

Aug. 21, 1934.

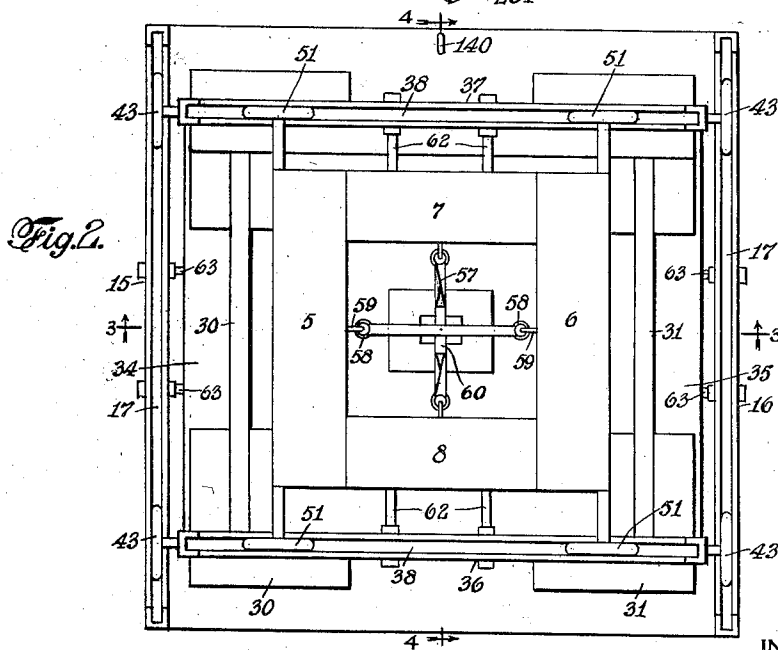
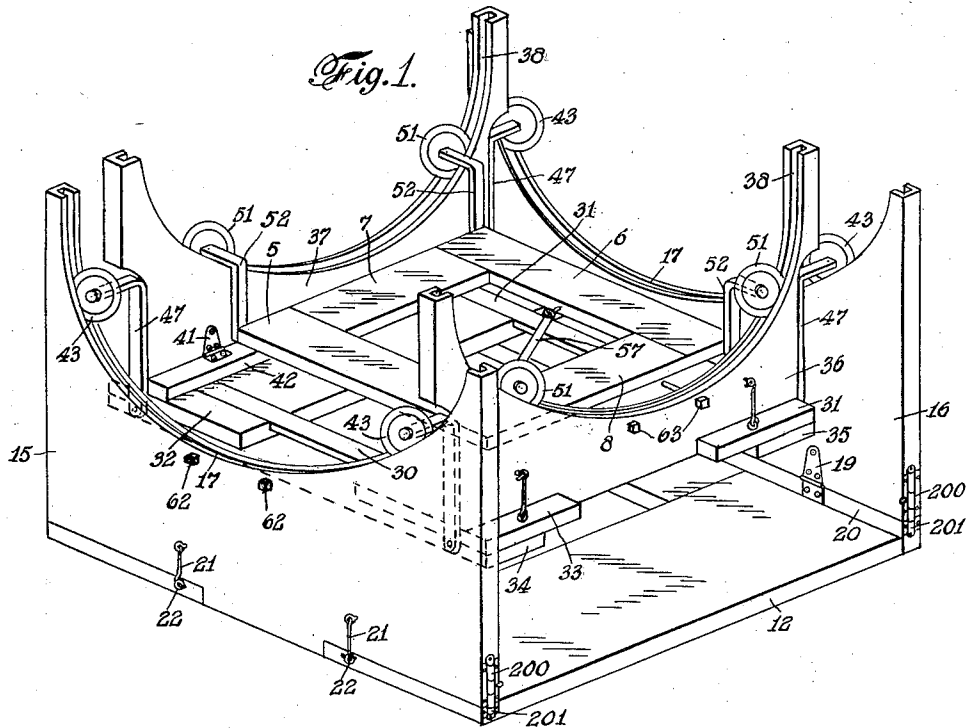
F. D. W. SEARING

