K. R. KENNISON.

BILGE BLOCK.

APPLICATION FILED JUNE 24, 1920.

1,385,487.

Patented July 26, 1921.

2 SHEETS—SHEET 1.

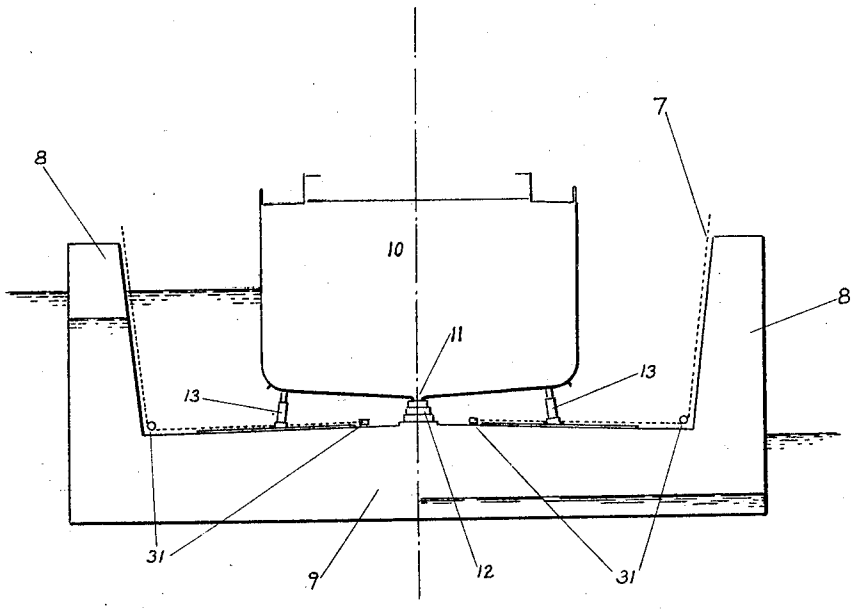


Fig. 1

Inventor:
Karl R. Kennison,
by his attorney
Charles S. Goodwin.

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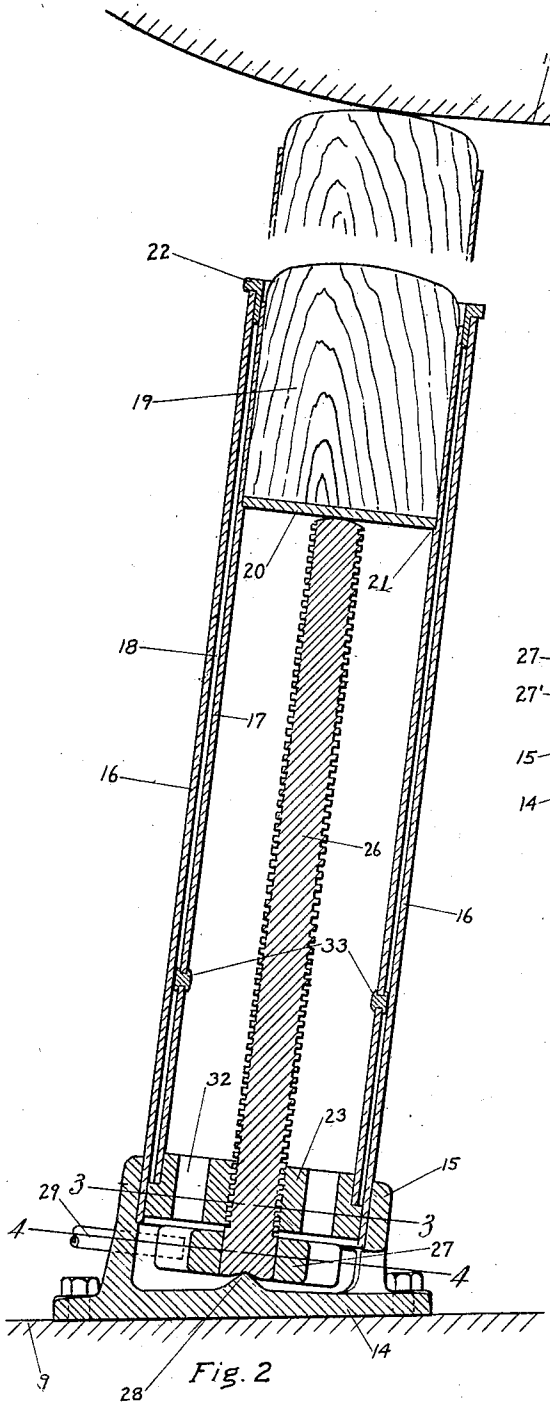


