May 8, 1962 G. H. ALLEN 3,032,848

CONNECTOR

Filed June 26, 1959 2 Sheets-Sheet 1

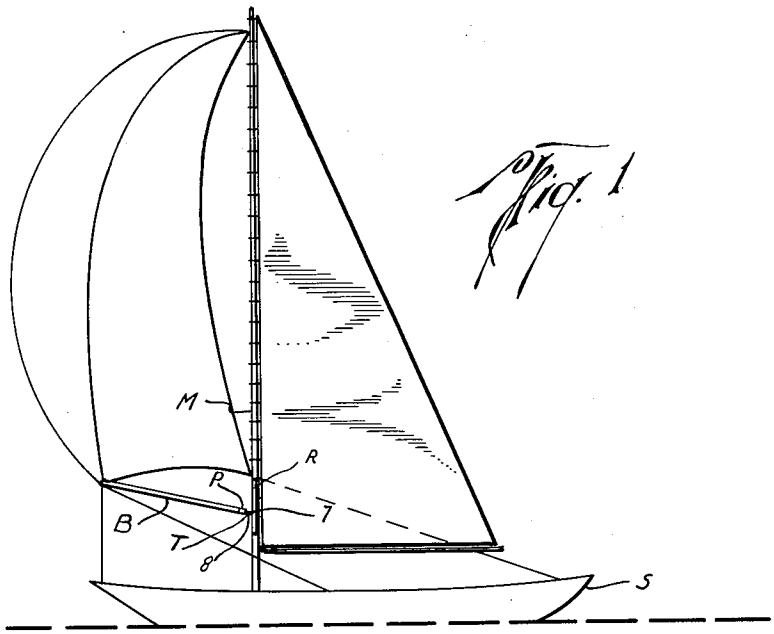


Fig. 1

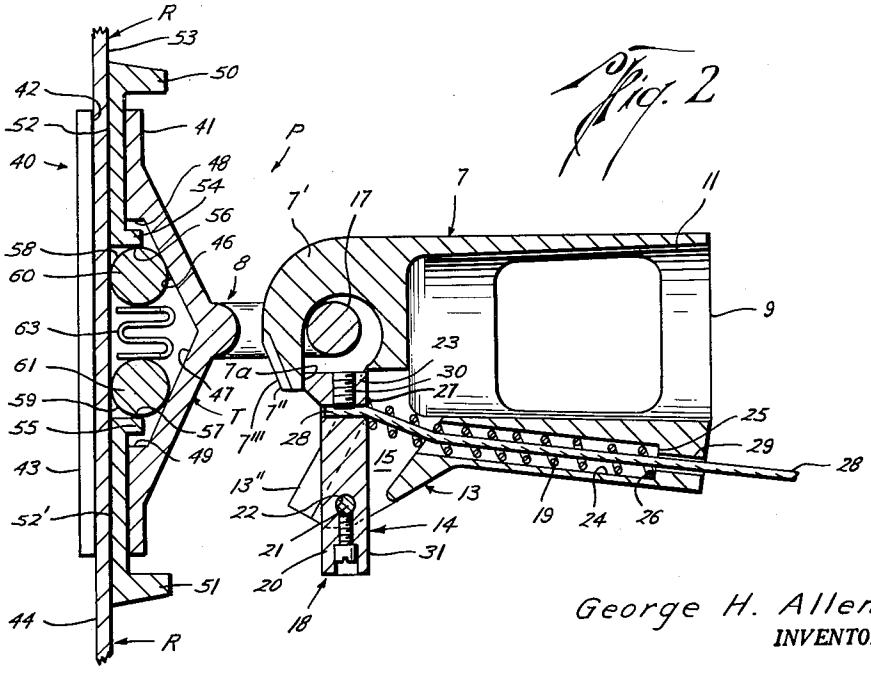


Fig. 2

George H. Allen
INVENTOR.

