Dec. 8, 1953 T. LAURO 2,661,978

GRAPPLE

Filed June 25, 1951

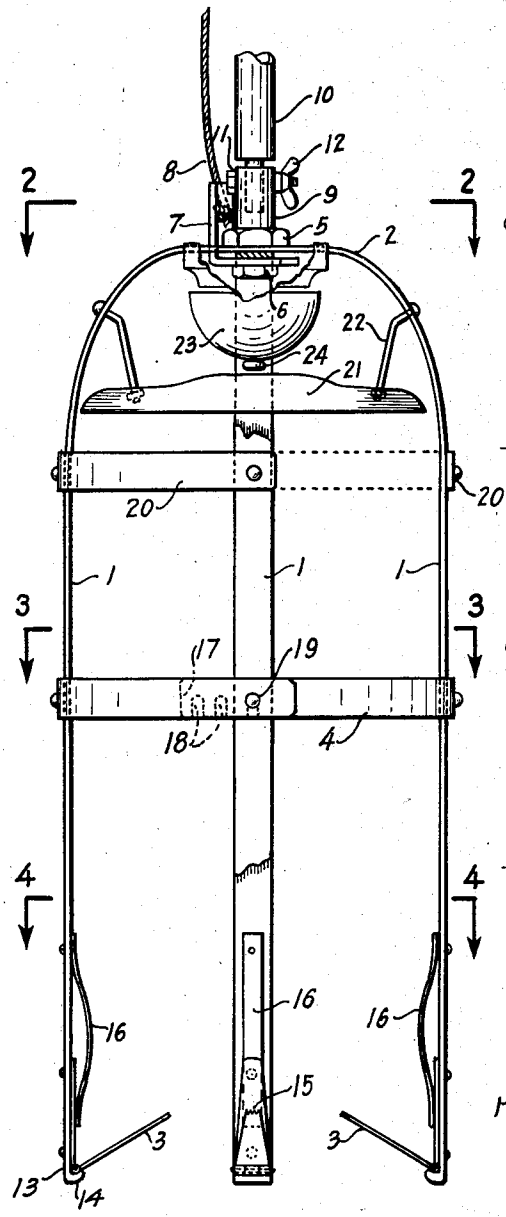


Fig. 1.

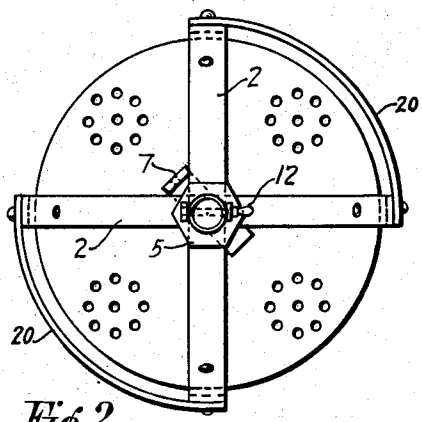


Fig. 2.

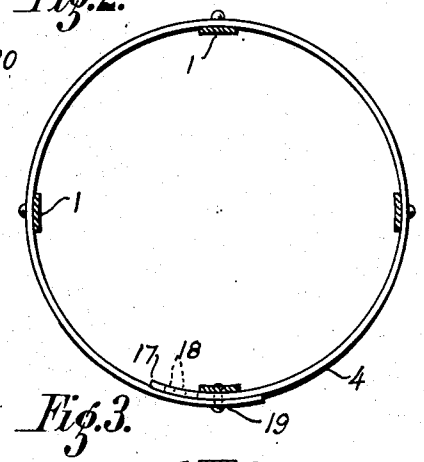


Fig. 3.

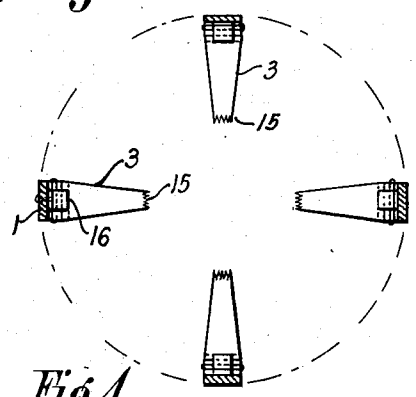


Fig. 4.

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2 Claims. (Cl. 294—67)

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The present invention relates to improvements in life saving devices and its principal object is to provide a device of the character described that may be used for the recovery of a human body from the bottom of a well, mine shaft or other cavity.

More particularly it is proposed to provide an open frame structure adapted for lowering into the well and for encircling the body, the lower end of the frame structure being provided with catches adapted to yield on the downward movement over the body and operative to automatically move into body-gripping position after they have passed the body.

It is further proposed to provide guide means for the device by means of which the latter may be guided toward the body as it is being lowered for establishing supporting engagement with the body.

It is further proposed to provide flexible means such as a cable or a rope for lowering and raising the device.

It is a further object of the invention to provide a protecting disc in the upper portion of the frame structure to protect the head or upper portion of the body upon which the device has been lowered.

It is additionally contemplated to provide an alarm device within the structure operable by the protective disc to indicate to the rescuers that the device has reached the proper position with respect to the body to be recovered.

And finally, it is proposed to provide a device of the charatcer described that is light in weight, easy to operate, economic in construction and that may be readily engaged over the body without causing any physical injury to the latter.

Further objects and advantages of my invention will appear as the specification proceeds, and the novel features of my invention will be fully defined in the claims attached hereto.

The preferred form of my invention is illustrated in the accompanying drawing, in which

Figure 1 shows a side view of my life saving device, with certain portions broken away,

Figure 2, a top plan view of the same, as seen from line 2—2 of Figure 1,

Figure 3, a horizontal section taken along line 3—3 of Figure 1, and

Figure 4, a horizontal section taken along line 4—4 of Figure 1.

