Sept. 24, 1957 J. A. PATTERSON 2,807,468

DIVING BOARDS

Filed Feb. 19, 1954 3 Sheets-Sheet 1

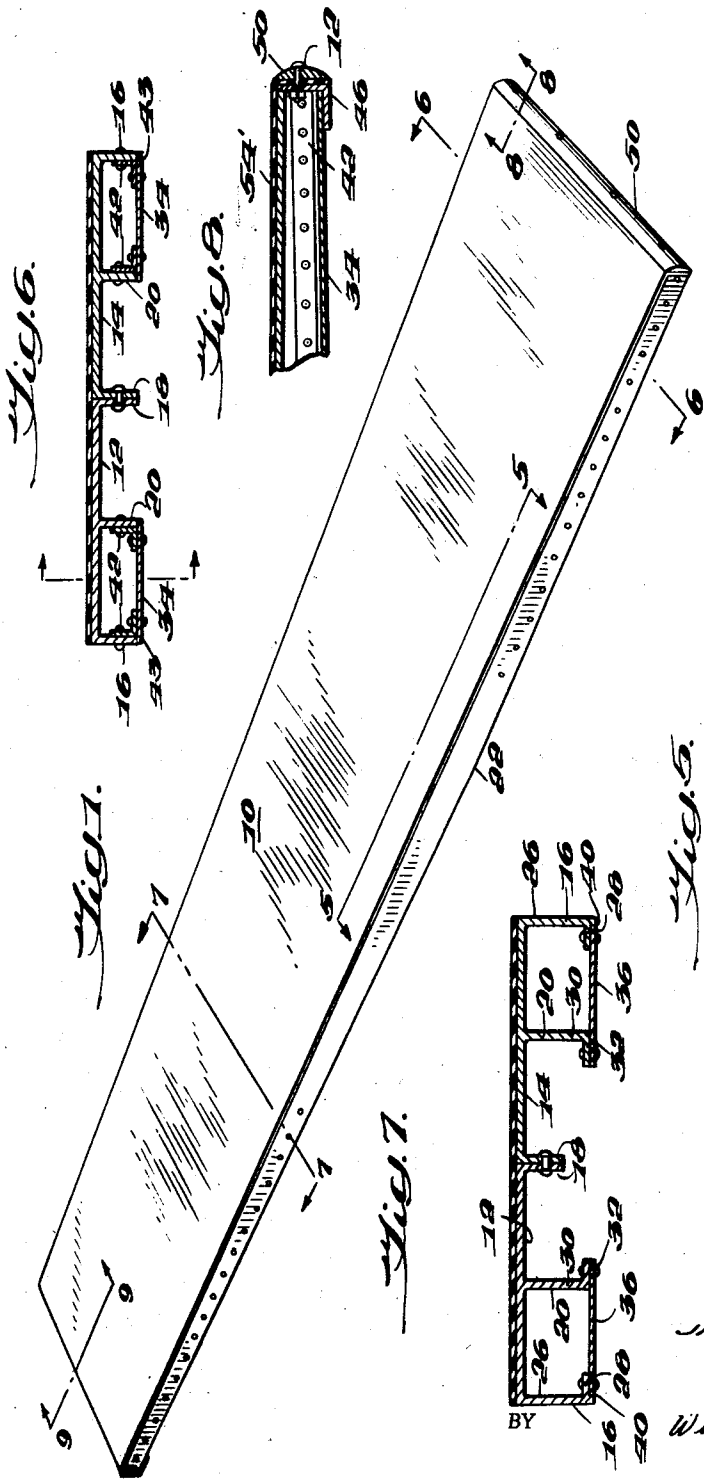


Fig. 4.

