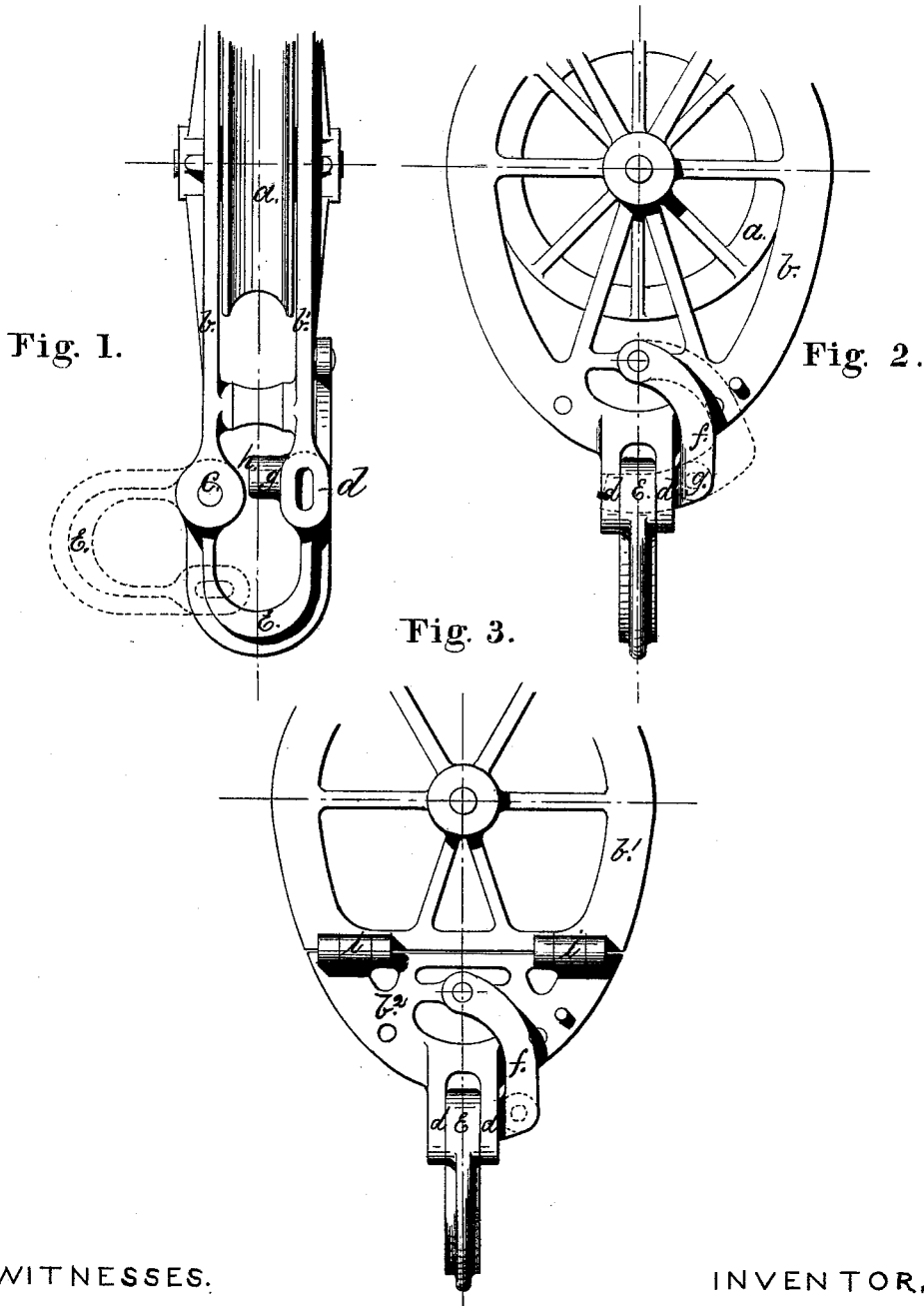


J. W. NORCROSS.
TACKLE-BLOCK.

No. 189,773.

