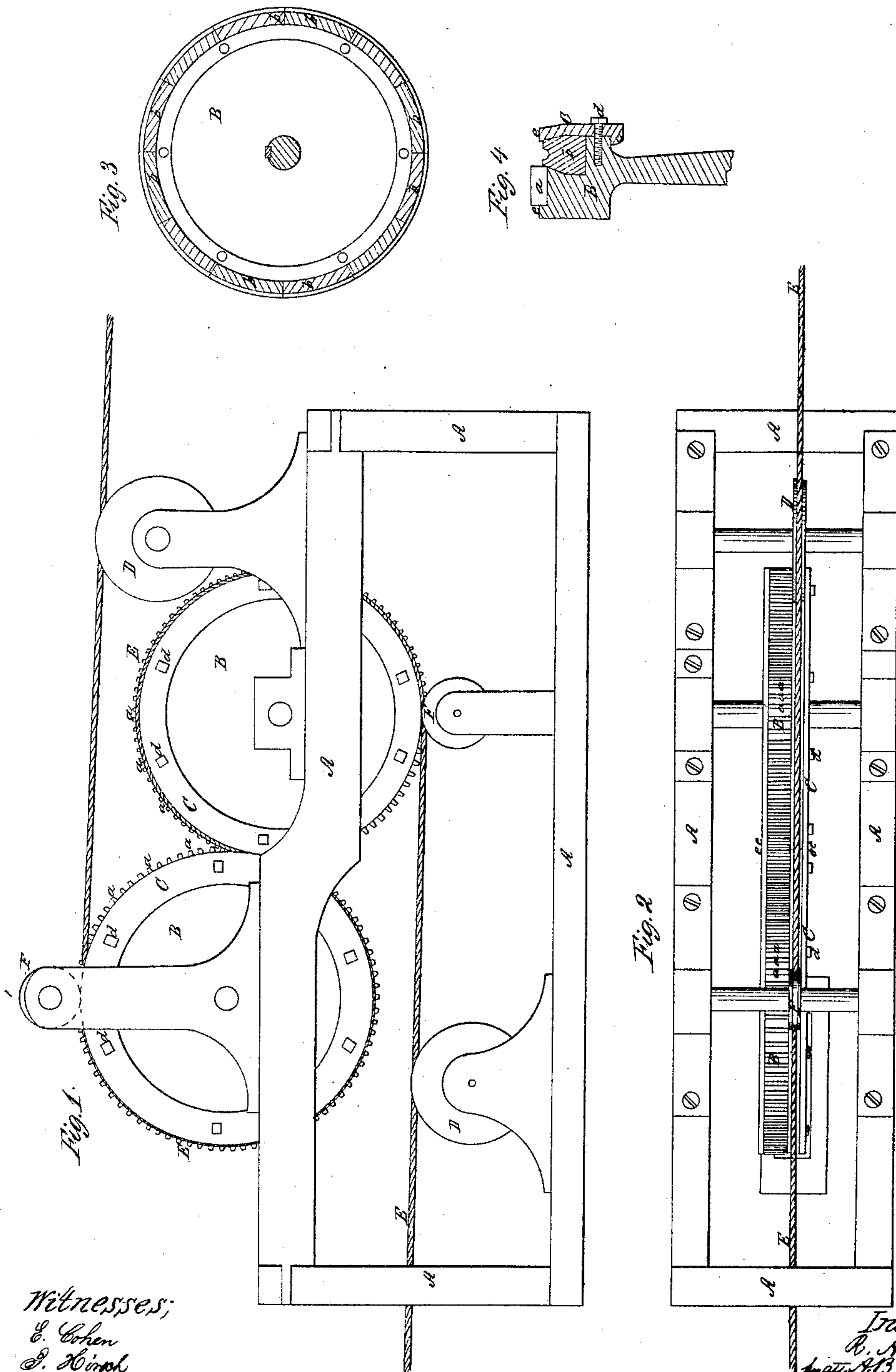


R. A. Wilder,

Elevator

N^o 28,122.

Patented May 1, 1860.



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UNITED STATES PATENT OFFICE.

R. A. WILDER, OF CRESSONA, PENNSYLVANIA.

HOISTING MACHINERY.

Specification of Letters Patent No. 28,122, dated May 1, 1860.

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 Machinery; and I do hereby declare the following to be a full, clear, and exact 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 side elevation of a pair of hoisting wheels, constructed and arranged after my plan and showing the manner of applying the hoisting rope or cable to them. Fig. 2, represents a top plan of the same. Fig. 3, represents a section through one of the hoisting wheels taken in a plane at right angles to its shaft or axis; and Fig. 4, represents on an enlarged scale a portion of a transverse section through one of said hoisting wheels.