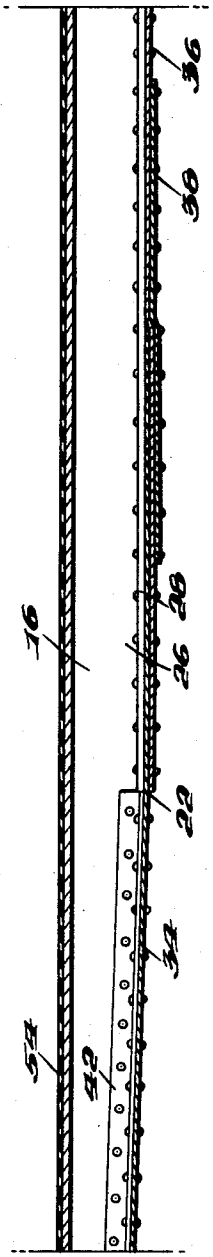


Fig. 5.



Fig. 6.



Fig. 8.



Fig. 7.

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Filed Feb. 19, 1954 3 Sheets-Sheet 2

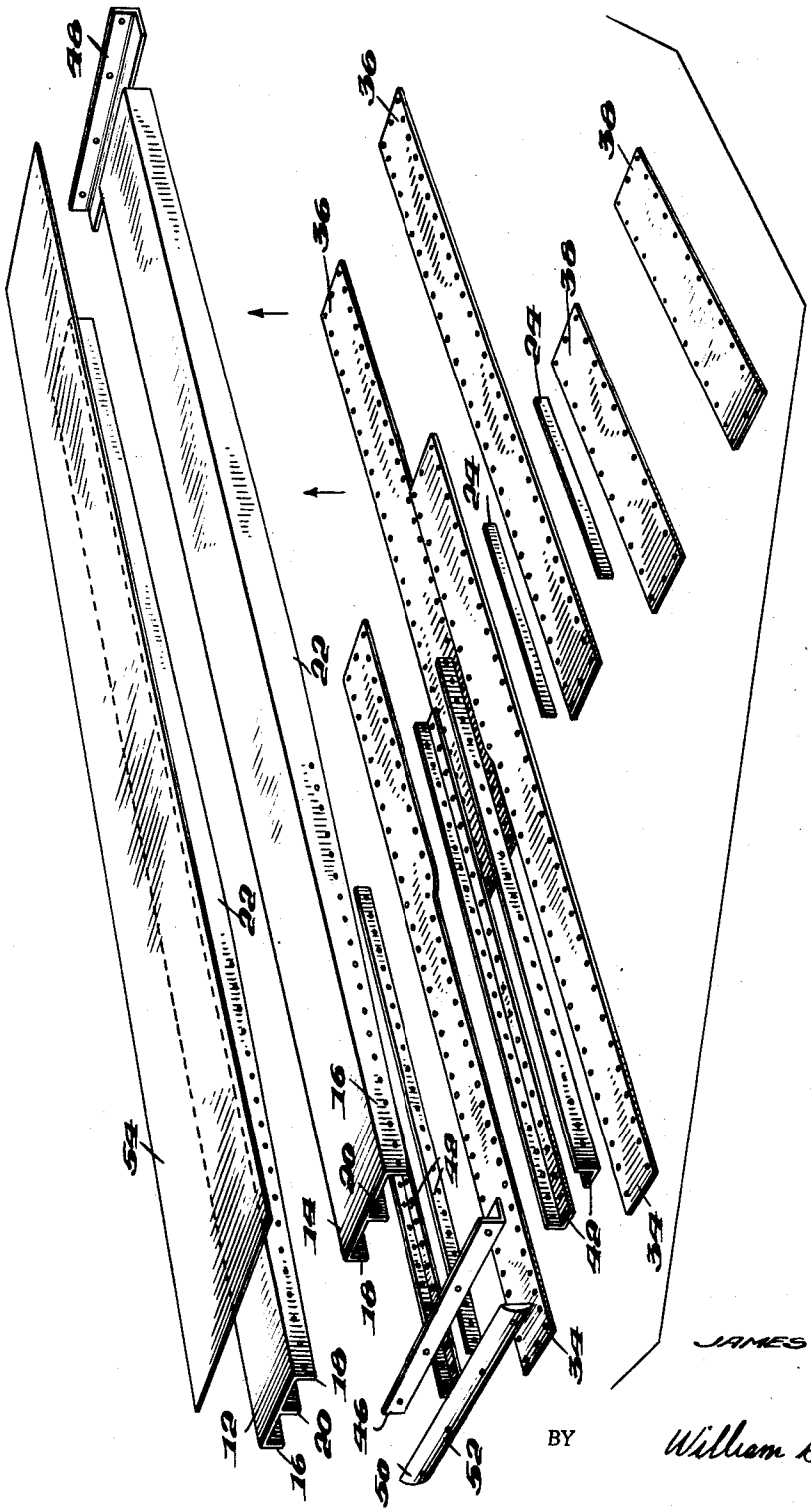