Patented April 17, 1877.



WITNESSES.

R. M. Eaton
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 by Joseph A. Miller
 Attorney

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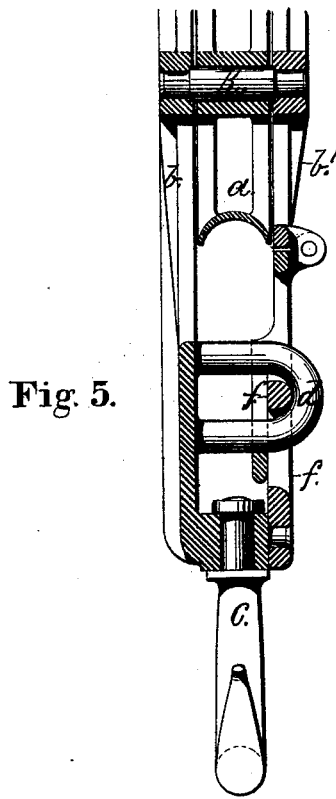


Fig. 5.

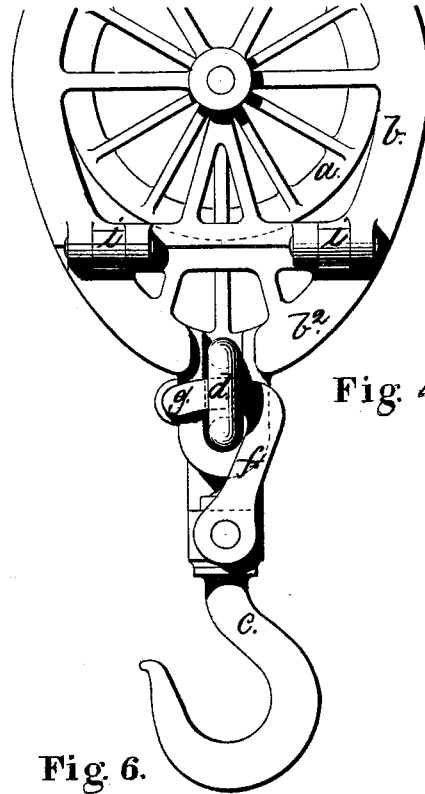
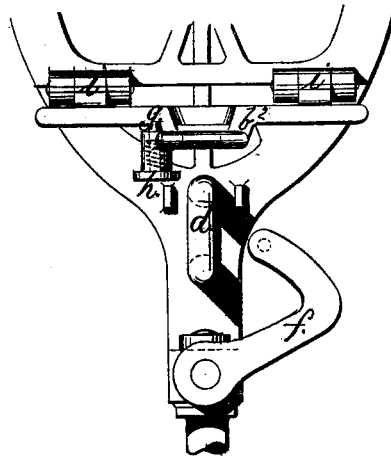


Fig. 4.

Fig. 6.



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C. P. Langworthy

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Attorney

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Fig. 7.

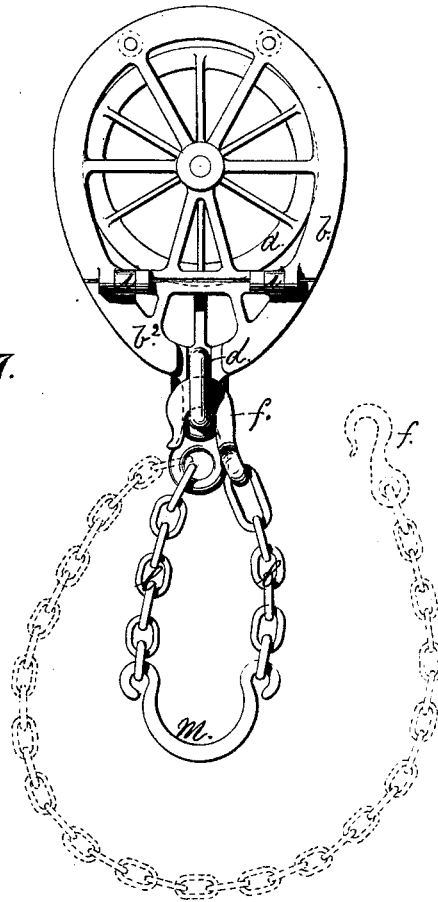
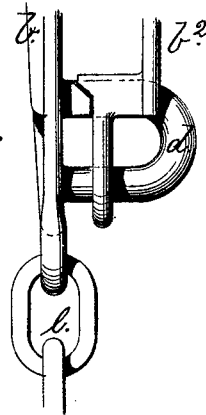