1,970,630

STABILIZING PLATFORM

Filed Jan. 25, 1933

2 Sheets-Sheet 1



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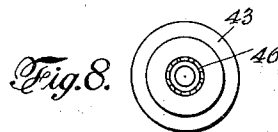
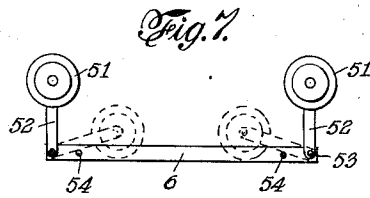
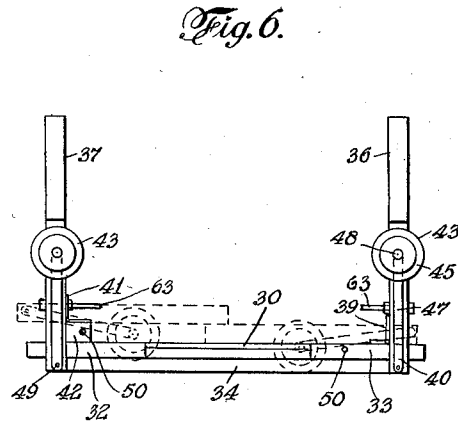
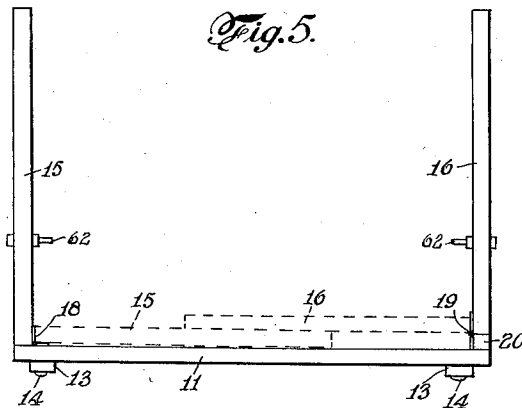
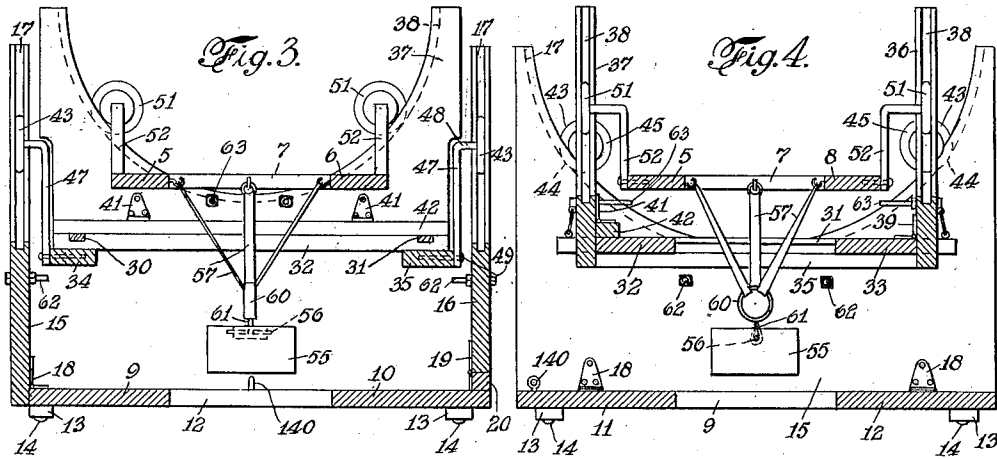
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

1,970,630

STABILIZING PLATFORM

Frederick D. W. Searing, Newark, N. J.

Application January 25, 1933, Serial No. 653,363

9 Claims. (Cl. 114—191)

This application is in part a continuation of my application, Serial No. 586,513 for improvements in stabilizing platforms filed by me on or about January 14, 1932.

5 This invention relates to devices for stabilizing ship's furniture and has special reference to platforms, so mounted and counter-poised that by reason of the universal motion of the mounting members persons or articles resting upon the platform do not partake of the rolling and pitch-
10 ing motions of the ship.

One of the objects of the invention is to provide a platform support with a pair of parallel, upwardly open, concavely curved tracks, an in-
15 termediate member having two pairs of wheels for running on these tracks, and a pair of parallel, upwardly open, concavely curved tracks disposed cross-wise of the line of the thread of the wheels, and a platform having two pairs of
20 wheels for running on the tracks on the intermediate member.

