June 4, 1940. N. U. GUNDIAN 2,203,433

MOORING DEVICE

Filed Sept. 2, 1938

FIG. 1.

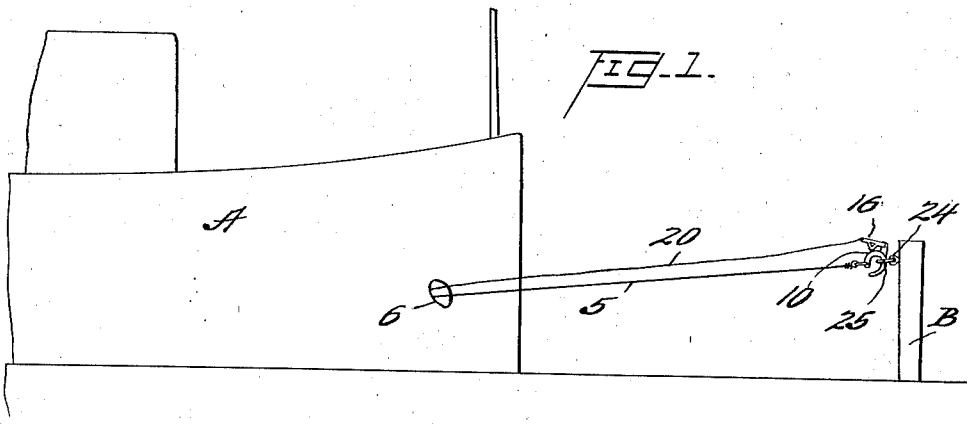



FIG. 2.

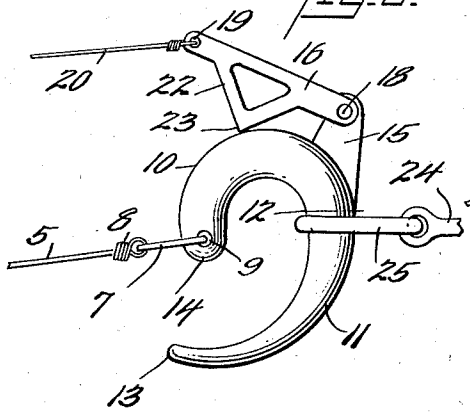
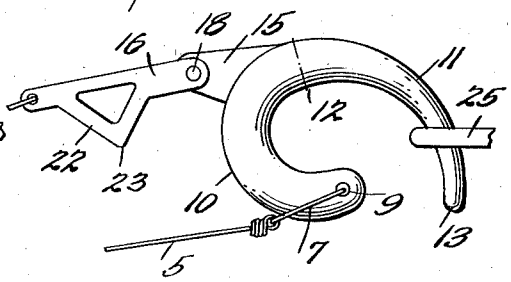



FIG. 3.



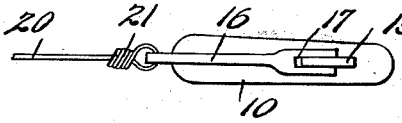
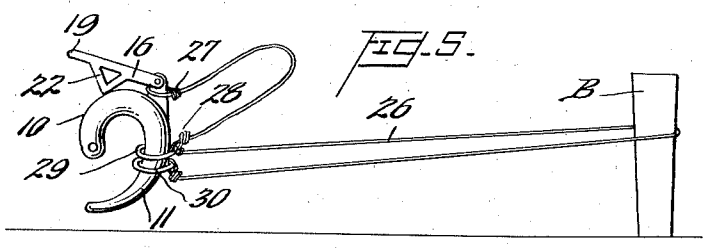




FIG. 4.

FIG. 5.




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Patented June 4, 1940 2,203,433

# UNITED STATES PATENT OFFICE

2,203,433

## MOORING DEVICE

Nicolas Urrutia Gundian, Iquique, Chile

Application September 2, 1938, Serial No. 228,203

5 Claims. (Cl. 114—230)

Generically this invention relates to anchor hooks, but it is more particularly directed to a ship's hook for releasably mooring a ship to a dock, buoy, or the like.

Heretofore it has been prevalent in anchoring ships to docks, wharves, piers, buoys and the like, to hitch the hawser carried by the respective ship about a pier-post or other anchoring means, and when releasing the ship from its mooring, such operation requiring men on the wharf or pier to unloosen the hawser connection, or men from the ship to perform this function and thereafter board the ship. Many attempts have been made to overcome such disadvantages, but with scant success, and, therefore, the principal object of this invention is to overcome such disadvantages, including a saving in labor, and eliminate wear and tear of the hawser line by virtue of its connection with the anchor medium, by providing a releasable ship's hook or anchor mooring device adapted to be readily connected with an anchor mooring ring connected to an anchorage medium adapted to assure at all times, despite the automatic release feature, a dependable anchorage, incapable of accidentally becoming disengaged and whereby disconnection of the mooring device and anchor ring may be effected from the ship as desired, and without the aid of manual operation from a pier or like anchorage.

