

July 21, 1942.

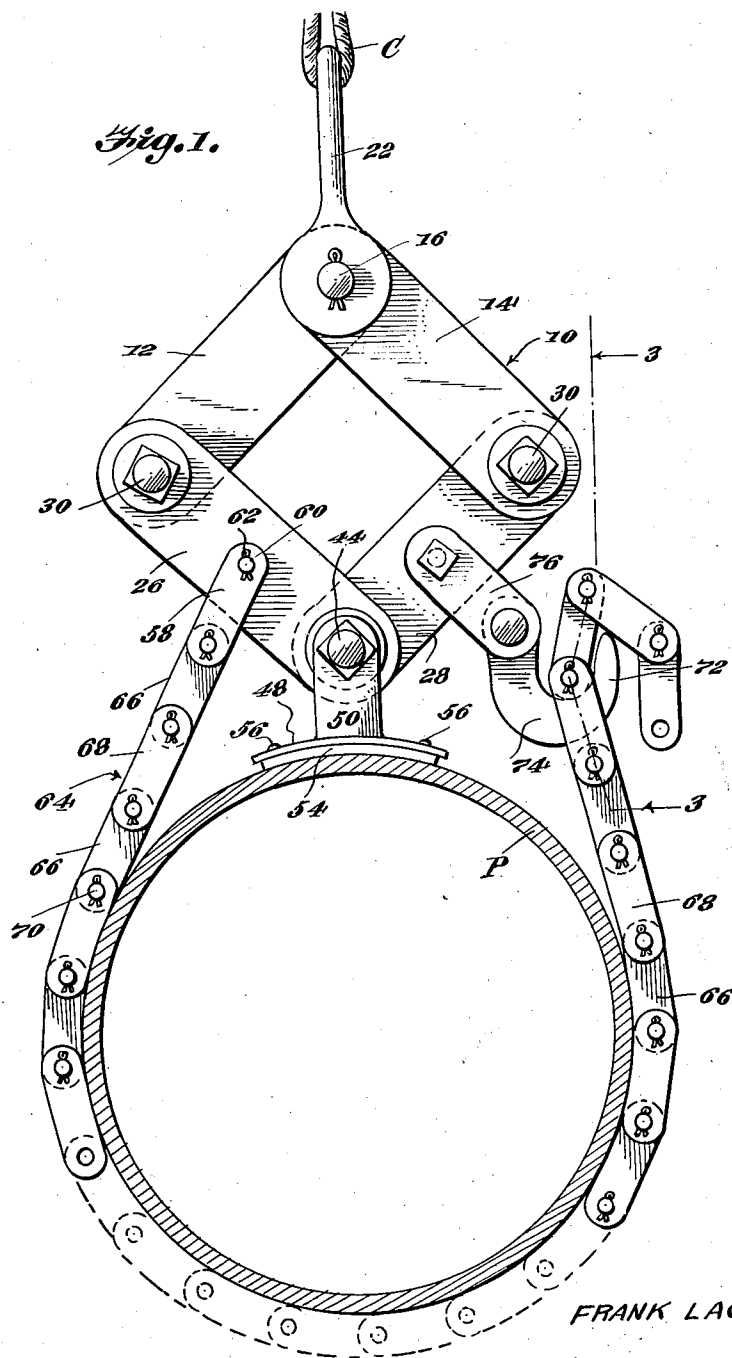
F. LAGANA

2,290,565

HOISTING SLING

Filed Oct. 10, 1940

2 Sheets-Sheet 1



Inventor

FRANK LAGANA

By

R. E. W. Sherry

Attorney

July 21, 1942.