BY Hayden & Prasel

ATTORNEYS

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Fig. 3

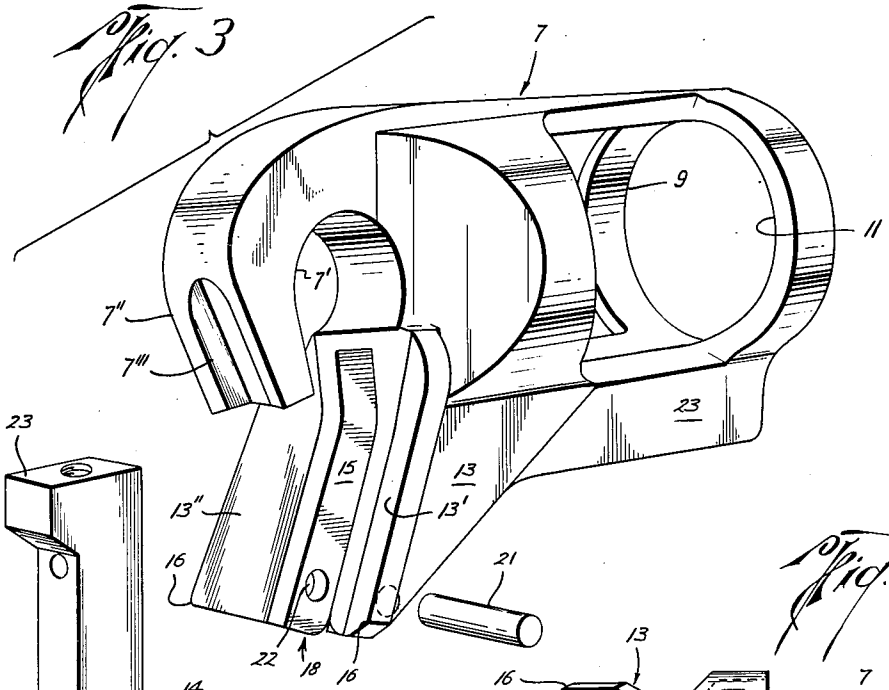


Fig. 4

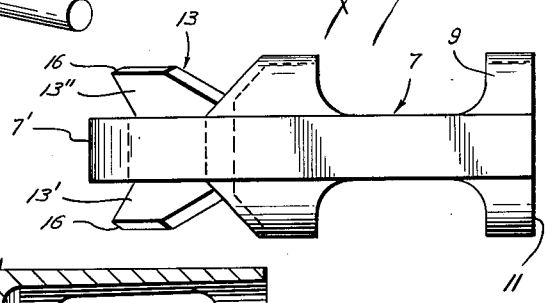
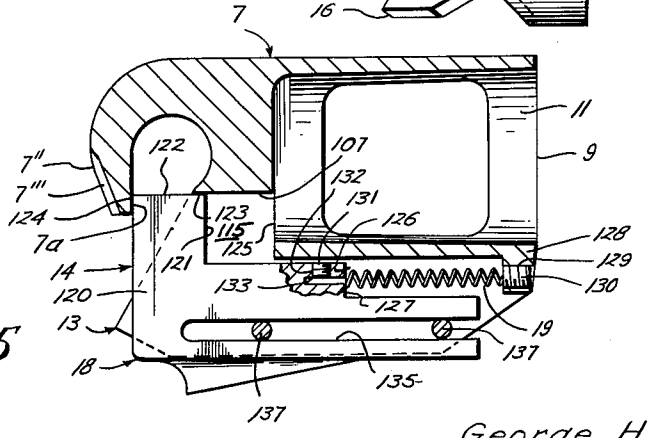


Fig. 5



George H. Allen
INVENTOR.

BY Hayden & Prawel

ATTORNEYS

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CONNECTOR

George H. Allen, P.O. Box 776, La Porte, Tex.

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The present invention relates to a new and improved form of connector and to its components including a ring and its supporting structure and a hook arrangement adapted to be engaged with the ring.

The present invention has primary utility in connection with sailing vessels, but may be used with equal facility in any situation where it is desired to releasably connect or position two members relative to each other. In connection with sailing vessels, the device of the present invention may be used on the end of a boom for connecting the boom to the mast or to a sheet.

At the present time, a great deal of difficulty is encountered in attempting to fasten a hook on a ring or the like, such as may be desirable when positioning a boom relative to the mast of a sailing vessel. Generally, a ring or the like is adapted to be positioned to the mast of the vessel, and a hook is secured to the inboard end of the spinnaker boom, so that the boom may be connected to the mast by positioning the hook thereon in engagement with the ring on the mast.

