May 29, 1956 D. E. HANKS 2,747,412

RELEASE MECHANISM

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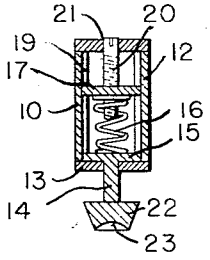


FIG. 2

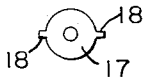


FIG. 3

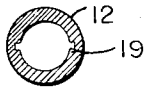


FIG. 4

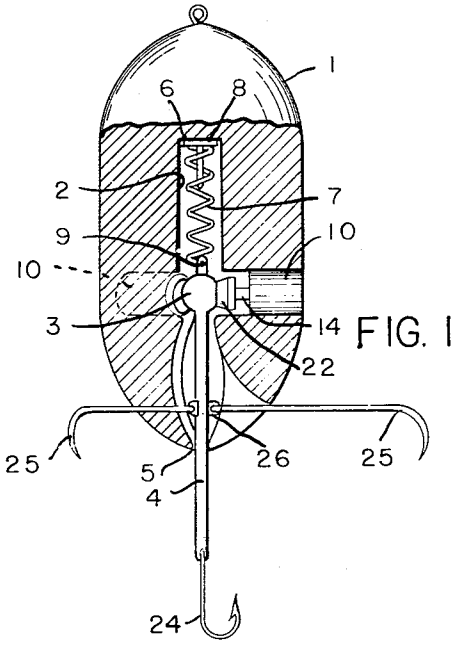


FIG. 1

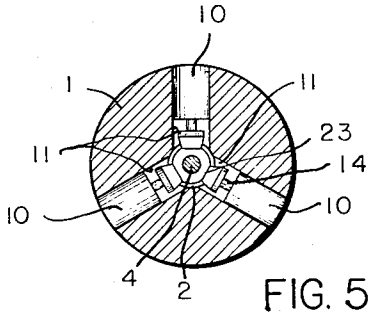


FIG. 5

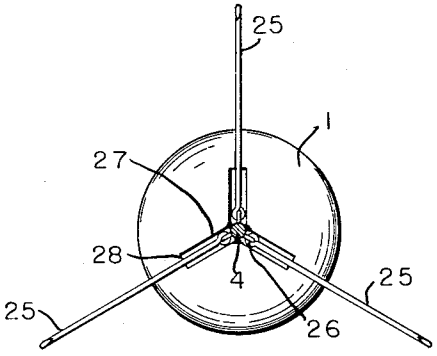


FIG. 6

INVENTOR.

DONALD HANKS

BY

Richard P. Cardew

AGENT

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RELEASE MECHANISM

Donald E. Hanks, Proctor, Minn.

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2 Claims. (Cl. 74—2)

This invention relates to a trip mechanism and has special reference to such a device which may be employed to suddenly release an activating member of a trip mechanism to serve a useful purpose.

It is one of the principal objects of the present invention to provide an extremely sensitive trip mechanism to serve a multitude of useful purposes.

Another object of the invention is to provide such a mechanism which is relatively simple to manufacture and operate.

Another object is to provide such a device which is positive in its action and which may be easily and conveniently reset for further operation once it has been tripped.

A more specific object of this invention is to provide a body portion having an opening therein in which a plunger is reciprocably mounted, the plunger being biased in one direction by a spring, or the like, or being held from movement in said direction by suitable release mechanism activated by movement of the plunger thereagainst.

These and other objects and advantages of this invention will become more apparent as the description proceeds.

In the accompanying drawing forming a part of this application:

Fig. 1 is a side elevational view partly in section showing the construction of my trip mechanism as it would be used for a fishing device.

Fig. 2 is a vertical sectional view through one of the piston housings showing its construction.

Fig. 3 is a sectional view through the spring tension adjusting plate of the piston housing.

Fig. 4 is a transverse sectional view through the piston housing.

Fig. 5 is a sectional view on the line 5—5 of Fig. 1.

Fig. 6 is an end view of Fig. 1.

In the drawing the reference numeral 1 indicates the body of my trip mechanism which may be of any desired size or shape, of course. The body member 1 has an axial opening 2 therein which is of sufficient size to receive the ball catch member 3 of the trip lever 4 of the device, the ball 3, in normal operation, being free to move in the axial opening 2, as will become apparent. The trip lever 4 extends outwardly from the body member 1 as shown through a relatively small opening 5 in one end of the housing, the opening 5 being in axial arrangement with the opening 2, as shown, and being of such a diameter as to permit the lever 4 to reciprocate in the opening 5 but prevent it from moving radially or laterally in the opening 5. The trip lever 4 is biased toward the bottom 6 of the opening 2 by means of a contractile spring 7 which is secured to the bottom of the opening 2 as at 8 and to a stub or extension 9 from the ball member 3 as shown. When in released position, the trip lever is normally carried within the body portion with the ball member 3 near the bottom or inner end 6 of the opening 2.

