

No. 756,746.

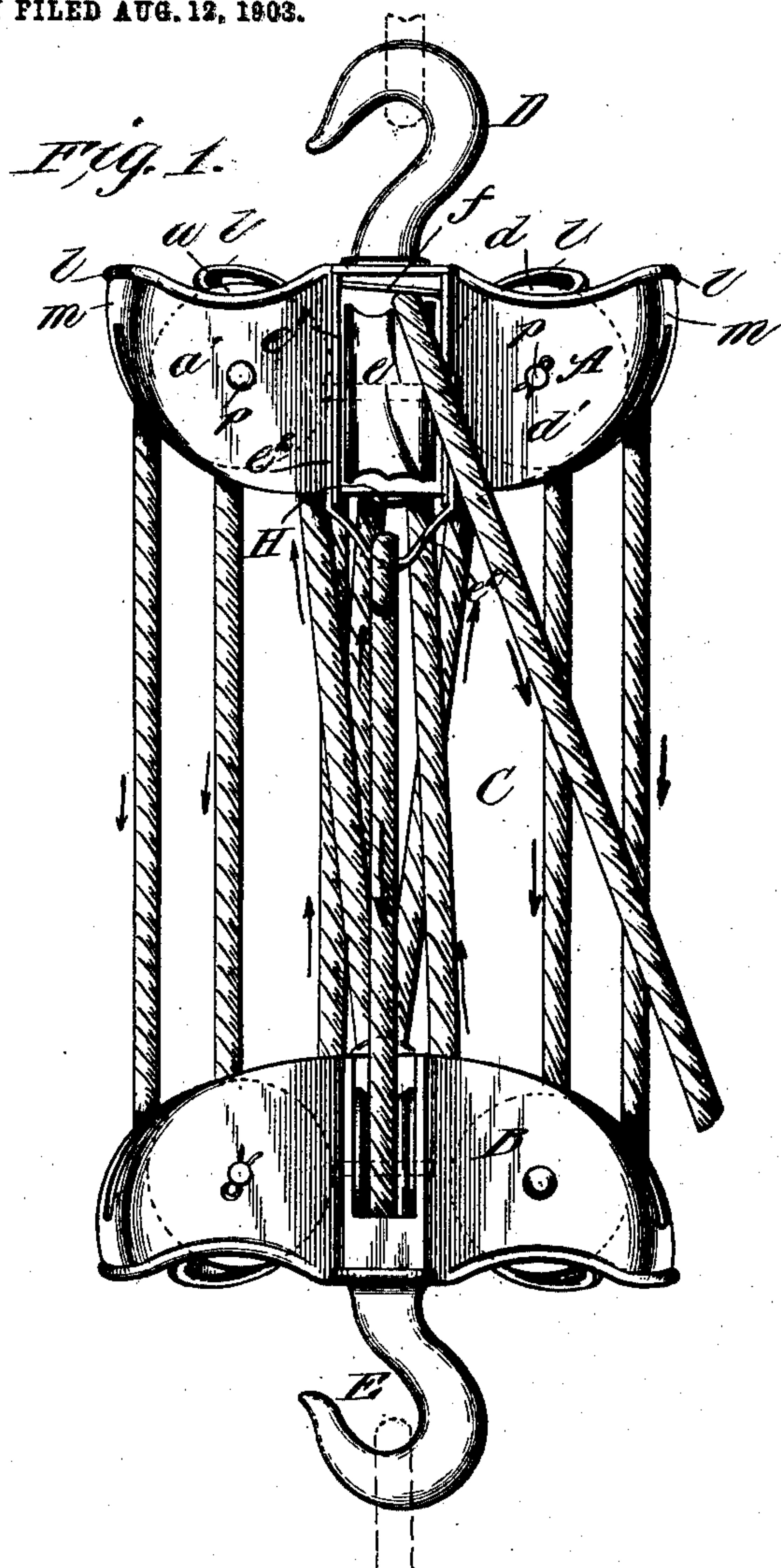
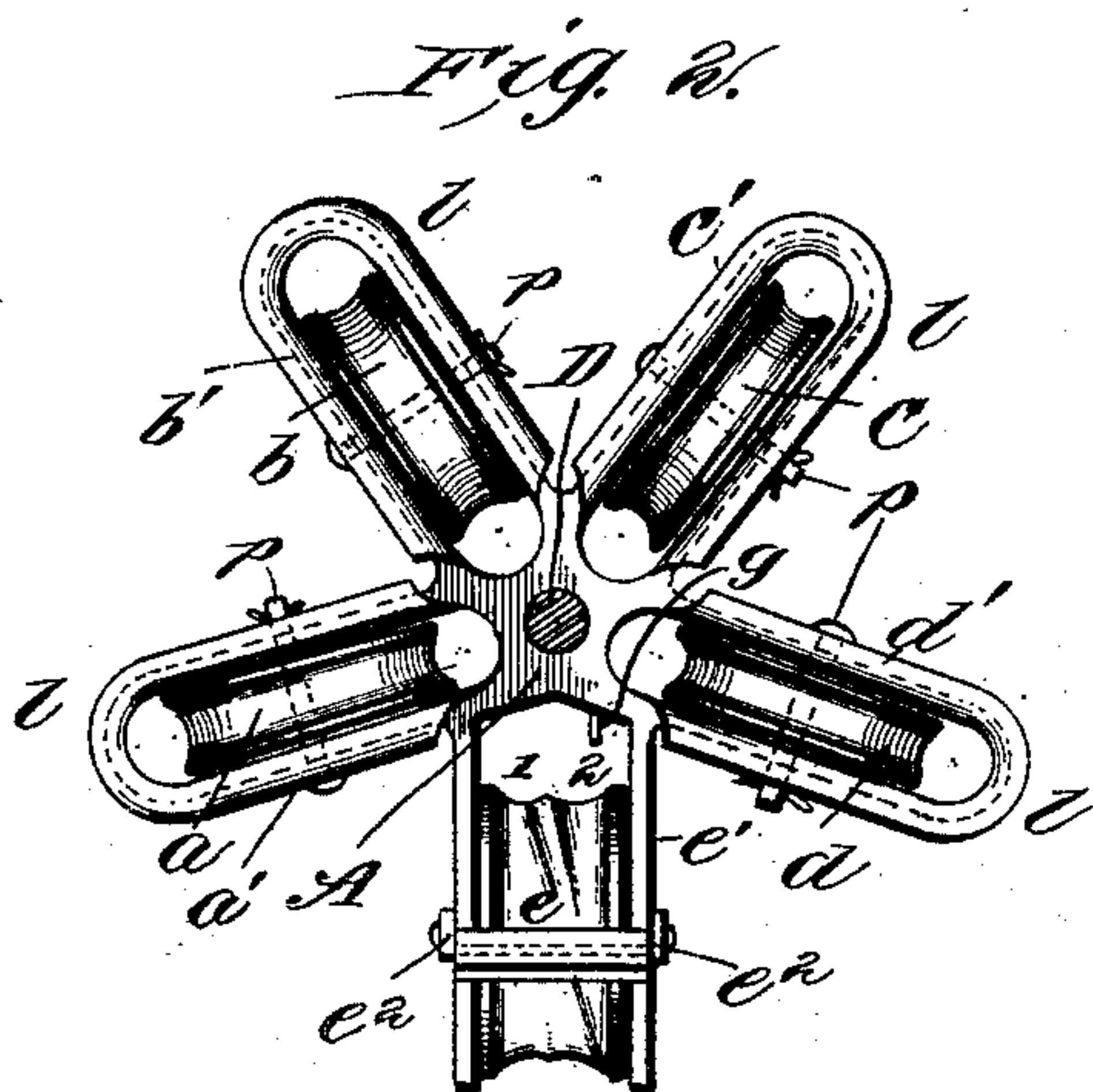
PATENTED APR. 5, 1904.