Fig. 2

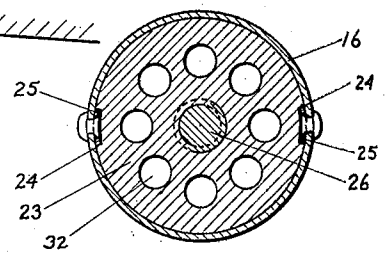


Fig. 3

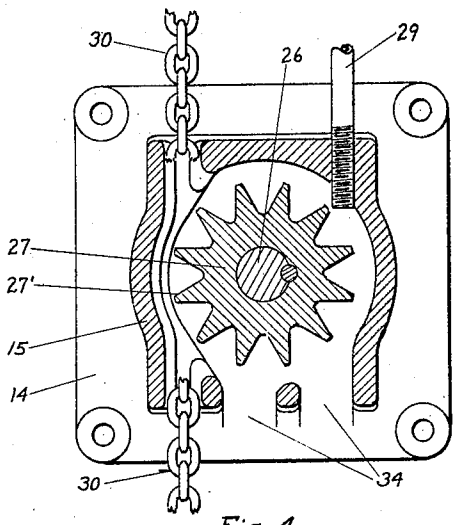


Fig. 4

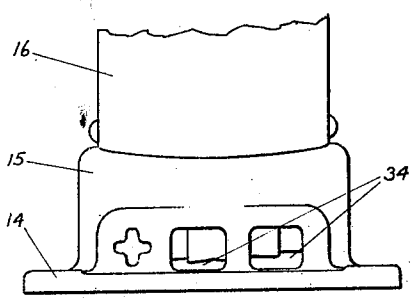


Fig. 5

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UNITED STATES PATENT OFFICE.

KARL R. KENNISON, OF BOSTON, MASSACHUSETTS.

BILGE-BLOCK.

1,385,487. Specification of Letters Patent. Patented July 26, 1921.

Application filed June 24, 1920. Serial No. 391,420.

To all whom it may concern:

Be it known that I, KARL R. KENNISON, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Bilge-Blocks, of which the following is a specification.

This invention relates to improvements in bilge blocks which are employed in dry docks for holding vessels in position to keep them from tipping from side to side upon their keels.

The object of the invention is to provide a device of this character which may be operated to engage the hull of a vessel at one side of its keel when the same is in a dry dock and before the water is removed from the dock, so that by using a plurality of such devices on opposite sides of the keel of the vessel, the same will remain in an upright position after the water has been removed from the dock preparatory to cleaning or repairing the hull of the vessel.

It is essential in devices of this kind that when submerged it should be easily operated from a position above the water to bring the upper end thereof in contact with the hull of the vessel, the device being so constructed as to be strong to resist heavy pressure and to retain the vessel in an upright position upon its keel blocks and prevent its tipping thereon when it is not floating in water.

To these ends the invention consists in a bilge block constructed as hereinafter described in the specification and particularly as pointed out in the claims.

Referring to the drawings:

Figure 1 is a cross section of a floating dry dock illustrating a vessel therein with my improved bilge blocks shown in connection therewith.

Fig. 2 is a longitudinal, sectional elevation of the bilge block showing the same in its retracted position, and also indicating its advanced position contacting with the bilge of the vessel at one side of the keel.

Fig. 3 is a cross section through the casing and base of the bilge block taken on the line 3—3, Fig. 2.

Fig. 4 is a similar section taken on the line 4—4, Fig. 2.