One of the principal objects of this invention is the provision of a ship's hook engageable with an anchor ring or other medium and including means for releasing said hook therefrom irrespective of whether the load connection with the hook and ring is slackened or not.

Another important object of this invention is the provision of a ship's hook attached to one end of the mooring cable or hawser and releasable means associated with the hook, whereby when force is applied thereto a twisting or rotary movement is imparted to the hook to effect its disengagement from its anchor mooring means without necessitating slackening of the hawser, and without regard to load conditions.

Another important object of this invention is the provision of a ship's hook of this character of a predetermined configuration whereby accidental disengagement of the hook is precluded, so designed as to withstand heavy load stresses and adapted to be disengaged from its anchoring ring or other medium without materially shifting the attached pivotal end of the hook with respect to said ring and without necessitating slackening of the connecting cable, by virtue of the rotary movement imparted to the hook by the fulcrum construction of the releasable member pivotally carried by the hook, when force is applied through the release cord connection to said fulcrum member.

A further object of this invention is the provision of a mooring hook as above described including a tangentially extending lug pivotally supporting a fulcrum member to which is attached a release cord, and including an auxiliary anchor rope element having one end attached to said lug and having a ring spaced from said attached end and a ring secured to its free end, said hook adapted to engage said rings when said rope is passed around or through a stationary anchor means, whereby when the hook is released from said rings, said rope is released from its anchor means and adapted to be drawn with said hook back to the ship.

With these and other objects in view, which will become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawing, in which like characters of reference indicate like parts throughout the several figures, of which:

Fig. 1 is a fragmentary side elevation of a vessel moored to a pier by means of my improved releasable mooring hook device.

Fig. 2 is a side elevation of my improved ship's hook operatively connected with its anchoring ring.

Fig. 3 is a similar view showing the hook about to be released from the ring.

Fig. 4 is a top plan view of the device.

Fig. 5 is a view, similar to Fig. 2, showing another means of effecting a mooring connection to a dockpost or the like.

There have been various attempts to effect detachable anchor hooks employing trigger and latch mechanisms but such structures have proven unsatisfactory and deficient in many respects, such as employing a multiplicity of parts, requiring expensive construction, and in connection with heavy load stresses the movable parts becoming fixed and failing to properly function, and it was to overcome such deficiencies and to provide an anchor hook device so shaped as to preclude its accidental disengagement, comprising no trigger or movable parts adapted to become out of order and tending to prevent ready attachment of the hook to a mooring ring structure, said hook having mounted thereon a fulcrum element attachable to a release cord so

that movement of the cord in releasing direction transmits force through said fulcrum element to the hook substantially at right angles to the load or connecting cable at its point of connection, and owing to the predetermined angular shape of the hook effecting its rotary movement at said point of connection without, to any great extent, shifting its pivotal point, at the same time effecting disconnection of the hook and its anchor without necessitating slackening of the load line, that I designed the device forming the subject matter of this invention.

In the illustrated embodiment characterizing this invention there is shown a ship A, dock or pier-post B and ship's hook or anchor device C. The ship or vessel A has a hawser or mooring line 5 adapted to be suitably connected to an anchor mechanism or mounted on any suitable winding mechanism, not shown, and in the present instance, projecting through a porthole 6 with its free end extending through link or ring 7 and secured therein as at 8 or in any suitable manner, said link being suitably mounted in opening 9 formed in one end of the anchor or mooring hook 10. Hook 10 terminates in a curved bill-like formation 11 tapering from a point opposite opening 9 as at 12 to its free end 13 which extends by and beyond its load connecting end 14 as will be apparent.

The arc of said bill-like portion from point 12 approximately to its free end is substantially constant with respect to opening 9 or what may be termed the hook-pivotal point, as will hereinafter be more fully explained. Suitably mounted exterior of said hook adjacent the base of said bill portion and projecting at a tangent therefrom is lug 15. A fulcrum member 16 bifurcated at one end as at 17 is pivotally mounted on the free end of lug 15 as at 18, and is apertured at its opposite end as at 19 to receive one end of a release cord or cable 20 secured therein as at 21, similar to hawser 5 as at 8, and projecting downwardly from the under surface of said member 16 is a triangular portion 22 adapted, when pulling force is applied to cord 20, to engage hook 10 as at 23 and impart thereto a twisting or rotary movement of said hook about its pivotal axis as at 9, as and for a purpose hereinafter more fully appearing.

