J. W. NORCROSS.

TACKLE-BLOCK.

No. 189,774. Patented April 17, 1877.

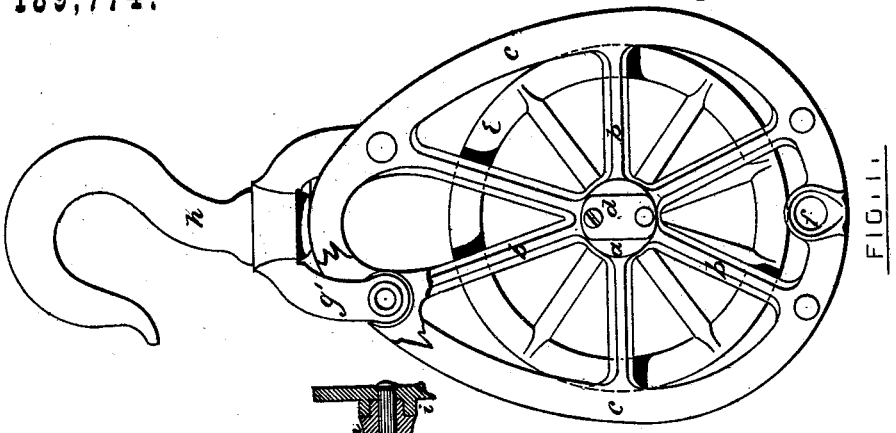

FIG. 1.

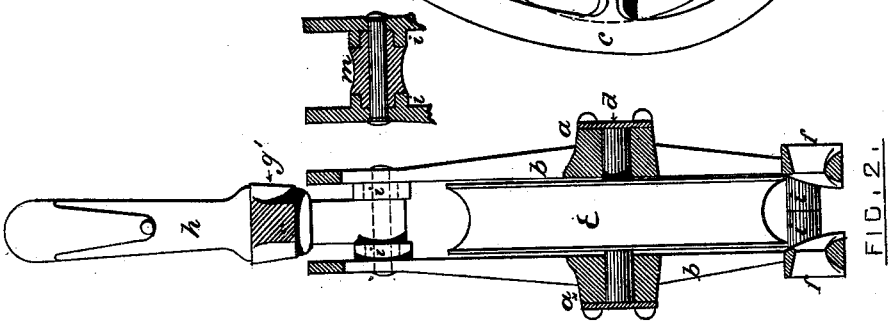

FIG. 2.

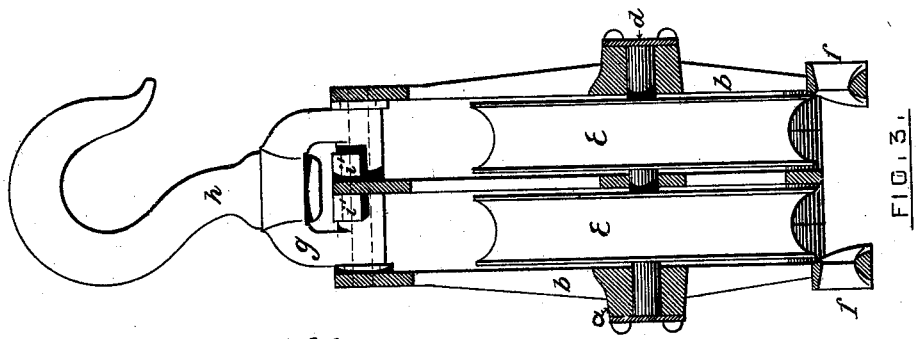

FIG. 3.

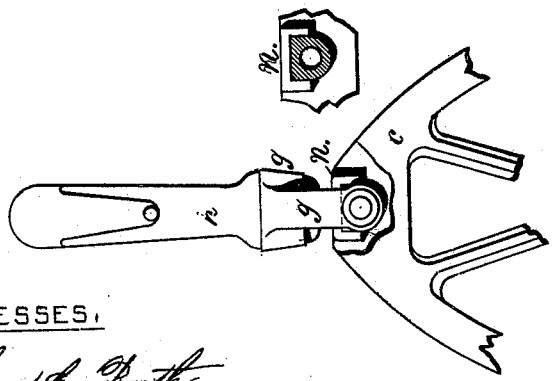

FIG. 4.

WITNESSES.

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IMPROVEMENT IN TACKLE-BLOCKS.