J. O. WALTON.

BLOCK AND TACKLE.

APPLICATION FILED AUG. 12, 1903.

NO MODEL.



2000 lbs.

WITNESSES:

Fred. D. Binders
Edw. W. Byers

INVENTOR

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UNITED STATES PATENT OFFICE.

JOSEPH O. WALTON, OF BOSTON, MASSACHUSETTS.

BLOCK AND TACKLE.

SPECIFICATION forming part of Letters Patent No. 756,746, dated April 5, 1904.

Application filed August 12, 1903. Serial No. 169,231. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH O. WALTON, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Block and Tackle, of which the following is a specification.

My invention is in the nature of a novel block and tackle designed to provide a very compact construction of great power in which the blocks may be conveniently formed by casting and in which the various runs of the rope are sufficiently separated to avoid rubbing against each other, thereby reducing friction and increasing the efficiency of the device.

It consists in the novel construction and arrangement of the block and tackle, which I will now proceed to describe, with reference to the drawings, in which—

Figure 1 is a side elevation of the block and tackle, and Fig. 2 a top plan view of the upper block.

In the drawings, A and B are the two blocks, which are substantially alike, and C is the rope, which is roved around the sheaves to form the complete block and tackle. The upper block has a central hook D, by which the block and tackle is suspended from any overhead point, and the lower block has a similar hook E, by which the weight is suspended.