Another object of the invention is to provide a device for use on ship-board made up of three separate platforms or frames adapted to be held
25 together solely by the force of gravity, and in its preferred form comprising a base member adapted to rest upon or be supported on some portion of a ship and formed on its upper surface as a pair of parallel, upwardly open, concavely curved
30 tracks, an intermediate member having two pairs of wheels for running on the tracks of the base member, the tracks of the base member being constructed and adapted for receiving at assembly the wheels of the intermediate member
35 by a direct downward movement, the intermediate member being formed on its upper surface with a pair of parallel, upwardly open, concavely curved tracks disposed transversely of the lines of tracking of its wheels, and an upper
40 member having two pairs of wheels for running on the tracks of the intermediate member, the tracks of the intermediate member being constructed and adapted for receiving at assembly the wheels of the upper member by a direct down-
45 ward movement.

Another object of the invention is to so form the tracks of the members above described that they are constructed and adapted for permitting the removal at disassembly of the wheels from
50 the tracks by direct upward movements.

Another object of the invention is to provide a structure of this character which is adapted to receive various articles of ship's furniture such as deck chairs, berths, beds and couches.
55 The structure of articles for use upon this device

may be modified or redesigned so that when they are resting upon or supported by it their main portions are at the customary horizontal level or height from the floor.

Another object of the invention is to provide
60 in a stabilizing device means for immediately overcoming the inertia and friction of the movable parts so as to cause an immediate and even adjustment of the supported body to the motion of the boat.

Another object of the invention is to provide a stabilizing device for use on shipboard made up of a number of parts normally constituted for ready and interchangeable assembly one with the other and for ready disassembly one from
70 another;

A further object is to so construct the various parts that they may be folded up or knocked down so that they may conveniently be stacked or stored.

Another object of the invention is to provide a stabilizing device for use on shipboard and made up of a base frame adapted to rest upon or be supported by some portion of a ship, a pair of mem-
80 bers each formed on its upper edge as a concavely curved track, hinges for pivotally uniting the track members to the frame whereby they may be raised into an upstanding operative position, or knocked down for transportation or storage, an intermediate frame having two pairs
85 of wheels for running on the tracks of the base frame, a pair of members formed on their upper edges as concavely curved tracks, hinges uniting these track members to the intermediate frame whereby they may be pivotally raised into
90 an upstanding operative position transversely of the lines of the tracking of the wheels carried by such frame, the track members also being adapted to fold down, and an upper frame having two pairs of wheels for running on the tracks of the
95 intermediate frame.

Another object of the invention is to provide a device of this character having three superimposed frames, one of these being a base frame adapted to rest upon or be supported by some
100 portion of a ship and furnished with a pair of upwardly directed tracks, an intermediate frame member having two pairs of wheels for running upon such tracks and furnished with a pair of tracks disposed transversely to the tracking of
105 its wheels upon the base member and the top frame or platform member, being the body or burden supporting part, and having two pairs of wheels for running upon the tracks of the intermediate member and a weight control device
110

in the form of a single weight attached to the top platform and active upon the intermediate member through its track and the wheels of the top platform.

5 Another object of my invention is to generate the tracks of a device of this character as an arc of a circle of a diameter somewhat longer than is the distance apart between the points of wheel contacts with the tracks.

10 In the drawings accompanying this specification one practicable embodiment of my invention is illustrated, in which drawings:

Figure 1 shows the device in an isometric projection.

15 Fig. 2 is a view looking at this device from the top.

Fig. 3 is a cross-sectional view taken at about the plane of the line 3—3 in Fig. 2, the showing being on a reduced scale.

20 Fig. 4 is a longitudinal view taken at about the plane of 4—4 in Fig. 2, this section being on about the same scale as is Fig. 3.

25 Figs. 5, 6 and 7 show each of the three parts of the device disassembled, their knock-down or folded positions being represented in broken lines, and

Fig. 8 is an elevation of a wheel.

