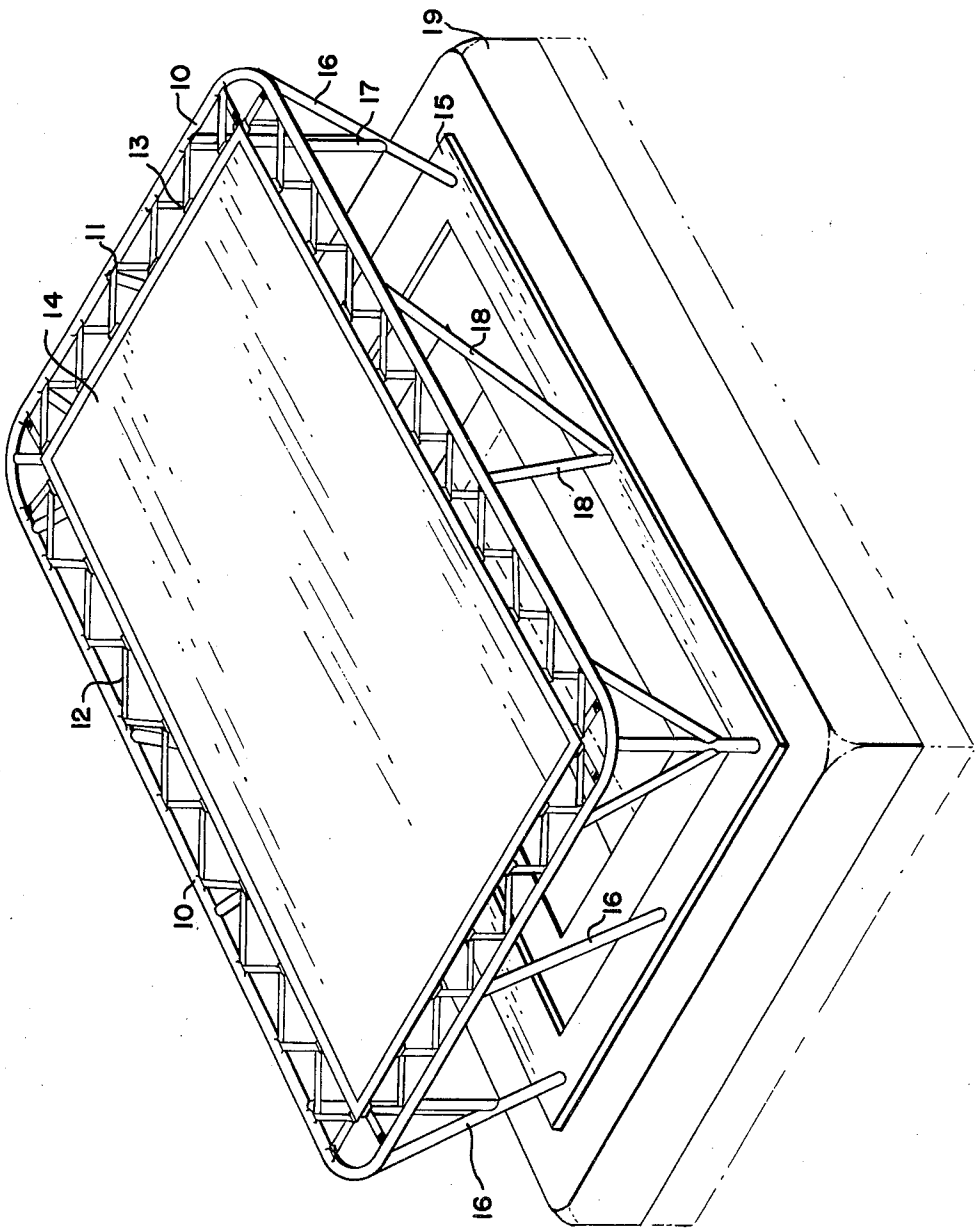
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WATER-BORNE TRAMPOLINE

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WATER-BORNE TRAMPOLINE

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This invention relates to an exercising and/or amusement device, and more particularly to gymnastic apparatus of the kind providing an elastically supported bed or platform on which a person may safely bounce or bound through substantial vertical distances—performing various gyrations while in the air and free and clear of the support. When such apparatus is supported on hard surfaces such as gymnasium floors or on the ground outdoors considerable padding or other shock-absorbing material must be placed about the outer periphery of the rigid supporting frame for the bed or platform to prevent injuries in case the performer for some reason loses his balance or is projected from the apparatus in a horizontal component of movement. Also, in such installations, all of the reaction of the large forces caused by the downward deceleration of the performer must be absorbed in the rigid frame structure and, accordingly, this structure must be carefully and heavily made.

