March 2, 1943. R. D. PENLON 2,312,583

TACKLE

Filed Dec. 1, 1941 2 Sheets-Sheet 1

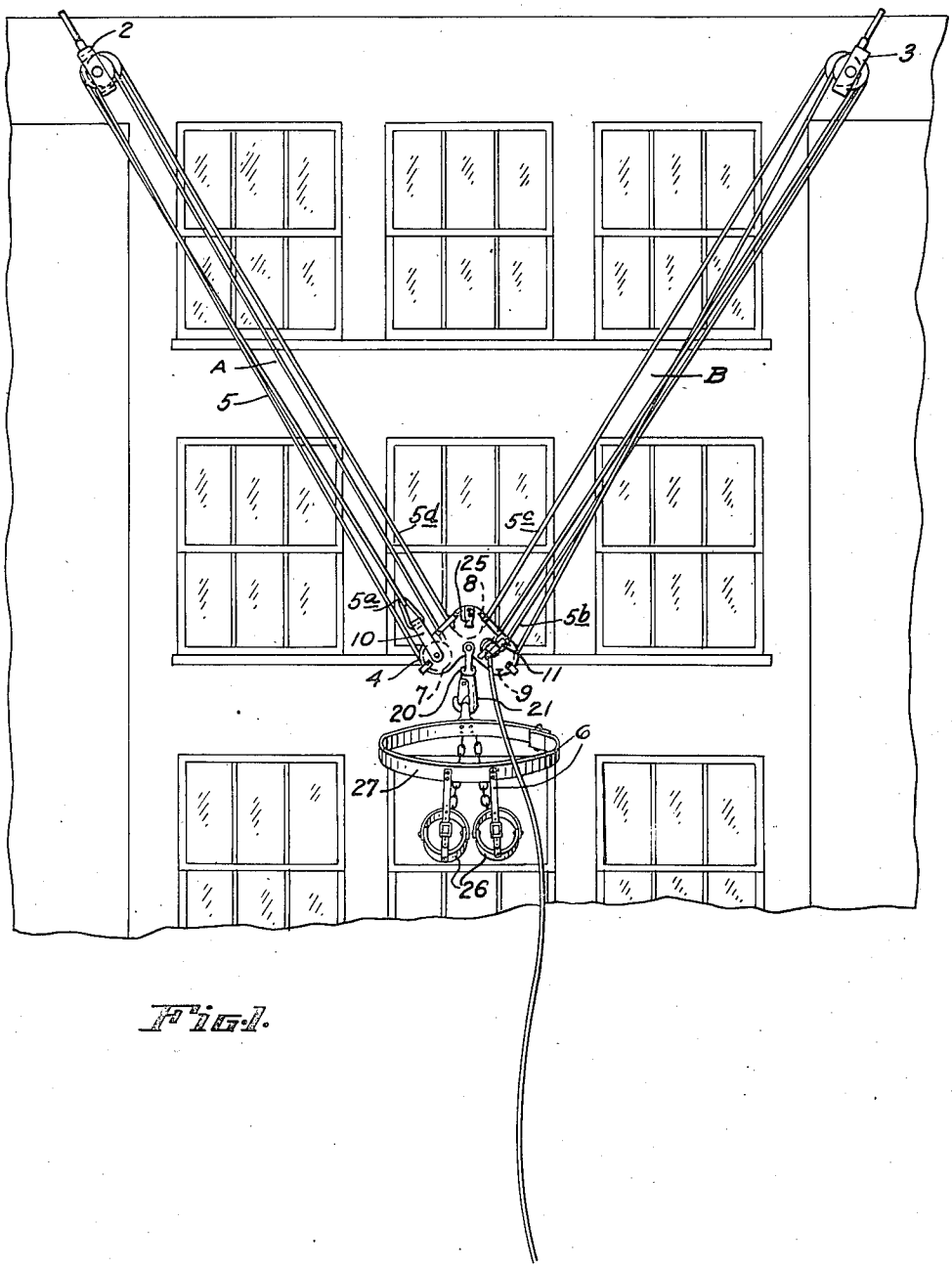


Fig. 1.

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Fig. 2.

