April 14, 1970 J. C. JENKINS 3,506,227

HANGER FOR ELONGATE MEMBERS

Filed Nov. 6, 1967

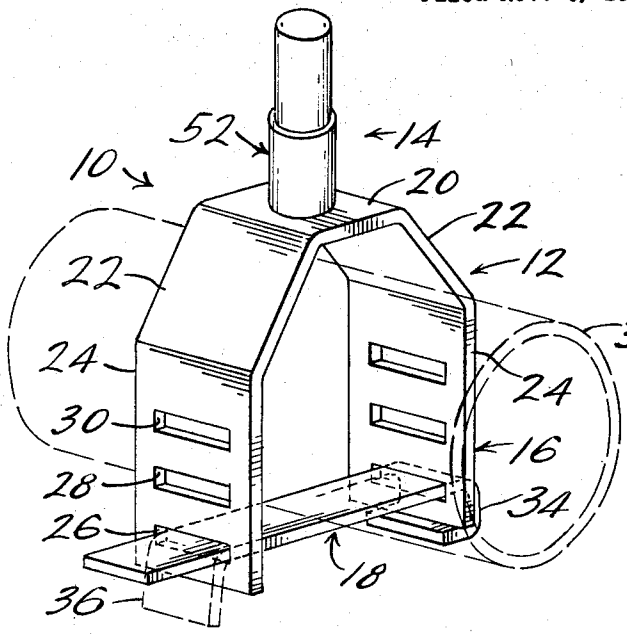

FIG-1-

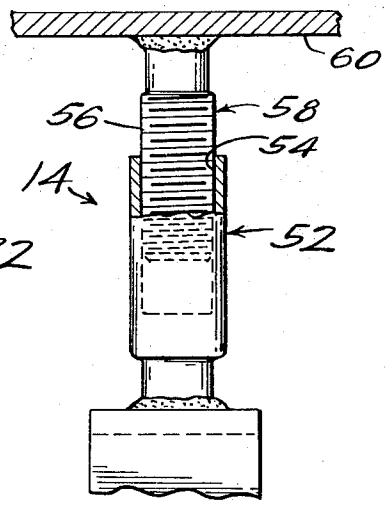

FIG-2-

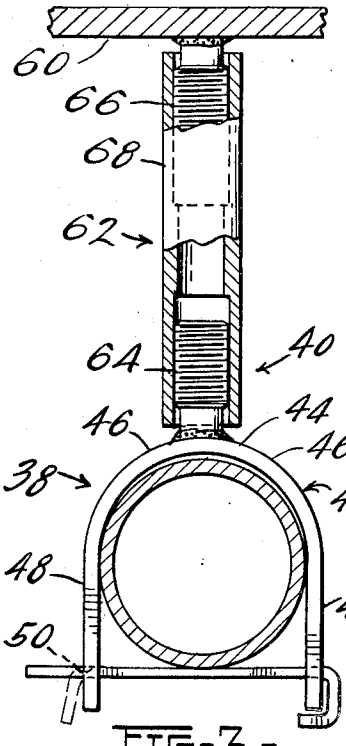

FIG-3-

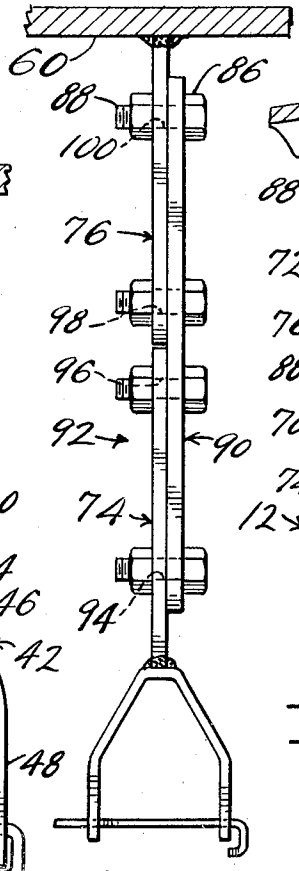

FIG-6-

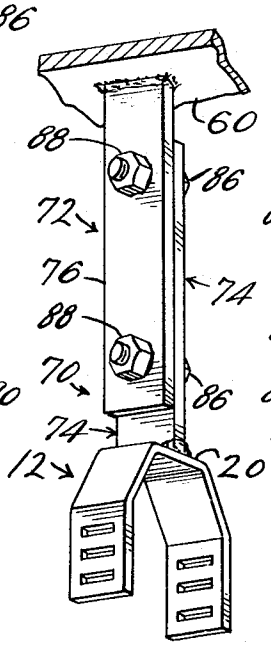

FIG-4-

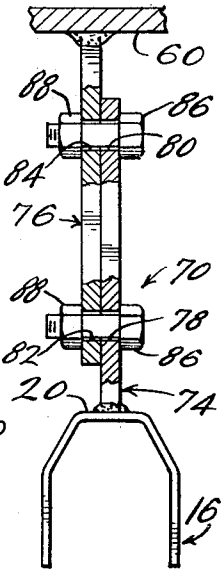

FIG-5-

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HANGER FOR ELONGATE MEMBERS

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ABSTRACT OF THE DISCLOSURE

A rugged pipe hanger of simple design is provided. Each hanger is capable of accommodating several different sizes of pipes and the hangers can be made in several sizes to accommodate pipes of almost any desired range of sizes. The hanger includes a generally U-shaped strap which receives a pipe in a locking member which extends through holes in the legs of the strap and holds the pipe securely in the strap.

