases the resilient characteristics of such regions where resiliency is not desirable, as for example, the area of the fulcrum bar **17** but terminating substantially short of the free or outboard end thereof.

FIGURES 6 and 7 illustrate a modified embodiment of the tube-like element **30** of FIGURE 5, the modification being designated by the numeral **32** and usable at the locations **30**, **30'** and **30''**, as already described. The element **32** is a metallic extrusion having a substantial tubular form, but with a broadened base portion **33** and a longitudinal split **34**, bordered at its edges by beads **35**, **36**. The portion of the element **32** between the base **33** and the bead **36** is resiliently biased outwardly

from a true circular form, so that when the element is installed in the board members **18**, it is frictionally urged against the seating surfaces **25**, **26**, with the bead **36** projecting into one of the recesses **27**, as shown in FIGURE 7. The base portion **33** of the element **32** is disposed between the bulbous portions **37** at the lower edges of the ribs **20** and in contacting engagement therewith, so that a firm assembly is attained.

FIGURE 8 illustrates another modified embodiment of the tube-like element **30** which, in this instance, is designated by the numeral **38**. The same is also longitudinally split as at **39** and provided with beads **40**, **41** and with a widened base portion **42** which is recessed as at **43** for reduction of weight. The element **38** is also in the form of a metallic extrusion, and FIGURE 9 shows the same before it is rolled, closed and tempered into the finished form of FIGURE 8. If desired, the portions of the element **38** at opposite sides of the split **39** may be resiliently biased outwardly, so that the element frictionally engages the seating surfaces **25**, **26** of the members **18**.

FIGURES 10 and 11 illustrate a modified embodiment of the longitudinal members **18**, designated in this instance by the numeral **44**. The same is in the form of a metallic extrusion having a top flange **19'** and a pair of depending ribs **20'**, with seating surfaces **25'** and **26'** and recesses **27'**, similar to the corresponding parts in the member **18**. However, in place of being bulbous, the lower edge portions of the ribs **20'** have an inverted T-shaped form and provide additional seating surfaces **45** with recesses **46** between the surfaces **45** and the surfaces **26'**, as illustrated.

The member **44** may be used with the supporting or reinforcing elements **30**, or **32**, or **38**, as desired, in the same manner as the member **18**.

While in the foregoing there have been described and shown the preferred embodiments of the invention, various modifications may become apparent to those skilled in the art to which the invention relates. Accordingly, it is not desired to limit the invention to this disclosure, and various modifications and equivalents may be resorted to, falling within the spirit and scope of the invention as claimed.

What is claimed as new is:

**1.** A diving board comprising a plurality of parallel longitudinal members disposed in juxtaposed contacting relation, each of said longitudinal members having a horizontal top flange and a plurality of vertically elongated ribs depending from said top flange, the top flanges of said longitudinal members being in abutment with one another and constituting the deck of the diving board said ribs being laterally spaced apart and unconnected at their lower extremities, the undersides of each of said top flanges and sides of each of said ribs being provided with concave seating surfaces, a plurality of longitudinally extending tube-like supporting elements disposed in the spaces between said ribs in engagement with said seating surfaces, and means for securing said longitudinal members and said supporting elements together.

**2.** The device as defined in claim **1** together with interlocking means provided at abutting side edges of the top flanges of said longitudinal members for maintaining said top flanges in coplanar relation.

**3.** The device as defined in claim **1** wherein the top flanges of said longitudinal members are provided in their top surfaces with longitudinally extending grooves.

**4.** The device as defined in claim **1** wherein each of said longitudinal members comprises a metallic extrusion having said ribs formed integrally with the top flange thereof.

**5.** The device as defined in claim **1** wherein portions of said top flanges and of said ribs between said seating surfaces are recessed for reduction of weight.

**6.** A diving board comprising a plurality of parallel longitudinal members disposed in juxtaposed contacting relation, each of said longitudinal members having a horizontal top flange and a plurality of vertically elongated ribs depending from said top flange, the top flanges of said longitudinal members being in abutment with one another and constituting the deck of the diving board, said ribs being laterally spaced apart and unconnected at their lower extremities, the undersides of said top flanges and opposing sides of said ribs being provided with concave seating surfaces, a plurality of longitudinally extending tube-like supporting elements disposed in the spaces between said ribs in engagement with said seating surfaces, and means for securing said longitudinal members and said supporting elements together, said diving board having a supported rear end, a free front end and an intermediate fulcrum area, and wherein some at least of said supporting elements extend through the fulcrum area from the supporting end but terminate substantially short of the free end of the diving board.

**7.** A diving board comprising a plurality of parallel longitudinal members disposed in juxtaposed contacting relation, each of said longitudinal members having a horizontal top flange and a plurality of vertically elongated ribs depending from said top flange, said ribs being spaced inwardly from side edges of the top flange and also being spaced from one another, the side edges of the top flanges of said longitudinal members being in abutment and constituting the deck of the diving board, the underside of said top flanges and opposing sides of said ribs being provided with concentrically concave seating surfaces, a plurality of longitudinally extending tube-like supporting elements disposed in the spaces between the ribs of adjacent longitudinal members in engagement with said seating surfaces, a longitudinally extending tube-like reinforcing element disposed in the space between the ribs of at least one of said longitudinal members in engagement with said seating surfaces, and means for securing said longitudinal members and said supporting elements together.

**8.** The device as defined in claim **7** together with interlocking means provided at said abutting side edges of the top flanges of said longitudinal members for maintaining said top flanges in coplanar relation.

**9.** The device as defined in claim **7** wherein said supporting elements are of a closed tubular form.

**10.** The device as defined in claim **7** wherein said tube-like supporting elements are longitudinally split and resiliently biased into frictional engagement with said seating surfaces.

**11.** The device as defined in claim **7** wherein said supporting elements are formed with widened base portions interfitted between said ribs.

**12.** A diving board comprising a plurality of parallel longitudinal members disposed in juxtaposed contacting relation, each of said longitudinal members having a horizontal top flange and a plurality of vertically elongated ribs depending from said top flange, the top flanges of said longitudinal members being in abutment with one another and constituting the deck of the diving board, said ribs being laterally spaced apart and unconnected at their lower extremities, the undersides of said top flanges and opposing sides of said ribs being provided with concave seating surfaces, a plurality of longitudinally extending tube-like supporting elements disposed in the spaces between said ribs in engagement with said seating surfaces, and means for securing said longitudinal members and said supporting elements together, the supporting elements being longitudinally split and resiliently biased into friction engagement with said seating surfaces.

**13.** A diving board as defined in claim **1** wherein said supporting elements are provided with base portions interfitted between said ribs.

**14.** A longitudinally continuous diving board having a supported rear or inboard end, a free front or outboard end and an intermediate fulcrum area, said diving board

comprising a deck portion formed by the upper surfaces of a plurality of parallel longitudinal members disposed and secured together in juxtaposed contacting relation, and separate means secured beneath and in contact with the underside of said deck portion providing reinforcement for the diving board at a selected region, comprising a plurality of spaced parallel longitudinal supporting elements extending from adjacent the supported rear end of the board and including the fulcrum area but terminating substantially short of the free end of the diving board.

**15.** A diving board as defined in claim **14** wherein the supporting elements are of different lengths.

**16.** A diving board as defined in claim **14** wherein the respective supporting elements are disposed at various locations along the length of the board.



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U.S. Cl. X.R.

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