The upper block is cast in one piece of steel or other metal, with a central hub portion and any number of pairs of radially-projecting wings $a' b' c' d' e'$, arranged at substantially equal angles to each other. As shown, they are five in number; but they may be greater or less in number. Each pair of wings a' to d' is united at the outer ends at m to strengthen and brace them, and said wings are formed on their upper edges with curved and outturned lips l , extending all the way around the sheave-cell, so that the rope cannot chafe and wear against any sharp edges at the upper edges of the wings. These lips also stiffen and brace the wings against lateral strain.

Within the cell formed by each pair of wings is arranged a vertical sheave, as shown at $a b c d e$, journaled upon horizontal axial pins p , secured in the two wings of each pair.

The central hub portion of the block is formed with a vertical hole, through which passes the shank of the suspending-hook D, the lower end of this hook being formed with a broad and strong head or enlargement H beneath the block to carry the strain of the weight lifted.

The rope C is secured at one end permanently to a becket or loop e^2 , secured to one of the pairs of wings, and thence runs down to the outer edge of the first sheave of the lower block B, thence under the same to the inner side, thence up to the inner side of the first sheave a of the upper block, thence over to the outer side of said sheave and down to the outer side of the corresponding sheave of the lower block, and so on to the last sheave e , so that the rope finally passes over the sheave e from the interior out over the top of the same to the hand of the operator.

The last sheave e is preferably made wider than the others, and the wings are correspondingly spaced apart to accommodate this increase, and said sheave is preferably constructed with a cramping-face and a cross bar or roller f above it in accordance with my Patent No. 668,594, granted February 19, 1901. This allows the rope to be clamped and held by the sheave e by simply swinging the rope to the right and allowing it to run back until it binds above the sheave against one of its cam-faces, thus making it self-locking.

To prevent the rope from getting hung on the cramping-face when the block is being manipulated without any weight on it, a guard g is attached to or formed on the hub of the block and projects toward the cam-face of the sheave e , so that the run of the rope from the sheave e down to the corresponding lower sheave will be held over to the left-hand side of Fig. 2, whereby the rope on this inner side of the sheave will be held in the free-running groove 1 of the cramping-sheave and cannot get onto the cramping cam-face 2 until it gets to the top of the sheave.

I prefer to use the block with a cramping and self-locking sheave e ; but I do not confine my invention to this combination, as the block and tackle may have plain grooved pulleys altogether without any self-locking feature.

The lower block B is made exactly like the upper block, except that the said lower block has no cramping-sheave and its wings forming the sheave-cells are all alike.

- 5 In defining my invention with greater clearness I would state that I am aware that pulleys have been arranged radially in a metal frame to receive the suspending-chains of a hanging lamp, a bird-cage, and the like, and
 10 I make no claim to this. I am not aware, however, that a block and tackle has been devised in which an upper and lower block have both been provided with radially-arranged sheaves combined with a tackle-rope roved alternately
 15 from a sheave of the upper block to a sheave of the lower block, so as to form a symmetrical tackle clustering around a vertical center, whereby a large and practically unlimited number of sheaves may be employed without
 20 interference between the various runs of the rope, thus giving great power and efficiency for hoisting heavy weights by manpower and without the use of a steam-drum or other power appliance.
- 25 It will be understood that in referring to the "tackle-rope" C, I mean to include as its equivalent a chain or any other flexible connection.

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

1. A block and tackle comprising two blocks each having a series of radially-arranged sheaves, combined with a rope roved alternately through the sheaves of the oppositely-
 35 arranged blocks substantially as described.
2. A block and tackle comprising two metal blocks each formed in a single piece with radially-arranged sheaves and a central hub por-

tion provided with a suspending-hook, and
 40 combined with a rope roved alternately through the sheaves of the oppositely-arranged blocks substantially as described.

3. A block and tackle comprising two metal blocks, each formed in a single piece with radially-arranged sheave-cells and sheaves, one
 45 of said blocks having a sheave-cell wider than the others and having a cross-bar across the top and provided with a cramping-sheave, combined with a rope roved alternately through
 50 the sheaves of the oppositely-arranged blocks and emerging above the cramping-sheave and between it and the cross-bar above it substantially as described.

4. A tackle-block made in one piece of metal
 55 with radial wings arranged in pairs, said wings being formed with outturned lips along their upper edges, and sheaves journaled between the wings of each pair substantially as described.
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5. A tackle-block made in one piece of metal with radial wings united in pairs at their outer ends and formed with outturned lips along their upper edges, and sheaves journaled between the wings of each pair substantially as
 65 described.

6. A tackle-block made in one piece of metal with a central perforated hub and with radial wings united in pairs at their outer ends and formed with outturned lips along their upper
 70 edges, a suspending-hook arranged in the central hub and sheaves journaled between the wings of each pair substantially as described.

JOSEPH O. WALTON.

Witnesses:

EDWD. W. BYRN,
 SOLON C. KEMON.