Nov. 15, 1966 I. R. BRODIE 3,285,367

EMERGENCY BOAT LADDER

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FIG. 1

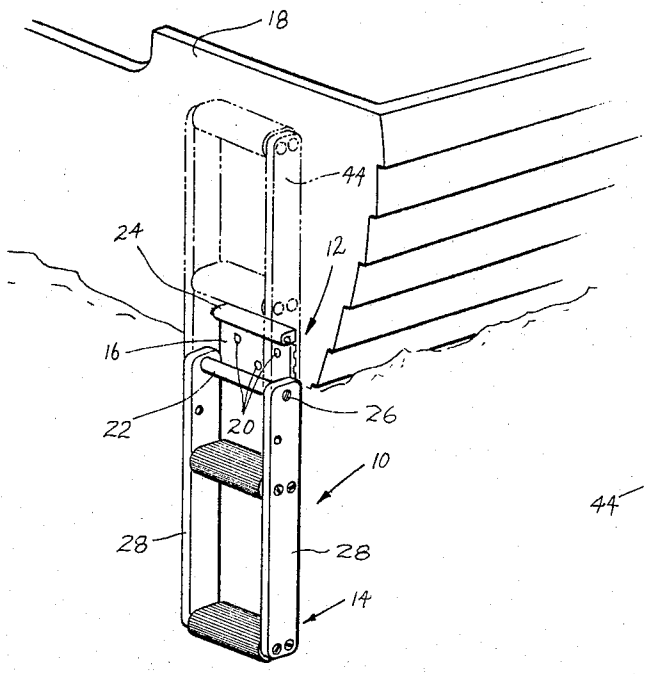


FIG. 2

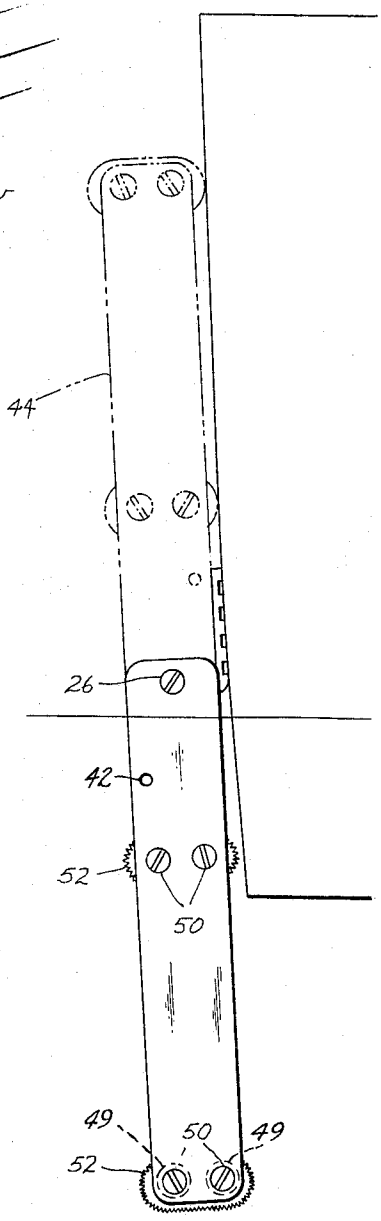
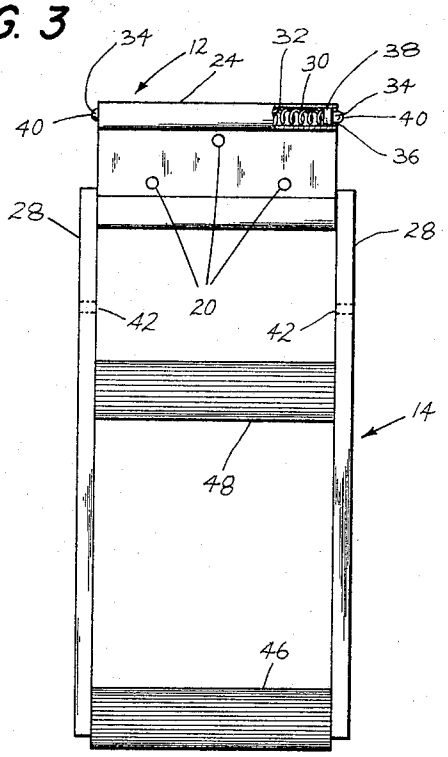


