

[54] **EMERGENCY SIGNAL FLAG**

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[22] Filed: **Jan. 8, 1973**

[21] Appl. No.: 322,005

[52] U.S. Cl. .... 116/28 R, 116/173, 248/206 A

[51] **Int. Cl.**..... B60a

[58] **Field of Search**..... 116/28 R, 132 A, 173, 132,  
116/174, 175; 248/206 A, 42, 291; 40/131,  
129 C

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[57] **ABSTRACT**

A signal flag apparatus is disclosed herein having an elongated tube storing a shaft with a flag secured along one end thereof. The tube houses resilient member forcibly urging the shaft and flag out of the tube in a fully deployed condition. A push button device holds the shaft and flag in a storage position within the tube and upon actuation, permits the resilient member to project the shaft and flag out of the tube. A pull cord is attached to the end of the shaft which when pulled, causes the shaft and flag to be withdrawn into the tube for storage and reset purposes. A bracket pivotally mounts the tube on an appropriate portion of a vehicle such as a boat.

### 3 Claims, 4 Drawing Figures

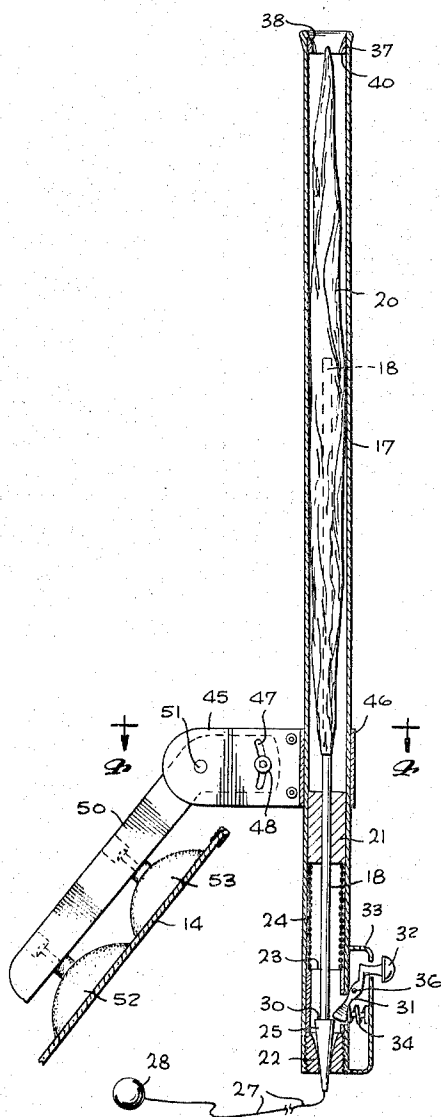


Fig. 3

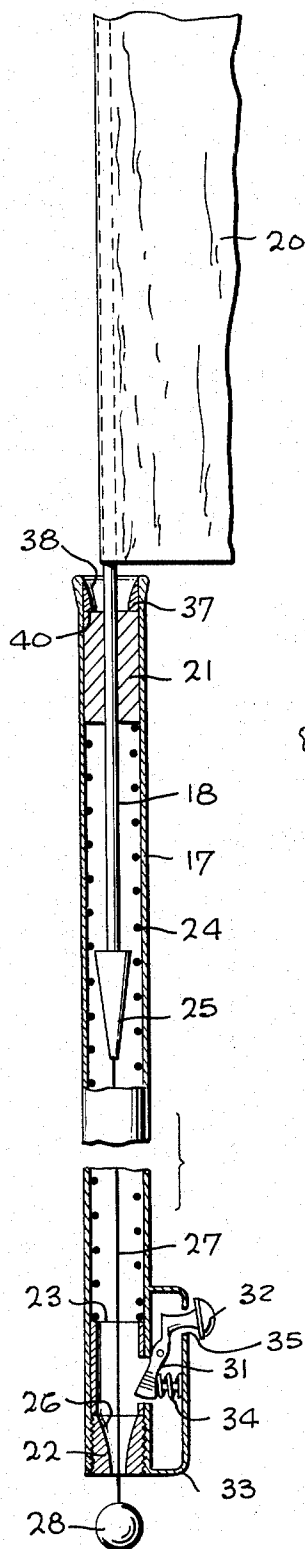


Fig. 2

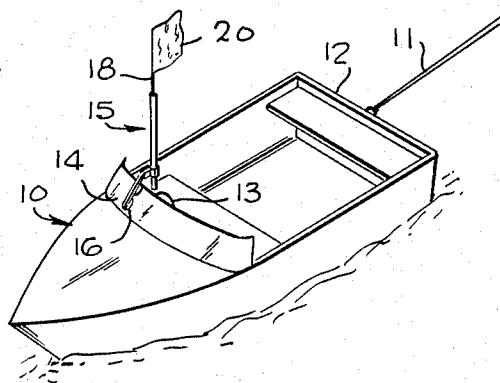


Fig. 1

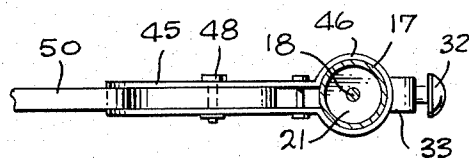
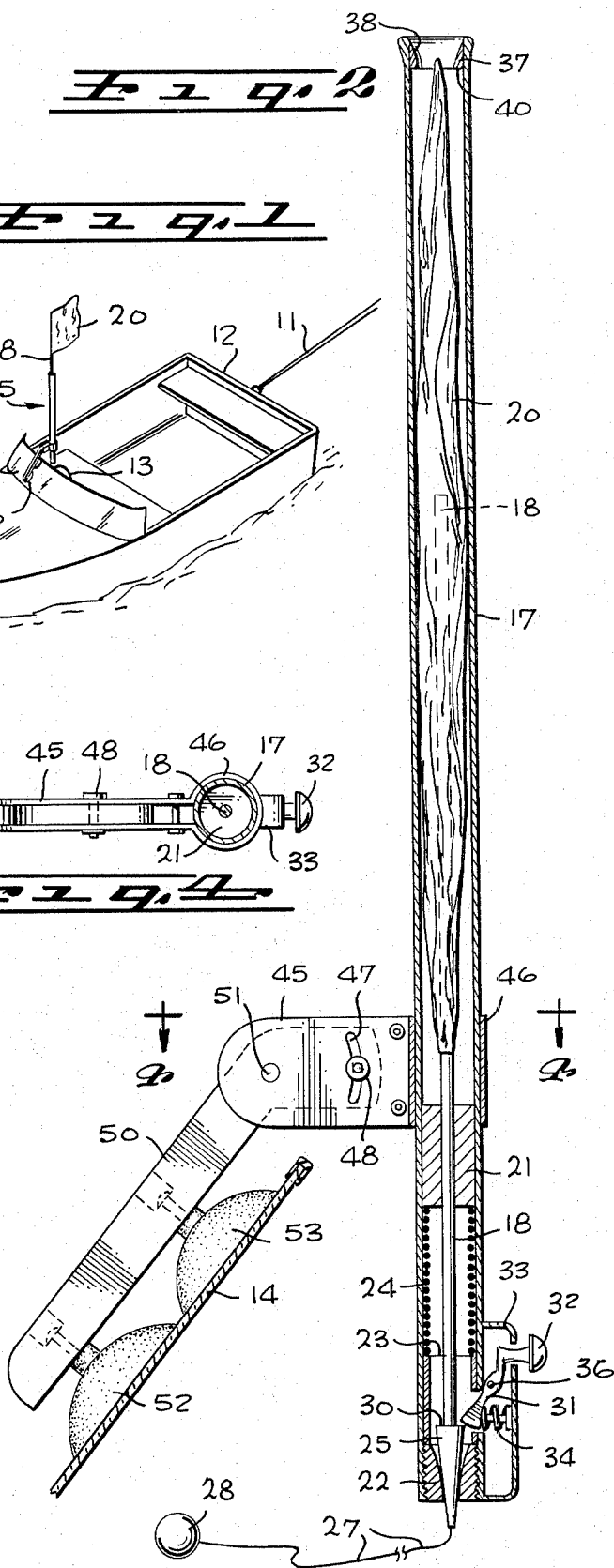


Fig. 4



## EMERGENCY SIGNAL FLAG

## BACKGROUND OF THE INVENTION

## 1. Field of the Invention

This invention relates to manually deployed signal flags and more particularly to a novel signal flag having a releasably latch for deploying the flag and a pull tab for retracting and storing the flag.

