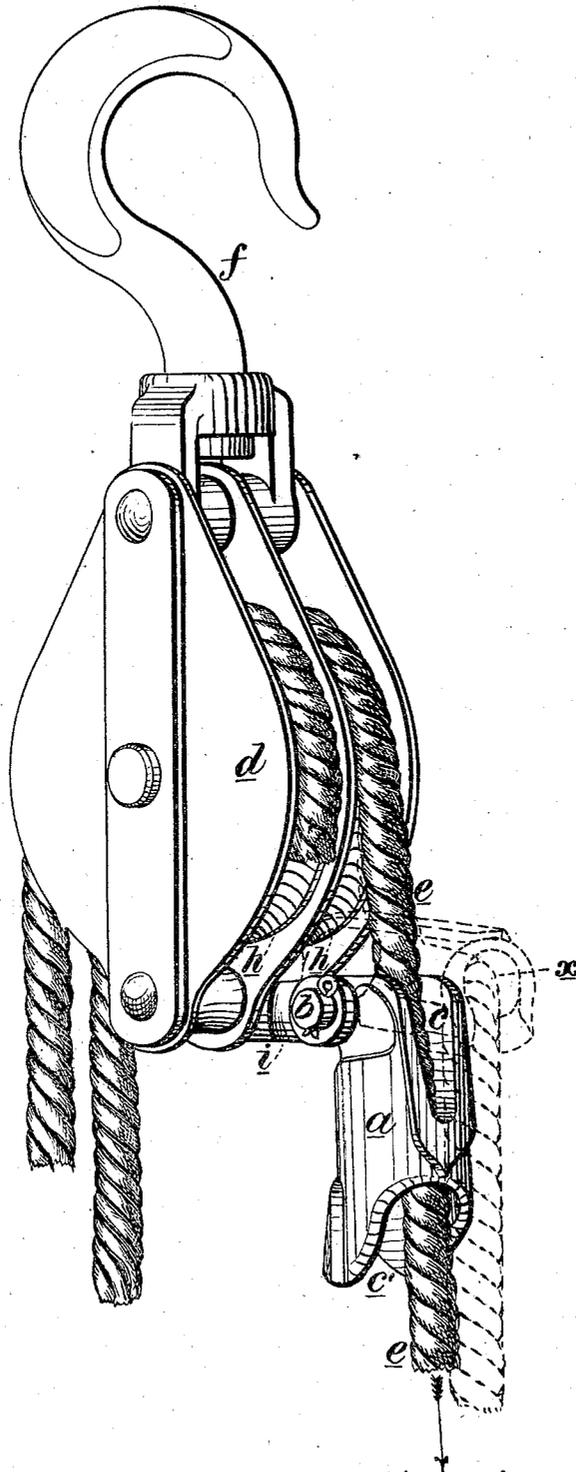


J. N. FLOYD.  
Differential Pulleys.

No. 147,625.

Patented Feb. 17, 1874.



Witnesses, Hubert Howson  
Harry Smith

John Nicholas Floyd  
by his attys,  
Woods and Son.

# UNITED STATES PATENT OFFICE.

JOHN N. FLOYD, OF BIRMINGHAM, ENGLAND.

## IMPROVEMENT IN DIFFERENTIAL PULLEYS.

Specification forming part of Letters Patent No. 147,625, dated February 17, 1874; application filed January 2, 1874.

*To all whom it may concern:*

Be it known that I, JOHN NICHOLAS FLOYD, of Birmingham, in the county of Warwick, England, have invented an Improvement in Pulley-Blocks, of which the following is a specification:

The object of my invention is to instantly brake or arrest the motion of the rope or chain of a pulley-block at any desired point during the descent of the weight; and I attain this object by combining a pivoted tubular guide, *a*, with a pulley-block, as shown in the accompanying drawing, so that it shall serve as a braking or arresting device for the rope or chain, under the circumstances described hereafter.

The pulley-block may be similar to those of ordinary construction. In the present instance it has the usual frame *d*, a suspension-hook, *f*, and sheaves *h h*. To a pin, *b*, on the outer extremity of a projection, *i*, at the bottom of the frame, is pivoted the tubular guide *a*, through which is passed the free end of the rope or chain *e*, the said guide being arranged to turn freely upon its pivot from the vertical position shown in full lines to the horizontal or nearly horizontal position indicated by dotted lines in the drawing. In the upper portion of the tubular guide there is a V-shaped slit, *c*, for a purpose explained hereafter. On pulling the free end of the rope or chain *e* in the direction of the arrow, so as to hoist a weight, the said rope will travel freely and unobstructedly through the tubular guide *a*, and the latter will offer no obstruction to the free passage of the rope in the contrary direction when the weight is being lowered, pro-

viding said rope is so held as to travel directly through the guide. On pulling the rope or chain laterally, however, out of its direct course, so as to cause it to bear against one side of the tubular guide, the latter, following the direction of the movement of the rope, will be turned upward upon its pivot *b* to the position indicated by dotted lines, and the rope entering and becoming wedged in the V-shaped slit *c*, and being bent abruptly at the point *x*, will be arrested and the lowering of the weight discontinued. The rope may be released, however, by simply pulling it downward, so as to restore the tubular guide to its normal pendulous position. I propose, in some instances, to form a second V-shaped slit, *c'*, in the lower rear portion of the tubular guide, so as to retain the rope still more firmly, and, in other instances, to form a continuous slit in one side of the guide communicating with the central opening, through which the rope may be passed laterally in adjusting it to the guide. In some cases, also, the guide may be swiveled as well as pivoted.

I claim as my invention—

The combination of a pulley-block and a suspended tube, *a*, having a slot into which the rope may be drawn and wedged, substantially as and for the purpose set forth.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN NICHOLAS FLOYD.

Witnesses:

B. GOULD, *U. S. Consul.*  
J. BRAMS.