While I have shown only the preferred form of my invention, I wish to have it understood that various changes and modifications may be made within the scope of the claims attached hereto without departing from the spirit of the invention.

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Referring to the drawing in detail, my life saving device comprises in its principal features four vertical legs 1 arranged in circumferentially spaced relation and arranged to form a crown 2 at the upper end, catches or gripping fingers 3 arranged at the lower ends of the legs, and a belt 4 encircling the legs intermediate their height and adapted to hold the legs at approximately uniform spacing to one another.

The legs 1 are made in the form of thin, elastic metal straps, and in the preferred form I make two opposing legs of a single strap which is suitably bent intermediate its length, the two bent portions of the two straps making up the crown indicated at 2.

The two central portions of the two straps are suitably secured upon one another by means of a socket 5 and a nut 6, the nut being also used to secure in place a small bracket 7 adapted to receive the lower end of a cable or rope 8. The socket 5 has a sleeve 9 threaded thereinto, and the sleeve is adapted to receive the lower end of a rigid guide tube 10 which may be held in place by a pin 11 and a wing nut 12. Each of the four vertical legs 1 has a catch or finger 3 pivoted to the lower end thereof as at 13, each of the fingers being swingable between a position adjacent its leg and in inwardly pointed position, the downward swing to an inwardly pointed position being limited by a stop 14 furnished by the lower end of the leg. The inner end of each finger is preferably serrated as at 15 to insure a better gripping action.

As the fingers are crowded into vertical position when the lower ends of the legs pass the body, they impinge upon springs 16 which tend to initiate downward movement of the fingers or catches after the body has been passed.

The belt 4 is also made in the form of a thin, elastic, metallic strap which forms a circle surrounding the four legs and which is permanently secured upon the legs except for one loose end 17 which may be adjustably secured upon the other end by means of a series of slots 18, any one of which may be engaged over the pin 19.

Due to the elasticity of the material the frame formed by the four legs may thus be expanded or contracted by the proper positioning and adjustment of the belt.

A pair of reinforcing straps 20 may be provided intermediate the top of the device and the belt to connect adjacent legs without interfering with the belt adjustment.

A light-weight disc **21** is movably supported in the crown of the frame by suspension members **22**, and above the disc I provide a bell **23** which may be of conventional construction, and the details of which are not shown in the drawing. It may suffice to state that the bell is operated by a spring in the manner of an alarm clock and that the hammer of the bell is normally locked by a member carrying a button **24** operable by the disc **21** for releasing the lock and for causing the bell to ring.

The operation of the device will be readily understood by the foregoing description.

When it becomes necessary to rescue a body from the bottom of a well or the like, the frame structure which may be about four or six feet in height, is lowered into the well by the rescuers and is guided by means of the tube **10** toward the body, preferably in such a manner that the frame telescopes over the latter. While the fingers **3** at the lower ends of the legs pass the body they are crowded inwardly, against the springs **16**. After they have passed the body their return movement toward horizontal position is initiated by the springs **16** and continued by their own weight until they reach the limit of their movement, at which time they extend inwardly below the body or the main portion of the body. When the head or any part of the body reaches the disc **21** it will lift the latter against the button **24** and will cause the alarm to ring so as to advise the rescuers that the frame is engaged over the body. The latter is now firmly held in the frame or cage and may be recovered by upward pull on the cable or rope **8**.

It should be noted that due to the lightness of the structure, the flexibility of the legs and the belt and the rather long stretch of the legs below the belt, the frame will readily adjust itself to the outline of the body no matter in what position the latter is found. When the body is in upright or semi-upright position, the frame or cage will naturally telescope over the body without much change in shape. But when the body is in any other position, slumped or prostrate, the legs will readily find the contour and adjust themselves to it. The legs and even the belt may expand and contract to form an oval outline or the legs may spread, with one pair on one side of the body and the other pair on the other side while exerting gentle pressure from all around. The fingers again, while normally occupying the semi-angular position shown in Figure 1, may adjust themselves, individually, to almost horizontal position by tensioning the lower ends of the legs outwardly, and each finger may thus find, for itself, the best supporting position for its particular location with respect to the body.

I claim:

1. A life saving device for recovering a body from a well or the like, comprising an open frame structure adapted for lowering upon the body and including a plurality of straight legs arranged in circumferentially spaced relation and connected at their upper ends to form a substantially rigid crown, a belt encircling the legs intermediate their height for holding the legs in assembled relation, and gripping fingers hinged to the lower ends of the legs with freedom of swinging movement between positions adjacent the legs and inwardly pointed positions, the legs being unconnected below the belt and flexible for independent yielding in response to resistance offered by the contour of the body upon which it is lowered.

2. A life saving device for recovering a body from a well or the like, comprising an open frame structure adapted for lowering upon the body and including a plurality of straight legs arranged in circumferentially spaced relation and connected at their upper ends to form a substantially rigid crown, an elastic belt joining the legs substantially midway of their height, and gripping fingers hinged to the lower ends of the legs with freedom of swinging movement between positions adjacent the legs and inwardly pointed positions, the legs being unconnected below the belt and flexible for independent yielding in response to resistance offered by the contour of the body upon which it is lowered, and the elastic belt serving to collectively urge the legs upon the body in the relative positions brought about by the contour of the body.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,995,619	Minto	Mar. 26, 1935
2,014,806	Howard et al.	Sept. 17, 1935
2,083,062	Hampton	June 8, 1937

FOREIGN PATENTS

Number	Country	Date
28,197	Great Britain	1911