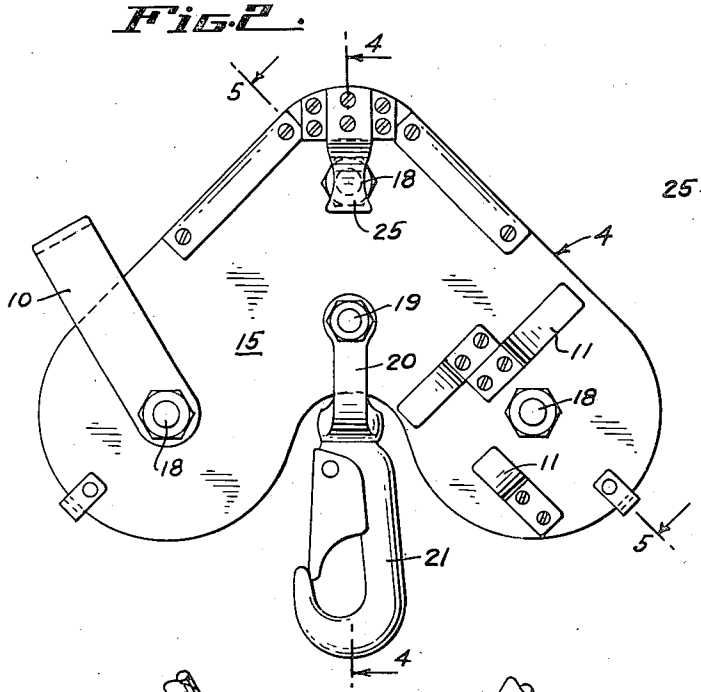


Fig. 4.

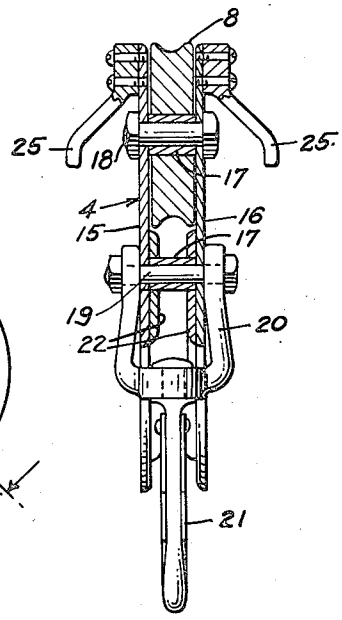


Fig. 3.

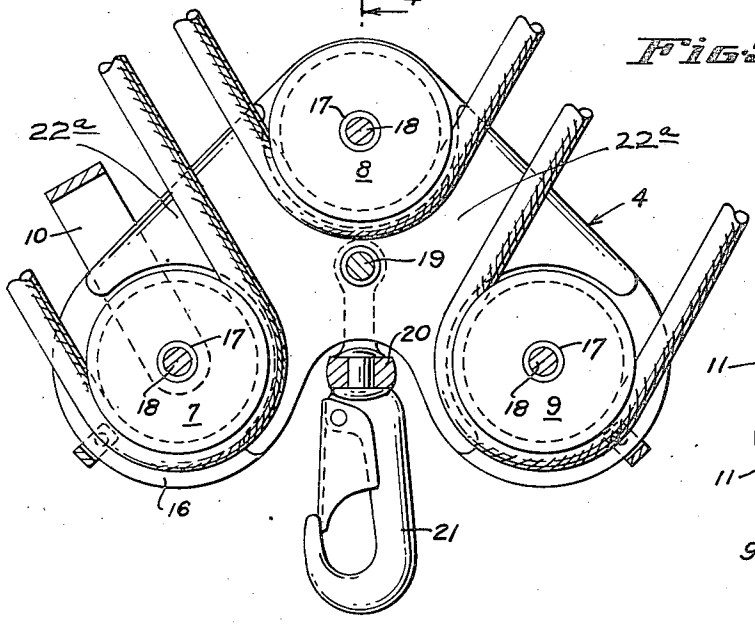
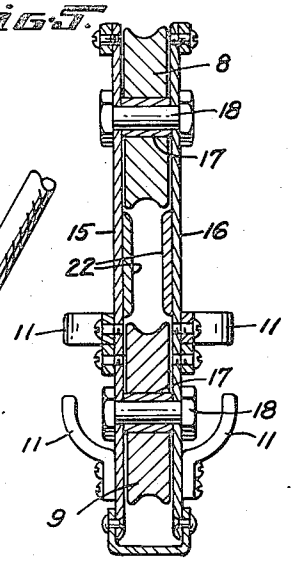


Fig. 5.



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2,312,583

TACKLE

Rox D. Penlon, San Francisco, Calif.

Application December 1, 1941, Serial No. 421,139

8 Claims. (Cl. 227—11)

This invention relates to a block and tackle arrangement whereby an operator may work in perfect safety over the face of a building, a church steeple or other structure difficult of access without the use of a scaffold.

