

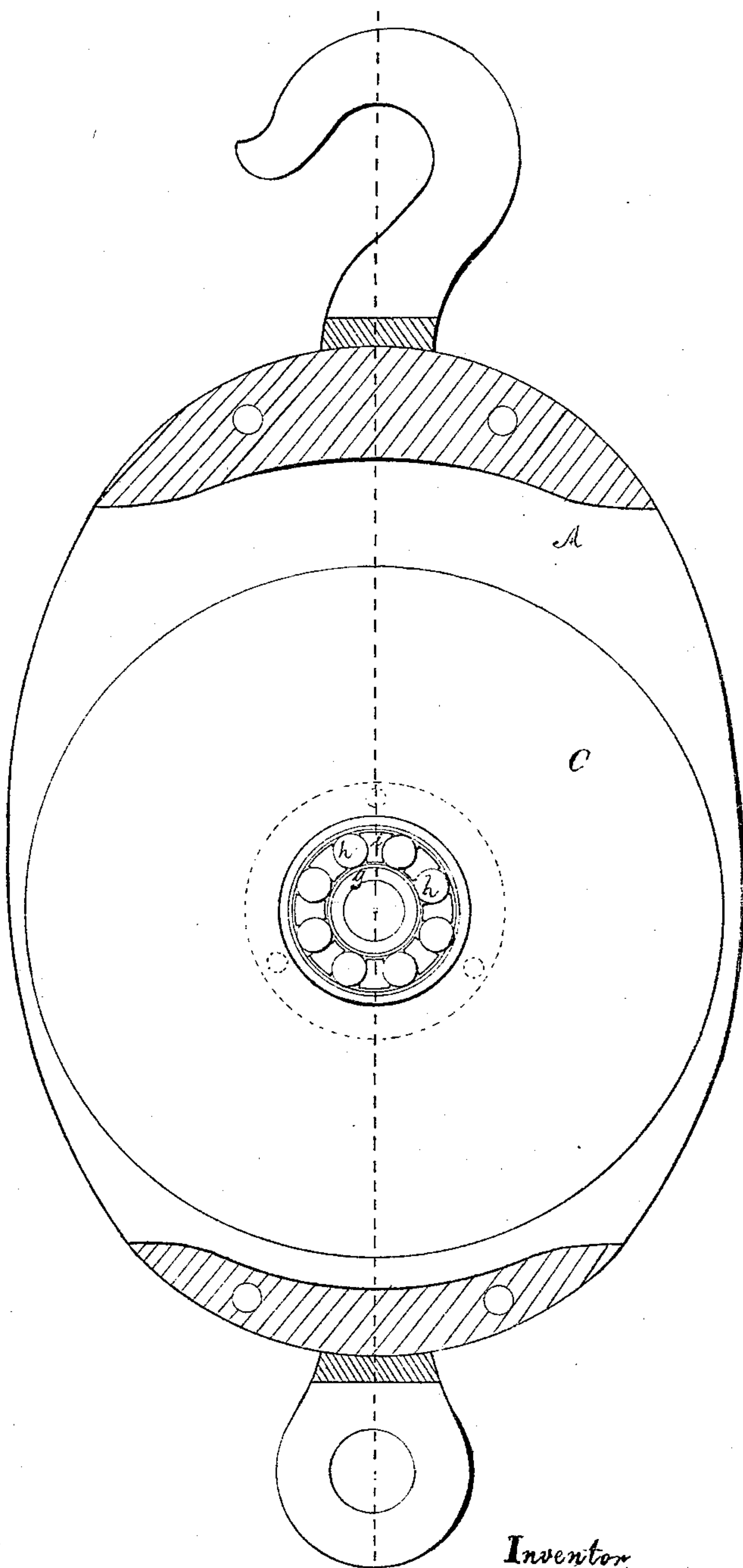
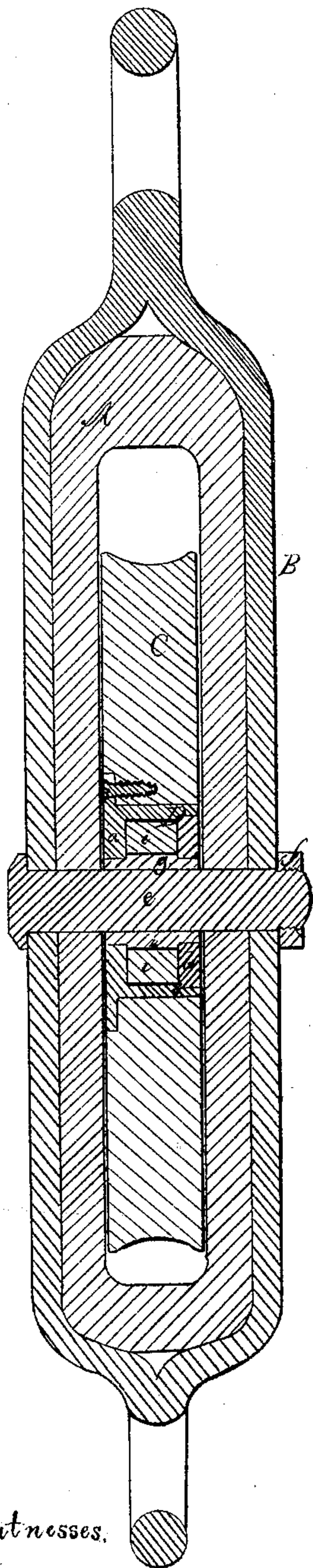
*W. Duchemin,  
Hoisting Block.*

