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EXPLOSIVE OPERATED LATCH MECHANISM

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FIG. 1

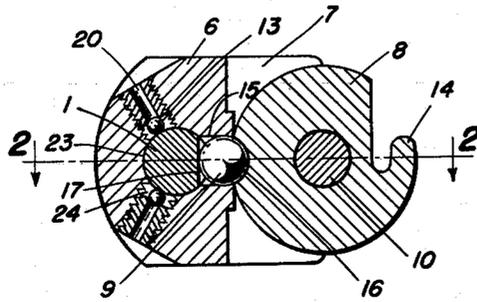
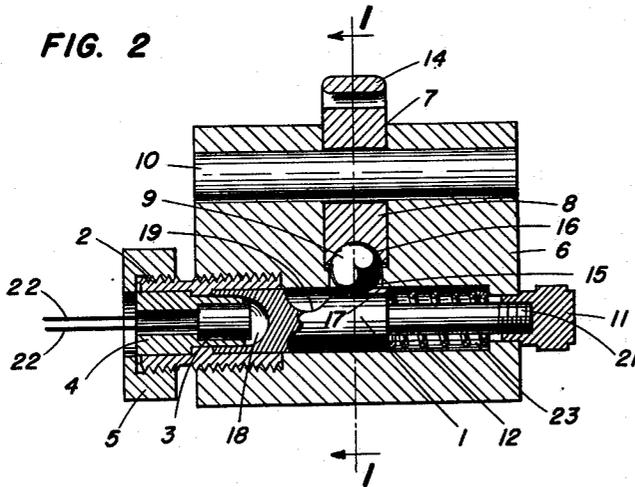


FIG. 2



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# UNITED STATES PATENT OFFICE

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## EXPLOSIVE OPERATED LATCH MECHANISM

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the United States of America as represented by  
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2 Claims. (Cl. 9-44)

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The present invention relates to automatically operated latch releasing mechanism and is particularly directed to quick operating mechanism actuated by the explosion of a small blasting cap or squib.

A principal object of the present invention is to provide a ruggedly constructed latch mechanism which operates quickly and efficiently.

A further object of the present invention is to provide a latch release mechanism which is operable upon an explosion caused by a small blasting cap, and the like.

Still further objects, advantages, and improvements will be apparent from the following description of the invention taken in connection with the accompanying drawings, of which:

Fig. 1 is a cross sectional view of the present invention taken along 1-1 in Fig. 2.

Fig. 2 is a partial cross sectional view of the present invention taken along 2-2 in Fig. 1.

Referring now to the drawings, on which like numerals of reference are employed to designate like parts throughout the several views, there is shown therein a latch 8 having a hook member 14 and rotatable about a shaft 10, which is mounted on a frame 6. The rotatable latch 8 is fitted into a slot 7 formed in the frame 6, at the base of which slot there is a bore 15 wherein a ball 9 is seated. The ball 9 fits into a hemispherical recess 16 in the latch 8 whereby the latch 8 is secured from rotation about the shaft 10. A slide member 1, which is slidably mounted in a cylindrical bore 23, has a flattened portion 17 that is in frictional engagement with the ball 9. The ball 9 is maintained in its seated position by a spring 12 which exerts a force in a direction to compel the slidable member 1 to remain in its extreme left position as shown in Fig. 2. The spring 12 which encircles a rod 21 secured to the slidable member 1 extends between the end face of the slidable member 1 and the end wall of the frame 6 through which the rod 21 extends. A knob 11 threaded onto the end of the rod 21 permits the manual operation of the latch release mechanism as is hereinafter described.

In alignment with the ball 9 there is a notch 19 on the slide member 1 of sufficient size to receive the ball 9. On the free end of the slide member 1 which engages a sleeve 2 threaded into the frame 6 there is a longitudinally disposed recess 18. An electrically operated squib 3 carried by a hollow plug 4 is secured within the recess 18 by means of a retaining nut 5 threaded onto the end of the sleeve 2. Electric wires 22, 22 connect the squib to a suitable source of electrical energy (not shown)

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and to a conventional automatically operated switch (not shown). A pair of ball bearings 13, which are maintained in position by the plugs 20, threaded in the bores 24, frictionally engage the slide member 1 to reduce the friction between the sliding member 1 and the frame 6 upon actuation of the release mechanism.

In the normal operation of the release mechanism, the squib 3 is detonated upon closing of the switch. The expanding explosive gases cause the slide member 1 to slide to the right against the spring pressure 12 until the recess 19 moves into axial alignment with the ball 9 permitting the ball 9 to move into the recess 19 and release the latch 8, causing the latch 8 to rotate about its shaft 10, thereby releasing any object being hung on the catch or hook 14. A suggested use for such a device as herein described may be to release lifeboats from sinking ships. The present invention would form a part of the suspension apparatus of the lifeboat and would not interfere with the operations of the normal lowering of the boat. A suitable source of electrical energy and pressure operated switches would be associated with the latch mechanisms to provide for their operation in the event that the ships should sink before the crew succeeded in lowering the boat. Should this occur the switches would function when the sinking ship reached a predetermined depth causing the latches to operate and release the life boat.

While the invention has been described with reference to a certain preferred example thereof which gives satisfactory results, it will be understood by those skilled in the art to which the invention pertains, after understanding the invention that various changes and modifications may be made without departing from the spirit and scope of the invention, and it is my intention, therefore, to cover in the appended claims all such changes and modifications.

What I claim is:

1. A latch release mechanism comprising a support, a latch member rotatably mounted on said support, a recess on said latch member, a ball normally seated in said recess, slide means engaging said ball, spring means engaging said slide means, a second recess on said slide means, pocket means at the free end of said slide means, a powder charge within said pocket means, and means for detonating said charge to shift said slide means and cause said ball to move into said second recess and release said latch member.

2. A latch release mechanism comprising a support, a latch member having a hook thereon, means rotatably mounting said latch member on

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said support, a recess on said latch member diametrically opposed to said hook, a ball partially seated in said recess, a slide member frictionally engaging said ball, a coil spring engaging said slide member and exerting a force to maintain said slide member in a locked position, a recess situated on the side wall of said slide member adapted upon movement to receive said ball, a pocket at the free end of said slide member, a powder charge within said pocket, and means for detonating said charge whereby said slide member is caused to move against said spring pressure

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and said ball shifted into said second recess permitting said latch member to rotate.

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REFERENCES CITED

The following references are of record in the file of this patent:

FOREIGN PATENTS

Number	Country	Date
323,703	Great Britain	Jan. 9, 1930