J. S. HALL.

PULLEY BLOCK.

APPLICATION FILED DEC. 7, 1914.

1,167,295.

Patented Jan. 4, 1916.

Fig. 1.

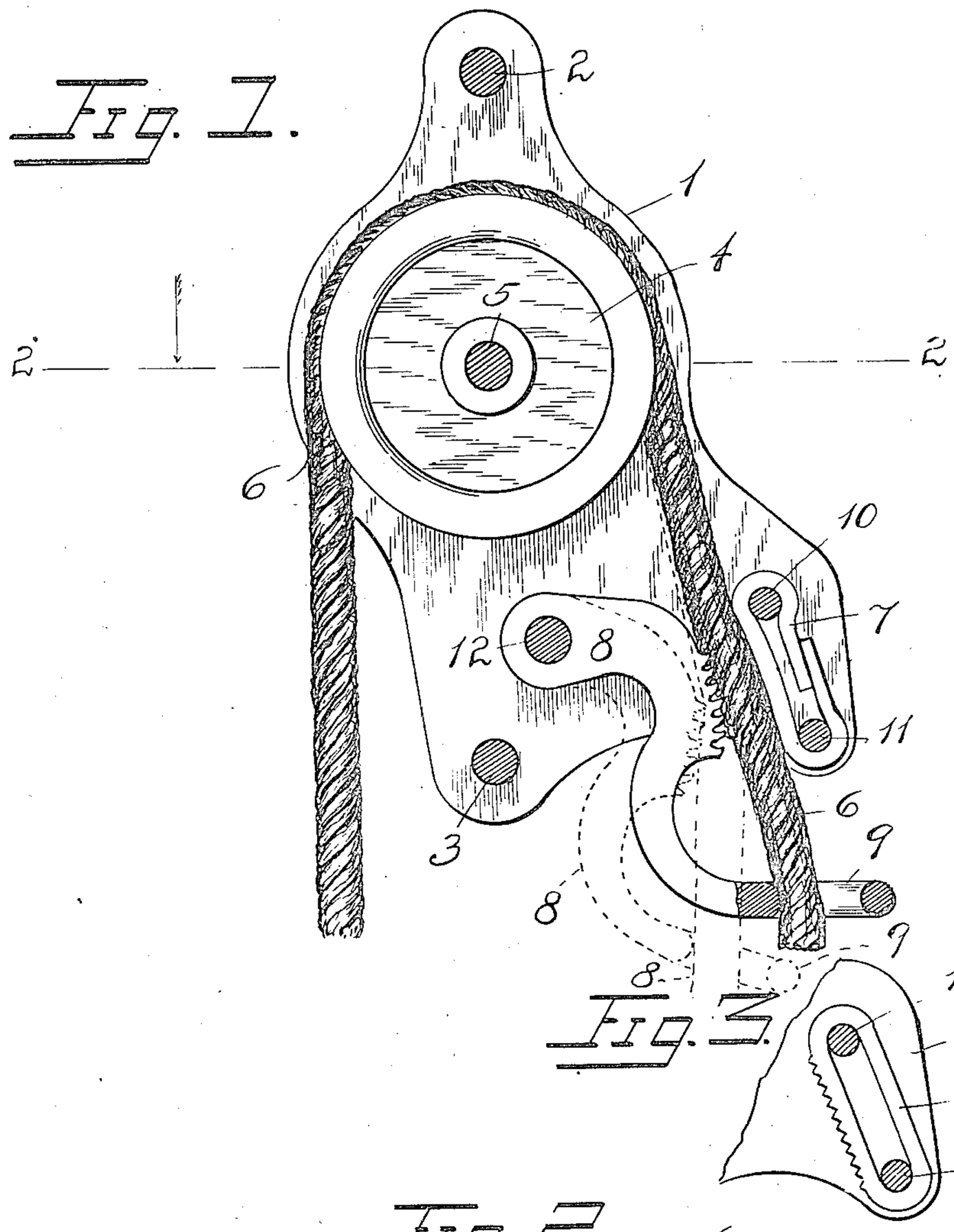
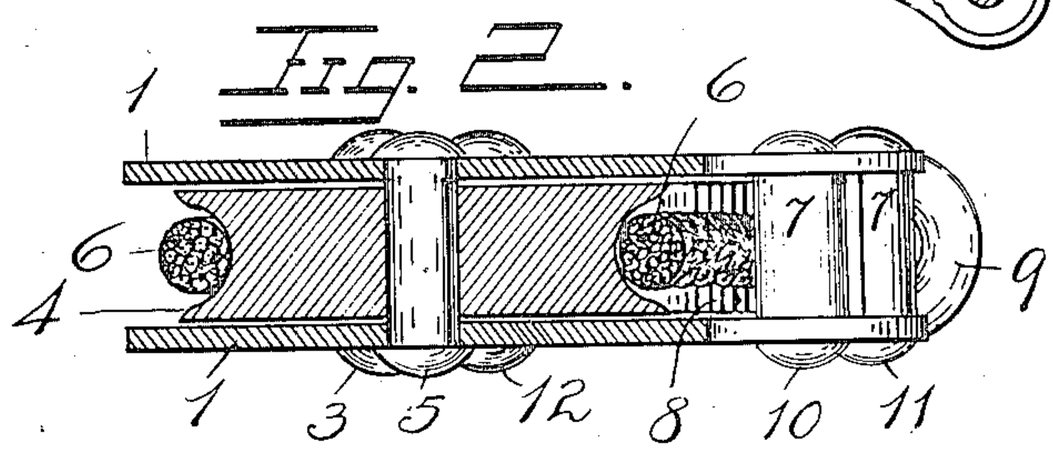