30 The form of the device illustrated herein comprises three superimposed members in frames the lowest of which is particularly designed for resting upon the flooring of the deck of a ship, altho it may be otherwise supported, and the upper of which is a platform represented by a pair of longitudinally disposed planks or members 5 and 6, and a pair of transverse members 7 and 8, is the 35 body or burden supporting member of the device. The shape and nature of the frames or members are, of course determined by the form and nature of the body, device, or article of furniture which it is intended to support and stabilize.

40 One purpose of my invention is to mount this frame or burden supporting platform on two sets of wheels running on transversely disposed tracks to afford a universal movement incident to the rolling and pitching of the ship. For purposes of 45 greater stability and rapid response to motion and to avoid topheaviness the upper surface of the platform is preferably located well below the points of contact of the rollers with the tracks and for the purpose of overcoming inertia of the parts 50 and the friction of the rollers and their associated parts I attach to the top platform a counter-poise preferably in the nature of a heavy body whose weight is approximately fifteen to twenty pounds 55 and is determined by the estimated weight or approximately so of the person or body which is to be supported by the stabilizer. Another use of this weight control is to stabilize the device itself and counteract the tendency of the movement of 60 the person sitting in a chair or lying in a berth supported by the platform to cause the rollers to traverse their tracks. These features as well as many of the features of construction including the knock-down characteristics of the device are developed in the following detailed description of 65 the drawings. It might be said in advance of such description that the various parts of the device are shown in outline which represents wooden planks or boards but it also my purpose to make these parts of open work metal having great 70 lightness but sufficient strength to withstand the use and abuse to which ship's furniture is subjected and also of such a metal or alloy that there may be no corrosion from the sea air or water 75 generally, particularly sea water. The lower

supporting frame or member of the structure, that which is intended to rest upon the deck of the ship if the device is intended to carry a steamer chair, is shown comprising a pair of longitudinally 80 disposed planks or members 9 and 10 and a pair of transversely disposed members 11 and 12. The under side of this frame is furnished preferably in its corners with blocks 13 constituting feet which are preferably furnished with some sliding device 85 such as domes of silence 14. The frame may also be provided with a hook engaging device such as an eyelet 140 for facilitating the work of the attendants in moving the entire structure around 90 upon the deck of the ship. This base of the lower supporting member carries a pair of track members 15 and 16 which in a normal operative position occupy parallel planes and are formed on 95 their upper surfaces as a pair of parallel arcuate tracks 17. These tracks in the illustration are grooves formed in the edges of the members 15 and 16.

For knock-down purposes, that is for storage and transportation, these track members are preferably pivoted to the base portion. For instance, the member 15 is pivoted directly to the longitudinal member 9 by means of a pair of hinges 18 100 and is adapted to fold down flat upon planks 9, 10, 11 and 12 forming the base, (see the dash lines in Fig. 5). The member 16 is pivoted by means of a hinge 19 to a strip 20 which is secured to the 105 outer edge of the base plank 10. This strip is of a thickness not less than the thickness of the track member 15 so that the track member 16 may be folded flat upon the track member 15 as also illustrated in Fig. 5. Some suitable means is provided 110 for holding the track members in their upstanding and operative positions. Hooks and eyes 21, 22 and bolts and loops 200, 201 have been found convenient for this purpose.

The intermediate frame comprises a pair of 115 planks or members 32, 33 connected by a pair of metal strips one inch wide or members 32, 33. The members 32, 33 are shown carrying a pair of transverse planks 34, 35. At the four corners a pair of track members 36, 37 formed on their 120 upper edges with a pair of parallel tracks 38 are carried by this intermediate frame, and parallel with the planks 32, 33. The tracks are similar in form to the tracks 17, but preferably being arcs generated on a shorter radius, are formed in the 125 edges of these members 36 and 37.

The track members 36, 37 are pivoted to the base portion of the intermediate member, the member 36 having a hinge 39 secured to it and to the transverse plank 33, the hinge being secured 130 to the track member 36 at an appreciable distance above its lower end so that when the track member is in its upstanding position this lower end 40 will abut against the plank 33, and when the device is in its folded and knock-down position 135 the member 36 will lie flat on the base portion of this intermediate member. Means somewhat similar to that employed for hinging the track member 16 of the lower supporting member are also employed in this connection. The hinge 41 140 for the track member 37 is secured to a strip 42 which is fastened to the base member. The parts are shown upstanding and in folded position in Fig. 6.

