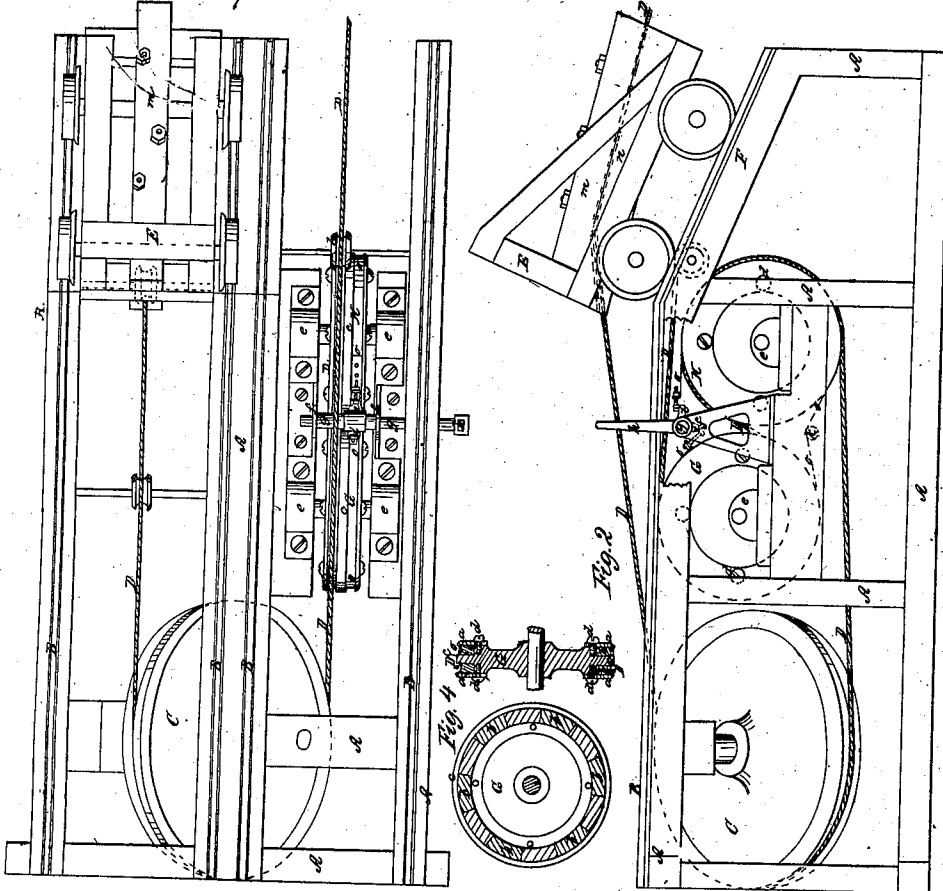


*R. A. Wilder,*

*Elevator.*

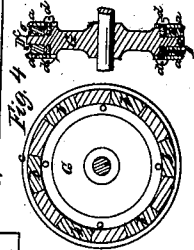
*No 34,710.*

*Patented Mar. 18. 1862.*



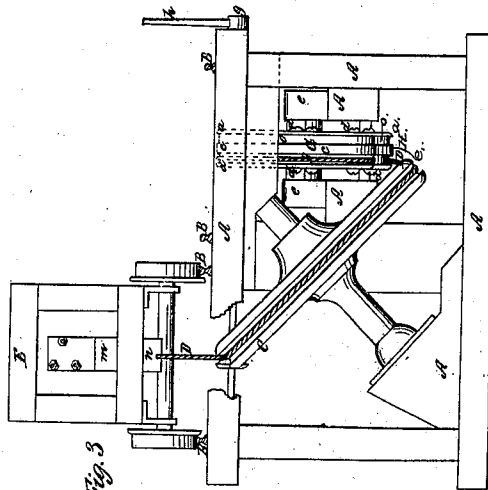
*Fig. 1*

*Fig. 2*



*Fig. 3*

*Fig. 4*



*Fig. 5*

*Witnesses*  
*John H. Smith*  
*Henry H. Smith*

*Inventor:*  
*R. A. Wilder*  
*By atty A. H. Doughton*

# UNITED STATES PATENT OFFICE.

R. A. WILDER, OF CRESSONA, PENNSYLVANIA.

## IMPROVEMENT IN HOISTING-MACHINES.

Specification forming part of Letters Patent No. 34,710, dated March 18, 1862.

### *To all whom it may concern:*

Be it known that I, R. A. WILDER, of Cressona, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Hoisting-Machines for Gravity Planes on Railroads; and I do hereby declare the following to be a full, clear, and exact a description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a top plan of the machine. Fig. 2 represents a side view. Fig. 4 represents a view from one of the ends, and Fig. 5 represents a side view and section of one of the friction and brake wheels.