Fig. 2.



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PULLEY-BLOCK.

1,167,295. Specification of Letters Patent. Patented Jan. 4, 1916.

Continuation of application Serial No. 835,806, filed May 2, 1914. This application filed December 7, 1914. Serial No. 875,952.

To all whom it may concern:

Be it known that I, JOHN SMITH HALL, a citizen of the United States, and a resident of Monticello, in the county of Jones and State of Iowa, have invented a new and useful Pulley-Block, of which the following is a specification.

My invention relates to pulleys of the self-locking type, in which a rope, cord or chain is automatically caught and firmly held, and which may be instantly released by a slight movement of the slack end of the rope either toward or from the pulley-block.

This application is filed in lieu and in continuation of my application Serial Number 835,806, filed May 2, 1914, which I have abandoned, without, of course, abandoning the invention described and claimed therein and which is hereby and herein reserved and covered.

The principal object of the invention is to provide co-acting locking means which will effectively grip or bind ropes or cords, or even chains, without the inclusion of adjustable elements, which latter have been found objectionable, because they are relatively expensive of construction, weak, prone to disorder and disarrangement, frequently inoperative, and further because it is often difficult for a novice to effect the proper adjustment. In this connection it may be said to be another object to attain the locking result in a more facile, economical and efficient manner than heretofore.

A still further object, and withal a principal one, is to provide a novel non-adjustable locking-shoe which by reason of its peculiar coaction with the locking-dog adapts itself to various conditions, such as larger, smaller, or worn ropes or cords, and even to chains.

A still further object is to provide a novel locking-dog or lever which is unitary or integral, which does not require assembling, and which is of unique construction.

Another object of the invention is to provide a durable, simple and reliable device, which is economic of construction, for accomplishing the purpose set forth.

Concisely stated, the main object of the invention is to generally simplify and improve the construction of devices of this character, and to increase their utility, efficiency, and ease of operation.

In the accompanying drawings, which illustrate both a preferred and a modified type of my improvements: Figure 1 is a plan view of a preferred form of a pulley-block embodying my improvements, the latter shown as constructed in the best form now known to me; Fig. 2, a vertical sectional view taken substantially in the plane of the line 2—2 in Fig. 1 and seen as though looking down; and Fig. 3, a modified detail of the locking-shoe.

Considering said drawings in detail, and referring to each element thereof by a distinguishing numeral, 1—1 designates a shell or containing portion composed of two side plates preferably of identical shape and of any desired material, conforming in a general way to the shape of the parts when attached thereto and having at its upper and lower ends perforations purposed to receive rivets, pins or bolts, 2 and 3 respectively, these being adapted to join the two plates and hold them in spaced relation to each other. On the rivet 2 may be secured a sing or hook for suspending the block.

A grooved pulley 4 is rotatively attached to the shell by means of a rivet 5 or the like, and over said pulley the usual hoisting rope 6 is carried and its loose or slack end is passed between the lock-shoe 7 and the dog 8 and threaded through the eye 9 on the lower end of said dog.