Fig. 2.

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DIVING BOARDS

Filed Feb. 19, 1954 3 Sheets-Sheet 3

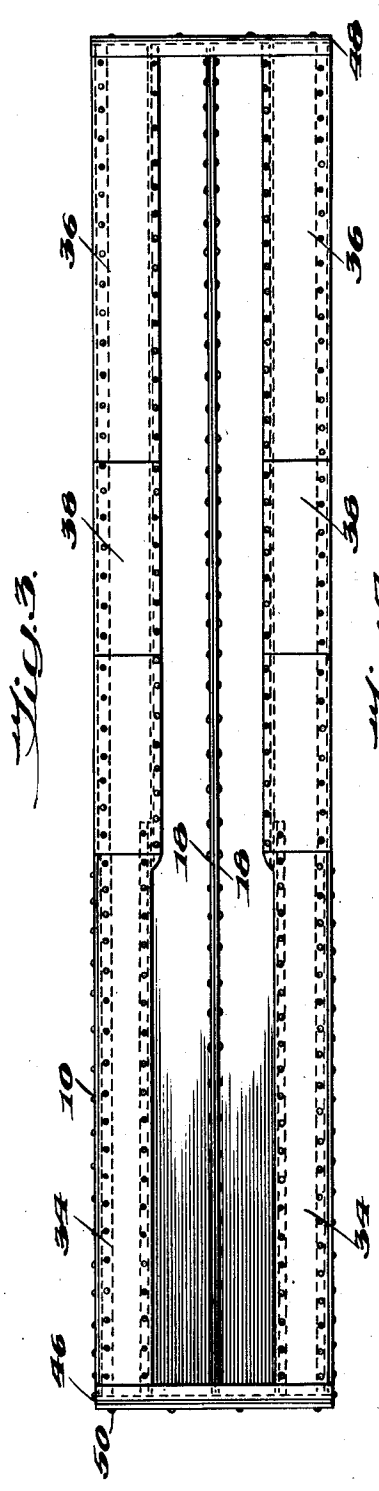


Fig. 3.

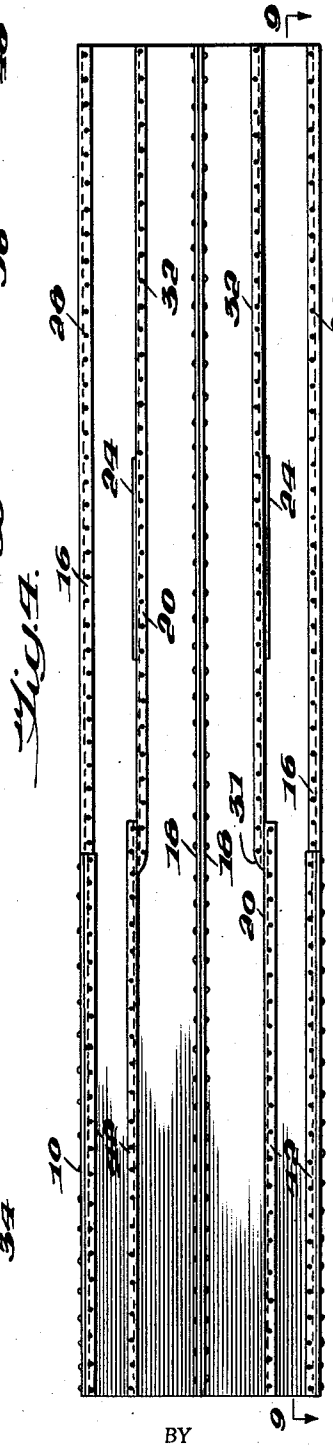


Fig. 4.

