

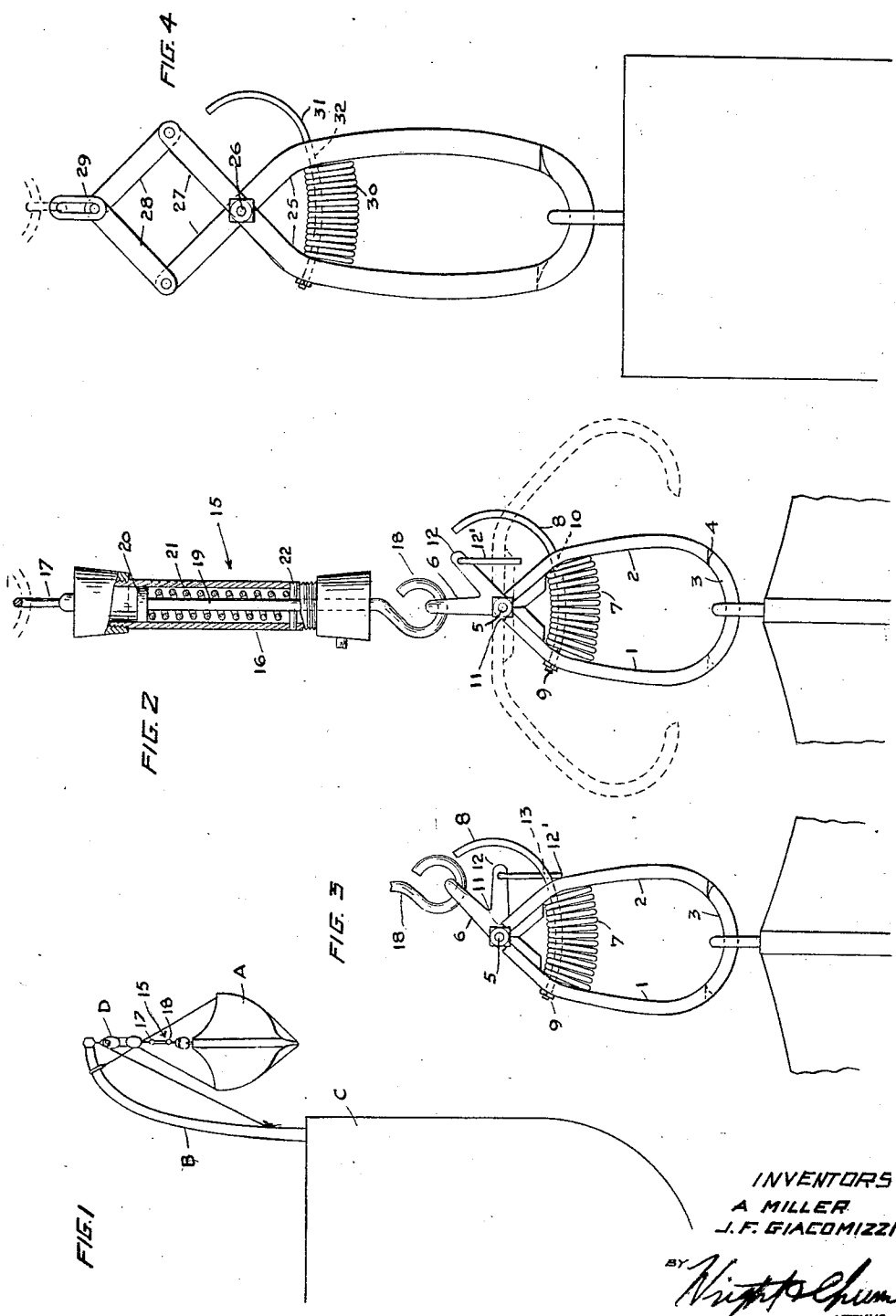
Sept. 9, 1924.

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1,507,706

SAFETY GRAPPLE

Filed March 21, 1923



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UNITED STATES PATENT OFFICE.