The loop-like skeleton shoe 7 secured opposite the serrated face of the dog is curvilinear-oblong or elliptical in outline and is provided with a selectively straight or concave, smooth or serrated face, but is preferably constructed as shown in Fig. 1, where it is shown as secured within said shell by rivets 10 and 11, both of which it embraces. The shoe 7 is merely dropped into place over said rivets and is therefore not rigidly, but loosely held thereon, it being movable relatively thereto and therefore adjustable without the provision of additional means for adjusting it or for holding it in adjusted position. Said shoe is preferably formed of a thin strip of slightly resilient metal folded upon itself to loop over said rivets and its ends overlapped, as shown in Fig. 1. This construction provides for the

easy renewal of the lock-shoe should it become badly worn, through long usage, or should it be broken.

The locking-dog 8, designed to engage the hoisting rope and force it against the shoe 7 is ogee or substantially S-shaped and has a convex or eccentrically formed and serrated face disposed opposite said shoe, and has an integral eye or ring 9 horizontally positioned at its lower end. Said dog is pivotally mounted between the two plates forming the shell by means of a rivet or the like, 12, which rivet passes through a suitable aperture provided at the upper end of the dog and through both of said plates. This placement of the dog relative to the shoe is such that when a rope, cord, or chain is interposed between their proximal faces and threaded through the eye 9, reaching thence down to the hand of the operator, a slight movement of the hand to pull said cord outward or inward respectively engages or disengages the cord. It will be evident that the concaved contact portion of the thin metallic strip comprising the shoe 7 will yield if sufficient pressure be brought to bear thereagainst, but that nevertheless it will resist such pressure. Thus it will accommodate itself for coöperation with the dog 8 in order to securely grip or bind cords or chains differing materially in their sizes. It will be further evident that no adjustment of said shoe is required in order to effect that result; that the shoe and the dog are made each of a single piece of metal and that it is therefore practically impossible for either to become disordered or inoperative; that it can be operated by a novice; that the device is more economic of manufacture than those which have preceded it, and that it is more efficient in operation than prior devices of similar character.

Another feature to be particularly noted is that the convex portion of the dog 8 will force the cord 6 into the concave face of the shoe 7. Owing to the corresponding curvatures of the coacting binding portions the friction will be greater than if the corresponding face of the shoe were straight or plane, and much greater than if it were opposite in curvature, and that the cord will be locked much more securely than if a shoe having either of the latter character of faces is used.

In Fig. 3 I have illustrated a modified shoe, 7′, which is in outline a continuous loop having one serrated and one straight or plane face, this shoe being reversible.

Without limiting myself to particularities except in such places as they are definitely included, I claim as new and as my invention the following, to-wit:

1. In a pulley-block, a frame, a sheave mounted therein and adapted to be traversed by a cord, a resilient lock-shoe secured within the frame, and a locking-dog for forcing said cord against said shoe.

2. In a pulley-block, a frame, a sheave mounted therein and adapted to be traversed by a cord, a skeleton, loop-like lock-shoe within the frame, and a locking-dog for forcing the cord against the shoe.

3. In a pulley-block, a frame, a sheave mounted therein, a skeleton, loop-like lock-shoe secured within the frame, and an ogee-shaped locking-dog having at its lower end an eye through which an actuating cord passes, one of its convex portions adapted to force said cord against said shoe.

4. In a pulley-block, a frame, a sheave mounted therein and adapted to be traversed by a cord, a locking-dog pivoted in the frame, and a skeleton lock-shoe one portion of which is adapted to be forced out of normal position when the locking dog is forced against the cord to force the latter against the shoe, the other portions of said shoe remaining in normal position.

5. In a pulley-block, a frame, a sheave mounted therein, a loop-like lock shoe arranged in the frame, and a locking-dog for forcing a cord against said shoe.

6. In a pulley-block, a frame, a sheave mounted therein, a lock-shoe loosely but non-adjustably secured within the frame, and means for forcing a cord against said shoe.

7. In a pulley-block, a frame, a lock-shoe held within the frame and made of thin and relatively wide metal, such as strap iron, and a locking-dog for forcing a cord against said shoe.

8. In a pulley-block, a frame, a lock-shoe held loosely within the frame and made of thin and relatively wide metal, such as strap iron, and a locking-dog for forcing a cord against said shoe.

9. In a pulley-block, a frame, a sheave rotatable therein, rivets arranged and held in the frame, a lock-shoe loosely and movably mounted on and surrounding said rivets, and a locking-dog adapted to force a cord against said shoe.

In testimony whereof I hereto subscribe my name.

JOHN SMITH HALL.

Witnesses:
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