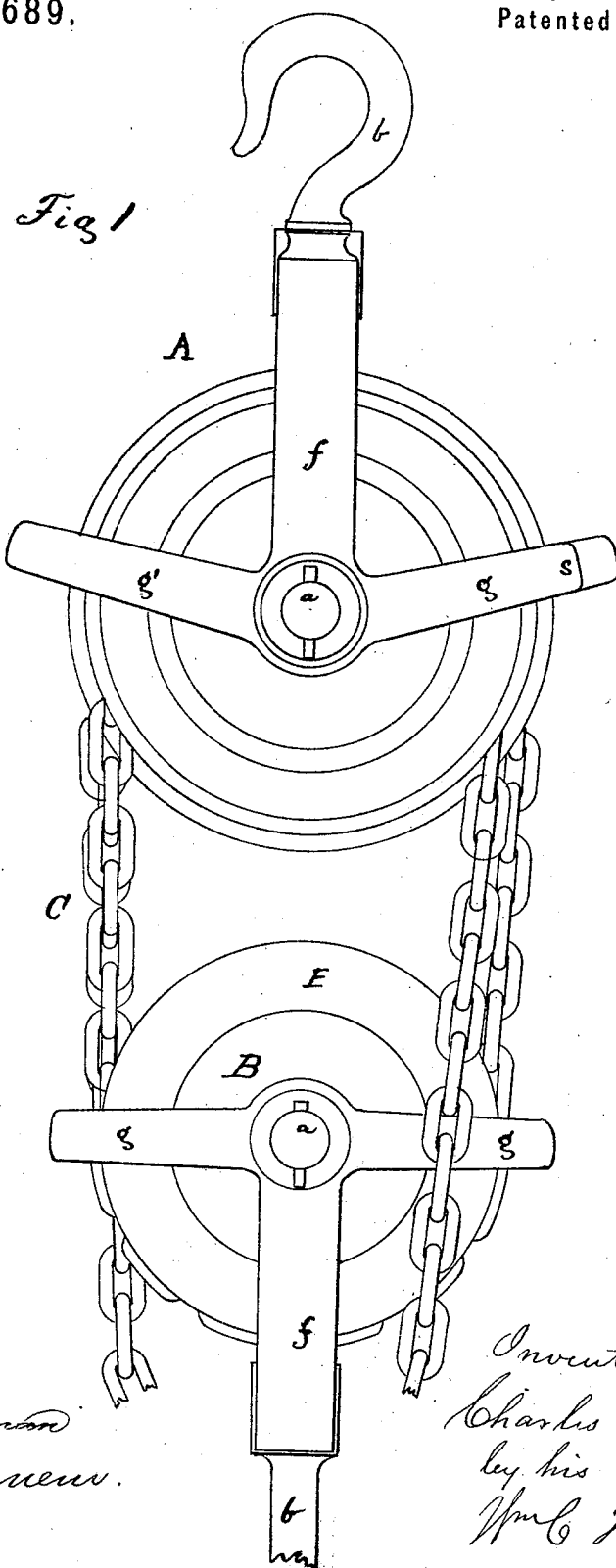


CHARLES HALL.
Improvement in Differential Pulley-Blocks.
No. 127,689.

3 Sheets--Sheet 1.
Patented June 11, 1872.



Witnesses
Louis Seaman
W. L. Meunier.

Inventor
Charles Hall
by his atty
Wm C Hicks

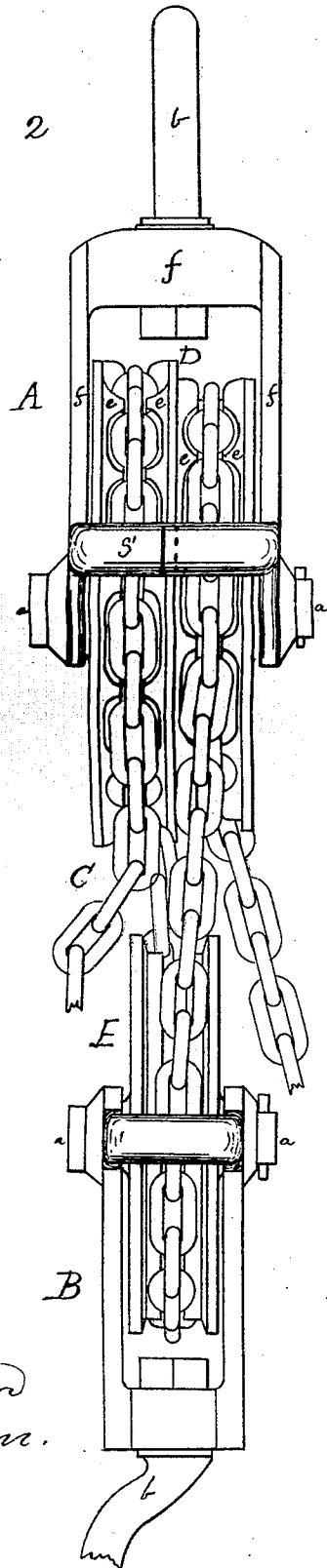
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Fig 2



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UNITED STATES PATENT OFFICE.

