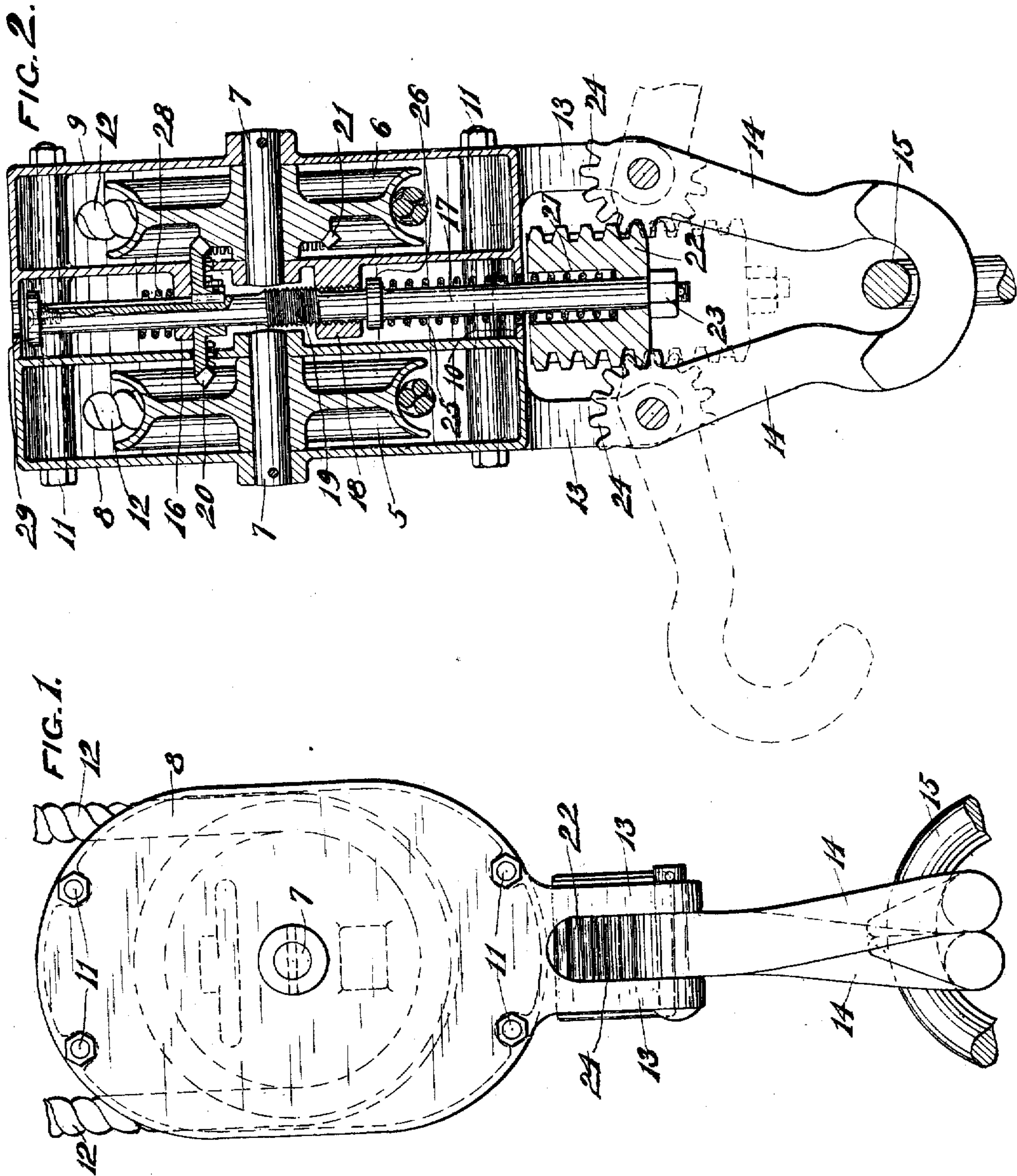


A. C. BOUCHARD.
SAFETY TACKLE BLOCK.
APPLICATION FILED SEPT. 12, 1908.

Patented Dec. 29, 1908.

908,385.



WITNESSES.

D. J. Thuermer
Anna F. Schmidtbauer

By

INVENTOR.
Arthur C. Bouchard.
ATTORNEYS.
Benedict, Morsell & Caldwell.

UNITED STATES PATENT OFFICE.

ARTHUR C. BOUCHARD, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE FIRM OF
BOUCHARD & KILLIAN, OF MILWAUKEE, WISCONSIN.

SAFETY TACKLE-BLOCK.

No. 908,385.

Specification of Letters Patent.

Patented Dec. 29, 1908.

Application filed September 12, 1908. Serial No. 452,762.