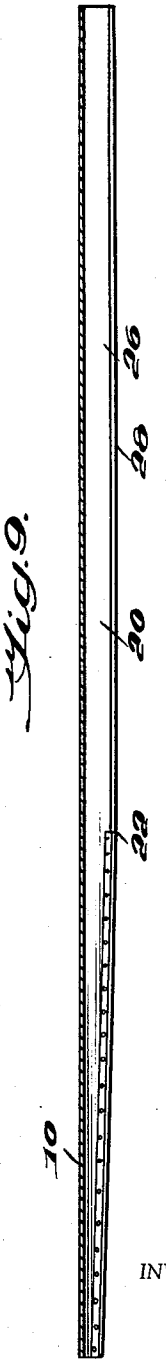


Fig. 9.

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2,807,468

# DIVING BOARDS

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Application February 19, 1954, Serial No. 411,398

11 Claims. (Cl. 272—66)

This invention relates to diving boards, and more particularly to metallic diving boards in which the principal structural members are open aluminum extrusions.

There have been attempts in the past to manufacture diving boards from metals, such as aluminum or alloys thereof, particularly for the reason that metallic diving boards will have a greater durability and uniformity of construction than comparable wooden diving boards.

In general, prior art boards of sufficient strength to withstand the rigors of frequent use have been too stiff for championship diving. Others having the requisite degree of resilience and flaxibility have a tendency to twist, sending the diver to the left or right of the board.

It is an object of the invention to provide a diving board which overcomes the disadvantages of known boards described above.

It is an object of the invention to provide a diving board which is strong enough to stand up under the most adverse conditions and yet give maximum springing qualities which the finest diving champions demand.

It is a further object of the invention to provide a diving board in which the torque or twisting action at the tip of the board is substantially eliminated.

It is a further object of the invention to provide a diving board which is very easy to manufacture in that it has only a few parts and which will have good wearing qualities, such as resistance to weather; and which will require minimum maintenance by eliminating rattling, such as occurs in prior metal boards.

It is a further object of the invention to provide a diving board, the springing characteristics of which can be altered without change in the primary structural components.

Broadly, the objects of the invention are accomplished by manufacturing the board from two open extrusions of aluminum which extend the length of the board. These extrusions are riveted together side by side and the open bottom surface is covered with plates having a leaf spring disposition on the bottom of the board. The principal members are joined by a riveted aircraft type construction in order to give the board great strength and stability.

The thickness of the board is tapered from a point slightly forward of the center to the front tip of the board. This tapering feature, combined with the leaf spring arrangement of the bottom plates, gives the board an added strength at the fulcrum area where it is most needed while, at the same time, providing a lightness or flexibility to the front tip of the board which gives the board maximum springing qualities.

By adding additional strips of aluminum to the inside of the board along the side edges thereof, the diving characteristics of the board can be varied. Thus, by a simple variation in the manufacturing process, it is possible either to make the board more satisfactory for public pool use where tremendous demands on the strength of the board are made, or to make the board most satisfactory for competitive diving by giving the board a greater limberness or springing quality.