As means to hold the lever 4 in set position, I employ

a plurality of plunger mechanisms 10—10 as shown in the drawing, there are preferably three plunger mechanisms arranged equal distances apart and extending radially from the axial opening 2 in the body member 1. The mechanisms 10 are preferably carried in suitable openings 11 in the body member as shown with the outer housing or casing 12 thereof fixed in position relative to the body member. The plunger mechanisms which include in addition to their housing 12 an end member 13 through which the piston rod 14 extends, a piston 15 reciprocably carried in the housing 12 and biased towards the end 13 by means of an expansion spring 16. The spring 16 engages the piston 15 at one end and an adjustment plate or stop 17 at the opposite end. The plate 17 has a pair of lugs 18—18 thereon which ride in grooves 19 on the inner walls of the housing 12 to permit the adjustment plate 17 to be reciprocated within the housing by means of the adjustment screw 20 which is accessible through a suitable opening 21 in the rear or outer end of the housing 12. On the outwardly extending end of the plunger rod or piston rod 14, a head member 22 is provided, the head member 22 having a concave outer face 23, as shown, to receive the convex surface of the ball 3, see Fig. 1. The spring 16 holds the pistons 15 and heads 22 in their outwardly extended position from the housing and as may be seen in the drawings the heads 22 extend toward the center of the opening 2 in the housing. The mechanisms 10 are so placed in the housing, relative to each other, and to the opening 2, that when the plunger heads 22 are in their extended position the ball 3 is received in the concave surface of each of the plunger heads 22 in such a manner that the spring 7 cannot pull the ball out of the grip of the plungers. Obviously, the spring 7 is under tension when the ball is held by the plunger heads 22.

As pointed out above, the opening 5 in the housing through which the lever 4 extends, is of relatively small size. This arrangement provides a pivot point for the lever 4 on the body 2 at the restricted opening 5. Thus, if the lever 4 is moved, the lever will pivot at the opening 5 in such a manner that least one of the plunger heads 22 will be moved, causing the pistons 15 to be forced inwardly against the tension of the spring 16. This movement of the plunger heads 22 will release the grip of the three plungers on the ball 3 and the spring 7 will pull the ball 3 and the lever 4 into the opening 2 toward the inner end or bottom 6 thereof.

I have here shown my invention as applied to a fishing hook, wherein a hook 24 is fixed to the outer extending end of the lever 4. This hook may be baited with any suitable bait attractive to the fish. With a fishing hook thus equipped, the moment the fish disturbs the bait it will cause the lever to pivot on the pivot point 5, the hook 24 will be quickly and suddenly moved toward the body member 1 and thereby it would be forced into the mouth of the fish to catch him.

As an additional feature of my invention, I have provided auxiliary hooks 25—25 pivotally mounted as at 26 to the lever 4 on the portion thereof which is within the body member 1. The body member 1 is provided with slots 27 which guide and direct the hooks 25. When the lever 24 is in set position as shown in Fig. 1, the hooks 25 extend at right angles to the lever 4. As soon as the lever 4 is released, and is drawn into the housing 1, the hooks 25 are pivoted inwardly quickly by virtue of their engagement with the edge 28 of the slot which causes the inwardly pivoting of the hooks as the pivot point 26 moves toward the inner end or bottom 6 of the opening 2. The hooks 25 would thus be driven into the fish to provide additional gripping of the fish or preventing his loss from the hook 25.

It is deemed apparent that my trip mechanism can be put to use for other purposes than catching fish without departing from the spirit of my invention.

Having thus described my invention, what I claim is:

1. A trip mechanism comprising: a body member having an axial opening therein, a trip lever reciprocably carried in said opening and extending axially off said body, a portion of said lever extending outwardly of said body, a ball member on the inner end of said lever within said body, means biasing said lever toward an inward position within said body, and means holding said lever in an outward position relative to said body, said last mentioned means including plunger mechanisms having a piston reciprocably carried therein, spring means biasing said piston toward an extended position, and said pistons being movable from said extended position by movement of the portion of the lever extending outwardly of said housing to release said lever to travel toward said inward position.

2. A trip mechanism comprising: a body member having an axial opening therein, a trip lever reciprocably carried in said opening and extending axially off said opening, a portion of said lever extending outwardly of said body, a ball member on inner end of said lever, means biasing said lever toward an inward position within said body, and means holding said lever in an outward position relative to said body, said last mentioned means comprising a plurality of plunger mechanisms, each of said mechanisms including a housing, a piston reciprocably carried in said housing, spring means biasing said piston toward an extended position, a piston rod extending from said piston externally of said housing, and a head on the extended end of said rod which engages said ball member to hold same against movement by said spring, said lever being pivotally carried by the housing at a point adjacent its entrance thereinto, and said pistons being movable from said extended position to release said lever by movement of the portion of the lever extending outwardly off said housing.

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