Similar letters of reference where they occur in the separate figures denote like parts of the apparatus in all of the drawings.

A represents a frame for sustaining the machinery, and B B the rail-tracks thereon.

C is the large wheel, around which the cable passes, and is in this case inclined, so as to carry the cable from one track to the other, and from near the top of the track on one side to the under side of the friction or brake wheels on the other track, or, rather, under the track.

D represents the cable, which I prefer to make of wire, and E a car attached thereto, (in a particular manner, as I shall hereinafter describe,) and shown as being on the inclined plane F. This represents the general character of the hoisting-machine. Its special characteristics, and that which constitutes my invention, I will more particularly describe hereinafter.

On the 1st day of May, 1860, Letters Patent of the United States were granted to me for the construction of a wheel around which a wire-rope cable was to pass, and in which the perimeter of that portion of the wheel which received the cable was made of blocks of wood, in sections, and with the end of the grain of the wood toward the circumference of the wheel. In my present invention I make that part of the wheel or wheels which receives the cable also of wooden blocks, and in addition thereto I make another ring of blocks to receive a metallic collar or strap for checking said wheels when necessary. These rings or blocks, being removable and replaceable at pleasure, can be easily repaired, and there is

much less slip and much less chafing between the cable and the wood and the brake band or bar and the wood.

The first part of my invention consists in combining the iron or metallic brake-bar with rings of wood in the form of movable blocks inserted in the recesses formed on the perimeter of the friction and brake wheels; and, secondly, my invention consists in attaching the rope to the car by clamping it between two pieces of timber or its equivalent in grooves formed to fit the strands of the rope.

G and H represent two friction and brake wheels made substantially alike—that is to say, with removable flanges *a a* for holding a ring or rings of wood made of blocks *b b*, having the end of the grain of the wood toward the rims of the wheel.

*c* is a middle ring or flange, and may be rigid or removable, as may be preferred, its main purpose being to divide that part of the wooden ring which receives the cable from that part which receives the brake-band, so that either may be repaired without repairing the whole. When solid, it affords a support for the removable flanges as well as for the blocks of wood, and would probably be always so made.

The flanges, wooden rings, and central piece *c* are all united together by screws *d*, or otherwise, to make the whole strong.

The wheels G H are hung in suitable boxes *ee*, as shown in the drawings, and upon blocks *ff* between them is supported a shaft *g*, having a lever *h* on one of its ends, by which it can be rocked or turned. On this shaft *g* there are arms *ii*, to which the ends of the brake-bar *oo*, that surrounds a large portion of the perimeter of each wheel G and H, are attached, and the under side of the brake-bar *o*, which may be of strap iron or steel, may be held up to the perimeters of said wheels by a rod or roller at *k*, or by any other means. This metal band *o* is in contact with the ring of wood, and by bearing upon the lever *h* the wheels G H can be retarded or stopped at pleasure. The cable, after passing around the large wheel C, (as shown more particularly in Fig. 2,) goes thence underneath the wheels G and H, thence up, over, and around the wheel H, then down between H and G, and thence up, around, and over the wheel G, and over the pulley *l* to keep it

above the wheel H, and may extend to the foot of the plane up which the cars or weight is to be drawn or let down. The cable thus encircling the wheels will only move with the wheels, and whenever the brake-band *o* is applied and the wheels stopped from moving, whether from the gravity of the descending load or whether moved by steam or other power, the cable will also stop moving, so that the operator has the movement of the cable entirely under his control.

The method of attaching the rope to the car or weight to be moved is by clamping it between the two pieces of timber *m n*, or their equivalent, in grooves formed in said pieces to fit the strands of the rope, as shown by dotted lines in Fig. 2. By this method of uniting the rope and car or other weight the rope may be fastened in a perfectly secure manner, either at the end or at any distance from the end without injury to the strands. The advantage of this mode of fastening is obvious when it is necessary to increase or diminish the distance between the attaching points, instead of winding the cable on a drum or roller, as is commonly done. The grooves

which I make in the clamping-pieces *m n* are of the form in reverse of the strands laid into the rope or cable.

I am aware that pulleys have been so formed in their grooves as to receive and hold a chain therein, the said grooves being made of the shape in reverse of the chain. This I of course lay no claim to.

Having thus fully described my invention, what I claim is—

1. The combination of the brake-band with the rings of wood or other material substantially the same inserted in recesses on the perimeters of the brake-wheels, substantially as and for the purpose set forth.

2. Attaching the rope or cable to the car or other weight to be raised or drawn up by clamping it between two pieces of wood or other material (one or both of which should be fastened to said car or weight) in grooves of the shape in reverse of or formed to fit the strands of the rope, substantially as described.

R. A. WILDER.

Witnesses:

PHILIP G. MCCOLLIN,  
W. S. COULTER.