Fig. 5 is an elevation of the base of the bilge block with a portion of the cylindrical casing attached thereto and shown broken away.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 7 is a dry dock consisting of wings 8 supported upon a base or pontoon 9. 10 illustrates in outline the hull of a vessel with its keel 11 supported upon keel blocks 12, and said vessel is held in upright position and prevented from tipping by the bilge blocks 13 located on opposite sides of the keel 11. The bilge block of my invention consists as a whole of a base 14, which is fastened to the pontoon 9 of the dry dock and at the required distance from the keel blocks 12. The said base has a cylindrical flange 15 thereon to which is rigidly fastened a cylindrical casing 16, which extends upwardly therefrom and is inclined at an angle thereto. A tube 17 is slidably mounted within the casing 16 and is separated therefrom by an annular space 18. The upper end of the tube 17 has a block 19 of wood which tightly fits the interior of said tube at its upper end, and the bottom of which rests against a disk 20 which is forced downwardly into the tube 17 from its upper end against an annular shoulder 21 in the bore of said tube. An annular rim 22 is forced into the casing 16 at its upper end and forms an upper guide for the tube 17. A disk shaped nut constituting a head 23 is forced into the lower end of the tube 17 whereby a chamber 17′ is provided in said tube. Said nut 23 is provided with longitudinally extending grooves 24 upon opposite sides thereof which receive vertical strips 25 which are riveted to the inside of the casing 16 to prevent the tube 17 from rotating. The nut 23 has screw-threaded engagement with a screw 26 which projects upwardly from the nut 23 along the bore of the tube 17 and projects downwardly from the nut 23 to engage a toothed wheel 27 which is fast thereto, the lower end of said screw being recessed to receive a projection 28 upon the base 14 thus constituting an end bearing. The toothed wheel 27 may be rotated by compressed air or by a water jet impinging on its teeth 27′ and conducted into the interior of the base by a pipe connection 29, which connection is

carried upwardly and is connected to a source of compressed air, or water under pressure, or said toothed wheel may, if preferred, be rotated by means of a chain 30, which extends therethrough and is guided by idlers 31 and thence extends upwardly to the top of the wing 8, see Fig. 1. The nut 23 is provided with holes 32 extending longitudinally therethrough for the free passage of water to drain the interior of the tube 17, the tube 17 being inverted and air tight at the top secures a pocket of air therein and this leads to the buoyancy of the block 19, tube 17 and wheel 23, thus lessening the vertical thrust on the screw 26 and making it easier to rotate the same to move the block into position.

If in the process of repairing or painting a ship's bottom it is desired to temporarily retract one of the bilge blocks, a bar or other convenient instrument can be driven against the teeth of the wheel 27 through the openings 34 in the base 14, thus loosening the block or wedging it again into place. Said openings 34 also provide for the escape of air or water that may be used to actuate the wheel 27.

The general operation of the device hereinbefore specifically described is as follows: Assuming the parts to be in the relative positions illustrated in Fig. 2, and that the vessel is floating in the water properly centered and partly resting upon the keel blocks 12, the bilge blocks are operated as follows: If compressed air or water under pressure is used, the same is allowed to enter the base 14 through the pipe 29 and impinging upon the teeth of the wheel 27 will cause said wheel to rotate, thus rotating the screw 26 and as the nut 23 and the tube 17 and the block 19 are all prevented from rotating by the strips 25, it follows that these parts will travel upwardly until the block 19 contacts with the bilge of the vessel. This same result may be attained by rotating the toothed wheel 27 in the proper direction by means of the chain 30 until the block 19 contacts with the bilge of the vessel. The water is now removed from the dry dock in a manner well known to those skilled in this art, and the weight of the vessel will then come upon the keel blocks 12 and to some extent upon the bilge blocks 13. This weight will be sustained in the case of the bilge blocks by a direct pressure on the block 19 which will be communicated through the tube 17, nut 23 and screw 26 to the base 14 and to the pontoon 9 to which said base is fastened. When the repair work has been completed upon the vessel the water is allowed to enter the dock, lifting the vessel out of contact with the keel blocks 12 and the bilge blocks 13. Later the block 19, tube 17 and nut 23 are retracted to the positions illustrated in Fig. 2 by reversing the rotary motion hitherto imparted to the toothed wheel 27 when the ship has been removed from the dock and the dock again unwatered.

The upward motion of the block 19 and the parts attached thereto including the tube 17 is limited by stops 33 which are riveted to the tube 17, and when said tube has been moved upwardly to the extreme of the movement desired, said stops will engage the rim 22 and prevent the block 19 and tube 17 from moving any farther upwardly.