FIG. 3



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FIG. 4

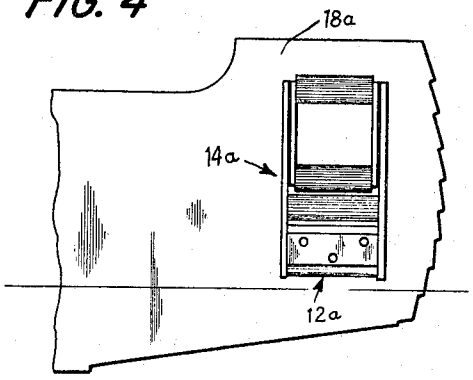


FIG. 5

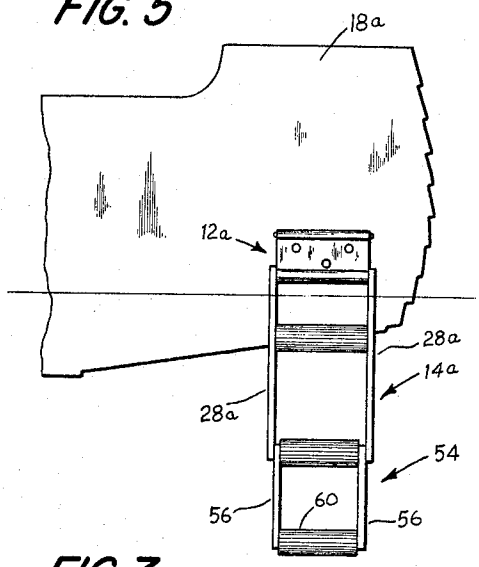


FIG. 6

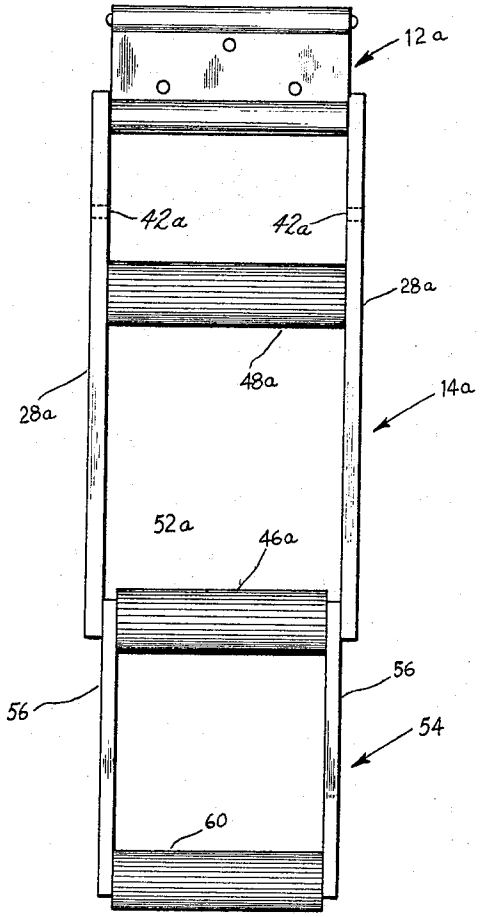
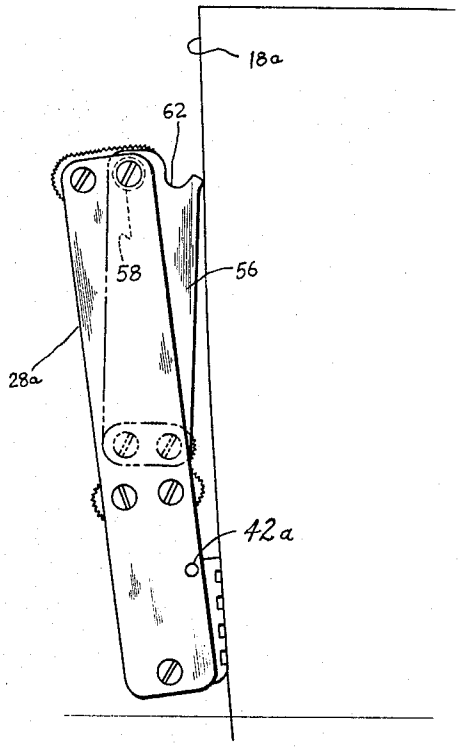