When the vessel is under way, it may be desirable to disconnect the spinnaker boom and to reconnect it in a different position, so that the hook and eye arrangement used to position the spinnaker boom of the vessel must be readily disengageable to permit such movement of the boom on the one hand, but the hook and ring connecting arrangement between the spinnaker boom and the mast on the other hand should be sturdy enough so as to retain the boom in its desired position relative to the mast when the vessel is underway, and even under the most adverse weather circumstances. Also where the sail is positioned by means of a line, the hook of the present invention enables the line to be easily engaged.

With the devices presently in use, it is necessary to try to open the hook manually when it is desired to disconnect the boom from the mast, and such disconnection is generally accomplished at the present time by manually moving a portion of the hook so as to release the ring from engagement therewith. The construction of the hooks presently used is such that the movement of this portion of the hook is in a direction opposite to the force applied manually in trying to manipulate the boom to position it on the ring. Also, it is generally necessary to manually retain the hooks in open position as they are stabbed on the rings, thereby requiring that the person manipulating the hook not only initially moves a portion of the hook to open it, but to thereafter maintain this portion in a desired position so that the hook can be engaged with the ring.

These manipulations, coupled with the movement of the vessel while underway make it extremely difficult to try to engage the hook on the eye or ring on the mast, so that at the present time it is extremely difficult to connect or disconnect a boom on the mast of a sailing vessel, when the vessel is underway.

The present invention overcomes these problems and other problems encountered with present day devices in that it provides a connecting arrangement which may be used on a sailing vessel for connecting a boom to a mast with a minimum of trouble. The present invention also provides a construction so that the hook which is adapted to be connected to the end of the boom may be opened with a minimum of effort to engage the ring on the mast, and the hook is constructed and arranged so that the movement of the hook into engagement with the ring automatically opens the hook and aids in positioning the hook on the ring in that the manner in which the hook is

opened, and its subsequent connection with the ring cooperate, instead of hinder the connection.

An object of this invention is to provide a new and improved device adapted to be fitted on a pole and further adapted to be readily and easily secured to a ring or eye or line.

Another object of this invention is to provide a new and improved device adapted to be fitted on a pole wherein it is necessary to exert a force in only one direction to attach such device to a ring or eye.

Still another object of this invention is to provide a new and improved device adapted to be fitted on a spinnaker track mounted on a mast.

A further object of this invention is to provide a new and improved means for securing a boom to a mast on a sailboat wherein said means includes a hook adapted to be fitted on said boom and an eyeplate or slide mounted on a track on said mast which can be readily and easily changed from one vertical position to another.

Yet a further object of this invention is to provide a new and improved means for connecting a boom to a mast on a sail boat wherein such means includes a hook fitted with a latch or trip pin such hook adapted to be fitted on said boom, and which can be readily engaged with or released from a ring or eye on a slide mounted on the mast track and such slide being vertically slidable and adapted to be locked in any position on the mast track.

Still a further object of the present invention is to provide a connector including a hook, a ring adapted to be engaged by said hook, said hook and ring being constructed and arranged to facilitate engagement and disengagement therebetween with a minimum of effort.

The preferred embodiment of this invention will be described hereinafter, together with other features thereof, and additional objects will become evident from such description.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings forming a part thereof, wherein an example of the invention is shown, and wherein:

FIG. 1 is a side view of a sailboat illustrating one manner of use of the present invention;

FIG. 2 is a vertical sectional view of the preferred embodiment of the connector of the present invention illustrating the structural details of the hook, and the structural details of the ring;

FIG. 3 is an exploded isometric view of the hook arrangement illustrated in FIG. 2 of the drawings;

FIG. 4 is a top plan view of the hook of the present invention; and

FIG. 5 is a sectional view, partly in elevation, illustrating an alternate embodiment of the hook of the present invention.

The present invention is described with regard to its particular use and obligation in connection with a sailing vessel; however, it can be appreciated that the connector may be used in many situations for connecting two members together, and that the detailed discussion in connection with its use on a sailing vessel is merely for purposes of illustration.

In FIG. 1 of the drawings, the invention is designated generally by the letter P and is illustrated as being used for connecting a boom or spinnaker boom B on a sailboat designated at S to the mast M of the boat. The device P includes a hook designated generally at 7 which is adapted to be engaged with a ring or the like designated generally at 8. When the device is used on a sailing vessel, the ring 8 will be supported on a traveler T, which traveler is in turn movably mounted on the track R which track extends longitudinally of the mast M of the vessel. The manner of connecting the track R to the mast is

well known in the art, and may be accomplished by any suitable means such as by screws or the like.