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SAFETY GRAPPLE.

Application filed March 21, 1923. Serial No. 626,556.

To all whom it may concern:

Be it known that we, ANTHONY MILLER and JOSEPH F. GIACOMAZZI, citizens of the United States, residing at Burlingame, in the county of San Mateo, State of California, and Soledad, in the county of Monterey, State of California, have invented new and useful Improvements in Safety Grapples, of which the following is a specification.

This invention relates to an improved safety grapple hook which is of simple and inexpensive construction and capable of being used in a number of ways for the purpose of supporting or handling small boats from the decks of larger vessels and for the purpose of loading and unloading objects and supporting various objects and the like.

One of the objects of the invention is to provide a safety hook of the character described which is particularly adapted for suspending life boats from the decks of large vessels, the hook being constructed so that the weight of the boat maintains the hook in closed position but upon relieving the hook of the weight of the boat, as for example, when the latter is launched, the hook automatically flies open and releases the boat. Should in lowering the boat, a wave be encountered and the boat lifted, the hook will not release, due to the employment of spring means which when the supporting line for the hook is taut, will throw the weight of the boat on the spring means whereby the boat is yieldingly supported. When the boat is lifted by a wave the spring means expands without letting slack in the line or relieving the hook of the weight of the boat. By this arrangement, as soon as the life boat is launched the hooks automatically release and all possibility of the boat capsizing, due to the failure to release the launching lines as frequently takes place with the ordinary launching gear, is eliminated.

A further object is to provide a hook which although particularly designed for the purpose aforementioned may be equally well employed as a grapple for general lifting, loading and unloading purposes, the construction of the hook being such that it may be very easily and quickly snapped into closed or hooked position and such that upon release of the weight of the object or material being handled, the hook will open and clear itself

automatically from engagement with the object or material being handled.

Another object is to provide a hook of the character described which is provided with means which will lock the hook in closed position, which means will release automatically when the slack on the line is taken up but will not permit the hook to open since the weight of the object is thrown on the hook coincident with the tightening of the line.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawing, and set forth in the claims hereto appended, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Referring to the drawing:

Fig. 1 represents a view of a life boat as suspended from davits on deck of a vessel showing the safety hook of our invention as it would be employed in this connection.

Fig. 2 is an enlarged view in elevation of the hook showing part of the device in section and also showing in dotted lines, the hook as when open.

Fig. 3 is a side view of the hook as when locked.

Fig. 4 is a view in elevation of a modified form of the invention.

In carrying out the invention we provide like hook members 1 and 2, the bill portions 3 of which are adapted to overlap one another and are recessed as at 4 so that they will closely interfit. These hooks at the upper ends of their shanks are mounted on a pivot pin 5. The member 5 secures the hook members to a U-shaped eye 6. The hooks are normally forced apart so that there is provided a relatively wide opening between the ends of the bills thereof, by means of an expansion spring 7 mounted between the hooks and near the upper ends of the shanks thereof, the ends of the springs being attached in any suitable manner to the hooks. A curved guide member 8 is secured in any suitable manner as at 9 to the

shank of the hook 1, extends through the spring 7 and through an opening 10 provided in the hook 2, said member 8 being sufficiently long that it will not be withdrawn from the opening 10 when the hooks are spread apart. The shoulders 11 provided by the construction of the hooks at the pivoted ends thereof act as stops to limit the spreading movement of the hooks to the extent shown in dotted lines in Fig. 2.

As a means for locking the hook in closed position in such manner that when the lifting line or tackle to which the hook is attached is slack and the weight of the load to be supported by the hooks is relieved from the hooks, there is provided an extension 12 on the U-shaped eye 6 which extension carries a locking pin 12' adapted to extend into an opening 13 in the guide pin 8 when the eye 6 is inclined to 45° and is in the position shown in Fig. 3. When the load is being supported other than by the hook, but the hook is gripping or attached to the load, and slack is premitted in the line to which the hook is attached, the locking pin 12' may be then inserted through the opening 13. When slack in the line is taken up, the locking member 12' is withdrawn from the opening 13 and the hooks are then free to be forced apart by the spring, except that the weight of the object supported by the hooks is brought to bear on the latter co-incident with the withdrawal of the member 12' from the opening 13.