The object of the present invention is to provide a simple form of block and tackle whereby an operator may be suspended in such a manner that it will be possible to move at will both up or down or laterally with relation to a vertical or steeply inclined structure; to provide a saddle which supports an operator in comfort, and which is secured to the operator so that there can be no accidental release or falling out of the same; to provide a tackle which provides a high factor of safety to the operator, and, at the same time, provides sufficient freedom to permit efficient work to be performed; to provide a tackle which is suspended from two spaced points between which the operator can move any direction vertically, angularly and horizontally, and further to provide a tackle which is reversible, so that only one point of suspension need be changed when shifting the tackle longitudinally over an extended surface. The tackle is shown by way of illustration in the accompanying drawings, in which

Fig. 1 is a front view of a building, said view also showing the tackle suspended and in position for an operator to work over the face of the building;

Fig. 2 is an enlarged side view of the triple pulley block;

Fig. 3 is a similar view showing one of the side plates of the triple pulley block removed;

Fig. 4 is a cross section taken on line 4—4 Fig. 2;

Fig. 5 is a similar section taken on line 5—5 Fig. 2.

The tackle forming the subject matter of the present application employs three pulley blocks such as indicated at 2, 3 and 4, a single cable or rope 5, and a saddle generally indicated at 6 for the support of an operator. The blocks 2 and 3 are identical, and each of them contains two pulleys over which the rope 5 is reeved, as will hereinafter be described. The block 4 contains three pulleys indicated at 7, 8 and 9, and also two anchoring members 10 and 11. One end of the rope 5a is permanently attached to the anchor 10, while the other end 5b is detachably secured to an anchor 11.

The rope is reeved over the several pulleys in the following manner. Commencing at the point 5a the rope is extended upwardly and passes over one of the pulleys of block 2, it then extends down and it passes over the pulley 7, then up and over the second pulley in the block 2, then down again and under the pulley 8 in block 4, then up and over one of the pulleys in block 3, then down and over pulley 9 in block 4, then up again and over the second pulley in block 3, and then down to the anchor 11 on block 4 where it is releasably secured, as previously described. The rope is thus reeved over seven pulleys, and as such presents two points of suspension for the block 4, which are indicated at A and B, and each suspension contains four ropes totaling eight ropes from which the operator is suspended. In actual practice a one-half inch manila rope is employed, and when reeved through the locks as here shown will readily support a load of 2000 pounds, and as the average operator together with any tools he may employ will seldom exceed 200 pounds in weight, there is provided a safety factor of at least 10 to 1.

The pulley blocks 2 and 3 are standard double pulley blocks as each contains two pulleys. The block 4, on the other hand, is of special design. It consists of two substantially triangular shaped metal plates 15 and 16 (see Figs. 2 to 5 inclusive) spaced apart by bushings 17, upon which the pulleys 7, 8, and 9 are journaled. The plates of the blocks are secured together by bolts 18, or the like, extending through the bushings, and also by a bolt 19, from which hangs a yoke 20 and a swiveled hook 21. Attached in any suitable manner to the inner faces of the block plates 15 and 16 are filler plates 22. These are only placed in the shaded area indicated at 16 in Fig. 3, and reduce the space between the plates to one-half inch or, in other words, to the diameter of the rope passing over and under the pulleys 7, 8 and 9. This is important, as it prevents the ropes from crossing or passing one over the other at any point between the plates 15 and 16 of block 4, as such crossing of the ropes might cause the block to jam, and thereby prevent a free run or play of the rope through the several pulley blocks.

The anchor member 11 is duplicated on each side of block 4, and so are a pair of hook shaped members 25 to permit block 4 to be reversed, as will hereinafter be described.

In actual operation any suitable support may be provided for the operator. In this instance a saddle is provided, which consists of a pair of sole leather sections 26 which engage the rear sides of the thighs of the operator and function

as seat members. These leather sections are adjustably secured to a belt 27, which surrounds the waist of the operator. This is in turn suspended from the hook 21 by a ring or the like, and the operator is thus suspended from block 4 in a manner whereby it may be said that he is strapped in, yet is permitted all the freedom required for the work in hand.

The operator may raise and lower himself by releasing the rope from the anchor 11, and then hauling in or paying out on the rope as the case may be, and, when reaching the position desired, securely fastening the rope. He may move laterally by walking or pushing his feet against the surface on which he is working, or by pulling on the rope section which passes under the pulley 8. For instance, if he desires to move to the right, he pulls on the rope section indicated at 5c, and if he wants to move towards the left, he pulls on the rope section indicated at 5d, and if he temporarily wants to secure himself in any position to the right or left he may take either of the rope sections 5c or 5d, and hook it over the hook 21.

