

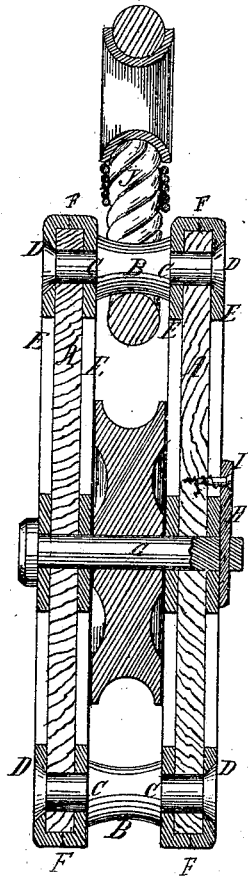
*J. W. Norcross,*

*Pulley Block.*

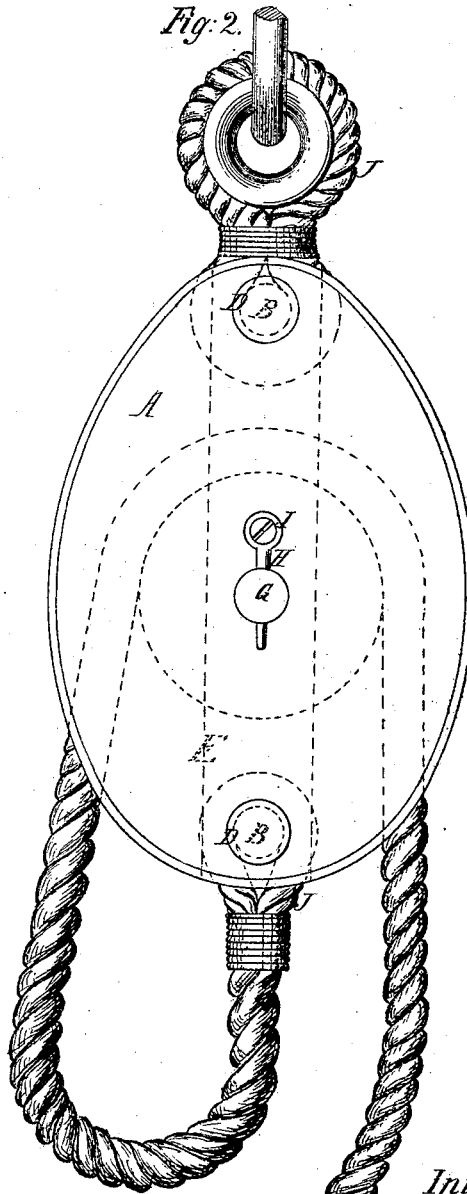
*No. 113688.*

*Patented Apr. 11, 1871.*

*Fig. 1.*



*Fig. 2.*



*Witnesses:*  
*L. Mahler*  
*E. F. Kastenhuber*

*Inventor:*  
*Jos. W. Norcross*  
*per*  
*Wm. S. Senterford & May*  
*1871*

# United States Patent Office.

JOSEPH W. NORCROSS, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 113,688, dated April, 11, 1871.

## IMPROVEMENT IN PULLEY-BLOCKS.

The Schedule referred to in these Letters Patent and making part of the same.

### *To all whom it may concern :*

Be it known that I, JOSEPH W. NORCROSS, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Pulley-Blocks; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a longitudinal cross-section of my invention.

Figure 2 is a plan view of my invention where the metal frame is confined to the inside faces of the cheeks of the pulley-block.

Similar letters indicate corresponding parts:

This invention relates to pulley-blocks; and

The invention consists of several features, as herein explained and described.

The letter A designates the cheeks of the pulley-block, which, in this example, are made of wood, the grain being crosswise to the strain to preserve the edges of the cheeks from being split off or readily worn away; but my invention can be used with cheeks of metal or any material.

The cheeks A are held together by double-headed metal pins B, one or more at each end, said pins being formed with shoulders C C, which come next to the inner faces of the cheeks so as to keep them the proper distance apart, the heads D of the pins coming on the exterior of the cheeks and keeping them from being forced asunder.

I form the pins B and connect them with the block by placing a metal or other mold between the several cheeks and partitions which compose the pulley-block, and screwing or otherwise securing the cheeks and partitions and mold or molds firmly together.

The molds are so formed as to have spaces at the proper places for the formation of the pins, with their heads and shoulders D C opposite suitable openings in the cheeks and partitions of the blocks; and when the molds are properly placed I pour in molten metal to fill the spaces, and form the pins B and their heads and shoulders.

By this construction I secure and adjust the cheeks or sides of pulley-blocks, and also the partitions where the block is double or treble, so as to avoid the defects and disadvantages that arise from the common method of connecting the cheeks and partitions by rivets, among which defects are their want of firmness, and the difficulty of making the sides true and even, so that the sheaves will revolve true.

My invention obviates these difficulties, and the parts of the block are held firm and true in the position when the metal is poured in to form the connecting-pins B.

If it is desirable to give additional strength to the connection above what is obtained from the pins, I can place rivets or bolts in the spaces where the pins are to be formed and cast the pins around them so as to combine them together.

Another part of my invention consists in combining with the cheeks and partitions of a pulley-block a metal frame arranged lengthwise of the block in such a manner as to receive the pins B or other devices which connect the cheeks to each other, and form bearings for the journals of the sheaves, and sustain the strain to which the block is subjected, and which strain, owing to the way the grain of the wood is arranged, crosswise of the block, would be likely to break the wood.

The supporting-frame may be single or double, as preferred, and I have shown an example of a single frame in fig. 2 and of a double frame in fig. 1.

The letter E designates the frame.

In fig. 2 I have placed the frame E along the inside face of the cheeks of the block, sinking it in a groove so as to make it flush with the surface of the cheek.

Each cheek has a like frame, E, and the frames are secured to the cheeks by means of the pins B, above mentioned, holes being made in the frames for the pins B and for the journals of the sheaves.

In fig. 1 the frame E is double—that is to say, a frame is placed on the outside as well as the inside of the cheeks, and the ends of the frames project beyond the ends of the cheeks and meet at F, where they protect the ends of the block.

The holes in the outer frame E which receive the pins B are countersunk to receive the heads D of the pins, so that the said heads will come flush with the face of the frame.

The axis G of the sheave is keyed to the block by a key, H, which is secured to the block by a screw inserted through an eye, I, formed therein at one end, so that the axis is held stationary, and is also securely locked to the block.

By taking out the screw and withdrawing the key I can turn the axis half round in the block and again secure it as before, thereby presenting an unworn surface to the action of the sheave when one side of the axis is worn down or flattened by use.

The pins B that hold the block together form seats for holding the beckets of the block.

The beckets J, at either end of this block, I make

of rope or of wire. In this example I have shown buckets made of rope and formed around the pins B.

What I claim as new, and desire to secure by Letters Patent, is—

1. The strengthening-frame E, when secured together by means of the cast connecting-pins B, having external heads C and inner shoulders D, and constructed substantially in the manner herein shown and described.

2. The key H, formed with an eye, I, when combined and operating with the axis G of a sheave which rotates freely on its axis, substantially as herein shown and described.

J. W. NORCROSS.

Witnesses:

C. WAHLERS,

E. F. KASTENHUBER.