FIG. 7



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EMERGENCY BOAT LADDER

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9 Claims. (Cl. 182—97)

This invention relates to a boat ladder particularly well suited for emergency use but which is obviously not limited to such use. As is well known, one can encounter considerable difficulty in entering a small boat from the surrounding water. Such entry is, of course, desirable in emergency situations as when re-entry may be necessary after capsizing, and there are other situations where swimmers may wish to enter small boats.

It is the general object of the present invention to provide a boat ladder which can be stored advantageously on the outer surface of a boat transom and which will project neither above the upper edge of the transom nor beneath the lower edge of the transom and which yet provides in a lowered operative position at least one step or rung substantially beneath water level.

The drawings show preferred embodiments of the invention and such embodiments will be described, but it will be understood that various changes may be made from the constructions disclosed, and that the drawings and description are not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

Of the drawings:

FIG. 1 is a perspective view showing a portion of a small boat and a boat ladder constituting a first embodiment of the invention.

FIG. 2 is an enlarged side view of the boat and ladder of FIG. 1.

FIG. 3 is a front view of the ladder of FIGS. 1 and 2.

FIG. 4 is a front view of a ladder which forms a second embodiment of the present invention, the ladder being mounted on the transom of the boat and being shown in a storage position.

FIG. 5 is a view similar to FIG. 4 but showing the ladder in a lowered operative position.

FIG. 6 is an enlarged view similar to FIG. 5.

FIG. 7 is an enlarged side view of the ladder of FIGS. 4, 5 and 6 in a storage position.

Referring particularly to FIGS. 1 to 3, a ladder assembly is indicated generally at **10** and comprises a bracket **12** and a ladder **14**. The bracket **12** has a flat base portion **16** adapted for connection with the transom **18** of a small boat. The base **16** is preferably attached to the transom at a lower portion slightly above water level by means of suitable screws **20**, **20** and is provided with lower and upper outwardly projecting portions **22**, **24**.

The lower outwardly or forwardly projecting portion **22** on bracket **12** preferably comprises a rod-like or tubular member which extends horizontally and which is provided with drilled and tapped holes at its ends. Thus, a pair of screws **26**, **26** can be entered in suitable openings at upper end portions of ladder side rails **28**, **28** and in the threaded openings in the projecting portion **22** to provide for pivotal movement of the ladder **14** with respect to the bracket **12**.

The upper outwardly or forwardly projecting portion **24** of the bracket **12** preferably also comprises a rod-like or tubular horizontally extending member which has a horizontally extending bore **30**. Within the bore **30** there is provided a spring **32** and first and second or left and right-hand pins **34**, **34**. The pins **34**, **34** are urged outwardly at the end portions of the bore **30** by means of the spring **32** and suitable shoulders are provided as at **36** to prevent the pins from moving wholly out of the bore. That is, the pins **34**, **34** have enlarged rear or inner portions **38**, **38** and these portions are engaged by the spring **32**. The shoulder **36** may comprise an integrally formed abutment at one end and a snap ring at the opposite end, for example, and the outer end portion of each pin **36** is rounded as at **40**. Thus, there is provided a spring-biased-pin-detent mechanism at each end of the upper outwardly projecting portion **24**. Inward movement of the pins **34**, **34** can be accomplished against the urging of the spring **32**.