Fig. 8.



WITNESSES.

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L. P. Langworthy

INVENTOR.

Joseph W. Norcross
 by *Joseph A. Miller*
 Attorney.

UNITED STATES PATENT OFFICE.

JOSEPH W. NORCROSS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN TACKLE-BLOCKS.

Specification forming part of Letters Patent No. **189,773**, dated April 17, 1877; application filed December 9, 1876.

To all whom it may concern:

Be it known that I, JOSEPH W. NORCROSS, of the city of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Tackle-Blocks; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention has reference to improvements applicable to cast-metal tackle-blocks. The different means by which the same is carried out are shown in the annexed drawings.

Figure 1 is an end view of part of a tackle-block, showing the hinged loop secured to both sides of the block-frame in solid lines, and also when open in broken lines. Fig. 2 is a side view of part of the block, showing the latch by which the hinged loop is secured. Fig. 3 shows the application of the hinged loop to snatch-blocks provided with a hinged portion of one of the side frames, so that a loop or rope can be passed in the block and over the sheave. Fig. 4 is a side view of a metal-frame tackle-block, provided with a swiveled hook, and arranged to be used as a snatch-block. Fig. 5 is a section of the same. Fig. 6 is a view of the same, showing the hinged piece of the side frame raised. Fig. 7 is a side view of a snatch-block, to one side of which a chain is connected, and arranged so that the hook on the other end of the chain will lock the hinged portion of the side frame and secure the block. Fig. 8 is an enlarged end view of the locking device, showing the beveled studs secured to each side of the frame.

In the drawings only single blocks are shown; but double, triple, or any other kind of block may be arranged the same as the single blocks, so that the strain will be equally distributed, and the block may be connected and disconnected by the same means as herein described.

The object of the invention is to secure the loop, hook, or other fastening by which a tackle-block is suspended or secured, so that

the block may be readily connected or disconnected, and that the strain, when in use, may be fairly on the two sides of the block-frame.

The invention consists in the arrangement of a hinged loop secured to one side of the block-frame, and arranged to enter when closed into a slotted projection on the other side, in which it is secured by a hinged locking-hook, which, when in place, is secured by a spring-bolt. This arrangement is applicable to a permanent as well as to a snatch block, as will be seen by reference to Fig. 3.

In cast-metal blocks, and particularly in such in which the block-frames are made so as to combine great strength with lightness, it becomes important that the strain exerted on the frame should be equally distributed over both sides of the block-frame.

It is also important that a tackle-block should be arranged to be instantaneously connected or disconnected. With the open hook the connection is not sufficiently secure, and when secured by rope or strap it requires too much time to disengage the block.

The arrangement shown in Figs. 1, 2, and 3 permanently secures the hinged loop by the locking-hook, and this hook to be instantaneously disengaged is held by a spring-bolt, so that all the parts are firmly secured to the tackle-block. They do not interfere with the free working of the block, and cannot be lost. The block can be quickly secured or released, and is nearly self-fastening.