The intermediate member is shown carrying 145 two pairs of wheels 43 adapted to run in tracks 17 of the lower supporting member. This track 17 is preferably generated on a diameter which is somewhat longer than is the distance apart of the track engaging points of the pair of wheels 150

to run upon it. Such points are indicated by the reference characters 44 in Fig. 4. These wheels or rollers 44 have cushioning tires 45 of suitable elasticity to prevent rumbling when the wheels are rolling over the tracks and also to prevent slipping of the wheels and are furnished with anti-friction-bearing hubs 46, (see Fig. 8). These bearings may be ball bearings if desired. A drop hanger 47 is provided for each wheel and has a transversely disposed pivot end 48 mounted in the ball bearing hub and is pivoted at its lower end to the base of the frame as for instance by means of a suitable lag screw 49.

When the intermediate member is folded or knocked down, as represented in the dash lines in Fig. 6, the wheels also will move into a closed and protecting position, this movement being limited by means of suitable pins 50.

The pair of parallel, upwardly open, concavely curved tracks 38, carried by the track members 36 and 37, are disposed transversely of the lines of the tracking of the wheels 43, which the intermediate member carries, with the tracks 17 carried by the base member.

The platform heretofore described as comprising the members 5, 6, 7 and 8 is furnished with two pairs of wheels 51, similar in construction to the wheels 43. These wheels support hanger members 52 similar to the hanger members 47, only somewhat shorter. The hanger members 52 are pivoted by means of lag bolts 53 to the frame members. In this instance pins 54 are provided for holding the wheels in their proper knock-down position, (see Fig. 7).

The counter-poise weight control represented at 55 in the drawing is shown formed with a depression and iron cross pin 56, the weight control being covered with canvas except over depression and cross pin so that the weight control may be taken off the device and stored as occasion requires. I preferably attach this counter-poise weight to the platform member by means of flexible straps 57 furnished with eyes 58 for engaging hooks 59 carried by the planks or frame members of the top platform. The straps 57 are directed longitudinally and transversely of the device, that is one pair of them is parallel to the planes of the tracks 17 and the other pair is parallel to the planes of the tracks 38. The straps at the point of their meeting 60 are held together by a ring which carries a snap hook 61 which is adapted to engage the cross pin 56 of the weight 55.

As a convenient means for limiting the traverse of the track members relative to the wheels 43 and 45 detents are provided for engaging the hangers 47 and 52. For instance, two bolts 62 are shown passing through each of the track members 15 and 16 for engaging the hangers 47 and two bolts 63 are shown passing through each of the track members 36 and 37.

In assembling the device the lower supporting structure is placed on the deck preferably in the position in which it will be used. The intermediate member will be assembled by a direct downward movement placing its wheels 43 in the tracks 17 and the platform member will be assembled by a direct downward movement placing its wheels 51 in the tracks 38. Some suitable piece of furniture, as for instance a deck chair, will be mounted on the platform, or it may in practice be a part of the platform. The weight 55 will be properly applied when the device is in position to be used. The lower supporting member, standing with its feet 13 upon the deck will

partake of the motion of the ship in its rolling and pitching. Assuming that a steamer chair is mounted on the platform and occupied by a person, the wheels will move back and forth in their respective tracks relative to the bottom member responsive to the movement of the boat, the person being stabilized in his position. The counter-poise weight 55 which acts through its straps somewhat after the manner of a lever also brings the center of gravity of the device very low. When the ship is rocking or pitching any change of direction or movement of the ship causes a change of direction or tendency to movement of the intermediate member and the platform member relative to the lower member which movement is resisted to a slight amount by means of the friction of the parts and inertia. Such friction and inertia are overcome by the stabilizer weight control.

Another function of the stabilizer weight control is that it stabilizes the stabilizer against independent movements of the person being supported by it.

The weight control in my stabilizer performs four functions, the most important of which is the first.

First.—It acts immediately by virtue of its mass to start the wheels on all four tracks, overcoming their inertia and friction and giving the stabilizer prompt and immediate adjustment. Without this prompt adjustment topheaviness immediately develops and prevents adjustment.