To all whom it may concern:

Be it known that I, ARTHUR C. BOUCHARD, residing in Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Safety Tackle-Blocks, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

10 This invention has for its object to provide a tackle block particularly designed for the purpose of lowering life boats and the like and being capable of automatically disengaging from the life boat as soon as the weight of the latter is relieved therefrom on striking the surface of the water.

15 Another object of the invention is to accomplish such disengagement by means of spring actuated parts which will normally be free from tension or compression, the motion of one of the pulleys during the initial movement of the device serving to store energy in the spring means for the desired purpose.

20 Another object of this invention is to accomplish the disengagement by a wide throw of the engaging hooks which will prevent the possibility of the suspended device hanging thereto.

25 Another object of the invention is to accomplish the wide spreading movement of the engaging hooks by means of a spring actuated rack meshing with rack teeth on the hook members.

30 With the above and other objects in view the invention consists in the safety tackle block herein claimed its parts and combinations of parts and all equivalents.

35 Referring to the accompanying drawings in which like characters of reference indicate the same parts in the different views; Figure 1 is a front elevation of a safety tackle block constructed in accordance with this invention; and, Fig. 2 is a transverse sectional view thereof.

40 In these drawings 5 and 6 indicate a pair of sheaves mounted on pins 7 in their respective casings 8 and 9, the two sheave casings being adapted to fit together and the casing 9 having an inwardly extending flange 10 to space them apart, while bolts 11 pass through the two casings and firmly unite them into a single rigid structure. A hoisting rope 12 enters the casing and is reeved about the sheaves in the usual manner.

55 Each of the sheave casings has a pair of

downwardly extending lugs 13 at its lower end and between each pair of lugs is pivotally mounted a hook member 14, the two hooks being opposed so as to constitute sister hooks for engaging the supporting eye or loop 15 on the life boat or other article to be supported.

The sheave casing 9 has a pair of integral projections extending into the central space between the two sheave casings, one of them constituting a guide bearing 16 for a spindle or rod 17 which slidably passes therethrough and through the bottom of the flange 10, and the other projection constitutes a stationary nut 18 in which a screw thread 19 of the spindle works to cause said spindle to slide up or down according to the direction of its rotation. A bevel gear 20 is splined on the spindle 17 so as to be capable of turning the same, though free to slide thereon so as to permit the spindle to move longitudinally without affecting the position of the bevel gear. This bevel gear bears against the guide lug 16 and projects through slots in the sheave casings 8 and 9, meshing with a bevel pinion 21 carried by the sheave 6 and preferably integral therewith as shown. Thus the turning of the sheave 6 by the movement of the rope 12 thereon causes the bevel gear 20 to turn the spindle, which by working its thread 19 in the stationary nut 18 is moved longitudinally as well.

A double rack 22 is slidably mounted on the lower end of the spindle 17 beneath the casings and is held thereon by a locked nut 23. Segmental racks or rack teeth 24 are formed upon or carried by the hooks 14 and mesh with the rack teeth of the double rack 22 so that a downward movement of the latter will cause the hooks to swing upon their pivotal connections and spread apart to the position shown by dotted lines in Fig. 2. A coil spring 25 surrounds the lower part of the spindle 17 and bears at one end against a shoulder 26 on said spindle and at its other end against the double rack 22, the latter being preferably recessed at 27 to receive the end of the spring to permit of the necessary compression thereof, though the parts may be so proportioned as to dispense with the necessity for such recess. A short coil spring 28 surrounds the upper part of the spindle 17, resting upon the bearing lug 16, and is adapted to be engaged by a flange 29 on the upper end of the spindle which is preferably

removable therefrom for the purpose of assembling the parts.

In operation, the turning movement of the spindle caused by the movement of the rope, as above described, feeds it downwardly so as to compress spring 25 between the shoulder 26 and the double rack 22, which does not move at this time owing to the sister hooks 14 being held together by the weight of the life boat on the loop 15. The compression of spring 25 continues until the thread 19 has passed entirely through the stationary nut member 18, when the further turning of the sheave does not affect the parts. Upon the boat striking the water, and consequently relieving its weight from the loop 15, the spring 25 is capable of asserting itself by forcing the double rack 22 downwardly and thereby swinging the sister hooks apart to the position shown in dotted lines in Fig. 2, where there is no possibility of the loop 15 hanging therefrom. Before the spindle 17 completed its downward movement the flange 29 thereof engaged the spring 28, so that after the release of the sister hooks the spindle is still pressed upwardly by said spring 18 to cause the reengagement of the thread 19 with the nut 18 when the reverse movement of the sheave 6 takes place upon raising the tackle block again. When the spindle has been restored to its upper position by this return movement, and in the meantime has drawn the double rack 22 up with it to close the sister hooks, the further turning of the pulley 6 has no effect upon the parts as the screw 19 has passed entirely through the nut member 18. The weight of the spindle 17 will be sufficient to cause the thread 19 to again engage the nut member 18 upon the pulley being turned in the direction for lowering the boat.