With this tackle an operator can work over any area between and vertically below the two main points of suspension indicated by the blocks 2 and 3. This surface may be vertical or inclined, such as the face of a building, a tower, a steeple etc. Any type of work may be performed, such as painting, repairing, welding, cutting, inspecting, wrecking etc. Also, where a water tank is supported by an open work frame or tower, one block such as 2 may be secured to one side of the tower, and block 3 to the other side, and the operator may thus be suspended beneath the bottom of the tank to paint or work thereon.

When working on the surface of a building, such as shown in Fig. 1, when the area below and between the blocks 2 and 3 is finished and it becomes necessary to shift, for instance to the right, it will only be necessary to release the block 2 and move it past the block 3 to the next position. In doing so block 4 becomes reversed, and it is for this reason that the attachments to the plates 15 and 16, such as the hooks 25 and the anchor members 11, are duplicated. Reversal of block 4 is permitted during shifting, which eliminates the necessity of releasing more than one block when shifting the tackle, and while this and other features of the invention have been more or less specifically illustrated and described, I wish it understood that changes may be resorted to within the scope of the appended claims, and that the materials and finish of the several parts may be such as the experience of the manufacturer or varying conditions of use may demand.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A tackle of the character described comprising a pair of blocks each containing two pulleys, means for securing said blocks to a support, three connected single pulleys, means for suspending an operator from said connected single pulleys, and a single rope reeved over all of the pulleys and having an end anchored to the connected single pulleys and the other end detachably secured thereto, whereby the operator can move himself vertically and horizontally with relation to the pair of secured pulley blocks.

2. A tackle of the character described comprising a pair of blocks each containing two pulleys, means for securing said blocks to a support, a single rope reeved through said pulleys and suspended therefrom, a support for an operator, and means for suspending said support from the rope in a manner to permit the operator to move himself both verticaly and horizontally with relation to the secured pulley blocks.

3. A tackle of the character described comprising a pair of blocks each containing two pulleys, means for securing said blocks spaced apart to a support, a single rope reeved through said pulleys and depending therefrom, a support for an operator suspended from said depending rope, means for anchoring one end of the rope to the support, means for detachably securing the other end of the rope to the operator's support whereby an operator by hauling or paying out on the detachable end of the rope can move vertically, and means on the support whereby the operator can move horizontally and anchor himself after moving horizontally.

4. A tackle of the character described comprising a pair of blocks each containing two pulleys, means for suspending said blocks from a support, three connected single pulleys, means for suspending an operator from said connected single pulleys, and a single rope reeved over all of the pulleys and having an end anchored to the connected single pulleys and the other end detachably secured thereto, and a support for an operator suspended from the connected single pulleys.

5. A tackle of the character described comprising a pair of blocks each containing two pulleys, means for suspending said blocks from a support, a block containing an upper and a pair of spaced pulleys below the same, a single rope anchored to said block and reeved over all the pulleys in the several blocks to suspend the last named block from the first named pair of blocks in a manner to permit the last named block to be raised or lowered with relation to the pair of blocks by hauling in or paying out on the other end of the rope, means for detachably securing the free end of the rope to the last named block and when so secured leaving said block free to move longitudinally on the rope between the pair of blocks, and an operator's support suspended from the last named block, and means on said block for securing it against longitudinal movement on the rope.

6. In a tackle of the character described a pulley block comprising a pair of spaced apart plates, an upper pulley, a pair of pulleys disposed below the same and spaced apart all of said pulleys being journalled between the plates, a permanent anchor attached to the plates to receive one end of a rope, a pair of anchors one on each plate to releasably anchor the other end of the rope, and a pair of downwardly directed hooks one on each plate and adjacent the upper pulley to receive and secure a portion of the rope passing under the upper pulley.

7. In a tackle of the character described a pulley block comprising a pair of spaced apart plates, an upper pulley, a pair of pulleys disposed below the same and spaced apart all of said pulleys being journalled between the plates, a permanent anchor attached to the plates to receive one end of a rope, a pair of anchors one on each plate to releasably anchor the other end of the rope, and a pair of downwardly directed hooks one on each plate and adjacent the upper pulley to receive and secure a portion of the rope passing under the upper pulley, and filler plates disposed between the first named plates to reduce the space between the first named plates

to the diameter of the rope passing over and under the pulleys.

8. In a tackle of the character described a pulley block comprising a pair of spaced apart plates, an upper pulley, a pair of pulleys disposed below the same and spaced apart all of said pulleys being journalled between the plates, a permanent anchor attached to the plates to receive one end of a rope, a pair of anchors one on each plate to releasably anchor the other end of the rope, and a pair of downwardly directed hooks one on each plate and adjacent the upper pulley to receive and secure a portion of the rope passing under the upper pulley, and filler plates disposed between the first named plates to reduce the space between the first named plates to the diameter of the rope passing over and under the pulleys, and suspension means depending from the first named plates.

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