Second.—By reason of its mass it counteracts movements of the body being supported giving stability to the person in the chair. Prevents oscillation.

Third.—It counteracts topheaviness by the same leverage acting as a counter-poise.

Fourth.—It lowers the center of gravity by putting a heavy weight at a low point, within a few inches of the deck, and thus by the mass or inertia of the weight at a low point counteracts topheaviness.

Another important feature is the drop frames whereby the point of application of weight to be supported, (the top platform) is brought below the line of wheel contact on both tracks. This is accomplished by dropping the top frame below the line of wheel contact on the intermediate frame about four inches and by raising the bottom track high up and then dropping the intermediate frame and top frame about seven inches. This overcomes topheaviness and combines the principle of a swing leverage with that of the curved tracks in adjustment to boat motion. By this construction the upper and lower tracks are so related that the point of wheel contact on both sets of tracks comes at approximately the same level when the three superimposed frames are in normal position and such contact on all tracks is above the point of weight contact of the body supported.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a stabilizing device for use on shipboard the combination with a base member adapted to rest upon or be supported by some portion of a ship, and formed on its upper surface as a pair of parallel, upwardly open, concavely curved tracks, of an intermediate member having two pairs of wheels for running on the tracks of the base member, such base member and tracks being constructed and adapted for receiving, at assembly, the wheels of the intermediate member by a direct downward movement, and formed on its

upper surface with a pair of parallel, upwardly open, concavely curved tracks disposed transversely of the lines of tracking of its wheels, and a top platform member having two pairs of wheels for running on the tracks of the intermediate member, such intermediate member and tracks also being constructed and adapted for receiving, at assembly, the wheels of the top platform member by a direct downward movement, each of the tracks being the arc of a circle generated on a diameter which is somewhat longer than is the distance apart of the track engaging points of the pair of wheels intended to run upon it, and a body or weight supported from the top platform by four straps, the said four straps, two being arranged parallel with the tracking of the wheels of the platform and two being arranged parallel with the wheels of the intermediate member, the top platform being so related to the intermediate member that the weight facilitates universal relative motion of the parts by controlling their adjustments to motion of the boat on all four of the tracks.

2. In a stabilizing device for use on shipboard the combination with a base member adapted to rest upon or be supported by some portion of a ship, and formed on its upper surface as a pair of parallel, upwardly open, concavely curved tracks, of an intermediate member, two pairs of wheels for running on the tracks of the base member, drop hangers pivotally connected to the wheels and to the intermediate member, the base member and tracks being constructed and adapted for receiving, at assembly, the wheels of the intermediate member by a direct downward movement, and formed on its upper surface with a pair of parallel, upwardly open, concavely curved tracks disposed transversely of the lines of tracking of its wheels, and an upper member, two pairs of wheels for running on the tracks of the intermediate member, drop hangers pivotally connected to the wheels and to the upper member, such intermediate member and tracks also being constructed and adapted for receiving, at assembly, the wheels of the upper member by a direct downward movement, each of the tracks being generated as an arc of a circle on a diameter which is somewhat longer than is the distance apart of the track engaging points of the pair of wheels intended to run upon it.

3. In a stabilizing device for use on shipboard the combination with a base member adapted to rest upon or be supported by some portion of a ship, and formed on its upper surface as a pair of parallel, upwardly open, concavely curved tracks, of an intermediate member, two pairs of wheels for running on the tracks of the base member, drop hangers pivotally connected to the wheels and to the intermediate member, the base member and tracks being constructed and adapted for receiving, at assembly, the wheels of the intermediate member by a direct downward movement, and formed on its upper surface with a pair of parallel, upwardly open, concavely curved tracks disposed transversely of the lines of tracking of its wheels, and an upper member, two pairs of wheels for running on the tracks of the intermediate member, drop hangers pivotally connected to the wheels and to the upper member, such intermediate member and tracks also being constructed and adapted for receiving, at assembly, the wheels of the upper member by a direct downward movement, each of the tracks being generated as an arc of a circle on a diameter which is somewhat longer than is the distance apart of the track

engaging points of the pair of wheels intended to run upon it, and a counter-poise weight connected to and dependent from the upper member.