## 2. Description of the Prior Art

In the field of water sports, water skiing is currently being practiced by larger numbers of persons than previously. In most instances, water skiing occurs within the confines of a small lake and in general, a circular or oval tract is provided over which two boats and their skiers negotiate. During a water ski performance, it often times happens that the skier spills or falls into the water and thusly, a hazard is created not only for the downed skier but for the rapidly decelerating tow boat. Additionally, the tow boat must return to the downed skier for pick up purposes which action sometimes causes the tow boat to go against oncoming boat traffic or at least the boat will be stopped in the water while other oncoming traffic negotiates the course there-around.

For these reasons, it is customary for the ski boat to display a flag indicating the occasion of a downed skier and the boat's intent to pick the skier up. In the past, a standard flag consisted of a stanchion with a flag carried along one end thereof that is held by a person in the boat and waved in a signalling manner. Problems have arisen from usage of this type of flag apparatus since the flag is generally stored on the bottom of the boat and sometimes becomes lodged in equipment nearby. Also, persons in the boat sometimes step on the flag and damage the flag or the stanchion so that it cannot be used in emergencies.

Some attempts have been made to provide automatic pop-up flags for various occasions such as those disclosed in U.S. Letters Pat. Nos. 2,233,119; 2,458,316 and 1,288,060. Although these prior devices do provide an automatic pop-up arrangement for the flag, problems have been encountered which stem largely from the fact that the flag cannot be readily stored into its housing so that it may be used again. Difficulties have been encountered in folding the flag on the stanchion or posts of the flag so that it may be readily stored and in proper position for deployment when it is reused. Also, in some pop-up flag apparatus, a paper cone must be positioned about the folded flag so that it may be stored in a tubular housing. This is disadvantageous since the tubular or conical cone must be severed from the flag in order to permit proper deployment. Furthermore, prior art devices have not provided a suitable means for placing a deployed flag back into its storage condition where it is readily available for reuse.

Therefore, there has been a long standing need to provide a novel emergency signal flag apparatus having a stored position and a deployed position including releasable means for holding the flag in the stored position and for deploying the flag when released.

## SUMMARY OF THE INVENTION

Accordingly, the problems and difficulties encountered with prior art signalling flag devices have been obviated by the present invention which provides a

novel signal flag apparatus having an elongated tubular housing for storing a shaft having a flag fastened or secured along one end thereof. Resilient means are provided for forcibly urging the shaft including the flag out of the tubular housing when releasable means are manually actuated. The tubular housing includes means for guiding the flag shaft out of the tubular housing when released and further includes means for furling the flag about or around the shaft when it is retracted into the tubular housing for storage purposes. Means are provided for so retracting the flag and the shaft into the tubular housing which includes means for resetting the releasable means so that the flag is in condition for reuse. Means are provided for detachably connecting the tubular housing onto a marine vehicle such as a ski tow boat.

Therefore, it is among the primary objects of the present invention to provide a novel signal flag apparatus having means for releasably deploying a flag from its housing and that includes withdrawing means for withdrawing the flag into its housing for storage purposes and for reuse.

Another object of the present invention is to provide a novel signal flag apparatus having releasable means for manually unlatching a resilient member so that the flag is forcibly urged from its storage position and that includes means for withdrawing the flag into its housing for storage purposes and for resetting the releasing means.

Another object of the present invention is to provide a novel pop-up flag apparatus to be carried on a two boat for water skiers which may be readily operated by the operator of the boat without the necessity of the operator handling or manipulating the flag.

Yet another object of the present invention is to provide a novel flag for signalling purposes that may be readily deployed by means of a push button release without requiring further deployment by the user.

A further object of the present invention provides a novel pop-up flag apparatus that may be readily carried on a water ski tow boat having a push button means for deploying the flag and a pull cord arrangement for withdrawing the flag into a housing for reuse.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the marine vehicle employed in the sport of water skiing and carrying the novel signal flag of the present invention in its deployed condition;

FIG. 2 is an enlarged longitudinal cross-sectional view of the signal flag shown in FIG. 1 and illustrating the flag in its storage condition;

FIG. 3 is a view similar to the view of FIG. 2 showing the flag fully deployed;

FIG. 4 is a transverse sectional view of the signal flag as taken in the direction of arrows 4-4 of FIG. 2.

### DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, a boat 10 is illustrated which serves as a tow boat for a skier holding onto a handle 5 carried at the end of a rope 11 fastened to a transom 12 of the boat. Boat 10 includes a cockpit area between the opposite sides of the boat and a steering wheel 13 for establishing directional control thereof. A windshield 14 is provided to shield the boat operator from wind and spray.

In connection with the operation of boat 10 as a ski boat, the signal flag apparatus of the present invention is indicated in the general direction of arrow 15 which includes, in general, a pivotally attachment means 16 15 mountably supporting the flag apparatus having a tubular housing or cover tube 17 from which a shaft 18 projects for carrying an unfurled flag 20. It is noted that the flag 20 is carried along one end of the shaft 18 while the opposite portion or end of the shaft 18 projects 20 from a selected end of the tubular housing 17. The flag is illustrated in its deployed or unfurled condition such as when the apparatus has been manually triggered to display the flag indicating a downed skier.

Referring now in detail to FIG. 2, an enlarged view 25 of the signal flag apparatus 15 is shown wherein the flag is illustrated in its stored condition with the flag 20 being wrapped about a portion of shaft 18 within the tubular housing 17. The tubular housing is open ended and the dual length of shaft 18 and flag 20 are housed 30 therein. Carried about the lower portion of shaft 18, there is fixly secured thereto, a spacer guide 21 that slides within the bore of the tubular housing 17 as the shaft 18 moves up or down therethrough. A centering stop or plug 22 closes the lower end of the tubular housing and includes an annular shoulder 23 which 35 butts against one end of a resilient spring 24. The other end of the resilient spring presses against the guide 21 so that the expansion force of the spring normally urges the shaft and flag out of the upper end of tubular housing 17. The extreme lower end of shaft 18 includes a latch lug 25 which is conical in exterior configuration so that the shaft 18 will be self centering when the lug 25 engages with the sloping shoulder 26 leading into a 40 passageway formed in the centering stop or plug 22. The apex end of lug 25 is attached to the end of a pull cord 27 having a pull tab or ball 28 secured at one end. The opposite end of lug 25 from its end attached to cord 27 forms a shoulder 30 against which a latch release lever 31 engages.

The latch release lever 31 includes a button 32 which forms a part of a releasing means for disengaging lever 31 from stop lug 25 so that the expansion force of spring 24 will forcibly urge the shaft and flag out of the upper end of tubular housing 17. The releasing means further includes a latch cover 33 and a latch return spring 34 placing an expanding force between the end of lever 31 and cover 33. Push button 32 is exteriorly exposed through aperture 35 and cover 33 while the lever 31 is pivotally carried on the tubular housing via a pivot shaft 36.

The upper end of tubular housing 17 is provided with an upper stop member 37 which includes a tapered bore 38 leading into the opening of the tubular housing. Tapered bore 38 permits the shaft 18 to be withdrawn into the tubular housing so that the flag 20 will be directed into a furled or randomly folded condition for

storage. An annular shoulder 40 serves an abutment stop when the guide element 21 engages therewith.

As shown in FIG. 3, the flag 20 is fully deployed with the upper portion of shaft 18 projecting out of the end of tubular housing 17. The guide stop or member 21 is in abutment with shoulder 40 of upper stop 37. This engagement arrests movement of shaft 18 in response to the expanding force of resilient spring 24. Also, it is to be noted that the lower portion of shaft 18 is still within the hollow of tubular housing 17 and that pull cord 28 extends through the hollow of the tubular housing and through the passageway of lower spring stop or plug 22 so that ball or tab 28 is readily available for resetting the flag. For resetting, the pull tab 28 is pulled so that cord 27 pulls the shaft 18 into the tubular housing which effects compression of spring 24. As the conical stop 25 approaches plug 22, the conical surface will engage with the tapered entrance 26 to the passageway in plug 22 so that the shaft is centered. Also, this effects a seating of the shaft on the plug 22 so that the end of latch lever 31 engages behind the shoulder 30 of the stop member 25. During the withdrawal procedure, flag 20 will slide pass the tapered wall 38 of member 37 and be randomly furled or folded about the shaft 18.