It will be understood that for different sizes or shapes of vessels the distance of the bilge blocks from the keel blocks may be varied and this is accomplished by moving the base 14 of the bilge block to the desired location and fastening it in said location.

While I have described my invention as particularly adapted for use as a bilge block, I do not wish to limit the same to this particular use, as it is evident that the same may be utilized for other work than supporting the vessel on a dry dock, without departing from the spirit of my invention.

I claim:

1. A bilge block having, in combination, a base, a cylindrical casing fast thereto and extending upwardly therefrom, a block adapted to engage the hull of a vessel, a tube containing and fast to said block and slidable in said casing, a nut fast to the lower end of said tube, a screw of substantially smaller diameter than the diameter of said tube engaging said nut and projecting into said tube and means to impart a rotary motion to said screw whereby a reciprocatory motion may be imparted to said tube and block.

2. A bilge block having, in combination, a base a cylindrical casing fast thereto and extending upwardly therefrom, a block adapted to hold the hull of a vessel, a tube into which said block is adapted to project, fast to said block and slidable together in said casing, a nut located in the lower end of said tube, a screw of substantially less diameter than the interior diameter of said tube engaging said nut, projecting into said chamber and rotatably mounted on said base, a toothed disk fast to the lower end of said screw and means to impart a rotary motion to said toothed disk, whereby a rotary motion may be imparted to said screw and a reciprocatory motion to said tube and block.

3. A bilge block having, in combination, a base, a cylindrical casing fast thereto and extending upwardly therefrom, a block adapted to engage the hull of a vessel, a tube fast to said block and slidable in said casing, a nut fast to said tube and having holes extending therethrough longitudinally of said casing, a screw of substantially smaller diameter than the inside diameter of said tube engaging said nut and rotatably mounted on said base, a toothed disk fast

to the lower end of said screw and means to impart a rotary motion to said toothed disk whereby a rotary motion may be imparted to said screw and a reciprocatory motion to said tube and block.

4. A bilge block having, in combination, a base, a cylindrical casing fast thereto and extending upwardly therefrom, a block adapted to engage the hull of a vessel, a tube fast to said block and slidable in said casing, a nut fast to said tube, a screw engaging said nut and rotatably mounted on said base, a disk with projections on its periphery fast to the lower end of said screw and fluid means under pressure adapted to impart a rotary motion to said disk, whereby a reciprocatory motion may be imparted to said tube and block.

5. A bilge block having, in combination, a base, a cylindrical casing fast thereto and extending upwardly therefrom, a block adapted to engage the hull of a vessel, a tube fast to said block and slidable in said casing, a nut fast to said tube and having holes extending therethrough longitudinally of said casing, a screw engaging said nut and rotatably mounted on said base, a toothed disk fast to the lower end of said screw and fluid means under pressure adapted to impart a rotary motion to said toothed disk, whereby a rotary motion may be imparted to said screw and a reciprocatory motion to said tube and block.

6. A bilge block having, in combination a base, a casing fast thereto, a block adapted to engage the hull of a vessel and slidable in said casing, means to impart a reciprocatory motion to said block to vertically position the same relatively to said hull, said means embodying a nut and screw, the screw being pivotally mounted at its lower end upon said base.

7. A bilge block having, in combination, a base, a conical projection on said base extending upwardly therefrom, a casing fast to said base, a block adapted to engage the hull of a vessel and slidable in said casing, and means to impart a reciprocatory motion to said block to vertically position the same relatively to said hull and embodying a nut and screw, said screw having a recess at its lower end to receive the projection on said base upon which projection said screw is rotatably mounted.

8. A bilge block having, in combination, a base, a cylindrical casing fast thereto and extending upwardly therefrom, a block adapted to engage the hull of a vessel, a tube containing said block and slidable in said casing, a nut fast to the lower end of said tube and having holes extending longitudinally therethrough and opening into said tube, a screw of substantially smaller diameter than the interior diameter of said tube and projecting into said tube and engaging said nut, and means to impart a rotary motion to said screw, whereby a reciprocatory motion may be imparted to said tube and block.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

KARL R. KENNISON.

Witnesses:
FRANKLIN E. LOW,
CHARLES S. GOODING.