The structural details of the hook 7' of the present invention are illustrated more clearly in FIG. 2, wherein the body 7 is illustrated as having formed on one end thereof the hook 7' for receiving the ring 8 therein as illustrated in FIG. 2 of the drawings. The other end 9 of the body 7 is adapted to be connected to a support member, and when the invention is used in the manner as illustrated in the drawings, it will be connected to the end of the boom B. In such event, the end 9 may be suitably constructed so that it may be engaged or fitted on a pole or the like. As illustrated in FIG. 2 of the drawings the end 9 of the body 7 is constructed so as to form the socket 11 which forms a wedging fit with the end of the boom B. If desired, suitable means such as screws or the like may be used for securing the boom B in the socket 11 of the body 7.

To facilitate the positioning of the hook 7' of the body 7 in engagement with the ring 8, the present invention provides the guide surface designated generally by the numeral 13 which guide surface extends downwardly and forwardly of said body to aid in deflecting the ring into seating position with the hook 7'. The guide 13 may include the two surfaces or wings 13' and 13'' which are inclined forwardly and downwardly relative to the body 7 and the hook 7' and extend laterally on each side of the body as more clearly illustrated in FIGS. 2, 3 and 4. A slot 15 extends longitudinally of the body 7 and separates the surfaces 13' and 13''. The latch means designated generally at 14 is adapted to be positioned within the slot 15 in a manner as will be described in more detail hereinafter.

Each of the guide surfaces 13' and 13'' recede from their outer vertically extending edges 16 toward the slot 15 as more clearly illustrated in FIG. 4 of the drawings. This arrangement of the surfaces 13' and 13'' relative to each other conforms generally to the configuration of the periphery on the forward end of the ring when the ring abuts the surfaces 13' and 13'' which aids in moving the ring 8 into its seated or engaged position within the hook 7' as illustrated in FIG. 2 of the drawings. The edge of the guide surfaces 13' and 13'' also serve to guide a line into engagement with a hook.

Similarly, the forward face 7'' of the hook 7' is recessed as shown at 7''' so that if the outer periphery 17 of the ring 8 engages the forward face 7'' of the hook 7' as they are moved toward engagement, the ring 8 will be guided down into engagement with the surfaces 13' and 13'' whereupon the ring may then be manually moved into locking engagement with the hook 7'.

Suitable means are provided for locking the ring 8 and the hook 7' in engagement with each other, such means being designated generally by the numeral 18. The lock means 18 includes the latch means 14, and the spring means 19 which is used for urging the latch means into engagement with the portion 7*a* of hook 7' to lock the ring 8 when it is engaged with the hook 7'. In FIG. 2 the latch means 14 comprises a member 20 which is supported in the slot 15 between the surfaces 13' and 13'' on the pin 21, which pin is received in the hole 22 in the body 7. The pin 21 is held in the hole 22 by means of the screw as shown in FIG. 2.

The member 20 is provided with a suitably shaped upper end 23 so that when the device is assembled as illustrated in FIG. 2 of the drawings, the upper end 23 will close off the opening in the hook 7'. The spring 19 is positioned in the bore 24 which extends longitudinally and rearwardly of the body 7 as illustrated in FIG. 2 of the drawings. The bore 24 terminates as illustrated at 25 thereby forming a shoulder 26 for receiving and supporting the spring 19 thereon. The spring 19 is under compression within the bore 24 and is seated, as previously mentioned, at one of its ends on the shoulder 26 and abuts at its other end 27 against the member 20 thereby urging the end 23 against the portion 7*a* of the hook 7'.

If desired, to aid in operating the hook 7' a line as illustrated at 28 may be connected through the counterbore 29 and the bore 24 adjacent the upper end 23 of the member 20 as shown in FIG. 2 of the drawings. The line 28 may be retained in position by suitable means such as the set screw 30 which is secured through the top of the member 20 as illustrated in FIG. 2 so as to abut the line 28 and hold it in engagement with the member 20.