The spring **30** and the pins **34**, **34** constitute a connecting or latch means for securing the ladder **14** in an upper or storage position. Thus, suitable openings are provided at **42**, **42** in the side walls **28**, **28** of the ladder **14** to receive the rounded end portions **40**, **40** of the pins **34**, **34** when the ladder is swung upwardly to the broken line position **44** as shown in FIGS. 1 and 2.

Referring more particularly to the ladder **14**, it will be observed that the vertical side rails **28**, **28** are of such length as to project substantially beneath water level when the ladder is in its lowered or operative position. When the ladder is in its raised or storage position **44**, the upper edge therefor resides beneath the upper edge of the transom **18** and the lower edge thereof resides above the lower edge of the transom **18**. Thus, there is no interference or "drag" when the boat is in motion and neither is there any projection above the transom which might interfere with trolling or other activities carried on at a rear portion of the boat.

The ladder **14**, in accordance with the invention, is provided with at least one horizontally extending rung or step spaced substantially beneath water level when the ladder is in its operative position. In the embodiment shown, first and second or lower and upper rungs **46**, **48** are provided and extend between the vertical side rails **28**, **28**. In accordance with the presently preferred practice each of the rungs comprises a pair of closely spaced parallel horizontally extending rods **49**, **49** which are threaded at end portions to receive screws **50**, **50**. A resilient rubber-like tubular cover **52** is fitted over the rods to provide a finished rung or step. As best shown in FIG. 2, the rubber-like cover **52** extends inwardly or rearwardly from the ladder side rail **28** so as to provide a soft bumper for engagement with the transom **18** of the boat. In the upper or storage position of the ladder **14**, both covers **52**, **52** serve as bumpers for engagement with the boat transom.

As to materials of construction, the metallic portions of the ladder are preferably formed of aluminum but the use of other materials will be obvious. Similarly, the size of the ladder may vary but it is presently preferred that the width of the rungs be slightly greater than the foot of the prospective user.

Referring now particularly to FIGS. 4 through 7, it will be observed that a bracket **12***a* is provided in substantially identical form with the bracket shown and described above at **12**. The bracket is preferably secured to the transom **18***a* of a boat at a lower portion slightly above the water line, as shown, so as to support a ladder swingable from an upper storage position to a lower operative position.

The ladder **14***a* includes a main ladder section which is substantially identical with the ladder **14** described above, and it also includes a secondary ladder section **54** which is attached to and which depends from the main ladder section. Thus, the main ladder section is provided with side rails **28***a*, **28***a* and with lower and upper steps or rungs **46***a* and **48***a*. The lower step or rung **46***a* has

a slightly shortened tubular cover **52***a* which provides access to opposite end portions of the rods forming the main structural portion of the step. That is, the end portions of the forward or outer rod beneath the cover **52***a* are used for pivotal connections with upper end portions of side rails **56, 56** of the secondary ladder section. This connection is best illustrated in FIG. 7 wherein a forward or outer rod **58** is shown in broken line form.

With the ladder in its operative position, the side rails **56, 56** depend from the rod **58** and they carry at least one horizontal step or rung therebeneath. As shown, a single step **60** is provided and the construction thereof may be substantially identical with that described above for the steps **46, 48.** As will be observed, the overall horizontal dimension of the secondary ladder section **54** is less than the horizontal distance between the side rails **28***a*, **28***a* of the main ladder. Thus, the secondary ladder section **54** can be swung upwardly through approximately 180° to a storage position between the side rails **28***a*, **28***a* as shown in FIG. 7. In this position the rubber-like cover of the rung **60** is wedged lightly against the corresponding cover of the rung **48***a*, the side rails **56, 56** being of such length as to provide for this relationship. Thereafter, the entire assembly comprising the main and secondary ladder sections can be swung upwardly to the storage position shown in FIG.7.