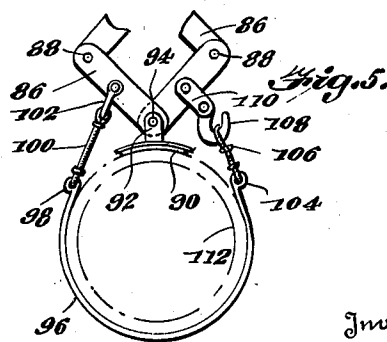
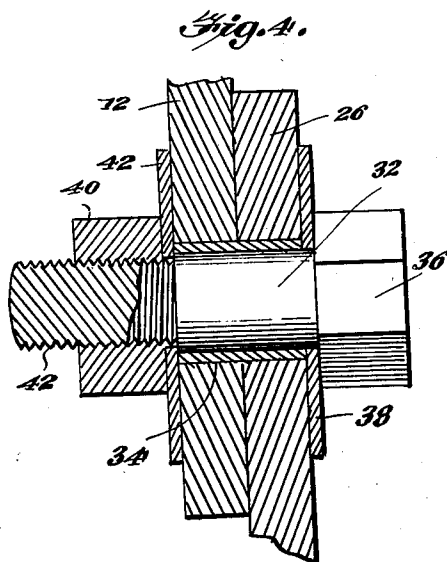
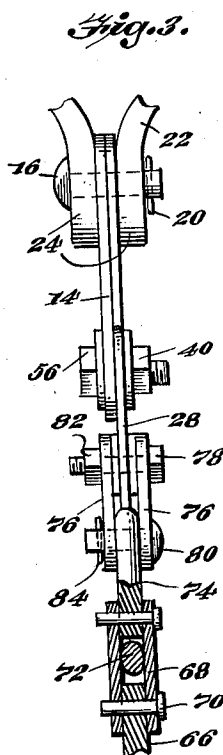
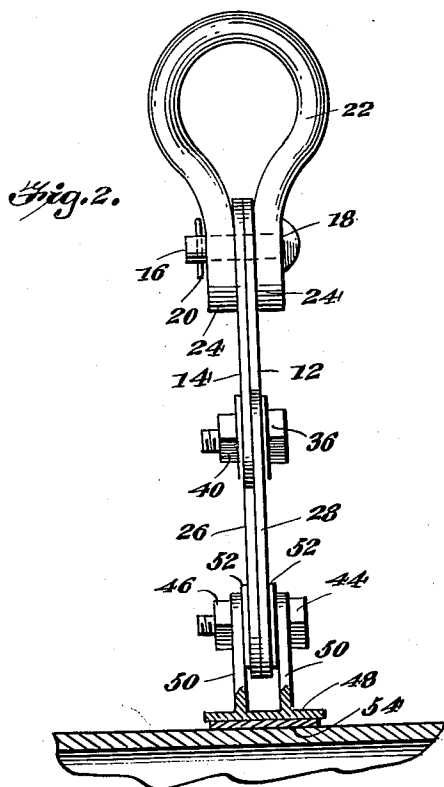
F. LAGANA

2,290,565

HOISTING SLING

Filed Oct. 10, 1940

2 Sheets-Sheet 2



Inventor
FRANK LAGANA

By *L. E. Liberty*
Attorney

UNITED STATES PATENT OFFICE

2,290,565

HOISTING SLING

Frank Lagana, Scarsdale, N. Y., assignor to Construction Appliances, Inc., Scarsdale, N. Y.

Application October 10, 1940, Serial No. 360,673

1 Claim. (Cl. 294-74)

The present invention relates to improvements in hoisting slings.

The primary object of the invention is to provide a hoisting sling which will be extremely safe in service and use, and which may be employed for hoisting various round and tubular articles without the danger of slippage and falling when the articles are suspended during a hoisting operation.

A further object of the invention is to provide a hoisting sling having an automatically operated gripping member which will grip the work in accordance with the pull exerted on the sling.

A still further object of the invention is to provide a hoisting sling in which a toggle lever arrangement is employed for causing the gripping member to be moved into engagement with the work so that as the weight on the sling is increased, the gripping member will be caused to exert a greater gripping action thereon.

A still further object of the invention is to provide a hoisting sling which comprises comparatively few parts to become disarranged and out of order, and which may be easily and economically constructed with a minimum amount of time and material.

Other objects and advantages of the invention will become apparent during the course of the following description of the accompanying drawings wherein:

Figure 1 is a side elevational view of the hoisting sling embodying the invention,

Figure 2 is a fragmentary and elevational view illustrating in detail the position and location of the work gripping member,

Figure 3 is a vertical cross sectional view taken on line 3-3 of Figure 1 looking in the direction of the arrows,

Figure 4 is an enlarged detail sectional view illustrating one of the joints of the toggle levers and,

Figure 5 is a side elevational view of a modified construction.