Suitably connected to the anchor or pier-post B or other suitable anchoring element, which may be a buoy or other anchor means, is an eye member 24 rigidly secured to the post in any suitable manner and having mounted therein an anchor ring 25 adapted to receive hook 10 firmly mooring ship A as will be well understood.

While I have described the device C as effecting a mooring connection by engaging the hook 10 in anchor link 25 secured to anchor post B it may be desired to anchor directly to a post B not equipped with ring 25, and in Fig. 4 I have illustrated the manner in which this may be easily accomplished. An auxiliary hawser or rope 26 may be employed having its free end suitably connected to lug 15 as at 27 and spaced therefrom secured as at 28 is a ring 29, and suitably secured to the free end of said rope 26 is a similar ring 30, so that when rope 29 is passed around anchor post B and hook 10 inserted in rings 29 and 30 the mooring operation is completed as in the first instance. It is further noted that the rope 26 intermediate ring 29 and point of connection 27 presents a loose loop when the hook is in operable position, and to disengage the mooring connection it is only necessary to exert a pulling force on the release cable 20 thereby effecting disengagement of hook 10 from rings 29 and 30, similar to the operation described in connection with ring 25, and rope 26 will be carried back to the ship along with hook C as will be apparent.

It will be noted that the mass of the hook is such that when the pull upon the pivotal point is released, as for instance, the movement of the ship toward the dock, the action of gravity will force said hook to move in a direction which will further its engagement with the ring, and thereby preclude its accidental displacement.

While the operation of the device would seem to be clear from the above description it might be well to further state that in view of the heavy pull or load carried by hawser 5, in order to effect disconnection of the hook from its anchor member and without having to exert any great pull on release cord 20, the fulcrum structure 22 gives a twisting or rotary movement in releasing direction to the hook, without substantially shifting the pivotal point 9 of the latter, by virtue of the formation of the bill portion 11 uniformly curved throughout a substantial portion of its length, so that the arc of the bill is such that the center of its radii is located at the pivotal point and for the further reason that the configuration of said hook tends to aid in effecting disconnection of the hook from mooring ring 25 without regard to load conditions, the load itself tending to complete the disconnection as the mooring ring approaches the free end of the hook.

From the above it is apparent that I have designed a releasable mooring device, adapted to save time in anchoring a vessel, eliminating wear and tear of the hawser at its point of connection, while adapted to eliminate trigger and movable latch connections, so designed as to prevent accidental disengagement by reason of movement of the ship with the tides, adapted to be remotely controlled from the vessel, yet one simple in construction, comprising few parts, manufacturable at a reasonable cost and efficient for the purposes intended.

Although in practice I have found that the form of my invention illustrated in the accompanying drawings and referred to in the above description as the preferred embodiment, is the most efficient and practical; yet realizing the conditions concurrent with the adoption of my invention will necessarily vary, I desire to emphasize that various minor changes in details of construction, proportion and arrangement of parts, may be resorted to within the scope of the appended claims without departing from or sacrificing any of the principles of this invention.

Having thus described my invention, what I desire protected by Letters Patent is as set forth in the following claims:

1. A mooring device comprising an arcuate bill portion, a curved heel portion, the free end of said heel portion being provided with an opening, the latter being substantially coincident with the center of the radii of the arc of said bill portion, an extension from said bill portion, a pressure member pivotally secured to the free end of said extension, means in connection with said pressure member to engage said heel portion and means for imparting pressure to said pressure member.

2. A mooring device comprising an arcuate bill portion, a curved heel portion, the free end of said heel portion being provided with an open-

ing, the latter being substantially coincident with the center of the radii of the arc of said heel portion, an extension projecting from said bill portion, a pressure member pivotally secured to the free end of said extension, means projecting downwardly from said pressure member and engaging said heel portion, and means for imparting pressure to said pressure member.

3. A mooring device comprising an arcuate bill portion, a curved heel portion, the free end of said heel portion being provided with an opening, the latter being substantially coincident with the center of the radii of the arc of said bill portion, an extension projecting tangentially from said bill portion, a fulcrum member pivotally secured to said extension, and means for imparting pressure to said fulcrum member.

4. A mooring device including an arcuate bill portion, a curved heel portion, the free end of said heel portion being provided with means for effecting connection with a cable, an extension projecting from said device, a pressure member pivotally secured to said extension, fulcrum means projecting from said presssure member adapted to engage said heel portion, and means for imparting pressure to said fulcrum means.

5. A mooring device comprising a curved heel portion, the free end of said portion being provided with anchor means for effecting connection with a connecting medium, an arcuate bill portion forming a continuation of the heel portion with its free end projecting beyond said heel portion and constituting therewith a hook-like element, an extension projecting from said element, a pressure member pivotally secured to said extension, means in connection with said pressure member to engage said heel portion, and means for imparting pressure to said pressure member.

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