Preferably and as best shown in FIG. 7, there is provided a stop means at **62** for limiting the swinging movement of the secondary ladder section to a substantially vertical attitude. That is, notches **62, 62** are provided in the side rails **56, 56** to engage with the tubular cover of the step **60** when both ladder sections are in their lower and operative position and to prevent the secondary ladder section from swinging beyond the vertical.

From the foregoing, it will be apparent that the ladders of the present invention exhibit a high degree of simplicity and durability in construction. They are well suited to quantity production at economic advantage and they provide clean and unobstructed lines in use with no projections above or beneath the transom of a boat upon which they are mounted. Quick and convenient movement between operative and storage positions can be readily achieved.

The invention claimed is:

1. An emergency boat ladder assembly comprising a mounting bracket having a flat base portion adapted for attachment at a lower portion of a boat transom above water level, said bracket also including lower and upper outwardly generally horizontally projecting portions, said lower projecting portion including pivot support means adapted for connection with an upper end portion of a ladder to provide for swinging movement of the ladder in a vertical plane to a lower operative substantially vertically position and through approximately 180° to an upper storage position adjacent and substantially parallel with the transom, and said upper projecting portion including latch means adapted for releasable connection with a ladder in its upper storage position, and a ladder having a pair of vertical side rails and at least one horizontal rung connected therebetween at lower portions thereof, said ladder side rails being so spaced apart laterally as to receive said lower projecting portion at all times and to receive both said lower and said upper projecting portions of said mounting bracket therebetween when the ladder is swung to its upper storage position, the upper end portions of said side rails being pivotally connected with said lower projecting portion on said bracket, and the said ladder being of such length that the rung thereon is disposed substantially beneath water level with the ladder in its lower operative position, the ladder being disposed beneath the upper edge of the transom and above the lower edge thereof when the ladder is in its upper or storage position.

2. An emergency boat ladder is set forth in claim **1** wherein said releasable connection between said upper bracket projecting portion of the ladder is provided by an automatically operable latch means which is interengaged between the ladder and the projecting portion when the ladder is moved to its upper storage position and which can be released by manual pressure on the ladder in an outward and downward direction.

3. An emergency boat ladder as set forth in claim **2** wherein said automatically operable latch means takes the form of a spring-biased-pin-detent mechanism.

4. An emergency boat ladder as set forth in claim **2** wherein said ladder includes a second horizontal rung spaced above said one rung when the ladder is in its lower and operative position.

5. An emergency boat ladder as set forth in claim **4** wherein said second and upper rung is provided with a resilient cover member of such thickness as to extend laterally beyond the ladder side rails to engage the boat transom and serve as a bumper.

6. An emergency boat ladder as set forth in claim **5** wherein each of said rungs comprises a pair of closely spaced parallel rods with a rubber-like tube disposed thereabout.

7. An emergency boat ladder as set forth in claim **2** and including a secondary ladder section comprising a pair of vertical side rails and at least one horizontal rung between lower end portions of the side rails, upper end portions of said side rails being pivotally attached to a lower end portion of the main ladder for swinging movement of the secondary ladder section relative to the main ladder.

8. An emergency boat ladder as set forth in claim **7** wherein said secondary ladder section has a maximum horizontal dimension less than the horizontal distance between the side rails of the main ladder such that the said secondary section can be swung upwardly to a storage position between said main ladder side rails.

9. An emergency boat ladder as set forth in claim **8** wherein said secondary ladder section is pivotally supported by said horizontal rung of said main ladder, and wherein there is provided a stop means for holding said secondary ladder section in depending vertical attitude with both the main ladder and the secondary ladder section in operative position.

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