In the drawings, *a* represents the block-sheave. *b* and *b'* are the side frames. In Figs. 1, 2, and 3, *c* is the hinge, in which the hinged loop *E* is hinged. *d d* is the slotted projection, into which the loop *E* enters. *f* is the hinged locking hook or bolt, which, passing through suitable holes, both in *d d* and *E*, secures the loop *E* to the side of the block-frame. This locking-hook is permanently secured to the side of the block-frame, and may be held in place, when locked, by various means; but I prefer the spring-pressed bolt *g* provided with the cap *h*, which is arranged so that when the locking hook or bolt *f* is entered the spring-pressed bolt *g* will enter a hole in the locking-hook, and so hold the same in position.

It will be observed that the bent loop E may be readily passed into a chain-link or around a rope, and the block permanently suspended and also readily disconnected.

All strain exerted on the block will be fairly on each of the two side frames, and be equally distributed.

When a snatch-block is desired, a portion of the block-frame above the sheave is secured by hinges, as shown in Fig. 3, in which b^2 is the hinged portion, and i i the hinges. By withdrawing the locking-hook f this portion of the side frame may be raised and the rope inserted at any part without first inserting the end of the rope.

Figs. 4, 5, and 6 show the application of the same invention to a swivel-block, and in these a is the sheave. b and b^1 are the side frames. b^2 is the hinged portion of the side frame. c is the swiveled hook. d is the locking-staple. f is the locking-hook. g is the spring-pressed locking-bolt, and h the cap of the locking-bolt, and i i are the hinges.

The operations are the same as in the other block before described.

When a double swivel or link-swivel is desired, the staple d is replaced by a pin secured to the upper part of the neck-piece, and arranged to pass through a hole in the two side frames, and when the locking-bolt is passed through a slot in the pin the whole is firmly secured, and a double swivel or link-swivel operating with reference to the hinged piece of the side frame and the direct strain on the two side frames exactly like the two blocks described.

In a snatch-block one of the side frames can only be secured below the sheave, so as to allow the loop of a rope to be placed on the sheave. When, now, a log or other weight is placed on the block the side frame is liable to be forced against the sheave. To strengthen the block and prevent the binding on the sheave, I provide the axle with shoulders where it enters the side frame, as shown in Fig. 5, in which K is the axle. By this arrangement the side frames cannot be forced down against the sheave, and the same may at all times rotate freely.

Snatch-blocks used on farms or in the woods require to be arranged so that the block can

be readily secured to a tree, or the limb of a tree. Such a block is shown in Figs. 7 and 8, in which a is the sheave; b and b^1 , the side frames; b^2 , the hinged portion; d , the staple; f , the locking-hook; l l , the chain; and m , a yoke.

The chain is secured to an eye on one side of the frame, to which side also the staple d is secured. The hinged portion passes over the staple, and when the hook f is inserted in the staple the block is firmly secured, the strain is exerted on both the side frames, and the block may be readily connected and disconnected.

The yoke m being more than half a circle will support the block when the hook f is disengaged. A plain chain, such as is shown in broken lines, may be used in place of the chain and yoke, and in either case a cheap and convenient fastening device secured.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a cast-metal block, of the hinged loop E, arranged to be secured to both sides of the block-frame, substantially as and for the purpose described.

2. The combination, with a cast-metal block-frame, of the hinged loop E and locking-hook f , substantially as and for the purpose specified.

3. In a cast-metal block, the combination, with the locking hook or bolt, of the spring-pressed bolt g , substantially as and for the purpose set forth.

4. In a cast-metal snatch-block, the axle K, provided with shoulders, and arranged to support the cast-metal sides, substantially as and for the purpose described.

5. A cast-metal snatch-block, in which one of the side frames is provided with an eye and a staple, and the other with a hinged portion arranged to be locked by a hook, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have affixed my signature in presence of two witnesses.

JOSEPH W. NORCROSS.

Witnesses:

JOSEPH A. MILLER,
JOSEPH A. MILLER, Jr.