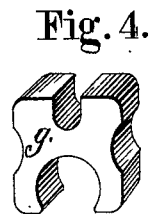
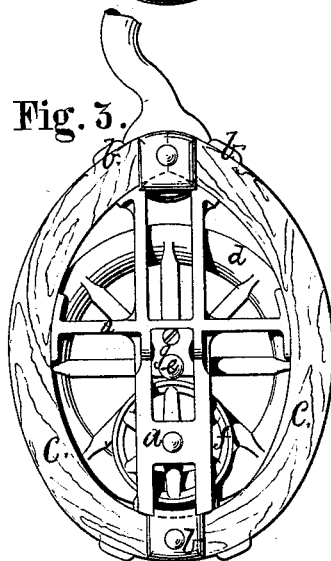
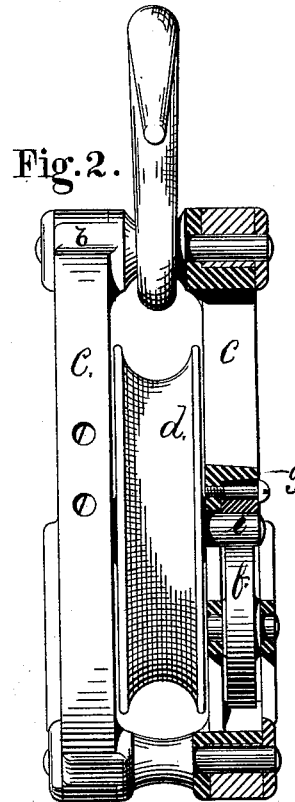
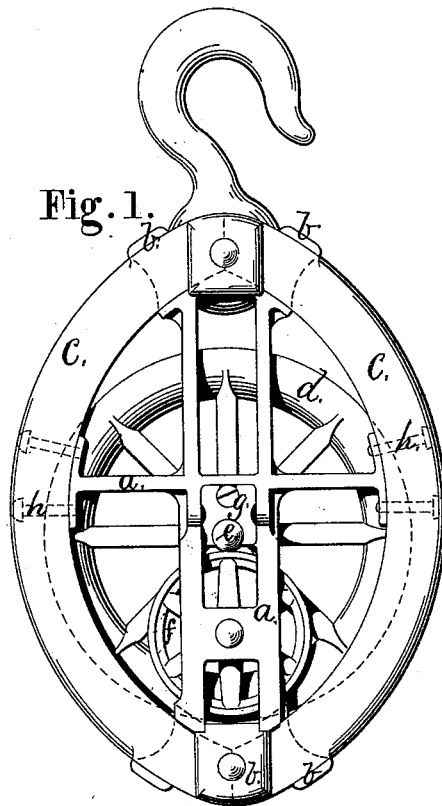


J. W. NORCROSS.  
Tackle-Block.

No. 220,645.

Patented Oct. 14, 1879.



WITNESSES:

Chas. L. Kelder  
William L. Cook

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Attorney

# UNITED STATES PATENT OFFICE.

-JOSEPH W. NORCROSS, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN TACKLE-BLOCKS.

Specification forming part of Letters Patent No. **220,645**, dated October 14, 1879; application filed January 29, 1879.

*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 new and useful Improvements in Tackle-Blocks; and I 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.

This invention has reference to improvements in the construction of open-frame tackle-blocks, and consists in the peculiar arrangement, with a cast-metal frame, of a bent wood rim, thus combining the advantages of a wooden tackle-block in which the sides form rope-guards not liable to chafe or injure the rope and the light open frame-work of a cast-metal frame.

It further consists in the novel manner in which an easily-exchangeable axle-bolster is secured to the side frames, all of which will be more fully set forth hereinafter, and pointed out in the claims.

Figure 1 is a side view of my improved tackle-blocks, showing the side frame, the bent wooden rim, made in two parts, the detachable axle-bolster, the sheaves, and the anti-friction wheel. Fig. 2 is an end view of the block, showing one of the side frames in section. Fig. 3 is a view of my improved tackle-block with the bent wooden rim made in one piece, jointed at the upper end of the block. Fig. 4 is a perspective view of the detachable axle-bolster.

In the drawings, *a* represents a cast-metal frame, provided with the clamps *b*, arranged to receive the bent rim *c*, which may be made of one piece of bent wood, united at one end, as shown in Fig. 3, or in two pieces, as shown in Fig. 1. *d* is the sheave, and *e* the axle, resting and rolling on the anti-friction sheave *f*. *g* is a detachable bolster, secured by a screw to the frame *a*, and arranged to hold the sheave-axle in its place on the anti-friction sheave or roller. The bolster *g* may be renewed when worn, and as this is the part that wears most, the block will wear a long time if the bolster is renewed when worn.

The bent rim may be secured by screw-bolts, or it may be held against the frame by clamps only.

It is obvious that this combined metal and

bent wood frame may be adapted for any kind of tackle-blocks, and to blocks with any desired number of sheaves.

Various advantages are secured by this construction: First, all the metal used resists a compressive strain only, and is therefore not liable to break in cold weather; second, the bent rim of wood receives all the tensile strain, which, from the nature of the material, it is best fitted to resist, and also resist under all temperatures; third, solid wooden blocks are liable to check and shrink, and must be secured by straps, but as the grain of this bent wood rim is all in the direction of the strain, it is neither liable to shrink nor check; fourth, all solid side blocks are liable to become useless by ice, as the water freezing between the sheaves and the sides fastens the sheaves, and this cannot be removed. An open-side cast-metal frame is not so liable to freeze solid, and the ice can be readily removed.

This composite block has the advantage over cast-metal blocks in lightness, appearance, strength, and in providing a rope-guard of wood on each side of a sheave not liable to injure the rope. It can be constructed as cheap, or cheaper, than a cast-metal or a solid wooden block.

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

1. A tackle-block formed of a metallic spider-frame in the middle, surrounded by a bent wooden rim, substantially as and for the purpose described.

2. The combination of the metallic spider-frame, having clamps *b b*, arranged to hold and support the ends of the bent wooden rim *c*, substantially as and for the purpose described.

3. The combination of the metallic frame, the bolster *g*, anti-friction roller *f*, and the axle of the sheave, substantially as and for the purpose described.

In testimony that I claim the above as my invention I have hereunto set my hand.

JOSEPH W. NORCROSS.

Witnesses:

H. S. BABCOCK,  
JOSEPH A. MILLER.