*N<sup>o</sup> 34,295.*

*Patented Feb. 4 1862.*

*Fig. 2.*

*Fig. 1.*



*Witnesses.*

*Inventor.*

*Thos. R. Roach  
P. B. Schumacher*

*W. Duchemin*



# UNITED STATES PATENT OFFICE.

WATSON DUCHEMIN, OF CHARLOTTETOWN, PRINCE EDWARD ISLAND.

## IMPROVED ANTI-FRICTION BEARING OF HOISTING-BLOCKS.

Specification forming part of Letters Patent No. 34,295, dated February 4, 1862.

*To all whom it may concern:*

Be it known that I, WATSON DUCHEMIN, of Charlottetown, Prince Edward Island, have invented an Improved Bushing or Anti-Friction Bearing for the Sheaves of Hoisting-Blocks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of a block with part of the shell removed; Fig. 2, a section through the middle of the block on the line *y y* of Fig. 1.

I am aware that a bushing containing friction-rolls has been inserted in the sheave of a block, the friction-rolls bearing upon and rolling in contact with the axle on which the sheave turned. This, owing to the comparatively small diameter of the axle, necessitated the employment either of small friction-rolls, which would not bear a great weight suspended on the block without danger of cutting into the bushing or of being crushed out of shape; or if a smaller number of rolls of a greater size were used they did not operate to so good an advantage as they would have done, if placed around a larger circle, and when a weight was left suspended on the block the axle was liable to be pressed in between two adjacent rolls and force them apart, breaking the bearings which held the rolls in position, and when a roll or its bearing was broken or deranged the block was rendered inoperative. These objections I have avoided in my improved bushing, in which a ring or loose sleeve is introduced between the axle and the friction-rolls, which increases the diameter of the circle of rolls and prevents the liability of the axle crushing in between any two rolls, and in case of accident to any of the rolls furnishes a surface on which the sheave may revolve, as it does in the ordinary block, which is not furnished with friction-rolls.

That others skilled in the art may understand and use my invention, I will describe the manner in which I have carried it out.

In the said drawings, A represents a wooden block; B, the strap; C, the wooden sheave, in the center of which is inserted a metal bushing D of the following construction: The box *a*, of brass or other suitable metal, is let into the sheave, and is secured in place by screws *c* or by rivets passing through its rim. A cap B closes the other side of the box. It rests

on a shoulder 3 on the inside of the box, and is secured by pins or screws passing through the side of the box into the edge of the cap.

E is the pin or axle on which the sheave revolves. It passes through and fits in the strap B and is secured by a nut *f*. A sleeve *g* is introduced into the bushing D, through which the pin E passes, and which turns freely on the pin. It is turned down at each end where it passes through the face of the box *a* and through the cap *b*, leaving a larger portion 4 in its middle, which prevents its working out endwise. Between the sleeve *g* and the box *a* is introduced a series of friction-rolls *h*, on which the sleeve rolls, and a series of blocks *i*, Fig. 1, one of which is placed between each roll *h* to keep them apart and prevent their grinding one on the other. These blocks are of the same length as the rolls; but their depth is rather less than the diameter of the rolls, so that the sleeve shall bear on the rolls.

The circle of friction-rolls is thus increased in size by the thickness of the sleeve, which causes the rolls to operate more freely than they would in a smaller circle, and if from any great or sudden strain the rolls should be crushed and cease to operate the pin E will turn freely in the sleeve *g*, and the block will be as efficient and run as easily as an ordinary block.

This construction of bushing also has another advantage, that when a weight is suspended on the block the axle or pin E cannot lie between any two of the rolls *h* and force them apart, as is liable to be the case in some other blocks in which friction-rolls are used, and in which the pivots of the rolls are often broken in this manner.

Instead of the blocks *i* between the rolls *h*, smaller intermediate rolls may be introduced, one between each roll *h*, in which case the smaller rolls will run in grooves formed in the box *a* and cap *b* for the purpose.

My improvements may also be applied to metallic blocks and sheaves.

What I claim as an improvement in bushing for sheaves of hoisting-blocks is—

The sleeve *g*, operating in combination with the box *a* and friction-rolls *h*, substantially as described.

WATSON DUCHEMIN.

Witnesses:

THOS. R. ROACH,

P. E. TESCHEMACHER.