I have found that the above objectionable aspects in apparatus of the kind herein involved are easily overcome and that various additional desirable features are added to the apparatus by supporting the bounding bed or trampoline not on a hard surface such as a gymnasium floor or on the ground outdoors but on any suitable body of water of sufficient area to provide a safety zone circumferentially around the apparatus and of sufficient depth to cushion any fall which a performer might have from the apparatus. It is accordingly the primary object of the invention to provide a floatable support for a bounding bed or trampoline whereby the apparatus may be launched and moored on a body of water and thereby provide an improved support and environment for the apparatus. As so constructed the apparatus may be used on lakes, streams, and the like or even in large swimming pools if anchored a sufficient distance from the side walls thereof.

In constructing the apparatus above described, I preferably rest the vertical supports of the rigid frame carrying the deck or floor of the trampoline on a rigid frame-like pad to the underside of which is permanently secured a larger and thicker frame of very low density, waterproof, and fairly rigid bulk material such as foaminated styrene plastic which provides the buoyancy required for the assembled apparatus. The rigid frame is preferably made of aluminum tubing and other sections which have a very high strength to weight ratio and since the buoyant material is exceedingly light in weight the assembled apparatus is easily transported and launched, and when launched requires very little dead weight to be supported. The center opening in the buoyant frame may receive portions of the flexible and elastically supported platform of the apparatus when deeply depressed by a violent rebound of the performer, for example, and therefore the vertical height of the rigid frame of the apparatus may be reduced. This not only lessens the cost and weight of the device but places the normal point of support for the performer closer to the surface of the water for adequate stability. Another advantage of the arrangement is that the water itself serves as a cushion to absorb some of the heavy force reactions encountered at rebound of the performer so that the vertical strength of the supporting frame may be safely reduced somewhat.

Other advantageous uses of the apparatus of the invention include employment of the same as a swimmer's safety float and use of the same as a portable dock for boarding and alighting from boats.

The above and other objects and advantages of the invention will become apparent upon consideration of the following specification and the accompanying drawing wherein there is disclosed a preferred embodiment of the invention.

In the sole FIGURE of the drawing, the reference numeral **10** designates a rigid rectangular frame preferably constructed of a continuous length of high-strength low-weight heat treated aluminum tubing to which is secured a multiplicity of closely spaced anchor rings **11**. In accordance with conventional practice, these rings **11** receive the continuous resilient shock cord **12** which weaves back and forth between the rings **11** and suitable fittings **13** secured about the edge of a heavy canvas sheet **14**. In assembling the apparatus the cord **12**, and consequently the canvas **14**, is very tightly stretched so that the canvas **14** will normally lie flat and will support a performer in upright position without excessive deflection when the performer is at rest. It should be understood that the structure and immediate support for the the bounding canvas or platform may assume various forms since the particulars of the same assumes no important part of my invention.

Positioned below and slightly inward of the frame **10** is a flat frame **15** also preferably formed of a hollow aluminum section, and in actual practice this section may be inwardly ribbed in a longitudinal direction to add sufficient beam strength to the frame as will be understood. It is important, however, that the downward face of the frame **15** has considerable cross-sectional area for adequate adhesive jointure with the buoyant material positioned therebelow and so that the compressive loadings would not exceed the crushing strength of this material.

The upper frame **10** is carried on the lower frame **15** by a plurality of upwardly and outwardly splayed struts **16**, the corner ones of which have diagonal braces **17**. Other diagonally arranged struts **18** interconnect the side reaches of the frames **10** and **15** and are welded or otherwise rigidly secured to these frames as are the members **16** and **17**. Again, the members **16–18** are formed of high strength heat-treated aluminum, and the assembled frame structure may be suitably anodized to provide a specular finish of desired color which is reasonably free from attack by the water and other elements.