It will be noted that the member 20 extends downwardly from or projects beyond the guide 13 so that the member 20 may be easily pivoted to open position by grasping the body 7 with one hand and moving the fore-finger or thumb against the portion 31 of the member 20 which projects beyond the guide 13 forwardly relative to the body 7 so as to pivot the end 23 of the member 20 into the slot 15 between the surfaces 13' and 13'' whereupon the hook 7' may be moved into or from engaged position with a line or a ring as shown in FIG. 2 of the drawings.

Thereafter the compression in the spring 19 will move the member 20 to its initial position as illustrated in FIG. 2 of the drawings so that the hook 7' and the ring 8 are firmly locked together.

It will be noted that the end 23 of the member 20 projects forwardly of the guide surfaces 13' and 13'' at their upper end adjacent the hook 7'. Therefore, when the ring 8 or a line moves into engagement with the surfaces 13' and 13'' and continues movement upward therealong, the ring 8 or the line will engage the member 20 and tend to pivot it to open position. The opening of the hook 7' by pivoting the member 20 can also be accomplished by reason of the hand of the operator engaging the portion 31 of the member 20 which projects below the guide 13. It will be noted that the movement of connecting the hook on the ring, and the movement of the operator's hand against the portion 31 of the member 20 which projects beneath the guide 13 will supplement each other. That is, both movements are in the same direction which facilitates engagement of the hook 7' with the ring 8 or with a line.

FIG. 2 of the drawings also illustrates the traveler T upon which the ring 8 is mounted when the present invention is used on a sailing vessel, and the track R upon which the traveler T is adapted to move. As previously mentioned, the track R may be secured on the mast by any suitable means such as screws or the like in a manner well known in the art. It may be desired to position the ring 8 at various elevations relative to the mast M and for this purpose the construction illustrated generally by the numeral 40 in FIG. 2 may be utilized. It will be noted that the construction 40 includes the traveler designated at T and a means for locking the traveler T at any desired position on the track R. The traveler T includes a body 41 with which the ring 8 may be integrally formed, the body 41 including a longitudinally extending passage 42 suitably shaped for receiving the track R therethrough. In this connection the body 41 of the traveler T may include the guide surfaces shown at 43 which engage the other side of the track 44 as the traveler T slides along the track R from one position to another. The body 41 is provided on its inner surface with opposed tapered portions 46 and 47 as illustrated in FIG. 2 of the drawings. Opposing shoulders 48 and 49 are formed at each innermost end of the tapered portions 46 and 47 respectively. The body 41 may be cast and therefore the tapered portions will be uneven, or rough. Members 50 and 51 extend into the body 41 from each end thereof and are provided on one surface 52 with a flat surface which conforms to the surface 53 of the adjacent track R. Enlarged portions 54 and 55 on each of the members 50 and 51 respectively are provided with flat portions 56 and 57 which form a tangent with the roller surfaces 58 and 59 of the pair of rollers 60 and 61 respectively in the

body 41 of the traveler T. Spring means as illustrated at 63 is positioned between the edges of the rollers 60 and 61 and urges said roller against the tapered and cast surfaces 46 and 47 of the member 41 and against the surface 53 of the track R. This urging of the spring 63 against the rollers 60 and 61 and the engagement of the rollers 60 and 61 with the surfaces 46 and 47 of the member 41, and with the surface 53 of the track R lock the traveler T on the track R.

When it is desired to move the traveler T to a new position on the track R the members 50 and 51 may be manually grasped and are pushed toward each other so as to collapse or compress the spring 63. The rollers or cylinders 60 and 61 are moved away from the roughened surfaces 46 and 47 of the traveler body 41 and the surface 53 of the track R, and the traveler T may therefore be moved or slid along the track R to its new position. When the members 50 and 51 are released the spring 63 will again move the rollers 60 and 61 against the surfaces 46, 47 and 53 thereby locking the traveler T on the track R in the new position.

While it is believed that the description and operation of the invention is apparent by reason of the foregoing, to further amplify and describe, it will be assumed that the device illustrated in FIG. 2 is secured to the end of a rigid member such as a boom of a sailing vessel, and that the hook 7′ on the body 7 is to be secured with a ring or eye on the mast M of the vessel.

When the body 7 abuts the ring 8, contact is at the center line of the body 7 thereby inhibiting "bending movement" longitudinally of the boom B.