The above mentioned and other objects of the invention will become more readily apparent from a consideration of the following description taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a perspective view of the diving board in assembled condition;

Fig. 2 is an exploded perspective view of the diving board according to the invention;

Fig. 3 is a bottom plan view thereof;

Fig. 4 is a bottom plan view of the board with the bottom plates removed;

Fig. 5 is a cross-sectional view along lines **5—5** of Fig. 1;

Fig. 6 is a cross-sectional view along lines **6—6** of Fig. 1;

Fig. 7 is a cross-sectional view along lines **7—7** of Fig. 1;

Fig. 8 is a fragmentary cross-sectional view along lines **8—8** of Fig. 1; and

Fig. 9 is a cross-sectional view along lines **9—9** of Fig. 4.

As shown in the drawings, the diving board **10** has as its principal structural members two open extrusions **12** and **14**. Each extrusion has outer flanges **16**, inner flanges **18**, and central ribs **20**.

In the illustrated embodiment, the length of the board is 16 feet and the width is about 19 inches. The board can be made in many lengths with only minor alterations in the manufacturing process.

The outer flanges **16** and central ribs **20** are tapered from about the center of the board indicated at **22** to the front tip of the board. The taper in this embodiment is approximately one degree and begins 129 inches from the rear end of the board, although the location of the beginning of the board taper is variable.

The rear portion of the board is 2⅜ inches thick and the tip of the board, at the end of the taper, is about 1¼ inches thick.

It is to be understood that many variations in the dimensions of the board could be made without departing from the scope of the invention, and the above dimensions are primarily to give a general indication of the proportions of the board.

In the extrusion process, the main members **12** and **14** have the cross-sectional configuration shown in Fig. 7 which shows the portion of the board to the rear of the tapered end. The outside flanges and central ribs of members **12** and **14** are L-shaped. The outside flange has a vertical leg **26** and a horizontal leg **28**, and the central rib has a vertical leg **30** and a horizontal leg **32**. The horizontal legs **28** and **32** are adapted to have riveted thereto the bottom plates **34**, **36**, and **38**, and are particularly important to the construction of the board in facilitating the riveting process. The legs **28** are offset slightly at **40** to accommodate the plates.

The taper on the front part of the board is formed by cutting along legs **26** and **30** and grinding away the sharp corners as at **31** in Fig. 4. Thus, at the front portion of the board, as shown in Fig. 6, the central rib and flanges do not have the horizontal leg corresponding to the legs **28** and **32**. It is, therefore, necessary to provide the members **16** and **20** with aluminum angle irons **42** to form supports for the bottom plate **34**, which is the only plate extending over the tapered portion. The members **42** are set back to provide an offset **43** in which bottom plate **34** is located.

The plates **34**, **36**, and **38** are riveted to the flanges in overlapping relation as best shown in Fig. 5. This overlapping relation provides a leaf spring action, thereby enhancing the springing characteristics of the board. The inner plate **34** is 144 inches long, and the middle plate **36** is 129 inches long. The outer plate is 48 inches long

and is centered over the fulcrum area which is located approximately 93 inches from the rear of the board. It should also be noted that, at about the center of the board, there is a common overlapping of all of the plates, This common overlapping occurs at the fulcrum area of the board, thus providing additional strength at that area where it is most needed.

As indicated in the bottom plan view in Fig. 3, the bottom plates are joined to the extrusions in such a manner as to form an aircraft type construction. First, the bottom plates are made from aluminum sheeting which is of the same type as used in aircraft. Second, the rivets joining the plates to the extrusions are very closely spaced as in aircraft construction. The result is to give the board great strength and stability without sacrificing the natural springing characteristics.

The stiffness required in the board can be varied by bolting aluminum strips **24** to the inside surface of flanges **16** above plate **38**. One or more strips can be used as desired and are approximately 4 feet long.

The front and rear ends of the board can be enclosed in any suitable manner such as by aluminum angle irons **46** and **48** attached to the front and rear respectively. Additionally, as shown in Fig. 8, the front of the board can be capped by a member **50** having a curved surface **52** which will hold a covering mat in place and complement the overall appearance of the board.