4. In a stabilizing device for use on shipboard the combination with a base frame adapted to rest upon or be supported by some portion of a ship, of a pair of members each formed on its upper edge as a concavely curved track, hinges for pivotally uniting the track members to the frame whereby they may be raised into an upstanding operative position, or knocked down for transportation or storage, an intermediate frame having two pairs of wheels for running on the tracks of the base frame, a pair of members formed on their upper edges as concavely curved tracks, hinges uniting these track members to the intermediate frame whereby they may be pivotally raised into an upstanding operative position transversely of the lines of the tracking of the wheels carried by such frame, the track members also being adapted to fold down, and an upper frame having two pairs of wheels for running on the tracks of the intermediate frame.

5. In a stabilizing device for use on shipboard the combination with a base frame adapted to rest upon or be supported by some portion of a ship, of a pair of members each formed on its upper edge as a concavely curved track, hinges for pivotally uniting the track members to the frame whereby they may be raised into an upstanding operative position, or knocked down for transportation or storage, means for retaining the track members in their upstanding operative positions, an intermediate frame having two pairs of wheels for running on the tracks of the base frame, a pair of members formed on their upper edges as concavely curved tracks, hinges uniting these track members to the intermediate frame whereby they may be pivotally raised into an upstanding operative position transversely of the lines of the tracking of the wheels carried by such frame, means for retaining these latter track members in their upstanding operative positions, the track members also being adapted to fold down, and an upper frame having two pairs of wheels for running on the tracks of the intermediate frame.

6. In a stabilizing device for use on shipboard the combination with a base frame adapted to rest upon or be supported by some portion of a ship, of a pair of members each formed on its upper edge as a concavely curved, upwardly open, track, means for uniting the track members to the base frame and retaining them in upstanding operative positions and so constructed as to permit them to be knocked down for transportation or storage, an intermediate frame having two pairs of wheels for running on the tracks of the base frame, a pair of members each formed on its upper edge as a concavely curved, upwardly open, track, means for uniting these track members to the intermediate frame and retaining them in upstanding operative positions and so constructed as to permit them to be knocked down for transportation or storage, such latter track members being located transversely of the lines of the tracking of the wheels carried by such intermediate frame, and an upper frame having two pairs of wheels for running on the tracks of the intermediate frame.

7. A readily demountable structure consisting of a base platform adapted to rest upon or be supported by some portion of a ship, a pair of continuous arcuate track means carried by said base platform, an intermediate platform equipped with friction reducing elements engaging the

said arcuate track means, such intermediate platform also carrying continuous arcuate track means disposed transversely of the track means of the base platform, an upper body carrying platform equipped with friction reducing elements engaging the track means of the intermediate platform, the three platforms when superimposed being held together solely by gravity; weight means, and straps fastened to the four sides of the upper platform and to the weight means for suspending the weight means beneath the upper platform, and beneath the points of contact of the wheels of the intermediate platform with the tracks of the base member, whereby the said upper platform is rendered stable against boat motion and motion of a body carried thereby.

8. In a device of the character specified, the combination of three open frames superimposed one on the other, sets of transversely arranged tracks, and friction reducing elements engaging the tracks and cooperating with the frames, the three frames being held together solely by the attraction of gravity and being easily demountable, a weight, straps fastened to the four inner sides of the upper frame and supporting the said weight, the straps extending downward thru the open frame of the intermediate member to within

a short distance of the lower part of the bottom frame, two of said straps being disposed in a plane parallel to one set of tracks and the other two straps being disposed in a plane parallel to the other set of tracks, all arranged so that the straps in responding to the weight control pull the wheels in approximately the direction the wheels should go to effect adjustment.

9. An easily demountable stabilizing device, comprising three separate superimposed platforms, a weight control suspended from the upper platform, wheels and sets of curved tracks engaged therewith carried by the platforms respectively, the said sets of tracks being so constructed as to come approximately to the same level, the connection between the upper platform and its wheels and the intermediate platform and its wheels being so constructed that these platforms are dropped below the point of track and wheel contact, whereby the point of contact of the body being stabilized with the said upper platform, comes below the points of wheel contact on said supporting sets of tracks, the organization being such that the upper platform will remain in a level position against the motion of the boat in any direction and also against the independent motion of the said body.

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