When the body 7 is not engaged with the ring 8, the relative position of the body 7 and the locking means 18 will be as illustrated in FIGS. 2 and 5. In this position the latch means 14 engages the portion 7*a* of the hook 7′, so as to close off the hook; however, when it is desired to engage the hook 7′ with a ring or eye 8, such ring may be engaged against the surfaces 13′ and 13″ and moved upwardly therealong whereupon such ring will engage the latch member 14. In the FIG. 2 modification the latch member 14 will be pivoted about the pin 21 so that the ring can readily gain access to the hook 7′.

In the FIG. 5 modification, the latch member 14 is moved longitudinally relative to the body 7, but the result is the same, namely, the hook 7′ engages the ring 8. After the member 20 in the FIG. 2 modification, and the member 120, in the FIG. 5 modification have cleared the ring 8, and the ring 8 is engaged within the hook 7′, the spring 19 in the body 7 in each form of the device urges the member 20 and the member 120 in the FIG. 5 modification to its initial position so that the ring 8 is locked in engagement with the hook 7′.

Referring also to the FIG. 5 modification the member 120 is positioned in a longitudinal slot 115 in the lower center portion of the body 7. The member 120 is generally L-shaped with the foot of the L being designated at 121. The foot 121 has an edge 122 so that the edge 122 will close the opening as can be seen at 123. When the member 120 is in "closed" position, the forward part 124 of the foot 121 rests against the inside lower edge 7*a* of the hook 7′. The edge 122 slides adjacent the upper surface 107 of the slot 115 to guide the member 120 as it moves to open and close hook 7′; when the member 120 is retracted, it will move longitudinally of body 7 until shoulder 121 abuts the shoulder 125 of slot 115 in the body 7.

The member 120 has a recess 126 along an edge which forms the shoulder 127 on which one end of the spring 19 is attached by any suitable means.

A suitable hole in the set screw 130 may be provided to receive the lanyard. Extending longitudinally from the end of the member 120 is a slot 135, as shown in FIG. 5. Pins 137 are positioned in the body 7 and are received in slot 135 whereby the member 120 is retained in the body 7. The slot 135 permits the member 120 to slide longitudinally relative to the body 7.

From the foregoing description, it can be appreciated that the present invention relates to a connector including a hook and eye arrangement for securing two members together. More particularly, the invention contemplates a structural arrangement of a hook whereby it may be quickly and easily connected and disconnected on a ring or similar member.

A threaded opening 129 is provided in the lower rear portion 128 of the body 7 so that spring 19 may be inserted therethrough and positioned against shoulder 127 of the member 120. Plug 130 engages in opening 129 and abuts the other end of the spring, so that the spring 19 normally urges member 120 to engage the end 7*a* of hook 7′ as shown in FIG. 5.

If it is desired to operate member 120 by means of a string or lanyard, then the landyard may be connected to member 120 by any suitable means. As shown in FIG. 5, opening 133 is provided to receive the end of the lanyard in member 120, and the lanyard may be held in opening 133 by means of screw 131 engaging the lanyard through threaded opening 132.

In both modifications a straight line movement is employed to open hook 7′.

Broadly, the invention relates to a device wherein a ring, line or the like may be readily and easily engaged or disengaged with a hook.

What is claimed is:

1. A fitting for engagement with a ring, and the like comprising a body, a hook on one end of said body for engagement with a ring and the like, means on the other end of said body for securing said body on a support member, said body having a longitudinally extending slot, a guide surface on each side of said slot in said body, said guide surfaces being inclined forwardly and downwardly relative to said body and receding from their outer vertical edges toward said slot in said body, said hook having a forward face which is inclined to form a guide surface, said guide surfaces on said body and said guide surface on said hook cooperating to guide said hook into engagement with a ring and the like, and lock means for retaining the ring and the like engaged with said hook, said lock means including a latch in said slot in said body, means pivotally supporting said latch in said slot, spring means mounted in said body and abutting said latch to urge it to contact said hook to close off the opening between said hook and said body, said latch having a portion which extends below said pivot means and said body whereby said latch may be manually moved to disengage said latch and hook.

2. The invention of claim 1 including additional means for moving said latch, said means including a line secured to said latch above said pivot means and extending through said body whereby it may be manually engaged to actuate said latch.

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