To provide the required floatation for the assembled apparatus described above, I provide a rectangular frame **19** of fairly rigid but solid material which is waterproof and of extremely low density. This material which is now widely used for life preservers, safety boat floats, and temporary docks, may be a foaminated styrene plastic. By providing a mold of suitable size and shape, the frame **19** may be cast integrally or, alternatively, it may be readily assembled from discrete blocks of the material by the use of suitable bonding materials available. Likewise, the frame **19** may be bonded to the undersurface of the flat frame **16** by an epoxy resin or other suitable waterproof bonding agent. In actual practice, it is preferable to roughen the lower face of the frame **15** before bonding the floatation material to it so that a strong continuous bond is assured.

As shown, the exposed edges and corners of the frame **19** are eased or rounded to minimize injuries and to reduce the probability of spalling. It is also desirable to coat the entire outer surfaces of the frame **10** with a suitable yieldable and waterproof coating of a resinous paint which effectively seals off, in a permanent manner, the inner voids of the foraminous material against the entry of water. Such coating is further beneficial in hardening the exterior surface of the frame, rendering it less liable to damage by persons or objects.

It should be observed that the inwardly slanting arrangement of the struts **16–18** and the resultant inward

position of the outer edge of the rigid frame **15** places these parts out of harm's way in the event that a performer falls off the apparatus over the frame **10**. At worst, a performer may strike the rounded edges of the frame **19** but the character of this material is such that injuries are not likely to result.

In the normal use of trampolines, only the center part of the canvas platform is deeply depressed, and in my apparatus the center opening in the buoyant frame **19** provides space for the reception of such depressed areas. This enables the vertical distance between the frames **15** and **10** to be maintained at a minimum thus adding stability to the combined apparatus.

In the use of the apparatus of my invention, some of the rebound shock transmitted to the members **16–18** and thus to the frame **15** is taken up by the inherent shock-absorbing characteristic of the floatation material of the frame **19** and also by the increased displacement of water by this frame **19**. All of this allows the members **15–18** to be made smaller and lighter in weight and also improves the action of the trampoline in that an upward reaction thrust is added to that provided by the tension cord **12** and the resilience of the canvas **14**.

It should now be apparent that I have provided an improved gymnastic apparatus of the kind providing an elastically supported bed or platform which accomplishes the objects initially set out. The device may be economically produced from readily available materials, is unitary and compact in structure, may be readily transported and placed in position for use, and when in use is more efficient in its intended function of propelling a performer into the air. Further, the invention provides additional utility for apparatus of this character, and altogether constitutes a meritorious advance in the exercising and amusement art. With these aspects in mind, it should be readily apparent that many changes may be made in the construction of my apparatus without departing from the teachings thereof. For example, buoyancy may be provided by supporting the frame **10** simply on a waterproof boxlike structure which is open at its top to receive

the depressed areas of the canvas platform when the apparatus is in active use. The invention therefore resides in broad as well as in specific aspects, and reference should accordingly be had to the appended claims in determining the scope of the invention.

I claim:

1. Gymnastic apparatus comprising in combination
(*a*) a rigid rectangular frame for use in horizontal position and supporting in tightly stretched condition a centrally disposed expanse of a flexible platform connected around its edges to said frame through a multiplicity of circumferentially spaced yieldable members,
(*b*) means to float said frame on a body of water with said frame elevated above the top surface of said body, and
(*c*) said means to float having a centrally disposed open space to receive center portions of said platform when depressed by the rebound of a performer thereon.

2. Apparatus according to claim 1 further characterized in that said means (*b*) comprises
(*d*) a thick rectangular open frame formed of low-density cellular waterproof solid material, and
(*e*) means to support said frame (*a*) on said frame (*d*).

3. Apparatus according to claim 2 further characterized in that said means (*e*) comprises
(*f*) a flat rectangular frame overlying and cemented to the top surface of the frame (*d*), and
(*g*) upwardly and outwardly extending struts interconnecting said flat frame (*f*) and said rigid frame (*a*).

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