Referring now in detail to FIG. 4, and in general to FIG. 2, the mounting assembly for the tubular housing 17 may comprise a bracket 45 projecting outwardly from a circular clamp 46 carried on the external surface of tubular housing 17. The bracket 45 includes a semi-circular slot 47 having a locking stud screw arrangement 48 operably connecting the bracket 45 to a mount 50. The mount 50 includes a pivot fastener 51 rotatably connecting the mount to bracket 45 whereby the mount 50 may be pivoted to a desired position and then locked in this position by means of the fastener 48. Mount 50 may be attached to any part of the boat by suitable means. However, as illustrated, a pair of suction cups 52 and 53 detachably connect the signal flag apparatus of the present invention to the windshield 14.

In view of the foregoing, it can be seen that the signal flag apparatus 15 of the present invention provides a novel means for manually deploying a signal flag in time of emergency so as to indicate a boat operators course of action which is out of the ordinary. The apparatus 15 includes releasable means associated with latch 31 and push button 32 for applying a compressed resilient force taking the form of compressed spring 24 for the purpose of forcibly urging shaft 18 upwardly through tubular housing 17. As the spring 24 forces against guide member 21, shaft 18 proceeds through the hollow bore of tubular housing 17 and this moving action is followed by flag 20 which is carried by the shaft 18. As the shaft exits through the upper end of the tubular housing, the flag 20 becomes deployed and projection of shaft 18 terminates with the engagement of member 21 with shoulder 40 of the upper stop element 37.

For retraction into its stowed position, pull cord 27 is drawn through the passageway in plug 22 so that the shaft 18 is withdrawn into the tubular housing 17 against the forcible urging of spring 24. This action compresses the spring 24 to load the device and conical member 25 seats within the opening or passageway in plug 22 to indicate the full storage position of the flag. As the shaft 18 is withdrawn into the tubular housing, the flag 20 which is preferably of a suitable plastic sheet

or woven cloth variety, gathers about the upper portion of shaft 18 and stows within the hollow of the tubular housing. The device is loaded and ready for use when the end of latch lever 31 engages behind the shoulder 30 of the conical member 25.

While particular embodiments of the present invention have been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from this invention in its broader aspects and, therefore, the aim in the appended claims is to cover all such changes and modifications as fall within the true spirit and scope of this invention.

What is claimed is:

1. A signal flag apparatus having a deployed condition and a storage condition comprising the combination of:

- an elongated tube having an open ended passageway extending there through;
- a shaft slidably housed in said tube;
- a flag secured along one end of said shaft;
- a cylindrical guide secured to said shaft midway between its opposite ends and occupying the diameter of said passageway in sliding relationship therewith;
- a plug having a tapered passageway secured to a selected end of said tube occupying said passageway and provided with an annular shoulder facing the underside of said guide;
- a coil spring within said tube passageway expandable between said plug shoulder and said guide to normally urge said shaft out of said tube at its end opposite to its end secured by said plug;
- a collar secured to the end of said tube from which

said shaft and said flag exists that restricts said tube passageway and that cooperates with said guide for limiting movement of said shaft through said tube whereby said flag is deployed externally of said tube;

- a spring loaded latch lever pivotally carried on said tube and releasable engagable with a conical shaped member carried on the end of said shaft;
  - a pull cord carried on the end of said shaft in securement with said conical shaped member and having an effective length hanging from said tube passageway via said tapered passageway for gripping and pulling whereby said shaft and said flag are withdrawn into its storage condition;
  - said conical member mating with said tapered passageway to seat said shaft in said tube passageway wherein said latch lever engages said conical member to retain said shaft and said flag in its storage condition; and
  - said collar further having a tapered entrance leading into said tube passageway for allowing reciprocal movement of said shaft therethrough and for furling said flag upon withdrawal into said tube.
2. The invention as defined in claim 1 including: mounting means for detachably retaining said tube onto a marine vehicle.
3. The invention as defined in claim 2 wherein: said mounting means includes a bracket carried on said tube;
- a mounting link pivotally connected to said bracket;
- and suction cups releasably securing said mounting link to said marine vehicle.

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