This invention relates to a hanger for elongate members and more particularly to a hanger for supporting pipes on ships.

Although numerous pipe and cable hanger designs are known in the art, the hanger according to the instant invention is primarily designed for pipes and the hanger can accommodate pipes of different sizes, if desired. The new hanger is of low-cost construction and is relatively easy to install, both in affixing the hangers to the ship and in assembling the pipes with the hangers, so that the over-all cost of the hangers and installation can be maintained at a minimum. The new hanger is also exceptionally effective in withstanding shock, which is a strict requirement on combat ships.

It is, therefore, a principal object of the invention to provide an improved hanger, particularly for pipes for ships, having the advantages outlined above.

Numerous other objects and advantages of the invention will be apparent from the following detailed description of preferred embodiments thereof, reference being made to the accompanying drawings, in which:

FIG. 1 is a view in perspective of a pipe hanger embodying the invention and showing a pipe carried thereby, in dotted lines;

FIG. 2 is a fragmentary side view in elevation of the hanger shown in FIG. 1, with a support thereof broken away and shown in cross section;

FIG. 3 is a front view in elevation of a slightly modified hanger and showing still a different support;

FIG. 4 is a view in perspective of a hanger with a U-shaped portion similar to that of FIG. 1, but including a modified support;

FIG. 5 is a front view in elevation of the hanger shown in FIG. 4; and

FIG. 6 is a view similar to FIG. 5 but showing the hanger with a slightly modified support.

Referring to FIGS. 1 and 2, a pipe hanger embodying the invention is indicated at **10** and includes a generally inverted U-shaped, pipe-engaging unit **12** and a support **14**. The pipe-engaging unit **12** includes a one-piece metal strap **16** of generally inverted U-shaped configuration, and a locking bar **18**. The strap **16** and the bar **18** can be made in three sizes to accommodate all sizes of pipe commonly employed on a ship. The strap of FIGS. 1 and 2 includes a central, generally horizontal portion **20**, a pair of diverging, downwardly-extending intermediate leg portions **22**, and a pair of substantially vertical end legs **24**. Each of the end legs **24** has, in this instance, three elongate openings **26**, **28**, and **30**, the corresponding ones on each leg being spaced equally from the lower ends of the respective legs **24**. The spacing between the adjacent openings is designed so that the unit **12** can accommodate pipes of one-half, three-quarter, and one inch diameters, by way of example.

After a pipe or elongate member **32** is inserted into the space defined by the strap **16**, the locking bar **18** is assembled with the strap. The bar **18**, in this instance, has an L-shaped flange **34** at one end with the other end being straight so that the straight end can be inserted through the appropriate one of the openings **26–30** in one of the legs **24**, extended under the pipe **32** and through the corresponding opening in the other of the legs **24**. The L-shaped flange **34** then extends under the end of the associated leg or into one of the other openings. An end portion **36** of the locking bar **18** which extends outwardly beyond the other leg is then bent downwardly, as shown, to securely hold the bar **18** in place. The end of the bar can also be bent under the end of the leg, if desired. As the end **36** is bent downwardly, it can exert a compressive force on the legs **24** to aid in squeezing the pipe **32** in the unit **12** to hold the pipe securely and prevent rattling or vibration. If desired, as is known in the art, a strip of rubber or other suitable resilient material can be used within the unit **12** to cushion the pipe from the metal of the unit and further enhance sound attenuation, etc.

A pipe-engaging unit similar to the unit **12** can be made in a slightly larger size with two appropriately spaced elongate openings in the end legs to accommodate pipes having diameters of one-and-one-quarter and one-and-one-half inches. Further, a pipe-engaging unit **38** of a pipe hanger **40** of FIG. 3 can be used to accommodate a pipe of two-inch diameter. The unit **38** of FIG. 3 is of a slightly modified design with a strap **42** having a central, generally horizontal portion **44** and intermediate diverging legs **46** all of generally rounded construction and forming an actual U-shaped configuration with end legs **48**. Each of the legs **48**, in this instance, have only one elongate opening **50** to accommodate the single size pipe.

The hanger support for the pipe hanger can be of several different designs. As shown in FIGS. 1 and 2, the support **14** includes a female stud **52** which is welded to the central strap portion **20** preferably by an end-welding technique, e.g. as disclosed in Sayer Patent 2,648,748, with the end of the stud carrying flux, e.g. as shown in Nelson Patent 2,402,659 or Jenkins Patent 2,883,215. In this manner, the stud can be affixed rapidly and yet provide a connection of maximum security to enable the hanger to withstand almost any shock.