Specification forming part of Letters Patent No. **189,774**, dated April 17, 1877; application filed November 4, 1876.

To all whom it may concern:

Be it known that I, JOSEPH W. NORCROSS, of the city of Boston, 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 of the same, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a side view of my improved tackle-block; a part of the frame is broken away to show the manner of securing the stirrup in which the hook is swiveled. Fig. 2 is a vertical section of a single block. Fig. 3 is a sectional view of a double block, and Fig. 4 shows the manner of securing the swiveled hook to a double block.

The object of this invention is to produce a metal block which shall be light and still strong; which shall be as open as possible, so as to allow the wind to pass through the same; that shall be, in every respect, superior to the wooden block, and can be manufactured at a less cost than other blocks as heretofore made.

The invention consists in constructing the block-frame of sides made of narrow tapering ribs, uniting in a central hub, in which the bearing for the sheave-axle is secured, the axle being fast in the sheave, and turning with the same in the bearings of the hub, the ends being protected by caps and oil-holes provided to lubricate the bearings; and in the manner of securing the sides together, and providing becket-holes, as also the arrangement of the hooks, &c., as will be more fully set forth hereinafter.

In the drawings, *a* is the central hub. *b b* are the radial arms, made deeper near the hub, as is shown in Figs. 2 and 3. *c* is the rubber rim of the block-frame. *d d* are the caps protecting the ends of the sheave-shafts. E is the sheave; *f f*, the becket-holes, arranged with raised edges to give a firm bearing to the same. *g* is the stirrup in which the hook *h* is secured, and in which it may freely turn. This stirrup is shown in Fig. 1 arranged for a single sheave-block, and in Fig. 3 for a double sheave-block. When a loose hook or eye is to be secured to the block-frame, the stud *m*, arranged to enter the bosses *i i*, is placed between the same, as shown, and secured by a bolt or pin. A stud arranged as the stud *m* shown not only adds strength to the connection, and makes the same more rigid, but the bolt, pin, or rivet is relieved from strain, and the link is more firmly secured. In a double or triple block, the partition-frame is provided with projecting bosses *i' i'*, into or under which the stirrup passes, so that the stirrup and hook will be firmly maintained in the proper position, as is shown at *n*.

By the peculiar arrangement of the radial arm *b*, by which the central hub is secured, held, and braced within the rim *c*, and by increasing the depth of the radial arms near the hub, a light block-frame possessing great strength is secured for under excessive strain, the upper arms will be subjected to a tensile strain, the horizontal arms will act as braces, and will be, like the two lower arms, subjected to compressing strain, and the whole of the rim *c* to tensile strain, and so the strain on the sheave will be, equally distributed over the whole frame.

The becket-holes *f f* allow of the becket being so arranged that the blocks in a tackle can be brought close together, and the tackle can be rove without overhauling the whole tackle.

To relieve the pins, bolts, or rivets by which the sides are secured together at the point or points where the hook or link is secured, and where all the strain is exerted, such hooks, or the stirrups by which they are secured, are arranged with shoulders, and constructed to enter the bosses, so that the pins, bolts, or rivets are relieved from strain, and the frame is held together more rigidly. The central hub, being arranged to form the bearing for the sheave-axle, and provided with oil-holes, is made to project outward, and arranged so as to give a long and firm bearing to the axle, so as to prevent wear, and allow the sheave to turn freely with the least possible friction.

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

1. In a block-frame, the combination, with the central hub *a*, of the radial arms *b b*,

tapering from the hub toward the rim, and the rim *c*, arranged substantially as and for the purpose described.

2. The combination, with the open cast-metal block-frame *a b c*, of the becket-holes *f f*, arranged in the sides of the frame, substantially as described.

3. The combination, with the open cast-metal block-frame, substantially as described, of the stirrup *g'*, arranged for a single block, and secured within the bosses *i i*, substantially as described.

4. The combination, with the partition-frame of the double block, of the square recessed bosses arranged so as to maintain the stirrup *g* in its proper position, and also relieve the pin, bolt, or rivet from part of the strain, as described.

5. A block consisting of the sheave E, one or more of them, the sides or frames having an egg-shaped outline and rim, and radial arms connecting the central hub with the rim, and arranged so that all the strain exerted on the sheave is distributed substantially as described, so as to secure great strength with the least material.

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Witnesses:
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