The upper surface of the board is covered completely along the length by a mat **54**. This mat is a special composition which has an adhesive surface on one side and a rough surface on the other. This special non-skid tread covering does away with the heavy, damp, unsanitary cocoa mattings that have been used in the past. The mat is produced by the Minnestoa Mining and Manufacturing Company under the name "Safety Walk."

The front end of the mat **54** is wrapped around angle iron **46**. The member **50** is placed over the end of the mat and is clamped by bolting between the angle iron **46** and the member **50**. The mat is fastened to the rear end of the board merely by putting it underneath the angle iron **48**.

Throughout the claims, for convenience, reference will be made to the front of the board which is meant to be that part which extends over the water; the rear of the board is the opposite end; downward would be the direction when the board is in its normal operating position; and the lower and upper surfaces of the board are those surfaces which face downwardly and upwardly respectively.

In a general manner, while I have in the above description disclosed what I deem to be the most practical and efficient embodiment of my invention, it should be well understood that I do not wish to be limited thereto as there might be changes in the arrangement, disposition, and location of parts without departing from the principle of the invention as comprehended within the scope of the accompanying claims.

I claim:

1. A metal diving board comprising, two elongated plates each extending the length of said board, said plates being located in the same plane and disposed in side-by-side relation, flanges integral with and extending downwardly from the side edges of said plates, said flanges being tapered from the rear toward the front of said board, means joining the adjacent flanges to provide a unitary board, at least a portion of said flanges having horizontally extending legs, and at least one plate mounted on the bottom of said board and riveted to said legs by longitudinally spaced rivets.

2. A diving board according to claim 1, in which said joining means comprises rivets extending through holes in said adjacent flanges.



3. A metallic diving board comprising, two open extrusions each including an elongated upper plate and downwardly depending flanges along the longitudinal edges thereof, and a central longitudinally extending flange, means joining said extrusions in side-by-side relation, the width of at least the outer two flanges of each extrusion being tapered from approximately the center of the board to the front tip, each said extrusion having a first bottom plate extending from the front tip rearwardly at least past the center of said board, a second bottom plate extending from the rear end of said board forwardly at least past the center of said board, and a third plate mounted over said second plate at the fulcrum area of said board, said plates being riveted to said outer two flanges on each extrusion by longitudinally spaced, upwardly extending rivets.

4. An aluminum diving board according to claim 3, in which all bottom plates extend over the fulcrum area.

5. An aluminum diving board according to claim 3, in which only said first bottom plate extends over the tapered portion.

6. An aluminum diving board according to claim 3, in which the outside flanges and central rib to the rear of said tapered portion are L-shaped and said bottom plates are riveted to the bottom leg thereof, and said outside flanges and central rib in the tapered portion have angle irons mounted thereto to support said first bottom plate.

7. A diving board according to claim 3, in which said plates are riveted to said flanges with closely spaced rivets in order to provide a sturdy aircraft type construction.

8. A metal diving board comprising, a deck having coextensive therewith only along its longitudinal edge portions depending hollow closed reinforcing sections which, in cross section, are of generally polygonal shape, said sections being spaced apart and connected together solely by said deck whereby said deck coordinates the action of said polygonal sections to provide a unitary board, the diving board having a taper toward its free end.

9. A board according to claim 8 in which said deck is formed from two elongated plates, and means joining adjacent edges of said plates at the center of said board.

10. A board according to claim 8 in which said polygonal reinforcing sections comprise approximately one-half the bottom surface of said board.

11. A metallic diving board comprising, two extrusions each including an elongated upper plate and downwardly depending flanges along the longitudinal edges thereof, and a central longitudinally extending flange, means joining said extrusions in side-by-side relation, said flanges being coextensive with said plates, the width of a least the outer two flanges of each extrusion being tapered toward the front of said board, and an elongated bottom member extending only between the outer two flanges on each of said boards, said bottom members being coextensive with said flanges to form, with said outer flanges and upper plate, spaced spart reinforcing sections extending along the bottom of said board.

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