CHARLES HALL, OF NEW YORK, N. Y.

IMPROVEMENT IN DIFFERENTIAL PULLEY-BLOCKS.

Specification forming part of Letters Patent No. 127,689, dated June 11, 1872.

To all whom it may concern:

Be it known that I, CHARLES HALL, of the city, county, and State of New York, have made an invention of certain new and useful Improvements in Differential Pulley-Blocks; and that the following is a full, clear, and exact description and specification of the same.

This invention relates to pulley-blocks using short-link chain, which requires the sheaves to be grooved so that the alternate links of the chain may lie flatwise upon the cylindrical peripheries of the pulleys, the edges of the intermediate links being received in the grooves. The objects of the invention are to prevent the twisting of the chain as its links operate upon the sheaves, and also to prevent the accidental displacement of the chain from the grooves of the sheaves. To these ends the invention consists of certain combinations of mechanical devices, which are set forth specifically at the close of this specification; and in order that the invention may be fully understood, I have represented in the accompanying drawing, and will proceed to describe, a set of differential pulley-blocks embodying it.

Figure 1 of said drawing represents a side view of a set of pulley-blocks. Fig. 2 represents an edge view of the same. Fig. 3 represents a top view of the upper pulley-block. Fig. 4 represents a top view of the lower pulley-block.

A set of blocks consists mainly of the upper differential pulley-block A, the lower pulley-block B, and the short-link chain C, by which they are connected. Both blocks, A and B, are fitted with grooved sheaves; D and E, the grooves of the sheave of the upper block A, being formed with lateral projections, as at *e*, so as to take a firm hold of the chain. Each sheave is constructed to turn upon a pin, *a*, which is connected with swivel-hook *b* by means of the frame *f* of the block. The frame of each block is provided with arms *g g*, which embrace the sheave, and are so constructed and arranged in relation to the grooves of the sheaves that the chain is properly guided to said grooves and is prevented from being displaced therefrom.

The upper block A in this example has its arms *g g'* connected to the frame *f* at an angle less than a right angle to allow the chain to be

drawn by the hand of the operator tangentially to the grooves of the upper block when standing at a convenient distance from the blocks, and, at the same time, allow the connecting and guiding bars S S' to be nearly in contact with the outer peripheries of the sheaves to guide the chain properly to the grooves and prevent its displacement. As the sheave of the upper block is a differential sheave, having peripheries of two different diameters for the two members of the chain, a corresponding variation is made in the lengths of the arms *g g* that the guide-bars S S' may come nearly in contact with the sheaves to guide the two members of the chain to the grooves and prevent their escape therefrom. The lower block B has its frame *f* connected to a swivel-hook, *b*, and is provided with arms *g g'*, which embrace the sheave, and are so constructed that the links of the chain are prevented from being displaced from the grooves of the sheave or from being twisted while the operator is in the act of attaching the hook *b* to the weight to be raised.

The construction of the arms *g g'* is peculiar at that part which is nearest the grooves of the sheave, as they are united to pass around the sheave in the form of a curve, the center of which is the center (or thereabout) of the circle of that bar of the link of the chain which enters the groove when the chain is in the groove, and the radius of which is the distance from said point to the outside of the opposite bar of the same link. By this construction the chain cannot be twisted enough to cause it to entirely leave the groove, nor can it be made to catch between the arms of the frame and the flanges of the sheave when the whole block is turned sidewise to attach the hook *b* to the weight to be raised.

Having thus described a set of differential pulley-blocks embodying my invention, I declare that I am aware that differential pulley-blocks have been constructed with toothed wheels and with cylindrical rollers for holding flat-chain bands in engagement with the teeth of such wheels; I have also received several patents in which lateral grooved guides and other chain guides have been described. I, therefore, do not intend to claim either of said previous constructions; but

A. S. HALLIDIE.

Improvement in Gripping-Pulleys.

No. 127,690.

Patented June 11, 1872.

Fig. 1.

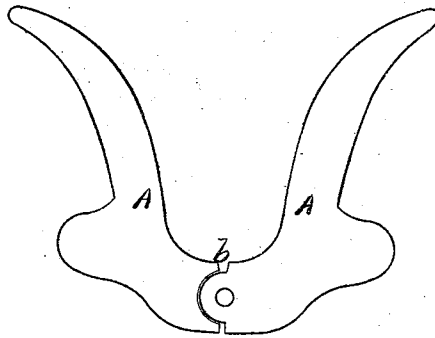
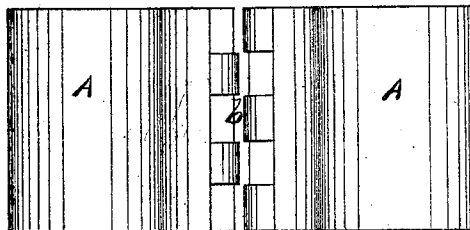


Fig. 2.



Witnesses

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