As shown in FIG. 2, the stud **52** has a threaded recess **54** which receives a threaded shank **56** of a male stud **58**, the upper end of which is welded by an end welding technique, as discussed before, to a bulkhead, overhead, etc. shown in the form of a heavy metal plate **60** in FIG. 2. The support **14** is advantageous in the installation of the hanger **10** because the male stud **58** can be welded at the desired position to the ship plate **60** and the pipe-engaging unit **12** and the female stud **52** then assembled therewith, simply by turning the unit **12** and the stud **52** onto the male stud **58**. The height of the pipe-engaging unit **12** can be varied by the extent to which the female stud is turned onto the male stud so as to assure proper vertical alignment of the various hangers for the pipe **32**. When the pipe-engaging units **12** are assembled and properly aligned, the pipe **32** is placed in position and the locking bars **18** then assembled by placing the ends **36** thereof through the appropriate openings **26–30**. The ends **36** are then bent downwardly to prevent removal of the bar and, at the same time, to squeeze the legs **24**, thereby holding the pipe firmly in place.

A slightly modified hanger support **62** is shown in FIG. 3 for the pipe-engaging unit **38** of the hanger **40**. In this instance, a male stud **64** is end welded to the central portion **44** of the strap **42** and a similar male stud **66** is end welded to the ship plate **60**. A tubular member **68** with threaded end portions is then assembled with the male studs **64** and **66** to complete the support **62** and maintain the hanger unit **38** at the desired position below the plate **60**.

A modified pipe hanger **70** is shown in FIGS. 4 and 5. The hanger **70** in this instance includes a pipe-engaging unit **12**, which is the same as that of FIGS. 1 and 2, and a modified hanger support **72**. The hanger support **72** includes a rectangular stud **74** affixed to the central portion **20** of the strap **16**, with this stud also affixed by welding and preferably an end welding technique. A similar stud **76** is welded to the ship plate **60** in the same manner. The two rectangular studs **74** and **76** are then brought into contiguous positions with openings **78** and **80** of the stud **74** aligned with openings **82** and **84** of the stud **76**. Bolts **86** or other suitable fasteners are then extended through the openings to connect the studs by nuts **88**.

With this hanger design, the hanger-engaging unit **12** can be placed in various positions below the plate **60** by using an intermediate connecting strap or bar **90** of a modified hanger support **92**, as shown in FIG. 6. Here, the same rectangular studs **74** and **76** are employed but, rather than being positioned contiguously, are placed in alignment. Four holes **94**, **96**, **98**, and **100** of the connecting bar **90** are then aligned with the openings **78**, **80**, **82**, and **84** respectively with the bolts **86** and nuts **88** then used to assemble the connecting bar **90** with the rectangular studs **74** and **76** to complete the hanger support **92**. The connecting bar **90** can be of any suitable length for positioning the hanger-engaging unit **12** as desired.

From the above, it will be seen that the pipe hanger embodying the invention has a number of advantages, including few parts and easy assembly. While the hanger supports can be of various design, each includes one component which is affixed to a central portion of the hanger-engaging unit, and a separate component which is affixed to the ship, along with means for enabling the hanger to be supported from the second component which is affixed to the ship. The hanger-engaging unit firmly holds the pipe when the locking bar is assembled and the pipe can be assembled with this unit in a relatively short time and with simple tools.

Various modifications of the above described embodiments of the invention will be apparent to those skilled in the art, and it is to be understood that such modifications can be made without departing from the scope of the invention.

What I claim is:

1. A pipe hanger comprising a heavy, one-piece metal strap of generally U-shaped configuration, said strap including a central portion and a pair of substantially straight end legs, each of said end legs having at least one elongate opening therein extending parallelly to the axis of a pipe to be held by the hanger and extending transversely of said end legs, a flat locking member extending through both of said leg openings for aiding in holding a portion of a pipe within a space defined by said strap, said flat locking member lying in a plane parallel to the axis of the pipe, said locking member having means formed at one end to prevent movement of said end of said member through one of said openings, the opposite end of said member extending beyond the other of said openings and being transversely bendable to a locking position and effective to urge said legs toward one another to hold the pipe securely, said central portion and said legs of said strap adapted to be positioned adjacent the outer surface of the pipe when in assembled relationship therewith to hold the pipe against transverse movement, and supporting means affixed to the strap for making a connection with a fixed support.

2. A pipe hanger according to claim **1** wherein said leg openings are spaced substantially equal distances from ends of said legs.

3. A pipe hanger according to claim **1** characterized by said supporting means including a component affixed to said strap by a weld.

4. A pipe hanger according to claim **3** characterized by said component of said supporting means is a heavy supporting bar having means adapted to fit with a second supporting component.

5. A pipe hanger according to claim **4** characterized further by a second supporting bar affixed to the fixed support, and means connecting said bars together in assembled relationship.

6. A pipe hanger according to claim **5** characterized further by said first and second supporting bars being connected by a connecting bar.

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CHANCELLOR E. HARRIS, Primary Examiner

U.S. Cl. X.R.

248—70