What I claim as my invention is:

1. A safety tackle block, comprising a casing, a sheave therein, a hook on the casing for engaging the object to be moved, a rack, a spring bearing thereon, teeth on the hook engaged by the rack for causing the hook to disengage from the object when relieved of the weight thereof, and means operated by the sheave for compressing the spring.

2. A safety tackle block, comprising a casing, a hook on the casing for engaging the object to be moved, a sheave in the casing, a spindle geared to the sheave to be turned thereby, a screw and nut connection for the spindle to give it longitudinal motion as the result of its rotary motion, a rack loosely mounted on the spindle, teeth on the hook engaging the rack, and a spring on the spindle bearing on the rack to be compressed by the longitudinal movements of the spindle for causing the rack to throw the hook out of engagement with the object to be moved when relieved of the weight thereof.

3. A safety tackle block, comprising a cas-

ing, a sheave therein, a spindle slidably and rotatably mounted in the casing, means for gearing the spindle with the sheave, a screw and nut connection between the spindle and the casing for feeding the spindle longitudinally, a double rack loosely mounted on the spindle, a pair of sister hooks pivotally connected to the casing, rack teeth on the sister hooks meshing with the teeth of the double rack, and a coil spring surrounding and engaging the spindle and bearing on the double rack, said spring being adapted to be compressed by the longitudinal movements of the spindle for causing the double rack to throw the sister hooks apart when relieved of the weight of the object supported thereby.

4. A safety tackle block, comprising a pair of casings having sheaves mounted therein, a flange on one casing for engaging the other casing to space the casings apart, means for securing the casings together, a bearing lug and a feed nut projecting from one of the casings, a spindle slidably and rotatably mounted in the bearing lug and passing through the flange of the casing, a screw thread on the spindle engaging the feed nut, a bevel gear splined on the spindle and bearing on the bearing lug and projecting into the casings, a bevel pinion on one of the sheaves meshing with the bevel gear, a recessed double rack slidably mounted on the spindle, a pair of sister hooks pivotally mounted on the casings, rack teeth on the sister hooks engaging the rack teeth of the double rack, a shoulder on the spindle, a coil spring surrounding the spindle with one end bearing against said shoulder and the other end entering the recess of the double rack, a nut threaded on the spindle for engaging the double rack, a spring surrounding the spindle and bearing on the bearing lug, and a shoulder carried by the spindle for engaging the last mentioned spring.

5. A tackle block, comprising a casing, a sheave mounted therein, means on the casing for engaging the object to be moved, and automatic means operated by the movements of the sheave for causing the engaging means to become disengaged from said object.

6. A tackle block, comprising a casing, a sheave therein, a hook on the casing for engaging the object to be moved, and a spring means for disengaging the hook operated by the movements of the sheave.

7. A tackle block, comprising a casing, a sheave therein, a hook on the casing for engaging the object to be moved, and means controlled by the movements of the sheave for disengaging the hook.

8. A tackle block, comprising a casing, a sheave therein, a hook on the casing for engaging the object to be moved, a spring means connected with the hook, and means operated by the sheave for engaging the

spring means to give pressure to the hook under which it will become disengaged from the object when relieved of the weight thereof.

5 9. A tackle block, comprising a casing, a sheave therein, a hook on the casing for engaging the object to be moved, a spring means connected with the hook, and a rod threaded in the casing operated by the
10 sheave for engaging the spring means to give pressure to the hook under which it will become disengaged from the object when relieved of the weight thereof.

15 10. A tackle block, comprising a casing, a sheave therein, a hook on the casing for engaging the object to be moved, a spring means connected with the hook, a rod threaded in the casing, a bevel pinion splined on the rod, and a bevel pinion on the sheave
20 meshing therewith whereby the movements of the sheave cause the turning of the rod to feed the rod against the spring means of the hook for causing said hook to disengage from the object when relieved of the weight
25 thereof.

11. A tackle block, comprising a casing, a sheave therein, a hook on the casing for

engaging the object to be moved, a spring means connected with the hook, a rod threaded in the casing, a bevel pinion splined
30 on the rod, a bevel pinion on the sheave meshing therewith whereby the movements of the sheave cause the turning of the rod to feed the rod against the spring means of the hook for causing said hook to disengage
35 from the object when relieved of the weight thereof, there being plain portions of the rod at the ends of its threaded portion for permitting the turning of the rod after it has finished its longitudinal movements, a spring surrounding the rod and a collar on
40 the rod adapted to engage the spring near the end of the downward movement of the rod to give a pressure to the rod for causing the engagement of its threads with the threads of the casing on the return move-
45 ment of the sheave.

In testimony whereof, I affix my signature, in presence of two witnesses.

ARTHUR C. BOUCHARD.

Witnesses:

R. S. C. CALDWELL,
ANNA F. SCHMIDTBAUER.