Similar letters of reference where they occur in the several figures, denote like parts of the apparatus in all of them.

My invention consists, first, in the peculiar construction of the hoisting wheel, so that a bearing of wood can be applied thereto to receive the rope or cable, and be removed or replaced when occasion requires; second, in so constructing and arranging the shroudings on said wheels, as to take the major part of the strain upon said shroudings and relieve the journals of their shafts, without cramping or binding the gearing; third, the arrangement of the hoisting and guiding wheels, to keep the rope or cable in its proper position.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A represents a frame on which the hoisting apparatus may be mounted. And though I have represented the hoisting wheels as vertical, they may be arranged horizontally when the nature of the work to which they are to be applied may require it, without changing their characteristics.

The wheels B, B, are of similar construction, and may be cast in one piece, or in sections, and may have solid disk centers, or be made of arms and rim, properly united to a hub or center, for receiving a shaft or

axle upon which they are supported, and turn.

The cogged teeth *a*, *a*, &c. may be cast onto the rim or perimeter, and on the side or sides of the rim, a recess is formed which will receive a ring of wood *b*, made up of sections, with the end of the grain toward the outside, so as to receive the rope or cable in a groove, or grooves made in said ring of wood, and against the end of the grain of the wood.

The advantage of using wood, for the cable to run on or against, instead of metal, is that, there is less slip in the wood than in the metal, and besides there is less abrasion or chafing of the rope or cable, particularly when the rope or cable is made of wire. The wood can easily and readily be replaced when worn out, and at a fraction of the expense of replacing the rope or cable.

A flanged ring C—the flange *c* of which takes under the rim of the wheel, is bolted to the rim by screw bolts *d*, or otherwise, forming the outside bearing for the wood *b*. And it will be perceived that, the recess in the rim, and the angle in the flanged ring C, form together a dove-tailed recess which entirely prevents the wood from leaving it—the wood being of such form as to accurately fit said recess. The ring C may be in sections, so that to remove one or two of the sections of wood, the whole of the ring C may not require removal, but simply a portion of it, next where the wood sections are to be taken off or replaced.

e, *e*, are shroudings on the perimeters of the wheels, and the wheels are so arranged in their frame or supports, as that these shroudings shall run in contact with each other, and thus relieve the journals of the wheels from the heavy strain upon the cable. The shroudings on one side of the wheels, as herein represented, are formed by the rings C, C, and hence are not very strong—but they may be cast or formed on the solid part of the perimeter as shown on the opposite side from the rings C, if the double set of shroudings should be required.

The axles of the wheels B, B, are not in the same planes with each other—the object of this being to more readily apply and operate the rope or cable that passes around them.

D, D, are friction wheels for guiding

the rope or cable E, to, and from the working wheels B, B.

F, F, are guiding and holding wheels, for directing and holding the rope or cable to its grooves. The rope or cable passes around three-fourths of the whole perimeter of the wheels, making in its passage a figure something like a figure 8. Having this extent of surface to catch against, and besides having a wood surface, and grooves to run in—the friction alone of the cable, would raise an immense weight, without having any weight applied to the opposite end of the rope or cable; but when used on inclined planes for railroad purposes, there is generally a descending weight, at the same time that there is an ascending one, and the hold of the rope or cable then is sufficient for any weight that it is capable of moving. So too in hoisting from mines, there is a compensating resistance at the opposite end of the cable. The friction between the rope and cable for any ordinary hoisting purposes is abundant, and its application may be made highly useful in many ways, and for many purposes, which it is superfluous to mention.

The friction wheels D, D, may be placed

in an inclined position with regard to the working wheels B, B, instead of in the same plane with them as represented.

Having thus fully described the nature and object of my invention what I claim therein as new and desire to secure by Letters Patent is,

1. In combination with a hoisting wheel suitably furnished with cogs or other means of turning it, the ring or bearing of wood to receive the rope or cable that runs over it, constructed, arranged and operating, substantially as described.

2. I claim the shroudings e, on hoisting wheels, to take the strain of the burden upon the rope or cable, and thus relieve the journals or axles thereof, as set forth.

3. I claim in a hoisting apparatus the arrangement of the hoisting, friction, guiding and holding, wheels, and the rope or cable as herein described and represented—the whole forming a compact, reliable, and cheap hoisting apparatus, as set forth.

R. A. WILDER.

Witnesses:

W. S. COULTER,

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