In the drawings, wherein for the purpose of illustrating the invention and wherein like reference characters will be employed to designate like parts throughout the same, the reference character 10 will generally be employed to designate a toggle lever suspension device including a pair of levers 12 and 14 pivoted by means of a bolt 16 provided on one end with a headed portion 18 and on the opposite end with a locking cotter key 2-. A clevis 22 is attached to the bolt 16 and has its parallel leg portions 24 straddling the toggle levers 12 and 14. Secured to the

toggle levers 12 and 14 is a pair of similarly shaped toggle levers 26 and 28 pivotally attached thereto as at 30. The pivotal connections 30 are identical and include bolts 32 as shown in Figure 4 which are adapted to extend through bushings 34 in the toggle levers 12 and 26. The bolts 32 are provided with heads 36 which bear against washer plates 38 and a nut 40 is threaded on the screw threaded end 42 of the bolt for holding the same in place. A washer 42 is interposed between the toggle levers and nut 40 so that free swinging action between the toggle levers may be had.

The pivot joint 30 shown in Figure 4 has been described as applicable to the toggle levers 12 and 26 but it is understood, that the same construction also applies to the toggle levers 14 and 28.

The lower ends of the toggle levers 26 and 28 are connected together by means of a bolt 44 having a nut 46 threaded on its free end and said bolt is also adapted to support a gripping plate 48 by means of a pair of wings 50 which straddle the toggle levers 26 and 28.

Washers 52 are interposed between the toggle levers and the wings 50, so that the gripping member 48 may swing freely thereon.

The gripping member 48 is preferably arcuately curved and is provided on its bottom surface with a work engaging friction surface 54 held in place by rivets or the like 56.

Secured to the toggle lever 26 is a pair of links 58 held in place by a pivot pin 60 through which is passed a cotter key 62 and secured to the links 58 is a link chain 64 comprising intermediate portions 66 connected by links 68 having the usual link pins 70.

The free end of the link chain 64 is adapted to be attached to the hooked end 72 of a hook 74 which is connected to the toggle lever 28 by means of a pair of links 76 mounted on opposite sides thereof and held in place by bolts 78 and 80 as shown clearly in Figure 3. The bolt 78 is held in place by means of a nut 82 threaded on the end thereof, while the bolt 80 is locked in position by means of a cotter key 84.

In operation, the chain sling 64 is passed around a piece of work such as a pipe P so that the free end thereof may have one of its links 66 looped over the free end 72 over the hook 74. The weight of the pipe P will cause the toggle levers to elongate when an upward pull is exerted on the cable C. During the elongation of the toggle levers 10, the gripping plate 48 exerts a corresponding amount of pressure on the pipe P

so that endwise slipping of the pipe will be prevented.

In Figure 5, wherein is shown a modified form of the invention the toggle levers 86 are pivoted as at 88 in substantially the same manner as shown in Figures 1 to 4 inclusive, and the lower ends of the toggle levers 86 are provided with a gripping plate 90 pivotally secured in place by the wings 92 as at 94.

A cable sling 96 has one of its ends as at 98 attached to one of the toggle levers by means of a turnbuckle 100 secured to a clevice 102. The opposite end of the cable sling 96 as at 104 is provided with a loop 106 which is adapted to be placed over a hook 108 secured to one of the toggle levers by links 110. When the cable sling 96 is passed around the pipe 112, the pipe may be lifted by a hoisting apparatus attached to the toggle levers 86 so that the gripping plate 90 will engage the pipe in the same fashion as disclosed in Figures 1 to 4 inclusive.

It is to be understood that any type of sling may be employed but it has been found in practice that a chain sling is most adaptable, by reason of the fact that it may be easily and quickly adjusted in position around the work.

It is also to be understood that the form of the invention herewith shown and described is to be taken as a preferred embodiment of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claim.

What is claimed is:

A hoisting apparatus comprising a pair of pivoted toggle levers, a sling having one end connected to one set of toggle levers, a hook carried by the other set of toggle levers for receiving the free end of the sling, a work engaging member mounted between the toggle levers and a clevice for suspending the toggle levers from a hoist line.

FRANK LAGANA.