As shown in Figs. 1 and 2, the hook of our invention is adapted for supporting a life boat A, on davits B, carried by a vessel or ship C, said davit having the usual tackle D to which the hooks are connected. In this use of the hook, we preferably employ a spring device generally designated 15 which comprises a cylinder 16 having eyes 17 and 18 at its opposite ends. The eye 17 is connected with tackle D and the eye 18 is somewhat similar to a hook and inserted through the eye 6. Slidable in the cylinder 16 is a rod 19 having a head 20 on its upper end and which extends outwardly through the lower end of the cylinder, the hook 18 being carried on the lower end of said rod. A helical expansion spring 21 is mounted in the cylinder so that its lower end engages the pin 22 closing the lower end of the cylinder and at its upper end is engaged by the head 20. The weight of the boat supported is placed on the spring device and the spring 21 compresses in such manner that the said boat is yieldingly supported. If the life boat in being launched encounters a wave and is moved upwardly thereby as would ordinarily relieve the weight of the boat from the hooks, the springs expand and take up this movement so that there is a slight lost motion between the line of the tackle D and the hooks, thereby preventing

the weight of the boat from being relieved and the spreading apart and releasing the boat.

As shown in Fig. 4 the modified form of the hook comprises like hook members 25 which are crossed and pivoted as at 26 providing extensions 27. To these extensions links 28 are pivoted and the links are pivoted to one another at their upper ends, there being an eye or other attaching member 29 on the pivot member. The bills of the hook overlap so that the weight of the object held by the hooks holds the hooks together. A spring 30 is mounted between the hooks on a curved pin 31, one end of which pin is fixed to one of the hooks. The other hook has an opening 32 therein through which the pin extends. The spring tends to force the hooks apart. When the device is in use, the weight of the object being handled holds the hooks together although this force is not entirely depended upon to hold the hook in operative engagement with said object. When the line (not shown) to which the eye 29 is taut, the links 28 pull on the extensions 27 and hold the hooks together, thus making possible the resting of the load with the weight on the hooks relieved without causing the hooks to open. To open the hooks, the line is slacked and the spring will then force the hooks apart.

This form of our invention is double acting in that the hook is held closed by the two forces described. This hook will be desirable in loading and unloading operations of all kinds in that it will provide for a reliable gripping and holding action and may be caused to automatically release.

We claim:

1. A safety hook comprising two hook members pivotally connected at their upper ends and arranged to overlie one another at their opposite ends, spring means associated with the hooks and tending to normally force them apart, an eye attached to the pivot ends of the hooks and providing for connection of the hooks with a line and means for locking the hooks against spreading apart when the eye is moved to one side of a position assumed when a pull on a line is communicated to the hook said locking means being released upon movement of the eye into upright position

2. A safety hook comprising a pair of hooks having their shanks pivotally connected and their bills adapted to overlie one another, a spring associated with and acting to force the hooks apart when the weight of an object supported by the hooks is relieved therefrom, an eye loosely mounted on the pivot of the hooks, an extension on the eye, a curved rod fixed to one of the hooks, the other hook having an opening therein through which the rod slidably extends, and a locking member on the exten-

sion movable into and out of locking engagement with said rod upon movement of said eye.

5 3. A safety hook comprising a pair of hooks having their shanks pivotally connected and their bills adapted to overlie one another, a curved rod fixed to one of the hooks, the other hook having an opening

therein through which the rod slidably extends, a spring mounted on the rod between said hooks and acting to force the hooks apart when the weight of an object supported by the hooks is relieved therefrom and an eye connected with the shanks. 10

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